

CRE Market Update and Outlook

June 2020

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CONTEXT

Covid-19

- The effects of the coronavirus will dominate the economic recovery for the foreseeable future. In that regard, the U.S. currently seems to be “iterating” towards a solution to deal with its spread. Lacking any approach based on conclusive science and actual public health experience, the current plan of action seems to be based on trial and error (iterative) and, perhaps by default, a herd immunity approach. Observers are well aware that this could result in future waves of the virus.

Employment

- Without a doubt, employment reports have been astounding. Deterioration in jobs began during March and accelerated during April when an unprecedented monthly decline of 20.7 million jobs occurred (Exhibit 4b). While a slight rebound occurred during May (+2.5 million jobs), a net year-over-year decline remains around 17.7 million (Exhibit 4a).
 - The volume of first time unemployment claims was record-setting: about 45 million people filed since the pandemic announcement, or about 30% of the U.S. labor force. The number of continuing claims (those approved for benefits) seems to have peaked at the end of May at about 26 million and has since improved to about 21 million because of recent job growth.
- As expected, the largest declines occurred in leisure-hospitality, trade-transport and healthcare (see panel b, Exhibit 5). These highly labor intensive sectors accounted for about 65% of total April job losses. Indications are that these sectors also will be among the first to recover jobs, as gains in May totaled 2.0 million.
 - As business openings resume, we expect the current recovery that is underway in the leisure, trade and education sectors to continue. However, job growth in the hospitality (hotels) and transport (airlines) sectors will continue to be problematic. Growth in healthcare jobs will eventually resume as elective surgeries are now allowed and, of necessity, because of age demographics (seniors).

Recession

- To no surprise, recent news released by the NBER declared that the U.S. economy is officially in recession. While this tends to validate what most investors already know, it should be pointed out that the NBER departed from its usual definition of recession (that being two consecutive quarters of contraction in RGDP) when it made this announcement. Evidence from (1Q) 2020 was overwhelmingly negative and, when combined with the expected effects of the coronavirus, the change in RGDP in (2Q) is very likely to be negative even though the quarter has not yet ended.

Current Monetary Policy

- As indicated in Jerome Powell’s speech of June 10, we are likely to see a continuation of current Fed policy stressing low interest rates and a very accommodative monetary policy for the foreseeable future. While this was not unexpected, the length of time that this policy is to remain effective (into 2022) was surprising to many. Indeed, because of this, investors may have revised their assessment of the depth and duration of the recession.
- While we see no threat of any immediate, significant inflation for the remainder of 2020, we remain somewhat skeptical of current monetary policy and the distortions that it may be causing over the longer term. With an unemployment rate in a range of 13%+, slack in employment markets should continue certainly through year-end 2020, reducing price pressure from any upward movement in wages. Gasoline prices remain soft and utility prices remain stable as the price of energy continues to remain flat or decline.
 - These factors contributed to declines in the CPI for March, April and May. Potential bottlenecks and potentially higher prices in supply chains are beginning to materialize in meat production (because of the virus). Effects have shown up in that component of the PPI, which increased sharply in May.
- Long-term interest rates should remain near historic lows for at least the remainder of 2020. In addition to a very accommodative monetary policy, the Fed has also instituted various lending facilities through which it will make loans directly to businesses, state agencies and municipalities who may have difficulty raising capital in bond markets. The Fed also announced an expansion of its acquisition of corporate bonds by direct purchases, rather than buying ETF corporate bond funds.
 - The Fed also stressed that its involvement in private sector bond markets will cease when the economy resumes “normal growth.” As always, these actions may become problematic as the Fed faces a timing decision to avoid withdrawing prematurely and impairing future economic expansion.

CRE INVESTMENT PERFORMANCE — PAST AND FUTURE

Part A — Past

- As shown in Part A of Exhibit 1, the industrial/warehouse sector continued to outperform all other property sectors during (1Q) 2020. Although the rate of appreciation has begun to decline, it continued to be the favorite among institutional investors, turning in a 10.73% return.
- Retail properties continued to be affected by structural changes being brought about by e-commerce. Values declined at an annual rate of over 12% during the first quarter. Unfortunately, as we show in Part B, this decline may not be over.

Exhibit 1, PART A							
Comparative Investment Performance: CRE by Property Type							
Property Sectors	Components	Returns (%)					
		1Q20 [†]	1-yr	3-yr	5-yr	10-yr	20-yr
CRE COMPOSITE*	Total:	2.87%	5.28%	6.41%	7.65%	10.17%	8.64%
	Appreciation:	-1.55%	0.74%	1.77%	2.87%	4.73%	2.38%
	Income:	4.51%	4.51%	4.57%	4.68%	5.26%	6.15%
MULTIFAMILY	Total:	3.85%	5.10%	5.79%	6.99%	10.25%	8.48%
	Appreciation:	-0.40%	0.79%	1.44%	2.47%	5.19%	2.89%
	Income:	4.27%	4.29%	4.31%	4.44%	4.88%	5.48%
INDUSTRIAL/WAREHOUSE	Total:	10.73%	12.88%	13.48%	13.38%	13.04%	10.02%
	Appreciation:	5.97%	7.96%	8.35%	8.05%	7.08%	3.26%
	Income:	4.60%	4.64%	4.83%	5.03%	5.66%	6.60%
OFFICE	Total:	5.22%	6.23%	6.50%	7.18%	9.46%	7.93%
	Appreciation:	0.76%	1.74%	1.92%	2.54%	4.17%	1.69%
	Income:	4.43%	4.43%	4.51%	4.55%	5.14%	6.16%
RETAIL	Total:	-7.99%	-1.91%	1.99%	5.24%	9.35%	9.39%
	Appreciation:	-12.27%	-6.43%	-2.61%	0.43%	3.72%	2.87%
	Income:	4.72%	4.75%	4.69%	4.80%	5.49%	6.39%
SENIOR LIVING**	Total:	5.05%	6.00%	8.83%	10.39%	11.63%	N/A
	Appreciation:	-0.48%	0.83%	3.47%	4.93%	5.48%	N/A
	Income:	5.55%	5.18%	5.36%	5.47%	6.15%	N/A

Source: NCREIF Real Estate Performance Report, 1Q 2020.

*Composite index also includes hotels and some misc. properties not shown separately. **For information only; not included in the Composite. †Quarterly returns, annualized

Part B — Expected Returns

- In this section of Exhibit 1, we provide some insight into trends obtained from public markets that we think will have a material influence on long-term investment performance. We think that this influence began to occur during (1Q) 2020 and is likely to continue into the future. In this exhibit, we present estimates of potential pricing changes based on a statistical model developed by L&B, which is based on the fact that a very high correlation exists between NCREIF-NPI returns and returns for publicly traded REITs. These high correlations exist for CRE in total and for each of the four major property types in each index (see appendix for discussion of the model).
 - We have used quarterly data from the 10-year period 2010-2020 because it represents the post-Great Recession era, a period when an unprecedented Fed policy was adopted. Its policy was well publicized as a goal of keeping interest rates low and monetary policy accommodative. Indeed, the Fed's actions were announced regularly to reinforce its intentions. We expect that this policy will remain in effect for the foreseeable future.
- Results of our analysis indicate that the potential for a significant change in NCREIF-NPI values continues.
 - Turning to Exhibit 1, values in column (1) are estimates of the total potential change in the CRE NPI index based on CRE REIT pricing in public markets. As always, these values are estimates and are not intended to be precise single price point values. Accordingly, we provide a range of possible outcome. Nonetheless, we believe that results from public markets will be material and inform the NCREIF-NPI index.
 - Column (2) contains results from actual pricing obtained from the REIT sector on a year-to-date basis through May 2020. When results in column (2) are compared to results in column (1), we can see that, with the exception of the multifamily sector, public markets appear to have already “priced-in” much of the total change that we predicted in column (1).
 - However, changes in the NPI index, shown in column (3), indicate that much of the pricing changes that have occurred in public markets have yet to occur in the NPI index. This observation tends to be informed by data shown in columns (5) and (6). These data show that, as of (1Q) 2020, implied cap rates from public REITs tend to be far different from transaction-based cap rates calculated from NCREIF-NPI data (shown in column [5]).

- From these results, we can only surmise that, possibly because of appraisal lags, significant changes in value may be indicated for assets comprising the NCREIF index.
 - This is especially true for retail, where further reductions could eventually cause adjustments in a range of 30% from (1Q) levels, and office, where additional reductions could range in the neighborhood of 25%.
 - Our results also indicate that, for multifamily, downward adjustments could range from around 10% to 20%. Warehouse properties, on the other hand, may warrant very little adjustment in values. Values for this property category in both indexes appear to be moving in parallel with one another.

Exhibit 1, PART B			
Potential Changes in CRE-NPI Pricing based on Transaction Data from Public Markets			
	(1)	(2)	(3)
	Potential Changes in CRE (NPI) Values⁽¹⁾	Actual Changes in REIT CRE Values to date⁽²⁾	Change in CRE (NPI) Values through (1Q) 2020⁽³⁾
CRE COMPOSITE	-17.2%	-21.1%	-1.6%
MULTIFAMILY	-11.3%	-21.2%	-0.4%
INDUSTRIAL/WAREHOUSE	6.3%	-0.8%	6.0%
OFFICE	-23.6%	-27.8%	0.8%
RETAIL	-48.8%	-44.2%	-12.3%
	(4)	(5)	(6)
	Estimates of Potential Range of Changes in CRE (NPI)⁽⁴⁾	(1Q) 2020 NCREIF-NPI Transaction-Based Cap Rates⁽⁵⁾	(1Q) 2020 Public REIT Implied Cap Rates⁽⁶⁾
MULTIFAMILY	-10.9% to -20.8%	0.046	0.060
INDUSTRIAL/WAREHOUSE	0.3% to -6.8%	0.051	0.041
OFFICE	-24.4% to -28.6%	0.043	0.066
RETAIL	-31.9% to -36.5%	0.071	0.077

(1) As estimated by L&B Research. (2Q) 2020 data includes April and May 2020 only. See appendix for detail.

(2) See: Nareit - [Outlook at Midyear 2020](#) by Calvin Schnure, June 8, 2020. YTD values reflect the change in the REIT index (by property type and for the composite) between the ends of December 2019 and May 2020.

(3) Annualized appreciation returns for (1Q) 2020, as shown in Exhibit 1, Part A.

(4) Values in the range shown in column 4 are obtained by subtracting values in column 3 from values in columns 1 (L&B estimate) and 2 (REIT-implied estimate).

(5) Value-weighted cap rates for properties sold in the NPI index during (1Q) 2020.

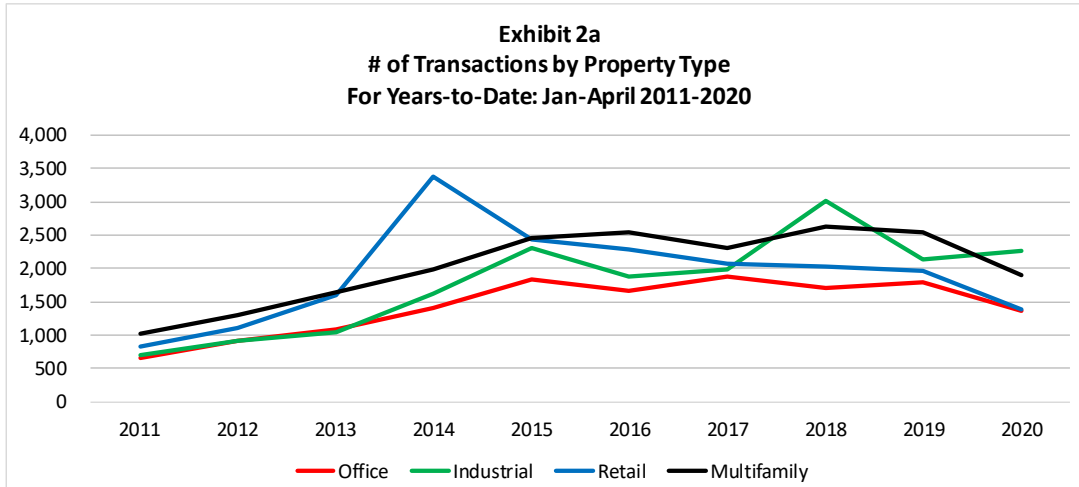
(6) See: Nareit - T-Tracker Report, (1Q) 2020. Values derived by dividing NOI by market cap for the constituent REITs in each property sector.

- Caveats when interpreting results in Exhibit 1, Part B.
 - **Appraisal lags.** We have noted that CRE pricing adjustments, as reflected in (1Q) 2020 results, appear to be occurring. However, we also should remind the reader that property appraisals determining the NPI occur only quarterly. Further, only about 25% of properties in the index are re-valued each quarter. Therefore, we have results based on relatively infrequent appraisals of only 25% of the properties comprising the index when it is reported.
 - This means that at any point in time, when analyzing the NPI, there is a significant appraisal lag affecting “current results.” This also means that changes in the NPI will be slower and will be responding to future economic information as it arrives in the marketplace. This can be viewed as being analogous to a four-quarter moving average, where economic information arrives each quarter, versus the Nareit index which reflects complete pricing results after each trade.
 - **Benefits of hindsight.** Many analysts who have evaluated the history of CRE NPI returns point out that “we have been here before” and that past predictions and cycles did not always “pan out” with actual results. These observations may be true, however, at the time decisions regarding value are made: everyone generally has access to the same data history and information. This information is incorporated into predictions of value as properties are acquired.
 - Therefore, when making investment decisions, we assume that all investors have access to the same historic economic/performance information and are using this information when forming judgments as to acquisition prices. Another interpretation of this observation is that history rarely provides any new relevant information to “price in” when currently valuing properties.
 - Investors use all relevant information as to past cycles, etc., which is well-known and is used to form the basis for pricing. Past examples of cycles are history and, at best, may currently serve investors only as reminders.
 - Additional examples of factors currently being decided by investors, either implicitly or explicitly, include (1) whether the recovery will be v-shaped, u-shaped, or a swoosh; and (2) the length of time needed to eradicate or contain COVID-19.
 - **Possible ambiguity in property categories.** It also should be kept in mind that property classifications may tend to average out the performance of the underlying asset class. For example, the general category of “retail” includes assets ranging from grocery-anchored centers to super regional malls. Similarly, multifamily includes both CBD and suburban locations, as well as high-rise and garden-type designs.

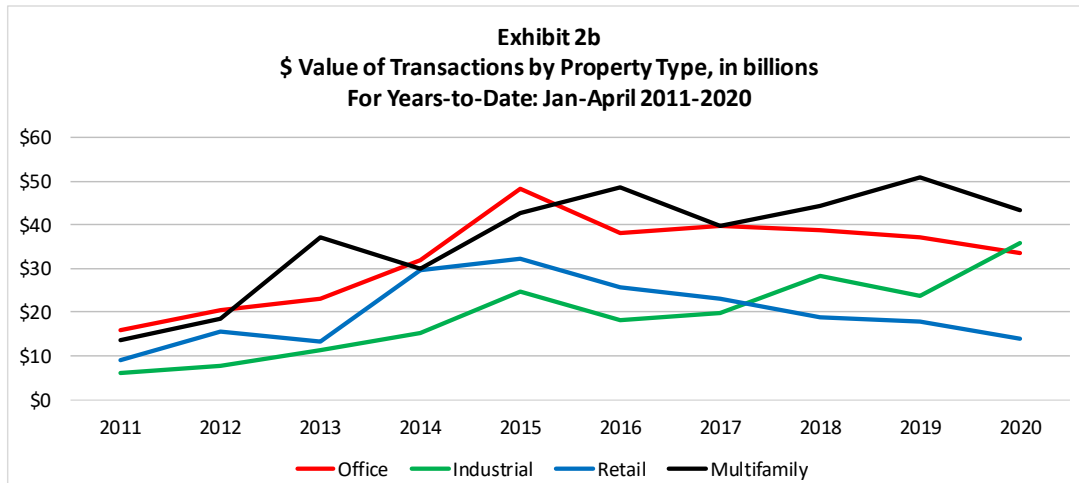
- This ambiguity makes generalizations regarding performance awkward. Indeed, performance for a category (e.g., multifamily) may be driven by only one subcategory within a classification. There may also be different definitions between public and private markets.
- We should point out that similar problems exist in pricing common stocks. For example, “growth stock” and “value stock” funds include many very different firms. Nonetheless, investors trade in them every day.

TRANSACTION ACTIVITY

- As expected, the YTD volume of CRE transactions through April 2020 (Exhibit 2a) declined sharply when compared to data for the same period during 2019. The dollar volumes also declined (Exhibit 2b) for the comparable periods.



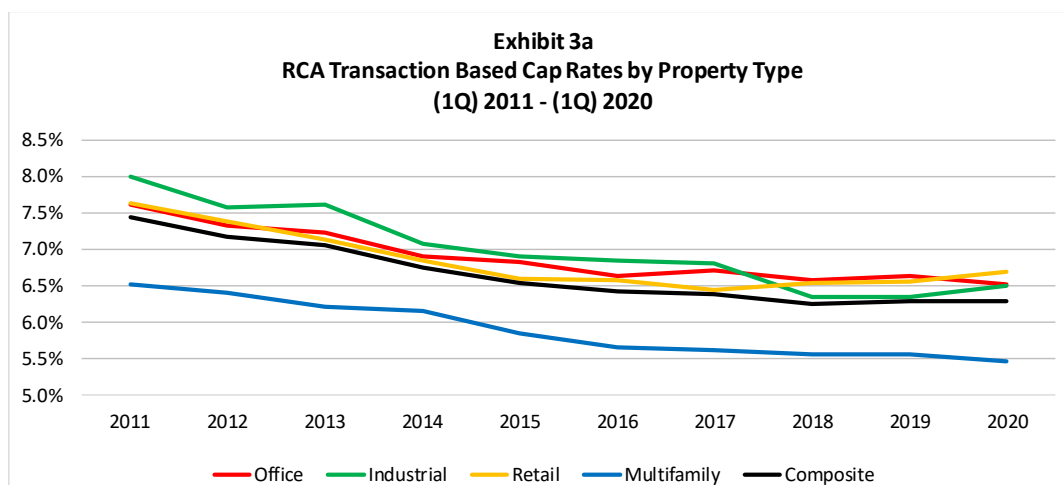
# Volume	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Office	660	920	1,093	1,406	1,832	1,663	1,881	1,698	1,789	1,364
Industrial	691	912	1,053	1,618	2,310	1,870	1,985	3,010	2,142	2,263
Retail	831	1,116	1,595	3,368	2,435	2,293	2,074	2,036	1,954	1,380
Multifamily	1,024	1,307	1,644	1,990	2,452	2,545	2,296	2,636	2,549	1,907
Total	3,206	4,255	5,385	8,382	9,029	8,371	8,236	9,380	8,434	6,914



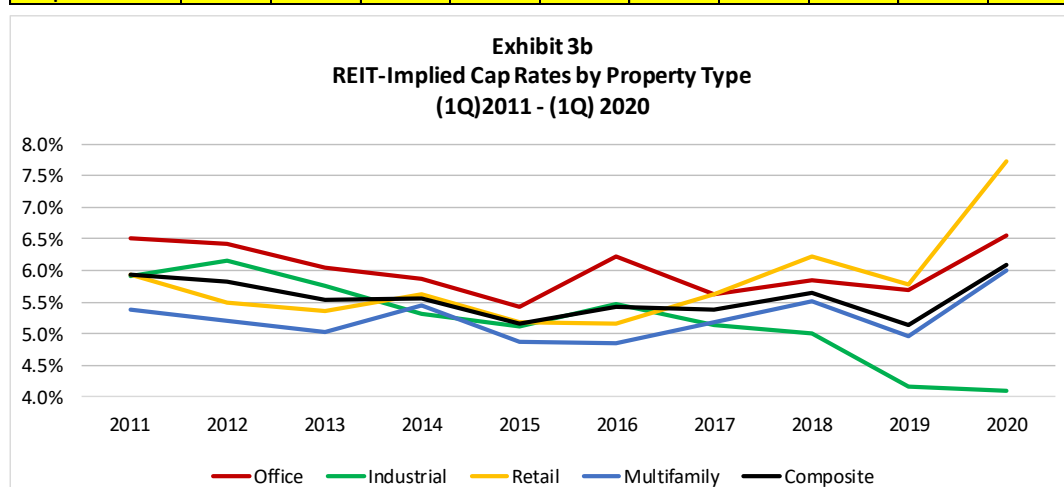
\$ Volume	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Office	\$15.84	\$20.40	\$23.21	\$31.94	\$48.18	\$38.22	\$39.60	\$38.73	\$37.05	\$33.52
Industrial	\$5.94	\$7.81	\$11.16	\$15.07	\$24.62	\$18.19	\$19.87	\$28.15	\$23.61	\$35.92
Retail	\$8.94	\$15.59	\$13.40	\$29.45	\$32.29	\$25.75	\$22.99	\$18.94	\$17.90	\$13.86
Multifamily	\$13.53	\$18.38	\$37.12	\$29.83	\$42.70	\$48.65	\$39.72	\$44.34	\$50.82	\$43.31
Total	\$44.24	\$62.17	\$84.89	\$106.29	\$147.79	\$130.81	\$122.18	\$130.15	\$129.38	\$126.60

Source: RCA

- As we expected, for the period ending 2020, data obtained from publicly traded REITs (Exhibit 3b) show an unambiguous increase in cap rates for three of the four major property types (industrial/warehouse being the sole exception).
- However, transaction-based cap rate data obtained from RCA (Exhibit 3a) shows very little movement in cap rates between (1Q) 2019 and (1Q) 2020. We believe that the REIT-implied cap rates in 3b more accurately reflect current market conditions.



(a) RCA	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Office	7.6%	7.3%	7.2%	6.9%	6.8%	6.6%	6.7%	6.6%	6.6%	6.5%
Industrial	8.0%	7.6%	7.6%	7.1%	6.9%	6.8%	6.8%	6.3%	6.4%	6.5%
Retail	7.6%	7.4%	7.1%	6.8%	6.6%	6.6%	6.4%	6.5%	6.6%	6.7%
Multifamily	6.5%	6.4%	6.2%	6.2%	5.9%	5.7%	5.6%	5.6%	5.6%	5.5%
Composite	7.4%	7.2%	7.1%	6.7%	6.5%	6.4%	6.4%	6.2%	6.3%	6.3%



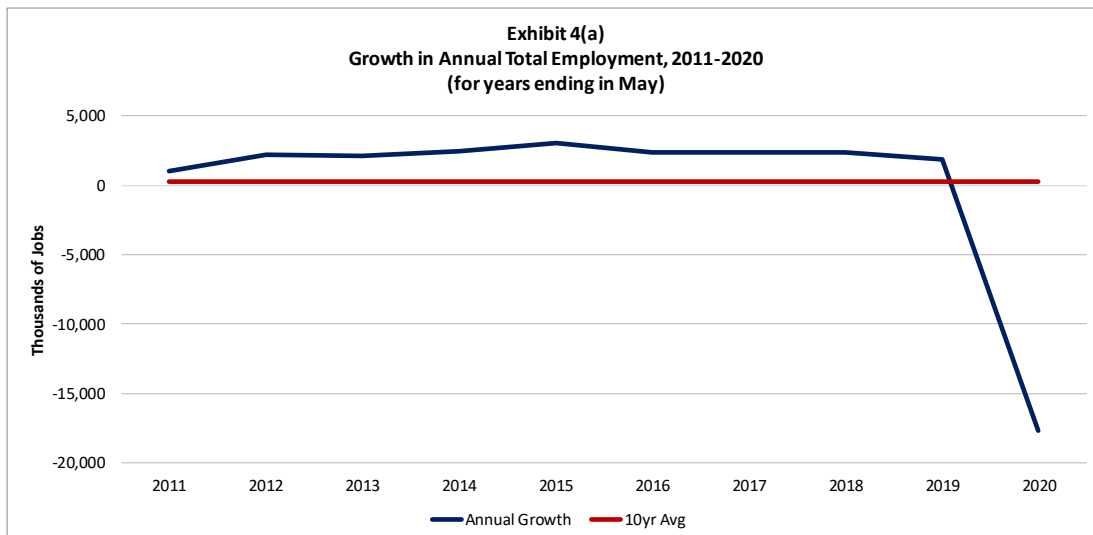
(b) REIT-Implied	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Office	6.5%	6.4%	6.0%	5.9%	5.4%	6.2%	5.6%	5.8%	5.7%	6.6%
Industrial	5.9%	6.1%	5.8%	5.3%	5.1%	5.5%	5.1%	5.0%	4.2%	4.1%
Retail	5.9%	5.5%	5.4%	5.6%	5.2%	5.1%	5.6%	6.2%	5.8%	7.7%
Multifamily	5.4%	5.2%	5.0%	5.4%	4.9%	4.9%	5.2%	5.5%	5.0%	6.0%
Composite	5.9%	5.8%	5.5%	5.6%	5.1%	5.4%	5.4%	5.6%	5.1%	6.1%

Sources: RCA (1Q 2020 Volume and Pricing report), Nareit (1Q 2020 T-Tracker report)

EMPLOYMENT TRENDS

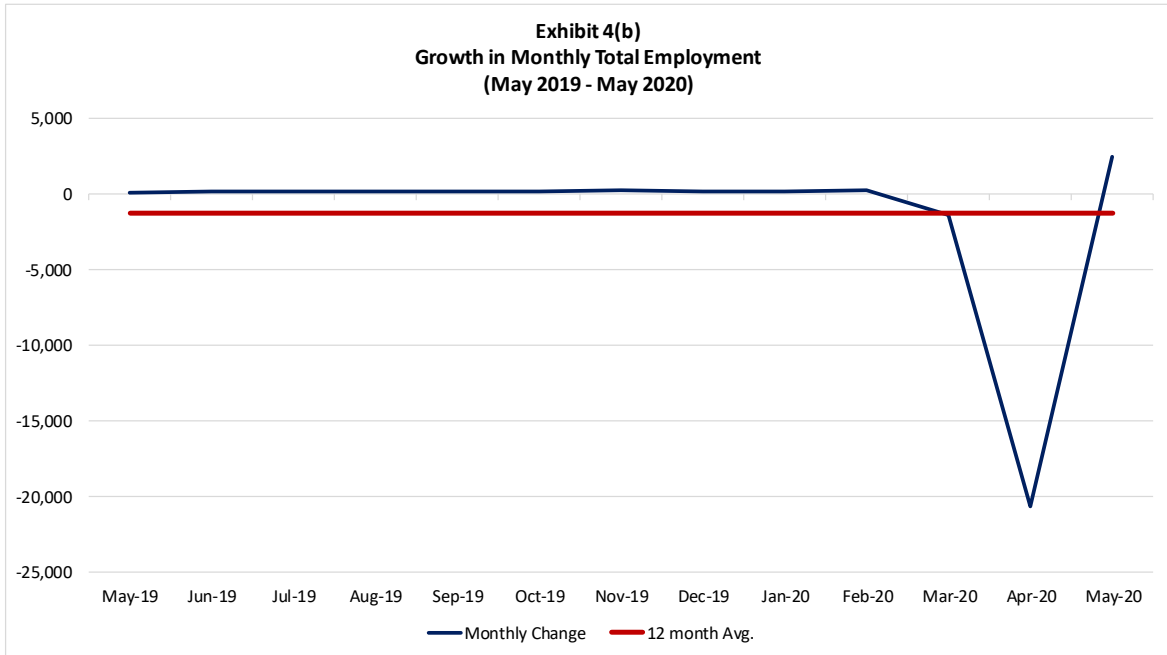
National

- As indicated in Exhibit 4, the net reduction in employment stood at over 17 million for the year ending May 2020. However, as shown in Exhibit 5, during the month of May, we saw a turnaround in employment, which grew by 2.5 million jobs. As expected, job gains in leisure and hospitality alone comprised almost 50% of the increase as restaurants re-opened. Healthcare also showed an increase in job growth as elective surgeries were allowed to resume.
- We believe that employment growth should continue in response to (1) recent legislation (PPP, CARES, etc.) and (2) the increasing rate of “re-openings” on a state by state basis. However, this trend will be dependent on the rate of increase in COVID-19, which remains problematic.



Employment*		10-yr Avg.	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Total (000)	#	140,411	131,703	133,934	136,093	138,511	141,525	143,891	146,296	148,669	150,577	132,912
Growth:												
Number (000)	#	226	1,053	2,231	2,159	2,418	3,014	2,366	2,405	2,373	1,908	-17,665
Rate	%	0.3%	0.8%	1.7%	1.6%	1.8%	2.2%	1.7%	1.7%	1.6%	1.3%	-11.7%
Monthly Avg. Increase	#	18.9	88	186	180	202	251	197	200	198	159	-1,472
Unemployment Rate	%	6.7%	9.0%	8.2%	7.5%	6.3%	5.6%	4.8%	4.4%	3.8%	3.6%	13.3%

*Non-Farm Payrolls, In Thousands Sources: Bureau of Labor Statistics, U.S. Dept. of Labor



Employment*	May-19	Jun-19	Jul-19	Aug-19	Sep-19	Oct-19	Nov-19	Dec-19	Jan-20	Feb-20	Mar-20	Apr-20	May-20
Total (000)	# 150,577	150,759	150,953	151,160	151,368	151,553	151,814	151,998	152,212	152,463	151,090	130,403	132,912
Monthly Change (000)	# 85	182	194	207	208	185	261	184	214	251	-1,373	-20,687	2,509
Unemployment Rate	% 3.6%	3.7%	3.7%	3.7%	3.5%	3.6%	3.5%	3.5%	3.6%	3.5%	4.4%	14.7%	13.3%

*Non-Farm Payrolls, In Thousands Sources: Bureau of Labor Statistics, U.S. Dept. of Labor

Exhibit 5
Employment Characteristics by Industry Sector

(a) May 2010 - May 2020				(b) May 2019 - May 2020				(c) May 2020			
Rank	Sector	# 10yr Change	Share of # Chg	Rank	Sector	# 1yr Change	Share of # Chg	Rank	Sector	# 1mo Change	Share of # Chg
1	Prof. & biz. services	2,692	119.0%	1	Mining/logging (incl. oil & gas)	-111	0.6%	1	Leisure and hospitality	1,239	49.4%
2	Education and healthcare	2,308	102.0%	2	Financial activities	-131	0.7%	2	Construction	464	18.5%
3	Construction	1,523	67.3%	3	Information	-275	1.6%	3	Education and healthcare	424	16.9%
4	Financial activities	897	39.7%	4	Construction	-435	2.5%	4	Trade; transport; utilities	368	14.7%
5	Trade; transport; utilities	340	15.0%	5	Other services	-1,031	5.8%	5	Other services	272	10.8%
6	Manufacturing	182	8.0%	6	Manufacturing	-1,122	6.4%	6	Manufacturing	225	9.0%
7	Mining/logging (incl. oil & gas)	-65	-2.9%	7	Government	-1,371	7.8%	7	Prof. & biz. services	127	5.1%
8	Information	-131	-5.8%	8	Education and healthcare	-1,834	10.4%	8	Financial activities	33	1.3%
9	Other services	-480	-21.2%	9	Prof. & biz. services	-1,859	10.5%	9	Mining/logging (incl. oil & gas)	-20	-0.8%
10	Government	-1,816	-80.3%	10	Trade; transport; utilities	-2,801	15.9%	10	Information	-38	-1.5%
11	Leisure and hospitality	-3,188	-140.9%	11	Leisure and hospitality	-6,695	37.9%	11	Government	-585	-23.3%
	Total	2,262	100.0%		Total	-17,665	100.0%		Total	2,509	100.0%

*TE = Total Non-Farm Employment, in Thousands Source: Bureau of Labor Statistics

Top MSAs

- In Exhibit 6 we provide a breakdown of employment data by MSA. Essentially we show the magnitude of employment losses by MSA in Panel A (note that there were no MSAs reporting an increase). Job losses ranged from a low of 94,400 in San Antonio to almost 2 million in the New York City MSA.
- After calculating the average annual job gain for the past 10 years (Panel B), we can get some idea as to the relative severity of job losses (see Panel C, column i). For example, our 35 MSA average indicates that job losses for the year ending in May 2020 were about 8.6x the 10-year average of job gains reported during that period.
- Data in Panel C, column ii provides information as to how job losses in all 35 MSAs compare to the MSA averages. For example, Austin experienced job losses that were 3.05x its 10-year average job gain (column i). However, it fared much better when compared to the average 35 MSA average: losses in Austin were only about 36% of the average losses reported for the 35 MSAs.

Exhibit 6									
Employment Growth & Momentum for 35 Largest MSAs									
Through April 2020*									
PANEL A		PANEL B		PANEL C - MOMENTUM					
MSA - Rank	Job Growth (Apr-19 - Apr-20)	MSA - Rank	10yr. Avg. Growth	MSA - Rank	(i) Current**	(ii) VS. 35 MSAs***			
1	San Antonio	-94,400	1	New York MSA	136,170	1	Austin	-3.05	0.36
2	Austin	-101,400		New York	117,370	2	Dallas-Ft Worth MSA	-3.69	0.43
3	Kansas City	-112,900		Newark	6,240		Dallas	-3.15	0.11
4	Indianapolis	-120,500		Long Island	12,560		Ft Worth	-5.32	0.18
5	Nashville	-123,300	2	Dallas-Ft Worth MSA	81,570	3	Phoenix	-4.06	0.47
6	San Jose	-126,400		Dallas	61,480	4	Riverside	-4.07	0.47
7	Tampa	-131,900		Ft Worth	20,090	5	San Antonio	-4.22	0.49
8	Columbus, OH	-141,800	3	Los Angeles MSA	81,490	6	Nashville	-4.34	0.51
9	Riverside	-146,600		Los Angeles	54,560	7	Denver	-4.62	0.54
10	Denver	-148,900		Anaheim	26,930	8	Houston	-4.78	0.56
11	Portland	-150,500	4	Houston	55,660	9	San Jose	-4.85	0.57
12	St. Louis	-161,100	5	Atlanta	52,100	10	Atlanta	-5.20	0.61
13	Cincinnati, OH	-164,500	6	Miami MSA	49,190	11	Tampa	-5.23	0.61
14	Charlotte	-166,900		Miami	22,160	12	Orlando	-5.58	0.65
15	Phoenix	-169,800		Fort Lauderdale	14,480	13	Charlotte	-6.20	0.72
16	Orlando	-178,900		Palm Beach	12,550	14	Portland	-6.57	0.77
17	Cleveland	-180,100	7	San Francisco MSA	48,780	15	San Francisco MSA	-6.89	0.80
18	Baltimore	-193,400		San Francisco	30,560		San Francisco	-5.22	0.18
19	San Diego	-198,600		Oakland	18,220		Oakland	-9.68	0.33
20	Pittsburgh	-207,000	8	Phoenix	41,840	16	Indianapolis	-7.00	0.82
21	Las Vegas	-214,500	9	Chicago MSA	41,430	17	Miami MSA	-7.32	0.85
22	Houston	-265,900		Chicago	37,610		Miami	-6.62	0.22
23	Minneapolis	-267,700		Lake County	3,820		Fort Lauderdale	-8.29	0.28
24	Atlanta	-270,900	10	Seattle MSA	38,460		Palm Beach	-7.46	0.25
	35 MSA AVG	-295,291		Seattle	33,330	18	Columbus, OH	-7.81	0.91
25	Washington, D.C.	-300,400		Tacoma	5,130	19	Washington, D.C.	-7.87	0.92
26	Dallas-Ft Worth MSA	-300,600	11	Washington, D.C.	38,150	20	Seattle MSA	-7.89	0.92
	Dallas	-193,800	12	Boston	37,770		Seattle	-7.54	0.25
	Ft Worth	-106,800	13	Riverside	36,040	21	Tacoma	-10.18	0.34
27	Seattle MSA	-303,500		35 MSA AVG	34,377		San Diego	-8.23	0.96
	Seattle	-251,300	14	Austin	33,250		35 MSA AVG	-8.59	1.00
	Tacoma	-52,200	15	Denver	32,220	22	Kansas City	-9.72	1.13
28	Philadelphia MSA	-313,800	16	Orlando	32,060	23	Minneapolis	-10.09	1.17
	Philadelphia	-120,600	17	Nashville	28,410	24	Las Vegas	-10.92	1.27
	Montgomery County	-193,200	18	Detroit MSA	27,310	25	Los Angeles MSA	-11.46	1.33
29	San Francisco MSA	-335,900		Detroit	5,940		Los Angeles	-12.38	0.42
	San Francisco	-159,600		Warren	21,370		Anaheim	-9.61	0.32
	Oakland	-176,300	19	Charlotte	26,910	26	Boston	-12.38	1.44
30	Miami MSA	-360,200	20	Minneapolis	26,530	27	Baltimore	-12.72	1.48
	Miami	-146,600	21	San Jose	26,040	28	Chicago MSA	-13.19	1.54
	Fort Lauderdale	-120,000	22	Tampa	25,200		Chicago	-13.06	0.44
	Palm Beach	-93,600	23	San Diego	24,140		Lake County	-14.40	0.49
31	Boston	-467,500	24	Portland	22,890	29	Cincinnati, OH	-13.37	1.56
32	Detroit MSA	-498,400	25	San Antonio	22,390	30	New York MSA	-14.22	1.66
	Detroit	-171,800	26	Philadelphia MSA	19,790		New York	-12.03	0.41
	Warren	-326,600		Philadelphia	10,510		Newark	-36.91	1.25
33	Chicago MSA	-546,300		Montgomery County	9,280		Long Island	-23.43	0.79
	Chicago	-491,300	27	Las Vegas	19,640	31	Philadelphia MSA	-15.86	1.85
	Lake County	-55,000	28	Columbus, OH	18,150		Philadelphia	-11.47	0.39
34	Los Angeles MSA	-934,100	29	Indianapolis	17,210		Montgomery County	-20.82	0.70
	Los Angeles	-675,300	30	Baltimore	15,210	32	St. Louis	-17.59	2.05
	Anaheim	-258,800	31	Cincinnati, OH	12,300	33	Detroit MSA	-18.25	2.12
35	New York MSA	-1,936,600	32	Kansas City	11,610		Detroit	-28.92	0.98
	New York	-1,412,000	33	St. Louis	9,160		Warren	-15.28	0.52
	Newark	-230,300	34	Cleveland	7,120	34	Cleveland	-25.29	2.94
	Long Island	-294,300	35	Pittsburgh	6,990	35	Pittsburgh	-29.61	3.45

*Years ending April **1yr growth (A) divided by 10yr avg. growth (B). Green (red) shading indicates 1yr growth exceeds (is less than) the 10yr avg.
 ***Ratio of current growth for each MSA relative to the 35 MSA average. Green (red) shading indicates that current momentum for an MSA exceeds (is below) the average momentum for all 35 MSAs
 Source: Bureau of Labor Statistics

TECHNICAL APPENDIX:

Procedures for Estimating Expected Changes in the NCREIF-NPI Index

- *Step 1:* Confirm high correlation between Nareit real estate security values and NCREIF-NPI, in total and by property type.

10-Year (40 Quarters) Correlation between Nareit and NPI-NCREIF Indexes	
	Correlation
CRE Composite	0.98
Office	0.97
Industrial/Warehouse	0.98
Multifamily	0.97
Retail	0.86

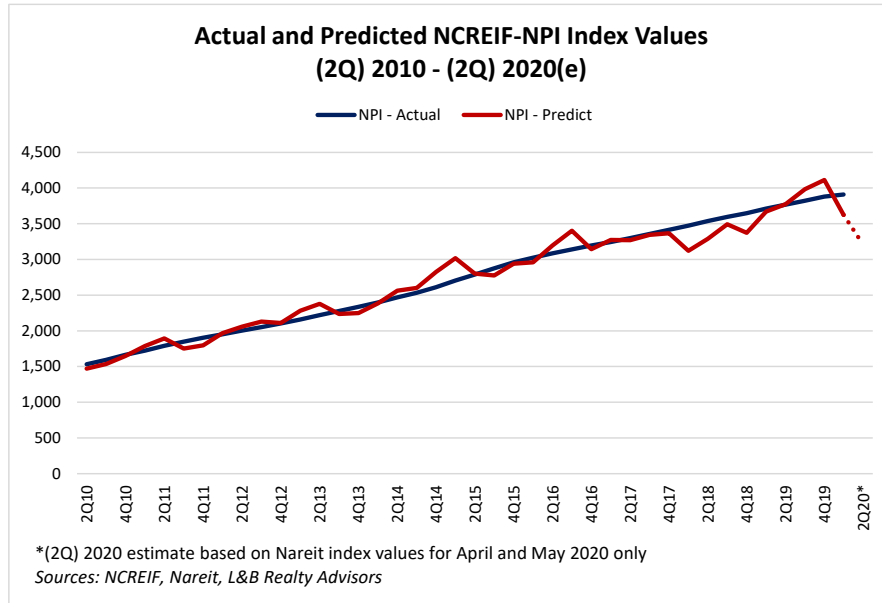
- *Step 2:* Estimate expected values for the NPI-NCREIF (2Q) 2020 index based on historic association with Nareit index over the past 10 years.
 - (a) Use linear regression of the form:

$$NCREIF\ Index = f(Nareit\ Index),\ or$$

$$NCREIF\ Index = \alpha + \beta(Nareit\ Index)$$

$$NCREIF\ Index = 2.0 + 0.202038(Nareit\ Index)$$

- (b) This produces the relationship shown in the graph below:



- $R^2 = 0.96$, which indicates that 96% of the variation in the NPI can be explained by the variation in the Nareit index.

- (c) Repeat process for each NPI and REIT category (multifamily, retail, office, warehouse).

R ² Values for NCREIF-Nareit Regressions*	
	R ²
CRE Composite	0.96
Office	0.94
Industrial/Warehouse	0.96
Multifamily	0.94
Retail	0.74

*Graphs not shown

- Note the Nareit index value for (2Q) 2020 is the average of values for April and May only.
- Correlation and R² values for retail were significant but did not exhibit as strong of an association when compared to values obtained from the composite and the three other property types. The “goodness of fit” for the estimated regression line for retail was not as good as for other property types.

DISCLAIMER

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