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Second Quarter 2016: Slowdown for Large Hotels Continues; Small Hotels Have Now Slowed as Well

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Abstract

Our Standardized Unexpected Price (SUP) metric continues to show a decline in the price of large hotels, and now also the price of small hotels has eased—even though hotel transaction volume has increased. Although debt and equity financing for hotels remain relatively inexpensive, we are concerned that the total volatility of hotel returns is greater relative to the return volatility for other commercial real estate. If this trend continues, lenders will eventually start to tighten hotel lending standards. Our early warning indicators all continue to suggest that the downward trend in hotel prices should continue into the next quarter. This is report number 19 of the index series.

Keywords

Cornell, commercial real estate, hotel valuation models, HOTVAL, economic value added (EVA), hotel transactions

Disciplines

Real Estate

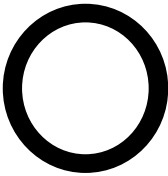## Comments

Required Publisher Statement

Supplemental File: Hotel Valuation Model (HOTVAL) We provide this user friendly hotel valuation model in an excel spreadsheet entitled HOTVAL Toolkit as a complement to this report which is available for download from http://scholarship.sha.cornell.edu/creftools/1/

Cornell Hotel Indices: Second Quarter 2016:

Slowdown for Large Hotels Continues;
Small Hotels Have Now Slowed as Well

Crocker H. Liu, Adam D. Nowak, and Robert M. White, Jr.

EXECUTIVE SUMMARY

Our Standardized Unexpected Price (SUP) metric continues to show a decline in the price of large hotels, and now also the price of small hotels has eased—even though hotel transaction volume has increased. Although debt and equity financing for hotels remain relatively inexpensive, we are concerned that the total volatility of hotel returns is greater relative to the return volatility for other commercial real estate. If this trend continues, lenders will eventually start to tighten hotel lending standards. Our early warning indicators all continue to suggest that the downward trend in hotel prices should continue into the next quarter. This is report number 19 of the index series.

ABOUT THE AUTHORS

Crocker H. Liu, Ph.D., is a professor of real estate at the School of Hotel Administration at Cornell where he holds the Robert A. Beck Professorship of Hospitality Financial Management. He previously taught at New York University's Stern School of Business (1988-2006) and at Arizona State University's W.P. Carey School of Business (2006-2009) where he held the McCord Chair. His research interests are focused on issues in real estate finance, particularly topics related to agency, corporate governance, organizational forms, market efficiency and valuation. Liu's research has been published in the *Review of Financial Studies, Journal of Financial Economics, Journal of Business, Journal of Financial and Quantitative Analysis, Journal of Law and Economics, Journal of Financial Markets, Journal of Corporate Finance, Review of Finance, Real Estate Economics, Regional Science and Urban Economics, Journal of Real Estate Research* and the *Journal of Real Estate Finance and Economics.* He is the former co-editor of *Real Estate Economics,* the leading real estate academic journal and is on the editorial board of the *Journal of Property Research.* He also previously served on the editorial boards of the *Journal of Real Estate Finance and Economics* and the *Journal of Real Estate Finance.* Liu earned his BBA in real estate and finance from the University of Hawaii, an M.S. in real estate from Wisconsin under Dr. James Graaskamp, and a Ph.D. in finance and real estate from the University of Texas under Dr. Vijay Bawa.

Adam D. Nowak, Ph.D., is an assistant professor of economics at West Virginia University. He earned degrees in mathematics and economics at Indiana University – Bloomington in 2006 and a degree in near-east languages and cultures that same year. He received a Ph.D. from Arizona State University last May. Nowak taught an introduction to macroeconomics course and a survey of international economics at Arizona State. He was the research analyst in charge of constructing residential and commercial real estate indices for the Center for Real Estate Theory and Practice at Arizona State University. Nowak's research has been published in the *Journal of Real Estate Research.*
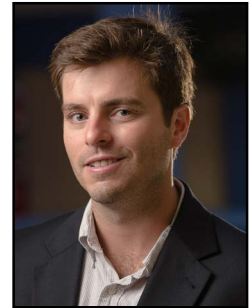
Robert M. White, Jr., CRE, is the founder and president of Real Capital Analytics Inc., an international research firm that publishes the Capital Trends Monthly. Real Capital Analytics provides real time data concerning the capital markets for commercial real estate and the values of commercial properties. Mr. White is a noted authority on the real estate capital markets with credits in the Wall Street Journal, Barron's, The Economist, Forbes, New York Times, Financial Times, among others. He is the 2014 recipient of the James D. Landauer/John R. White Award given by The Counselors of Real Estate. In addition, he was named one of National Real Estate Investor Magazine's "Ten to Watch" in 2005, Institutional Investor's "20 Rising Stars of Real Estate" in 2006, and Real Estate Forum's "10 CEOs to Watch" in 2007. Previously, Mr. White spent 14 years in the real estate investment banking and brokerage industry and has orchestrated billions of commercial sales, acquisitions and recapitalizations. He was formerly a managing director and principal of Granite Partners LLC and spent nine years with Eastdil Realty in New York and London. Mr. White is a Counselor of Real Estate, a Fellow of the Royal Institution of Chartered Surveyors and a Fellow of the Homer Hoyt Institute. He is also a member of numerous industry organizations and a supporter of academic studies. Mr. White is a graduate of the McIntire School of Commerce at the University of Virginia.

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Hotel Prices Slow Down

Analysis of Indices through Q2, 2016

Hotel investment based on operating performance is in the black. Our Economic Value Added (EVA) indicator, shown in Exhibit 1, is still in the black (-.008) although it has declined slightly (from .006) from the previous quarter (2015Q4). It is currently at the same level that it was back in 2012Q1. The cost of debt financing (5%) is 72 basis points lower than the hotel cap rate (5.72%), which signals that positive leverage continues to be the norm for hotel deals. However the tightening of cap rate over mortgage financing, as shown in Exhibit 2, suggests that the magnification of hotel property returns due to debt financing has been muted. In summary, what these two exhibits suggest is that the market is reverting back toward a "normal" state with cap rates rising.
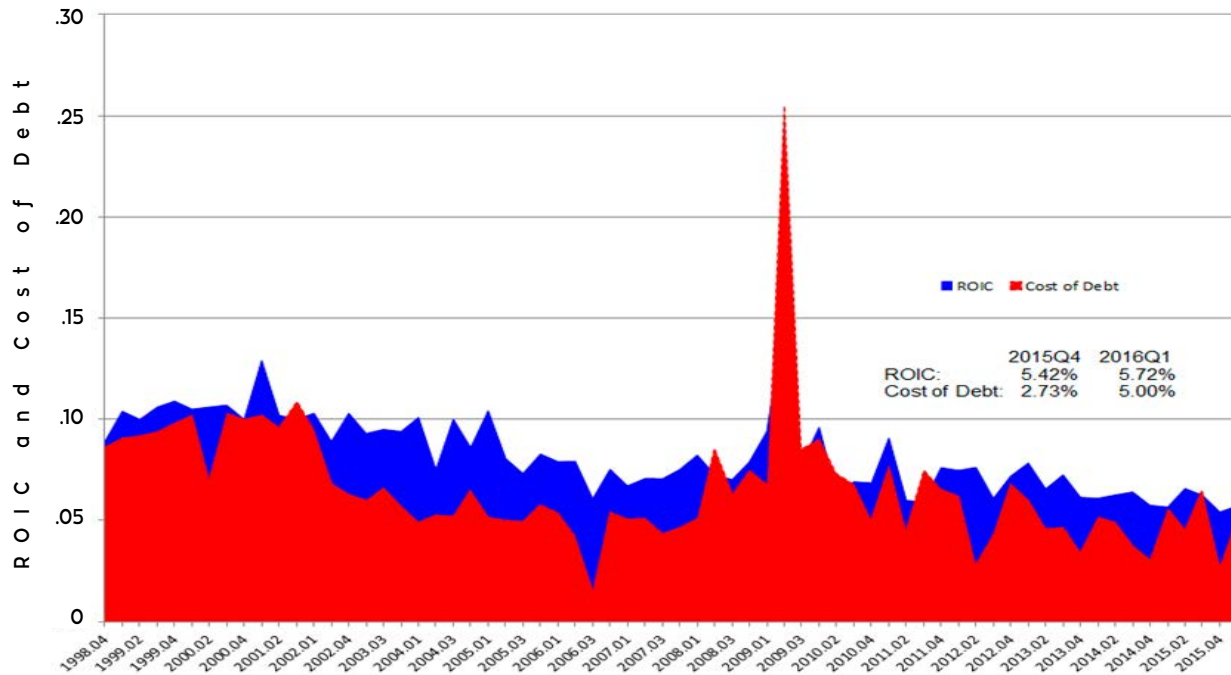

EXHIBIT 1

Economic value added (EVA) for hotels
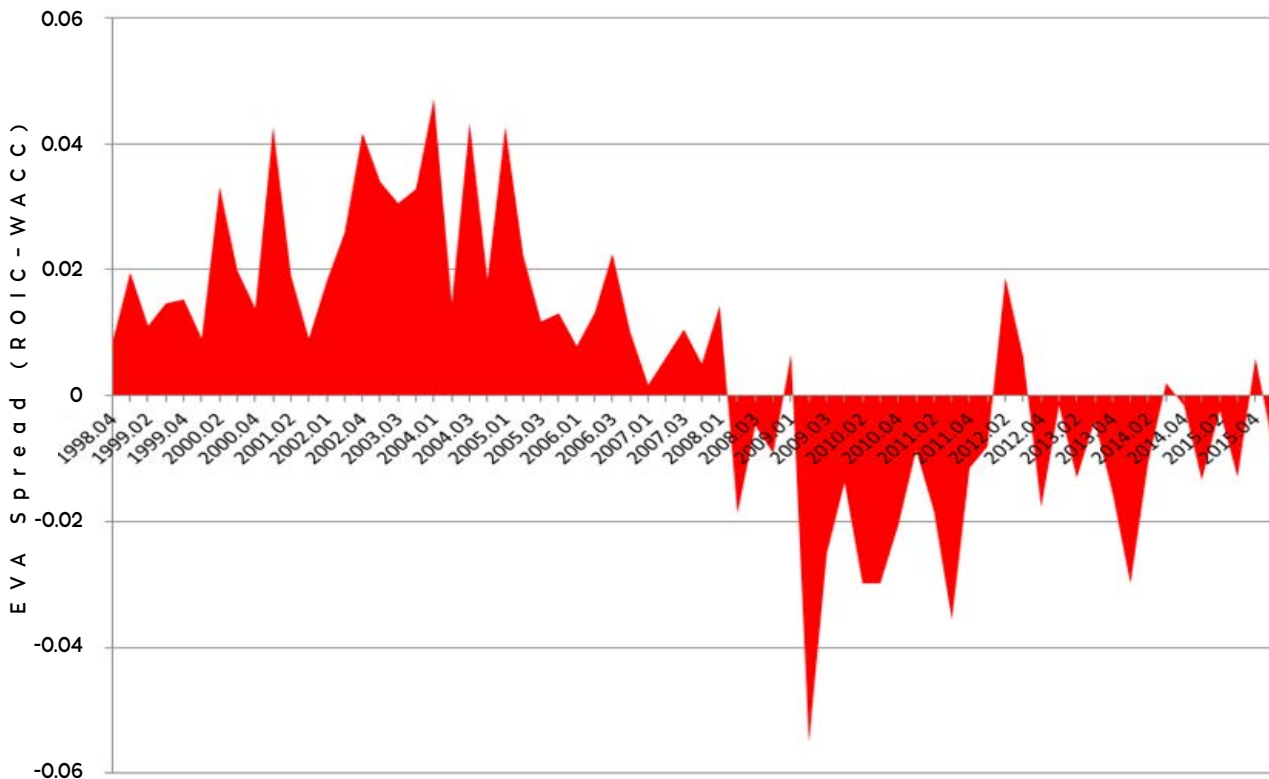
Sources: ACLI, Cornell Center for Real Estate and Finance, NAREIT, Federal Reserve

EXHIBIT 2

Return on investment capital versus cost of debt financing

Sources: ACLI, Cornell Center for Real Estate and Finance

About the Cornell Hotel Indices

In our inaugural issue of the Cornell Hotel Index series, we introduced three new quarterly metrics to monitor real estate activity in the hotel market. These are a large hotel index (hotel transactions of $10 million or more), a small hotel index (hotels under $10 million), and a repeat sales index (RSI) that tracks actual hotel transactions. These indices are constructed using the CoStar and Real Capital Analytics (RCA) commercial real estate databases. For the repeat-sale index, we compare the sales and re-sales of the same hotel over time. All three measures provide a more accurate representation of the current hotel real estate market conditions than does reporting average transaction prices, because the average-price index doesn't account for differences in the quality of the hotels, which also is averaged. A more detailed description of these indices is found in the first edition of this series, "Cornell Real Estate Market Indices," which is available at no charge from the Cornell Center for Real Estate and Finance (CREF). In this fourth edition, we present updates and revisions to our three hotel indices along with commentary and supporting evidence from the real estate market.

Hotel transaction volume has risen, but median prices have declined for the full sample on a year-over-year basis. The total volume of all 325 hotel transactions (both large hotels and small hotels combined), as reported in Exhibit 3, was higher than the previous quarter (295 transactions). It is also approximately at the same level as the second quarter of 2014 (322 transactions). Although the volume of hotel transactions rose 20.8 percent on a year-over-year basis (2015Q2 to 2016Q2), compared to a rise of 12.9 percent in the prior period (2015Q1 to 2016Q1), the median price of hotels fell approximately 35 percent on a year-over-year basis (and 27 percent on a quarter-over-quarter basis). Comparing large hotels with small hotels, the volume of large-hotel transactions fell 35 percent, while small-hotel transaction volume rose almost 26 percent from the previous quarter. [1] On a year-over-year basis, the transaction volume for large hotels fell 28 percent, while small-hotel transaction volume rose almost 44 percent.

In contrast to transaction volume, the median price for large hotels declined 43.5 percent on a year-over-year basis, accelerating the decline of 28.5 percent recorded in the prior year-over-year period. The median price for small hotels also declined 6.4 percent on a year-over-year basis, reversing the

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[1] Note that the number of transactions is limited to the sales that are included in the hedonic index. As such, it should not be construed as being the total market activity.

Transaction volume (obs) and median sale price (part 1: 1995–2004)

Year	Quarter	Full Sample		Big			Small		
		Median Sale Price	Obs	Median Sale Price	Obs	% Total Sales	Median Sale Price	Obs	% Total Sales
1995	1	$2,357,500	20	.	.		$2,357,500	20	
1995	2	$3,150,000	29	$15,712,500	6	20.69%	$2,670,000	23	79.31%
1995	3	$2,562,500	44	$12,400,000	4	9.09%	$2,378,000	40	90.91%
1995	4	$3,400,000	41	$27,750,000	10	24.39%	$2,625,000	31	75.61%
1996	1	$2,500,000	39	$14,475,000	8	20.51%	$1,700,000	31	79.49%
1996	2	$2,925,000	43	$29,150,000	12	27.91%	$2,500,000	31	72.09%
1996	3	$6,500,000	57	$17,740,000	20	35.09%	$3,000,000	37	64.91%
1996	4	$2,735,000	58	$19,000,000	17	29.31%	$2,200,000	41	70.69%
1997	1	$5,053,250	74	$16,635,500	23	31.08%	$3,500,000	51	68.92%
1997	2	$2,862,500	72	$17,750,000	17	23.61%	$2,150,000	55	76.39%
1997	3	$3,437,500	90	$19,000,000	21	23.33%	$2,400,000	69	76.67%
1997	4	$4,330,950	78	$17,000,000	27	34.62%	$2,300,000	51	65.38%
1998	1	$4,698,800	92	$20,000,000	31	33.70%	$3,100,000	61	66.30%
1998	2	$3,630,000	96	$23,765,000	21	21.88%	$3,000,000	75	78.13%
1998	3	$2,961,059	92	$16,740,000	12	13.04%	$2,690,550	80	86.96%
1998	4	$2,550,000	84	$35,000,000	15	17.86%	$2,375,000	69	82.14%
1999	1	$2,425,000	88	$24,638,095	10	11.36%	$2,125,000	78	88.64%
1999	2	$2,100,000	95	$67,000,000	5	5.26%	$1,950,000	90	94.74%
1999	3	$2,500,000	99	$20,711,100	10	10.10%	$2,130,000	89	89.90%
1999	4	$2,440,000	87	$18,190,000	14	16.09%	$2,090,000	73	83.91%
2000	1	$2,400,000	110	$23,500,000	9	8.18%	$2,300,000	101	91.82%
2000	2	$2,450,000	88	$14,500,000	9	10.23%	$2,275,000	79	89.77%
2000	3	$2,600,000	95	$20,346,875	16	16.84%	$2,250,000	79	83.16%
2000	4	$2,475,000	101	$20,000,000	13	12.87%	$2,325,000	88	87.13%
2001	1	$2,970,650	104	$28,437,500	18	17.31%	$2,422,500	86	82.69%
2001	2	$2,800,000	110	$23,795,000	12	10.91%	$2,687,150	98	89.09%
2001	3	$2,700,000	87	$16,000,000	6	6.90%	$2,500,000	81	93.10%
2001	4	$2,400,000	73	$20,500,000	5	6.85%	$2,300,000	68	93.15%
2002	1	$2,125,000	70	$11,518,052	5	7.14%	$2,000,000	65	92.86%
2002	2	$2,400,000	106	$18,125,000	10	9.43%	$2,287,500	96	90.57%
2002	3	$2,355,400	81	$12,750,000	5	6.17%	$2,237,500	76	93.83%
2002	4	$2,907,500	100	$24,000,000	15	15.00%	$2,600,000	85	85.00%
2003	1	$2,530,000	94	$13,000,000	9	9.57%	$2,425,000	85	90.43%
2003	2	$2,750,000	110	$19,000,000	9	8.18%	$2,519,000	101	91.82%
2003	3	$3,334,000	142	$18,500,000	24	16.90%	$2,637,500	118	83.10%
2003	4	$2,600,000	149	$16,375,000	18	12.08%	$2,425,000	131	87.92%
2004	1	$2,925,000	166	$23,050,000	23	13.86%	$2,550,000	143	86.14%
2004	2	$2,700,000	195	$16,700,000	27	13.85%	$2,475,000	168	86.15%
2004	3	$3,491,122	216	$19,675,000	44	20.37%	$2,630,000	172	79.63%
2004	4	$4,000,000	177	$20,475,000	47	26.55%	$3,085,500	130	73.45%

Transaction volume (obs) and median sale price (part 2: 2005–2016)

Year	Quarter	Full Sample		Big			Small		
		Median Sale Price	Obs	Median Sale Price	Obs	% Total Sales	Median Sale Price	Obs	% Total Sales
2005	1	$4,330,000	231	$18,200,000	51	22.08%	$3,350,000	180	77.92%
2005	2	$4,566,250	316	$19,316,925	75	23.73%	$3,300,000	241	76.27%
2005	3	$4,150,000	273	$21,750,000	71	26.01%	$3,100,000	202	73.99%
2005	4	$4,425,000	300	$25,000,000	91	30.33%	$3,170,000	209	69.67%
2006	1	$5,227,500	302	$25,750,000	92	30.46%	$3,825,000	210	69.54%
2006	2	$4,675,000	314	$23,500,000	81	25.80%	$3,500,000	233	74.20%
2006	3	$5,000,000	285	$24,000,000	81	28.42%	$3,657,500	204	71.58%
2006	4	$4,587,500	248	$21,600,000	64	25.81%	$3,550,000	184	74.19%
2007	1	$6,155,805	286	$22,000,000	101	35.31%	$3,789,500	185	64.69%
2007	2	$5,650,000	386	$25,250,000	119	30.83%	$3,770,000	267	69.17%
2007	3	$5,450,000	330	$20,175,081	104	31.52%	$3,911,750	226	68.48%
2007	4	$4,680,000	249	$24,000,000	85	34.14%	$3,184,000	164	65.86%
2008	1	$5,000,000	255	$17,420,000	58	22.75%	$4,000,000	197	77.25%
2008	2	$5,062,900	228	$22,150,000	50	21.93%	$3,890,000	178	78.07%
2008	3	$4,190,500	172	$17,133,333	37	21.51%	$3,350,000	135	78.49%
2008	4	$4,050,000	159	$18,850,000	32	20.13%	$3,500,000	127	79.87%
2009	1	$4,150,000	81	$15,800,000	15	18.52%	$3,600,000	66	81.48%
2009	2	$3,090,231	86	$14,722,500	11	12.79%	$2,864,310	75	87.21%
2009	3	$3,400,000	90	$27,000,000	15	16.67%	$3,000,000	75	83.33%
2009	4	$3,562,500	84	$14,100,000	14	16.67%	$3,010,250	70	83.33%
2010	1	$3,900,000	89	$20,325,000	17	19.10%	$2,912,500	72	80.90%
2010	2	$3,700,000	138	$30,833,449	34	24.64%	$3,000,000	104	75.36%
2010	3	$4,912,500	120	$39,000,000	43	35.83%	$2,850,000	77	64.17%
2010	4	$3,988,800	100	$30,500,000	37	37.00%	$2,440,000	63	63.00%
2011	1	$4,200,000	85	$36,600,000	23	27.06%	$2,797,750	62	72.94%
2011	2	$4,150,000	97	$55,500,000	29	29.90%	$2,250,000	68	70.10%
2011	3	$3,350,000	73	$25,250,000	19	26.03%	$2,800,000	54	73.97%
2011	4	$5,000,000	157	$32,400,000	43	27.39%	$3,229,250	114	72.61%
2012	1	$5,216,981	132	$22,100,000	39	29.55%	$3,275,000	93	70.45%
2012	2	$4,000,000	209	$17,600,000	60	28.71%	$2,809,000	149	71.29%
2012	3	$7,100,000	170	$20,081,500	62	36.47%	$3,202,000	108	63.53%
2012	4	$5,700,000	209	$28,600,000	75	35.89%	$3,150,000	134	64.11%
2013	1	$5,999,996	240	$21,502,126	82	34.17%	$3,000,000	158	65.83%
2013	2	$4,700,000	217	$23,000,000	69	31.80%	$2,525,000	148	68.20%
2013	3	$5,225,000	248	$28,200,000	68	27.42%	$3,600,000	180	72.58%
2013	4	$4,777,500	319	$24,400,000	100	31.35%	$2,800,000	219	68.65%
2014	1	$5,600,000	229	$20,750,000	70	30.57%	$3,250,000	159	69.43%
2014	2	$4,300,000	322	$27,000,000	85	26.40%	$2,850,000	237	73.60%
2014	3	$5,500,000	352	$20,000,000	94	26.70%	$3,475,000	258	73.30%
2014	4	$4,500,000	313	$30,920,684	76	24.28%	$3,175,000	237	75.72%
2015	1	$5,752,500	256	$30,000,000	81	31.64%	$3,162,100	175	68.36%
2015	2	$6,300,000	269	$28,250,000	86	31.97%	$3,525,000	183	68.03%
2015	3	$5,050,000	300	$25,000,000	85	28.33%	$3,025,000	215	71.67%
2015	4	$6,700,000	294	$20,000,000	103	35.03%	$3,300,000	191	64.97%
2016	1	$5,617,500	295	$21,437,500	86	29.15%	$3,430,000	209	70.85%
2016	2	$4,100,000	325	$15,950,000	62	19.08%	$3,300,000	263	80.92%

EXHIBIT 4

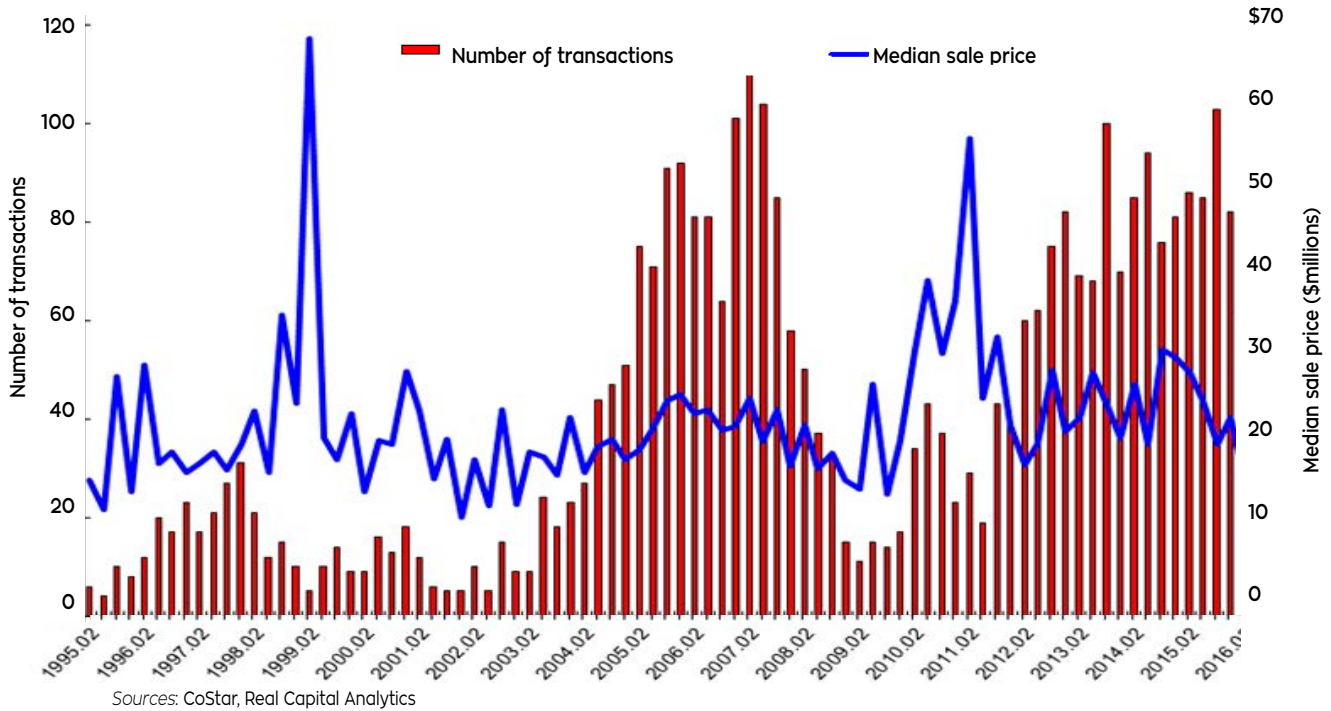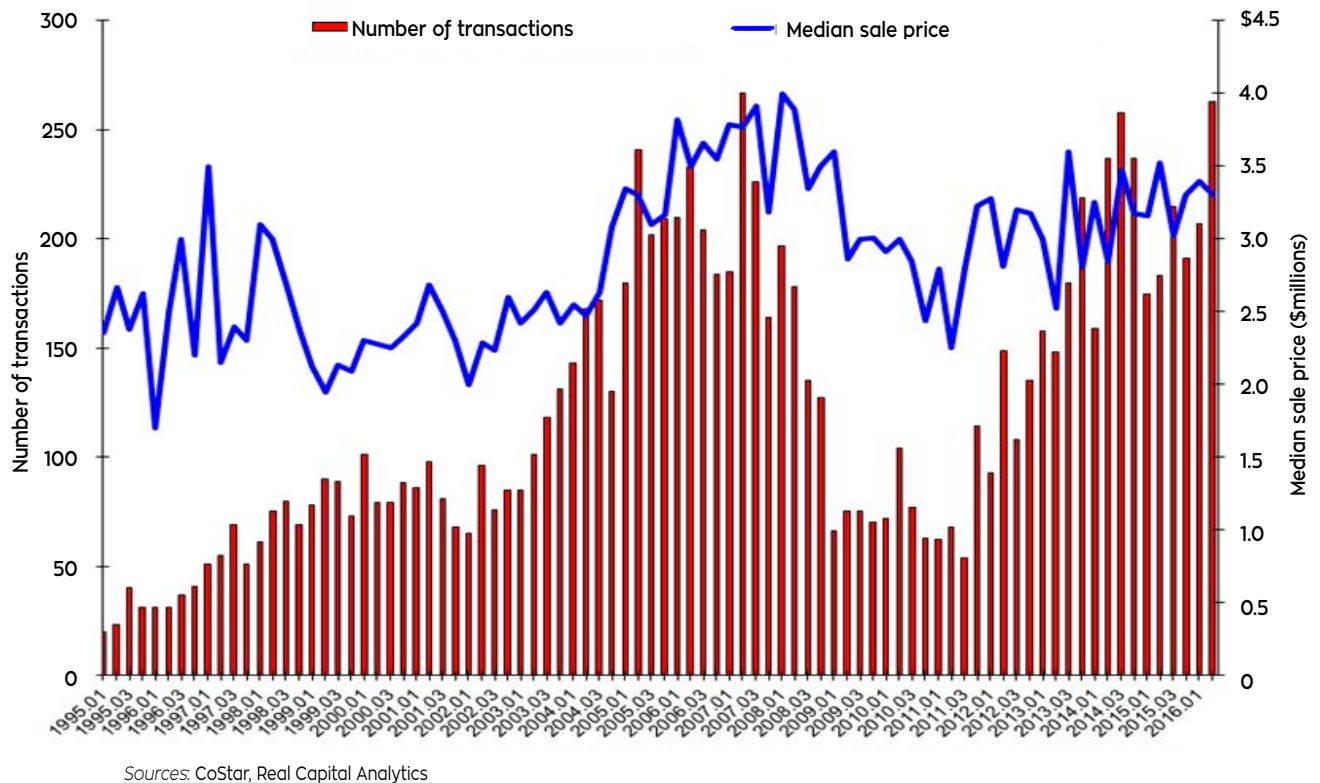## Median sale price and number of sales for high-price hotels (sale prices of $10 million or more)

Sources: CoStar, Real Capital Analytics

EXHIBIT 5

Median sale price and number of sales for low-price hotels (sale prices of less than $10 million)

Sources: CoStar, Real Capital Analytics

Exhibit 6

Hotel indices through 2016, quarter 1

YrQtr	Index Value				YrQtr	Index Value			
	Hedonic	Hedonic	RSI	RSI		Hedonic	Hedonic	RSI	RSI
	Low Priced Hotels (<$10M)	High Priced Hotels (>=$10M)	Repeat Sales Index	Index Value Repeat Sales		Low Priced Hotels (<$10M)	High Priced Hotels (>=$10M)	Repeat Sales Index	Index Value Repeat Sales
1995.02	99.103047	70.250875	63.8523	.	2006.01	144.31329	137.06732	129.374	138.5843
1995.03	98.908121	62.450875	67.3499	.	2006.02	145.33934	142.22682	133.104	143.0761
1995.04	101.32384	57.647271	68.7463	.	2006.03	150.05617	149.5188	134.669	145.2842
1996.01	97.328933	89.710415	70.9226	.	2006.04	152.70413	152.49838	138.816	149.1859
1996.02	95.407504	94.072447	74.1378	.	2007.01	152.46175	153.38705	140.861	151.6516
1996.03	100.41611	98.568025	73.3405	.	2007.02	155.4319	159.79554	144.389	154.732
1996.04	95.262764	106.99202	73.4465	.	2007.03	157.33724	155.02324	149.413	159.6013
1997.01	104.80631	98.25989	87.8718	.	2007.04	155.52681	153.83241	147.761	160.8123
1997.02	104.49297	100.54996	90.066	.	2008.01	157.9595	147.95824	148.821	167.1047
1997.03	100.9158	104.1195	96.397	.	2008.02	158.98288	147.3794	148.286	168.1461
1997.04	104.74517	108.4199	100.43	.	2008.03	155.2044	146.70121	145.847	165.0933
1998.01	103.16605	114.73448	96.6342	.	2008.04	155.95602	144.68759	147.27	164.9723
1998.02	112.23964	125.45667	101.882	.	2009.01	152.44971	137.24996	141.97	155.6575
1998.03	114.83348	122.39276	102.96	.	2009.02	141.50347	118.09487	141.328	151.591
1998.04	115.58291	131.58413	101.459	.	2009.03	137.60051	112.55619	127.916	136.6283
1999.01	114.00067	124.27123	93.8476	.	2009.04	133.42587	95.27407	116.49	123.3376
1999.02	105.86541	104.30584	88.6878	.	2010.01	127.26947	105.54689	112.939	117.5666
1999.03	103.41928	113.63243	86.7216	.	2010.02	126.68373	117.81557	103.658	108.143
1999.04	101.77848	101.57343	89.0136	.	2010.03	125.1913	138.16007	104.755	110.1474
2000.01	99.821551	104.24073	94.7893	100	2010.04	121.50651	165.55527	110.591	115.8613
2000.02	101.32626	108.85228	98.006	104.8257	2011.01	123.12914	163.53809	108.738	115.0149
2000.03	100.27645	102.09615	97.539	96.10196	2011.02	120.74906	175.81648	109.908	115.3641
2000.04	103.29965	108.38751	95.5414	97.42661	2011.03	117.31602	162.35732	110.429	115.3903
2001.01	106.34958	121.13167	94.071	96.66535	2011.04	121.96294	161.19958	109.686	113.7373
2001.02	110.20773	125.00327	93.7727	95.97601	2012.01	121.69624	165.43333	111.056	113.3603
2001.03	112.4273	119.69775	93.3593	97.31577	2012.02	126.041	152.09175	112.587	118.7327
2001.04	110.28796	118.48185	94.2413	97.90839	2012.03	133.33858	151.08322	117.825	123.5439
2002.01	107.31624	107.65348	92.7139	99.63256	2012.04	134.47712	148.35503	118.911	125.3037
2002.02	103.39313	97.578877	90.0962	95.24903	2013.01	135.99104	147.93027	121.859	128.3395
2002.03	103.35848	95.0727	91.4975	95.05532	2013.02	133.97344	154.81489	125.715	129.8576
2002.04	106.1049	99.554824	90.6214	95.58376	2013.03	135.63458	164.61837	127.932	133.9229
2003.01	108.24634	100.62165	94.418	96.1167	2013.04	134.24901	165.75132	127.386	136.708
2003.02	112.14613	120.94746	96.8891	101.5158	2014.01	135.37354	164.68816	133.812	145.8945
2003.03	115.20992	126.89665	98.5403	105.0947	2014.02	136.78944	164.9555	131.131	144.5972
2003.04	114.74386	130.44866	100.931	108.2424	2014.03	136.49594	161.70515	130.633	144.5941
2004.01	116.07114	130.12032	98.7767	108.0455	2014.04	138.54504	161.94668	134.138	145.7287
2004.02	115.9789	113.19091	99.4578	108.4104	2015.01	139.78831	169.71674	136.569	146.211
2004.03	116.25096	118.57547	103.287	112.6787	2015.02	146.13365	177.51304	143.45	153.4714
2004.04	120.55804	109.94405	104.195	112.4946	2015.03	145.67411	178.83175	151.904	161.3384
2005.01	127.70593	114.87922	109.593	118.2053	2015.04	148.79332	175.21823	158.084	168.0101
2005.02	135.56177	121.33446	114.424	123.3525	2016.01	151.75312	172.92737	161.41	172.9492
2005.03	138.77603	122.77221	118.017	127.4447	2016.02	150.64004	167.17166	157.345	169.3853
2005.04	141.08806	129.76566	124.487	134.735					

EXHIBIT 7

Hedonic hotel indices for large and small hotel transactions
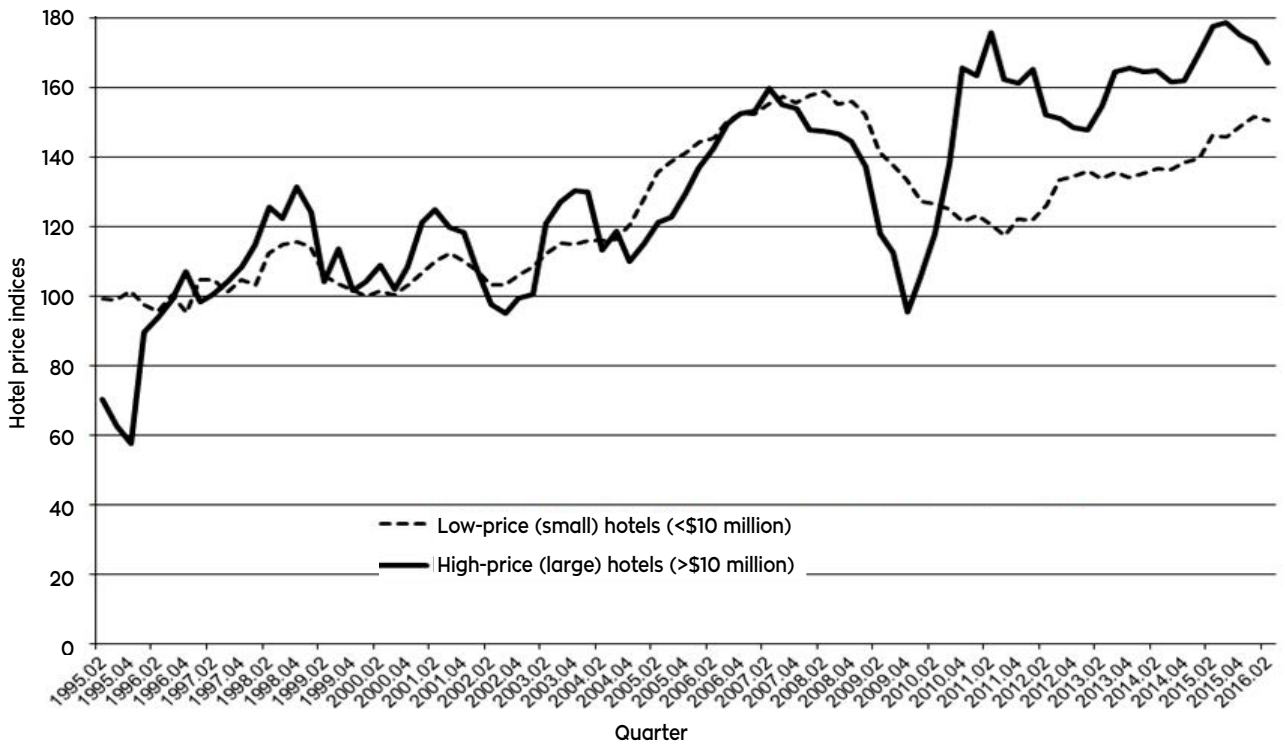
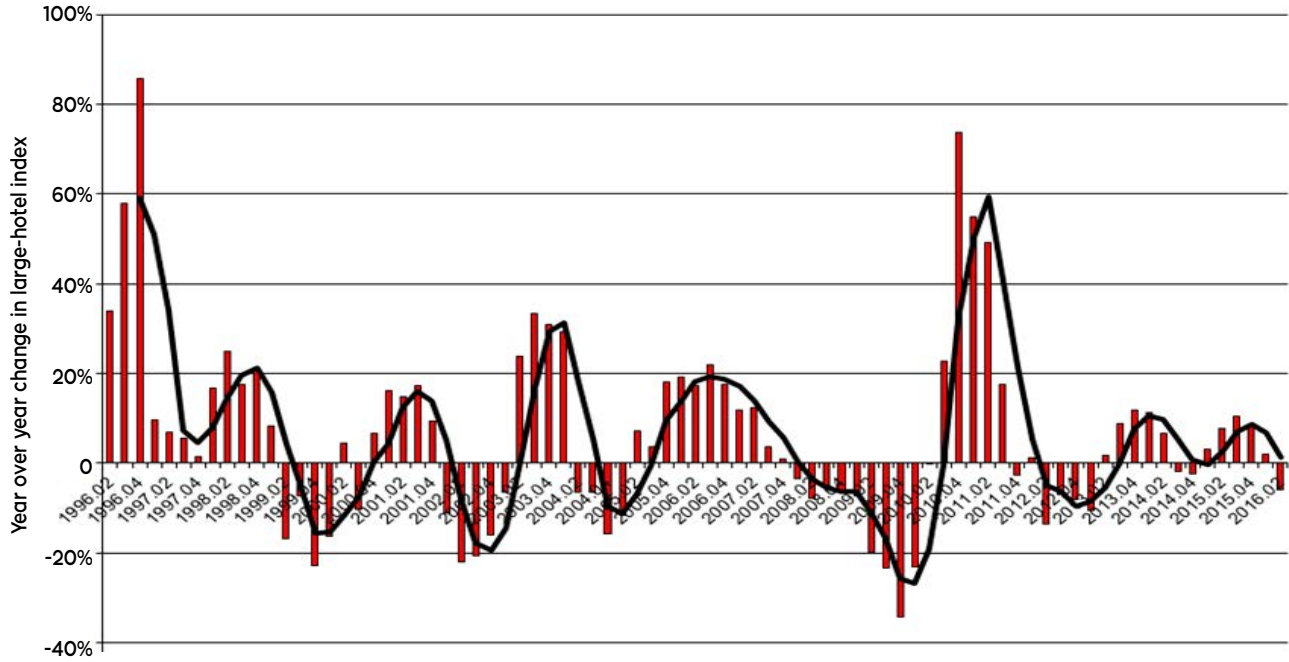*Sources:* Cornell Center for Real Estate and Finance, CoStar, Real Capital Analytics

positive momentum of an 8.5-percent increase experienced in the previous year-over-year period. On a quarter-over-quarter basis, both types of hotel experienced a price decline: 25.6 percent for large hotels and 3.8 percent for small properties. Exhibit 4 and Exhibit 5 show these year-over-year trends in the number of transactions.

In summary, both the volume of hotel transactions and the median price for large hotels declined on both a year-over-year and a quarter-over-quarter basis. In contrast, the transaction volume rose but the median price fell for smaller hotels on both a year-over-year and a quarter-over-quarter basis.

Prices of both large and small hotels are now reverting to the mean, according to our Standardized Unexpected Price (SUP) metric. Exhibit 7, which graphs the prices reported in Exhibit 6, shows that values for the large-hotel and small-hotel indices have declined on a quarter-over-quarter basis. The large-hotel price index declined 3.33 percent, while the small-hotel price index experienced a slight

EXHIBIT 8

Year-over-year change in high-price (large) hotel index, with moving-average trendline

Sources: Cornell Center for Real Estate and Finance, CoStar, Real Capital Analytics

decline of .73 percent. Exhibit 8 and Exhibit 9 reveal that on a year-over-year basis, large hotels experienced a 5.83-percent decrease in price, while smaller hotels gained 3.1 percent. These two exhibits also reveal that the moving average trend line for the price of large and small hotels are both declining on a year-over-year basis.

Our Standardized Unexpected Price (SUP) metric displayed in Exhibit 10 shows that the price of large hotels peaked in 2015Q3 and continues to revert to the standardized mean

Year-over-year change in small-hotel index, with moving-average trendline
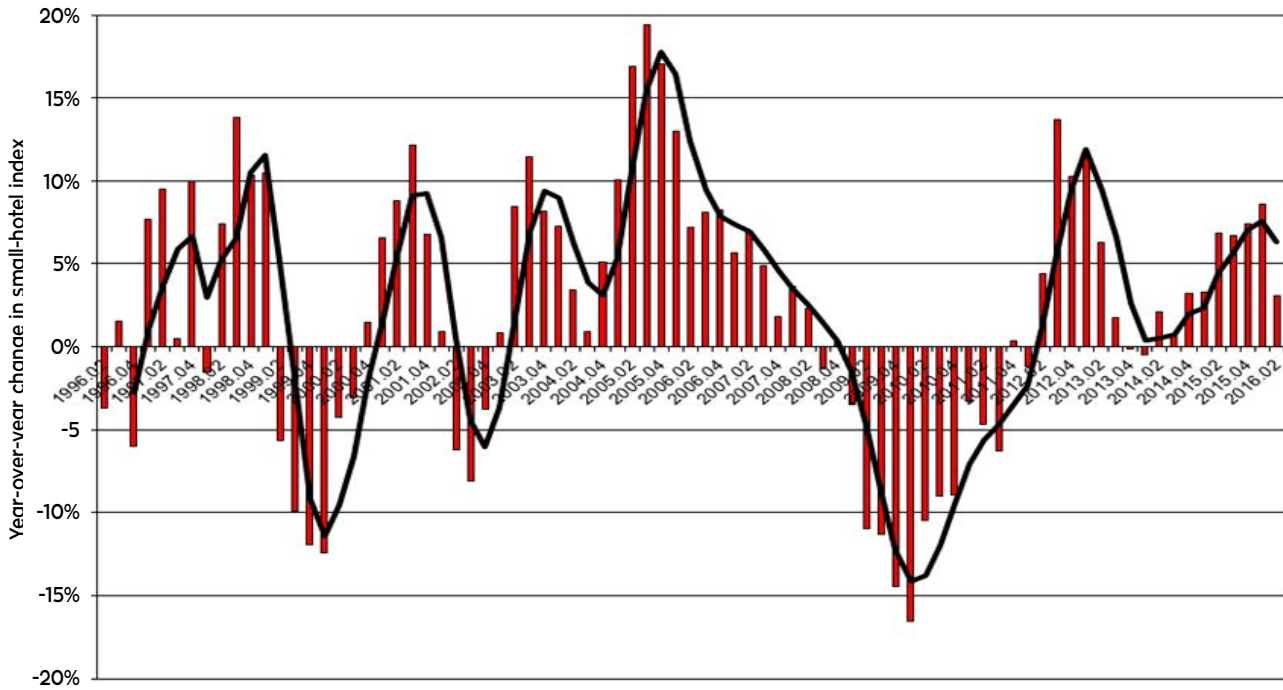
Sources: Cornell Center for Real Estate and Finance, CoStar, Real Capital Analytics

Standardized unexpected price (SUP) for high-price hotel index

Sources: Cornell Center for Real Estate and Finance, CoStar, Real Capital Analytics

Exhibit 11

Standardized unexpected price (SUP) for small-hotel index

- – – Critical value (90%)
- —— Price surprise indicator: Low-price hotels (12 quarters, 3 yrs)
- – – Critical value (90%)
- —— Price surprise indicator: Low-price hotels (20 quarters, 5 yrs)
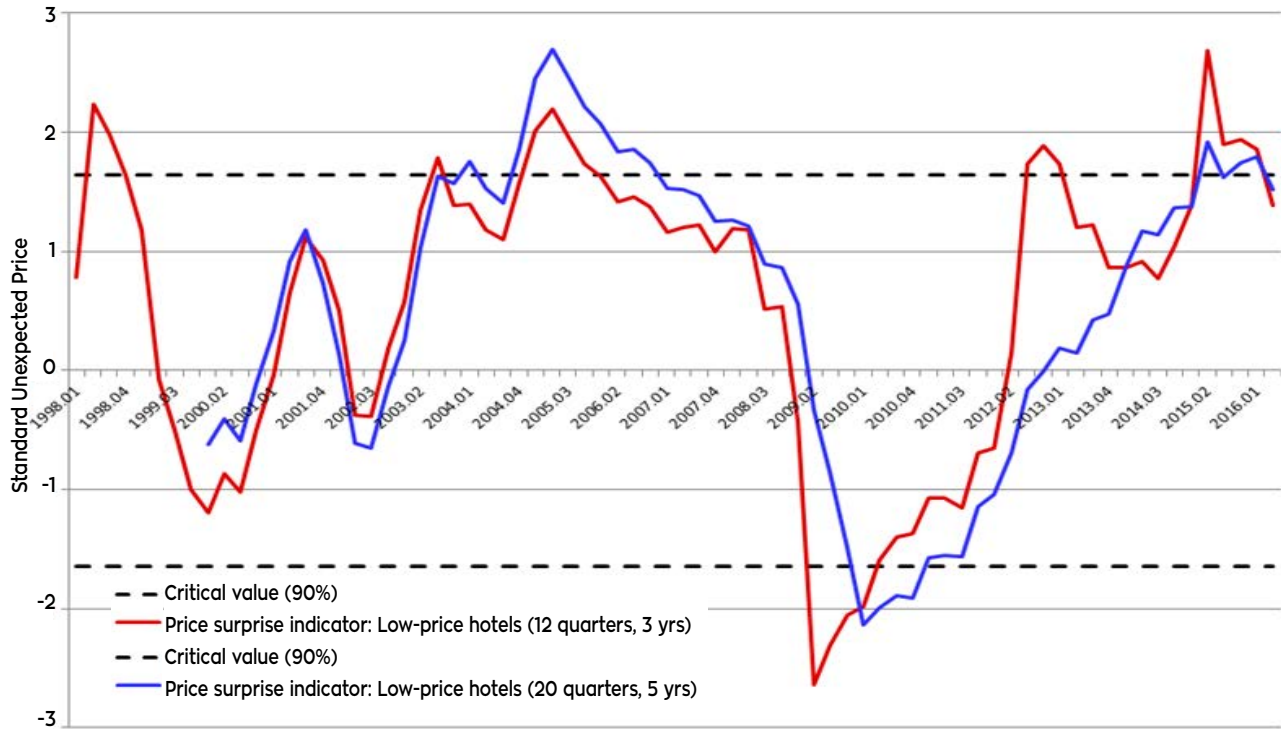
Sources: Cornell Center for Real Estate and Finance, CoStar, Real Capital Analytics

of zero. Exhibit 11 shows that the price for smaller hotels broke below the upper SUP band this quarter. This is not surprising, given our belief stated in the previous report that prices could not sustainably remain above the upper band, likewise due to mean reversion. In other words, although prices of small hotels peaked in the second quarter of 2015 and began to decline, prices continued to remain to exhibit positive momentum until this quarter. As is the case with large hotels, prices of small hotels are now reverting to the standardized mean of zero.

Repeat sales are still increasing, but the rate of that increase is declining on a year-over-year basis. Similar to the smaller hotels, both the three-year and five-year SUP indicator for repeat hotel sales have fallen below the SUP upper band (see Exhibit 12). [2] Exhibit 13 provides a confirmatory perspective of the price momentum in repeat sales. The moving average trend line has started to decline, even though

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[2] We report two repeat sale indices. The repeat sale full sample index uses all repeat sale pairs, whereas the repeat sale index with a base of 100 at 2000Q1 uses only those sales that occurred on or after the first quarter of 2000. Thus, the smaller repeat sale index doesn't use information on sales prior to the first quarter of 2000. As such, if a hotel sold in 1995 and then sold again in 2012, it would be included in the repeat sale full sample index but it would not be included in the later repeat sale index.

EXHIBIT 12

Standardized unexpected price (SUP) for repeat-sale hotels
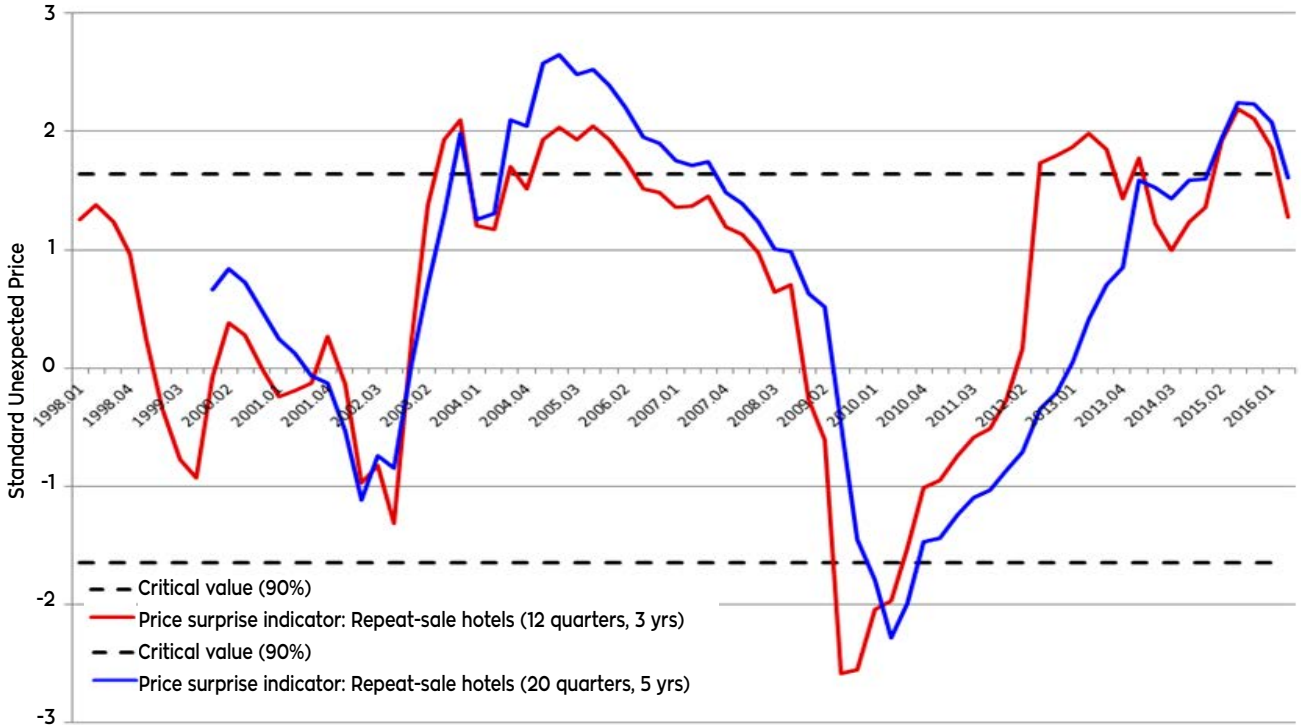
Sources: Cornell Center for Real Estate and Finance, CoStar, Real Capital Analytics

EXHIBIT 13

Year-over-year change in repeat-sale index, with moving-average trendline
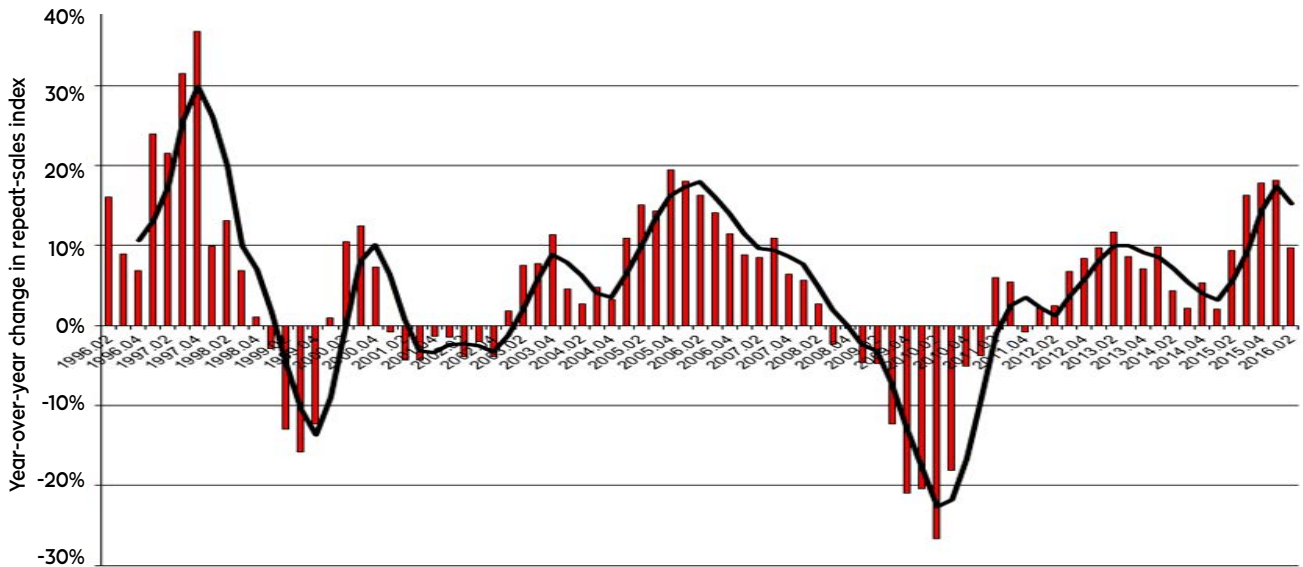
Sources: Cornell Center for Real Estate and Finance, CoStar, Real Capital Analytics

EXHIBIT 14

Mortgage origination volume versus loan-to-value ratio for hotels
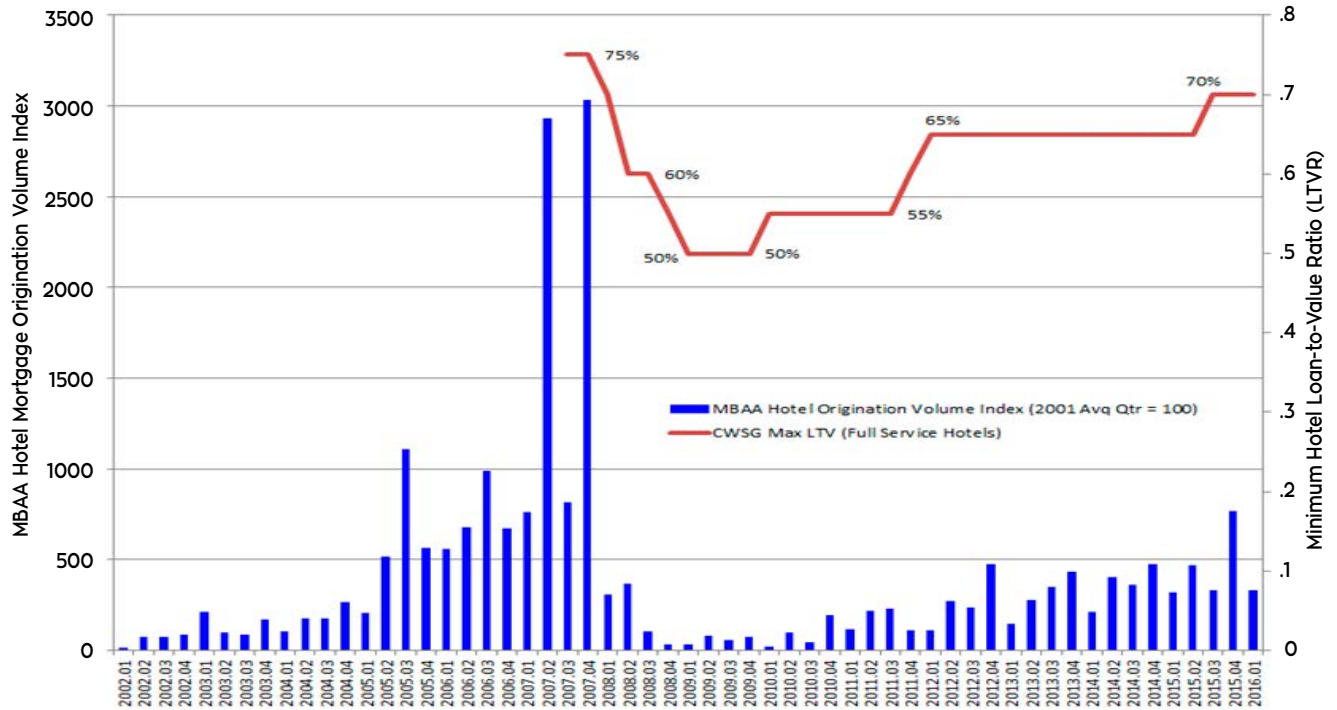
Sources: Cornell Center for Real Estate and Finance, Mortgage Bankers Association

EXHIBIT 15

Interest rates on Class A hotels versus Class B & C properties

Sources: Cushman Wakefield Sonnenblick Goldman

EXHIBIT 16

Interest-rate spreads of hotels versus U.S. Treasury ten-year bonds
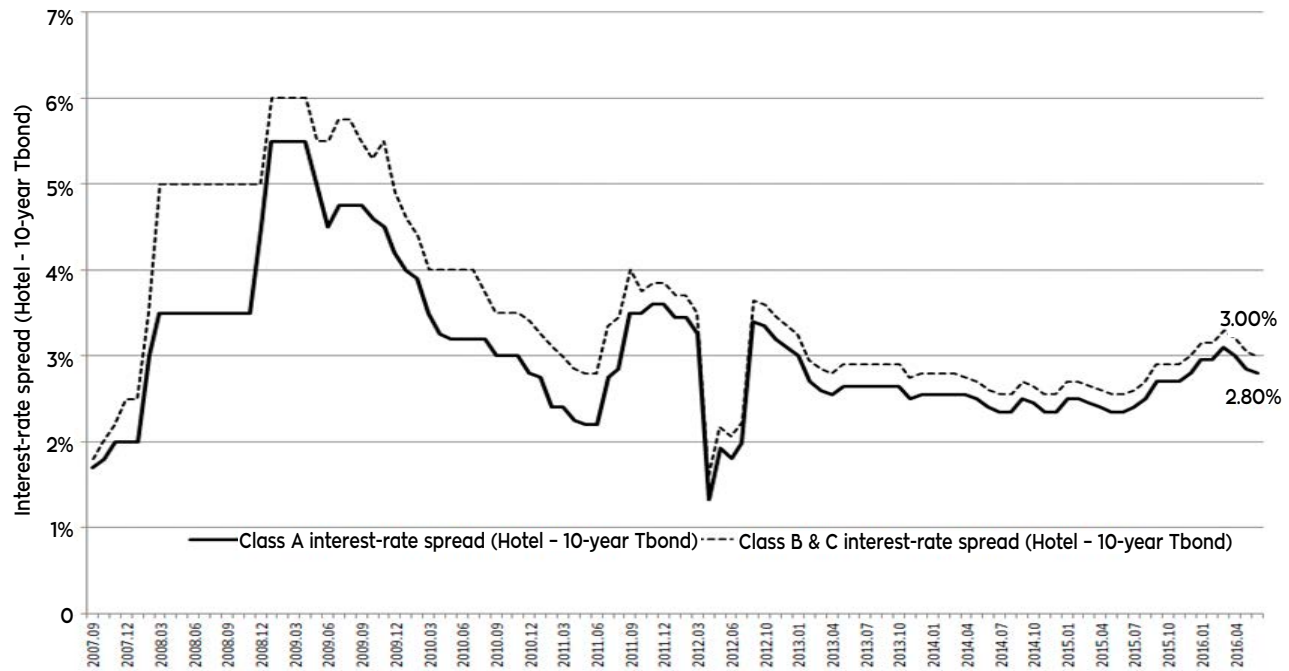
Source: Cushman Wakefield Sonnenblick Goldman

the index of repeat sale prices rose 9.7 percent on a year-over-year basis. This increase is about 50-percent lower than the 18.2-percent increase in the prior year-over-year period.

Although mortgage financing volume continues to rise on a year-over-year basis, the current increase is modest at best relative to the prior period. Exhibit 14 shows that the mortgage origination volume for hotels as reported for 2016Q1 is about 2.8-percent higher than the previous year (2015Q1).[3] This compares to a 60 percent year-over-year increase (2015Q4 relative to 2014Q4) in the previous period. The loan-to-value (LTV) ratio for hotels remains at 70 percent. The last time the LTV was at 70 percent was just prior to the commercial real estate market crash in 2008Q1.

Lower cost of debt financing exists, with a narrowing of the relative risk premium for hotels. The cost of obtaining hotel financing as reported by Cushman Wakefield Sonnenblick Goldman has declined below the level at the end of

2014, when the interest rate was at a trough of 4.55 percent for Class A hotels and 4.75 for B&C properties.[4] Exhibit 15 shows that at the beginning of June 2016, interest rates were at about 4.4 percent for Class A properties and 4.6 percent for B&C hotels. This compares to a first-quarter 2016 Class A interest rate of 5.05 percent and a rate of 5.25 percent for B&C hotels. Exhibit 16 and Exhibit 17 depict interest rate spreads relative to different benchmarks. Exhibit 16 shows the spread over the ten-year Treasury bond of Class A and of B&C interest rates on full-service hotels. On this metric, interest rate spreads had risen over the last five quarters, indicating that a continuing trend of lenders demanding additional compensation for risk associated

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[3] This is the latest information reported by the Mortgage Bankers Association as of the writing of this report.

[4] The interest rate reported by Cushman Wakefield Sonnenblick Goldman (CWSG) differs from the interest rate used to calculate our EVA metric which is based on the interest rate reported by the American Council of Life Insurers (ACLI). The ACLI interest rate reflects what life insurers are charging for *institutional sized* hotel deals. Our EVA calculation is based on *property specific* cap rates and the associated financing terms. The CWSG interest rate is based on deals that CWSG has brokered as well as their survey of rates on hotel deals. The deals are not necessarily similar to deals that are reported by ACLI.

Exhibit 17

Interest-rate spreads of hotels versus non-hotel commercial real estate
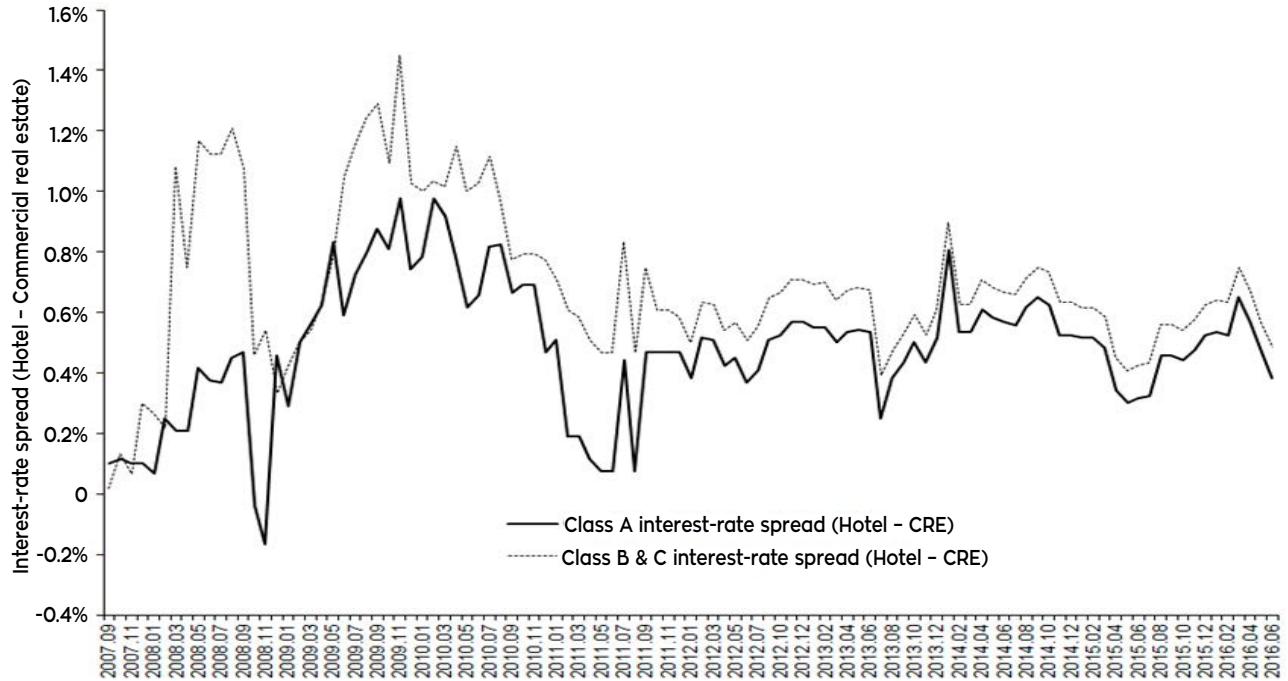
Source: Cushman Wakefield Sonnenblick Goldman

with lending on hotels. However, interest rate spreads have declined in the current quarter, signaling a reversal to this trend. Exhibit 17 shows the spread between the interest rate on Class A and of B&C full-service hotels over the interest rate corresponding to non-hotel commercial real estate, commonly called the hotel real estate premium.[5] The hotel real estate premiums for both higher quality (Class A) and lower quality (Class B&C) hotels have finally declined, reversing an upward trend that started in May 2015. The hotel real estate premium for Class A hotels is currently at .38 percent, while that for Class B&C properties is 48. Those figures compare to .65 percent for Class A properties in 2016Q1 and .53 percent in 2015Q4, or, for Class B&C deals, .75 percent in the first quarter of 2016 and .63 percent in the last quarter of 2015. The decline in the premium in the most

[5] The interest rate on hotel properties is generally higher than that for apartment, industrial, office, and retail properties in part because hotels' cash flow is commonly more volatile than that of other commercial properties.

recent quarter is a signal that the perceived default risk for hotel properties has narrowed relative to other commercial real estate.

Cost of equity financing continues to remain affordable; expect to see higher interest rates and tighter lending standards for hotel financing relative to other commercial real estate in the near future. The cost of using equity financing for hotels as measured using the Capital Asset Pricing Model (CAPM) on Hotel REIT returns, as shown in Exhibit 18, continues to decline. The cost of using equity funds is currently at 8.4 percent for 2016Q1, down from 8.7 percent for 2015Q4 and also down from 8.9 percent in the previous year (2015Q3). This lower cost is due to a reduction in the systematic risk (beta) of hotel REITs. Currently, the beta for lodging REITs is at 1.4, a figure that has remained relatively constant since the first quarter of 2015. In terms of total risk (systematic risk + risk that is specific to hotel REITs), Exhibit 19 depicts that the total risk of hotel REITs continues to be

ExHIBIT 18

Cost of equity financing using the Capital Asset Pricing Model and hotel REITs
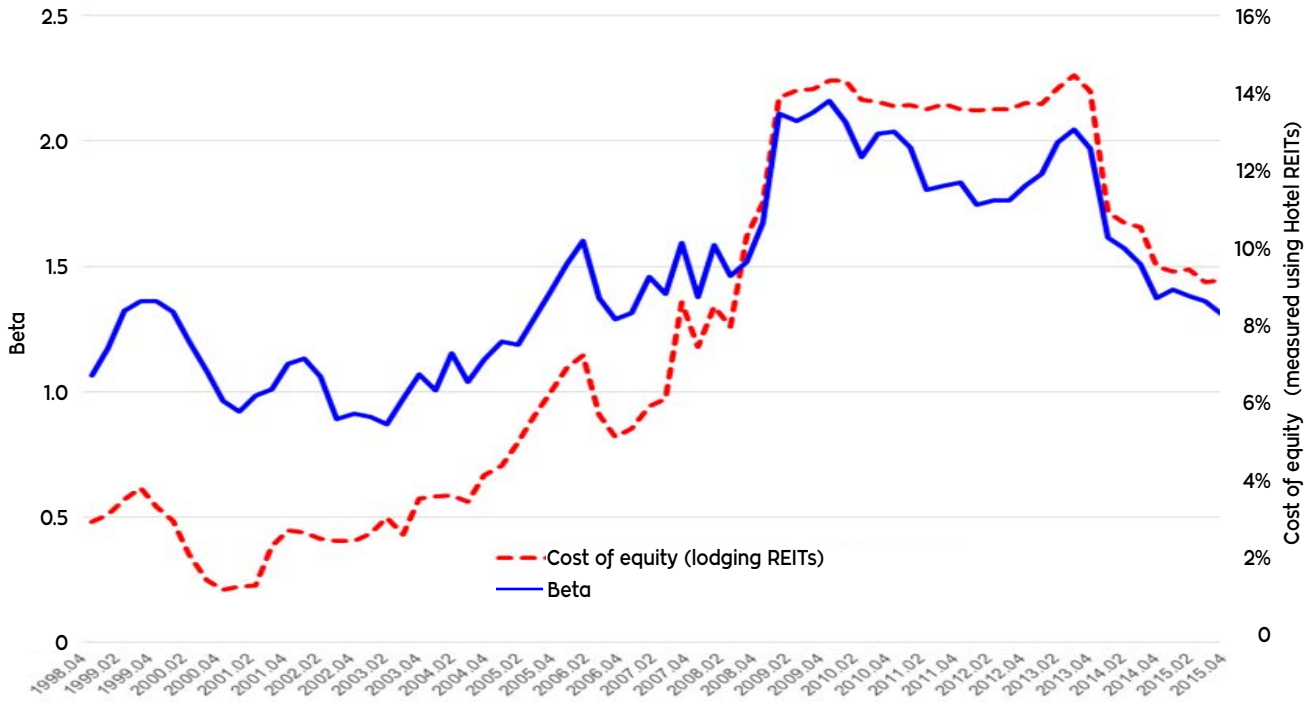
Source: Cornell Center for Real Estate and Finance, NAREIT

ExHIBIT 19
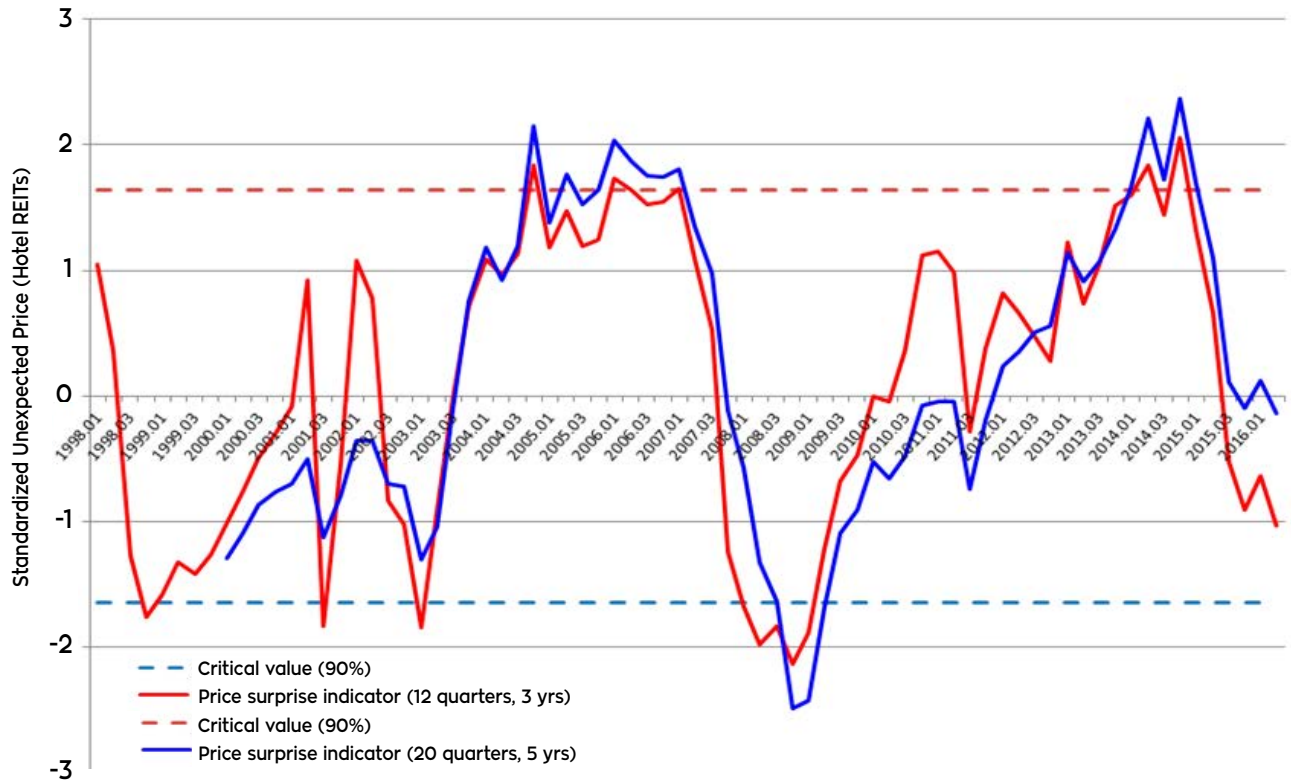
Risk differential between hotel REITs and equity REITs

Exhibit 20
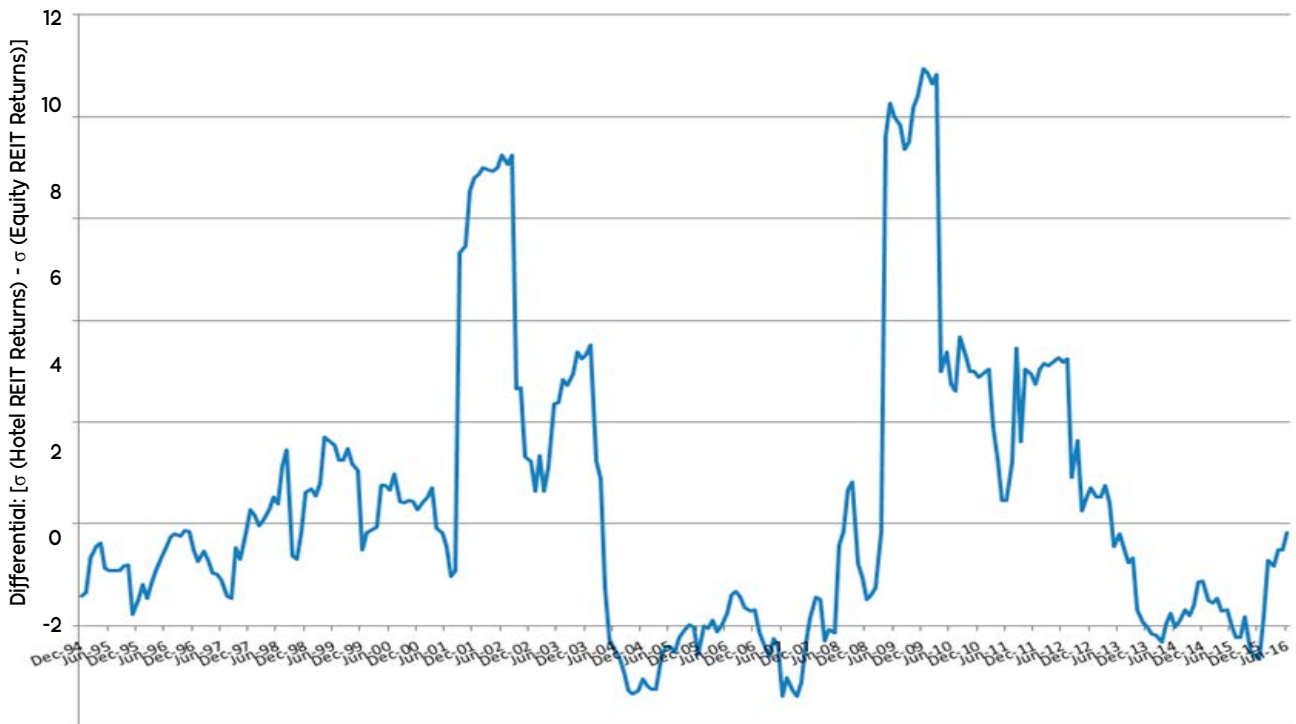
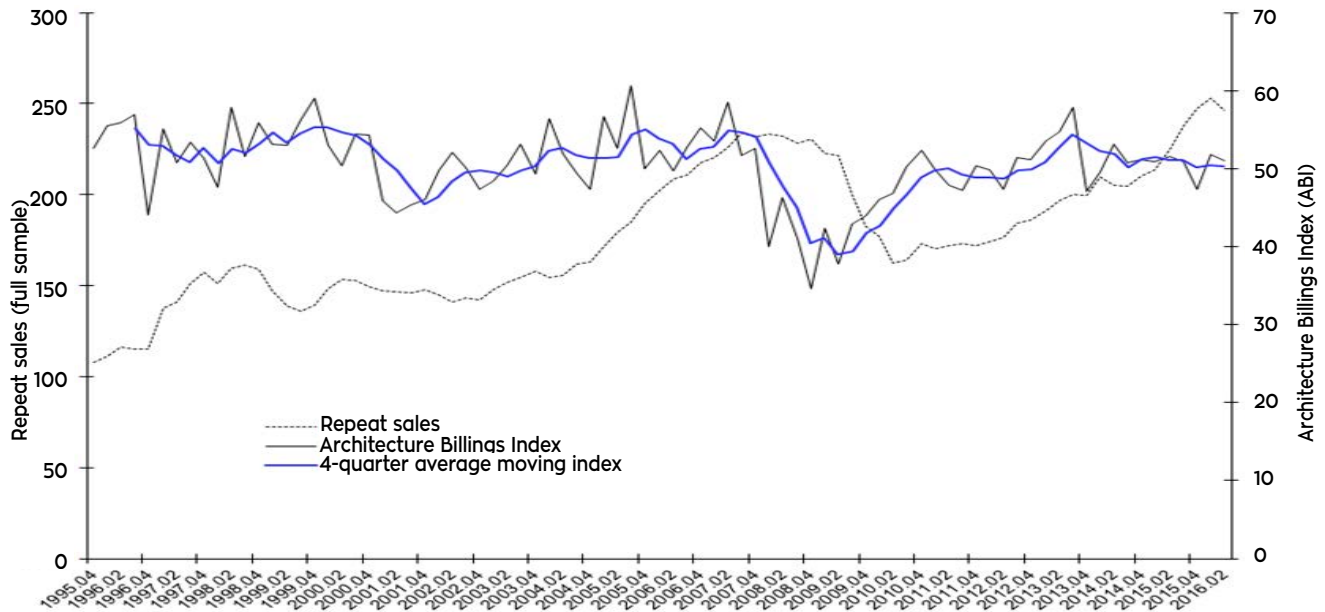## Hotel repeat sales index versus NAREIT lodging/resort price index
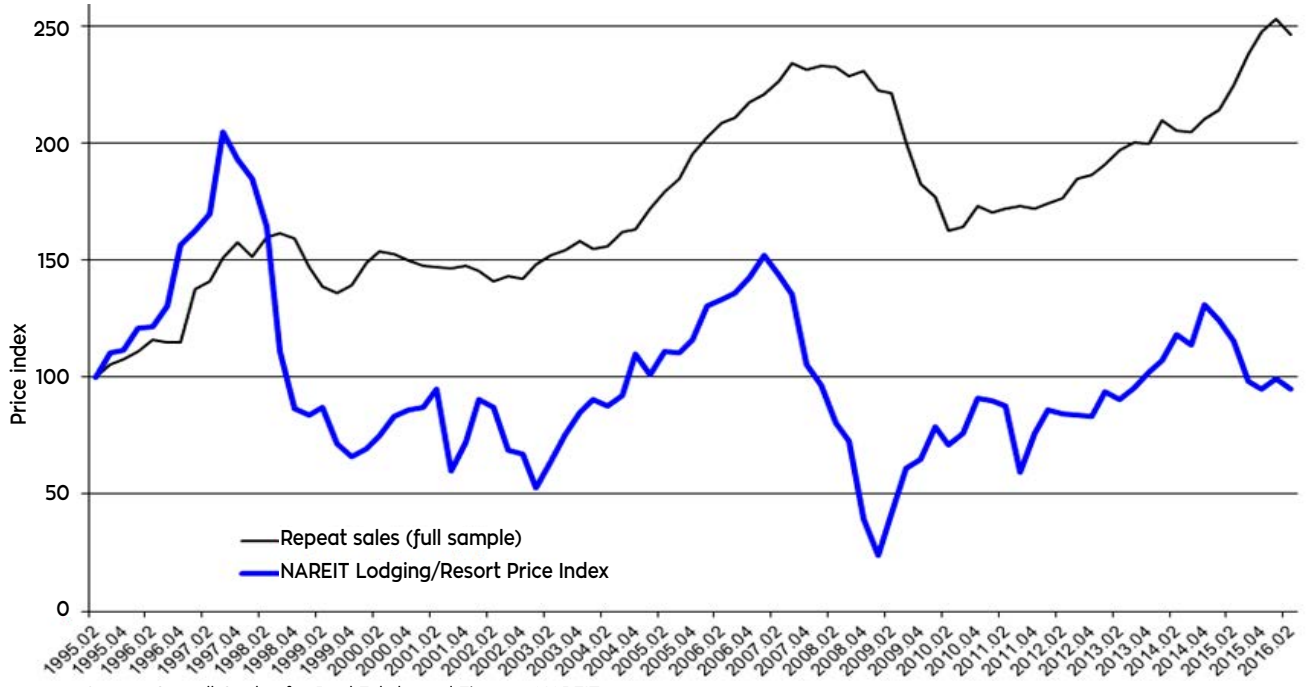
Source: Cornell Center for Real Estate and Finance, NAREIT

Exhibit 21

Standardized unexpected price (SUP) for NAREIT lodging/resort index

Source: Cornell Center for Real Estate and Finance, NAREIT

EXHIBIT 22

Hotel repeat sales index versus architecture billings index

Sources: Cornell Center for Real Estate and Finance, American Institute of Architects

greater than the total risk of equity REITs as a whole.[6] This is at odds with Exhibit 17, which shows that the perceived default risk for hotels is currently decreasing relative to other types of commercial real estate. This situation suggests that lenders will eventually start to tighten hotel lending standards (if this trend continues).

Negative signals continue to persist on the direction in the price of large hotels and also small hotels in the near term, according to the tea leaves. Exhibit 20 compares the performance of the repeat sales index relative to the NAREIT Lodging/Resort Price Index. The repeat sales index tends to lag the NAREIT index by at least one quarter or more. This is consistent with studies that have found that securitized real estate is a leading indicator of underlying real estate performance (since the stock market is forward looking, or efficient). Looking ahead, the NAREIT lodging index declined by 4.2 percent this quarter compared to an increase of 4.6 per-

cent in the prior quarter (2016Q1). We note that the NAREIT lodging index has been on a downward trend since the fourth quarter of 2014. Year over year, the NAREIT lodging index continues its downward trend, down 17.5 percent (2015Q2 to 2016Q2) compared to a 20-percent drop for 2015Q1 to 2016Q1 and a decrease of 27.5 from 2014Q4 to 2015Q4. In terms of the SUP for the NAREIT Hotel Index shown in Exhibit 21, which provides a complementary perspective, the hotel REIT index has now declined below its standardized mean of zero. In our prior issue, we had stated "The question is not whether hotel prices will fall but rather when they will start to fall." They now have fallen. Expect hotel prices to continue to fall.

The architecture billings index (ABI) for commercial and industrial property, which represents another forward looking metric,[7] declined this quarter being up in the previous quarter, as shown in Exhibit 22. The four-quarter moving average of the ABI, shown in blue, indicates that the ABI has generally been in a decline since the third quarter of 2013 (2013Q3). In

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[6] We calculate the total risk for hotel REITs using a 12 month rolling window of monthly return on hotel REITs.

[7] www.aia.org/practicing/economics/aias076265

EXHIBIT 23

Business confidence index (National Association of Purchasing Managers) and high-price hotel index
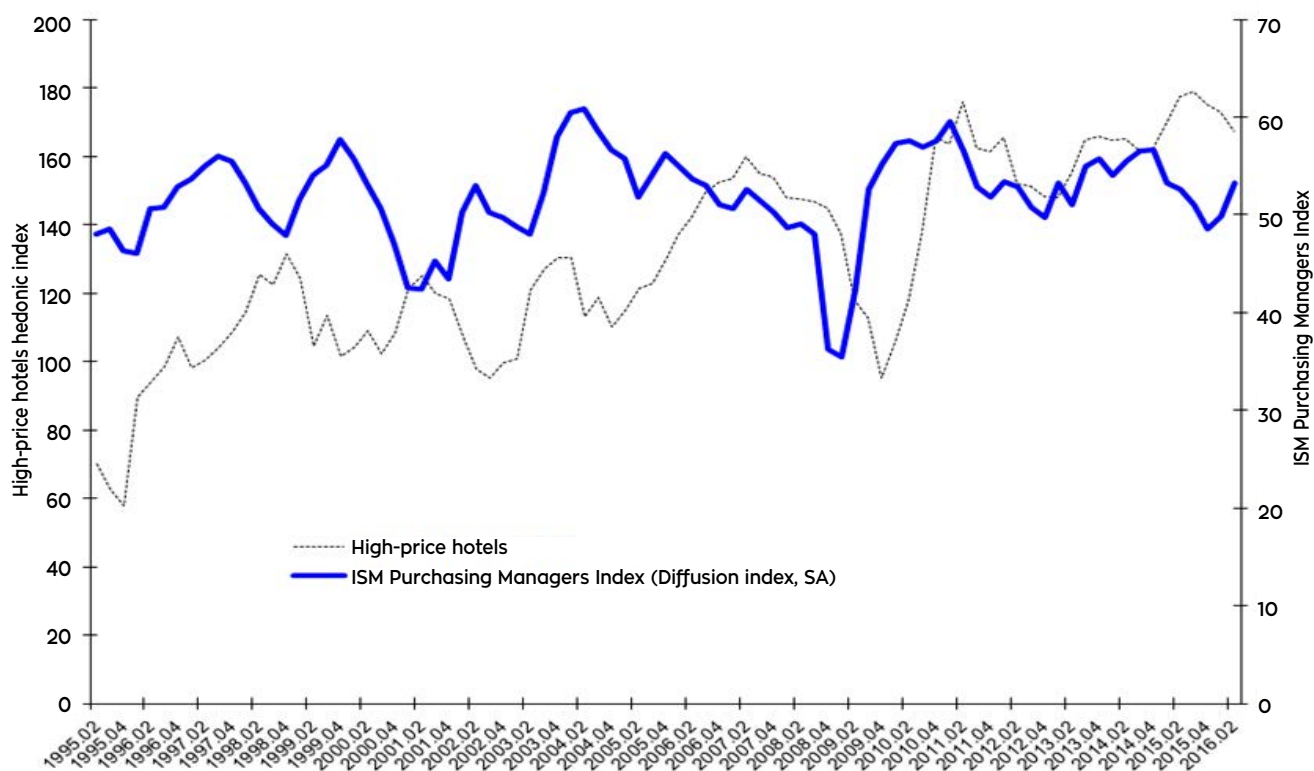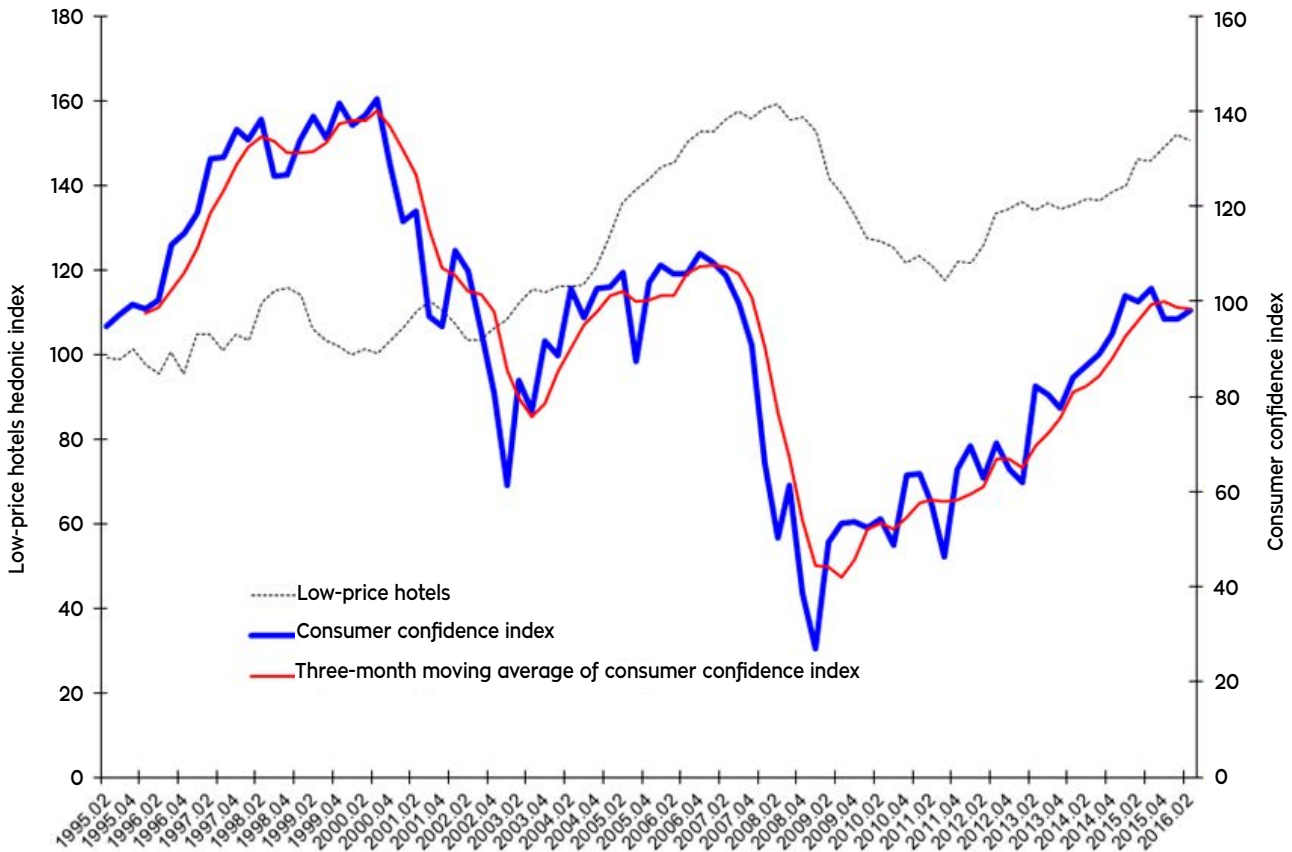

Sources: Cornell Center for Real Estate and Finance, Institute for Supply Management (ISM)

contrast with these indicators, the National Association of Purchasing Managers (NAPM) index shown in Exhibit 23, which is an indicator of anticipated business confidence and thus business traveler demand, continued its positive momentum in June.[8] Our large-hotel price index, however, declined just as we predicted, given that the NAPM index is a leading index of the behavior of the price of large hotels. Based on the NAPM index, we expect to continue to see a downward pressure on the price of large hotels at least for the next quarter.

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[8] The ISM: Purchasing Managers' Index, (Diffusion index, SA) also known as the National Association of Purchasing Managers (NAPM) index is based on a survey of over 250 companies within twenty-one industries covering all 50 states. It not only measures the health of the manufacturing sector but is a proxy for the overall economy. It is calculated by surveying purchasing managers for data about new orders, production, employment, deliveries, and inventory, in descending order of importance. A reading over 50% indicates that manufacturing is growing, while a reading below 50% means it is shrinking.

EXHIBIT 24

Consumer confidence index and low-price hotel index

Sources: Cornell Center for Real Estate and Finance, Conference Board

The Consumer Confidence Index from the Conference Board graphed in Exhibit 24, which we use as a proxy for anticipated consumer demand for leisure travel and a leading indicator of the hedonic index for low priced hotels, rose about 2 percent in June (2016Q2) quarter-over-quarter, but fell approximately 2 percent on a year-over-year basis. We expect the price of small hotels to continue to fall based on the four-quarter moving average of the consumer confidence index. ∎

Hotel Valuation Model (HOTVAL) has been updated. We have updated our hotel valuation regression model to include the transaction data used to generate this report. We provide this user friendly hotel valuation model in an Excel spreadsheet entitled "HOTVAL Toolkit" as a complement to this report, which is available for download on the CREFtools page of the Scholarly Commons.

Appendix

SUP: The Standardized Unexpected Price Metric

The standardized unexpected price metric (SUP) is similar to the standardized unexpected earnings (SUE) indicator used to determine whether earnings surprises are statistically significant. An earnings surprise occurs when the firm's reported earnings per share deviates from the street estimate or the analysts' consensus forecast. To determine whether an earnings surprise is statistically significant, analysts use the following formula:

$$SUE_Q = (A_Q - m_Q)/s_Q$$

where SUE_Q = quarter Q standardized unexpected earnings,

A_Q = quarter Q actual earnings per share reported by the firm,

m_Q = quarter Q consensus earnings per share forecasted by analysts in quarter Q-1, and

s_Q = quarter Q standard deviation of earnings estimates.

From statistics, the SUE_Q is normally distributed with a mean of zero and a standard deviation of one (~N(0,1)). This calculation shows an earnings surprise when earnings are statistically significant, when SUE_Q exceeds either ±1.645 (90% significant) or ±1.96 (95% significant). The earnings surprise is positive when $SUE_Q > 1.645$, which is statistically significant at the 90% level assuming a two-tailed distribution. Similarly, if $SUE_Q < -1.645$ then earnings are negative, which is statistically significant at the 90% level. Intuitively, SUE measures the earnings surprise in terms of the number of standard deviations above or below the consensus earnings estimate.

SUP data and σ calculation for high-price hotels (12 quarters/3 years)				
Quarter	High-price hotels μ	Moving average	σ	Price surprise indicator (SUP)
1995.02	70.60			
1995.03	63.11			
1995.04	58.11			
1996.01	90.54			
1996.02	95.24			
1996.03	99.70			
1996.04	108.38			
1997.01	99.66			
1997.02	101.62			
1997.03	105.34			
1997.04	109.53			
1998.01	115.78	93.13	18.99	1.19
1998.02	126.74	97.81	19.83	1.46

From our perspective, using this measure complements our visual analysis of the movement of hotel prices relative to their three-year and five-year moving average (μ). What is missing in the visual analysis is whether prices diverge significantly from the moving average in statistical terms. In other words, we wish to determine whether the current price diverges at least one standard deviation from μ, the historical average price. The question we wish to answer is whether price is reverting to (or diverging from) the historical mean. More specifically, the question is whether this is price mean reverting.

To implement this model in our current context, we use the three- or five-year moving average as our measure of μ and the rolling three- or five-year standard deviation as our measure of σ. Following is an example of how to calculate the SUP metric using high price hotels with regard to their three-year moving average. To calculate the three-year moving average from quarterly data we sum 12 quarters of data then divide by 12:

$$Average (\mu) = \frac{(70.6+63.11+58.11+90.54+95.24+99.70+108.38+99.66+101.62+105.34+109.53+115.78)}{12} = 93.13$$

Standard Deviation (σ) = 18.99

$$Standardized\ Unexp\ Price\ (SUP) = \frac{(115.78-93.13)}{18.99} = 1.19$$

CREF Advisory Board