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ISPI (UK): Creating a Sustainable Property Investment Index

Methodology and Initial Results

October 2009

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IPF Investment Property Forum

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This programme supports the IPF's wider goals of enhancing the knowledge, understanding and efficiency of property as an investment class. The initiative provides the UK property investment market with the ability to deliver substantial, objective and high quality analysis on a structured basis. It will enable the whole industry to engage with other financial markets, the wider business community and government on a range of complementary issues.

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ISPI (UK): CREATING A SUSTAINABLE PROPERTY INVESTMENT INDEX

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1. Aims of the research

The overall aim of this research was to develop a system for tracking the investment performance of commercial buildings against their sustainability. As the property industry has begun to work towards improving the sustainability performance of commercial buildings, it has become apparent that specific tools are needed to support this process and are simply not yet available. One of the most crucial is a system for monitoring sustainability performance against investment performance. This research seeks to provide such a tool by building on the extensive existing property investment data collection system operated by IPD with which the market is already familiar. The key output of the work is a sustainable property investment index, ISPI (UK)

This report focuses on the methodology used to develop the work. It was anticipated at the outset of the project that there should be no correlation between investment performance and sustainability at this stage. Sustainability is simply not yet priced into commercial property valuations and as such would not be expected to be reflected in investment performance. Any results would be expected to be random. The importance of this work is in the development of a framework for a sustainable property investment index that will be widely available for the market to use. Over time, as the industry does begin to price sustainability into valuations and as regulations and climate change legislation bite, Stet will support the industry in understanding better how these changes impact on property investment returns.

To develop ISPI a real estate sustainability coding framework has been developed, refined and tested. This enables the classification of buildings at a simple level as either achieving or not achieving a level of sustainability. Once classified in this way the financial performance of properties assessed as having achieved this level of sustainability can be tracked and compared with against those that have not and with the IPD universe as a whole.

The results of the research will:

- aid organisations in monitoring and understanding the financial impact on fund performance of meeting sustainability criteria
- assist the property fund management industry in effectively meeting the information challenge associated with greater scrutiny of sustainability performance
- support more detailed analysis of investment performance against sustainability performance required to develop a business case for upgrading existing buildings
- help fund managers better understand the sustainability drivers of the performance of their assets
- contribute to the improvement of the property investment industry's contribution to sustainability through improved decision making and better communication

2. Methodology

2.1 The process

ISPI (UK) is constructed from the financial performance records of assets contained within the IPD UK Databank that have been classified using the ISPI coding framework as sustainable.

Perhaps the most challenging element of this work was the development of a framework which would be workable and yet effective in identifying those assets that could be included in a 'more sustainable' subset. The framework was developed through a staged process which included:

- The creation of a prototype coding framework to identify what information is pertinent to the identification process.
- A survey of fund managers about their property assets enabling us to understand which questions within the prototype framework are answerable now
- Finalising the questions for the coding framework
- Setting a weighting schedule to enable the sustainbility issues currently considered to be the more significant from a property investment perspective to have greatest impact on the output. This also allowed the framework to reflect different weightings for questions across the sectors according to relevance
- Testing and refinement of the framework
- Extension of the survey to as many funds as could participate

2.2 Creating the coding framework

To create the coding framework, research was undertaken to identify what publicly-available information already existed. The most useful research had been undertaken by Kingston University for the Sustainable Property Appraisal Project in 2005 as reported in Ellison et al, 2007[1]. Stage one of that project had already identified sustainability factors identified as being relevant to both property worth and sustainability.

Building accessibility	Contextual fit
Building adaptability	Energy efficiency
Building quality	Occupier impact
Occupier satisfaction	Pollution
Waste	Water

Some of these factors were excluded from the ISPI (UK) coding framework as they were considered too subjective to quantify effectively (eg building adaptability, contextual fit) or the data simply too difficult to collect at the current time (eg occupier satisfaction, occupier impact, pollution).

Four of the nine factors were therefore identified as appropriate for the ISPI (UK) coding framework. Following much debate 'flood risk' was added as a further category. Whilst this differs from the other factors in that it is not a product of the individual building but something that impacts on it, it was nonetheless felt to be a significant and increasing sustainability related risk for property assets that needs to be assessed. Basic information on flood risk is relatively easy to access through publicly available data.

[1] See Ellison, L., and Sayce, S, and Smith, J. 2007. Socially Responsible Property Investment: Quantifying the Relationship between Sustainability and Investment Property Worth, *Journal of Property Research,* 24 (3), 191–219

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The final factors included in the ISPI (UK) coding framework are:

Building accessibility
Building quality
Energy efficiency
Waste
Water
Flood risk

These factors are also in line with other sustainability tools, audits and certificates available in the real estate sustainability industry, such as IPD Eco-Ledger, Green Rating Initiative, BREEAM and JLL Upstream Sustainability Services 'The Third Dimension'.

The success of ISPI relies upon it including as large a sample of investment property as possible. This requires the data collection to be as simple as possible while remaining meaningful. The availability of environmental performance data is an ongoing problem for the property industry and remains a significant hurdle for this and similar types of work. The information requested was therefore designed around data largely known to exist and where possible available from 3rd party sources, ideally in the public domain. This means that the data is more qualitative than quantitative, as the latter is simply not yet available on a sufficiently wide scale in a consistent or accessible format.

The framework is not intended to replace any existing tool on the market, and should be seen as complementary, particularly to tools such as BREEAM which are used within the framework to assess building quality. ISPI (UK) has been designed specifically for the property investment community as a means of linking sustainability and investment performance, it is not designed as a detailed sustainability assessment tool for commercial buildings.

We have tried to use non self-declared data where possible to ease the burden on the fund managers and to standardise inputs as much as possible. Examples include access to public transport nodes, EPC ratings, BREEAM certificates and flood risk information.

Having established the factors for which data was to be collected the team developed a series of questions to source information for these factors. The full list of questions can be found in Appendix 1.

These questions are highly likely to change over time as the sophistication and knowledge of sustainability in the real estate industry grows. However, to take this first step, we had to identify data that is collectable now and not too onerous for a fund manager to provide. Ensuring that the correct balance was found between sufficiently detailed questions and practical business application was a major limiting issue and it resulted in the majority of questions being more qualitative than the research team would have liked. This also highlights that one of the key problems the industry is currently facing is the lack of consistent data on the sustainability performance of buildings. Energy Performance Certificates have gone some way in focusing attention on energy performance data but coverage is far from complete. Furthermore there remain complications within the EPC system, for example a property considered a single entity for investment reporting purposes may consist of a range of demises for occupation purposes which can (and often do) have several different EPC ratings.

2.3 Selecting the sustainability criteria

The ISPI coding framework is based on the following criteria:

2.3.1 Building accessibility

Ellison et al, 2007 defined building accessibility as follows:

The building accessibility factor refers to the ease with which a building can be accessed by its main stakeholder groups. These might be customers, clients, workers, local communities, and children for example. The accessibility must therefore be assessed in terms of:

- the variety of transport options available and their appropriateness to the target group
- the security of the available transport options
- the social, environmental and economic impact of accessibility
- the extent to which access is at risk of being compromised by policies to reduced congestion and discourage use of the private car, for example increased fuel costs, congestion charging, increased parking costs and reduced parking provision.

The questions asked within the ISPI (UK) coding framework about building accessibility are therefore:

Building accessibility	Question	Definition
Public transport	How well is this property served by public transport networks for commuting and business travel? Please provide postcode	IPD estimates the access to public transport by automatically and consistently updating the information according to postcode and property type for example. Output is the walking time in distance and minutes to the nearest public transport node.
Cycling storage	Does the building offer adequate cycle storage? Yes / No	Cycling storage must be protected from the rain. Storage must include racks, be lockable, accessible within 100m of the main entrance, belong to the building and offer racks available to 5% of building users.
Cycling facilities	Does the building provide adequate cycling facilities on site? Yes / No	Cycling facilities include showers, changing areas, lockers, drying space and should be consistent with the number of cycle places.
Car parking spaces	Does the building have car parking spaces in the building? Yes / No	No further explanation required.
Number of car parking spaces	How many car parking spaces are there? Leave as 0 if none.	Please provide the actual number of spaces.
Green travel plans	Is there a green travel plan in operation for the building? Yes / No	For example the provision of a shuttle bus to public transport link (but not a park and ride)

The software used to establish the accessibility of of each asset by public transport was sourced from BaseMap (www.basemap.co.uk). Using postcodes, the application calculates walking times and distance to any type of public transport hub, including rail, tube and bus. It can not currently take into account the frequency of the service or that there may be only one method of transport to get to one building, but multiple ways to travel to another. We are hoping to make this software more sophisticated over time to incorporate some of these issues.

2.3.2 Building Quality

Ellison et al, 2007 define building quality as follows:

> *The quality of a building will impact directly on its ability to maintain occupier appeal over time and the cost of refurbishment. A very high specification property may require more frequent and more expensive refits and refurbishment than a lower spec design using high quality materials.*
>
> *Internal specification and external appearance have been identified as the next most important factors in capital value depreciation after adaptability. This implies that these are the elements of a building that will require most frequent up-dating to maintain occupier demand.*
>
> *Over-specification of internal and external finishes may increase refurbishment and redevelopment costs, reducing potential investor return. A more sustainable building will be one that accommodates changing tenant requirements in terms of layout and services cost effectively whilst maintaining the appeal of its exterior appearance.*

There is no standard definition of building quality in the UK, so a proxy was required for the ISPI (UK) coding framework. As the focus is sustainability, we identified buildings with recognised 'green labels', such as BREEAM (or equivalents such as LEED, Green Star, Green Rating) as an indicator of building quality.

The questions asked about building quality are therefore:

Building quality	Question	Definition
BREEAM rating	Current building rating according to BREEAM Rating achieved	None / Pass / Good / Very Good / Excellent / Outstanding
BREEAM date	Date of rating Date	No further explanation required
BREEAM supplier	Name of organisation which undertook assessment Name	No further explanation required
Other 'building quality' rating	Does this property have a green label rating from another organisation? Yes / No – if yes, elaborate	For example LEED, Green Star, Green Rating etc.

2.3.3 Energy efficiency

Ellison et al, 2007 define energy efficiency as follows:

(i) Embodied energy

> *Embodied energy is already spent within the existing building stock, making its impact on a calculation of worth limited. The only clear route of impact would be through increased expenditure on refurbishment or redevelopment of a building. At this point the risk of building costs increasing through the passing on of carbon tax should be allowed for in the cash flow.*
>
> *Whilst it may not be key to the decision itself, transparency will allow a more informed decision to be made, and may improve practice with regards embodied energy efficiency over time. It is difficult to see, however, how this would impact on property worth at present.*

(ii) Operational energy

Buildings high in operational energy consumption are potentially less attractive to tenants and will become even less so as carbon reduction policies develop further. The EU Directive on Energy Efficiency in Buildings requires that from January 2006 commercial buildings over 1000m² have a certificate no more than 10 years old detailing their energy usage. The certificate will have to be clearly displayed in buildings occupied by public sector organisations and will have to be produced for all buildings on completion, sale or letting (Commission of the European Communities, 2002, Ends 2003b).

The impact on property worth will be through potentially slower rental growth and increasing pressure to refurbish to more efficient energy standards. The latter will have an inevitable impact on investment return through increased and earlier capital outlay and revenue loss whilst refurbishment takes place.

Overall it can be argued that energy inefficient buildings are already an increased investment risk yet energy use is not currently reflected in appraisals. The level of risk will increase as carbon reduction targets and policies to achieve them develop further.

With the implementation of the European Energy Performance of Buildings Directive (EPBD) and further new measures to improve the energy performance of our buildings such as the Carbon Reduction Commitment and higher standards required through Building Regulations, the real estate industry is increasingly focusing on energy efficiency. ISPI (UK) has focused on operational energy where many 'easy wins' are to be made.

Using Energy Performance Certificates with a combination of other energy-related questions, the coding framework poses the following questions:

Energy Efficiency	Question	Definition
EPC rating	What is the current asset rating on the Energy Performance Certificate? Rating achieved	None / A+/ A / B / C / D / E / F / G
EPC date	What is the date of certification? Date	No further explanation required
EPC assessor	What is the name of organisation which undertook the assessment? Name	No further explanation required
Energy source	Is more than 5% of energy used provided by renewable technologies (on site or locally produced)? Yes / No	EA3 +EA5 + EA6 + EA7 + EA9 definition of the IPD Environment Code. A green tariff alone is not sufficient.
Ventilation / cooling	What sort of ventilation is available in the building? Natural / aircon / mix of both	If aircon <5% of floor space, answer 'natural'
Construction date	What is the date of original construction of the property, or date of last major refurbishment? Date	All properties constructed in 2006 or more recently meet Part L (conservation of fuel and power) of Building Regulations in England and Wales.

2.3.4 Waste and water

For the property investor waste and water has to be looked at from the perspective of how effective a property is in enabling the occupier to be more efficient with their use of these resources. On the basis that an investor-landlord cannot directly control the waste or water management practices of a tenant and that tenants may well change, the coding framework has to focus on the physical attributes of the asset.

According to Ellison et al (ibid) the provision of facilities for waste management and recycling is increasingly important to retail occupiers affected by the regulation of packaging waste and rising landfill taxes and corporate occupiers with CSR targets.

Targets measuring waste and water use reduction are common features of most CSR policies and corporate environmental statements. Property that supports this type of target and the effective management of packaging through, for example:

- *the provision of recycling facilities such as storage space*
- *a waste management service*
- *simple water reduction measures such as spray taps*

will more effectively comply with the requirements of an increasing number of tenants.

ISPI (UK) separates water and waste into two factors.

For waste, the only question that could currently be answered by landlords and investors was whether adequate equipment or space was provided to the occupiers to support the recycling of waste. Ideally, actual amounts of waste recycled rather than sent to landfill is desirable, but this is simply not known by many investors at the current time (end 2008 / start 2009).

Waste	Question	Definition
Waste recycling	Is there adequate equipment or space to support the recycling of waste (segregation at source)? Yes / No	For offices, adequate means 2m² per 1000m² of floor space, with access for collections. Adequate equipment can make up for some deficiency in space allocation.

For water, the following three questions were asked:

Water	Question	Definition
Water management measures	Is there any water recycling in place (e.g. rain and snow water harvesting, grey water recycling)? Yes / No	EB3 + EB4 definition of the IPD Environment Code
Water management measures	Are there any water efficient fittings in place? Yes / No	EB5 definition of the IPD Environment Code
Water management measures	Is there water metering in place for each unit of the building or the whole building or none at all? Yes – unit Yes – whole No	EB7 definition of the IPD Environment Code.

2.3.5 Flood risk

As the frequency of severe flooding instances has increased in recent years, flood risk has risen up the agenda for asset managers and insurance companies alike. Whilst flood risk has been taken account of for many years, the apparent increasing severity of floods has led the Association of British Insueres to change their policies on insuring properties in areas at risk of flooding. It was therefore felt important to include flood risk as a criteria within the ISPI framework.

The questions that relate to flooding can all be answered by searching on the website of the Environment Agency (or equivalent):

Flooding	Question	Definition
Flooding area	Is the property in an area susceptible to flooding from rivers / sea? Yes / No	Enter building's postcode into website of Environment Agency (England & Wales) or SEPA (Scotland) or Rivers Agency (Northern Ireland) for answer to flooding questions. www.environment-agency.gov.uk www.sepa.org.uk www.riversagencyni.gov.uk
Flooding likelihood	What is the likelihood or probability of a flood happening to the property? Significant (1 in 75), Moderate (less than 1 in 75, but greater than 1 in 200) or Low (1 in 200 or less).	
Flood defences	Is the property in an area benefiting from flood defences? Yes / No / Not applicable	

2.4 Identifying the 'more sustainable' properties

Once the key questions had been constructed, we identified answers and combinations of answers that would define a property as more sustainable than its peers – a weighting schedule. Just as the major 'green labels' such as BREEAM apply different weightings to answers depending on their sector, we also decided to take property sector differentials into account. For example, and using building accessibility as a category, it is perfectly acceptable to walk 10 minutes with a briefcase from an office to a public transport node; but walking 10 minutes with heavy bags from a shopping centre to a public transport node is unacceptable to shoppers. In this example, a five minute walk for retail properties is considered more appropriate.

The full weighting schedule can be found in Appendix 2.

As with the questions, weightings are likely to change over time, also as the sophistication and knowledge of sustainability in the real estate industry grows.

There are two routes via which a property can be identified a 'more sustainable' and included within the index. Properties are automatically included as 'more sustainable' if they have a BREEAM (or equivalent) rating of 'Very Good' or better, awarded within the last five years. This makes 'building quality' the supra-category. The second route to being considered as 'more sustainable' and hence inclusion in ISPI UK is through passing at least four of the remaining five categories of: building accessibility, energy, water, waste and flooding.

Building accessibility – pass if 10 minutes or less walk from a public transport node; OR if cycling storage, cycling facilities and a green travel plan is in place.

Energy efficiency – pass if EPC is rated A, B or C; OR if more than 5% of energy used is sourced from renewable technologies and has an EPC rating of A, B, C, D or E; OR if there is natural ventilation (i.e. no air conditioning) and has an EPC rating of A, B, C, D or E; OR if the building's construction was completed since January 2006 and has an EPC rating of A, B, C, D or E.

Water – pass if the property has water efficient fittings and there is water metering in place; OR if there is water recycling in place.

Waste – pass if waste recycling space and equipment is supplied to the tenant.

Flood risk – pass if the property is not in an area susceptible to flooding from rivers or the sea; OR if the property is in such an area but benefits from flood defences.

For a property to be included in the ISPI (UK) it has to pass at least four of the above five categories.

Weighting schedules are provided (in Appendix 2) for the following sector groups:

- Offices
- Retail warehouses
- Shopping centres, standard shops and supermarkets
- Industrial, office parks, distribution centres

Not all questions currently included within the questionnaire and weighting system can be answered easily by the fund managers. However as industry awareness of sustainability and data collection improves it is anticipated that more information will become available. Incorporating these additional quetions both encourages the development of data sets and allows ISPI to accommodate change.

As the sample size increases and suitable testing can be undertaken, there may be some small refinements made to the weighting schedule. For example, currently a pass in energy efficiency can only be achieved if an EPC rating has been undertaken. Given sufficient other information on energy, perhaps the requirement for an EPC in order for a property to be defined as sustainable may not be necessary.

2.5 Undertake beta testing

IPD collected answers to the coding framework and then followed the rules of the weighting schedule on data collected from four funds for initial beta testing. Data was kindly supplied by:

- Henderson Global Investors
- Schroder Property Investment Management Ltd
- Hermes Real Estate Investment Management Ltd
- Prudential Property Investment Managers

IPD used the methodology to identify the more sustainable properties from a sample of just over 100 properties. This data set was then linked through to the properties' financial data held in the IPD databases and a financial performance index was created. The questions and weighting criteria were refined in light of the results of this beta testing.

3. Enlarging the property sample

This methodology was then applied to almost 1000 properties from 36 separate portfolios in the IPD UK Databank.

From this enlarged sample, data was provided for almost 1,000 properties from 36 different funds in the IPD UK Databank. It was generally found to be easier for the client to provide data on multi-lets where the fund manager has some managerial role, compared with the single let buildings. However, for a number of reasons not all properties were included in the final analysis. This included where crucial information was not provided or to avoid double counting of shared ownership properties. We were left with a total of 778 properties, including a mix of all the major commercial property types, from which we could use the ISPI framework to identify a 'more sustainable' subset.

Segment	No. of Properties
Standard retails	126
Shopping centres	40
Retail warehouses	104
Standard offices	263
Office parks	22
Standard industrials	169
Distribution warehouses	18
Other	36

Out of the 778 properties in the sample, 75 (9.6%) were classified as more sustainable i.e. passing four or more of the five categories or passing the building quality supra-category. This suggests that only 1 in 10 buildings are sustainable today. –a low overall pass rate. Of the 75 that were classified as sustainable, 10 of these passed the building quality category. Of the remaining 65 properties, 12 passed all five of the categories whilst the other 53 passed four out of the five categories. The table below summarises the number of properties passing within each of the main categories:

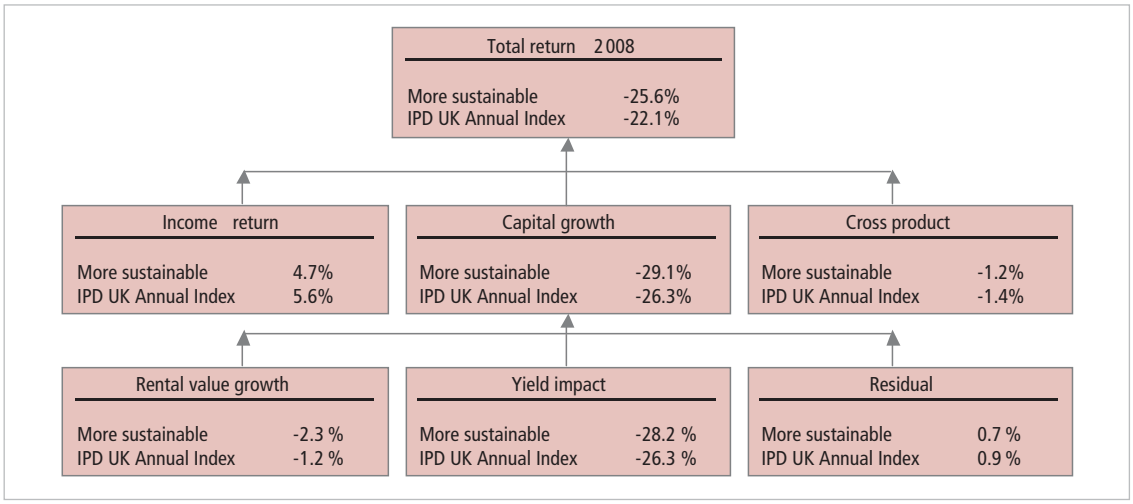
Category	No. passing	% of Total
Building quality	10	1.3%
Building accessibility	757	97.3%
Energy efficiency	89	11.4%
Water	43	5.5%
Waste	219	28.1%
Flooding	651	83.7%

The small sample with BREEAM ratings or other equivalent ratings is due to a lack of data availability. There are approximately 10,000 properties in the UK with BREEAM ratings. Of these only about 1,000 are commercial properties, the others being for example schools, hospitals and other public sector buildings. Only 130 of the 1000 commercial properties with a BREEAM rating are owned by investment institutions and sit in the IPD dataset. Currently there are very few buildings in the UK with LEED or equivalent ratings.

4. Performance differentials

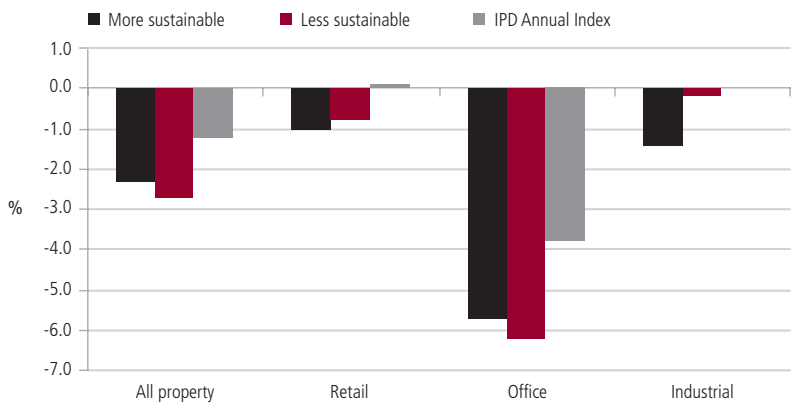
The ISPI (UK) results are based on the IPD UK Annual Index and therefore include monthly, quarterly and annually valued properties. The main measures used to examine the differentials in performance of the more sustainable buildings with the less sustainable buildings are rental value growth and yield impact. **Given that sustainability features have not been priced into the market we should not expect anything we find in the index numbers to be linked to sustainability but instead be linked to other factors that are priced in.** Sustainability is an emergent dimension in property performance so we would not expect to see any relationship with financial performance yet.

The total return in 2008 of the more sustainable properties was -25.6%. If we base the index in December 2007, this takes the index level to 74.4. The total return of the more sustainable properties was weaker than the IPD UK Annual Index total return of -22.1% in 2008. This was mainly due to the larger falls in capital values of the more sustainable properties and a weaker income return. The diagram below shows the components and drivers of the total return:



Rental values fell for both the more sustainable and less sustainable properties in 2008. The results show a shallower fall in rents for more sustainable properties than the less sustainable properties however these falls were considerably steeper than the IPD Annual Index.

Rental value growth, %, 2008



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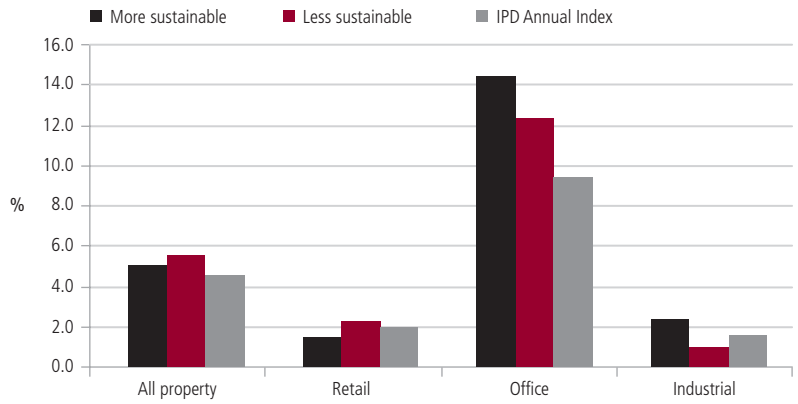
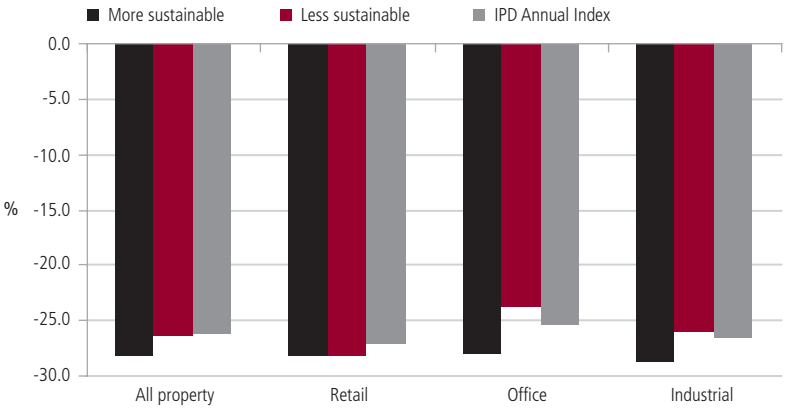
Looking back at 2007, rental value growth of the more sustainable properties was stronger than the all UK property rental value growth in IPD Annual Index. This was true for the office and industrial sectors but not for retail.

Rental value growth, %, 2007



Yield movement also had a negative impact on capital values for both more and less sustainable properties. This was marginally more severe for the more sustainable properties but it is not possible to draw any conclusions from this.

Yield impact, %, 2008



Looking back at 2007 again yield movement had a less negative impact on capital values of the more sustainable properties than all UK property in the IPD Annual Index.

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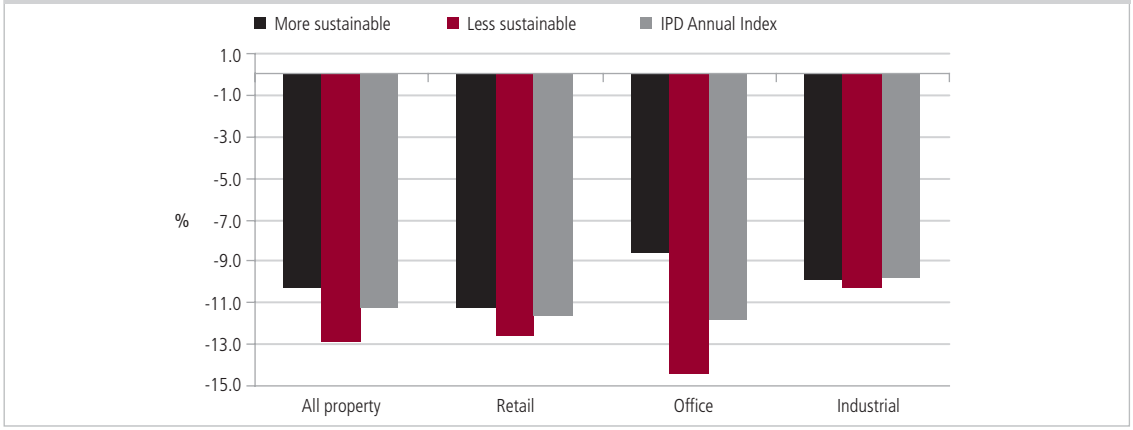
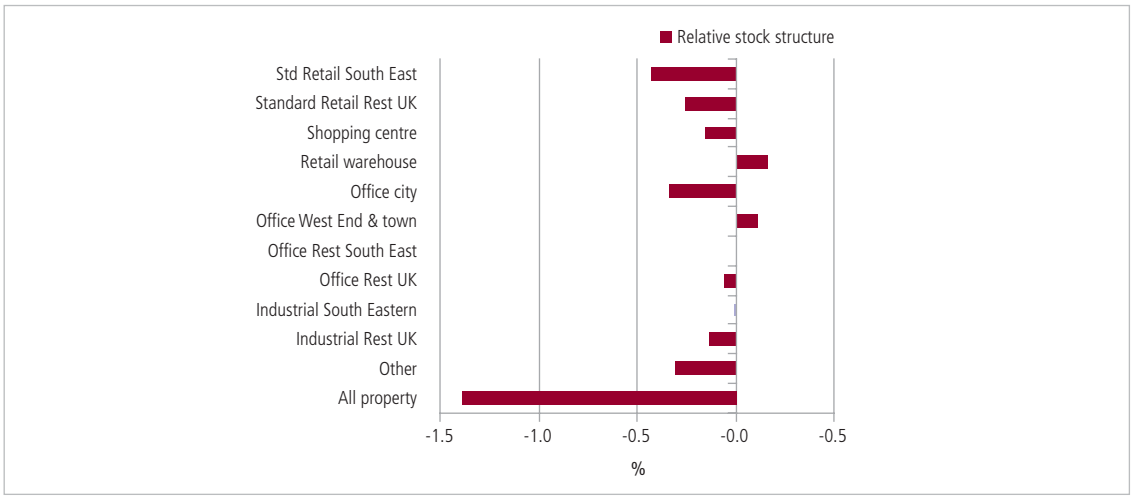
Yield impact, %, 2007



We have said that the sustainable features are not yet priced into the market, so what might be driving the performance figures? A simple structure score analysis gives one of the many explanations for underperformance by the properties in the sustainable sample.



The structure score is calculated by looking at the relative return between the sustainable properties and the IPD Annual Index in each market segment and also the relative weight in segment between the two samples. An above average weighting in a poor performing segment of the market results in a negative structure component. If the sample has a below average weighting in a strong performing sector the structure component will be negative. The sample of sustainable properties was underweight in standard retails which were the top performing segments in the IPD Annual Index in 2008, whilst the sample was overweight in City offices, one of the weakest performing segments in 2008.

At this stage no conclusions with regards the impact of sustainability on investment performance can be drawn from these performance numbers. With sustainability yet to be priced into valuation there should be no relationship between sustainability and investment performance. The sample of 778 properties, of which only 75 were assessed as sustainable, although substantial, is small in comparison with the near 11,500 in the IPD Annual

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Index. The sample itself may be skewed in that it comes from a select number of funds who in some cases have only provided data on specific properties within each fund. This differs from the core IPD measurement services where IPD insist on whole portfolio collection. Looking ahead, we will want to ensure we are collecting comprehensive data on each portfolio.

The performance of the more sustainable properties needs to be monitored over time. We anticipate that issues of sustainability will become a higher priority for investors in the future. As they do increase in importance, information on the issues will become more widely available, and then this may feed through into yield and rents.

5. Conclusions

This research has been about establishing a robust methodology to assess the existence or otherwise of any correlation between sustainability and investment performance of commercial property assets.

Individual fund managers are encouraged to use the methodology and to start measuring the sustainability performance of their real estate portfolios. The basic 20 or so questions that they need to start with have been explicitly set out in the coding framework. Data can be provided to IPD to help increase the sample size of ISPI (UK).

One interesting conclusion drawn from the work was in fact little to do with what the research had set out to discover. The research produced further evidence that, whilst there are notable exceptions, the property investment industry is struggling to assemble environmental data. This may be because the industry is not yet measuring and monitoring the environmental performance of assets sufficiently and indeed, knows relatively little about the sustainability credentials of the real estate it owns and manages; or it may be that it has the information but has not yet assembled it all in one accessible system that manages environmental data. Whatever the reason, the information challenge is much tougher than was originally thought. For example, during the data collection process we discovered several organisations did not know that they owned BREEAM rated properties. Many fund managers were willing to contribute their environmental data to this important piece of research, but relatively few were able to. Considering the context of the sample under analysis–the stock was that of the larger, more committed institutional investors–the situation with respect to the UK stock nationally (which is largely not managed by real estate professionals) is likely to be considerably worse.

ISPI (UK) will monitor the performance of the more sustainable properties, most likely on a quarterly basis. This will substantially add to the improvement of the property investment industry's contribution to the sustainability debate, as it will be the first index of direct property investment performance of more sustainable real estate assets anywhere in the world. As the index develops over time it will become a valuable tool for the property industry to use in responding to climate change.

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APPENDIX 1: THE CODING FRAMEWORK

Address information to identify property					
Code	**Data required**	**Definition**	**Notes**	**Who to provide**	**Data format**
A5	Property reference number	Client's unique property reference number	As provided to IPD's Portfolio Analysis Service	Client	Alphanumeric Max 10 characters
P1	IPD property reference number	IPD property reference number, if known	n/a	IPD	Numeric - 8 characters
A2	Primary addressable object	e.g. 30 High Street	As provided to IPD's Portfolio Analysis Service	Client	Text delimited by " " Max 60 characters
A3	Secondary addressable object	e.g. Swan House		Client	Text delimited by " " Max 60 characters
A4	Town	e.g. Brighton		Client	Text delimited by " " Max 60 characters
	Post code	Postcode		Client	Text delimited by " " Max 8 characters
P9	Property sector	sub sector of property	n/a	IPD	Text delimited by " " Max 60 characters

Building quality					
Code	**Data required**	**Definition**	**Notes**	**Who to provide**	**Data format**
BQL1	BREEAM rating, if undertaken	Current building rating according to BREEAM	None / Pass / Good / Very Good / Excellent / Outstanding	Client	Text delimited by " " Max 10 characters
BQL2	BREEAM date, if undertaken	Date of qualification	n/a	Client	YYYY
BQL3	BREEAM supplier, if undertaken	Name of organisation which undertook assessment	n/a	Client	Text delimited by " " Max 60 characters
BQL4	Other 'building quality' rating	Does this property have a rating from another organisation?	For example LEED, Green Star, Green Rating	Client	Y N

1: Building accessibility					
Code	**Data required**	**Definition**	**Notes**	**Who to provide**	**Data format**
BAC1	How well is this property served by public transport networks for commuting and business travel?	Automatically updated by IPD according to postcode, property type etc.	IPD uses its 'access to public transport estimator' to automatically update the information on a consistent basis.	IPD	Numeric – four characters
BAC2	Cycling storage	Does the building offer adequate cycle storage?	Cycling storage must be protected from the rain, with racks, lockable, accessible within 100m of the main entrance, belong to the building and offer racks for at least 5% of building users.	Client	Y N

BAC3	Cycling facilities	Does the building provide adequate cycling facilities on site?	Cycling facilities include showers, changing areas, lockers, drying space and should be consistent with the number of cycle places.	Client	Y N
BAC4a	Car parking spaces	Does the building have car parking spaces in the building?	Please answer yes / no. If yes, please answer BAC4b	Client	Y N
BAC4b	Number of car parking spaces	How many car parking spaces are there?	Please provide the actual number of spaces. Leave as 0 if none.	Client	Numeric – 4 characters
BAC5	Green travel plans	Is there a green travel plan in operation for the building?	For example the provision of a shuttle bus to public transport link (but not a park & ride)	Client	Y N

2: Energy Efficiency					
Code	**Data required**	**Definition**	**Notes**	**Who to provide**	**Data format**
NRG1	EPC rating, if undertaken	Current asset rating on the Energy Performance Certificate.	None / A+/ A / B / C / D / E / F / G	Client	Text delimited by " " Max 4 characters
NRG2	EPC date, if undertaken	Date of certification	n/a	Client	YYYY
NRG3	EPC assessor, if undertaken	Name of organisation which undertook the assessment	n/a	Client	Text delimited by " " Max 60 characters
NRG4	Energy source	Is more than 5% of energy used provided by renewable technologies (on site or locally produced)?	EA3 +EA5 + EA6 + EA7 + EA9 definition of the Environment Code. A green tariff alone is not sufficient.	Client	Y N
NRG5	Ventilation / cooling	What sort of ventilation is available in the building?	Natural / aircon / mix of both. If aircon <5% of floor space, answer "natural"	Client	Text delimited by " " Max 20 characters Natural aircon mix of both
NRG6	Construction date	date of original construction of the property, or date of last major refurbishment.	All properties of 2006 or younger meet Part L (conservation of fuel and power) of Building Regulations in England and Wales	IPD	Numeric – four characters

3: Flooding					
Code	**Data required**	**Definition**	**Notes**	**Who to provide**	**Data format**
FLD1a	Is the property in an area susceptible to flooding from rivers / sea?	Answer yes / no	Enter building's postcode into website of Environment Agency (England & Wales) or SEPA (Scotland) or Rivers Agency (Northern Ireland) for answer to flooding questions. www.environment-agency.gov.uk www.sepa.org.uk www.riversagencyni.gov.uk	Client	Y N
FLD1b	If FLD1a = yes, please specify the likelihood or probability of a flood happening to the property?	Answer significant (1 in 75), moderate (less than 1 in 75, but greater than 1 in 200) or low (1 in 200 or less).		Client	Text delimited by " " Max 20 characters Significant / moderate / less
FLD2	Is the property in an area benefiting from flood defences?	Answer yes / no / not applicable. Not applicable allowed only if FLD1a = no		Client	Y N NA

4: Waste					
Code	**Data required**	**Definition**	**Notes**	**Who to provide**	**Data format**
WST1	Waste recycling	Is there adequate equipment or space to support the recycling of waste (segregation at source)?	For offices, adequate means 2 sqm per 1000 sqm of floor space, with access for collections. Adequate equipment can make up for some deficiency in space allocation.	Client	Y N

5: Water					
Code	**Data required**	**Definition**	**Notes**	**Who to provide**	**Data format**
WAT1	Water management measures	Is there any water recycling in place (e.g. rain and snow water harvesting, grey water recycling)?	EB3 + EB4 definition of the Environment Code	Client	Y N
WAT2	Water management measures	Are there any water efficient fittings in place?	EB5 definition of the Environment Code	Client	Y N
WAT3	Water management measures	Is there water metering in place for each unit of the building or the whole building or none at all?	EB7 definition of the Environment Code. Answer: Yes – Unit / Yes – Whole / No	Client	Yes – Unit Yes – Whole No

Once answers to the questions in appendix 1 have been collected, they need to be subjected to the weighting process to identify whether a property passes each category. If it passes building quality, it is considered more sustainable and therefore included in the ISPI Index. If it passes four of the five remaining (and numbered) categories, it is also considered more sustainable and therefore included in the ISPI Index.

Building quality		All offices				Retail warehouses				Shopping centres and standard shops and supermarkets				Industrial, office parks, distribution centres etc.			
Code	Data required	in index if				in index if				in index if				in index if			
		either	or	or	or	either	or	or	or	either	or	Or	or	either	or	or	or
BQL1	BREEAM rating, if undertaken	>good				>good				>good				>good			
BQL2	BREEAM date, if undertaken																
BQL3	BREEAM supplier, if undertaken																
BQL4	Other 'building quality' rating		rated to equivalent of BREEAM vg or above				rated to equivalent of BREEAM vg or above				rated to equivalent of BREEAM vg or above				rated to equivalent of BREEAM vg or above		

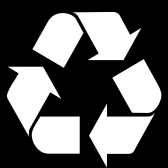
1: Building accessibility		sustainable in category if				sustainable in category if				sustainable in category if				sustainable in category if			
Code	Data required	either	or	or	or	either	or	or	or	either	or	or	or	either	or	or	or
BAC1	How well is this property served by public transport networks for commuting and business travel?	<11 mins				< 6 mins				< 6 mins				<11 mins			
BAC2	Cycling storage		ü				ü				ü				ü		
BAC3	Cycling facilities		ü				ü				ü				ü		
BAC4a	Car parking spaces																
BAC4b	Number of car parking spaces																
BAC5	Green travel plans		ü				ü				ü				ü		

2: Energy Efficiency		sustainable in category if				sustainable in category if				sustainable in category if				sustainable in category if			
Code	Data required	either	or	or	or	either	or	or	or	either	or	or	or	either	or	or	or
NRG1	EPC rating, if undertaken	Better than D (i.e. A, B or C)	Better than F	Bette r than F	Bett er than F	Better than D (i.e. A, B or C)	Better than F	Bett er than F	Bett er than F	Better than D (i.e. A, B or C)	Better than F	Bett er than F	Bett er than F	Better than E (i.e. A, B,C or D)	Better than F	Bett er than F	Bett er than F
NRG2	EPC date, if undertaken																
NRG3	EPC assessor, if undertaken																
NRG4	Energy source		ü				ü				ü				ü		
NRG5	Ventilation / cooling			natur al				natu ral				natu ral				natu ral	
NRG6	Construction date				>20 05				>20 05				>20 05				>20 05

3: Flooding		sustainable in category if				sustainable in category if				sustainable in category if				sustainable in category if			
Code	Data required	either	or	or	or	either	or	or	or	either	or	or	or	either	or	or	or
FLD1a	Is the property in an area susceptible to flooding from rivers / sea?	No				No				No				No			
FLD1b	If FLD1a = yes, please specify the likelihood or probability of a flood happening to the property? LOW is pass		ü				ü				ü				ü		
FLD2	Is the property in an area benefiting from flood defences? Yes = pass		ü				ü				ü				ü		

4: Waste		sustainable in category if				sustainable in category if				sustainable in category if				sustainable in category if			
Code	Data required	either	or	or	or	either	or	or	or	either	or	or	or	either	or	or	or
WST1	Waste recycling	ü				ü				ü				ü			

5: Water		sustainable in category if				sustainable in category if				sustainable in category if				sustainable in category if			
Code	Data required	either	or	or	or	either	or	or	or	either	or	or	or	either	or	or	or
WAT1	Water management measures		ü				ü				ü				ü		
WAT2	Water management measures	ü				ü				ü				ü			
WAT3	Water management measures	ü				ü				ü				ü			



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