Roundtable: Data Centers

Thursday, March 23rd
3:15pm – 4:30pm
La Quinta Resort & Club, La Quinta, California

Discussion Leaders:

Mark Jones, VP & Controller, CoreSite Realty Corporation
William Schafer, CFO, QTS Realty Trust, Inc.
Greg VonDerVellen, SVP-Global Tax, Iron Mountain

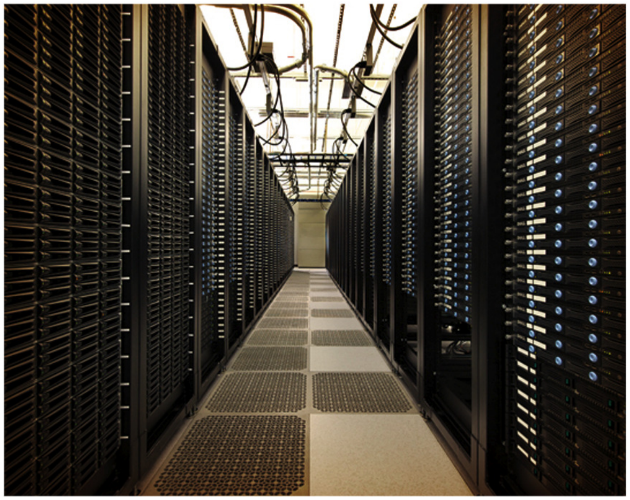
Data Center Sector

June 2, 2016

DJIA: **17,839** | RMZ: **1,159** | 10-Year T-Note: **1.80%**

Green Street Advisors

Landlords Enjoying the Cloud Land Grab



Overview

- Data center landlords are enjoying healthy demand growth
- Demand from public clouds has been particularly robust
- Supply growth appears to be manageable
- Fundamentals are slightly in favor of landlords
- Data center REITs trade at NAV premiums and should grow
- External growth is focused on development
- Balance sheets are in decent shape
- NAV and earnings estimates have been updated for 1Q16 results
- Estimates are significantly higher due to increased growth forecasts

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Important disclosure on page 9

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Executive Summary

Operating Fundamentals
Favors Landlords

- Demand growth appears to be picking up thanks to the growth of public cloud providers
- Overall supply growth appears to be in check
- Network-dense data center fundamentals continue to be healthier than enterprise
- Rent growth is slightly higher than the historical average

Cap. Alloc. / Bal. Sheet
Doing the Right Thing

- NAV premiums give data center REITs a "green light" to grow
- All three data center REITs in our coverage universe are avid developers
- Acquisitions are tough to come by, but DLR is buying a portfolio from EQIX (4% expansion of assets)
- Balance sheets are in good shape; DLR is smartly deleveraging with fwd. equity sale to fund EQIX deal

NAV / Earnings
Playing Catch Up

- NAVs and earnings models have been updated for 1Q16 results, and are significantly higher
- Changes driven by better-than-expected results and higher growth expectations

Recommendations
No Changes

- Digital Realty isn't getting enough credit for its valuable, networkdense portfolio. Digital's implied cap rate is 30 bps *higher* than CoreSite, when it has historically traded at a cap rate 50 bps *lower*.

NAV Change Summary

	Cap Rate		Asset Value	Net	NAV / Sh		
Ticker	New	Change	% Change	Leverage	New	% Change	Rec
COR	7.3%	-	16%	20%	$57.75	16%	**SELL**
DFT	7.8%	-	9%	31%	$38.25	15%	**HOLD**
DLR	6.9%	-	5%	43%	$78.50	8%	**BUY**
Average	**7.3%**		**10%**	**31%**		**13%**	

Data Center Real Estate 101

Industry Overview

Data centers are highly specialized buildings that house the mission-critical IT infrastructure that powers the Internet and corporate world. From the outside, many data centers resemble a typical office / industrial building. On the inside, data centers offer access to abundant power and communication fiber, and have redundant infrastructure that keeps servers humming even if the power goes out. The robust build-outs in data centers can push development costs over $1,200 per sq. ft.

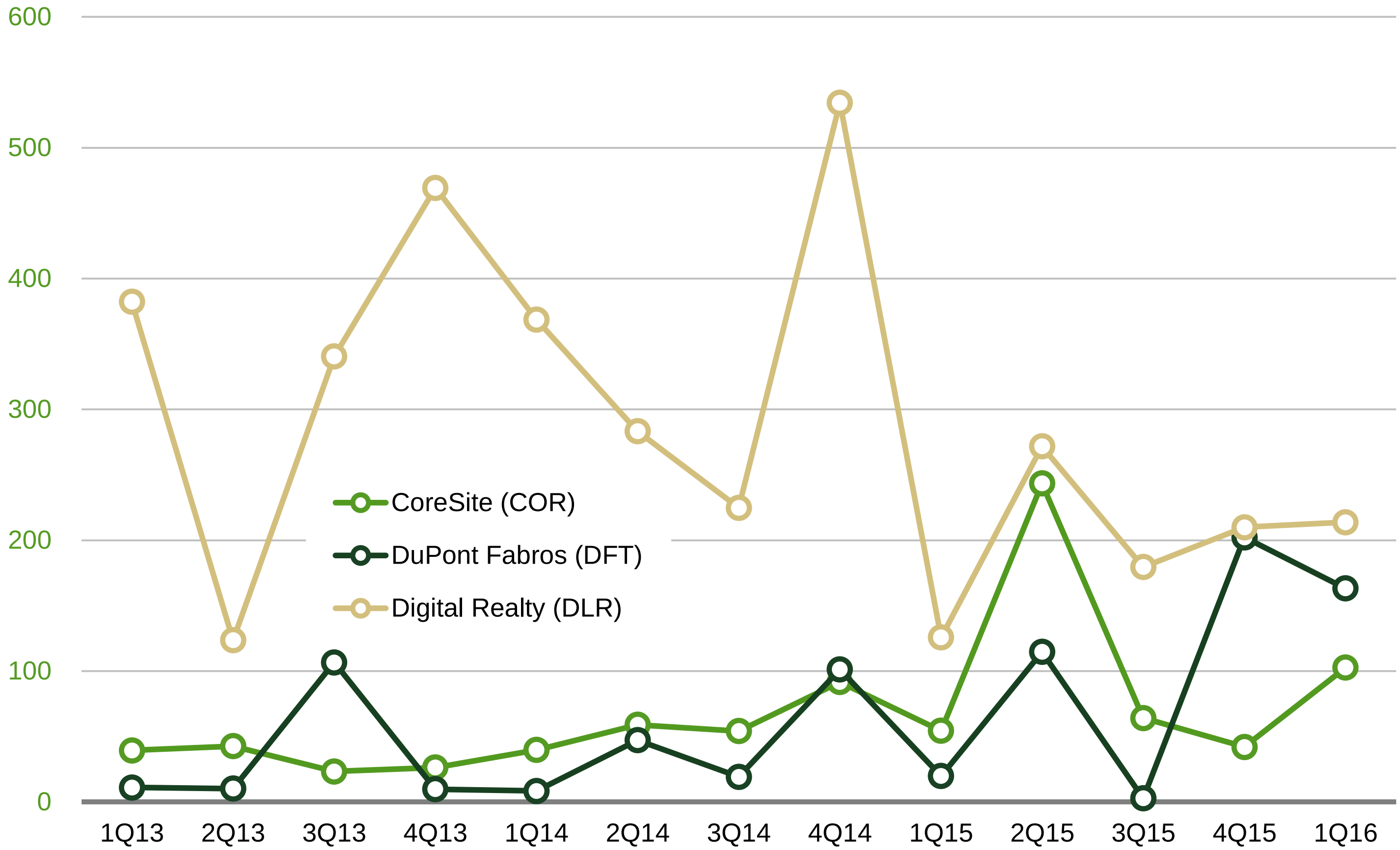
Key Terms

- **Megawatt (MW):** A measure of power (1 MW = 1 million watts). Data center leases are typically structured by the MW rather than sq. ft. Large-scale data center power needs can amount to 40MW, as much energy as 40,000 homes.
- **Colocation:** The business of catering to smaller data center tenants. Leases tend to be shorter (<5 years), and are usually for less than half a megawatt. Tenants lease individual racks or cabinets in a multi-tenant suite, rather than an entire suite.
- **Wholesale:** The business of catering to larger data center tenants. Leases tend to be longer (5-10 years), and are usually greater than half a megawatt. Tenants lease entire suites or buildings as opposed to racks or cabinets in a multi-tenant suite.
- **Network-Dense Data Center:** Data centers that act as key hubs for the Internet and connectivity. Network-dense data centers are rare, hard-to-replicate, and exhibit strong pricing power. They are the data center equivalent of high-productivity malls.
- **Enterprise Data Center:** Data centers that serve the needs of corporate IT departments and large-scale Internet enterprises. These facilities are more exposed to competition than "network-dense" data centers.
- **Powered Base, or Powered Shell:** A data center property, or space within a property, that has not been substantially improved beyond its shell state. The tenant, rather than the landlord, is responsible for building out the space. From the landlord's perspective, powered base building development costs run a few hundred dollars per sq. ft., compared to $1,200+ per sq. ft. for a fully built-out data center. Powered base space/buildings are commonly leased on a triple-net basis.
- **Turn-Key:** Data center space that is highly built out and ready for use by tenants. Improvements to the building's shell, such as costly electrical and cooling infrastructure, can push total development costs over $1,200 per sq. ft. Turn-key space is typically leased on a gross basis (DuPont is a notable exception), with tenants paying electricity costs.
- **Interconnection:** The act of multiple tenants at network-dense data centers that serve as key Internet hubs "connecting" to exchange Internet traffic. The operator of these facilities (e.g., Telx, CoreSite) is typically able to charge recurring interconnection fees for this activity.

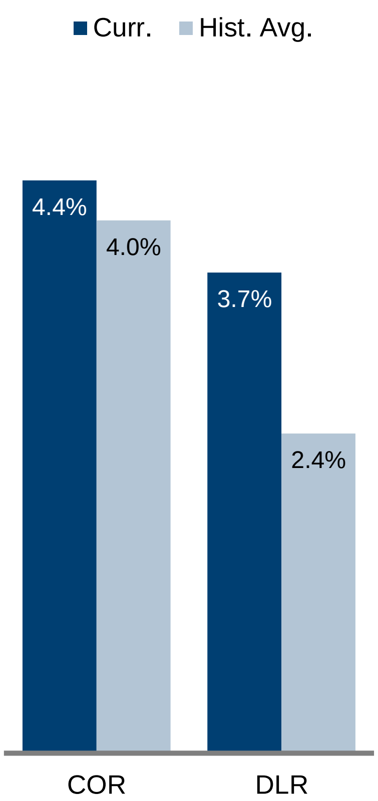
Healthy Demand Growth

REITs Benefitting from Cloud Growth: Leasing activity can be volatile in the data center business, but recent trends have been robust thanks largely to the aggressive expansion of cloud providers (e.g., Amazon Web Services, Microsoft Azure). Rent growth is trending slightly above the historical average.

Leasing Activity - New Signed Leases (Sq. Ft. in 000s)



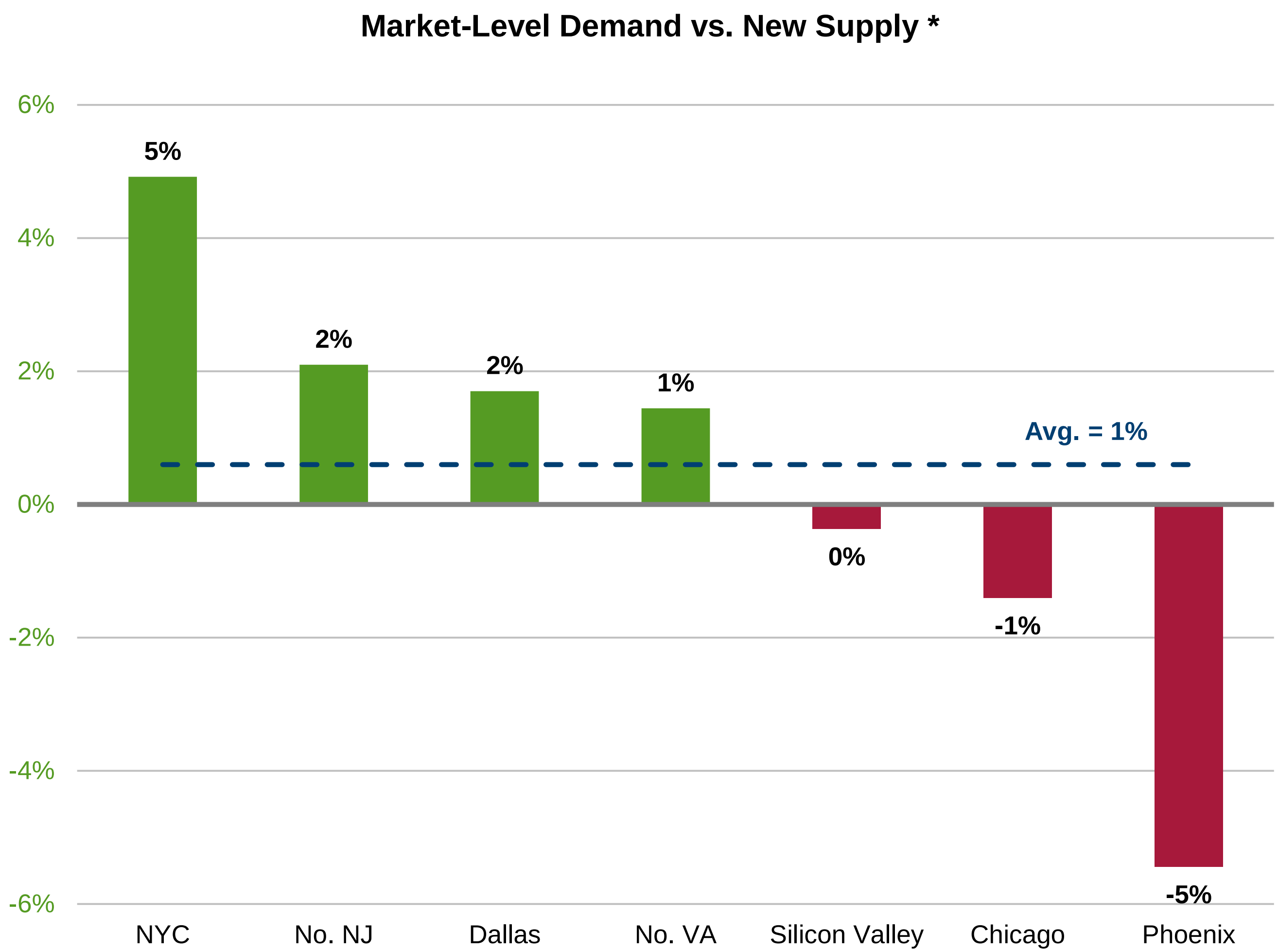
Cash Rent Growth on Renewal Leases*

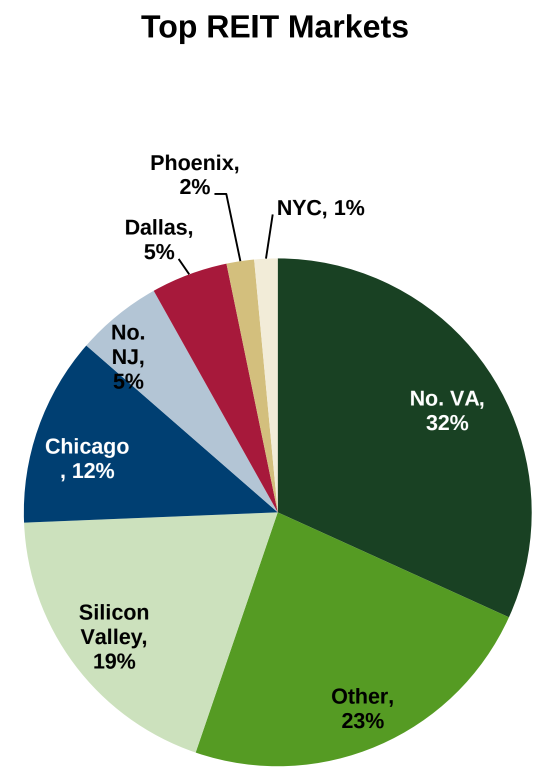


Sources: Company disclosure, Green Street Advisors. * Current is trailing-four-quarter average.

Supply Growth In Check

Just-In-Time Inventory: Data center supply growth is difficult to measure, but most datapoints suggest the overall industry is roughly in equilibrium. New York and Northern Virginia continue to be tighter markets, while Phoenix developers may be getting a bit ahead of themselves.





Sources: JLL, company disclosure, Green Street Advisors. * Calculated as: ('15 Net Absorption - Space under Construction) / Existing Inventory.

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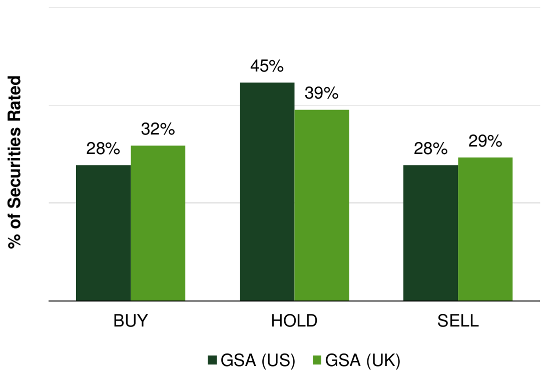

Green Street’s “BUYs” have historically achieved far higher total returns than its ”HOLDs”, which, in turn, have outperformed its “SELLs”.

Total Return of Green Street's Recommendations[1,2]

Year[3]	Buy	Hold	Sell	Universe[4]
2016 YTD	10 1%	8 8%	11 6%	10 0%
2015	8 3%	0 9%	1 7%	2 4%
2014	41 6%	31 5%	27 3%	33 3%
2013	4 1%	0 6%	1 7%	2 2%
2012	24 5%	24 7%	18 9%	23 0%
2011	18 9%	7 6%	4 7%	7 6%
2010	43 3%	32 8%	26 6%	33 8%
2009	59 0%	47 7%	6 0%	37 9%
2008	28 1%	30 9%	52 6%	37 3%
2007	6 9%	22 4%	27 8%	19 7%
2006	45 8%	29 6%	19 5%	31 6%
2005	26 3%	18 5%	1 8%	15 9%
2004	42 8%	28 7%	16 4%	29 4%
2003	43 3%	37 4%	21 8%	34 8%
2002	17 3%	2 8%	2 6%	5 4%
2001	34 9%	19 1%	13 0%	21 1%
2000	53 4%	28 9%	5 9%	29 6%
1999	12 3%	9 0%	20 5%	6 9%
1998	1 6%	15 1%	15 5%	12 1%
1997	36 7%	14 8%	7 2%	18 3%
1996	47 6%	30 7%	18 9%	32 1%
1995	22 9%	13 9%	0 5%	13 5%
1994	20 8%	0 8%	8 7%	3 1%
1993	27 3%	4 7%	8 1%	12 1%
Cumulative Total Return	**15204.0%**	**1105.0%**	**28.3%**	**1294.1%**
Annualized	**24.1%**	**11.3%**	**1.1%**	**12.0%**

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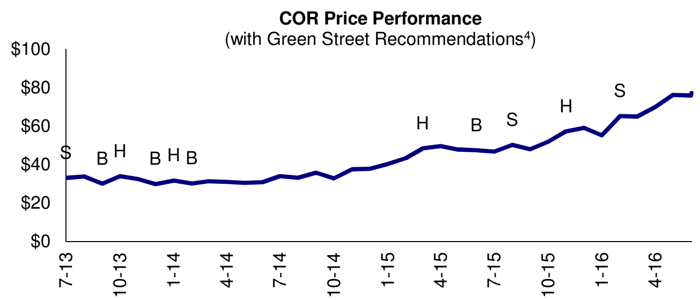
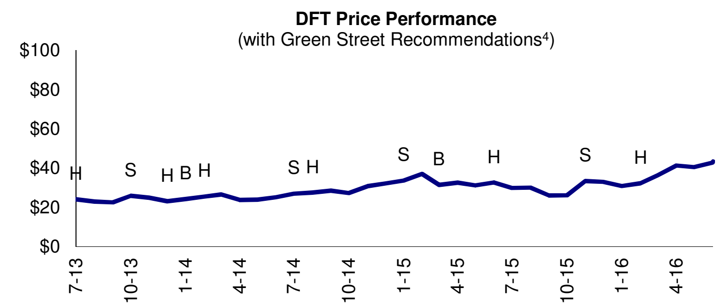
The chart below shows COR’s price performance over the last three years, along with Green Street’s recommendations during that time.



The chart below shows DFT’s price performance over the last three years, along with Green Street’s recommendations during that time.



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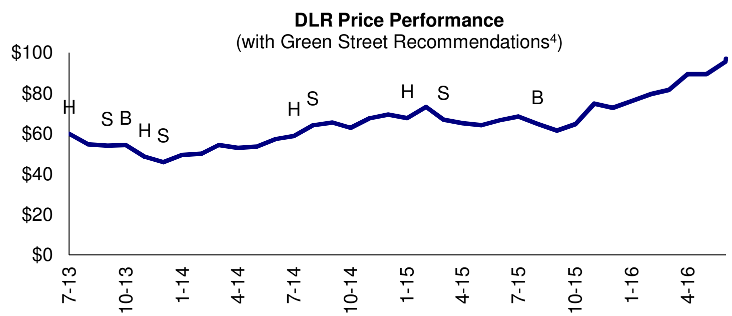

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(2) Company inclusion in the calculation of total return has been based on whether the companies were listed in the primary exhibit of Green Street’s "Real Estate Securities Monthly”. Beginning April 28, 2000, Gaming C-Corps and Hotel C-Corps, with the exception of Starwood Hotels and Homestead Village, were no longer included in the primary exhibit and therefore no longer included in the calculation of total return. Beginning March 3, 2003, the remaining hotel companies were excluded.

(3) The returns for each year cover the period following the first “Real Estate Securities Monthly” issued in the respective year through the first “Real Estate Securities Monthly” issued in the following year and are not based on a calendar year.

(4) All securities covered by Green Street with a published rating that were included in the calculation of total return. Excludes “not rated” securities.

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