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Size-Tiered Economic Geography: 2009 Update

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Executive Summary

Creating a diversified portfolio of real estate assets requires an understanding of individual metropolitan areas and the diverse economic and investment landscapes they inhabit. With that in mind, in October 2004 we published a report entitled "Size-Tiered Economic Geography: A New View of the U.S. Real Estate Markets," which demonstrated that economic characteristics are more predictive of a metropolitan area's property sector performance than its location. By grouping the leading metropolitan areas into clusters yielding similar economic and property sector performance, we were able to provide investors with the information necessary to construct a diversified portfolio.

Since we updated the report in December 2005, the property market has been through a tumultuous period. Investment volume surged during the 2004-2007 real estate bull market, and then dwindled as market performance deteriorated. Given how much market conditions have changed, we set out to re-examine our past conclusions to discover if they remained equally valid in a much different economic environment.

The first step was to deconstruct the National Council of Real Estate Investment Fiduciaries' National Property Index (NPI) to determine to what degree the distribution of investment as of 1Q09 had been shaped by the massive influx of capital and the spate of new participants that helped fuel the boom. We found that the distribution of institutional real estate had undergone subtle but notable changes. Next we examined the relative performance of each cluster. We found that the correlation of total returns increased broadly across all clusters since our last update, primarily as a result of the synchronizing effect of the global financial crisis.

As it did all investments, the financial crisis of 2008 sharply increased the contribution of systematic risk to real estate performance, raising correlations and masking diversification benefits. However, we found that if we restricted our analysis to the period just prior to the unprecedented drop in asset values in 4Q08, the variance in total returns was just as strong as it had been in 2005. Our conclusion, therefore, is that our clustering process retains its utility in the long term, although it can be overwhelmed by extraordinary events that introduce atypical levels of systemic risk. The following study re-examines the investment landscape of institutional real estate and our theories about how such knowledge can be used to craft a diversified portfolio of real estate assets capable of achieving superior risk-adjusted returns.

Size-Tiered Economic Geography

Exhibit 1 shows 35 of the top U.S. metro areas divided into seven clusters based on size, economic structure and geographic location.[1] Total investment is dominated by one or two anchor markets within each cluster.

Exhibit 1: Clusters Based on Size-Tiered Economic Geography (bold indicates anchor metros)

Capital Metro	New York Corridor	Tech Centers	Southern Growth	Heartland Markets	Lifestyle Centers	Southern California	Opportunistic Markets
Washington, DC	**New York**	**SF Bay Area**	**Atlanta**	**Chicago**	**Miami**	**Los Angeles**	All remaining
	Philadelphia	**Boston**	**Dallas**	Cincinnati	Sacramento	San Diego	domestic
		Austin	Charlotte	Cleveland	San Antonio		markets
		Portland	Denver	Detroit	Las Vegas		
		Raleigh	Houston	Columbus	Orlando		
		Seattle		Indianapolis	Phoenix		
				Kansas City	Tampa		
				Memphis			
				Minneapolis			
				Nashville			
				St. Louis			
				Salt Lake City			

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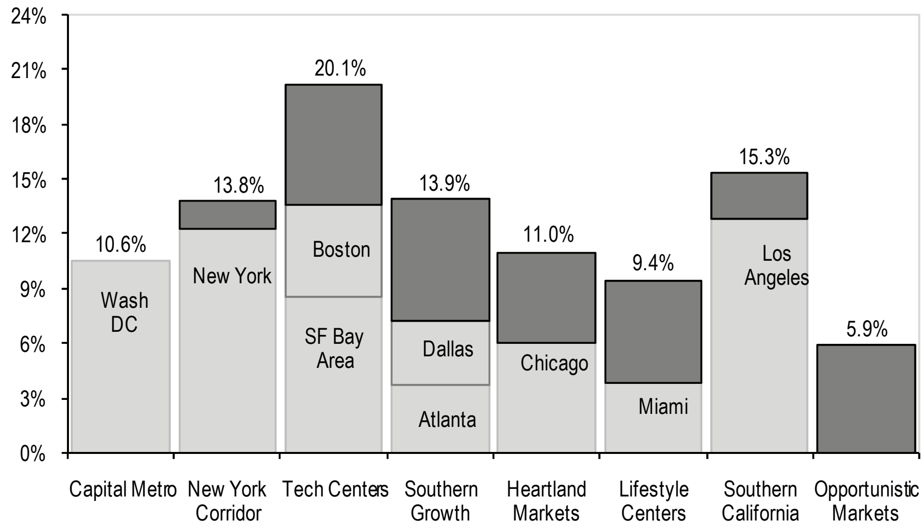
The "Opportunistic Markets" category is composed of all markets outside the seven clusters. While representing a larger portion of the NPI today than in our previous study, the Opportunistic Markets represent a relatively small portion of the investment universe and are likely to exhibit a greater degree of risk due to their lack of liquidity and reliance on regionally focused economies.

Investment Distribution

The distribution of investment within the NPI, shown in Exhibit 2, reflects a gradual expansion of the investment universe by geography. Since 2005, the share of investments in opportunistic markets has increased by 150 bps, moving from 4.5% of the NPI's total market value to 5.9% today. Within the clusters themselves, there has also been a marginal shift towards the anchor markets. Although the overall share represented by anchor (66.3%) and non-anchor (33.7%) markets has remained the same since 2005, if we exclude opportunistic markets from the non-anchor total, there was a small shift within the clusters into anchor markets. Non-anchor markets located in the seven major clusters total 27.8% of the NPI today, a decrease of 140 bps from the 29.2% recorded in 2005.

[1] Refer to appendix for definitions of the geographic units and cluster areas.

Exhibit 2: Distribution of NCREIF Investments by Cluster



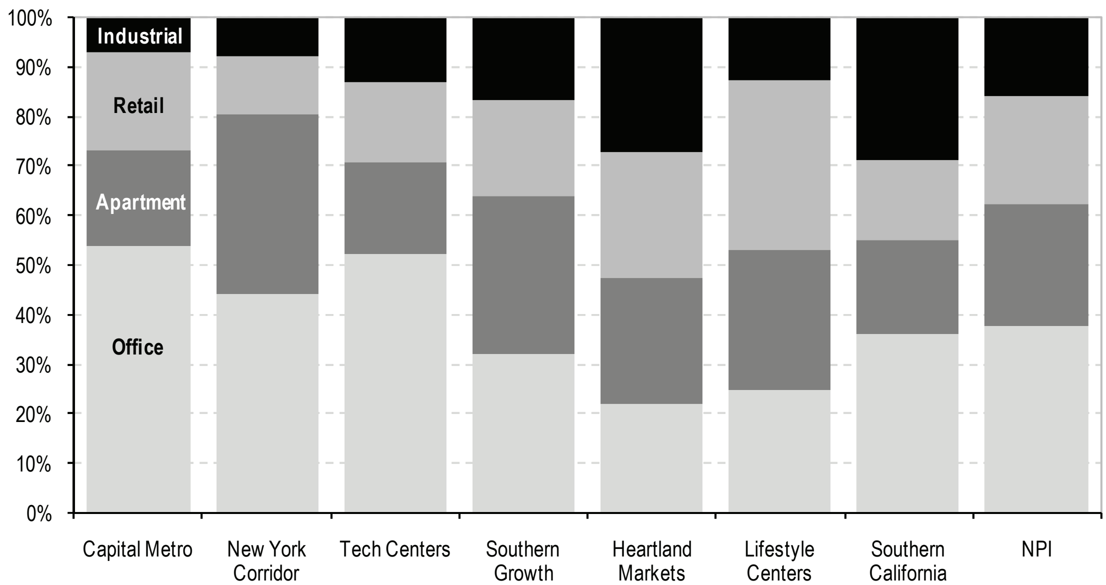
NCREIF; Prudential Real Estate Investors (data as of March 2009)

The distribution of investment between the clusters remains relatively unchanged from 2005. The Capital Metro, Heartland, Lifestyle Center, and Southern California markets have retreated marginally, while the Southern Growth, Tech Center, and New York Corridor markets posted small gains. These marginal shifts resulted in part from different rates of appreciation, an indication that there has been little change in investor sentiment with regard to geography. An examination of distribution by property type, however, yields more noticeable shifts.

Property Sector Preference

Due to differences in the social, cultural and economic composition of each cluster, property type weightings vary widely across the seven clusters (see Exhibit 3). The New York Corridor, Capital Metro, and Tech Centers markets, with their emphasis on employment drivers such as banking, politics and technology, are weighted most heavily toward the office sector. The Lifestyle Center and Southern Growth markets, driven primarily by population growth and urbanization, host a heavy presence of apartment and retail. The Heartland and Southern California markets, home to centers of transportation and distribution, have a larger proportion of industrial properties.

Exhibit 3: NCREIF Investment Distribution by Property Type



NCREIF; Prudential Real Estate Investors (data as of March 2009)

While none of the clusters has changed radically with regard to property sector distribution since 2005, there have been some shifts, most notably in the New York Corridor. The share of office properties in the cluster has fallen to 44.1% today, from 52.7% in 2005. Meanwhile, the cluster's apartment component has ballooned to 33.6% today, more than double the 14.4% recorded in 2005. The shift toward the apartment sector is represented across the whole of the NPI, where apartment has surged to 24.1% today from 19.5% in 2005. Office represents an identical component of the NPI as it did in 2005 (37.1%). Retail's share has shifted upwards by 130 bps (to 22.7% from 21.4%), while industrial has retreated to 15.6% from 18.6%.

Dominant Markets

As reflected in our cluster analysis, investment distribution in the NPI is concentrated in a handful of major markets, a point further emphasized by Exhibit 4. The top five combined statistical areas (CSAs) by investment size – Los Angeles, New York, Washington, San Francisco Bay, and Chicago – amount to half of the index. The top 10 areas yield a cumulative share of 69.7%, with the top 25 totaling 91%. As of March 2009, only six CSAs encompass as much as 5% of the total NPI investment universe and only 19 represent as much as 1%.

Exhibit 4: NCREIF Investment Distribution by Metropolitan Area

	NCREIF Rank	Number of Properties	Value ($mil)	Market Share	Cumulative Share
Los Angeles CSA	1	690	34,469	12.8%	12.8%
New York CSA	2	352	32,918	12.3%	25.1%
Washington, DC CSA	3	398	28,357	10.6%	35.7%
SF Bay Area CSA	4	377	23,029	8.6%	44.2%
Chicago CSA	5	428	16,169	6.0%	50.2%
Boston CSA	6	225	13,502	5.0%	55.3%
Miami	7	267	10,297	3.8%	59.1%
Atlanta CSA	8	412	9,898	3.7%	62.8%
Dallas CSA	9	330	9,464	3.5%	66.3%
Houston CSA	10	173	9,143	3.4%	69.7%
Seattle CSA	11	226	8,597	3.2%	72.9%
Denver CSA	12	205	6,830	2.5%	75.5%
San Diego	13	132	6,615	2.5%	77.9%
Phoenix	14	158	6,039	2.2%	80.2%
Austin	15	129	4,371	1.6%	81.8%
Philadelphia CSA	16	97	4,103	1.5%	83.3%
Minneapolis CSA	17	134	3,536	1.3%	84.6%
Orlando CSA	18	76	3,533	1.3%	86.0%
Portland	19	104	3,157	1.2%	87.1%
Tampa	20	74	2,270	0.8%	88.0%
Charlotte CSA	21	64	2,111	0.8%	88.8%
Sacramento CSA	22	38	1,742	0.6%	89.4%
Indianapolis CSA	23	46	1,423	0.5%	89.9%
Cincinnati CSA	24	30	1,405	0.5%	90.5%
Raleigh CSA	25	48	1,355	0.5%	91.0%
Nashville CSA	26	39	1,263	0.5%	91.4%
Detroit CSA	27	49	1,243	0.5%	91.9%
Kansas City CSA	28	39	887	0.3%	92.2%
Columbus CSA	29	33	843	0.3%	92.6%
Salt Lake City CSA	30	25	818	0.3%	92.9%
St. Louis CSA	31	28	799	0.3%	93.2%
Memphis	32	33	773	0.3%	93.4%
Las Vegas CSA	33	36	729	0.3%	93.7%
San Antonio	34	29	612	0.2%	93.9%
Cleveland CSA	35	8	366	0.1%	94.1%

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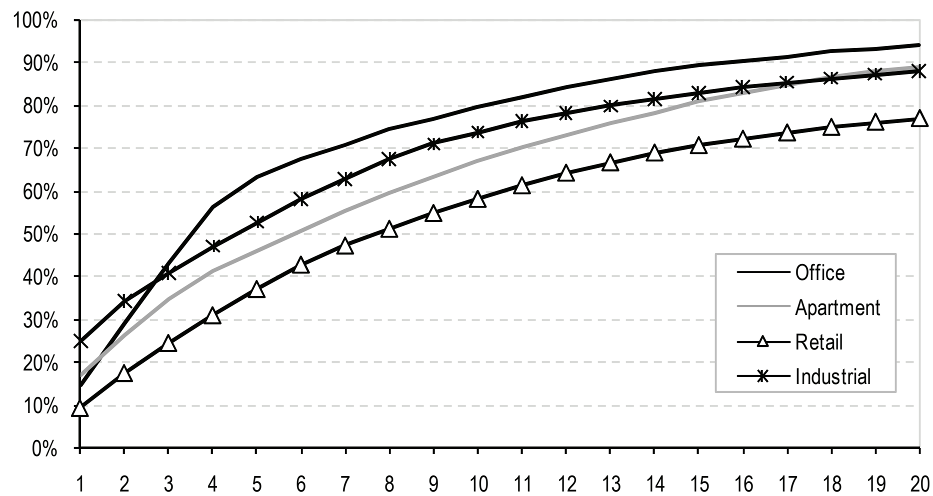
Exhibit 5 examines the concentration of NPI assets by property sector. The office sector is the most concentrated, with the top five office markets accounting for 63.5% of the total, followed by industrial (52.7%), apartment (46.1%) and retail (37.1%). Extending our reach to the top 20, we can make some worthwhile comparisons consistent with data we have already observed. The office sector, most associated with mature anchor markets, has grown more concentrated – to 94% today from 91.7% in 2005. The retail sector, most associated with non-anchor and opportunistic markets, has become less concentrated within the top 20 markets – at 75.6% today from 80.4% in 2005. The apartment sector registered the greatest consolidation, with the top 20 markets rising to 88.7% today from 83.7% in 2005. Industrial concentrations have remained unchanged.

Exhibit 5: Cumulative Share of NPI by Property Type, Top 20 Markets in Each Sector



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Return Characteristics

The primary motivation for creating clusters based on size-tiered economic geography was to aid in the formulation of effective diversification strategies. Exhibit 6 presents the building blocks of variables that might be used to construct such strategies. Each cluster has a distinct risk-return profile with varying rates of return and volatility, resulting in a range of correlations between clusters. Notably, the correlations shown below, which are based on 20 years of historical data through 1Q09, are higher than in our previous studies. The increase is largely a product of the unprecedented negative value changes during 4Q08 and 1Q09, which saw capital values for the overall NPI decline 8.3% and 7.3%, respectively. If we exclude the two most recent quarters, for example, the correlations would be anywhere from 0.03 to 0.10 lower, or 0.06 on average. These results imply that while diversification strategies can have a powerful impact during normal business cycles, major contractions caused by synchronized, systematic events are likely to overwhelm most diversification approaches.

Exhibit 6: Total Returns, Volatility and Correlations by Cluster (20-year)

	Capital Metro	New York Corridor	Tech Centers	Southern Growth	Heartland Markets	Lifestyle Centers	Southern California
Annualized Return	8.7%	6.8%	8.1%	6.7%	6.4%	7.9%	8.0%
Std. Deviation	2.3%	3.5%	2.7%	2.0%	2.0%	2.3%	2.9%
Return/Risk Ratio	3.72	1.96	2.95	3.29	3.25	3.48	2.71
Correlations of Quarterly Returns							
Capital Metro	1.00	0.91	0.81	0.86	0.89	0.91	0.91
New York Corridor		1.00	0.88	0.92	0.94	0.89	0.91
Tech Centers			1.00	0.91	0.87	0.82	0.86
Southern Growth				1.00	0.91	0.89	0.89
Heartland Markets					1.00	0.88	0.88
Lifestyle Centers						1.00	0.87
Southern California							1.00
Correlations of Excess Quarterly Returns[2]							
Capital Metro	1.00	-0.20	-0.59	-0.09	0.16	0.40	0.01
New York Corridor		1.00	-0.06	-0.52	-0.39	-0.35	0.13
Tech Centers			1.00	0.02	-0.24	-0.43	-0.24
Southern Growth				1.00	0.40	0.21	-0.46
Heartland Markets					1.00	0.16	-0.55
Lifestyle Centers						1.00	-0.29
Southern California							1.00

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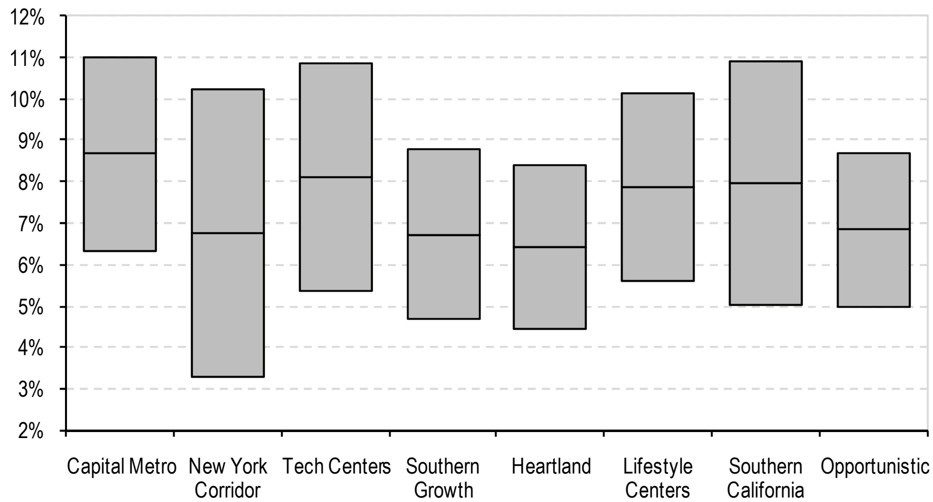
Alternatively, investors may find it useful to compare the relative outperformance, or excess returns, of the individual clusters versus the cluster aggregate (i.e., total returns for all markets that comprise the seven clusters). The lower portion of Exhibit 6 shows the correlations between each cluster's excess total returns. The excess return correlations, which should be relatively unaffected by the extreme market conditions over the past two quarters, more clearly illustrate the variance of returns across the clusters. Notable pairings include the Tech Center and Capital Metro clusters, both of which have outperformed the cluster aggregate over the past 20 years yet have a fairly strong negative correlation between their excess returns.

[2] Calculated as a weighted average of the quarterly total returns of each cluster relative to the cluster aggregate.

Variations in the risk/return profiles of each cluster offer different avenues by which investors are able to achieve specific objectives. The center line of each bar in Exhibit 7 represents the annualized total return for that cluster during the past 20 years with the bar itself representing one standard deviation above and below that point. So, for example, the New York Corridor cluster achieved annualized returns of 6.8%, which is similar to the 6.7% return for the Southern Growth cluster but with far greater volatility.

Exhibit 7: Compound Annual Total Return Ranges by Cluster (1Q89 to 1Q09)



Note: ranges reflect +/- 1 standard deviation around compound annual return

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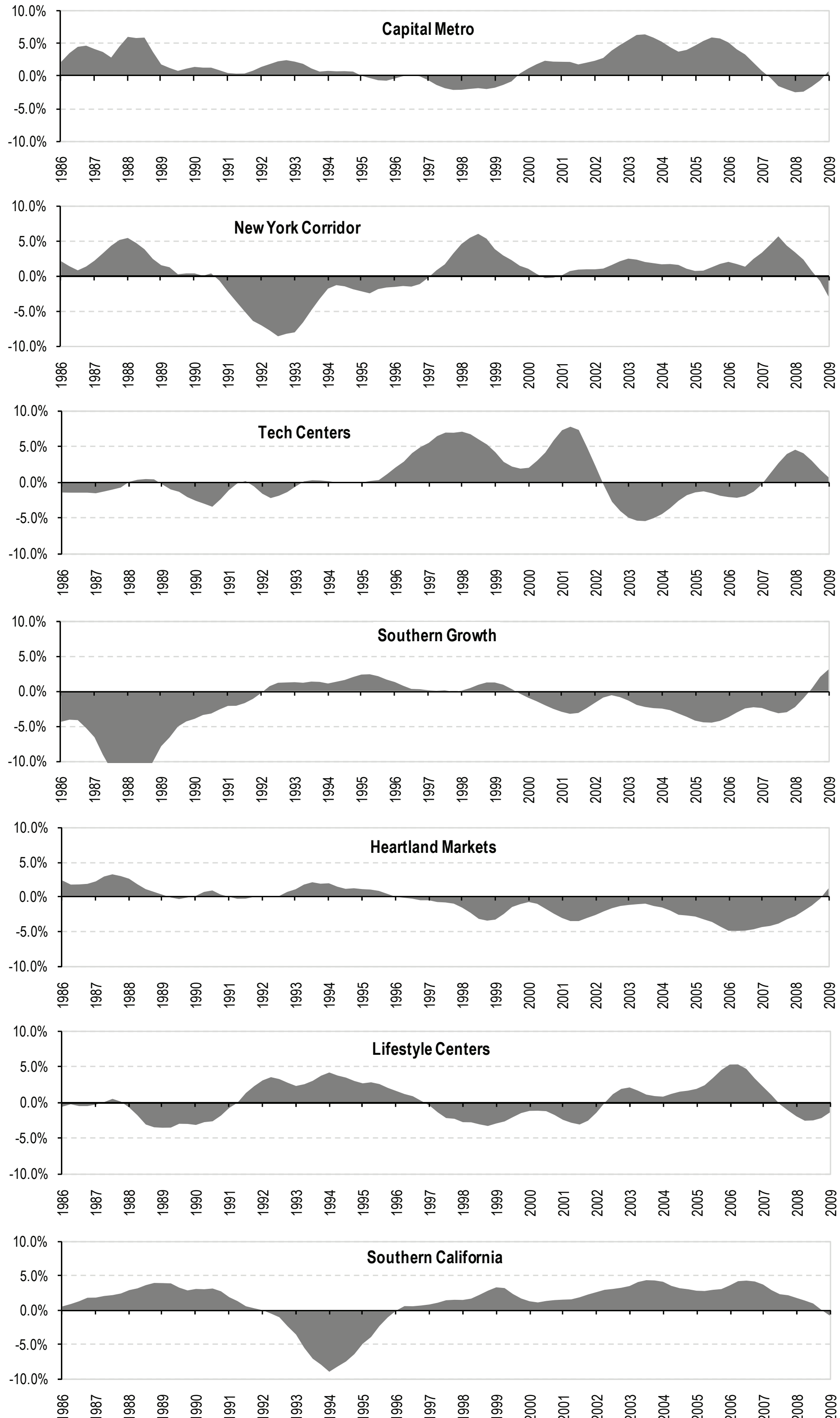
Exhibit 8 shows the excess total returns of each cluster relative to the overall NPI since 1986. Arrayed vertically using the same scale, the charts reveal periods of varying performance at the cluster level. In the 1990s, the New York Corridor and Southern California underperformed the NPI in most years. Since then, however, both clusters generally have outperformed the NPI until fairly recently. The Southern Growth and Heartland clusters show just the opposite pattern – namely, modest outperformance during much of the 90s and underperformance throughout most of this decade. For investors seeking to create a diversified geographic portfolio over the past 20 years, it would have been effective to pair the Capital Metro and Tech Center markets or the Southern Growth and Southern California markets, which have low relatively low correlations (listed in Exhibit 6).

Exhibit 8: Total Return Difference Between Clusters and NPI (trailing 4-quarter)



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Summary

While total investment remains highly concentrated both at the cluster and property sector level, with only a slight redistribution since 2005, two measurable shifts have occurred in the distribution of investments in the NPI. First, there was a slight movement from the seven major clusters into opportunistic markets.

Second, within the clusters themselves, there was consolidation in the top metros, all of which are anchor markets, away from non-anchor markets. This trend supports the basis of our clustering methodology, because it demonstrates that real estate investment remains highly concentrated in a handful of markets, thus allowing investors to use the behavior of a relatively small group of metropolitan areas as a proxy for the entire institutional real estate investment universe.

We were also able to observe the effectiveness of constructing a diversification strategy based on economic geography. Our findings indicate that geographic diversity is highly beneficial as an investment strategy in the long run. We believe that as outlined in our original paper and in this update, a thorough recognition of the nation’s size-tiered economic geography and an understanding of the performance characteristics of its constituent components will greatly assist investors in achieving superior risk-adjusted returns.

Appendix

Metropolitan Area Definitions

The U.S. government divides the nation into over 1,000 urbanized statistical areas. Constructed at the county level, these statistical areas serve as standard units of measure for economic and demographic indicators. Due to the wealth of information these divisions provide, they have also been widely adopted as the base geographic units of real estate investment analysis and economic forecasting.

Metropolitan Statistical Area – contains at least one urbanized area of 50,000 or more population, plus adjacent territory that has a high degree of social and economic integration with the core as measured by commuting ties.

Metropolitan Division – a subdivision of a larger Metropolitan Statistical Area, which often functions as a distinct social, economic, and cultural area within the larger region.

Combined Statistical Area – comprises two or more metropolitan statistical areas or a combination of metropolitan and micropolitan statistical areas. The areas contained within maintain strong social and economic integration, but to a lesser degree than within an individual metropolitan statistical area.

Cluster Definitions

Capital Metro –solely the Washington, DC Combined Statistical Area. The overwhelming presence of the federal government makes this metro unique in the U.S.

New York Corridor – a mature, geographically linked market that is highly influenced by the financial sector.

Tech Centers – while not linked geographically, these markets are centers of advanced technology and higher education.

Southern Growth – high growth markets, which serve as regional centers of trade and finance.

Heartland Markets – located primarily in the Midwest, these metros play host to high concentrations of manufacturing and act as national and regional distribution hubs.

Lifestyle Centers – possess a singular economic and demographic profile characterized by rapid growth and a high proportion of the elderly.

Southern California – diverse economies located along the west coast that enjoy high growth and broad economic diversity as centers of finance, trade, distribution and technology.

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