Executive Summary

- Sustainable, or “green,” real estate has the potential to offer financial benefits to tenants and landlords, as well as benefits for the environment. But, the pursuit of environmental objectives within an investment strategy is often met with investor skepticism.

- Building the case for green property investment can often be viewed as more “art” than “science.” But, this should not deter real estate investors. Investors can create a meaningful “mosaic” using available qualitative and quantitative information that can assist in their investment decision-making processes.

- The qualitative case for sustainable real estate investing is fairly straightforward and can be built through a review of economic returns, environmental returns, risk mitigation, and market expectations.

- Academic and practitioner research further bolster the qualitative case. A recently published comprehensive review of existing literature tends to provide positive economic support for sustainable property initiatives.

- Sustainability data from the National Council of Real Estate Investment Fiduciaries can provide additional insight into the total return performance characteristics of green properties. Despite potential shortcomings, our positive to neutral results for green office portfolios can be viewed as consistent with other empirical findings that favor sustainable real estate investing.

- Real-life experiences also support the investment case. During 2014, TIAA-CREF’s Global Real Estate Sustainability Initiative has benefitted our portfolios by avoiding over 118 million kilowatt-hours of energy consumption, reducing greenhouse gas emissions by over 47,700 metric tons of carbon dioxide equivalent, and saving more than $14 million in energy costs.

- Combining the individual pieces of the “mosaic,” i.e., qualitative arguments, existing academic and practitioner research, and real-life experiences, investors will likely realize the limited drawbacks and promising upside to sustainable real estate investing.
Making the case

Sustainable, or “green,” real estate has the potential to offer financial benefits to tenants and landlords, as well as benefits for the environment. But, the pursuit of environmental objectives within an investment strategy is often met with investor skepticism. While it feels good to do good, this typically is not enough for investors; a strategy needs to stand on its own economic merits. In the public equity markets, this type of analysis tends to be a fairly straightforward exercise, but the analysis becomes more complicated in the private real estate markets due to data limitations and market opaqueness. While green properties are easily identifiable through their certifications and designations, less is known about their performance. Making comparisons to non-green assets adds further complexity due to the need to control for a variety of variables like market, location, age and quality in an effort to allow for more of an “apples-to-apples” comparison. Rather than taking a leap of faith to pursue this strategy, investors can supplement their investment decision-making processes by creating a “mosaic” using available qualitative and quantitative information. Utilizing these resources and our own in-house experience, this paper finds that the resulting mosaic provides ample support for sustainable property initiatives.

Building the case for green property investment can often be viewed as more art than science. But, this should not deter real estate investors. A compelling and intuitive qualitative case can be built through a review of economic returns, environmental returns, risk mitigation, and market expectations. These elements can be combined to form one piece of the mosaic that provides an insightful perspective on green property investment.

Economic returns

Effective energy efficiency efforts can be viewed as a proxy for operational excellence, a manifestation of best practices. Under this premise, it is easy to connect energy efficiency to an overall improvement in property maintenance and operations which benefits investment performance. Clearly, efficient property operation is a primary objective for investors. In this effort, existing resources must be intelligently utilized to maximize total returns. Energy and water savings translate to an improved bottom line. In property types like apartments, the incremental savings flow directly to the landlord. In others, tenants may benefit through reduced escalations of pass-through expenses. This makes a building more financially competitive with peer properties and offers an opportunity for the leasing team to promote an economic advantage when marketing the asset.

Environmental returns

Efforts to reduce greenhouse gas (GHG) emissions benefit the environment. Energy savings lead to a direct reduction in a property’s carbon footprint; water savings result in a secondary reduction. Acknowledging environmental responsibilities and accepting a sense of environmental stewardship are becoming more prevalent among the users and occupiers of real estate. Yet, many real estate investors have not fully embraced the goal of conserving resources. This is puzzling since it is likely universally accepted that wasting resources is antithetical to prudent management practices. Perhaps this hesitancy stems from confusing the concept of conservation with sacrifice – they are not the same. Conservation promotes using resources wisely as opposed to withholding resources. Failure to take on the role of environmental steward will likely alienate a portion of the occupier market that values sustainability and provide opportunities for greener competitors.
Risk mitigation
The trend towards legislative action to curtail carbon emissions is growing, albeit only on the benchmarking and disclosure fronts. If enacted, a carbon tax regime would add a serious financial burden on real estate investments. Improving the efficiency of a property now would minimize the additional burden and benefit the property’s future market position. Furthermore, by engaging with legislative entities, the industry has an opportunity to influence regulation toward practical goals and avoid the imposition of difficult or impossible standards.

Although not limited to green matters, the effort to address a property’s sustainability has raised the discussion of alternative technologies. Implementing these technologies may prolong a property’s useful life and bolster its perception as state-of-the-art, but an important point to understand is the relationship between the costs, benefits, and objectives of available technologies. An even more important aspect is thoughtful consideration and evaluation of such technologies, rather than simply implementing the same old approaches. Progress can only be made with an openness to new ideas.

Market expectations
Over the last couple of years, Cushman & Wakefield has surveyed U.S. investors and occupiers to gauge their interest and commitment to sustainable real estate. The findings show that investors are demanding action in sustainability. Tenants are also demanding space in green buildings for a variety of reasons, including the ability to reduce costs, respond to shareholder concerns, and retain and recruit employees. These market expectations are providing the impetus for sustainability as a competitive advantage. While there will always be those real estate managers who decline to upgrade their properties and accept their trailing position in the market, top performers must be willing to implement appropriate measures to ensure the portfolio is operating sustainably and provide metrics to prove it. They must be interested in actual performance, not just a check-the-box approach.

Burden of proof
The qualitative case may provide some comfort to investors, but it does not provide definitive proof regarding the financial merits of green real estate investing. To find quantitative results, investors can turn to academic and practitioner research. The U.S. Department of Energy (DOE) recently published a report that reviewed over 50 studies examining the impact of energy efficiency on the financial performance of commercial buildings. While not necessarily exhaustive, this report can be considered a comprehensive review of the existing literature. Overall, the evidence tends to provide positive economic support for sustainable property initiatives. The report concluded these studies generally found that buildings with Leadership in Energy & Environmental Design (LEED) and ENERGY STAR certifications had higher rental rates, higher occupancy rates, lower utility costs, increased sales prices and low construction cost premiums.

But, some of the studies can be viewed as suffering from data and/or methodological issues. Potential shortcomings in existing studies suggest that at least some caution is warranted in embracing the empirical results. Factors other than green certification may be influencing the positive findings. We suspect that the relationships between energy efficiency certifications and other property characteristics like age, quality, class, location, and market are intertwined in a fashion that makes untangling them difficult. Although some of the results may need to be taken with a grain of salt, the generally positive quantitative results can be used as another piece of the mosaic.
By the numbers

A recent TIAA-CREF white paper, *Socially Responsible Investing: Delivering Competitive Performance*, explored whether the pursuit of social goals in equity investing requires sacrificing performance. The findings indicate that socially responsible investing can achieve competitive benchmark performance over the long term without additional risk, although the smaller universe of securities may lead to a rise in tracking error and short-term return variability. This study highlights one of the beauties of the public equity markets: data availability and transparency. Unfortunately, private real estate markets often lack these features.

Recognizing the increasing investor interest in green properties, the National Council of Real Estate Investment Fiduciaries (NCREIF) started collecting sustainability data in 2013, focusing on ENERGY STAR and LEED information. ENERGY STAR is a voluntary program chartered by the U.S. Environmental Protection Agency (EPA) designed to promote energy efficiency. To be eligible for an ENERGY STAR certification, a commercial building must achieve an ENERGY STAR score of 75 or higher based on measurement and tracking of its energy usage, which translates into a property’s GHG emissions. The LEED program is sponsored by the U.S. Green Building Council. Unlike ENERGY STAR, LEED rates building projects beyond just energy efficiency, also including such impact areas as sustainable site development, materials and resources, and indoor environmental quality. There are five different project types in the LEED program: Building Design + Construction, Interior Design + Construction, Building Operations + Maintenance, Neighborhood Development and Homes. Within these types, buildings can achieve four levels of LEED certification: Certified, Silver, Gold, or Platinum.

Although NCREIF’s sustainability initiative has been welcomed by real estate market participants, the database is not perfect. It suffers from limited data observations in its early years, but it has shown considerable growth in the number of identified green properties over its tenure. From first-quarter 2000 through fourth-quarter 2014, the number of ENERGY STAR-eligible properties increased from 61 to 326 buildings. Over the same time period, properties with LEED certification grew from 36 to 615 buildings. For both designations, the vast majority of properties were office buildings. Despite its growth, the database continues to face some challenges; these include data collection and property identification issues. As a result, many consider it a work in progress. But, even with its shortcomings, the database can offer investors a unique opportunity to glean more information about the total return performance characteristics of green properties.

In this analysis, we used NCREIF data to determine portfolio outperformance or underperformance of green and non-green office property portfolios. Specifically, four office property portfolios were created. The LEED portfolio contained office properties that have one of the LEED certifications. The non-LEED portfolio contained office properties that do not have LEED certification. The ENERGY STAR (ESTAR) portfolio contained office properties eligible for an ENERGY STAR rating, i.e., properties with a self-reported ENERGY STAR score of 75 or higher. The non-ENERGY STAR (non-ESTAR) portfolio contained office properties not eligible for an ENERGY STAR certification, i.e., properties with a self-reported ENERGY STAR score less than 75 or no reported score. Exhibit 1 highlights individual office portfolio outperformance and underperformance compared to overall NCREIF office performance on a calendar year basis from 2000 to 2014; outperformance and underperformance are indicated by blue and purple shading, respectively. The exhibit also tallies each portfolio’s number of outperforming (up or winning) and underperforming (down or losing) years.
Exhibit 1: Green and non-green office property portfolio performance relative to NCREIF office (2000–2014)

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Sources: NCREIF, as of 4Q14; TIAA-CREF

The shading reveals each office portfolio’s performance compared to NCREIF office through time. Casually observing the shading, the patterns for the LEED and non-LEED portfolios appear to be meaningful, while those of the ESTAR and non-ESTAR portfolios appear to be more random. One possible explanation for these relationships is that only better properties generally seek LEED certification.

Examining the number of up and down years reveals that the LEED portfolio outperformed in 12 of 15 years; the non-LEED portfolio underperformed in 12 of 15 years. Both ESTAR-related portfolios experienced roughly an equal number of up and down years. These observations can be formalized using the concept of winning percentages. Winning percentages for each portfolio are simply calculated by dividing the number of up (outperforming) years for a particular portfolio by the total number of years examined. These values can be statistically tested to determine if a portfolio’s winning percentage is significantly different from a random occurrence. The results are displayed in Exhibit 2.


<table>
<thead>
<tr>
<th>Portfolio</th>
<th>Winning Percentage</th>
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<tbody>
<tr>
<td>LEED</td>
<td>80.0%</td>
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<tr>
<td>Non-LEED</td>
<td>20.0%</td>
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<tr>
<td>ESTAR</td>
<td>53.3%</td>
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<tr>
<td>Non-ESTAR</td>
<td>46.7%</td>
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* Significant at the 5% level.

Sources: NCREIF, as of 4Q14; TIAA-CREF
The high winning percentage of the LEED portfolio and the non-LEED portfolio’s low winning percentage are interesting; both are statistically significant. These results validated the LEED portfolio’s tendency to outperform over NCREIF office performance and the non-LEED portfolio’s propensity to underperform. The winning percentages for the ESTAR-related portfolios were both near 50% and not statistically significant. This suggests that outperformance or underperformance in a given year for either portfolio was random with a 50–50 probability. Taking the analysis a step further, average annual total return spreads versus NCREIF office for all portfolios from 2000 to 2014 were calculated and shown in Exhibit 3.

Exhibit 3: Average annual total return spreads versus NCREIF office (2000–2014)

<table>
<thead>
<tr>
<th>Portfolio</th>
<th>Average Spread</th>
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<tbody>
<tr>
<td>LEED*</td>
<td>0.78%</td>
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<tr>
<td>Non-LEED*</td>
<td>-0.27%</td>
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<tr>
<td>ESTAR</td>
<td>0.16%</td>
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<tr>
<td>Non-ESTAR</td>
<td>-0.05%</td>
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* Significant at the 1% level.
Sources: NCREIF, as of 4Q14; TIAA-CREF

The chart shows that both green portfolios outperformed and both non-green portfolios underperformed. While many real estate participants may speak of a “brown discount” rather than a “green premium,” the magnitudes and directions of these spreads are suggestive of “green premiums” and “brown discounts.” But, the average total return spreads for the ESTAR and non-ESTAR portfolios are fairly modest compared to their LEED counterparts and not statistically significant from zero, suggesting no outperformance or underperformance for the ENERGY STAR portfolios. The positive average spread for the LEED portfolio and negative spread for the non-LEED portfolio are statistically different from zero. Thus, on average, the LEED portfolio has tended to outperform NCREIF office, while the non-LEED portfolio has tended to underperform.

So, with respect to total return performance, our analysis of NCREIF data indicates that LEED certification matters for investors; ENERGY STAR eligibility may not. But, recall the previously mentioned shortcomings of the NCREIF sustainability database. Note that our analysis fails to control for a number of variables that can influence total return performance like market, location, age, and quality. Furthermore, the ENERGY STAR variables identify whether or not a property is eligible for certification, not necessarily the actual certification. Bear in mind also that data limitations likely make further rigorous analysis challenging; widely-available NCREIF data offers composite measures, not property-level data. Nonetheless, the positive to neutral results of our analysis can be viewed as consistent with empirical findings in the academic and practitioner literature summarized in the DOE report.5
Proof is in the pudding

TIAA-CREF’s commitment to responsible investing dates to 1970. On the real estate side, TIAA-CREF became an ENERGY STAR Partner in 2002 and launched its Global Real Estate Sustainability Initiative (GRESI) in 2007. Conforming to TIAA-CREF’s corporate mandate for socially responsible investing, GRESI defines, establishes, and promotes the firm’s leadership role in environmental, sustainable, and responsible practices in the real estate investment industry. A core driver for GRESI is the achievement of social, environmental, and economic goals, or the triple-bottom-line of people, planet and profits.

The primary objective of TIAA-CREF’s green real estate initiative has been to pursue property operational excellence. From the beginning, TIAA-CREF has realized that implementing a sustainability program doesn’t necessarily require significant capital expenditures. There are plenty of no- and low-cost opportunities—low-hanging fruit—that offer meaningful energy savings. Furthermore, incorporating thoughtful design into redevelopment and new construction projects offers an additional venue to achieve material energy savings with little-to-no cost. GRESI has made the commitment that all new construction and development projects in the U.S. be designed and built to achieve LEED certification.

Talking the talk is easy, but walking the walk is more difficult. As a result, benchmarking performance is a critical component of any sustainability program. You can’t manage what you don’t measure. As of fourth-quarter 2014, TIAA-CREF’s sustainability initiatives included a total of 190 properties across the office, apartment, and retail sectors. According to EPA data for 2014, this portfolio’s estimated annual avoided energy use was 118.6 million kilowatt-hours (kWh). The portfolio’s estimated annual avoided GHG emissions were approximately 47,700 metric tons of carbon dioxide equivalent (MtCO2e); this is equal to taking roughly 9,330 cars off the road for one year. Based on EPA estimates, these efforts resulted in the portfolio avoiding more than $14 million in costs. These savings provided a material benefit to the portfolio’s investment performance.

TIAA-CREF’s steadfastness in improving property operational performance has garnered industry recognition. For example, TIAA-CREF was awarded the EPA ENERGY STAR Partner of the Year Award in 2008 and 2009, and the EPA ENERGY STAR Partner of the Year Sustained Excellence Award from 2010 to 2015. TIAA-CREF is still the only financial services organization to have achieved the Sustained Excellence Award. Furthermore, 33 buildings in TIAA-CREF’s portfolio have earned LEED certification and 54 buildings have earned ENERGY STAR certification. These accolades and designations highlight TIAA-CREF’s significant commitment to real estate sustainability and its primary objective to achieve tangible and quantifiable performance improvements across its portfolios.
Go green!

As investors seek to build a business case for sustainable—or green—real estate investing, they often start with a simple question: Why? This seemingly straightforward question can prove difficult to answer. The challenges stem from the private nature of the asset class and its lack of data availability and transparency. Recognizing these challenges, investors may benefit from taking a different but equally valuable perspective when assessing sustainable real estate. Rather than asking “why,” perhaps investors should ask “why not.” From this perspective, investors can utilize individual pieces of information from qualitative arguments, existing academic and practitioner research, and real-life experiences to develop a meaningful “mosaic” that can assist in their investment decision-making. Through these efforts, investors will likely realize the limited drawbacks and promising upside to sustainable real estate investing.