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Market Forecast - Sample City

Created February 2017

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Forecast Summary

Forecast Growth Rates

	Actual		Forecast		
	2015	**2016**	**2017**	**2018**	**2019**
Supply	1.5%	1.9%	2.6%	2.6%	4.8%
Demand	0.2%	4.9%	2.9%	3.6%	3.1%
Occupancy	-1.3%	2.9%	0.2%	0.9%	-1.6%
ADR	6.1%	1.7%	1.7%	3.3%	3.1%
RevPAR	4.7%	4.6%	2.0%	4.3%	1.5%
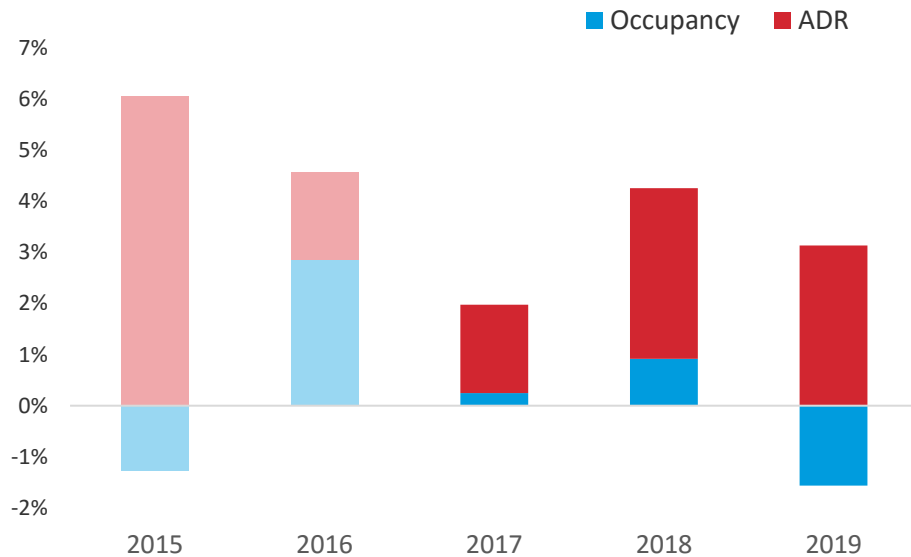
Forecast Highlights

● In 2016 Q4 supply expanded 1.1%. Demand expanded 4.3%, resulting in an occupancy gain of 3.1%. Occupancy is expected to expand by 2.3% in 2017 Q1, with supply expanding 1.5% and demand expanding 3.8%.

● After expanding 2.9% in 2016, occupancy is expected to expand 0.2% in 2017. ADR is expected to increase 1.7%, resulting in RevPAR growth of 2.0% in 2017. RevPAR is expected to grow 4.3% in 2018.

● Over the next three years, occupancy is expected to decline at an average annual rate of -0.1%, while ADR is expected to expand at an average annual rate of 2.7%.

RevPAR Growth Composition

Supply and Demand Growth

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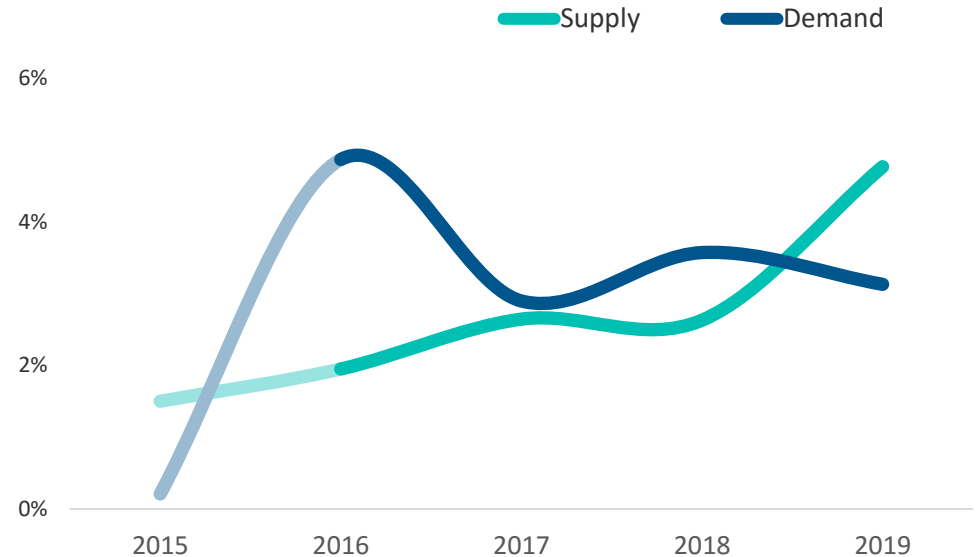
Annual Outlook

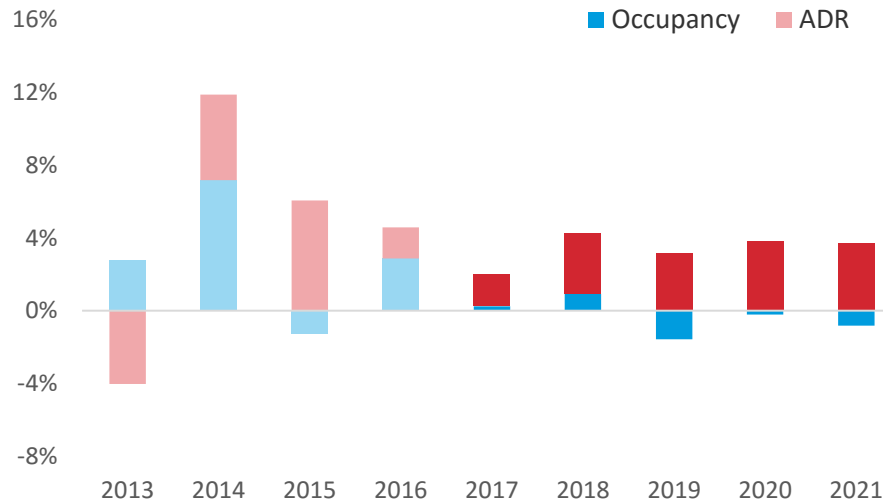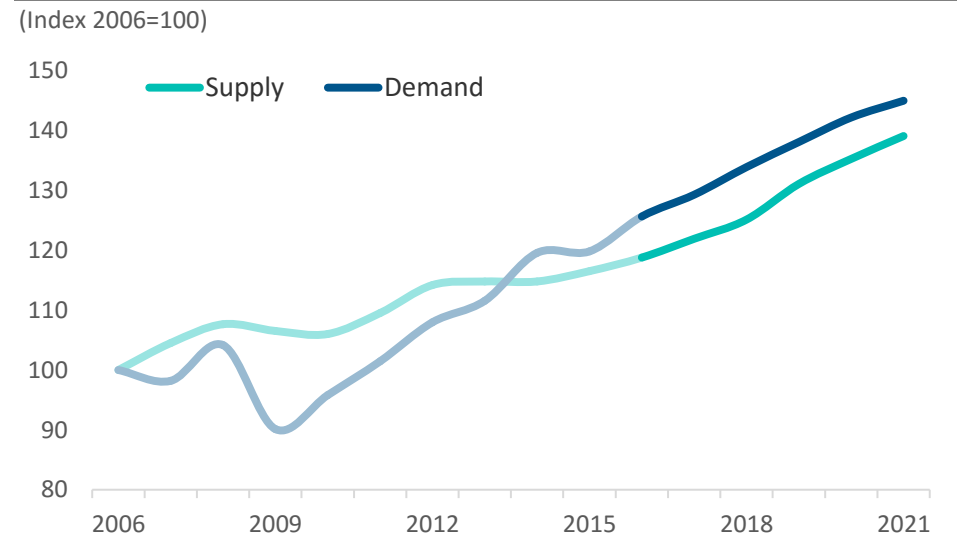|	Year	Occupancy		ADR		RevPAR		Supply		Demand		Revenue		Average Daily Supply	
		%	% Change	EUR	% Change	EUR	% Change	Room nights (millions)	% Change	Room nights (millions)	% Change	EUR (millions)	% Change	Avg daily rooms during year	% Change
Actual	2013	65.0%	2.8%	94	-4.0%	61	-1.3%	4.235	0.5%	2.751	3.3%	259	-0.8%	11,602	0.5%
	2014	69.6%	7.2%	99	4.7%	69	12.2%	4.235	0.0%	2.949	7.2%	291	12.2%	11,603	0.0%
	2015	68.7%	-1.3%	105	6.1%	72	4.7%	4.299	1.5%	2.955	0.2%	309	6.3%	11,777	1.5%
	2016	70.7%	2.9%	106	1.7%	75	4.6%	4.382	1.9%	3.099	4.9%	330	6.7%	12,007	1.9%
Forecast	2017	70.9%	0.2%	108	1.7%	77	2.0%	4.498	2.6%	3.188	2.9%	345	4.7%	12,324	2.6%
	2018	71.5%	0.9%	112	3.3%	80	4.3%	4.616	2.6%	3.302	3.6%	369	7.0%	12,648	2.6%
	2019	70.4%	-1.6%	115	3.1%	81	1.5%	4.836	4.8%	3.405	3.1%	393	6.4%	13,250	4.8%
	2020	70.3%	-0.2%	120	3.8%	84	3.6%	4.991	3.2%	3.506	3.0%	420	6.9%	13,673	3.2%
	2021	69.7%	-0.8%	124	3.7%	86	2.8%	5.132	2.8%	3.575	2.0%	444	5.7%	14,059	2.8%

RevPAR Growth Composition

Supply and Demand Index

(Index 2006=100)

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Quarterly Outlook

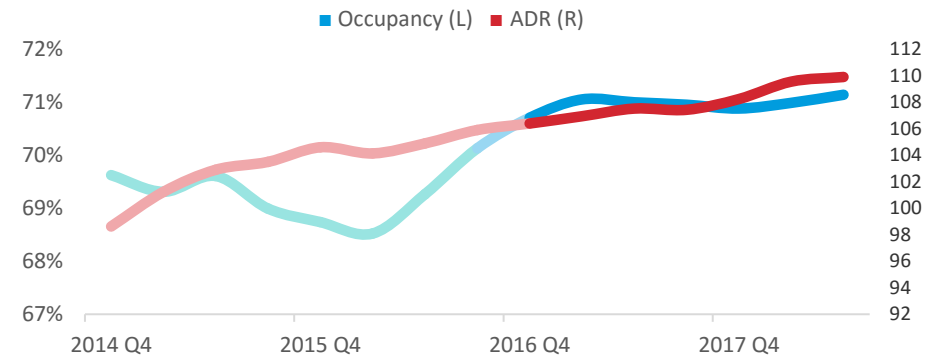|	Quarter	Occupancy %	Occupancy % Change	ADR EUR	ADR % Change	RevPAR EUR	RevPAR % Change	Supply Room nights (millions)	Supply % Change	Demand Room nights (millions)	Demand % Change	Revenue EUR (millions)	Revenue % Change	Average Daily Supply Avg daily rooms during year	Average Daily Supply % Change
Actual	2015 Q1	65.9%	-1.9%	108	11.4%	71	9.3%	1.044	0.0%	0.688	-1.9%	74.6	9.3%	11,603	0.0%
	2015 Q2	69.0%	1.8%	104	7.0%	71	8.9%	1.061	0.4%	0.732	2.2%	75.8	9.4%	11,654	0.4%
	2015 Q3	67.8%	-3.4%	98	2.4%	67	-1.1%	1.097	2.8%	0.744	-0.8%	73.2	1.6%	11,923	2.8%
	2015 Q4	72.1%	-1.5%	108	3.9%	78	2.4%	1.097	2.8%	0.791	1.2%	85.4	5.2%	11,923	2.8%
	2016 Q1	65.1%	-1.2%	106	-1.9%	69	-3.0%	1.074	2.8%	0.699	1.6%	74.4	-0.3%	11,930	2.8%
	2016 Q2	72.0%	4.3%	107	2.8%	77	7.2%	1.090	2.8%	0.785	7.2%	83.6	10.2%	11,979	2.8%
	2016 Q3	71.3%	5.0%	103	4.4%	73	9.6%	1.109	1.1%	0.791	6.2%	81.1	10.9%	12,058	1.1%
	2016 Q4	74.3%	3.1%	110	1.6%	82	4.8%	1.109	1.1%	0.825	4.3%	90.6	6.0%	12,058	1.1%
Forecast	2017 Q1	66.6%	2.3%	109	2.2%	72	4.5%	1.090	1.5%	0.725	3.8%	78.9	6.1%	12,108	1.5%
	2017 Q2	71.7%	-0.3%	109	2.1%	78	1.8%	1.115	2.3%	0.800	1.9%	87.0	4.1%	12,252	2.3%
	2017 Q3	71.1%	-0.3%	102	-0.2%	73	-0.5%	1.146	3.3%	0.815	3.0%	83.4	2.8%	12,457	3.3%
	2017 Q4	73.9%	-0.5%	113	2.7%	83	2.2%	1.148	3.5%	0.849	2.9%	95.7	5.7%	12,474	3.5%
	2018 Q1	67.1%	0.9%	114	5.1%	77	6.0%	1.126	3.4%	0.756	4.3%	86.5	9.6%	12,516	3.4%
	2018 Q2	72.3%	0.8%	110	1.3%	80	2.1%	1.145	2.7%	0.828	3.5%	91.2	4.8%	12,580	2.7%

Supply and Demand Index

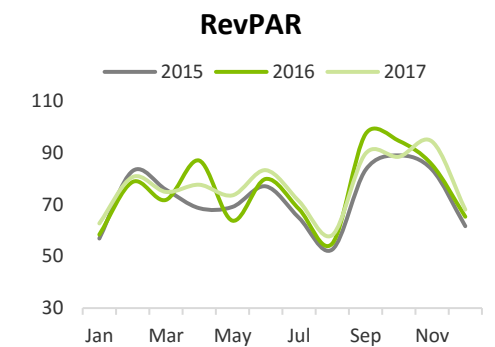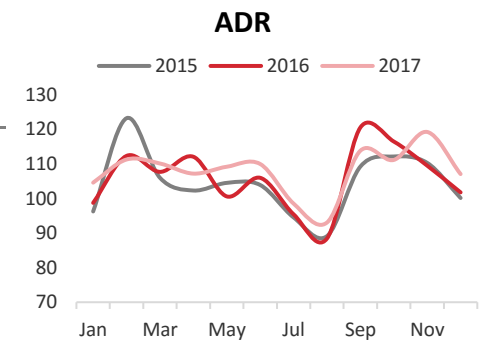(Index 2014 Q4=100, trailing four quarters)

Occupancy and ADR

Trailing four quarters

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Monthly Outlook

	Month	Occupancy %	Occupancy % Change	ADR EUR	ADR % Change	RevPAR EUR	RevPAR % Change	Supply Room nights (millions)	Supply % Change	Demand Room nights (millions)	Demand % Change	Revenue EUR (millions)	Revenue % Change
Actual	Jan-2016	59.1%	0.1%	99	2.6%	58	2.6%	0.4	2.8%	0.2	2.8%	21.6	5.5%
	Feb-2016	70.0%	4.1%	112	-8.8%	79	-5.1%	0.3	2.8%	0.2	7.0%	26.3	-2.5%
	Mar-2016	66.6%	-6.8%	108	1.6%	72	-5.3%	0.4	2.9%	0.2	-4.1%	26.5	-2.5%
	Apr-2016	77.5%	15.7%	112	9.5%	87	26.8%	0.4	2.9%	0.3	19.1%	31.1	30.5%
	May-2016	63.3%	-4.1%	101	-3.7%	64	-7.7%	0.4	2.9%	0.2	-1.3%	23.6	-5.0%
	Jun-2016	75.3%	1.7%	106	2.0%	80	3.7%	0.4	2.6%	0.3	4.3%	28.9	6.3%
	Jul-2016	71.5%	4.2%	95	1.0%	68	5.2%	0.4	1.1%	0.3	5.4%	25.5	6.4%
	Aug-2016	62.1%	5.2%	88	-0.8%	55	4.4%	0.4	1.1%	0.2	6.4%	20.5	5.5%
	Sep-2016	80.5%	5.7%	121	10.3%	97	16.6%	0.4	1.1%	0.3	6.9%	35.1	17.9%
	Oct-2016	81.1%	2.4%	116	3.9%	95	6.3%	0.4	1.1%	0.3	3.5%	35.3	7.5%
	Nov-2016	77.9%	3.0%	109	-0.7%	85	2.3%	0.4	1.1%	0.3	4.2%	30.8	3.4%
	Dec-2016	64.1%	4.2%	102	1.6%	65	5.9%	0.4	1.1%	0.2	5.4%	24.4	7.1%
Forecast	Jan-2017	59.9%	1.4%	105	5.9%	63	7.4%	0.4	1.1%	0.2	2.5%	23.4	8.6%
	Feb-2017	72.4%	3.4%	111	-0.9%	81	2.4%	0.3	1.1%	0.2	4.5%	27.2	3.5%
	Mar-2017	67.9%	2.0%	110	2.2%	75	4.3%	0.4	2.2%	0.3	4.3%	28.3	6.6%
	Apr-2017	72.4%	-6.7%	107	-4.4%	78	-10.7%	0.4	2.2%	0.3	-4.6%	28.4	-8.8%
	May-2017	67.3%	6.3%	109	8.5%	73	15.3%	0.4	2.2%	0.3	8.6%	27.8	17.9%
	Jun-2017	75.6%	0.5%	110	3.8%	83	4.3%	0.4	2.4%	0.3	2.9%	30.8	6.8%
	Jul-2017	72.3%	1.2%	99	3.2%	71	4.4%	0.4	3.3%	0.3	4.5%	27.5	7.9%
	Aug-2017	62.5%	0.7%	93	5.2%	58	5.9%	0.4	3.3%	0.2	4.0%	22.4	9.4%
	Sep-2017	78.7%	-2.3%	114	-5.6%	90	-7.7%	0.4	3.3%	0.3	1.0%	33.5	-4.7%
	Oct-2017	79.5%	-2.0%	111	-4.6%	88	-6.5%	0.4	3.4%	0.3	1.3%	34.1	-3.4%
	Nov-2017	79.0%	1.5%	119	8.9%	94	10.5%	0.4	3.4%	0.3	5.0%	35.3	14.3%
	Dec-2017	63.5%	-1.0%	107	5.2%	68	4.2%	0.4	3.5%	0.2	2.5%	26.3	7.9%
	Jan-2018	60.3%	0.7%	110	5.2%	66	5.9%	0.4	3.7%	0.2	4.4%	25.7	9.8%
	Feb-2018	72.6%	0.2%	117	5.3%	85	5.6%	0.4	3.8%	0.3	4.0%	29.8	9.6%
	Mar-2018	69.0%	1.6%	116	4.9%	80	6.6%	0.4	2.7%	0.3	4.4%	31.0	9.5%
	Apr-2018	72.6%	0.4%	108	1.0%	79	1.4%	0.4	2.9%	0.3	3.2%	29.6	4.3%
	May-2018	68.0%	1.0%	110	1.0%	75	2.0%	0.4	3.1%	0.3	4.1%	29.2	5.2%
	Jun-2018	76.5%	1.2%	112	1.7%	86	2.9%	0.4	2.1%	0.3	3.2%	32.4	5.0%

Occupancy

2015   2016   2017

ADR

2015   2016   2017

RevPAR

2015   2016   2017

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str Forecast Comparison
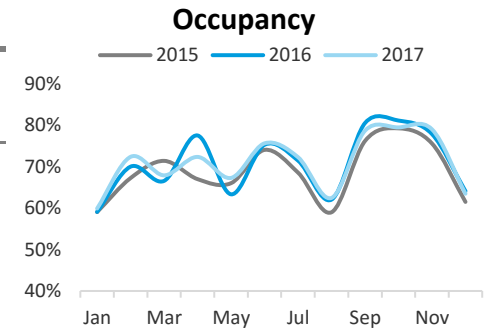
Comparison of growth rates in current and prior* forecast

Lodging Outlook

Occupancy		2016	2017	2018
	Current	2.9%	0.2%	0.9%
	Prior	3.2%	-0.3%	0.3%
	Difference	-0.4%	0.5%	0.6%

ADR		2016	2017	2018
	Current	1.7%	1.7%	3.3%
	Prior	3.1%	0.9%	2.8%
	Difference	-1.4%	0.8%	0.6%

RevPAR		2016	2017	2018
	Current	4.6%	2.0%	4.3%
	Prior	6.5%	0.6%	3.1%
	Difference	-1.8%	1.3%	1.2%

Supply		2016	2017	2018
	Current	1.9%	2.6%	2.6%
	Prior	1.9%	2.3%	3.4%
	Difference	0.0%	0.4%	-0.8%

Demand		2016	2017	2018
	Current	4.9%	2.9%	3.6%
	Prior	5.2%	2.0%	3.8%
	Difference	-0.4%	0.9%	-0.2%

Revenue		2016	2017	2018
	Current	6.7%	4.7%	7.0%
	Prior	8.5%	2.9%	6.6%
	Difference	-1.9%	1.7%	0.4%

Economic Outlook

Germany macro	Difference in:	2016	2017	2018
GDP	Growth rate	0.0%	0.1%	0.1%
Unemployment rate	Level	-0.1%	1.2%	-0.2%
Inflation	Growth rate	0.0%	0.1%	0.0%
Exchange rate index	Growth rate	0.0%	0.0%	0.0%

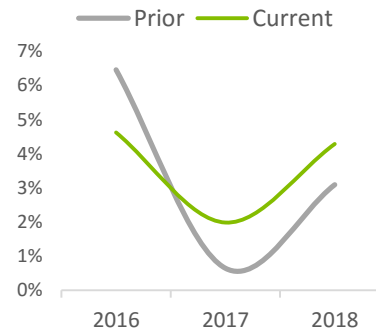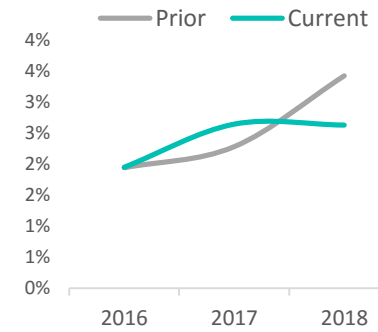| Sample City outlook	Difference in:	2016	2017	2018
GDP	Growth rate	0.6%	0.1%	-0.2%
Employment	Growth rate	0.3%	0.2%	0.0%
Unemployment rate	Level	0.0%	0.2%	0.1%
International visitors	Growth rate	-1.3%	2.5%	1.8%

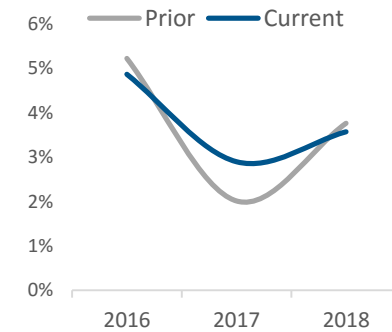### Occupancy growth
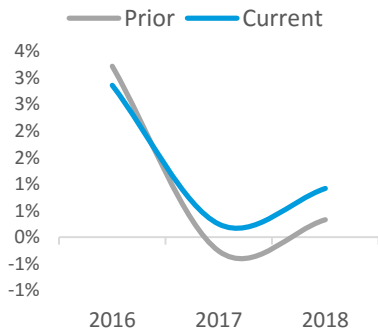
ADR growth
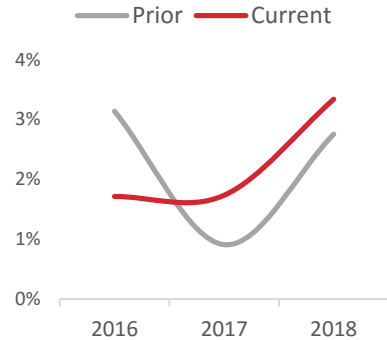
RevPAR growth

Supply growth

Demand growth

Note: "Prior" refers to the lodging forecast prepared in previous quarterly update and the economic outlook at that time.

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Rooms Supply Forecast

	Year	Average Supply (Avg. daily rooms during year)			Year-end Supply* (Avg. daily rooms in December)		
		Rooms	% Chg.	Chg.	Rooms	% Chg.	Chg.
Actual	2013	11,602	0.5%	60	11,602	0.0%	3
	2014	11,603	0.0%	1	11,603	0.0%	1
	2015	11,777	1.5%	174	11,923	2.8%	320
	2016	12,007	1.9%	230	12,058	1.1%	135
Forecast	2017	12,324	2.6%	317	12,484	3.5%	426
	2018	12,648	2.6%	324	12,844	2.9%	360
	2019	13,250	4.8%	603			
	2020	13,673	3.2%	423			
	2021	14,059	2.8%	386			

* Year-end supply is estimated for the next two forecast years.

Major Events

Event	Attendance	Start	Finish
Event A			
Event B			
Event C			
Event D			

Pipeline by Phase

Phase	Properties	Rooms	Rms. as ratio to existing supply
Existing	118	12,058	
Under construction	3	473	3.9%
Final planning	1	200	1.7%
Planning	5	960	8.0%
Total	127	13,691	13.5%

Rooms by Phase

12,058	473	1,160	13,691
Existing	Under construction	Planning stages	Total rooms under development
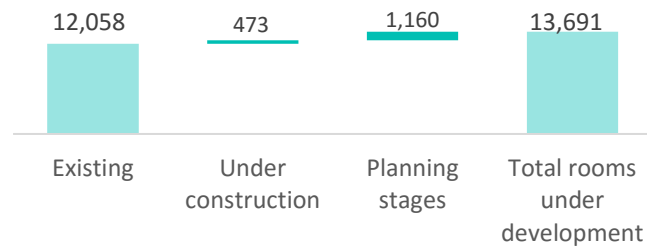
Pipeline: Under Construction

Scheduled opening year	Properties	Rooms
2017	3	473
2018	0	0
2019	0	0
2020	0	0

Rooms under construction

By scheduled opening year

473	0	0	0
2017	2018	2019	2020

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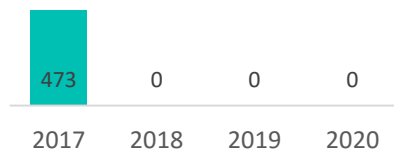
Market Area Economic Outlook

Sample City Market Outlook

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Growth (%)												
GDP, real	10.8%	4.6%	1.4%	0.1%	2.9%	3.3%	1.9%	1.6%	1.5%	1.3%	1.1%	1.0%
Personal disposable income, real	0.4%	1.4%	0.9%	0.4%	1.2%	5.8%	2.4%	1.7%	1.7%	1.1%	0.9%	0.9%
Employment	-1.0%	1.2%	2.2%	1.9%	1.3%	1.6%	0.8%	0.4%	0.1%	0.0%	-0.1%	-0.2%
Retail spend, real	1.4%	1.9%	-0.2%	0.7%	1.5%	5.0%	1.8%	1.5%	1.4%	1.2%	1.1%	1.1%
Average level												
Unemployment rate (level)	6.4%	5.2%	5.4%	6.0%	5.3%	5.7%	5.6%	5.5%	5.5%	5.4%	5.4%	5.4%

Five-year Summary

	Sample City		Germany	
	'12-'17	'17-'21	'12-'17	'17-'21
GDP, real	2.0%	1.2%	1.4%	1.1%
Personal disposable income, real	2.3%	1.2%	1.4%	0.7%
Employment	1.2%	0.0%	0.8%	0.1%
Retail spend, real	2.1%	1.2%	1.3%	0.7%
Unemployment rate (level)	5.6%	5.5%	6.5%	5.8%

GDP

(Index, 2016=100)
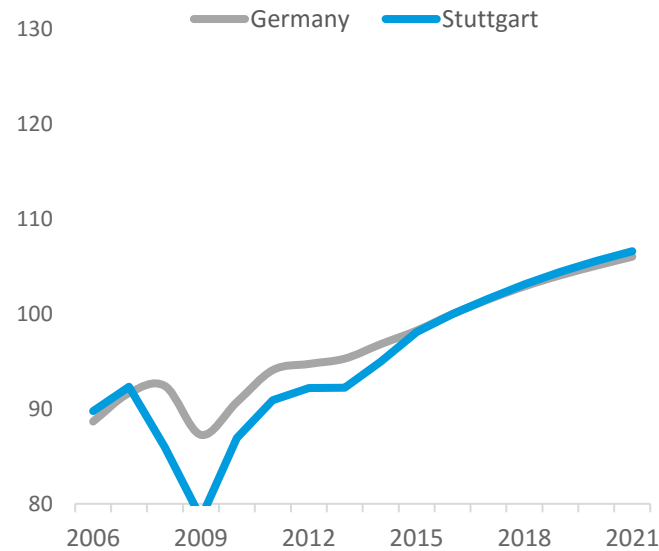
Retail Spend

Real, annual growth
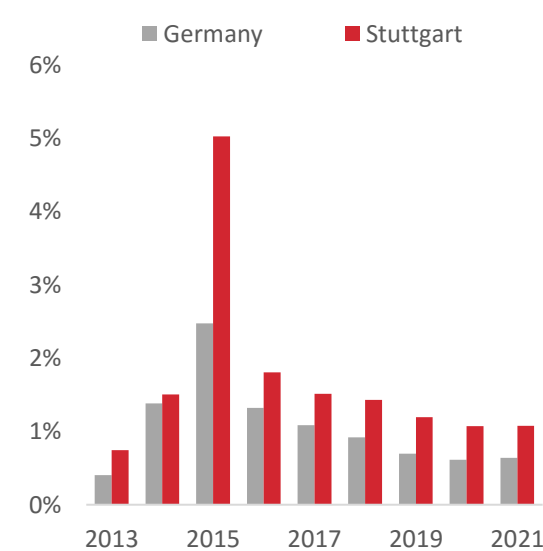
Unemployment Rate

Annual average level

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Economic Outlook
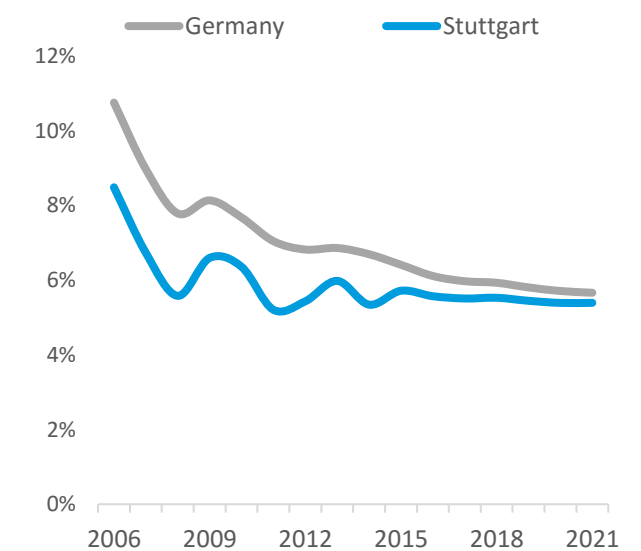
Germany

Q4 GDP growth disappoints despite pick-up

- The flash GDP estimate for Q4 revealed a strong pick-up in GDP growth from 0.1% in Q3 to 0.4% in Q4. No breakdown is available but the statistics office suggest that the rise was once again down to healthy and broad-based domestic demand growth.

- That said, Q4's rise in GDP was a little weaker than both the consensus and our own forecast. Indeed, prior to the December industrial production release, which revealed a 3% monthly drop in output, a quarterly rise in GDP of 0.6% or more had appeared a distinct possibility.

- The 3% fall in industrial output is unlikely to mark the start of a period of sustained weakness – these data can be volatile from month to month and orders data have recently been strong. But they do suggest that the robust manufacturing business surveys should be taken with a pinch of salt.

Key forecast drivers include:

Inflation to dent not end the consumer recovery: the sharp rise in HICP inflation from 0.7% in November to 1.9% in January, is unlikely to mark the end of the upturn – we now expect inflation to average 2.1% this year, up from just 0.5% in 2016. The squeeze on spending may be offset by a few developments. First, we think higher inflation could trigger workers to demand larger nominal pay increases, which could end the period of puzzlingly weak nominal wage growth. Furthermore, households have little need to repair their balance sheets, having avoided a credit binge in the pre-financial crisis years, and there is scope for the recent pick-up in the savings rate to be reversed too. The government has also talked up the possibility of tax cuts after the 2017 election in response to the better-than-expected fiscal figures – the surplus last year eased only marginally from 0.7% of GDP to 0.6% despite robust public spending growth. So we expect household spending growth of a still fairly respectable 1.2% in 2017.
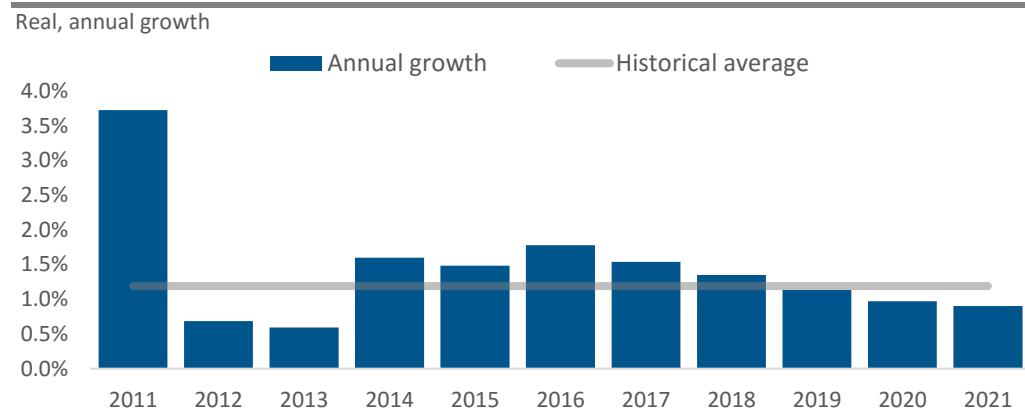
Investment recovery to continue: in the early part of this year, the indicators on investment painted a pretty upbeat picture and suggested that the recovery was broadening. But the Q2 equipment investment data showed a sharp fall and there was a further, albeit smaller, drop in Q3. While the strength of business sentiment is encouraging, we expect uncertainty to ensure that investment growth in 2017 remains around the 2% mark for a second year running.

Export sector over the worst: recent export data has been fairly positive and the survey-based measures of export orders paint a reasonably favourable picture for early 2017. Even so, with global growth likely to pick up only modestly, for now we remain cautious about the scope for a pick-up in export growth and have pencilled similar growth to last year in 2017.

Oxford Economics Forecast Table: Germany

	2015	2016	2017	2018	2019	2020	2021
Economic growth (%)							
GDP	1%	2%	2%	1%	1%	1%	1%
Consumer spending	2%	2%	1%	1%	1%	1%	1%
Fixed investment	1%	2%	2%	3%	2%	2%	2%
Inflation and interest rates							
Inflation (growth, %)	0%	1%	2%	2%	2%	2%	2%
Short-term interest rate (level, %)	0%	0%	0%	0%	0%	0%	0%
Long-term interest rate (level, %)	1%	0%	0%	1%	1%	1%	2%
Exchange rate							
Exchange rate, effective real index							
Index level (2010=100)	93.5	94.7	93.5	92.8	93.5	93.8	94.1
Index growth (%)	-5%	1%	-1%	-1%	1%	0%	0%
Exchange rate (Euro per US$)	0.90	0.91	0.94	0.94	0.92	0.90	0.88
Exchange rate (Euro per GBP)	1.38	1.22	1.21	1.24	1.21	1.21	1.21

GDP

Real, annual growth

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Economic Outlook (continued)

Germany

Overall, we expect GDP growth to slow from 1.8% last year to 1.5% in 2017, unchanged from last month. Thereafter, growth should continue to slow towards the potential growth rate, which itself will trend down due to demographics.

We expect CPI inflation in Germany to rise further. In the near-term, this will primarily reflect higher energy inflation as a result of base effects. Indeed, we have raised our forecast for this year a touch to 2.1%. Given the low savings rates this will push real interest rates down and will needless to say prompt further criticism of the ECB's policies from within Germany.

We also expect second-round inflation effects in Germany to be stronger than elsewhere in the region. Higher wages in response to higher inflation seem likely given the tight labour market and this will push up firms' costs, especially in the labour-intensive service sector. Meanwhile, higher imported prices in response to rising commodity prices and the weak euro are more likely to be passed on to consumers. Finally, capacity constraints more generally mean that the response to rising demand is more likely to come via higher prices rather than increased production. As a result, we see core inflation trending gradually higher over the coming quarters.

Our baseline forecast is for HICP inflation to dip from 2.1% this year to 1.9% in 2018 as energy inflation eases. But in 2019 and 2020, we have pencilled in rises of 2.2% to 2.3%. While above 2% inflation is good news for the Eurozone, weaker inflation elsewhere will ensure that the ECB treads cautiously when it comes to monetary policy.

What to watch for...

Upside risks to consumption growth: households' financial balance sheets are strong and the tight labour market could lead to a more sustained period of robust household spending growth.

Immigration boosts potential: beyond the near term, GDP growth prospects are constrained by the supply side and the tight labour market. A sustained period of strong inward migration could boost long-run trend growth.

Trump adopts protectionist measures towards Germany: accusations of currency manipulation by Germany have increased the risks that the US could impose tariffs on Germany, reducing demand for its exports.

Fiscal boost after the elections: although the government has signalled that a modest fiscal boost is likely after the Federal elections, signs of growing support for populists could prompt promises of a larger package.

ECB tightens more quickly: as Eurozone inflation picks up, ECB hawks could push for a faster wind down of QE pushing bond yields and the euro higher and undermining the recovery.
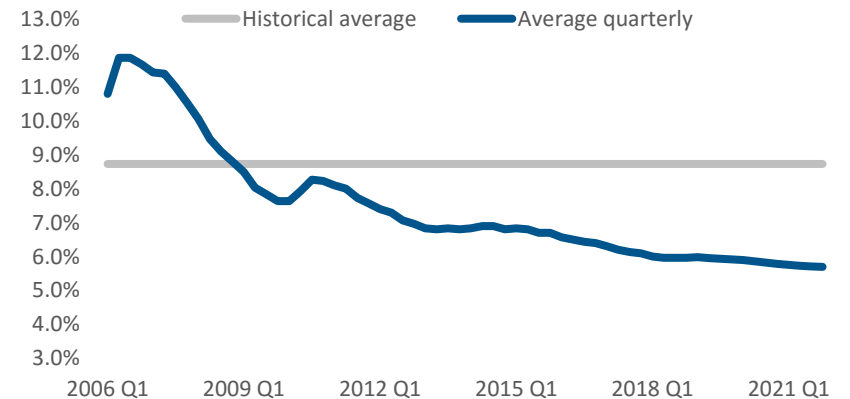
Fixed Investment

Private, real, growth
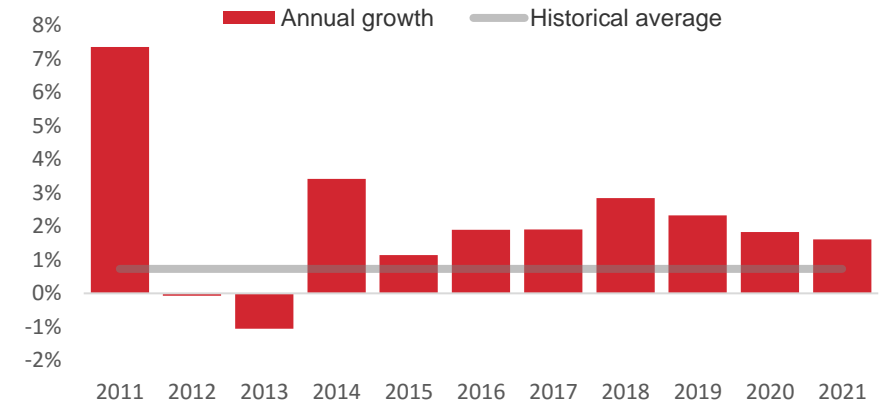
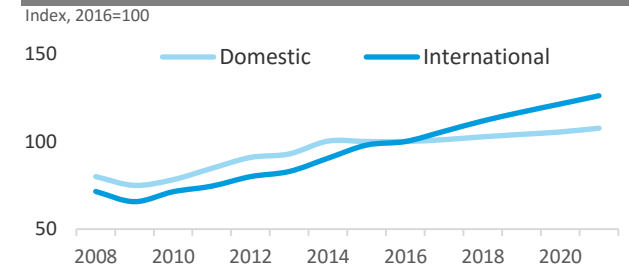### Unemployment Rate

Average quarterly level

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International Visitation

International overnight visitor arrivals, share by origin and outlook*
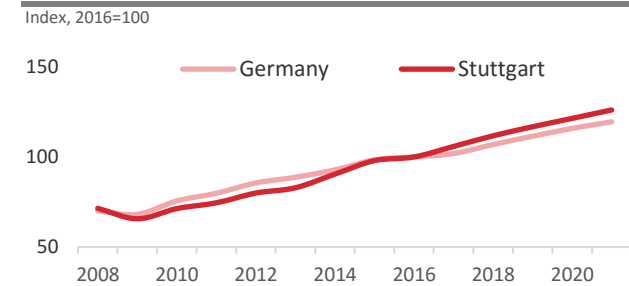
	Germany		Sample City
	International visitor growth CAGR (16-21)	International visitor share, country (2016)	International visitor share, city (2016)
Key aggregates			
Total	3.6%	100.0%	100.0%
Regions			
Africa	3.8%	0.2%	0.2%
Asia	10.9%	8.4%	11.1%
Americas	4.3%	9.0%	12.3%
Europe	3.2%	72.5%	69.8%
Middle East	4.6%	0.9%	0.6%
Top origin countries (ranked by size of market in 2016)			
Netherlands	2.3%	12.6%	
Switzerland	1.7%	8.8%	
United States	4.1%	7.2%	
United Kingdom	2.9%	7.2%	
Austria	2.2%	5.1%	
France	2.7%	4.8%	
Italy	4.5%	4.7%	
Denmark	2.4%	4.5%	
Belgium	3.7%	4.0%	
China	15.6%	3.8%	
Spain	3.2%	3.5%	
Sweden	6.6%	2.7%	

International visitor share
(2016)

Germany 18.1%
Stuttgart 26.8%

Int'l visitors relative to domestic visitors
Index, 2016=100

Int'l visitors to city relative to country
Index, 2016=100

Tourism weighted exchange rate**
Index, 2016=100
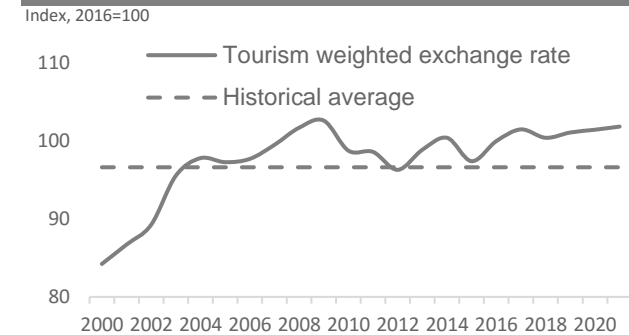
Note:

* International visitation by city is based on the Global City Travel (GCT) database maintained by Tourism Economics. GCT tracks overnight visits by international visitors to 300 global cities. The data is tracked by country of origin on an annual basis, including historical and forecast years. The data shown here for the country is taken from the Tourism Decision Metrics (TDM) database, also maintained by Tourism Economics. This reflects international visitation by origin market, including historical and forecast years. International visitor share refers to overnight international visitors as a share of total overnight visitors to the destination.

** The tourism weighted exchange rate index shows the value of the domestic currency relative to the foreign currencies of the top origin markets for the destination country. The index is calculated on a real basis, adjusting for differentials in price inflation between countries.

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Glossary

About Us

STR

STR provides premium global data benchmarking, analytics and insights for multiple market sectors. Our data is confidential, reliable, accurate and actionable, and our solutions empower our clients to strategize and compete within markets. Founded in 1985, STR's presence has expanded to 10 countries around the world with a corporate North American headquarters in Hendersonville, Tennessee, and an international headquarters in London, England. Our range of products and unrivalled market insights help our clients make better business decisions. But the work we do goes beyond the numbers. Every day, we empower people and their businesses to reach new heights.

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Tourism Economics

Tourism Economics is an Oxford Economics company with a singular focus on quantitative analysis of the travel industry. By combining rigorous modeling with industry knowledge, Tourism Economics develops custom market strategies, industry forecasts, policy analysis and economic impact studies. Our parent company, Oxford Economics, is one of the world's leading providers of economic analysis, forecasts and consulting advice. Founded in 1981 as a joint venture with Oxford University's business college, Oxford Economics enjoys a reputation for high quality, quatitative analysis and evidence-based advice.

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Glossary

The data used to compile this report has been formatted to comply with the accounting policies set out in the tenth Uniform System of Accounts

Supply The number of guest room nights available for sale in the period.

Demand The number of guest room nights sold (excludes complimentary rooms) during the period.

Room Revenue Total room revenue generated from the sale of guest rooms excluding any taxes and service charges.

Occupancy The ratio of occupied rooms to total available rooms expressed as a percentage.

Average Daily Rate (ADR) Room revenue (excluding services and taxes) divided by the number of occupied rooms.

Revenue Per Available Room (RevPAR) Room revenue divided by available rooms. It can also be calculated by multiplying the average room rate by the room occupancy.

Average Daily Supply Total guest room nights available for sale in the period, divided by the number of days in the period.

Percentage Change Amount of growth or decline from the same period last year (month, year-to-date, twelve months). Calculated as ((This year - Last year) / Last Year) * 100.

Smooth Trend Statistical method to even out small shifts in data and distribute any performance peaks over time.

Twelve Month Moving Average The average value of the previous 12 months ending in the current month.

Compound Annual Growth Rate The smoothed annualized growth rate over a given time period. Calculated as (Ending Value/Beginning Value) ^ (1 / Number of Years) - 1.

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Methods

Overview

Tourism Economics has worked with STR to develop a suite of models to accurately track and forecast hotel performance across a number of 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 as well as Oxford Economics' global city and region forecasts.

Economic forecasts are augmented with specific intelligence to determine the additional effect on hotel demand and ADR of any events hosted within that market.

Detailed calculation is undertaken using estimated relationships for Supply, Demand and ADR. Occupancy, Revenue and RevPAR are calculated as identities: Occupancy = Demand / Supply; Revenue = Demand * ADR; RevPAR = Revenue / Supply

Supply

Expected room supply is calculated in the near term according to the STR and STR Global pipeline database, adjusted for each property's stage in the development process. Projects under construction are more likely to be completed, and completed on time, than those still in the planning process. Different probabilities of completion have also been calculated according to the size and complexity of each project. Property conversions and closures are also accounted for, with estimates of other commercial property demand.

In the medium to long-run the pipeline database is augmented with estimates of past supply trends and the relationship with occupancy. Typically supply growth follows periods of demand and occupancy growth. Notably, periods of sustained above average occupancy rates are followed by supply growth necessary to restore average occupancy. The historic volatility of supply is taken into consideration as well as the lag between occupancy and supply growth and the time taken for occupancy to return to the long-run average.

Demand

Room demand is estimated and forecast according to a set of key economic drivers relating to both the destination and key origin markets. The relative importance of each economic driver is estimated according to multi-variate regression analysis and the relative volatility of drivers and demand. Long-run trends are also included within the modelling as well as short-run dynamics.

The key drivers are listed below along with the average elasticity across all markets (economic drivers relate to data for the country where not stated). Actual coefficients applied vary to reflect estimated historic relationships specific to each market.

Note: elasticities refer to the percent change in demand according to the percent change in each driver - a combination of the volatility of each driver as well as it's correlation with demand. For example, this does not necessarily mean that GDP is a better predictor of demand than wealth, but shows that wealth is more volatile so one percent change in wealth has less impact on demand than one percent change in GDP. All indicators are statistically valid.

Market GDP	0.24
Country GDP	0.39
Origin country GDP	0.45
Net Wealth	0.10
Company Profits	0.10
Unemployment	-0.02
Exchange Rate	-0.17
ADR (lagged)	-0.15

ADR

ADR is estimated and forecast according to recent changes in occupancy as well as price inflation within the country. Over time ADR tends to move in line with prices and wages in the wider economy. As with room demand, long-run trends are also incldued as well as short-run dynamics. Specifically long-run dynamics ensure that real inflation adjusted ADR returns to long-run trends over the medium to long-run outlook.

In the short-run the relationship between ADR and occupancy is crucial. The lag between changes in occupancy and ADR has been estimated for each market, with different lag timing identified for periods of rising and falling occupancy. With falling occupancy the effect on ADR is almost immediate while there is typically a lag of 6-12 months at other times. The level of occupancy relative to that market's long-run average is also an important factor in determining ADR. For example, falling occupancy but at a historically high level will not have a significant impact on ADR. Similarly rising occupancy will not have as large effect on ADR if occupancy is at a historically low level.

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