

Global Property Allocator

15 December 2021

10-Yr OAT: **-0.01%** | 10-Yr Gilt: **0.73%** | 10-Yr T-Note: **1.45%**



Executive Summary

The Global Property Allocator assesses the relative attractiveness of a wide variety of property types in the United States, United Kingdom, and Continental Europe across both private and public markets. The analysis, which is geared toward long-term, buy-and-hold investors, incorporates lessons learned about the big cross-sector differences that exist with regard to growth potential and the true, long-term costs of ownership. Several basic premises underpin the logic: 1) big differences in NOI growth/cap-ex profiles are generally not well understood by investors; 2) properties are generally underwritten with a mindset focused too heavily on the short run; and 3) broad views on cross-sector, cross-border valuation are rare, as most property investing is still done by balkanized specialists. As a result, portfolio allocations tilted toward sectors offering the highest risk-adjusted return premiums (over sovereign borrowing rates) should outperform.

Risk-Adjusted Return Premiums Over 10-Year Govt Bonds

Private Market

510 bp	Contin. Europe
480 bp	United Kingdom
450 bp	United States

Public Market

540 bp	Contin. Europe
490 bp	United Kingdom
420 bp	United States

Private Market – Local Currency Returns

Return Expectations: The returns that a buy-and-hold investor can expect to achieve can be derived by employing thoughtful inputs regarding yield, cap-ex, growth, and risk. Although some of these inputs are imprecise, differences are large enough across property sectors and geographies to result in insightful conclusions.

Sector	EPRA NIY Cap Rate	Cap Ex Reserve	Econ Cap Rate	Estimated Inflation	LFL NOI '22-'25	Growth LT	Risk Adjustments		Risk-Adjusted Expected Return
							Volatility	Other	
Continental Health Care	4.3%	9%	4.2%	1.9%	1.8%	1.5%	-	-0.1%	5.7
Continental Industrial	3.3%	9%	2.9%	2.0%	2.1%	2.0%	-	-0.1%	4.9
Continental Office	3.7%	20%	3.4%	1.9%	2.7%	1.5%	-	-	5.1
Continental Retail	5.3%	31%	3.7%	2.1%	3.8%	1.3%	-	-0.1%	5.1
German Residential	2.5%	19%	2.0%	2.1%	3.2%	2.1%	+0.5%	-	4.7
Nordic Residential	3.8%	13%	3.4%	2.3%	3.1%	2.2%	+0.1%	-0.1%	5.7
Nordic Office	4.2%	18%	3.7%	2.8%	2.8%	2.6%	-	-	6.3
Swiss Office	3.1%	18%	2.9%	1.8%	1.4%	1.5%	+0.1%	-	4.5
UK Health Care	4.2%	8%	4.2%	1.6%	1.8%	1.4%	+0.1%	-0.1%	5.7
UK Industrial	3.1%	12%	2.9%	1.7%	3.4%	2.2%	-	-0.1%	5.1
UK Office	4.1%	20%	4.1%	1.6%	2.6%	1.1%	-	-	5.4
UK Residential	2.6%	13%	2.5%	1.6%	3.4%	1.8%	+0.1%	-0.1%	4.5
UK Retail	4.7%	27%	3.8%	1.7%	2.7%	1.3%	-	-0.1%	5.2
UK Self-Storage	5.3%	6%	5.5%	1.6%	4.9%	1.6%	-	-	7.6
UK Student Housing	4.2%	14%	3.9%	1.6%	6.6%	1.6%	+0.1%	-0.1%	6.4
US Apartment	3.7%	15%	3.1%	2.2%	6.3%	2.2%	+0.1%	-	5.7
US Cold Storage	5.8%	16%	4.9%	2.2%	4.4%	1.5%	+0.1%	-0.3%	6.6
US Data Center	4.7%	25%	3.5%	2.2%	2.1%	1.9%	+0.1%	-	5.5
US Gaming	6.2%	2%	6.1%	2.2%	1.9%	0.7%	-	-0.2%	6.8
US Health Care	5.5%	12%	4.8%	2.2%	7.4%	1.2%	+0.1%	-0.1%	6.7
US Industrial	3.4%	13%	2.9%	2.2%	7.0%	2.6%	-	-0.1%	5.8
US Life Science	4.6%	17%	3.8%	2.2%	5.1%	2.0%	-	-0.1%	6.0
US Lodging	6.6%	32%	4.5%	2.2%	18.2%	1.1%	-0.4%	-0.2%	6.0
US Mall	6.3%	21%	5.0%	2.2%	3.9%	0.9%	-0.1%	-0.1%	6.0
US Manuf Home	4.0%	11%	3.5%	2.2%	5.8%	3.3%	+0.2%	-	7.2
US Net Lease	5.9%	3%	5.7%	2.2%	0.1%	0.0%	+0.2%	-	6.0
US Office	5.3%	29%	3.7%	2.2%	2.4%	1.2%	-0.1%	-	4.9
US Self-Storage	4.0%	4%	3.9%	2.2%	4.4%	1.7%	+0.1%	-	5.9
US Single Family	4.7%	16%	3.9%	2.2%	6.9%	2.2%	+0.2%	-	6.8
US Strip Center	5.6%	22%	4.3%	2.2%	3.2%	1.4%	-	-0.1%	5.8
US Student Housing	4.3%	14%	3.7%	2.2%	5.9%	1.7%	+0.2%	-	6.0
US Tower	3.7%	7%	3.4%	2.2%	4.2%	3.0%	+0.1%	-0.3%	6.3
Continental Europe	3.5%	20%	2.9%	2.1%	3.0%	1.8%	+0.2%	-0.0%	5.0
United Kingdom	3.9%	16%	3.7%	1.7%	3.2%	1.6%	+0.0%	-0.1%	5.5
United States	4.6%	15%	3.9%	2.2%	4.8%	1.8%	+0.0%	-0.1%	6.0

All metrics are for the properties owned by REITs in Green Street's coverage universe. Aggregate figures are weighted averages. Risk adjustments are made for economic sensitivity (i.e., volatility of rent/value) and other items (primarily obsolescence from a shift to zero emissions if not reflected in cap ex figures).

Private Market – Return Premium Over Sovereign Bond

Not all Returns are Created Equal: Any cross-border comparison of asset values needs to take into account differences in appropriate hurdle rates for each country. There is no single "right" way to accomplish that task, but sovereign bond yields implicitly convey most of the necessary information. After those yields are subtracted from the risk-adjusted returns offered by each property sector, the resultant return premiums provide a ranking of the attractiveness of each property sector in the private market.

Sector	Expected Return	10 Year Govt Bond ¹	Return Premium to 10 Year Govt Bond (Basis Points) ²	
UK Self-Storage	7.6%	0.7%	700	<div> <div>Most Attractive</div> <div>↑</div> <div>↓</div> <div>Least Attractive</div> </div>
Nordic Office	6.3%	0.1%	620	
US Manuf Home	7.2%	1.5%	580	
Continental Health Care	5.7%	0.0%	570	
Nordic Residential	5.7%	0.1%	570	
UK Student Housing	6.4%	0.7%	560	
US Single Family	6.8%	1.5%	530	
US Gaming	6.8%	1.5%	530	
US Health Care	6.7%	1.5%	530	
US Cold Storage	6.6%	1.5%	520	
Continental Office	5.1%	0.1%	500	
German Residential	4.7%	-0.3%	500	
UK Health Care	5.7%	0.7%	500	
US Tower	6.3%	1.5%	490	
Swiss Office	4.5%	-0.3%	480	
Continental Retail	5.1%	0.4%	470	
UK Office	5.4%	0.7%	470	
UK Retail	5.2%	0.5%	470	
US Life Science	6.0%	1.5%	460	
US Mall	6.0%	1.5%	460	
US Net Lease	6.0%	1.5%	450	
US Student Housing	6.0%	1.5%	450	
Continental Industrial	4.9%	0.3%	450	
US Lodging	6.0%	1.5%	450	
US Self-Storage	5.9%	1.5%	440	
UK Industrial	5.1%	0.7%	440	
US Strip Center	5.8%	1.5%	440	
US Industrial	5.8%	1.5%	440	
US Apartment	5.7%	1.5%	420	
US Data Center	5.5%	1.5%	400	
UK Residential	4.5%	0.7%	370	
US Office	4.9%	1.5%	350	
Continental Europe	5.0%	0.0%	510	
United Kingdom	5.5%	0.7%	480	
United States	6.0%	1.5%	450	

¹ 10-year govt yield represents an avg based on the location of REIT properties for that sector. See Appendix A for country-specific yields.

² Differences in sovereign yields play a big role in the output. In theory, lower rates should be attributable to lower inflation expectations, but that is often not the case. Instead, large differences in real yields are commonplace.

Public Market Returns

Translating Private Risk-Adjusted Returns to Public Alternatives: The performance of REITs and other publicly traded real estate companies is, first and foremost, influenced by the performance of their property portfolios. Other factors, however, also play an important role in the returns a public investor will achieve, the most obvious of which is the observed premium or discount to NAV. Other factors that influence returns: 1) excessive leverage tends to detract from returns; 2) overhead reduces returns; and 3) external growth prospects can enhance returns in certain niches.

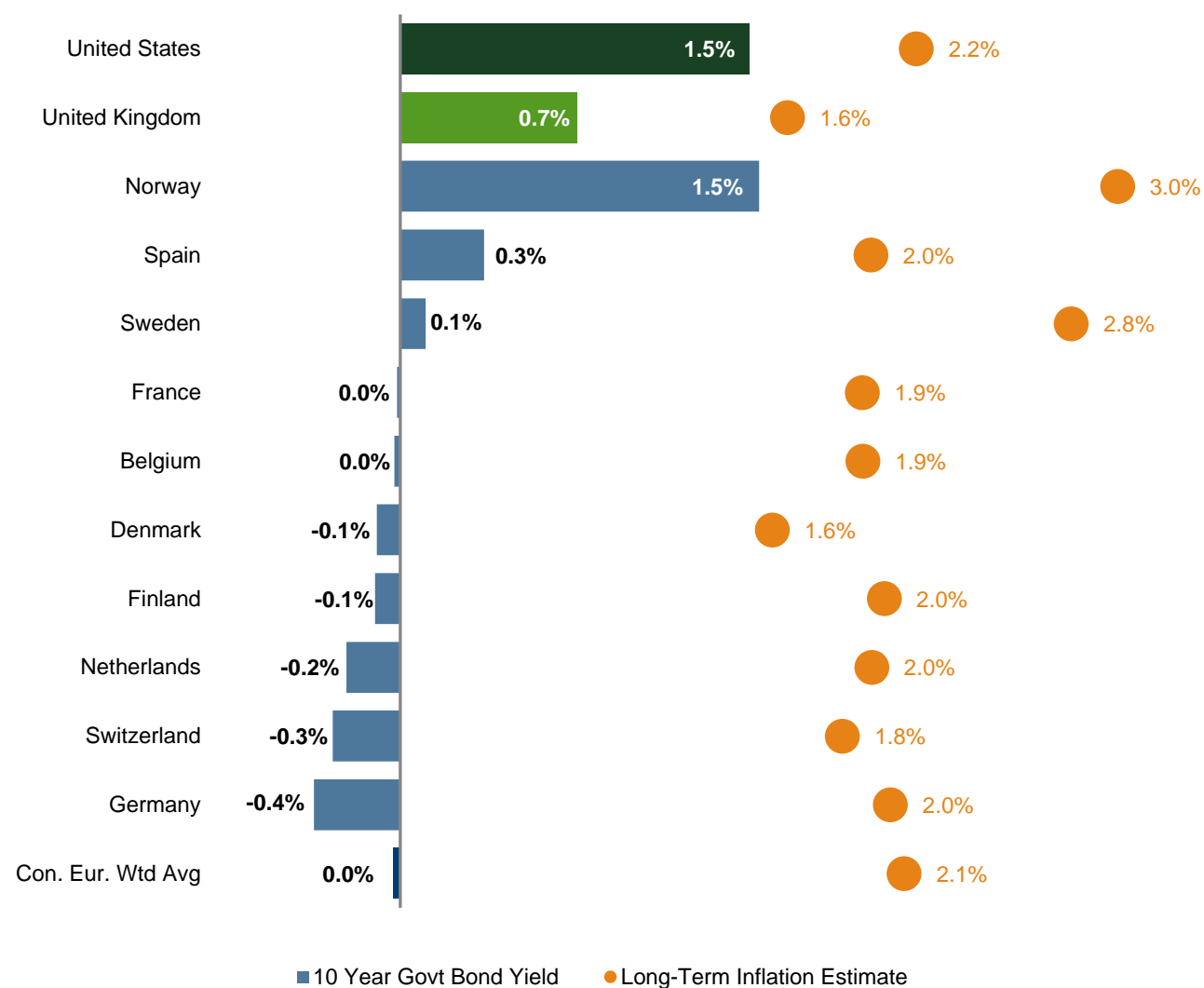
Sector	Private-Mkt Return	REIT GAV Prem ¹	Adjustments to Public Return			Public Return	10 Year Govt	Return Premium to 10YR Govt (bps)
			Balance Sht Risk	Ext Grwth G&A Load	& Other			
Nordic Office	6.3%	1.3%	-	-0.1%	+0.4%	6.5%	0.1%	640
UK Self-Storage	7.6%	35.2%	-	-0.5%	+1.1%	6.7%	0.7%	600
Nordic Residential	5.7%	5.3%	-	-0.3%	+0.7%	5.9%	0.1%	590
UK Student Housing	6.4%	2.5%	-	-0.5%	+0.7%	6.5%	0.7%	580
US Gaming	6.8%	-4.8%	-	-0.2%	-	6.9%	1.5%	550
Continental Office	5.1%	-19.5%	-	-0.5%	+0.1%	5.5%	0.1%	540
Continental Health Care	5.7%	10.1%	-	-0.5%	+0.6%	5.4%	0.0%	540
German Residential	4.7%	-19.2%	-	-0.4%	+0.3%	5.1%	-0.3%	540
US Manuf Home	7.2%	6.1%	-	-0.4%	+0.1%	6.7%	1.5%	520
Swiss Office	4.5%	3.1%	-	-0.2%	+0.5%	4.7%	-0.3%	500
UK Office	5.4%	-15.4%	-	-0.9%	+0.4%	5.7%	0.7%	500
Continental Industrial	4.9%	9.7%	-	-0.3%	+1.0%	5.3%	0.3%	490
UK Industrial	5.1%	14.3%	-	-0.4%	+1.2%	5.5%	0.7%	490
Continental Retail	5.1%	-9.1%	-	-0.5%	+0.1%	5.1%	0.4%	470
US Single Family	6.8%	12.6%	-	-0.3%	+0.1%	6.1%	1.5%	460
US Health Care	6.7%	5.1%	-	-0.4%	-	6.0%	1.5%	450
UK Health Care	5.7%	9.5%	-	-0.4%	+0.3%	5.2%	0.7%	450
US Student Housing	6.0%	-6.4%	-	-0.4%	-	5.9%	1.5%	440
US Lodging	6.0%	-11.7%	-0.1%	-0.7%	-	5.9%	1.5%	440
US Self-Storage	5.9%	-1.1%	-	-0.2%	-	5.8%	1.5%	430
US Mall	6.0%	-1.0%	-0.1%	-0.2%	-	5.8%	1.5%	430
UK Retail	5.2%	-8.6%	-	-0.9%	+0.1%	4.7%	0.5%	420
US Apartment	5.7%	-4.6%	-	-0.2%	-	5.7%	1.5%	420
US Tower	6.3%	19.6%	-	-0.2%	+0.1%	5.7%	1.5%	420
US Cold Storage	6.6%	10.8%	-	-0.7%	+0.2%	5.6%	1.5%	420
US Strip Center	5.8%	-7.4%	-0.1%	-0.5%	-	5.6%	1.5%	410
US Net Lease	6.0%	8.1%	-	-0.3%	+0.3%	5.5%	1.5%	410
US Industrial	5.8%	12.1%	-	-0.2%	+0.3%	5.5%	1.5%	410
UK Residential	4.5%	-6.5%	-	-0.8%	+0.9%	4.7%	0.7%	400
US Life Science	6.0%	19.4%	-	-0.4%	+0.3%	5.3%	1.5%	390
US Office	4.9%	-19.8%	-0.1%	-0.6%	-	5.2%	1.5%	370
US Data Center	5.5%	9.8%	-	-0.7%	+0.6%	5.1%	1.5%	360
Continental Europe	5.0%	-11.7%	-	-0.4%	+0.3%	5.3%	0.0%	540
United Kingdom	5.5%	0.1%	-	-0.6%	+0.7%	5.6%	0.7%	490
United States	6.0%	3.5%	-0.0%	-0.3%	+0.1%	5.7%	1.5%	420

¹ Gross Asset Value Premium. The premium a sector trades at relative to the underlying private-market value of its assets.

Appendix A – Interest Rates & Inflation Estimates

Important Considerations: Sovereign interest rates and the outlook for localized inflation play big roles in this analysis. Expected inflation is a key driver of the long-term NOI growth forecast, which, in turn, has a big influence on expected returns. Sovereign debt rates serve as hurdle rates. Interestingly, differences in inflation account for only a small portion of the difference in sovereign rates, which means the lion's share of the difference emanates from real rates. Widely divergent real rates defy easy explanation, but the presence of a forward exchange market affords the opportunity to lock in return premiums even if they arise primarily from differences in interest rates.

10 Year Government Bond Yields & Inflation Estimates



Inflation estimates for the U.S. use breakeven inflation implied from the pricing of U.S. Treasuries and U.S. Treasury Inflation Protected Securities. Estimates use the rate for the next thirty years, but ignore the first five years. A similar method is used for the U.K., Sweden, and the Eurozone countries as a whole, but inflation swaps are used instead of government bonds. Estimates from the IMF are used to inform estimates when inflation swap pricing is not available and to determine inflation differences across Eurozone countries.

Appendix B – Country Exposure

A Firm Foundation: The sector-level returns in this report are based on the spot asset values contained in our NAV estimates, combined with our short and long-term cash flow estimates.

Sector	Assets (USD)	US	UK	Belg.	France	Ger.	Nthr.	Spain	Switz.	Fin.	Nrwy.	Swed.	Other
German Residential	217.1	-	1%	-	-	92%	-	-	-	-	-	5%	2%
Continental Office	107.4	-	-	-	56%	12%	-	19%	-	-	-	-	12%
Continental Retail	100.8	15%	3%	3%	30%	8%	5%	6%	-	2%	3%	7%	19%
Nordic Residential	39.2	-	-	-	-	-	-	-	-	50%	7%	35%	7%
Nordic Office	38.3	-	-	-	-	-	-	-	-	-	-	97%	3%
Swiss Office	24.4	-	-	-	-	-	-	-	100%	-	-	-	-
Continental Industrial	17.9	-	-	22%	2%	27%	32%	2%	-	-	-	-	15%
Continental Health Care	14.3	-	8%	44%	5%	18%	11%	2%	-	8%	-	1%	3%
Continental Europe	559.4	3%	1%	2%	17%	41%	2%	5%	4%	4%	1%	12%	8%
UK Office	45.0	-	100%	-	-	-	-	-	-	-	-	-	-
UK Industrial	37.2	-	77%	-	7%	7%	1%	1%	-	-	-	-	7%
UK Retail	16.1	-	65%	-	10%	-	-	-	-	-	-	-	26%
UK Student Housing	8.6	-	100%	-	-	-	-	-	-	-	-	-	-
UK Health Care	8.1	-	96%	-	-	-	-	-	-	-	-	-	4%
UK Self-Storage	7.1	-	89%	-	11%	-	-	-	-	-	-	-	-
UK Residential	5.3	-	100%	-	-	-	-	-	-	-	-	-	-
United Kingdom	127.5	-	88%	-	4%	2%	0%	0%	-	-	-	-	6%
US Tower	324.8	80%	-	-	-	-	-	-	-	-	-	-	20%
US Apartment	224.8	100%	-	-	-	-	-	-	-	-	-	-	-
US Industrial	207.5	100%	-	-	-	-	-	-	-	-	-	-	-
US Office	195.1	100%	-	-	-	-	-	-	-	-	-	-	-
US Data Center	182.1	55%	8%	0%	4%	6%	4%	1%	1%	0%	0%	1%	20%
US Health Care	164.1	100%	-	-	-	-	-	-	-	-	-	-	-
US Self-Storage	145.9	100%	-	-	-	-	-	-	-	-	-	-	-
US Mall	109.0	100%	-	-	-	-	-	-	-	-	-	-	-
US Strip Center	106.0	100%	-	-	-	-	-	-	-	-	-	-	-
US Net Lease	103.6	100%	-	-	-	-	-	-	-	-	-	-	-
US Gaming	64.3	100%	-	-	-	-	-	-	-	-	-	-	-
US Lodging	53.2	100%	-	-	-	-	-	-	-	-	-	-	-
US Single Family	48.9	100%	-	-	-	-	-	-	-	-	-	-	-
US Manuf Home	47.4	100%	-	-	-	-	-	-	-	-	-	-	-
US Life Science	38.5	100%	-	-	-	-	-	-	-	-	-	-	-
US Student Housing	13.2	100%	-	-	-	-	-	-	-	-	-	-	-
US Cold Storage	10.9	100%	-	-	-	-	-	-	-	-	-	-	-
United States	2,039.3	93%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	5%

Not 100%, but the vast majority of US REIT properties are located in the US. Other for Continental Europe and UK REITs is other Europe, US Tower is primarily emerging markets, and US Data Center developed Asia/Pacific. Author of report: Peter Rothmund, CFA.

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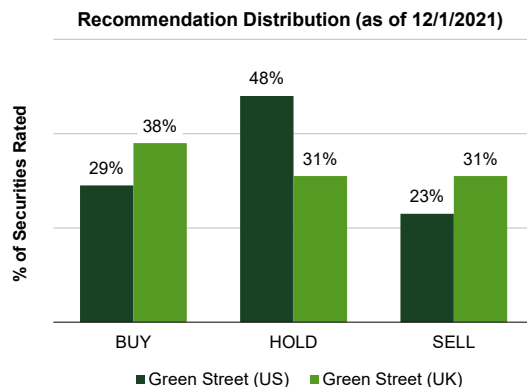
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Review of Recommendations:

- Unless otherwise indicated, Green Street reviews all investment recommendations on at least a monthly basis.
- The research recommendation contained in this report was first released for distribution on the date identified on the cover of this report.
- Green Street will furnish upon request available investment information supporting the recommendation(s) contained in this report.

Green Street's Disclosure Information

At any given time, Green Street publishes roughly the same number of "BUY" recommendations that it does "SELL" recommendations.



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

North American Research Team: Returns as of November 30

Total Return of Green Street's Recommendations ^{1,2}				
Year ³	Buy	Hold	Sell	Universe
2021 YTD	28.0%	29.7%	24.7%	28.1%
2020	3.3%	-13.0%	-22.5%	-10.7%
2019	31.6%	22.4%	17.8%	24.0%
2018	-5.1%	-6.6%	-9.2%	-7.0%
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%	7.6%	-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	27974.9%	1540.3%	37.2%	1863.4%
Annualized	21.6%	10.2%	1.1%	10.9%

European Research Team: Returns as of November 30

Total Return of Green Street's Recommendations ^{1,2}				
Year ³	Buy	Hold	Sell	Universe
2021 YTD	25.7%	12.1%	8.4%	14.7%
2020	5.2%	-26.6%	-16.4%	-14.4%
2019	40.8%	26.1%	23.5%	29.0%
2018	1.8%	-6.9%	-20.9%	-8.5%
2017	30.9%	19.2%	11.1%	19.9%
2016	5.4%	2.1%	-2.3%	1.9%
2015	22.8%	14.4%	10.5%	16.1%
2014	35.6%	28.3%	24.1%	29.8%
2013	16.3%	7.6%	9.4%	11.2%
2012	39.8%	29.3%	17.0%	29.8%
2011	-7.6%	-8.2%	-12.7%	-9.2%
2010	13.1%	0.3%	7.9%	9.2%
2009	10.0%	5.5%	1.6%	7.0%
Cumulative Total Return	714.8%	133.2%	61.4%	227.0%
Annualized	18.8%	7.2%	4.0%	10.2%

The results shown above are hypothetical; they do not represent the actual trading of securities. Actual performance will vary from the hypothetical performance shown above due to, but not limited to 1) advisory fees and other expenses that one would pay; 2) transaction costs; 3) the inability to execute trades at the last published price (the hypothetical returns assume execution at the last closing price); 4) the inability to maintain an equally-weighted portfolio in size (the returns above assume an equal weighting); and 5) market and economic factors will almost certainly cause one to invest differently than projected by the model that simulated the above returns. All returns include the reinvestment of dividends. Past performance, particularly hypothetical performance, cannot be used to predict future performance. Investing involves risk and possible loss of principal capital.

- 1) Results are for recommendations made by Green Street's North American Research Team only (includes securities in the US, Canada, and Australia). Since July 5, 2017, performance is calculated whenever a recommendation is changed using the share price at the most recent market close. Previously, performance was based on recommendations provided in Green Street's "Real Estate Securities Monthly" (RESM) and assumed no change in recommendation between RESM publications. Results from January 28, 1993 through January 4, 2016 were independently verified by an international "Big 4" accounting firm. The accounting firm did not verify the stated results subsequent to January 4, 2016. As of January 4, 2016, the annualized total return of Green Street's recommendations since January 28, 1993 was: Buy +24.0%, Hold +11.1%, Sell +0.6%, Universe +11.7%.
- 2) 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".
- 3) Results are for recommendations made by Green Street's European Research Team only. Since July 5, 2017, performance is calculated whenever a recommendation is changed using the share price at the most recent market close. Previously, performance was based on recommendations provided in Green Street's "Real Estate Securities Monthly" (RESM) and assumed no change in recommendation between RESM publications. Results from 1 September 2009 through 4 January 2016 were independently verified by an international "Big 4" accounting firm. The accounting firm did not verify the stated results subsequent to 4 January 2016. As of 4 January 2016, the annualized total return of Green Street's recommendations since 1 September 2009 was: Buy +19.6%, Hold +11.4%, Sell +8.5%, Universe +14.1%.
- 4) Beginning July 5, 2017, all companies in Green Street's European 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".
- 5) 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.

"Buy" = Most attractively valued stocks. We recommend overweight position; "Hold" = Fairly valued stocks. We recommend market-weighting; "Sell" = Least attractively valued stocks. We recommend underweight position. "Not Rated" companies are covered by the firm's research department, but are not rated due to fundamental attributes related to business prospects and balance sheets that are deemed to make the securities more option-like than equity-like.

Green Street will furnish upon request available investment information regarding the recommendation

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