



# The Impact of Green Lease Administration on Sustainable Facility Operations and Commercial Property Valuation

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## Abstract

Green leases are becoming more common in commercial property because they help connect lease terms with the environmental and financial performance of buildings. However, the benefits of a green lease do not depend only on including sustainability clauses in the agreement. Much depends on how the lease is managed after it has been signed. This article examines how green lease administration can support sustainable facility operations and how these activities may affect the value of commercial property. The study used a comparative secondary-data analytical approach. It brought together findings from studies on leasing, facilities management and commercial property markets. The reviewed studies covered green leasing, sustainable facilities management, tenant preferences, green building premiums, environmental regulation and real-estate investment performance. Quantitative results reported in previous studies were compared descriptively. An income-capitalisation model was also used to show how changes in net operating income and investment risk may influence property value. The findings show that effective green lease administration mainly works through five areas. These include clear sharing of responsibilities, metering and exchange of building data, agreed sustainability targets, joint maintenance and retrofit decisions, and regular communication between landlords and tenants. These practices can help reduce unnecessary energy and service costs, improve building performance, support tenant retention, maintain the condition of the property and improve compliance with environmental requirements. Recent studies also show that sustainable or certified office buildings often achieve higher rents, better operating income or higher transaction prices. However, the size of these benefits differs from one market to another and may depend on building quality, tenant demand and government regulation. The valuation model also shows that even small improvements in net operating income can lead to meaningful increases in property value, especially when improved sustainability performance also reduces the risk of building obsolescence or future regulatory problems. The article concludes that green lease administration should be treated as an important part of asset management rather than simply as a lease-drafting activity. Its main contribution comes when agreed sustainability terms are properly applied, measured and supported with reliable building-performance data.

**Keywords:** Green lease administration; sustainable facilities management; commercial property; property valuation; ESG; green buildings; net operating income.

## 1.0 Introduction

Commercial property owners are under growing pressure to improve the environmental performance of buildings while protecting rental income, occupancy and investment value. The difficulty is that much of the commercial stock is occupied under leases that divide control between landlords, tenants, property managers and facilities managers. The owner may fund the building fabric and major plant, while the tenant controls daily energy use, equipment, fit-out

decisions and employee behaviour. Traditional leases often deal with rent, repairs, insurance and service charges in detail but say little about energy, water, carbon, waste, data sharing or the joint management of sustainability targets. Green leasing developed partly as a response to this mismatch.

A green lease can be understood as a commercial lease that adds environmental or sustainability obligations to the normal landlord-tenant relationship. These obligations may cover energy and water efficiency, waste management, fit-out standards, metering, data exchange, indoor environmental quality, procurement, alterations and the sharing of costs and savings. Yang et al. (2020) describe green leasing as a contractual route for creating collaboration between owner and occupier in tenanted buildings. Gabe et al. (2020) similarly show that lease structure matters because the party paying operating costs and the party funding improvements may face different incentives. In Nigeria, Ogunba et al. (2023) found that weak skills, limited enforcement and inadequate awareness constrain sustainable real-estate management during the operational stage. These findings point to a central issue: a green clause does not improve a building by itself. The clause must be administered.

Green lease administration refers to the continuing process of interpreting, implementing, monitoring and enforcing sustainability provisions during the lease term. It includes setting responsibilities, obtaining utility data, reviewing targets, approving fit-outs, allocating retrofit costs, checking service-provider performance, engaging occupiers and documenting outcomes. This makes green lease administration closely connected to facilities management. Alfalah and Zayed (2020) argue that sustainable facilities management creates environmental, social and economic benefits during the operating life of an asset. Lee et al. (2021) further show that digital tools and performance measurement are becoming central to facilities management because operational decisions increasingly depend on timely, usable data. A lease that requires energy reduction but provides no metering protocol, review cycle or responsibility for corrective action is therefore weaker than one that connects targets to the building's management system.

The valuation question is equally important. Investors value income-producing property mainly through expectations about rent, occupancy, operating expenditure, future capital expenditure and risk. Recent evidence shows that sustainable building attributes can affect several of these variables. Porumb et al. (2020) reported a transaction-price premium for green-certified offices across three European countries. Li et al. (2021) found sizeable rental premiums for LEED-certified offices in China, while Onishi et al. (2021) found a positive green rent premium in Tokyo. More recent European evidence from Ghosh and Petrova (2024) links sustainability certification with higher operating income and transaction prices, and van Overbeek et al. (2024) report a positive BREEAM-related rental premium in the Dutch office market. These studies do not prove that the lease alone creates the premium, but they show that markets can capitalise credible sustainability performance.

There is therefore a missing link between the legal instrument and the financial outcome. Much of the green-building literature examines certification or physical performance, while green-lease research often concentrates on clauses, awareness or split incentives. The operational mechanism between the two is less clearly developed. This article addresses that gap by examining green lease administration as the connecting process between sustainable facility operations and property value. The purpose is not to claim that every green lease produces a rent premium. Instead, the article asks how well-administered lease provisions can influence the variables that valuers and investors already use.

## 1.1 Objectives of the study

The study has four objectives:

- 1) to explain the main administrative elements of green leasing;
- 2) to identify the facility-operation outcomes that can reasonably arise from those elements;
- 3) to examine recent empirical evidence on the market value of sustainable commercial buildings; and
- 4) to demonstrate, through an income-capitalisation sensitivity model, how operational improvements may be reflected in commercial property value.

By focusing on administration rather than drafting alone, the article provides a practical framework for landlords, tenants, facilities managers, property managers and valuers.

## 2. Literature Review

### 2.1 Conceptual Review

#### 2.1.1 Green Lease Administration

A green lease is not a single standard document. Its content depends on the market, property type, bargaining power of the parties and the depth of the sustainability commitment. Some leases contain light-touch clauses requiring cooperation and information sharing. Others contain measurable obligations, approval rules, cost-recovery provisions and performance targets. The important distinction is between having sustainability language and creating a workable management arrangement.

Green lease administration begins with responsibility mapping. The landlord and tenant need to know who controls each environmental outcome. Central plant may be under landlord control, while plug loads and internal fit-out are controlled by the tenant. Common-area waste may be managed by the facilities team, while tenant waste depends on occupier behaviour. This allocation is important because environmental performance can deteriorate when responsibility is unclear. Yang et al. (2020) found evidence that green leasing in government-occupied property can formalise owner-tenant cooperation. Gabe et al. (2020), working with office leasing data, show that lease structure can alter the distribution of operating savings and occupancy costs. Their findings challenge the simple assumption that the owner always pays for efficiency while the tenant always receives the benefit. The actual result depends on how costs, service charges and lease obligations are structured.

Administration also requires a data architecture. Energy, water and waste targets cannot be managed credibly when the parties do not have agreed baselines, sub-metered information or a rule for sharing data. Lee et al. (2021) identify digitalisation and performance measurement as major directions in modern facilities management. In practical terms, the lease should support access to meter data, building-management-system outputs and agreed reporting intervals. Data quality matters for valuation as well as operations because investors increasingly expect asset-level evidence rather than broad portfolio statements. Newell et al. (2023) report that real-estate stakeholders want more granular ESG benchmarks, greater attention to outcomes and stronger measurement of climate risk.

A further administrative task is the management of improvements. Green leases may permit an owner to recover part of the cost of energy upgrades where the tenant receives measurable savings, or may require the tenant to follow sustainable fit-out rules. This is particularly relevant where standard leases produce split incentives. McAllister and Nase (2023) show that the separation of ownership and use complicates energy-performance policy because owners and occupiers have different control over actual consumption. A workable green lease can turn some of this separation into shared responsibility, but only where capital works, savings measurement, service-charge treatment and payback rules are stated clearly.

Finally, green lease administration is relational. Regular reviews allow the landlord, tenant and facilities team to compare actual results with targets and agree corrective action. Mohd Adnan et al. (2022) found that corporate tenants consider cost, building features, health and well-being, corporate responsibility, image and location when choosing green offices. These are not static preferences. They shape how tenants respond to building management throughout occupation. A lease-review process can therefore support both sustainability and tenant relationship management.

### **2.1.2 Sustainable Facility Operations**

Sustainable facility operations refer to the day-to-day and planned activities used to keep a building functional while reducing unnecessary environmental impact and protecting user welfare and asset condition. The concept includes energy management, water conservation, maintenance, cleaning, waste handling, space use, indoor environmental quality, procurement, contractor management and renewal planning. Alfalah and Zayed (2020) place economic, environmental and social outcomes at the centre of sustainable facilities management. Opoku and Lee (2022) likewise argue that facilities management is moving from a narrow cost-and-maintenance role toward a longer-term contribution to sustainable development.

This operational focus is important because a building can lose much of its intended sustainability performance after completion. Poor control settings, deferred maintenance, inefficient tenant equipment, weak commissioning and low occupant engagement can raise consumption even in a certified asset. Faremi et al. (2021), using a smart commercial building in Lagos as a case study, links sustainable facilities management with the need to maintain building efficiency and expected returns. The point is particularly relevant in emerging markets where technical systems may be installed but operating routines, skills and monitoring remain uneven.

Maintenance is one of the strongest links between operations and value. Preventive maintenance can keep energy systems close to designed performance, extend equipment life and reduce disruptive failures. It also affects capital expenditure forecasts, which are directly relevant to investors and valuers. Sustainable procurement and circularity broaden this relationship. Baniya (2023) shows that facility services can contribute to circularity through maintenance, procurement and end-of-life decisions. Green lease administration can reinforce these practices by controlling alterations, specifying material standards, requiring waste separation and coordinating reinstatement at lease expiry.

Service-provider governance is another part of the operating system. Many commercial properties outsource cleaning, security, maintenance and catering, so environmental obligations have to pass through contracts and performance indicators. Lok et al. (2021) found that sustainable outsourcing outcomes depend on the relationship between clients and service providers, including common goals and the allocation of control. Lok et al. (2023) similarly connect strategic facilities management with wider sustainable-development outcomes. Where a green lease makes commitments to tenants but the facilities contract does not contain matching performance requirements, implementation can fail at the service-delivery level.

Digital systems can make these responsibilities more visible. Automated meters, sensors, computerised maintenance systems and building-management platforms make it possible to compare actual operation with lease targets. However, digitalisation does not automatically improve sustainability. The data must be accurate, interpreted and tied to action. Özyilmaz et al. (2025) emphasise the need for structured performance measures in sustainable office facilities management. For green lease administration, the implication is straightforward: targets should be associated with defined indicators, data sources, responsible parties and review dates.

### 2.1.3 Commercial Property Valuation

Commercial property valuation is fundamentally concerned with the present value of expected future benefits from ownership. For income-producing property, the most visible variables are market rent, passing rent, occupancy, operating expenses, capital expenditure, lease terms and the yield or discount rate applied to future cash flows. Sustainability can affect value when it changes one or more of these variables, or when it changes the risk attached to them.

Recent studies provide evidence of this capitalisation process. Turan et al. (2020) found that office spaces with stronger daylight access in Manhattan achieved a rent premium of roughly 5–6%. Li et al. (2021) report higher rents for LEED-certified offices in China. Onishi et al. (2021) identify a green-label premium in Tokyo. Ghosh and Petrova (2024) find higher operating income and transaction prices for sustainable-certified offices across Western Europe. Van Overbeek et al. (2024) report an average rental premium for BREEAM-certified offices in the Netherlands, with substantial variation between submarkets. Minkow and Fuerst (2025) extend the argument beyond conventional green labels by showing that healthy-building certification is also associated with higher office rents in the United States.

The financial effect is not limited to rent. Sustainability can influence occupancy, tenant quality, operating-cost recoveries, capital expenditure and exit risk. Banerjee et al. (2024), analysing a large number of Indian office rental contracts, find significant premiums for green and healthy building labels but also show that the relationship is not uniform across market segments. Liu et al. (2025) similarly find that tenants' ESG profiles influence preferences for certified property, while willingness to pay differs between office and retail markets. These findings caution against treating the green premium as a fixed percentage that can be inserted into every valuation. Yang et al. (2021) also show that street-level greenery can be reflected in commercial-building rents and transaction prices, reinforcing the wider point that observable environmental quality can enter market pricing even when it sits outside a formal certification label.

Risk is also becoming more important. Feng et al. (2025) report that greater climate-risk exposure is associated with weaker cash flows and lower firm values among real-estate investment trusts. Morri et al. (2024) find a connection between ESG performance and financial performance among listed real-estate companies, and Hayar et al. (2025) report that ESG-aligned real-estate firms can show stronger market performance and improved risk management, although some operating effects are mixed. Regulatory performance can also be capitalised. Eichholtz et al. (2026) find that Dutch offices meeting a minimum energy-performance requirement experienced a substantial transaction-price increase after the policy became binding, even though rental effects were limited.

For valuation practice, these results imply that sustainability is better treated through the cash-flow and risk variables that can be evidenced than through an automatic 'green premium'. A green lease may increase value if it produces measurable savings, supports income stability, reduces expected capital expenditure, protects marketability or lowers regulatory and obsolescence risk. The valuer should therefore trace the mechanism rather than assume the outcome.

### 2.1.4 Linking Green Lease Administration to Value

The link between green lease administration and value can be expressed as a chain. First, the lease creates rights, duties and incentives. Second, administration converts those provisions into operating decisions. Third, facility outcomes affect costs, user experience, asset condition and compliance. Fourth, these outcomes influence income or risk. Only at the final stage does value change.

Consider energy management. A lease may require sub-metering, monthly data sharing and joint reduction targets. The facilities manager identifies abnormal consumption, the tenant adjusts internal loads, and the landlord repairs inefficient common plant. If the result is a lower service charge or a lower operating expense that is partly retained by the owner, net operating income improves. If tenants also perceive lower total occupancy cost and better comfort, renewal probability may improve. These effects are then reflected in cash-flow assumptions.

The same logic applies to health, quality and tenant demand. Mohd Adnan et al. (2022) show that occupiers consider well-being and building features alongside financial factors. Turan et al. (2020) and Minkow and Fuerst (2025) show that the market can value attributes linked to daylight and health. Green lease administration can preserve these attributes by setting maintenance, cleaning, ventilation, fit-out and monitoring obligations. It does not create the intrinsic quality of the building, but it can help prevent operational practices from eroding it.

The chain is also relevant to market risk. Gluszak et al. (2021) show that green-building adoption differs across European office markets, which means the competitive value of sustainability depends on local supply and demand. Robinson and McIntosh (2022) note the increasing relevance of environmental, social and governance factors in commercial real estate. Where market expectations and regulation are tightening, a poorly performing building may face higher retrofit requirements, lower tenant demand or future letting restrictions. A well-administered green lease can provide evidence that the asset is being managed toward those risks.

## 2.2 Theoretical Framework

### 2.2.1 Principal-Agent and Split-Incentive Perspective

The first theoretical lens is the principal-agent and split-incentive problem. In leased commercial property, the party that makes an investment may not receive the full benefit. An owner may pay for efficient plant while a tenant receives lower electricity bills. A tenant may invest in efficient fit-out but have too short a lease term to recover the cost. Information is also uneven: tenants may know more about internal energy use, while owners know more about central systems and long-term capital plans. These conditions can produce under-investment and weak coordination.

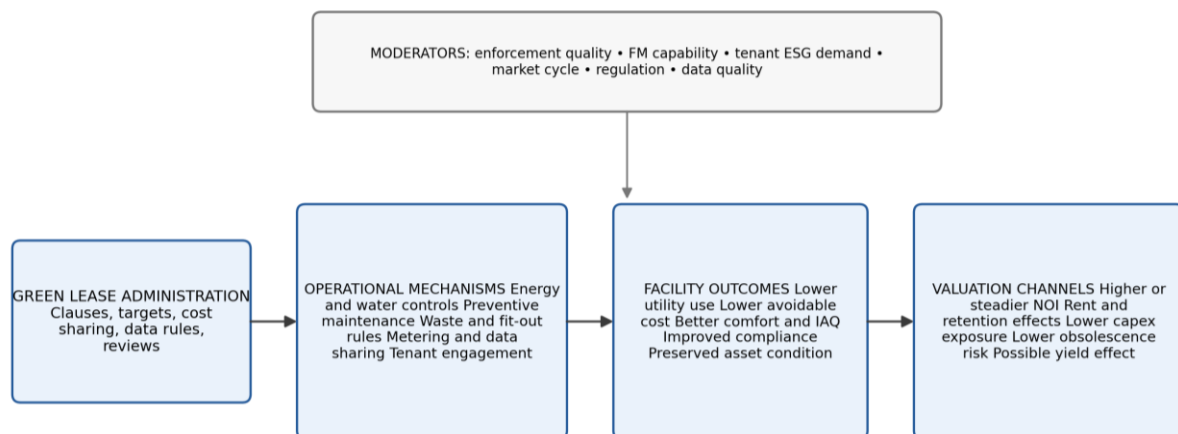
Green leasing addresses the problem by changing the contractual rules of the relationship. Gabe et al. (2020) show that the actual distribution of occupancy costs depends on lease structure and can be more complex than the conventional split-incentive story suggests. McAllister and Nase (2023) also show that owner-user separation creates difficulties for energy-performance regulation based on actual consumption. The theoretical implication is that green lease administration adds value when it reduces information gaps, clarifies control and makes the allocation of costs and benefits more compatible with the party able to act.

### 2.2.2 Income-Capitalisation and Risk Perspective

The second lens is the income-capitalisation and risk perspective. A commercial asset is worth more when expected net income is higher, more durable or less risky, all else being equal. Sustainability therefore has no separate magical route to value; it must affect expected cash flow, growth, capital expenditure or the yield required by investors. Ghosh and Petrova (2024) provide direct evidence that sustainable certification can be associated with both stronger operating income and higher transaction prices. Newell et al. (2023) show that investors increasingly want ESG benchmarks that are sufficiently granular to support asset-level decisions. Eichholtz et al. (2026) further demonstrate that regulatory energy performance can be capitalised into transaction prices.

These two lenses are complementary. Principal-agent theory explains why operational improvements may fail to happen in leased property. Income capitalisation explains why successful improvements can matter financially. Green lease administration sits between them: it is a governance mechanism that can reduce coordination failures and, where outcomes are measurable, improve the variables used in valuation.

### 2.2.3 Integrated Green Lease–Operations–Value Framework



**Commercial Property Value = capitalised effect of sustainable operations, income quality and risk**

**Figure 2.1. Integrated green lease administration, facility operations and valuation framework**

## 2.3 Empirical Review

**Table 2.1. Empirical Review of Recent Studies**

| Author(s)/Year             | Market/Data                                   | Method                                 | Main Finding and Relevance                                                                                                             |
|----------------------------|-----------------------------------------------|----------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| Yang et al. (2020)         | U.S. government-leased properties             | Lease/document evidence                | Green clauses can formalise landlord-tenant cooperation and support energy-performance responsibilities.                               |
| Gabe et al. (2020)         | Sydney offices; U.S. comparison               | Lease transaction models               | Eco-labelled buildings were much more likely to use net leases; occupancy-cost allocation shapes who captures efficiency benefits.     |
| Porumb et al. (2020)       | Finland, France, Germany offices              | Transaction hedonic models             | Green certification was associated with about 19% higher transaction prices; location modified the premium.                            |
| Turan et al. (2020)        | 5,154 Manhattan office spaces                 | Daylight simulation + hedonic model    | High daylight access was associated with roughly 5–6% higher rents.                                                                    |
| Li et al. (2021)           | 100 matched Chinese offices plus city samples | Hedonic rent model                     | LEED-certified offices showed a 19.5% national rental premium, with higher city estimates.                                             |
| Onishi et al. (2021)       | Tokyo office rents, 2009–2019                 | Hedonic model + matching               | Average green-label rent premium about 6.5%; effects differed by building age and size.                                                |
| Ogunba et al. (2023)       | Nigerian commercial cities                    | Survey/operational assessment          | Skills, enforcement and occupier knowledge constrained green-lease and sustainable property-management adoption.                       |
| Ghosh & Petrova (2024)     | Six Western European office markets           | Matched panel analysis                 | Certified assets had about 12% higher operating income and 10% higher transaction prices.                                              |
| van Overbeek et al. (2024) | 4,355 Dutch office rent transactions          | Hedonic rent model                     | BREEAM-certified offices achieved an average 10.3% rental premium, varying by submarket.                                               |
| Banerjee et al. (2024)     | 17,000+ Indian office rental contracts        | Contract-level econometric analysis    | Green and healthy labels were associated with significant rent premiums, but effects were heterogeneous.                               |
| Liu et al. (2025)          | London office and retail leases               | Lease transactions + tenant ESG scores | ESG-conscious office tenants were more likely to select BREEAM buildings; office rent premiums persisted.                              |
| Minkow & Fuerst (2025)     | U.S. office buildings                         | Panel hedonic + propensity matching    | Healthy-building certification was associated with roughly 4–6% higher effective rents.                                                |
| Eichholtz et al. (2026)    | Dutch commercial property                     | Policy difference design               | Offices meeting the energy standard recorded a 21.8% transaction-price increase after formal policy adoption; rent effect was limited. |

## 2.4 Gap in Literature

Recent research provides strong evidence on green certification, energy standards, tenant preferences and sustainable facilities management, but the literature remains fragmented around the point where these subjects meet. Green-lease studies explain collaboration and split incentives, yet they often stop before tracing effects into property-level income and value. Sustainable facilities-management studies, including Alfalah and Zayed (2020), Lee et al. (2021) and Özyilmaz et al. (2025), focus on operational performance but rarely connect lease administration to valuation variables. Conversely, valuation studies such as Ghosh and Petrova (2024), van Overbeek et al. (2024) and Eichholtz et al. (2026) demonstrate market premiums without isolating the administrative processes that help maintain performance after occupation. Ogunba et al. (2023) also show that skills and enforcement remain practical constraints in sub-Saharan Africa. The unresolved gap is therefore not whether sustainable property can have value, but how lease administration converts shared commitments into credible operational outcomes that valuers can recognise.

## 3. Methodology

### 3.1 Research Design

The study used a comparative secondary-data analytical design that combined recent evidence from green leasing, facility operations and commercial property markets. The approach was chosen because the research question crosses three evidence areas that use different methods: green leasing and lease structure, facilities management and building

operations, and real-estate valuation. A single pooled statistical model would be misleading because the available studies cover different countries, property types, certification systems, time periods and outcome measures. Instead, the analysis compares reported findings, identifies recurring operational mechanisms and then translates those mechanisms into a transparent valuation model.

The unit of analysis was the reported relationship between a sustainability-related management or building characteristic and an operational or financial outcome. The study therefore did not treat each paper as an identical observation. Quantitative market evidence was used descriptively rather than combined as a formal meta-analysis. Where a study reported a range, the range was preserved in the discussion. Midpoints were used only in Figure 4.1 to make a visual comparison and are clearly identified as such.

### 3.2 Evidence Base and Source Verification

Sources were limited to 2020–2026 publications for the main evidence base. Searches focused on combinations of green lease, sustainable lease, commercial property, office rent, green certification, facilities management, energy performance, ESG, healthy buildings, operating income and property value. Preference was given to peer-reviewed journal articles with identifiable authors, publication details and a traceable DOI. Publisher pages and university repositories were used to verify bibliographic information. Earlier foundational theories were not used as the main empirical evidence because the article was designed around recent market conditions.

The final evidence set was purposefully balanced. Direct green-leasing evidence included Yang et al. (2020), Gabe et al. (2020) and Ogunba et al. (2023). Facilities-management evidence included Alfalah and Zayed (2020), Faremi et al. (2021), Lok et al. (2021), Lee et al. (2021), Baniya (2023) and Özyılmaz et al. (2025). Tenant and market-demand evidence included Mohd Adnan et al. (2022) and Liu et al. (2025). Financial and valuation evidence included Porumb et al. (2020), Turan et al. (2020), Li et al. (2021), Onishi et al. (2021), Ghosh and Petrova (2024), van Overbeek et al. (2024), Banerjee et al. (2024), Minkow and Fuerst (2025), Feng et al. (2025) and Eichholtz et al. (2026). This combination allowed the analysis to follow the lease-to-operation-to-value pathway rather than rely on certification studies alone.

### 3.3 Data Extraction and Analytical Measures

For each empirical source, four items were extracted: the market or setting, the main sustainability exposure, the method, and the reported operational or financial outcome. Findings were then coded into five mechanisms: (1) responsibility and incentive alignment; (2) performance data and monitoring; (3) maintenance, fit-out and retrofit coordination; (4) tenant demand, retention and user quality; and (5) regulatory or investment-risk management.

The financial analysis used reported rent or price premiums only as contextual evidence. These figures were not interpreted as a direct causal effect of green lease administration. The article instead asked whether the direction of market evidence is consistent with the proposition that better-performing and better-governed sustainable property can achieve stronger income or lower risk. This distinction reduces the risk of attributing a certification premium to the lease document itself.

**Table 3.1. Analytical Variables and Interpretation**

| Analytical Area      | Observed/Extracted Indicator                                 | Interpretation                                                               |
|----------------------|--------------------------------------------------------------|------------------------------------------------------------------------------|
| Lease administration | Responsibility, data, targets, review, cost sharing          | Governance capacity to convert clauses into action                           |
| Facility operations  | Energy, maintenance, fit-out, waste, indoor quality          | Operational pathway through which lease terms affect performance             |
| Income               | Rent, occupancy, service/operating cost, NOI                 | Cash-flow variables that can affect value                                    |
| Risk                 | Regulation, obsolescence, climate/ESG exposure, data quality | Factors that may affect cap rate, discount rate or future capex              |
| Market outcome       | Reported rent, NOI or transaction-price effect               | Contextual evidence of capitalisation; not treated as direct lease causality |

### 3.4 Valuation Model

An illustrative income-capitalisation model was used to demonstrate the valuation channel. The baseline direct-capitalisation relationship is:

$$V_0 = NOI_0 / R_0 \quad (1)$$

where  $V_0$  is baseline property value,  $NOI_0$  is annual net operating income, and  $R_0$  is the market capitalisation rate. A green-lease administration scenario changes expected net income by  $g$  and may change the required capitalisation rate by  $\Delta R$ :

$$V_g = [NOI_0 \times (1 + g)] / (R_0 - \Delta R) \quad (2)$$

The percentage value change is:

$$\text{Value uplift (\%)} = [(V_g / V_0) - 1] \times 100. \quad (3)$$

The model used an indexed baseline NOI of 1,000,000 currency units and a 7.00% capitalisation rate. Scenario assumptions were deliberately simple and transparent. They do not represent a forecast for a specific market. NOI changes were tested from 0% to 10%, while capitalisation-rate compression was tested at 0, 25 and 50 basis points. The purpose was to show sensitivity, not to prescribe a universal green premium.

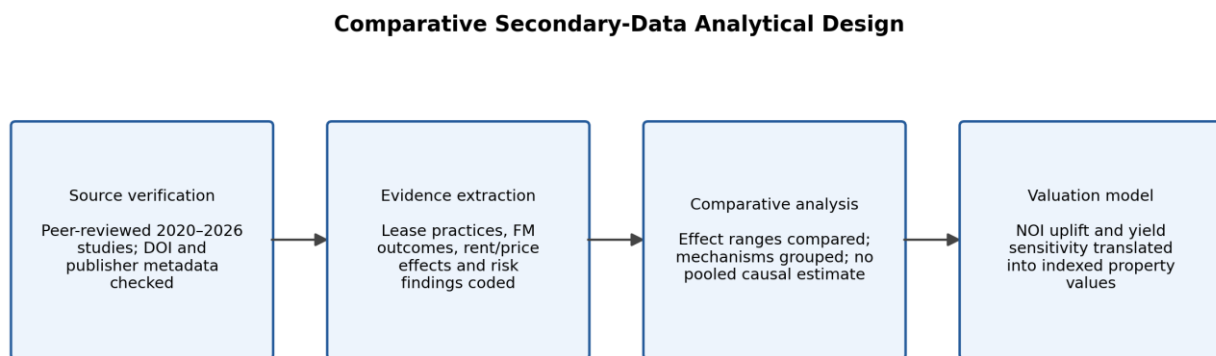


**Figure 3.1.** Analytical workflow used in the study

### 3.5 Methodological Limitations

The design has three limitations. First, green certification, healthy-building certification and green leasing are related but distinct concepts. The article therefore uses certification studies as evidence of market response to credible building performance, not as proof of lease effects. Second, reported premiums come from heterogeneous markets and cannot be safely averaged into a universal coefficient. Third, the valuation model is illustrative and excludes detailed lease events, taxes, financing and multi-period capital expenditure. These limitations are addressed by keeping the conclusions mechanism-based and by avoiding claims of direct causality where the available evidence does not support them.

## 4. Results

The analysis produced four main results. First, effective green lease administration depends on a management process rather than clause presence alone. Second, facilities management is the operational bridge between contractual intent and building performance. Third, recent commercial-market studies generally show positive but highly variable financial effects for sustainable building attributes. Fourth, the valuation sensitivity model shows that modest changes in income and risk can have meaningful effects on indicated property value.

### 4.1 Pattern of Evidence

The evidence shows a consistent pattern: sustainability has the strongest commercial effect when it is observable, measurable and linked to the normal economics of occupation. Direct green-lease studies emphasise coordination and cost allocation. Facilities-management studies emphasise performance measurement, maintenance and service delivery. Valuation studies show that markets often reward sustainable attributes, but the size and form of that reward vary.

For lease administration, the central finding is that responsibility alone is insufficient. There must also be a process for monitoring and correction. Yang et al. (2020) show that contractual provisions can create a collaborative structure in government-leased property. Ogunba et al. (2023) show the opposite side of the problem: where skills, enforcement and occupier understanding are weak, sustainable real-estate management is constrained. Gabe et al. (2020) demonstrate that lease structure changes the financial distribution of occupancy costs. Taken together, these studies indicate that administration should focus on who controls performance, who pays, who receives savings and how performance is verified.

## 4.2 Operational Pathways

Five operational pathways emerged from the comparison. The first is utility-performance control. Metering, data sharing and target review make abnormal energy or water use easier to identify. The second is maintenance coordination. Sustainable targets are more durable when preventive maintenance, commissioning and service contracts support them. The third is fit-out and alteration control, which can prevent tenant works from undermining efficient systems or indoor environmental quality. The fourth is waste and procurement management, including material and service choices. The fifth is user engagement, which matters because tenant behaviour influences consumption and building quality.

The facilities-management literature supports these pathways. Lee et al. (2021) link digitalisation with better performance measurement. Lok et al. (2021) show that service-provider relationships and common goals affect sustainable outsourcing outcomes. Baniya (2023) identifies maintenance and procurement as practical routes for circularity. Özyilmaz et al. (2025) provide a recent performance-measurement framework for sustainable office facilities management. These studies suggest that the lease should not create a parallel sustainability system. It should connect with the existing operating system of the property.

## 4.3 Market and Valuation Effects

The market evidence is generally positive but clearly heterogeneous. Porumb et al. (2020) report a 19% transaction-price premium for green-certified offices in their European sample. Turan et al. (2020) find that high daylight levels are associated with roughly 5–6% higher office rents in Manhattan. Li et al. (2021) report a 19.5% LEED-related rental premium in their national China sample, with higher estimates in Beijing and Shanghai. Onishi et al. (2021) report an average Tokyo green rent premium of about 6.5% before more detailed matching adjustments.

Later studies show similar variation. Ghosh and Petrova (2024) report approximately 12% higher operating income and 10% higher transaction prices for sustainable-certified European offices. Van Overbeek et al. (2024) find an average BREEAM rental premium of 10.3% in the Netherlands, with lower and higher outcomes across cities. Banerjee et al. (2024) find premiums ranging broadly across green and healthy office contracts in India. Liu et al. (2025) report BREEAM-related office rent premiums in London while also showing that tenant ESG characteristics shape building choice. Minkow and Fuerst (2025) find a 4–6% rent premium for health-certified U.S. offices. Eichholtz et al. (2026) find a 21.8% transaction-price effect for Dutch offices meeting the minimum energy-performance standard after policy adoption, while rents changed little.

The important result is not the numerical average of these studies. It is the repeated observation that performance characteristics can enter rent, income or price formation. The route differs by market. Sometimes tenants pay more. Sometimes investors price lower regulatory or obsolescence risk. Sometimes the effect appears in operating income rather than headline rent. This supports a valuation approach that traces the particular cash-flow channel for the subject property.

**Table 4.1. Selected Reported Market Effects in Recent Commercial Property Studies**

| Study                      | Outcome | Market         | Reported Effect | Sustainability Signal        |
|----------------------------|---------|----------------|-----------------|------------------------------|
| Turan et al. (2020)        | Rent    | United States  | 5–6%            | Daylight quality             |
| Onishi et al. (2021)       | Rent    | Japan          | 6.5%            | Green label                  |
| Li et al. (2021)           | Rent    | China          | 19.5%           | LEED                         |
| van Overbeek et al. (2024) | Rent    | Netherlands    | 10.3%           | BREEAM-NL                    |
| Ghosh & Petrova (2024)     | Price   | Western Europe | 10%             | Sustainability certification |
| Banerjee et al. (2024)     | Rent    | India          | 4–21%           | Green/healthy labels         |
| Liu et al. (2025)          | Rent    | United Kingdom | 8.3–9.5%        | BREEAM office estimates      |
| Minkow & Fuerst (2025)     | Rent    | United States  | 4–6%            | Healthy-building label       |
| Porumb et al. (2020)       | Price   | Europe         | 19%             | Green certification          |
| Eichholtz et al. (2026)    | Price   | Netherlands    | 21.8%           | Energy-standard compliance   |

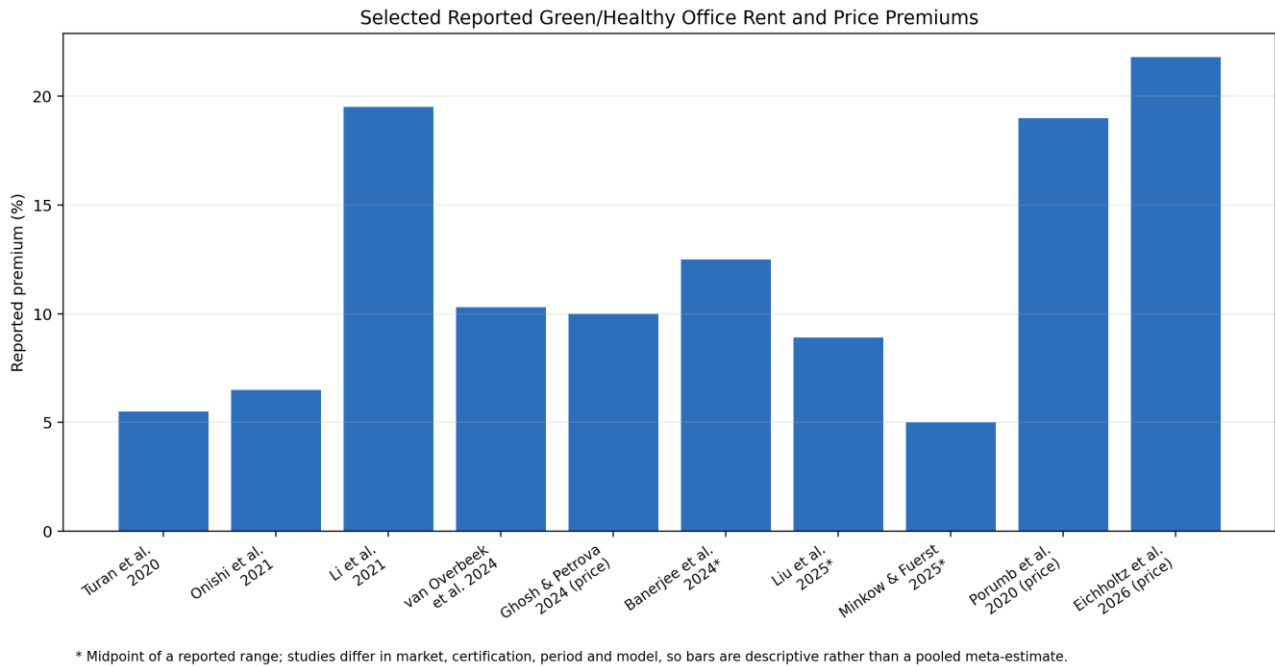


**Figure 4.1.** Selected reported green/healthy office rent and price premiums (descriptive comparison)

#### 4.4 Valuation Sensitivity Results

The illustrative valuation model makes this transmission visible. With baseline NOI of 1,000,000 and a 7.00% capitalisation rate, baseline value is 14.286 million currency units. If green lease administration contributes to a 4% improvement in sustainable NOI and the market capitalisation rate is unchanged, the indicated value rises by 4%. This is simply the income effect.

If the same 4% NOI improvement is accompanied by a 25-basis-point reduction in the capitalisation rate, the indicated value rises by about 7.85%. With a 50-basis-point reduction, the increase is about 12%. At an 8% NOI uplift, the corresponding value changes are about 8%, 12% and 16.3% under the three yield assumptions. The sensitivity is nonlinear because the capitalisation rate affects the denominator of the valuation equation.

These calculations do not imply that a green lease will compress yields. They show why evidence on risk is economically important. If a lease helps a property meet regulatory standards, reduces future retrofit uncertainty, preserves marketability and produces reliable performance data, investors may require a different risk allowance. Feng et al. (2025) show that climate exposure can weaken real-estate cash flows and values, while Newell et al. (2023) report investor demand for stronger asset-level ESG evidence. The model therefore captures a plausible, though market-dependent, second route from administration to value.

**Table 4.2. Illustrative Direct-Capitalisation Scenario**

| Item                | Baseline   | Green Administration Scenario | Comment                                     |
|---------------------|------------|-------------------------------|---------------------------------------------|
| Annual NOI          | 1,000,000  | 1,040,000                     | Illustrative 4% sustainable NOI improvement |
| Capitalisation rate | 7.00%      | 6.75%                         | Illustrative 25 bp risk/yield change        |
| Indicated value     | 14,285,714 | 15,407,407                    | NOI divided by capitalisation rate          |
| Value change        | —          | +7.85%                        | Combined income and yield effect            |

**Table 4.3. Indicative Value Uplift under Alternative NOI and Capitalisation-Rate Assumptions**

| NOI Uplift | Cap Rate 7.00% | Cap Rate 6.75% | Cap Rate 6.50% |
|------------|----------------|----------------|----------------|
| 0%         | 0.0%           | 3.7%           | 7.7%           |
| 2%         | 2.0%           | 5.8%           | 9.8%           |
| 4%         | 4.0%           | 7.9%           | 12.0%          |
| 6%         | 6.0%           | 9.9%           | 14.2%          |
| 8%         | 8.0%           | 12.0%          | 16.3%          |
| 10%        | 10.0%          | 14.1%          | 18.5%          |

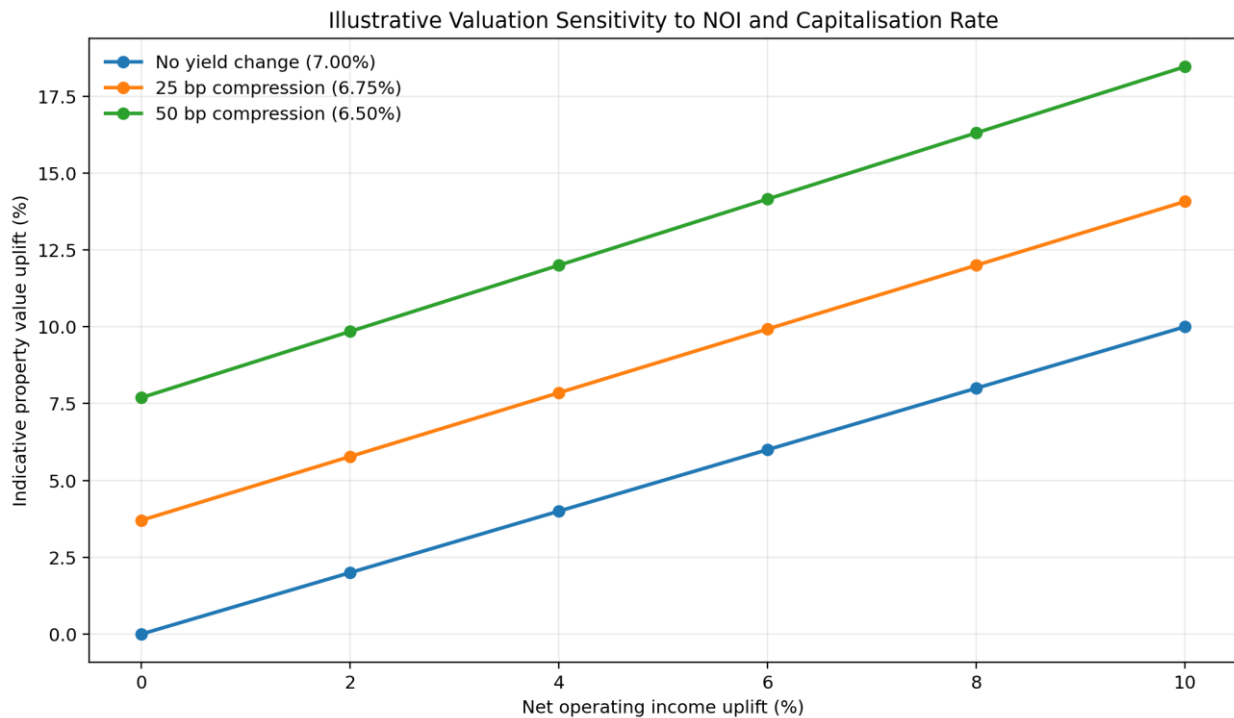


**Figure 4.2.** Illustrative valuation sensitivity to NOI uplift and capitalisation-rate change

## 5. Discussion

### 5.1 Green Lease Administration as Operational Governance

The findings support the view that green lease administration is best treated as a form of operational governance. The legal clauses matter because they define authority and obligations, but the financial result depends on what happens after the lease is signed. This interpretation is consistent with Yang et al. (2020), who frame green leasing as a collaborative mechanism, and with Ogunba et al. (2023), who show that weak enforcement and limited practitioner capability can prevent sustainable management from taking hold. It also explains why simply counting the number of green clauses in a lease is a poor measure of performance.

The comparison further suggests that the most valuable clauses are likely to be those connected to measurable operating decisions. Data-sharing provisions, metering requirements, sustainable fit-out controls, maintenance responsibilities and cost-recovery rules have a direct line to building performance. Lee et al. (2021) show the increasing importance of digital measurement in facilities management, while Özyılmaz et al. (2025) emphasise structured performance indicators. A lease target such as 'reduce energy use' is therefore much weaker than a clause that establishes the baseline, data source, responsible party, review date and action when performance departs from target.

The facilities-management evidence also broadens the meaning of value. Sustainable operations are not only about utility cost. They include service reliability, equipment life, indoor quality, waste, procurement and user experience. Alfalah and Zayed (2020) treat sustainable facilities management as a balance of economic, environmental and social performance. Baniya (2023) shows that circularity can be advanced through ordinary facility services. Lok et al. (2021) demonstrate that outsourcing arrangements can either support or weaken sustainability depending on how responsibilities and goals are managed. These points matter to valuers because capital expenditure and tenant retention can be as important as energy savings.

### 5.2 How Sustainable Operations Enter Property Value

The valuation evidence supports a cautious positive relationship rather than a universal premium. Ghosh and Petrova (2024) find stronger income and transaction pricing in sustainable-certified European offices, while van Overbeek et al. (2024) show that the rent effect differs by Dutch submarket. Onishi et al. (2021) find that the green premium also differs by building size and age in Tokyo. Banerjee et al. (2024) show wide variation across Indian office contracts. These results indicate that sustainability value is conditional on location, market maturity, tenant demand and the supply of comparable green stock.

Tenant characteristics also affect the strength of the link. Mohd Adnan et al. (2022) found that corporate occupiers balance sustainability with cost, location, comfort, branding and business requirements. Liu et al. (2025) provide newer

evidence that ESG-conscious firms are more likely to select BREEAM-certified offices, but the pattern is weaker in retail. A green lease may therefore support value more strongly in prime office markets with ESG-sensitive tenants than in markets where sustainability is not yet central to space choice.

The risk channel is becoming more important as regulation develops. McAllister and Nase (2023) show that minimum energy-efficiency standards are spreading but face design problems in leased property because owners and users share control over energy. Eichholtz et al. (2026) provide evidence that a regulatory energy standard can be capitalised into office transaction prices. For asset managers, this changes the role of green lease administration. It is not only a voluntary environmental practice; it can also be part of transition-risk management. Clauses that provide data, access rights and cost-sharing arrangements may make future compliance easier and reduce uncertainty about retrofit execution.

This is also consistent with investment-level ESG findings. Robinson and McIntosh (2022) document the growing importance of ESG in commercial real estate research. Morri et al. (2024) report links between environmental performance and financial outcomes in listed real-estate companies. Hayar et al. (2025) find improved market performance and risk management among ESG-aligned real-estate firms, even though some short-term operating measures are mixed. These studies reinforce the argument that sustainability can affect both the numerator and denominator of property valuation: cash flows may improve, and the risk attached to those cash flows may also change.

### 5.3 Data Quality, Emerging Markets and Valuation Evidence

A further implication is that green lease administration can improve valuation evidence itself. Valuers often face a shortage of property-specific sustainability data. Certification provides one signal, but operational data can show whether the building is actually performing. Regular records of energy intensity, water use, waste diversion, equipment efficiency, tenant complaints, maintenance history and target achievement can help distinguish a genuinely high-performing asset from one that only holds a label.

Newell et al. (2023) specifically identify the need for more granular ESG benchmarking. Green lease administration can contribute to that granularity because it creates a formal reason for landlord and tenant to share information. When the data are consistent over time, they can support operating budgets, capital plans and due diligence. This may not create an immediate rent premium, but it can reduce uncertainty during acquisition, refinancing and valuation review.

The emerging-market context deserves special attention. Ogunba et al. (2023) show that knowledge and enforcement barriers can be substantial in sub-Saharan Africa, while Faremi et al. (2021) demonstrates the practical importance of facilities-management capability in a Nigerian smart commercial building. Green lease templates imported from mature markets may therefore fail if they assume metering, enforcement, digital systems or technical capacity that are not available. The strongest approach is to match the depth of the clause to the actual management capacity of the building, then strengthen that capacity over time.

## 6. Practical and Policy Implications

For landlords and asset managers, the first priority should be to move from generic cooperation clauses to auditable operating commitments. Each material clause should identify the responsible party, the performance measure, the data source, the frequency of review and the financial treatment of improvements. High-value topics normally include utility data, plant operation, fit-out, waste, alterations, indoor environmental quality and retrofit cost recovery.

For tenants, green lease administration should be evaluated through total occupancy cost and service quality rather than rent alone. A higher base rent can still be economically attractive where energy, service charges, productivity-supporting features or business reputation create offsetting value. Gabe et al. (2020) show why the structure of occupancy costs must be examined carefully. Tenant representatives should therefore ask how savings are measured and whether the tenant receives a fair share of operational benefits.

Facilities managers should be involved before the lease is finalised. They understand which targets can be measured, which systems are under landlord or tenant control, and what data can be produced reliably. Their service contracts should mirror relevant green-lease obligations. A building cannot credibly promise performance to tenants if the maintenance and cleaning contracts do not support that promise.

Valuers should avoid adding a standard percentage for 'green'. Instead, sustainability should be reflected where evidence supports changes in market rent, void period, operating expenses, capital expenditure, growth expectations or yield. Comparable transactions from certified buildings can be relevant, but they should be adjusted for location, age, quality and tenant mix. Operational records created through green lease administration can provide additional support for assumptions about cost and risk.

For regulators and professional bodies, model clauses are useful but should be accompanied by implementation guidance. McAllister and Nase (2023) show that energy regulation becomes difficult where control is divided between landlord and

tenant. Policies that encourage sub-metering, data access, practitioner training and transparent cost-sharing can therefore increase the practical effect of both green leases and building-performance standards.

## 7. Conclusion

Green lease administration has the potential to influence both sustainable facility operations and commercial property value, but the effect is indirect. The lease is a governance instrument. Its value depends on whether the parties use it to organise responsibility, data, maintenance, improvements, cost sharing and performance review.

The evidence examined in this article shows that sustainable commercial property can attract stronger rents, operating income or transaction prices in many markets, although the size of the effect is not stable across countries or property types. This means that green lease administration should not be sold as a guaranteed premium. Its stronger business case is that it can improve the quality and durability of operating performance while helping the asset respond to tenant expectations and regulatory change.

The income-capitalisation model shows why these operational gains can matter. Modest changes in NOI translate directly into value, while any credible reduction in obsolescence or regulatory risk can strengthen the effect through the capitalisation rate. The practical challenge is evidence. Owners and managers need to demonstrate that the building is using less resource, maintaining its systems, protecting user quality and managing transition risk. Green lease administration provides a structured way to produce that evidence.

Future research should use property-level longitudinal data that connect actual lease clauses with measured energy use, service charges, maintenance expenditure, renewal behaviour, rents and transaction prices. Such studies would allow researchers to distinguish the effect of the lease from the effect of certification or building quality. Until that evidence is more widely available, the most defensible conclusion is that effective green lease administration can support value when it converts environmental commitments into measurable facility performance and financially relevant risk control.

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