

Flight to Quality: Big Trumps Small

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

EXECUTIVE SUMMARY

With this edition of the Cornell Hotel Indices, we introduce a new hotel investment performance metric, economic value added (EVA), which indicates that hotel investors are buying hotels based on future price appreciation since current yields are below their financing costs. Hotel prices continue to behave in a similar manner relative to the 1995Q2 to 2002Q4 cycle, with a price reversal in the fourth quarter of 2013, but a positive trend expected in the first quarter of 2014 if history continues to repeat itself. The price indices for large and small hotels have diverged again, with large hotels outperforming small hotels. The downward price trend also exists for repeat sale transactions. The premium on hotel properties rose relative to other property types, signaling that investors currently have higher perceived default risk for hotel properties. Our business confidence metric along with the NAREIT Lodging/Resort index suggests that we should continue to expect to positive price momentum for larger hotels albeit the Architecture Billing Index suggests a decline in new project billings. We also expect an increase in prices for smaller hotels going forward, based on a year-over-year analysis in the Consumer Confidence Index. This is paper number 9 of the index series.

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 resales 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.

Flight to Quality: Big Trumps Small

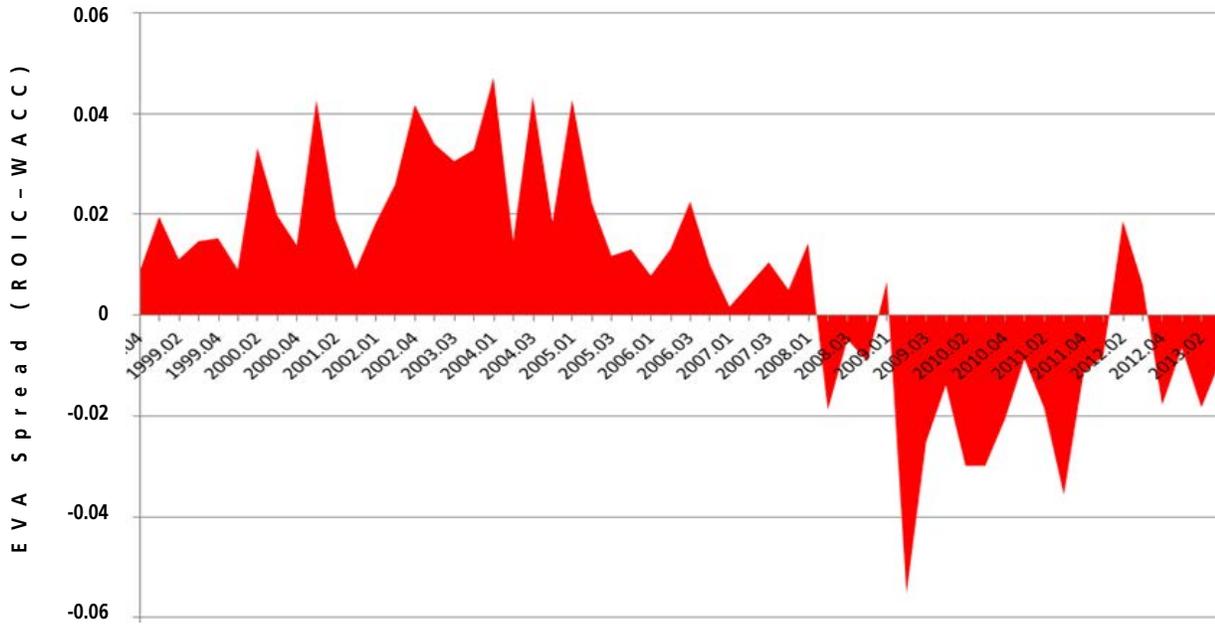
Crocker H. Liu, Adam D. Nowak, and Robert M. White, Jr.

Analysis of Indices through Q4, 2013

A new hotel investment performance metric is introduced. Starting with this issue, we will apply our new economic value added (EVA) indicator as a barometer of hotel investment performance. Complete details of how to use this benchmark and why it is superior to evaluating cap rates relative to 10-year Treasury rates can be found in the recent publication from the Center for Hospitality Research and Center for Real Estate and Finance entitled “Using Economic Value Added (EVA) as a Barometer of Hotel Investment Performance,” by Matthew J. Clayton and Crocker H. Liu. Essentially, the hotel EVA spread tells us whether the current hotel yield (cap rate) exceeds the total borrowing cost (weighted average cost of capital; also includes the cost of equity financing) for doing a typical deal. Intuitively, if an investor finances a hotel project using 7-percent financing, the current yield on the project should exceed the 7-percent borrowing cost. Exhibit 1 (next page) shows that the EVA spread for hotels was positive until the first quarter of 2008. Subsequent to this period, the EVA spread has been either negative or near zero except for the second quarter of 2012 when it was positive. A negative EVA spread indicates that any return for hotel investors must come at the back end of the project. The expectation is that they will make their money when they sell the hotel due to price appreciation rather than making their money immediately.

EXHIBIT 1

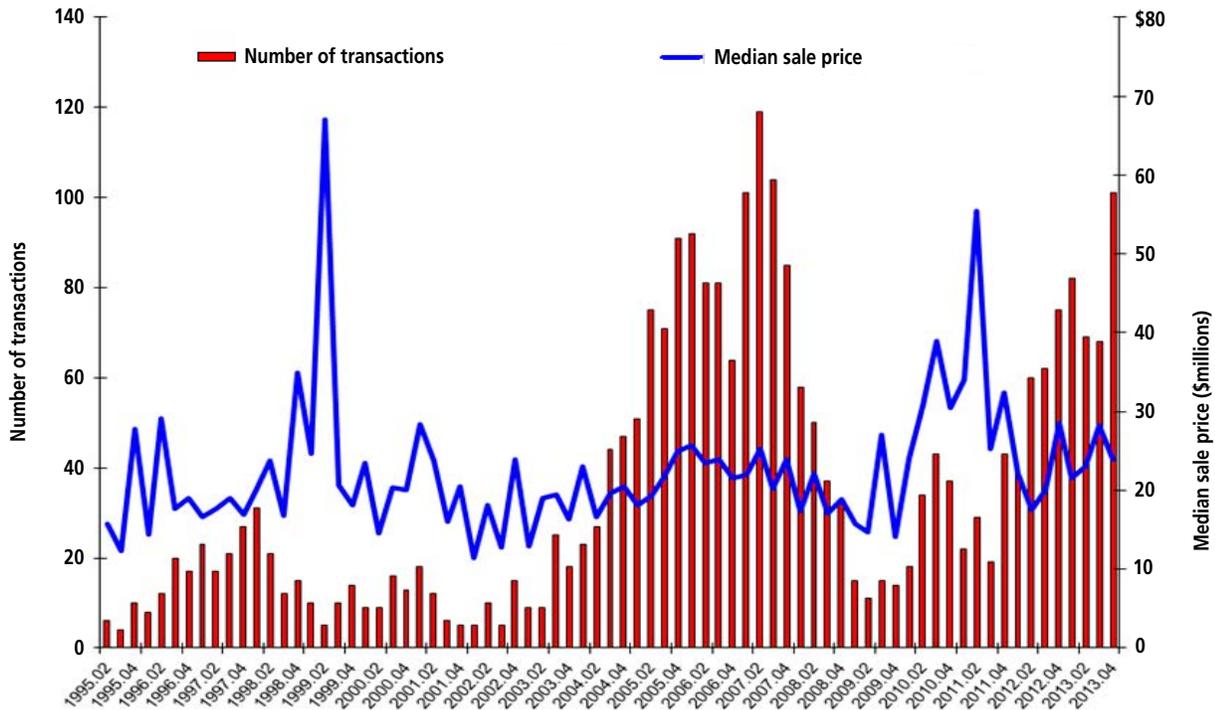
Economic value added (EVA) for hotels



Sources: ACLI, Cornell Center for Real Estate and Finance, NAREIT, Federal Reserve

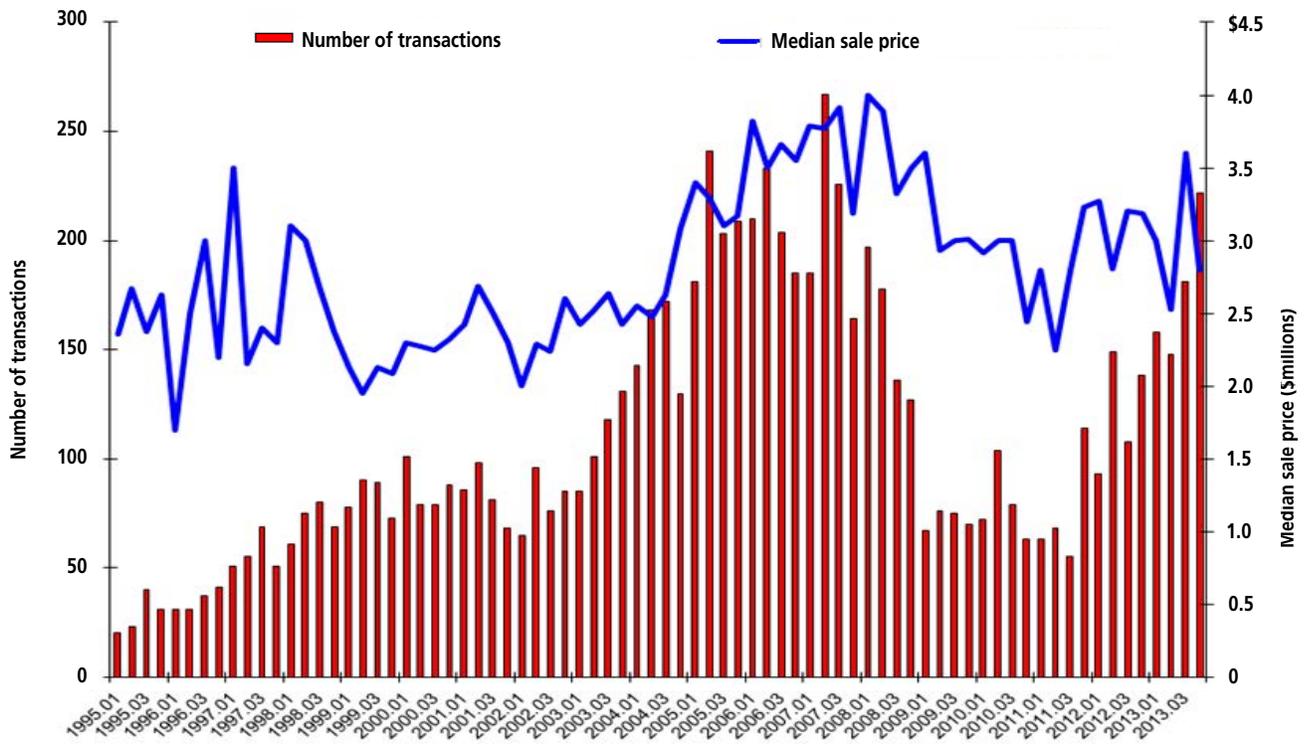
EXHIBIT 2

Median sale price and number of sales for large hotels (sale prices of \$10 million or more)



Sources: CoStar, Real Capital Analytics

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



Sources: CoStar, Real Capital Analytics

Hotel transaction volume continues to increase but median price falls. The total volume of hotel transactions continued to increase in the fourth quarter. Year over year, the hotel transaction volume increased from 46.5 percent (2012Q3 to 2013Q3) to 51.6 percent (2012Q4 to 2013Q4), while it increased from 14.7 percent (2013Q2 to 2013Q3) to 29.7 percent (2013Q3 to 2013Q4) on a quarter-over-quarter basis. The volume of large hotel transactions rose 48.5 percent, while small hotel transaction volume rose by 22.7 percent from the previous quarter.¹ The transaction volume for large hotels grew almost 35 percent on a year-over-year basis; small hotel transaction volume was even more impressive with a year-over-year growth rate of 61 percent. In contrast, the median price for both large and small hotels declined on a both a year-over-year (-16% versus -12%) and quarter-over-quarter basis (-15% versus -22%). The positive trends for both the number of large and smaller hotel transactions are shown in Exhibit 2, while the negative trends for median prices are illustrated in Exhibit 3.

¹ Please 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.

Déjà vu all over again. Hotel prices continue to behave in a similar manner relative to the 1995Q2 to 2002Q4 cycle based on repeat sales. Exhibit 4 provides the price index for the repeat hotel sales used to construct our RSI cycle analysis shown in Exhibit 5 together with the hedonic price indices for small and large hotels. Exhibit 5 confirms our prior assessments based on cycle analysis; we experienced a price reversal this quarter but we anticipate a positive trend for the first quarter of 2014.

Prices of large and small hotels have diverged again. Exhibit 6 shows that prices have once again diverged for the large-hotel and small-hotel indices. In fact, it appears as if large hotel prices are a leading indicator of the future price behavior of small hotels. Exhibit 7 shows that the large hotel index continues to be above both its three-year and five-year moving average, indicating a “buy” signal. Exhibit 8 provides further evidence that the large-hotel index continues to rise on a year-over-year basis. Although the current price continues to be above both their three-year and five-year moving average for smaller hotels, Exhibit 9 shows that prices for smaller hotels declined towards their three- and five-year moving averages.

EXHIBIT 4

Hotel indices through 2013, quarter 4

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	Repeat Sales Index		Low Priced Hotels (<\$10M)	High Priced Hotels (>=\$10M)	Repeat Sales Index	Repeat Sales Index
1995.02	99.33	70.75	64.01	.	2004.04	119.13	104.29	102.80	103.24
1995.03	98.54	61.45	65.12	.	2005.01	125.62	108.25	109.33	134.18
1995.04	100.77	57.25	67.08	.	2005.02	132.94	114.07	113.17	127.26
1996.01	97.08	87.02	68.48	.	2005.03	136.37	115.74	118.43	142.77
1996.02	95.19	92.01	71.39	.	2005.04	137.73	123.54	125.51	135.90
1996.03	100.57	97.03	70.54	.	2006.01	141.08	130.32	130.17	146.31
1996.04	95.17	104.03	71.03	.	2006.02	142.19	136.58	133.77	144.31
1997.01	103.91	97.78	87.03	.	2006.03	146.67	144.29	134.61	147.71
1997.02	103.25	98.14	89.35	.	2006.04	149.99	146.72	138.87	151.86
1997.03	99.17	100.83	96.45	.	2007.01	150.33	147.73	140.68	152.96
1997.04	103.14	104.91	100.53	.	2007.02	153.59	153.16	143.28	154.15
1998.01	102.36	110.75	96.33	.	2007.03	155.23	148.46	147.58	162.26
1998.02	109.01	122.27	103.02	.	2007.04	154.07	147.72	145.67	160.86
1998.03	111.57	119.08	104.30	.	2008.01	156.18	142.02	144.36	173.01
1998.04	112.58	128.89	103.33	.	2008.02	157.21	140.36	146.03	170.76
1999.01	110.90	121.52	95.82	.	2008.03	153.85	140.19	144.61	154.66
1999.02	105.51	101.91	89.08	.	2008.04	154.20	137.09	146.19	157.56
1999.03	102.85	112.66	87.97	.	2009.01	151.09	129.70	144.06	148.21
1999.04	101.30	101.26	89.71	.	2009.02	140.86	112.69	143.04	145.43
2000.01	99.49	104.25	94.97	100.00	2009.03	136.72	106.97	129.76	96.47
2000.02	100.84	109.23	98.63	106.99	2009.04	132.41	91.17	118.14	102.53
2000.03	100.38	101.60	97.30	88.13	2010.01	125.77	102.55	111.55	108.53
2000.04	103.36	108.41	94.14	86.39	2010.02	124.52	113.67	100.35	101.17
2001.01	106.12	119.64	92.59	95.07	2010.03	123.57	131.67	100.80	101.80
2001.02	110.01	120.27	91.87	101.21	2010.04	120.07	158.65	106.66	124.36
2001.03	111.84	114.12	92.77	99.20	2011.01	121.80	156.14	106.17	112.01
2001.04	109.72	113.25	94.74	93.19	2011.02	119.33	167.79	109.60	112.31
2002.01	107.08	104.74	93.78	107.90	2011.03	116.44	158.00	110.92	105.55
2002.02	103.43	97.16	91.55	84.80	2011.04	121.46	156.41	111.40	126.20
2002.03	103.53	94.90	92.27	94.22	2012.01	120.96	160.37	113.12	110.87
2002.04	106.28	96.68	90.89	94.13	2012.02	125.49	147.98	106.50	84.11
2003.01	107.91	96.19	93.09	97.17	2012.03	130.87	145.73	112.27	126.15
2003.02	111.22	116.37	95.18	106.00	2012.04	131.67	143.31	113.46	130.82
2003.03	114.34	122.55	95.60	101.94	2013.01	133.38	143.14	116.47	122.43
2003.04	113.67	127.70	97.16	103.28	2013.02	131.22	149.23	127.71	137.35
2004.01	115.15	127.30	96.07	104.71	2013.03	134.05	159.19	129.26	141.11
2004.02	115.00	110.14	97.96	113.18	2013.04	132.79	160.29	127.66	138.92
2004.03	114.94	114.32	101.38	116.70					

EXHIBIT 5

Comparison of hotel real estate cycles using repeat sales

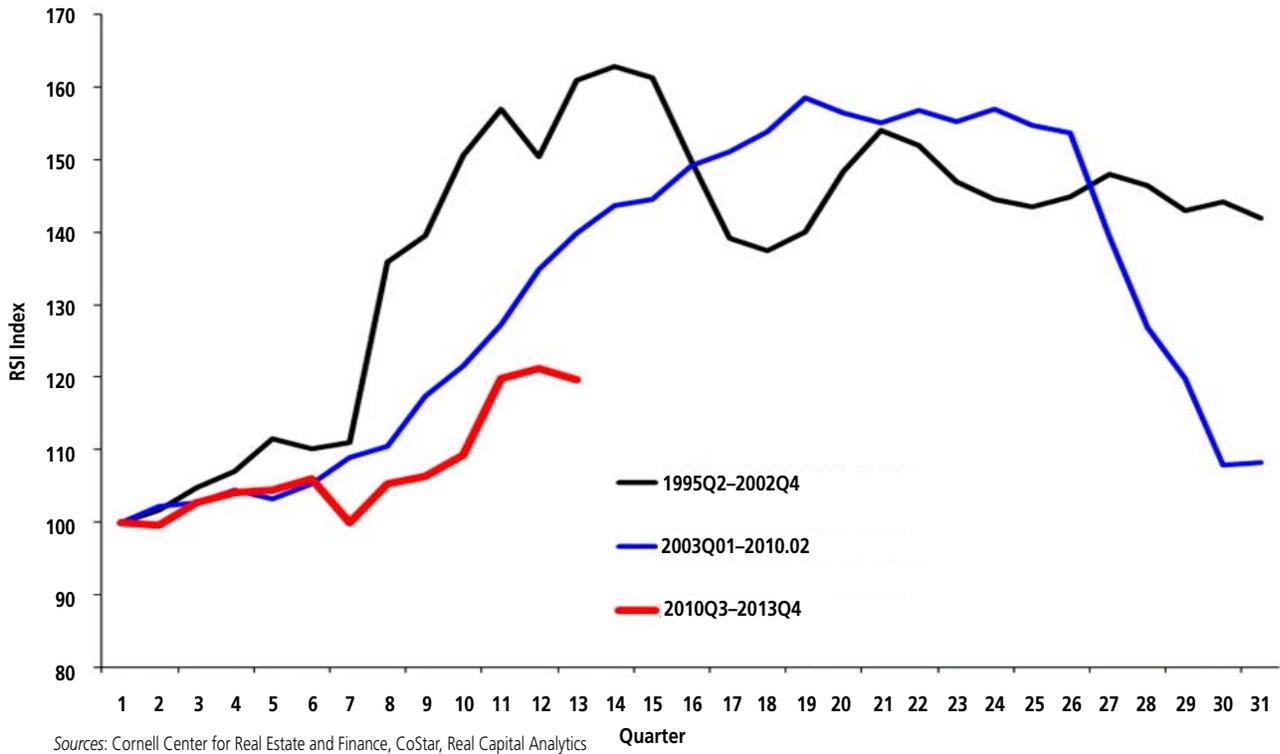


EXHIBIT 6

Hedonic hotel indices for large and small hotel transactions

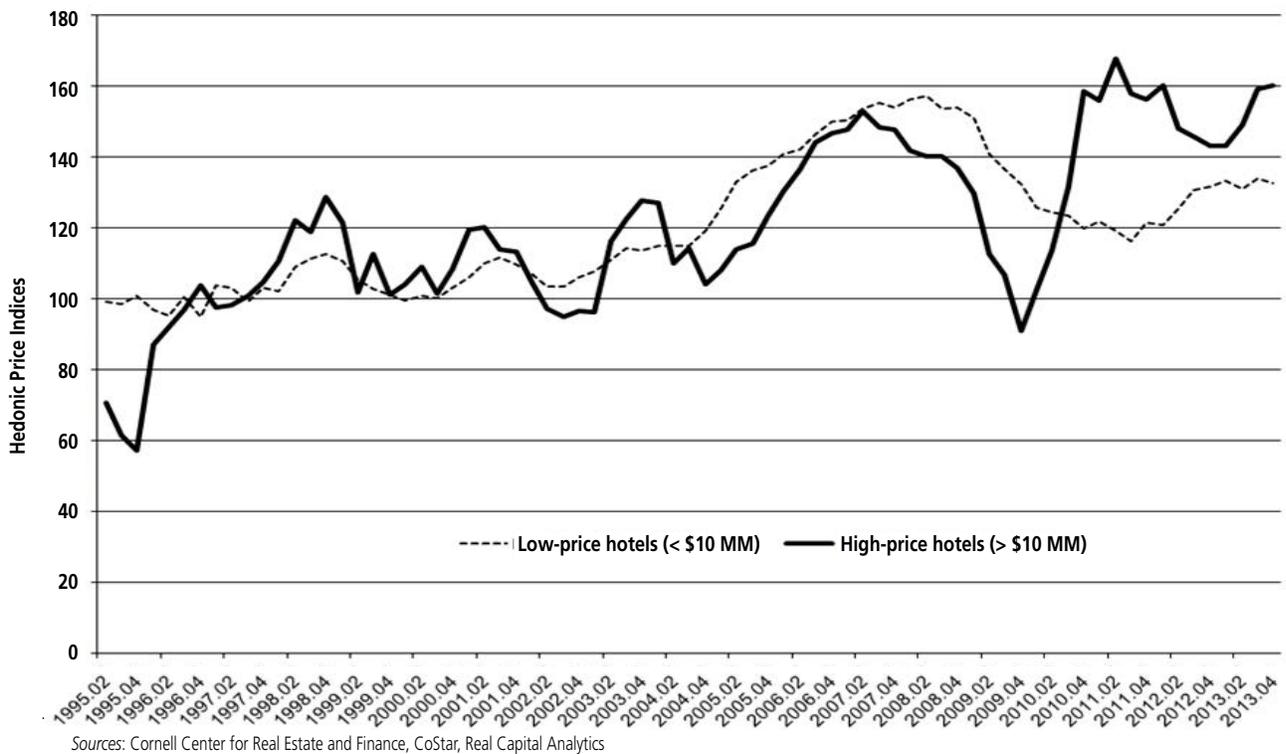
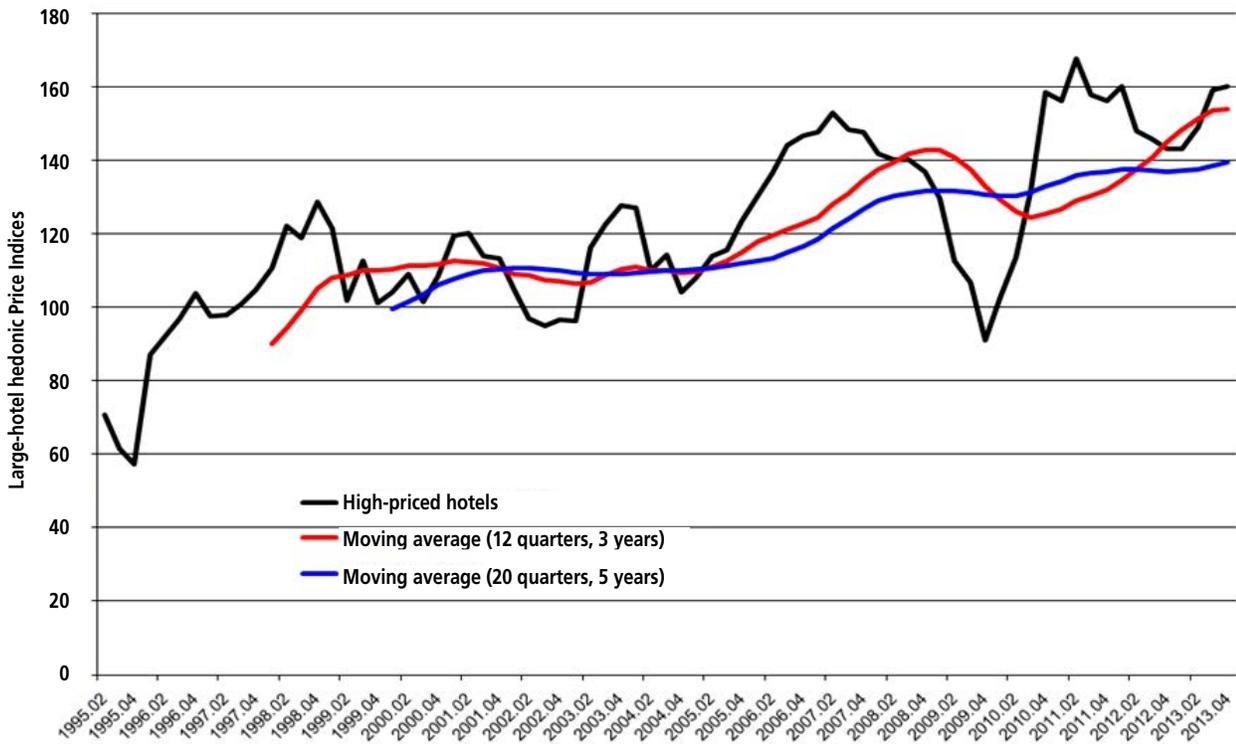


EXHIBIT 7

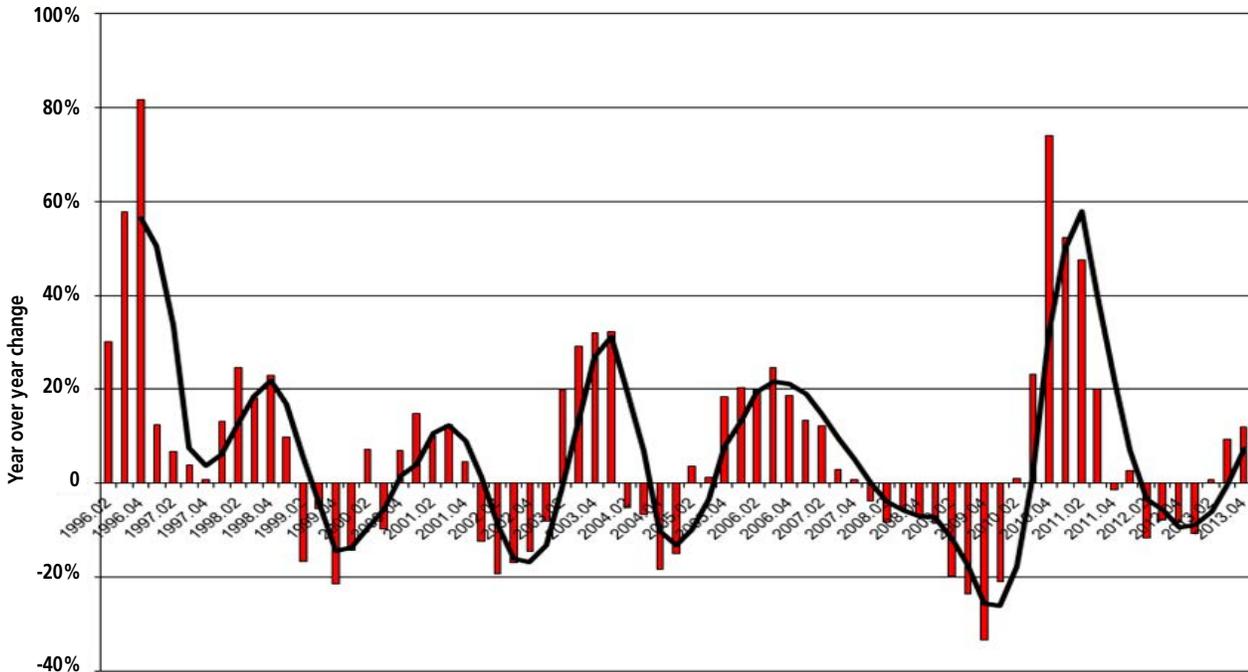
Large hotel index, with three-year and five-year moving averages



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

EXHIBIT 8

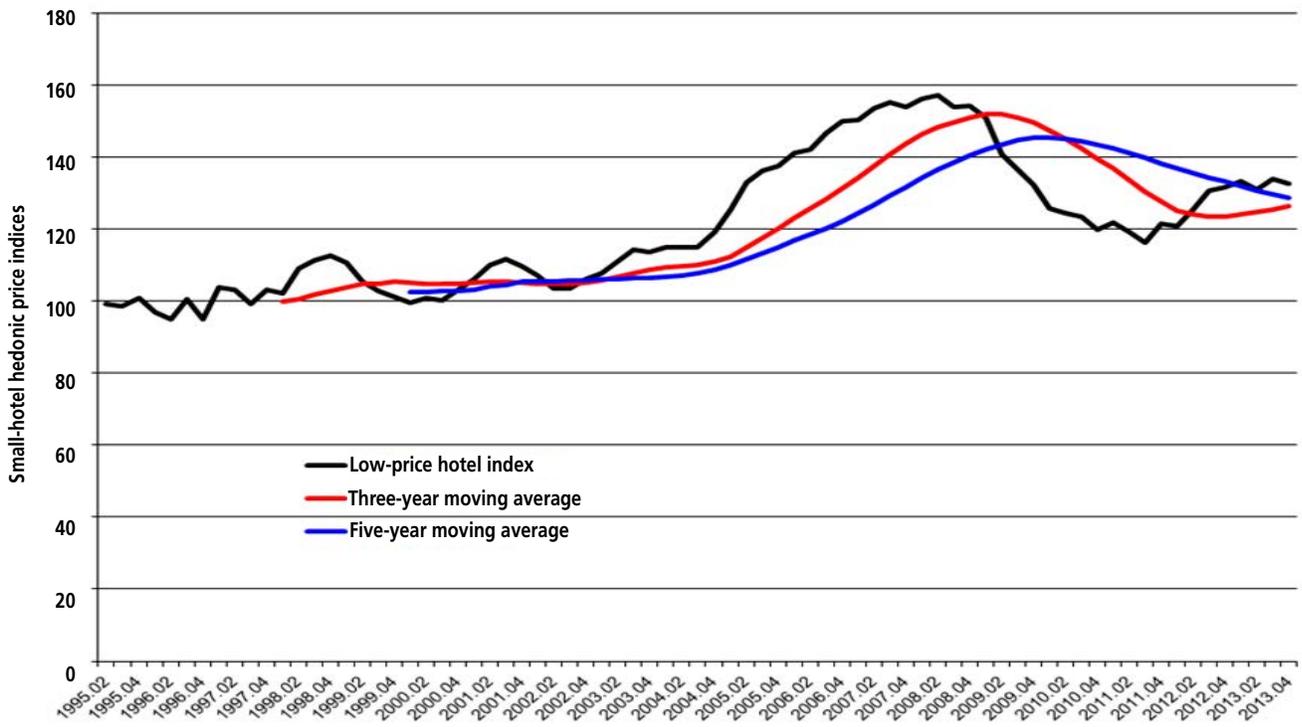
Year-over-year change in large-hotel index, with moving-average trendline



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

EXHIBIT 9

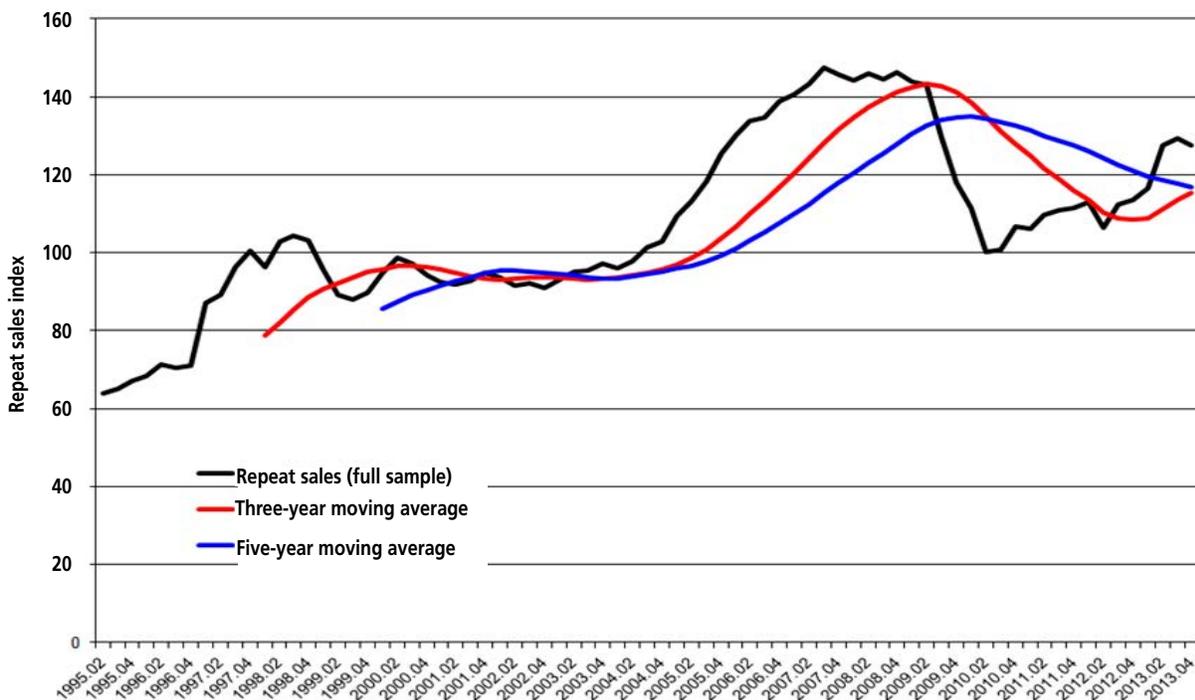
Small hotel index, with three-year and five-year moving averages



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

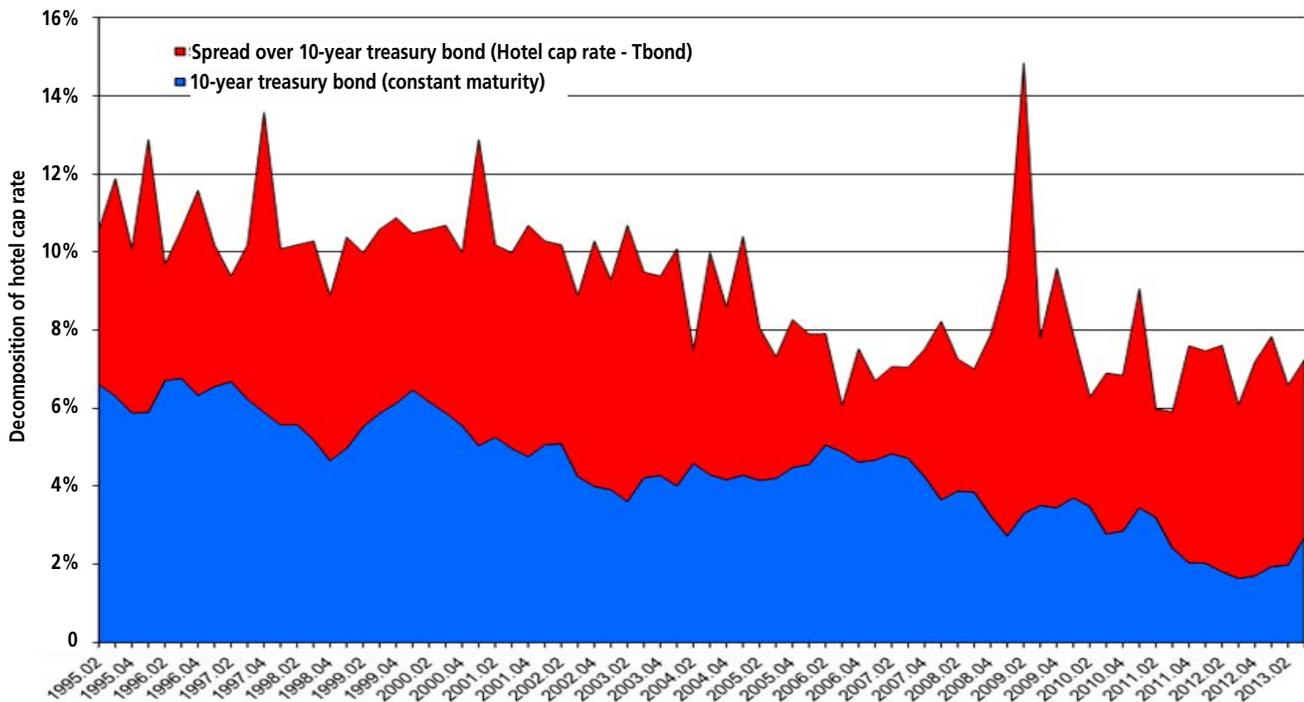
EXHIBIT 10

Hotel repeat-sale index (full sample), three-year moving average, and five-year moving average



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

Decomposition of ACLI hotel capitalization rates into risk premium and risk-free rate



Sources: ACLI, Cornell Center for Real Estate and Finance

Hotels also continue to trend downwards in terms of repeat sales. The repeat sale of hotels in Exhibit 10, based on the full sample,² echoes a similar story to small hotels. The current repeat sale index (full sample) of 127.66 (2013Q4) is below the previous quarter's (2013Q3) index of 129.26, but it is above the previous year's index of 113.46 (2012Q4). Stated differently, the repeat hotel sale index rose 12.5 percent on a year-over-year basis (2012Q4 to 2013Q4), but declined by -1.2 percent on a quarterly basis (2013Q3 to 2013Q4).

Cap rates continue to rise. For the third quarter of 2013, the latest quarter for which ACLI reports data on hotel cap rates, cap rates have increased from 6.6 percent in 2013Q2 to 7.3 percent in 2013Q3. This expansion in hotel cap rates is consistent with the negative price trend. Exhibit 11 shows that although the rate on the 10-year Treasury bond (constant maturity) rose slightly from 1.99 percent to 2.71 percent the hotel cap rate spread over the 10-year treasury rose to 4.5 percent. This suggests that investors are pricing

hotels at a higher risk premium due to higher anticipated risk from investing in this asset class. We expect the ACLI cap rate to continue to rise further in 2013Q4 based on the few properties that reported cap rates for hotel transactions in 2013Q4 from both the CoStar and Real Capital Analytic databases.³

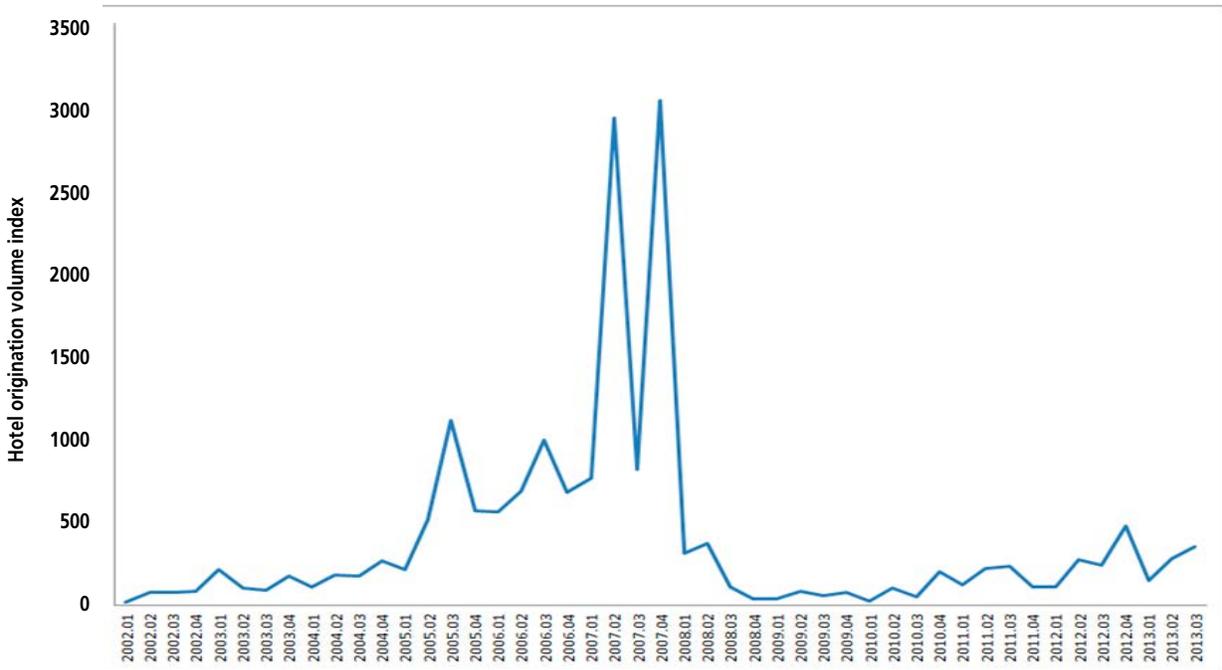
Mortgage financing volume for hotels has increased, but not the cost. Exhibit 12 shows that the mortgage origination volume for hotels increased by almost 25 percent in the third quarter of 2013. The level of loan origination volume also exceeded the previous year (2012Q3) by 46 percent. The cost of obtaining hotel financing, however, has not risen relative to the last quarter, although the interest rate spread has widened. The interest rate on Class A full-service hotels, which was 5.53 percent as of September 2013, is currently at 5.39 percent as of December 2013. The parallel figures for Class B hotels are 5.78 percent in September 2013 and 5.64 percent in December. Exhibit 13 and Exhibit 14 depict interest rate spreads relative to different benchmarks. Exhibit 13 shows the spread between Class A (B&C) interest rates on full service hotels over the ten-year Treasury bond. Exhibit 14 shows the spread between the interest rate on Class A (B&C) full service hotels over the interest rate corresponding to non-hotel commercial real estate (the hotel real

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 latter 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 first repeat sale index (that is, repeat sale full sample index), but it would not be included in the latter repeat sale index.

³ Note that ACLI reports cap rates one quarter behind our report.

EXHIBIT 12

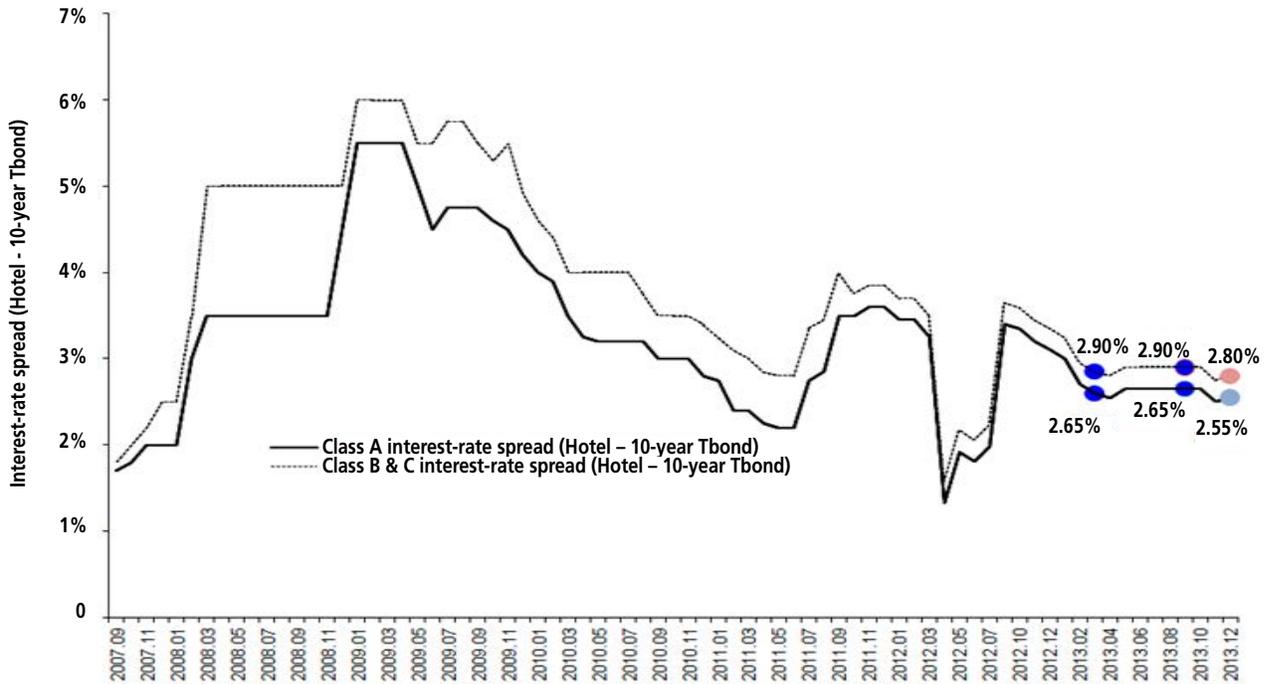
Mortgage loan origination volume for hotels



Sources: Mortgage Bankers Association, Cornell Center for Real Estate and Finance

EXHIBIT 13

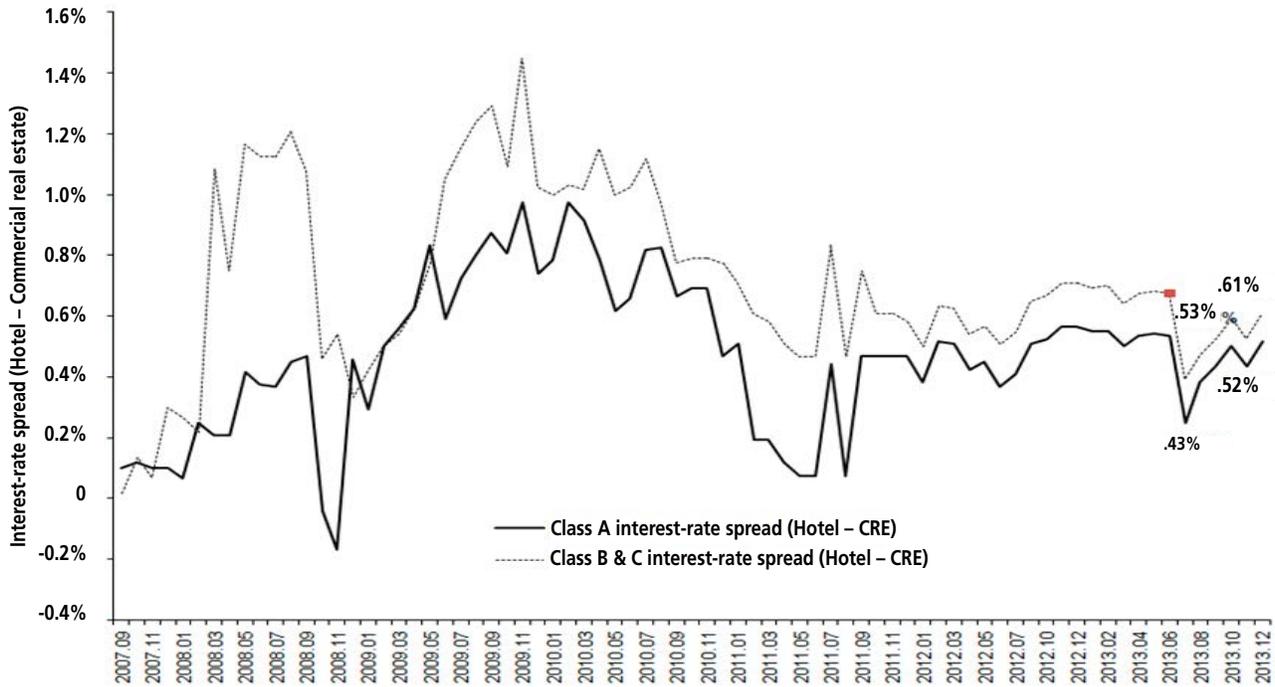
Interest-rate spreads of hotels versus U.S. Treasury ten-year bonds



Source: Cushman Wakefield Sonnenblick Goldman

EXHIBIT 14

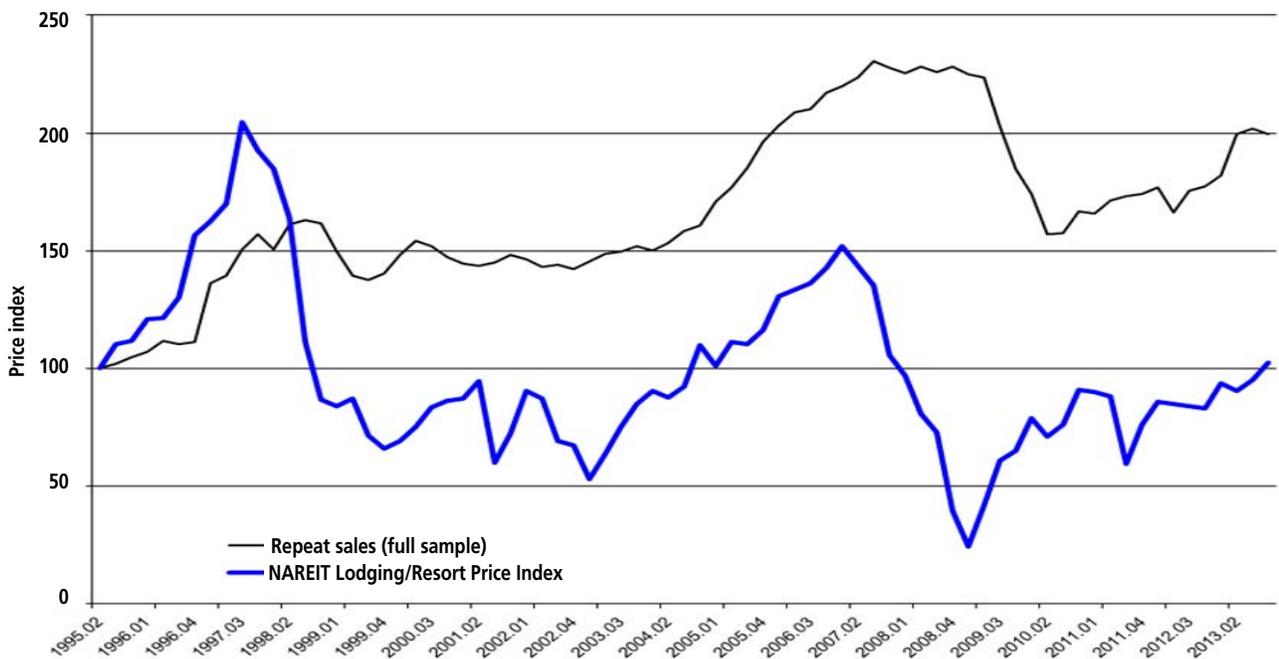
Interest-rate spreads of hotels versus non-hotel commercial real estate



Source: Cushman Wakefield Sonnenblick Goldman

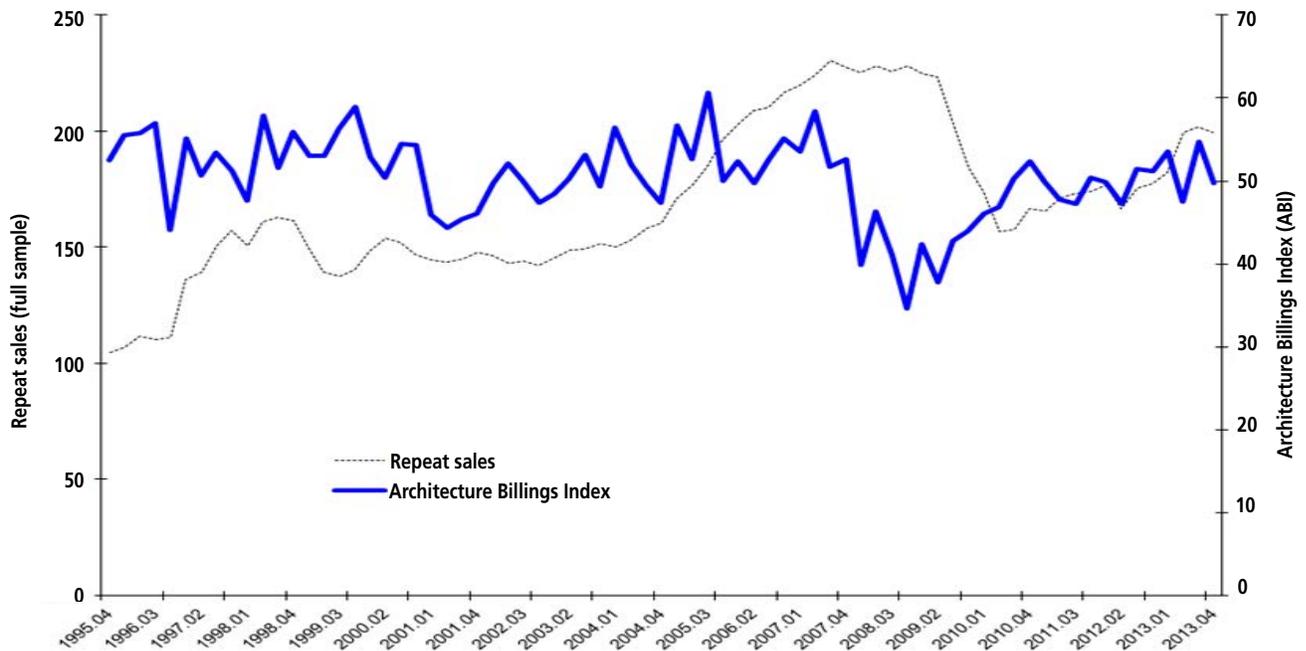
EXHIBIT 15

Hotel repeat sales index versus NAREIT lodging/resort price index



Source: Cornell Center for Real Estate and Finance, NAREIT

Hotel repeat sales index versus architecture billings index



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

estate premium).⁴ The hotel real estate premiums for both higher quality (.52%) and lower quality (.61%) hotels have increased relative to the previous quarter (high quality, .43%; low quality, .53%). The slight increase in the premium in Exhibit 14 is a signal that the perceived default risk for hotel properties has increased relative to the four major commercial real estate property types in the fourth quarter of 2013.

Expect the price of large hotels to strengthen at the expense of small hotels, according to the tea leaves. Exhibit 15 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 prior academic studies which find that securitized real estate is leading indicator of underlying real estate performance since the stock market is efficient and forward looking. Looking ahead, the NAREIT lodging index has turned up (7.5%). The Architecture Billings Index (ABI) for commercial and industrial property which represents another forward looking metric,⁵ in

⁴ 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.

⁵ www.aia.org/practicing/economics/aia076265

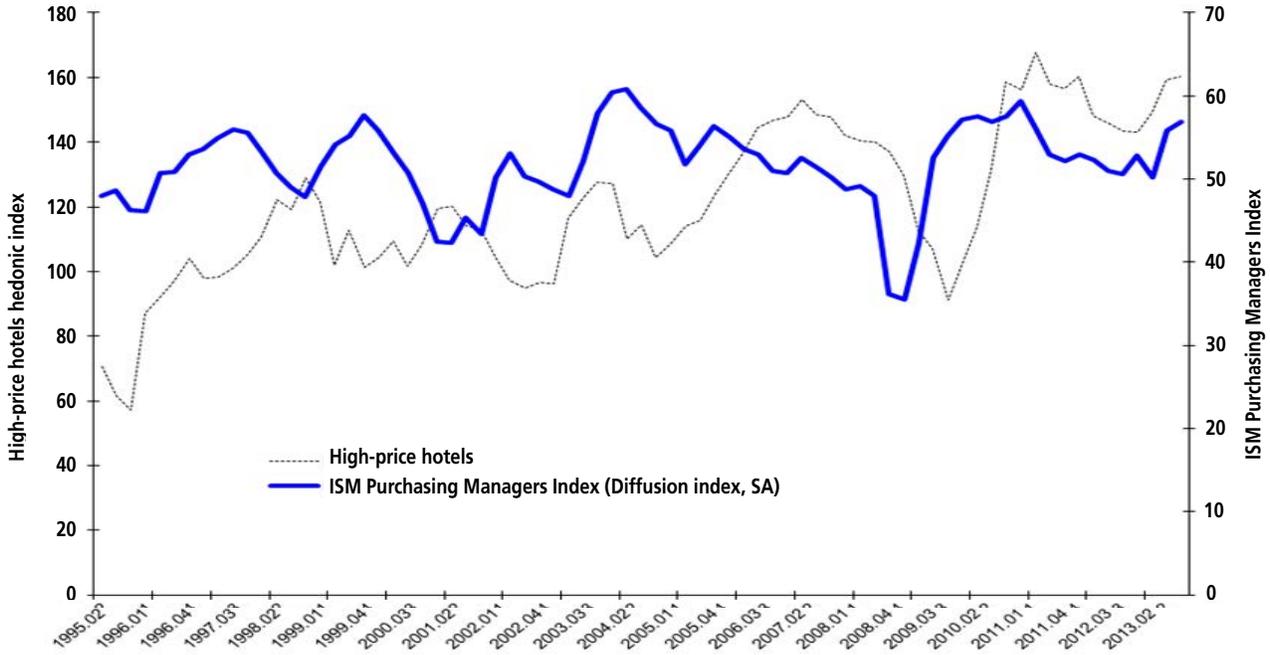
contrast, has turned down (-9%) as shown in Exhibit 16.⁶ A third forward looking measure, the National Association of Purchasing Managers (NAPM) index,⁷ which is an indicator of anticipated business confidence and thus business traveler demand also turned up (approximately 2%) this quarter. We therefore anticipate that the price of large hotels should continue to strengthen. Unfortunately, the signal is mixed for hotels based on repeat sales, with the NAREIT index indicating a positive trend while the ABI shows a negative trend.

⁶ We used the May ABI index as reported on June 19, 2013, since the June ABI index will be reported after the writing of this report. The ABI anticipates non-residential construction activity by approximately 9-12 months. According to material posted on their website, "The indexes are developed from the monthly Work-on-the-Boards survey panel where participants are asked whether their billings increased, decreased, or stayed the same in the month that just ended. According to the proportion of respondents choosing each option, a score is generated, which represents an index value for each month."

⁷ 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 17

Business confidence and high-price hotel index



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

EXHIBIT 18

Consumer confidence and low-price hotel index



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

The Consumer Confidence Index from the Conference Board, 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 (<\$10 million), fell slightly in December (Exhibit 18, blue line). A similar situation existed last December as well. However, consumer confidence increased nearly 21 percent on a year over year basis (2012Q4 to 2013Q4) this quarter which is a 7-percent rise over the 14-percent year over year increase (2012Q3 to 2013Q3) reported last quarter. We anticipate an upward trend in the transaction price for low priced hotels based on the year over year trend.

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 from our [CREF website](#).

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 Professor 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*, *Review of Finance*, *Real Estate Economics*, and the *Journal of Real Estate Finance and Economics*. He is currently the 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. His thesis title was "Eigenvector Methods and Cointegrated Series." 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.



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*, and *Financial Times*, among others. 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.

Acknowledgments

We wish to thank Glenn Withiam for copy editing this paper.

Disclaimer

The Cornell hotel indices produced by The Center for Real Estate and Finance at the School of Hotel Administration at Cornell University are provided as a free service to academics and practitioners on an as-is, best-effort basis with no warranties or claims regarding its usefulness or implications. The indices are not audited, and they are not necessarily free of errors or omissions although every effort has been made to minimize these. The reported indices for any quarter of any year should be considered preliminary and subject to revision.

CREF Industry Fellows



CREF Advisory Board

Arthur Adler

*Managing Director and CEO-Americas
Jones Lang LaSalle Hotels*

Richard Baker

*President and CEO
National Realty & Development Corp*

Michael Barnello

*President & COO
LaSalle Hotel Properties*

Scott Berman

*Principal, Industry Leader
PricewaterhouseCoopers*

Vernon Chi

*Senior Vice President
Wells Fargo*

Howard Cohen

*President & Chief Executive Officer
Atlantic | Pacific Companies*

Jeff Dallas

*Senior Vice President, Development
Wyndham Hotel Group*

Joel Eisemann

*SVP & CEO
InterContinental Hotels Group*

Kevin Fitzpatrick

*Managing Director
Spring Bay Property Company*

Russell Galbut

*Managing Principal
Crescent Heights*

Kate Henrikson

*Senior Vice President Investments
RLJ Lodging Trust*

Nancy Johnson

*Executive Vice President
Carlson Rezidor Hotel Group*

Rob Kline

*President & Co-Founder
The Chartres Lodging Group*

Mark Lipschutz

*Founder and Chief Executive Officer
Caribbean Property Group LLC*

Michael Medzigan

*Chairman & Managing Partner
Watermark Capital Partners*

Scott E. Melby

*Executive Vice President, Development
Planning & Feasibility
Marriott International*

Chang S. Oh

*Managing Director
The Mega Company*

Michael Profenius

*Managing Director
Warburg Pincus LLC*

David Rosenberg

*Chief Executive Officer
Sawyer Realty Holdings*

Steve Rushmore

*President and Founder
HVS Global Hospitality Services*

Jay Shah

*Chief Executive Officer
Hersha Hospitality Trust*

J. Allen Smith

*Chief Executive Officer
Prudential Real Estate Investors*

Robert Springer

*Senior Vice President—Acquisitions
Sunstone Hotel Investors*

Susheel Torgalkar

*Chief Operating Officer
Westbrook Partners*

Robert White

*President
Real Capital Analytics*

Conley Wolfsinkel

*Strategic Management Consultant
W Holdings*

Dexter Wood

*SVP, Global Head—Business &
Investment Analysis
Hilton Worldwide*

Daniel Yih

*Chief Operating Officer
Starwood Capital Group*

Center for Real Estate and Finance Reports,
Vol. 3, No. 1 (January 2014)

© 2014 Cornell University. This report may not
be reproduced or distributed without the ex-
press permission of the publisher.

The CREF Report series is produced for the
benefit of the hospitality real estate and finance
industries by The Center for Real Estate and
Finance at Cornell University

Daniel Quan, *Executive Director*
Melissa Carlisle, *Program Manager*
Glenn Withiam, *Executive Editor*
Alfonso Gonzalez, *Director of Communications*

Center for Real Estate and Finance
Cornell University
School of Hotel Administration
389 Statler Hall
Ithaca, NY 14853

Phone: 607-255-6025
Fax: 607-254-2922
www.cref.cornell.edu