



# Green Street Advisors

Definitive Leaders in Real Estate Research for over 30 years

## **The Impact of Changing Transportation Technologies and Behaviors on TOD Assets**

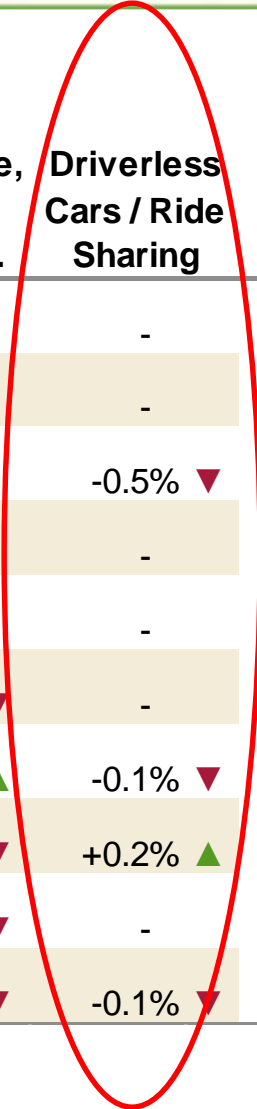
ULI Fall Meeting / October 9, 2018

**Dave Bragg, Managing Director – Strategic Research**

# Disruptors Affect Sector Long-Term Growth Rates...



Property Type	Adjusted* NOI Growth 1994-2015	Prior Period Unusual	Saturation of Concept	Demo- graphics	ECommerce, Airbnb & Online Ed.	Driverless Cars / Ride Sharing	Expected Long-Term Growth
Manuf Home	2.6%	-	-	+0.2% ▲	-	-	2.8%
Apartment	2.4%	-	-	-0.2% ▼	-	-	2.2%
Self Storage	3.0%	-	-0.7% ▼	-0.2% ▼	-	-0.5% ▼	1.6%
Senior Housing	2.6%	-	-1.0% ▼	-	-	-	1.6%
Office	1.6%	-	-	-0.1% ▼	-	-	1.5%
Lodging	1.0%	+0.5% ▲	-	-	-0.2% ▼	-	1.3%
Industrial	1.1%	-	-	-	+0.2% ▲	-0.1% ▼	1.2%
Mall	2.2%	-	-	-0.2% ▼	-1.0% ▼	+0.2% ▲	1.2%
Student Housing	1.9%	-	-0.2% ▼	-0.2% ▼	-0.5% ▼	-	1.0%
Strip Center	1.2%	-	-	-	-0.2% ▼	-0.1% ▼	0.9%



# ...Which Influence Return Expectations

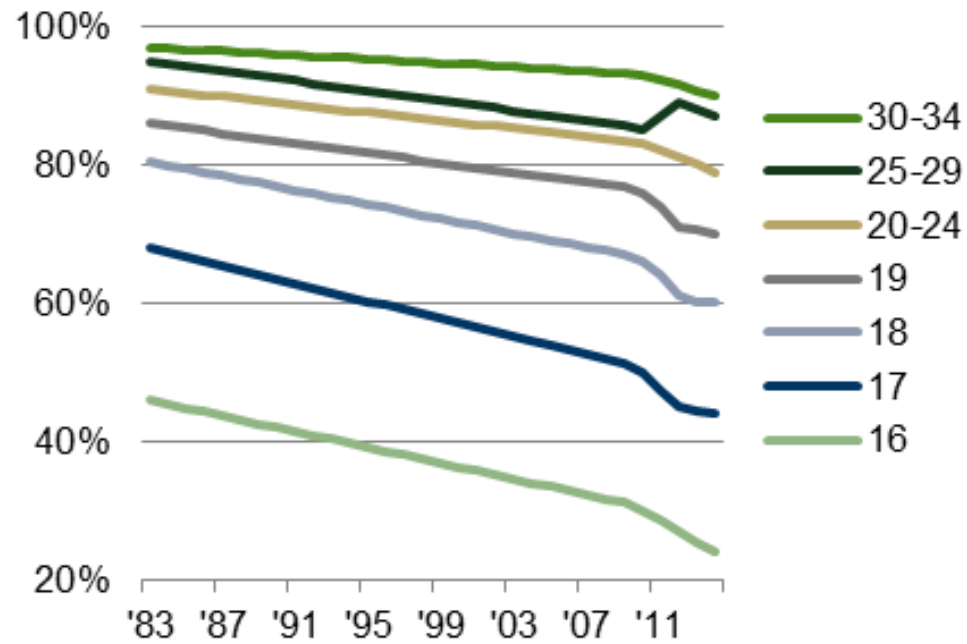


Property Type	Economic Cap Rate	Same-Store NOI Growth '19-'22	Long Term	Risk-Adjusted Expected Return
Manuf Home	4.7%	4.5%	2.8%	7.9%
Senior Housing	5.1%	2.1%	1.6%	6.8%
Self Storage	5.1%	1.7%	1.6%	6.7%
Apartment	4.3%	2.4%	2.2%	6.6%
Industrial	4.2%	4.3%	1.2%	6.1%
Strip Center	5.0%	1.6%	0.9%	6.0%
Lodging	5.5%	0.7%	1.3%	6.0%
Student Housing	4.7%	1.5%	1.0%	6.0%
Mall	4.7%	2.1%	1.2%	5.9%
Office	3.5%	2.9%	1.5%	5.1%
<b>Major Sector Avg</b>	<b>4.3%</b>	<b>2.6%</b>	<b>1.4%</b>	<b>6.0%</b>

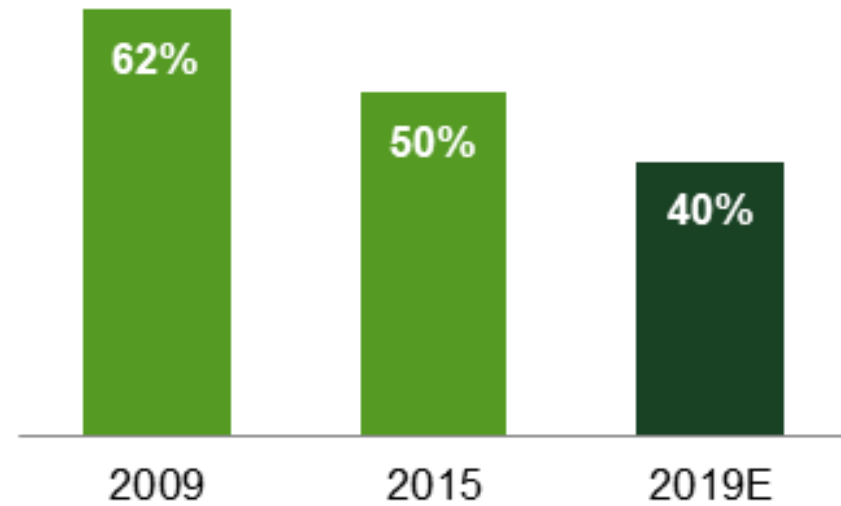
# Transportation Revolution: Ride-Hailing is Already Here



### Licensed Drivers as % of Age Group



### San Francisco Auto Trips in Single-Occupant Vehicles



# Transportation Revolution: Driverless Vehicles Are on the Way



## Potential Benefits

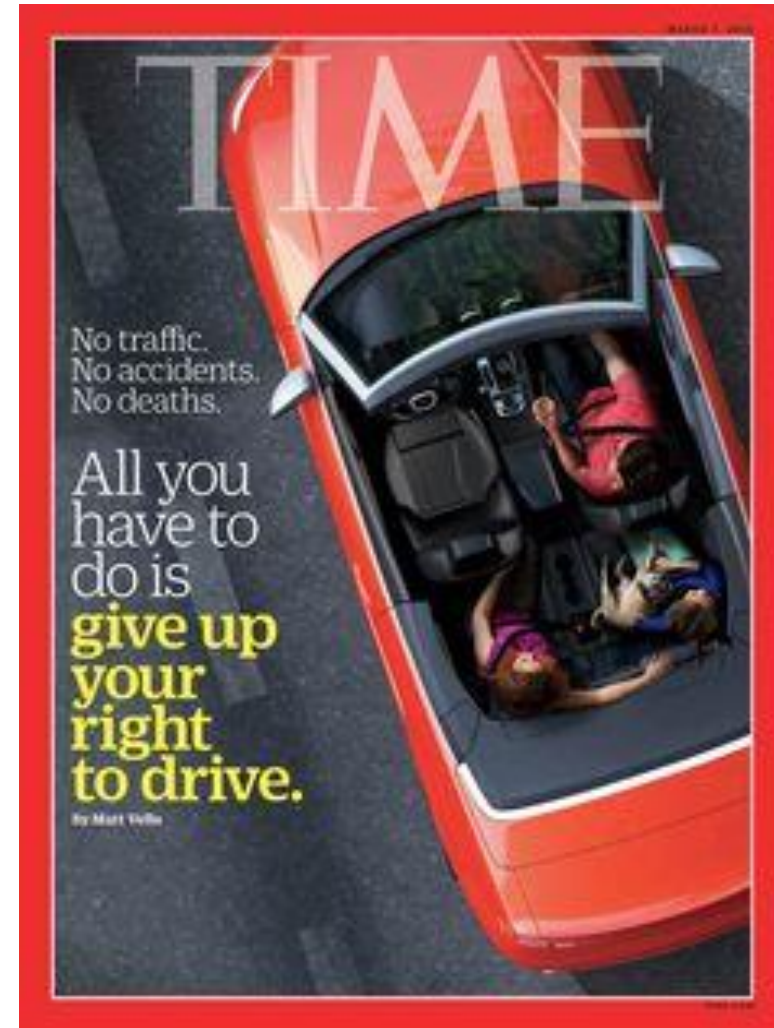


- Safety
- Transportation costs
- Reduced traffic
- Convenience

## Potential Hurdles



- Regulatory
- Security
- Social (millions of driving jobs)
- Technological
- Cost



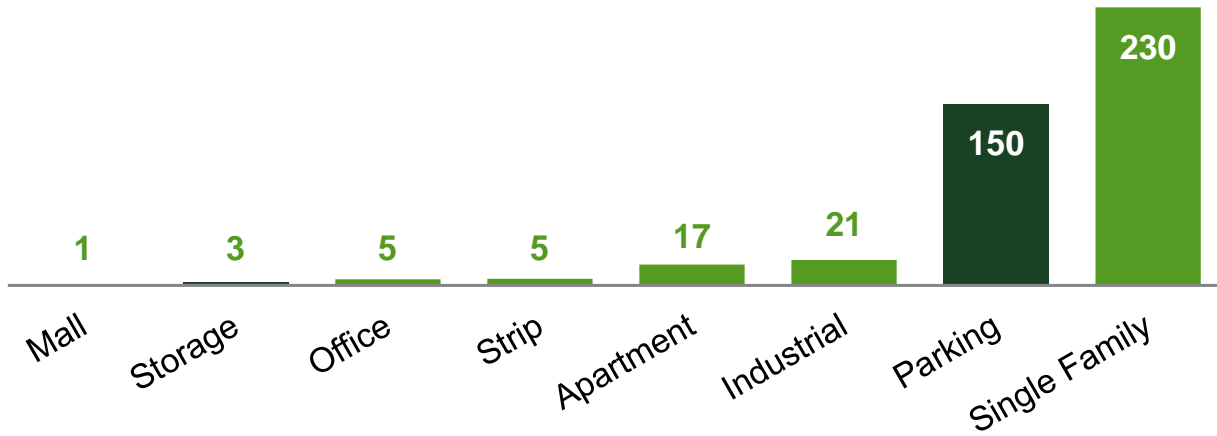


# With Fewer Vehicles, Less Parking Will Be Needed



**A 50% Reduction of Parking Needs is Possible**

## Total Occupiable Square Feet (Billions)



**Surface  
Parking Lots**

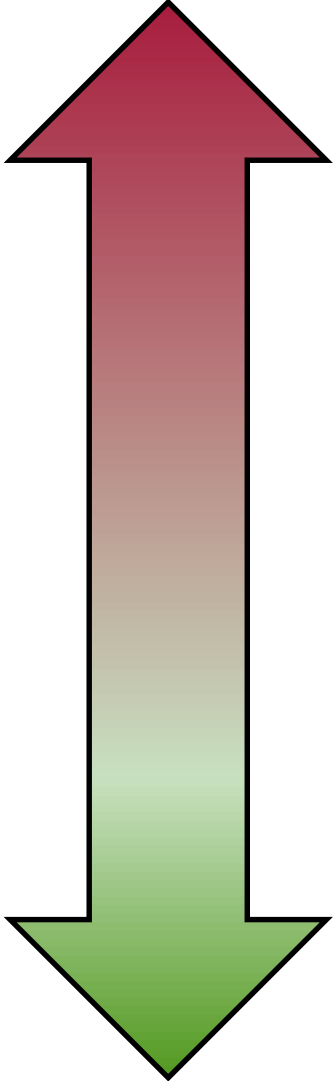


**Structured  
Parking Garage**



**Subterranean  
Parking Garage**

# Sector-Level Implications





- Self-Storage**
- Billboards**
- Low-Quality Retail**
- Transit-Oriented**
- Industrial**
- CBD Office**
- High-Quality Malls**

# A Densification Opportunity





### Bal Harbour Shops - A++ Mall



- Small land parcel
- Minimal surface lot parking
- Limited opportunity to expand

Aventura Mall's superior opportunity set 'outside the four retail walls' suggests that it would likely garner a lower cap rate than Bal Harbour Shops if the two malls were up for sale. Land parcel size and densification opportunities are important attributes for high-quality malls, and should be considered when ascribing cap rates to malls that might otherwise have similar performance metrics.

### Aventura Mall - A++ Mall

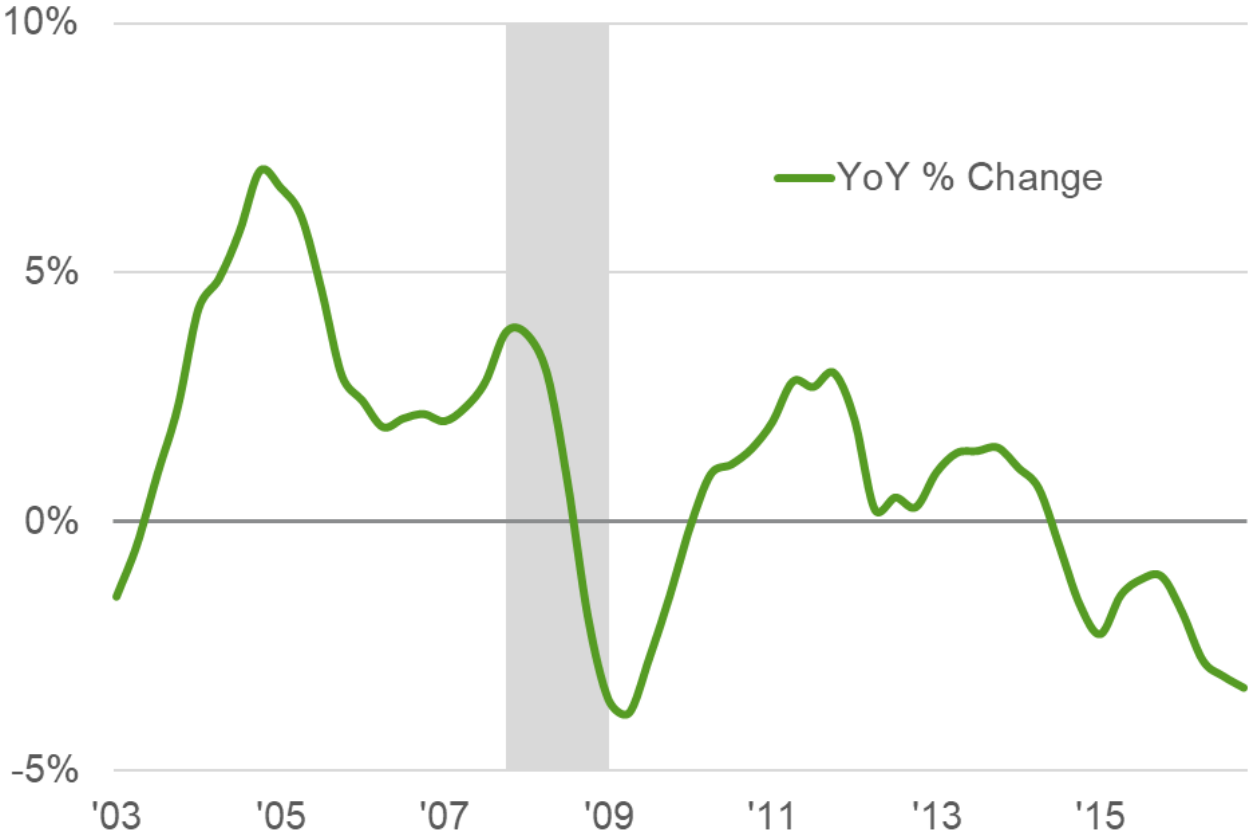


- A large land parcel, particularly for Miami
- Parking structures and lots are adjacent to retail
- Significant densification opportunities



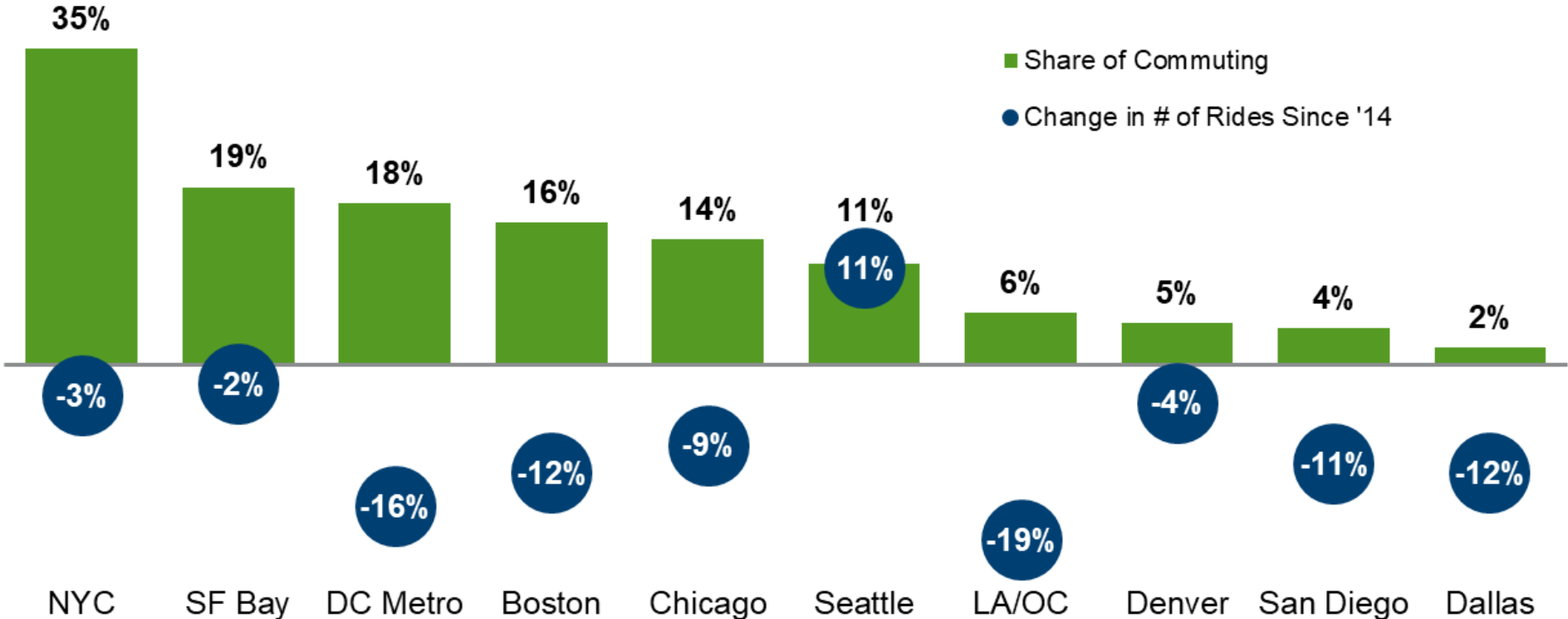


## U.S. Public Transit Ridership Growth



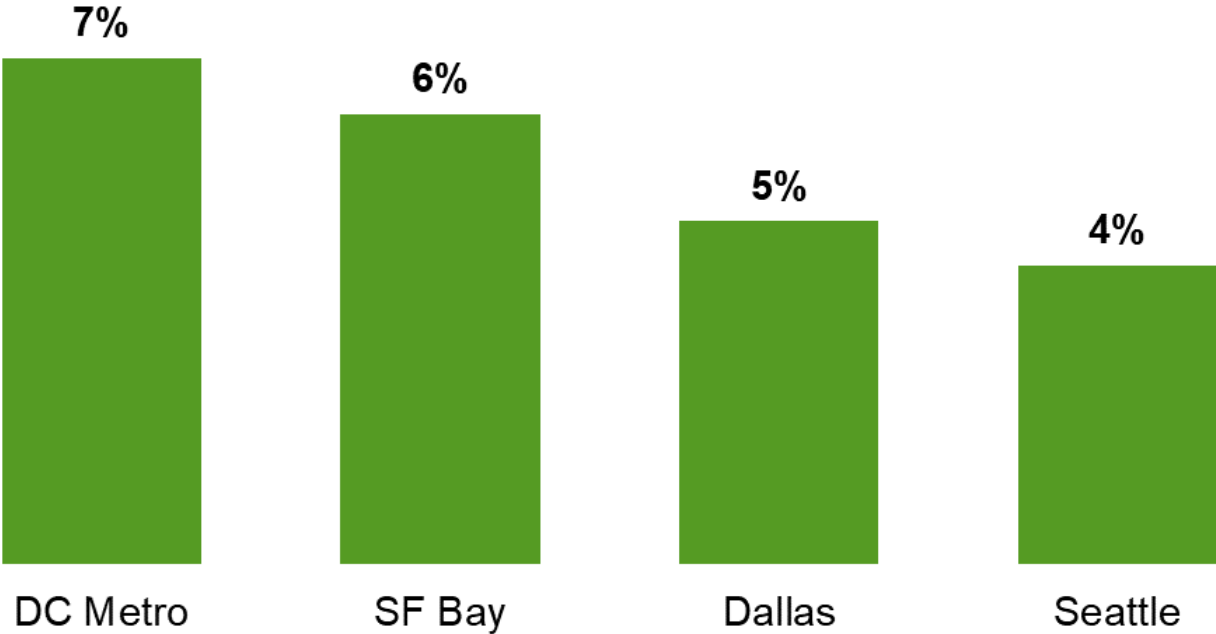


## Public Transit Share of Commuting vs. Change in Ridership





## Residential Rent Premiums per 10 Transit Score Points





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## New Jersey Town Calls on Uber to Solve Commuter Parking Dilemma

Instead of building a new garage at the train station, Summit, N.J., is paying for residents to take the car service



### Implications

- ↓ Vehicle ownership
- ↓ Parking supply
- ↓ Transit premium
- ↓ Self-Storage demand



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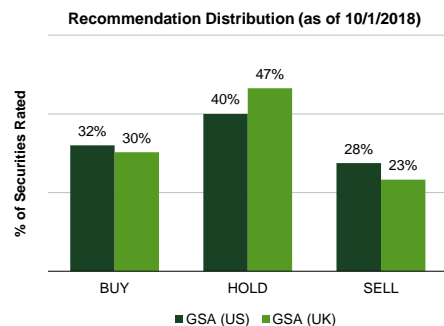
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**Total Return of Green Street's Recommendations<sup>1,2</sup>**

Year <sup>3</sup>	Buy	Hold	Sell	Universe
2018 YTD	2.7%	3.4%	1.4%	2.5%
2017	6.4%	0.2%	2.1%	2.6%
2016	14.9%	14.7%	13.1%	14.4%
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%	7.8%	-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%	-52.8%	-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%	15.4%	29.4%
2003	43.3%	37.4%	21.8%	34.8%
2002	17.3%	2.8%	2.6%	5.4%
2001	34.9%	18.1%	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	26.7%	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%	-0.6%	-8.7%	3.1%
1993	27.2%	4.7%	6.1%	12.1%
<b>Cumulative Total Return</b>	<b>17358.3%</b>	<b>1215.8%</b>	<b>34.7%</b>	<b>1426.9%</b>
<b>Annualized</b>	<b>22.3%</b>	<b>10.6%</b>	<b>1.2%</b>	<b>11.2%</b>

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- (3) Beginning July 5, 2017, all companies in Green Street's North American coverage universe are included in the performance calculation. Previously, inclusion in the calculation of total return had been based on whether the companies were listed in the primary exhibit of Green Street's "Real Estate Securities Monthly" and had a rating other than "Not Rated". From 1993 until July 3, 2017, the returns for each year cover the period following the first RESM issued in the respective year through the first RESM issued in the following year and are not based on a calendar year. Subsequent to July 5, 2017, returns are based on calendar months.

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