

24-Hour Cities and Investment Returns

A research report prepared for the Steven L. Newman Real Estate Institute, Baruch College, CUNY by contributing author Hugh F. Kelly, CRE, Clinical Associate Professor of the Schack Real Estate Institute, New York University.

The first paper in this three-part series examined office rents as a comparative measure of performance in real estate markets.¹ Real, or inflation-adjusted, rents were examined for a panel of markets comprised of 52 MSAs (metropolitan statistical areas) where data² was available for both downtown and suburban submarkets. That same data was broken out for a sample of hypothesized 24-hour³ city markets (Boston, Chicago, Las Vegas, Miami, New York, San Francisco, and Washington, DC) and for a similar sample of putative 9-to-5 markets (Atlanta, Dallas, Los Angeles, Minneapolis, Philadelphia, Phoenix, and Seattle). The remaining 38 MSAs were categorized by size as either “secondary” or “tertiary” markets.

This paper takes the analysis to a further step: a review of the investment returns earned in the 24-hour cities, as compared with the 9-to-5 sample set, as well as the benchmark returns for the nation as a whole.

The National Council of Real Estate Investment Fiduciaries (NCREIF) has compiled and published data on commercial real estate investment by the pension fund industry since 1978. NCREIF reports investment returns for the assets held by data contributing members with such returns disaggregated by income and appreciation components and total return (the combination of income and capital appreciation). NCREIF returns are reported quarterly by members according to standardized criteria. It is an appraisal-based index, and, in its “classic” form, the



NCREIF Property Index (“NPI”) reports returns on an unlevered basis. Returns are expressed in quarter-to-quarter percentage change without annualizing. Though practices differ from member to member, appraisals are generally not outsourced to independent valuers each quarter. Rather, NCREIF members will usually commission independent appraisals annually or at some other pre-defined interval and perform internal “updating” appraisals reflecting the member’s review of changes in the status of its assets and their particular markets.

There has been a lengthy series of academic studies commenting on the NCREIF valuation and indexing methodology, attending to issues such as appraisal bias, lags in reflecting changes in market conditions, the utility of the data for benchmarking purposes, and non-comparability with more transaction-based indexes or indexes with greater periodicity of reporting (Giliberto, 1993;

Geltner, 1998; Fisher, Miles and Webb, 1999; Graff and Young, 1999; Hansz and Diaz, 2001). Various enhancements to the NPI have been developed to “unsmooth” the data by correcting for lags and appraisal bias, but the continued use of the NPI suggests that this index broadly captures investment performance adequately, especially once longer periods than quarterly change are considered. As the standard source for returns data in the institutional direct investment market for real estate⁴, the NCREIF data is used in this paper to evaluate comparative performance in this 24-hour city analysis.

¹ Hugh F. Kelly, “24-Hour Cities and Office Rent Performance,” working paper for the Steven L. Newman Real Estate Institute of Baruch College, City University of New York. October, 2009

² Compiled and generously provided by Torto Wheaton Research – now known as CBRE Economic Advisors.

³ The concept of the 24-hour city was first discussed in *Emerging Trends in Real Estate 1995*, published by Real Estate Research Corp. and the Equitable Life Assurance Society of the United States, p. 1. (October, 1994).

Table 1:

NCREIF Returns For Study Clusters By Decades

Time Range	Total Returns		Capital Returns		Income Returns	
	9 to 5	24-Hour	9 to 5	24-Hour	9 to 5	24-Hour
1980 - 1989	196.5%	244.4%	44.4%	70.6%	106.7%	103.9%
1990 - 1999	67.8%	72.3%	-24.4%	-20.1%	120.9%	115.0%
2000 - 2009q3	101.3%	115.9%	2.9%	13.9%	95.6%	90.1%
1980 - 2009q3	901.3%	1181.6%	12.4%	55.3%	793.3%	733.4%

Percentage changes reflect the difference between period-beginning and period-ending index values. Variable weights of components of returns mean that component's percentage change does not sum to the total.

Table 2:

NCREIF Returns For Study Clusters By Cycles

Time Range	Total Returns		Capital Returns		Income Returns	
	9 to 5	24-Hour	9 to 5	24-Hour	9 to 5	24-Hour
1980 - 1986	137.01%	147.93%	43.53%	52.26%	66.19%	64.15%
1987 - 1995	42.16%	57.35%	-33.93%	-25.11%	113.63%	109.16%
1996 - 2000	63.74%	74.31%	17.35%	26.73%	39.98%	38.20%
2001 - 2003	24.33%	24.93%	-2.41%	-1.2%	27.32%	26.44%
2004 - 2007	83.19%	97.03%	43.65%	55.52%	28.24%	27.52%
2008 - 2009q3	-20.31%	-23.44%	-27.96%	-30.05%	10.08%	8.94%

Percentage changes reflect the difference between period-beginning and period-ending index values. Variable weights of components of returns mean that component's percentage change does not sum to the total.

NCREIF Returns Over Time

Panel data for total returns, capital returns, and income returns for NCREIF assets (all property types) in the two study clusters are presented in Table 1⁵, for the 1980 – 2009Q3 period, and for three divisions of that time span.

As seen in Table 1, total returns for the 24-hour cluster separated from the 9-to-5 cluster very early in the NCREIF data history. In the decade of the 1980s, investments in the 24-hour metros for all property types had a cumulative total return of 244%, well above the 197% total return in the 9-to-5 metros. The spread in returns reflects the superior performance in the capital returns component of the NPI, where the 24-hour cities rose 71%

versus just 44% for the 9-to-5 markets. Income returns were very close in the aggregate, largely because of the way NCREIF calculates those returns. Income returns are net operating income divided by adjusted capital value, which both stabilizes and homogenizes these returns, one of the factors leading to the so-called “appraisal bias” of the NPI.

The real estate difficulties in the decade of the 1990s were captured in the NCREIF indices, though the convention of viewing the data by calendar decade undoubtedly is arbitrary. Table 1 shows total returns for both clusters down from the 1980s, with negative capital returns and a rise in income returns as investors raised cap rate requirements. The 24-hour cities show a moderate advantage

during the 1990s, with slightly higher total returns and a slightly lower loss in capital value.

The first decade of the 21st century (through the third quarter of 2009), shows cumulative total returns since 2000 rebounding to 116% for the 24-hour markets, marginally higher than the roughly 101% gain for the 9-5 cluster. The separation in overall appreciation performance, reflecting from 1980 to 2009, is remarkable: 55% for the 24-hour cities versus just 12% for the 9-to-5 metros. Income returns in the 9-to-5 market set outpaced the 24-hour cities, as investors demanded higher cash returns to compensate for the difference in appreciation rates.

A Look at Cyclical Differences

One way to correct for the arbitrariness of decade-by-decade comparisons is to look at market cycles and to evaluate performance during periods of growth and decline. Table 2 presents the NCREIF data from such a perspective. Cycles are dated by observing the points at which the direction of the capital returns component of the NPI changes. For convenience, dates reflect calendar years. For example, the 1980 – 1986 returns are reported as the cumulative changes observed in the 28 quarters ending 1986q4. Likewise, the 1987 – 1995 returns are cumulative changes in the 36 quarters ending 1995q4, and so forth.

The first years of the 1980s was characterized by rising commercial real estate prices. The Economic Recovery Tax Act of 1981 provided massive incentives

⁴ The institutional direct investment market for real estate is distinguished from stock equity measures such as REIT values.

⁵ The NCREIF data was accessed through the NCREIF website (www.ncreif.org), using the customizing features which allows users to construct “alternative portfolios” and run returns and index series for subsets of the NCREIF data.

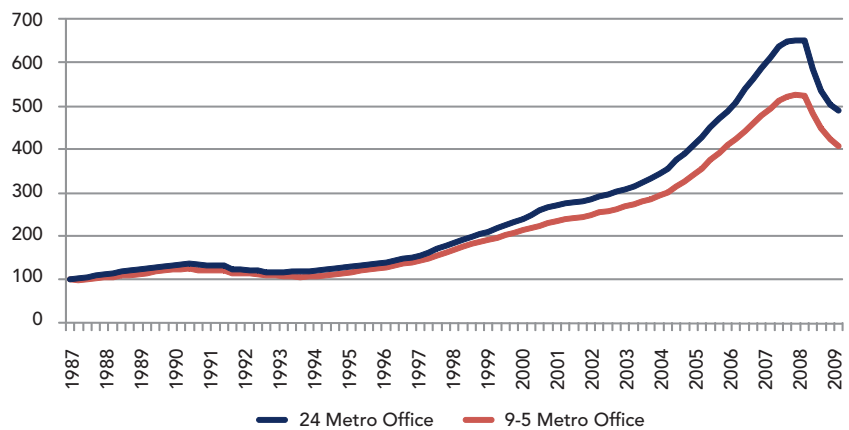
for investors in property assets. Tax-motivated buyers were joined by tax-exempt organizations such as NCREIF's pension fund members and off-shore investors. These parties found that the secular decline in interest rates which followed the Federal Reserve's draconian anti-inflation monetary policy bolstered real estate asset values across the board. In fact, in mid 1981, the Fed Funds rate was above 19%. During the 1980 – 1986 period, the 24-hour city cluster enjoyed marginally higher total returns and capital appreciation, when compared to the 9-to-5 markets, with the latter having stronger income return, as previously discussed.

The period of 1987 – 1995 is well-remembered as a trying time for the commercial property markets. The Tax Reform Act of 1986 rescinded many of the incentives of the 1981 statute and collapsed the real estate investment syndication industry that flourished in the early 1980s. Partly as a consequence of that, the Savings and Loan industry, which had become a major lender in development financing as well as in commercial mortgages, suffered its own breakdown. The Federal government took over thousands of thrifts, establishing the Resolution Trust Corporation to sell their assets, even at fire-sale prices. Both the 24-hour and the 9-to-5 markets registered value declines, more severe in the case of the 9-to-5 cluster. The 24-hour markets had higher cumulative total returns for the 1987 – 1995 era at 57%, than did the 9-to-5 markets at 42%, even though the income return advantage of the 9-to-5 markets continued.

The patterns of superior total and capital appreciate returns with lower income returns for 24-hour markets persisted in the improving markets of

Figure 1:

NCREIF Custom Indexes All Assets in 24-hour and 9-to-5 Markets



Source: NCREIF Database; custom query tool by Hugh F. Kelly



1996 – 2000 and 2004 – 2007, as well as in the brief market slump of 2001 – 2003.

The current cycle, which has not yet run its course, is a departure from pattern. Up to this point, greater loss of capital value has been noted in the 24-hour cities, depressing their returns compared with the 9-to-5 markets. Given the sparseness of transaction volume in 2008 and 2009, appraisers (both external valuers and internal staff at the investment managers) have attempted to “mark assets to the market”

conservatively, even if the comparable sales data mostly reflected seller distress. We note the apparently steeper losses in 24-hour cities in the past two years but must await the completion of this jolting downturn before assessing how the two market clusters will eventually compare. Figure 1 displays the two groups of markets, covering all property types, from the first quarter of 1987 to the third quarter of 2009. The selection of 1987 as the initial year reflects two related characteristics of the NCREIF database,

Table 3:

Historical Individual City Returns (In Percentages)

Market		Five Year			Eight Year		
		Total	App.	Inc.	Total	App.	Inc.
Atlanta	MSA	9.30	2.58	6.60	6.65	-0.83	7.51
Atlanta	Suburban	9.46	2.77	6.55	6.67	-0.77	7.46
Boston	MSA	15.62	9.08	6.14	6	6	6
Chicago	MSA	8.33	1.80	6.45	6.68	-0.46	7.16
Chicago	Suburban	5.70	-0.82	6.55	4.17	-3.00	7.33
Dallas	MSA	8.92	2.35	6.46	5.93	-1.26	7.25
Dallas	Suburban	10.06	3.52	6.37	6.47	-0.77	7.26
Los Angeles	MSA	16.21	10.37	5.43	12.64	5.90	6.44
Los Angeles	Suburban	15.64	9.66	5.58	12.24	5.45	6.51
Minneapolis	MSA	11.10	3.60	7.31	8.24	-0.09	8.32
New York	MSA	15.23	9.20	5.66	13.87	6.79	6.74
New York	CBD	15.48	9.57	5.53	6	6	6
Phoenix	MSA	14.52	7.57	6.62	10.86	3.40	7.29
Phoenix	Suburban	13.81	6.87	6.62	10.39	2.93	7.30
San Francisco	MSA	13.13	6.86	5.98	7.42	0.55	6.83
San Francisco	Suburban	12.20	5.27	6.65	7.28	-0.24	7.50
Seattle	MSA	13.08	6.57	6.22	9.29	2.23	6.94
Washington DC	MSA	13.87	7.37	6.18	12.48	5.10	7.11
Washington DC	CBD	14.18	7.96	5.89	13.69	6.50	6.86
Washington DC	Suburban	13.41	6.55	6.56	10.79	3.16	7.45

Source: NCREIF Detailed Quarterly Performance Report, Fourth Quarter 2008; data reflects all property types

its sample size and its volatility. Earlier years had relatively small sample sizes in the data subsets and, because of this, had relatively volatile swings in performance. Beginning in 1987, the dataset is sufficiently large to permit reasonably stable comparisons.

The NCREIF data diverges due to differing trends in capital appreciation, rather than “dividend” returns. For “buy and hold” investors, though, it is quite obvious that it is the income earning capacity of unleveraged real estate that provides most of the benefit of ownership, and this is true across both sample sets of cities. Though efficient market theorists are skeptical of the utility of market-timing strategies, it

seems apparent that in such a cyclical industry as real estate the volatility in capital values dictates an asset selection component to achieve prudent portfolio management (see Young and Grieg, 1993; Graff and Young, 1995; Kaiser and Clayton, 2008).

Table 2 indicates that in the rising phase of commercial property values (1980 – 1986, 1996 – 2000, and 2004 – 2007), the 24-hour city cluster has outperformed the 9-to-5 cluster nicely, providing superior investment performance as hypothesized by the Emerging Trends survey respondents and commentators. In the long period of market decline from 1989 to 1996, the 24-hour downtown clusters had a

somewhat smaller reduction in capital values, and this contained its overall negative return over this period to 7.2% versus a negative total return of 24.2% for the 9-to-5 cluster of CBDs.

In the current severe real estate downturn, the estimated capital losses have been greater by 211 basis points in 24-hour hour metros than in the 9-to-5 cluster. Across the entire NCREIF asset set, it appears that both internal and external appraisals are reacting more quickly and more dramatically to the cycle, possibly in reaction to the criticisms of “lagging” and “smoothing” that marked commentary about the NPI’s performance in the cycle of roughly twenty years ago. There is some evidence that the cyclical recovery took longer to emerge in the 9-to-5 markets in that earlier cycle, and it remains to be seen how the two clusters will compare, once the final tally of the present downturn is made.

NCREIF publishes a detailed Quarterly Performance Report showing results by individual market and by property type. NCREIF’s disclosure rules, however, limit the number of markets that can be presented to those having a minimum of 20 member assets for any given time period. This means, unfortunately, that this gives us a less-than-complete set of markets to review. Table 3 presents the available data as of year-end 2008, the last year for which complete calendar-year statistics were published, as of this writing.

Eleven of the fourteen subject metro areas meet this standard at the MSA level for a five-year returns horizon considering all property types, but only two CBDs (New York and Washington, D.C., both 24-hour markets) have the

⁶ For this designation, NCREIF’s disclosure rules requiring at least 20 member assets throughout the given time period were not met.

requisite number of assets. Seven markets have a sufficient number at the level of their suburban aggregation: Atlanta, Dallas, Los Angeles, and Phoenix among the 9-to-5 markets and Chicago, San Francisco, and Washington, D.C. among the 24-hour areas.

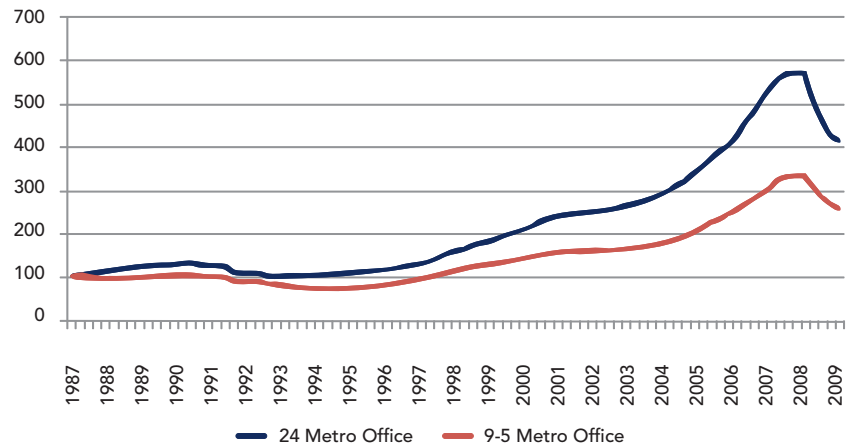
Seeking to expand the time horizon to eight years, the Boston MSA and the New York CBD drop from the list. Using just the five-year data, the narrow spread of income returns discussed in the review of Tables 1 and 2 is confirmed. The range of annualized income returns runs from a low 5.43% in the Los Angeles MSA to a high of 7.31% in the Minneapolis MSA, a spread of 188 basis points. The spread in total returns runs from a high of 16.21% for the Los Angeles MSA to 5.70% in the Chicago suburbs, yielding a very large 1051 basis point discrepancy. Capital appreciation returns were highest in the Los Angeles metro (10.37% annualized) and lowest in suburban Chicago (negative 0.82% per year).

Taking a simple average of MSA five-year returns shows the five 24-hour metros represented with a 13.24% annualized total return, slightly more than a percentage point higher than the average for the six 9-to-5 metros, which had a mean total return of 12.18%. The higher total returns stem from the 24-hour markets' average annual capital appreciation of 6.86% for the five-year time period, as compared with the 9-to-5 cluster's 5.51% mean appreciation return. And, consistent with the data reviewed in Tables 1 and 2, the 9-to-5 cluster had a higher income return, 6.44% on average, compared with the 24-hour metros' average of 6.08%.

Because of the missing markets (Las Vegas, Miami, and Philadelphia), no general conclusion can be made from this data set. It is worth noting,

Figure 2:

NCREIF Custom Indexes Offices in Selected Metro Markets



Source: NCREIF Database; custom query tool by Hugh F. Kelly

Table 4:

Office Total Returns Indexes for Study Clusters at MSA level Selected Years (1987 q1 = 100)

Part A: Index Values at 3rd Quarter		
Year:	9 to 5	24-Hour
1994	71.56	103.01
1999	135.02	190.17
2004	181.07	299.97
2009	259.00	417.95

Part B: Total Cumulative Returns through 2009 q3		
Intervals:	9 to 5	24-Hour
15 year	261.8%	305.7%
10 year	91.8%	119.8%
5 year	43.0%	39.3%

however, that the NCREIF members show surprisingly little concentration of their assets in the major CBDs included in the two clusters analyzed by this study – with the exceptions of Manhattan and Washington. Even cities characterized as “strong core primary” markets in the forthcoming Drennan and Kelly paper, including Boston, Chicago, Philadelphia, San Francisco, and Seattle, have failed to attract the minimum number of NCREIF investments to justify inclusion in the detailed Quarterly Performance Report tables.

Weakness in the detailed

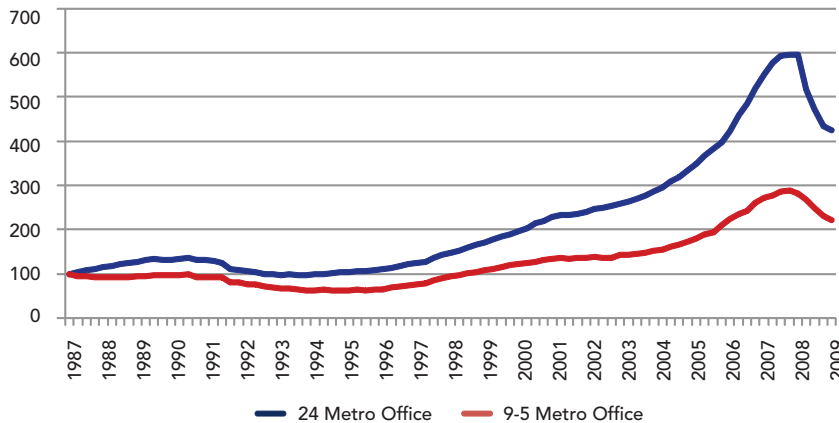
Quarterly Performance Report data notwithstanding, it can be said that nothing in this incomplete set of information disconfirms the trends and relative performance that show higher total and capital appreciation returns for 24-hour markets and higher periodic income returns in the 9-to-5 markets.

Focusing on the Office Property Type

Office properties show a wide disparity in investment performance, as measured by overall returns earned in the period commencing 1987q1 and concluding 2009q3. As Figure 2

Figure 3:

NCREIF Custom Indexes CBD Offices in Selected Markets



Source: NCREIF Database; custom query tool by Hugh F. Kelly

Table 5:

Office Total Returns Indexes for Study Clusters: CBD Assets Selected Years (1987 q1 = 100)

Part A: Index Values at 3rd Quarter		
Year:	9 to 5	24-Hour
1994	63.54	99.67
1999	110.16	177.59
2004	154.66	294.56
2009	220.89	424.96

Part B: Total Cumulative Returns through 2009 q3		
Intervals:	9 to 5	24-Hour
15 year	247.5%	326.4%
10 year	94.8%	139.3%
5 year	42.8%	44.3%

illustrates, office assets in the 9-to-5 cluster took a full decade to produce positive total returns from the 1987q1 starting point and slipped to an index low of approximately 71 in late 1994. The 24-hour cluster dropped below an index value of 100 for just a single quarter (the fourth quarter of 1993). In recovery (post-1996), the total return index for the 24-hour cluster steadily widened its advantage until the putative market peak at the second quarter of 2008, when the index for offices in the 9-to-5 cluster hit 337 and in 24-hour metros was at 576. As previously noted, the 24-hour cluster has had a steeper decline in the current

capital-constrained market, with its index of total returns dropping 28% to 417, while the 9-to-5 group has fallen more than 23% to 259.

The 24-hour cluster index for offices is 61% higher than for the 9-to-5 metro office investments, taking the 1987 starting point. Table 4 presents cumulative total returns for the two clusters, and the associated index values, for office assets at five, ten, and fifteen year intervals. The results are similar: greater long-range performance by the 24-hour markets but marginally weaker returns in the most recent 5-year period, reflecting the current down cycle.

Turning more specifically to the returns performance for CBD office buildings, the differential in favor of the 24-hour markets widens even further, apparently reflecting the agglomeration effects noted in rents and possibly other attributes being valued by the real estate capital markets. Those additional attributes will be addressed in the third and final article in this series of white papers.

Figure 3 displays the 1987 – 2009 custom index values for office assets located in the downtowns of the 24-hour and 9-to-5 city clusters. Again using the first quarter of 1987 as the index benchmark of 100, by the third quarter of 2009, the 24-hour cities had a total return index of approximately 425 versus a 221 index value for the 9-to-5 CBDs. The advantage in total return since the beginning of 1987 ran in favor of the 24-hour cluster by a remarkable 92%. Thus, we see the differential for CBD offices exhibiting a larger performance premium that was found for all assets in the two clusters, or for office assets at the MSA level. Office buildings, the signature property type for CBDs, have earned superior returns in the 24-hour markets by nearly a two-to-one margin over the comparative 9-to-5 market cluster.

Although the down-cycle of the 1990s was difficult for both clusters, the decline was far more troublesome for the 9-to-5 downtown office assets. Not only was the drop in the total return index for this cluster deeper, hitting a nadir of 61 versus a bottom of 96 for the 24-hour downtowns, it lasted longer. The 24-hour cluster found itself below the 100 benchmark for the eight quarters ending in 1994q3, while the 9-to-5 downtowns were below 100 (cumulative negative returns) for 46 quarters – nearly an entire decade – before breaking above the



benchmark again in 1998q4. In recovery, the 24-hour CBD offices hit a cyclical peak in the total return index at 596 in the third quarter of 2008; the 9-to-5 CBD offices saw their peak one quarter earlier at an index value of 288. The decline from peak has been roughly 29% for the 24-hour markets and 23% for the 9-to-5 downtown offices.

This sharper decline notwithstanding, the cumulative total returns seen in Table 5 for downtown office assets in the 24-hour markets has been stronger at the five, ten, and fifteen year intervals than for the 9-to-5 downtown offices and better than the returns for office assets at the metro level. This is true even for the five-year total returns that include the steep recent declines.

To summarize findings at the conclusion of this second of three papers:

- The advantageous rental premiums seen in 24-hour metro areas, and particularly in the downtowns, as discussed in the first paper of this series, does indeed appear to translate into superior performance as measured by total returns, using the NCREIF methodology; higher total returns are earned by the 24-hour cluster

at the level of all investment assets, office assets at the metro level, and downtown (CBD) office assets.

- The differential in returns is attributable to superior capital appreciation over time in the 24-hour markets. Income returns are better in the 9-to-5 assets, but this is due in large measure to the slower capital growth in the 9-to-5 cluster, which has the effect of producing a smaller “denominator” for the NOI/Value calculation of income returns.
- The tighter that the property-type specification is, the greater the differential in favor of 24-hour markets. Office returns exceed all asset returns at the metro level, and CBD offices surpass MSA offices by the measure of total return.
- There is no immunity to cycles, but past cycles have been shallower on the downside and steeper on the upside for 24-hour markets when compared with 9-to-5 markets. Moreover, cyclical downturns have been longer in the 9-to-5 cluster of markets.
- The current market dislocation is severe, and in some ways has afflicted the 24-hour markets more dramatically than the 9-to-5 markets. For office assets, ten and fifteen

year total returns have been superior for 24-hour markets when compared with 9-to-5 markets. For the five years ending 2009q3, CBD offices show a modest advantage in cumulative total return (44.3% versus 42.8%), although at the MSA level the advantage is with the 9-to-5 cluster (43.0%) over the 24-hour cluster (39.3%). This will warrant further monitoring, as the duration of this cycle is at present far from certain.

The third and final paper in this series will examine capital flows. If the 24-hour cities enjoy a sustained advantage in investment returns, this should be reflected in intensified transaction volumes as buyers are attracted to higher returns. This has pricing implications for investors and possibly public policy implications for local governments which benefit from stronger values in their commercial property bases for ad valorem tax purposes. ■

This research report is published by the Steven L. Newman Real Estate Institute, Baruch College, CUNY.

The Newman Real Estate Institute gratefully acknowledges the support of the sponsors who make possible our efforts to promote critical thinking on topical issues for the real estate industry.

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Bibliography

- Drennan, M.P. and H.F. Kelly, "Measuring Urban Agglomeration over Time with Office Rents," *Journal of Economic Geography*, 2010 (forthcoming).
- Fisher, J.D., M.E. Miles, and R.B. Webb, "How Reliable are Commercial Appraisals?," *Real Estate Finance*, 1999.
- Geltner, D., "How Accurate Is the NCREIF Index, and Who Cares?," *Real Estate Finance*, 1998.
- Giliberto, S.M., "Measuring Real Estate Returns," *Journal of Portfolio Management*, 1993.
- Graff, R.A., and M.S. Young, "Real Estate is not Normal: A Fresh Look at Real Estate Return Distributions," *Journal of Real Estate Finance and Economics*, May 1995.
- Graff, R.A., and M.S. Young, "The Magnitude of Random Appraisal Error in Commercial Real Estate Valuation," *Journal of Real Estate Research*, 1999.
- Hansz, J.A., and J. Diaz, "Valuation Bias in Commercial Appraisal," *Journal of Real Estate Research*, 2001.
- Kaiser, R. and J. Clayton, "Assessing and Managing Risk in Institutional Real Estate Investing," *Journal of Real Estate Portfolio Management*, 2008.
- Kelly, H. F., "24-Hour Cities and Office Rent Performance," Steven L. Newman Real Estate Institute, Baruch College, CUNY, October 2009.
- National Council of Real Estate Investment Fiduciaries, NCREIF returns database custom query facility, Chicago, 2009.
- National Council of Real Estate Investment Fiduciaries, "Detailed Quarterly Performance Report," Fourth Quarter 2008.
- Urban Land Institute and Pricewaterhouse Coopers, "Emerging Trends in Real Estate," Washington, D.C., October 1994.
- Young, M.S., and D.W. Grieg, "Drums along the Efficient Frontier," *Real Estate Review*, Winter 1993.