

## Flooding and commercial property investment – what is the risk?

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### Abstract

The UK experienced widespread and disastrous flood events in 2007 and 2010, and the future incidence of flooding is predicted to increase. Understandably much media attention and research has focused on the impacts on people, their homes and jobs, and the future implications for flood risk insurance that has been a feature of the UK market.

Research on flood risk and property undertaken at the College of Estate Management in 2006 found very little literature covering the effect of flooding on commercial property and the risks to property investment. Property is an important diversification asset in investment portfolios that underpins pensions, insurance and savings plans. Investors surveyed reported undertaking flood risk assessments in conjunction with property acquisitions, but none reviewed the flood risk status of property held in their portfolio, although they monitored other aspects of building performance. This is now changing and the IPD sustainable property index has introduced flood risk monitoring.

This paper is based on research in 2010-2011 that examines the process of due diligence for flood risk adopted by commercial property investors to identify risks, inform purchase decisions and devise subsequent actions geared to mitigating and managing flood risk. Case studies illustrate the process, derived from interviews with major investment funds, their professional advisers and other stakeholder representatives, including environmental consultants, valuers, solicitors, lenders and the insurance industry. The paper explores the challenges to investment decision making and property valuation, given continuing uncertainties associated with flood risk predictions.

The case is made for further research to establish the extent of UK investment property potentially at risk from flooding, the degree of risk to which it is exposed and to inform the way in which the risk is translated into valuation. Property represents about 4% of total investment assets under management in the UK (and 2.8% in the institutional market), but is significant in absolute terms given a market value estimated by IMA at £4.4trn. About 20% by value is in central London, known to be one of the most at risk cities globally for flooding – but there is otherwise no clear picture of where and how much commercial investment property could be at risk. This paper makes the case for finding out.

## Introduction

Research into flood risk and commercial property investment undertaken in 2010-11 (Pottinger and Tanton, 2011) stems from an earlier study in 2006 (Kenny et al 2006), which included survey responses from property investors about their attitude and approach to flood risk when making investment decisions. The 2006 survey found that while most investor respondents undertook flood risk assessments when acquiring property, none of those subsequently interviewed conducted periodic reviews of the flood status of property in their portfolios. This suggested they could go unaware of changes in risk level due to climate change generally or as the result of new development up or down stream altering the dynamics of a river or flood plain.

By 2006 very little had been written about the effect of flooding on commercial property or the risk to property investments. The research identified one paper produced for USS (Universities Superannuation Scheme) specifically targeted at institutional investors detailing recommended actions for the management of directly held property to address climate change risks, including flooding (Mansley and Dlugolecki, 2001).

In 2007, widespread and damaging floods in the UK affected 8,000 businesses, generating 35,000 insurance claims averaging between £75,000 and £112,000. There were some high profile examples including Vodafone's new state of the art headquarters in Berkshire that had to undergo major refurbishment and extensive remodelling of the flood defences (Heap 2007). In Sheffield, the Meadow Hall Shopping Centre was closed for a week and 58 of the 95 shops damaged were still closed three months later. The flooding occurred just as Property Company British Land was planning to sell a 75% stake in its £1.7bn investment. A 50% stake was eventually sold in February 2009, based on a reduced valuation of £1.4bn (Likus, 2009) largely brought about by the economic downturn.

Given the evidence of the damaging and disruptive impact of floods in 2007 and the indication from the 2006 research that flood risk was increasing but not routinely monitored by commercial property investors, the second stage research was designed to investigate the extent of due diligence for flood risk undertaken by institutional funds when investing in direct property. This group of investors was chosen because:

- They have to be accountable to thousands of small investors with money in pensions, insurance and savings plans that are dependent on major institutions making wise investment decisions on their behalf.
- Although the proportion of total funds invested in UK direct property is relatively small, the amount is large in absolute terms and property represents an important diversification asset in investment portfolios.
- Large funds that are subject to corporate governance and tightening regulation might be expected to be at the forefront of addressing flood risk, which could translate into best practice guidance to inform property owners, occupiers and investors more widely.

## Research method and aim

The 2011 research set out to explore whether institutional investors are taking flood risk more seriously following recent major flood events and with the introduction of the Flood and Water Management Act 2010. It examines the process of due diligence for flood risk, the extent to which it is used by institutional funds when acquiring commercial property investments and its relationship to funds corporate governance. This involved an extensive literature review and structured interviews with 20 senior professionals and managers representing major funds, lenders, environmental consultants, solicitors, valuers and the insurance industry. Case studies developed from the interviews illustrate strategies for investigating, understanding and mitigating flood risk and show how the due diligence process is extending beyond the initial pre-acquisition decisions into managing the life-cycle of property investments. The aim was to inform the investment community, its advisers and other stakeholders, including industry associations and policy makers.

This study was made possible through funding to the College of Estate Management by Marsh UK, specialists in insurance broking and risk management. The researchers were allowed complete discretion and independence in undertaking the study and the sponsors commended the report produced at the end of the project, although they played no part in guiding the research (Pottinger and Tanton 2011).

## This paper

This paper takes as its start point conclusions from the 2011 research, which identified three areas that would benefit from further investigation:

- the amount and value of commercial investment property in flood risk areas, and the degree and nature of the flood risk to which it is exposed;
- the extent to which building owners are monitoring risk levels and implementing mitigation and adaptation measures for flood risk;
- the way in which valuers understand flood risk information and translate it into valuation advice to clients.

The paper reviews the research findings that point to these conclusions and incorporates references to more recent developments since the research was completed. In the following four sections the paper discusses:

- the nature of flood risk to property investment, looking at how the risk is defined and evidence for the risk to property in the UK;
- fund management, flood risk and due diligence, examining the definition and purpose of due diligence and the way it is driven by regulatory, governance and market factors;
- how flood risk due diligence is undertaken in practice, based on the research interviews;
- how flood risk affects investment decisions, including case studies and observations on the way that flood risk is reflected in investment valuations.

Finally the conclusions lend support to the case for greater transparency in the way that flood risk information is taken into account in the investment process and argues for taking forward the research to expand understanding of approaches to dealing with flood risk that can underpin sound property investment decisions.

## The nature of flood risk to property investment

A good investment is defined as 'one which produces high returns' deriving from two sources: income and capital (Baum and Crosby 2008: 32). Risk arises from uncertainty about the expected rate of return on an investment and risky investments are less valuable. In 2010 UK property funds moved a weight of money into direct property investment, given the very low yield on cash (CFP 2010) and the Investment Management Association estimated that property represented about 4% or £157bn of assets managed in the UK (IMA 2011).

Flooding has characteristics of a locational risk, although it should not only be associated with proximity to rivers or the sea, given the increasing threat of localised flooding due to extreme rainfall events causing surface water run-off, overwhelming drainage systems and reservoirs (Association of British Insurers (ABI) 2009a). It is a 'semi-systematic' risk, meaning it can be both generic to property as an asset and specific and unique to single assets (Baum and Crosby 2008: 39). To some extent it can be diversified away in portfolio management by balancing the types of property and regions in which investments are made. The IPF asserts that any portfolio can 'be expected to experience random one-off events that significantly impact returns' in any one year (IPF 2011: 13) and 'the risk of flooding may only be present in the monsoon season while the risk of fire is ever present' (p9). However, following insurance industry reports of a £3bn pay-out for the cost of the 2007 floods, an Environment Agency spokesman commented 'Businesses are more likely to flood than to burn down' (Estates Review 2009). The advent of more variable weather patterns in the UK means that flooding is predicted to become more prevalent, making it both harder and more important to understand the risk of when, where and how frequently flooding might occur.

The most severe effects of increased flood risk in the UK are predicted to be in southern areas and in particular cities, including Southampton, London, Bristol, Cardiff and Cambridge (Austin et al. 2008). Geographically, commercial property investment is also concentrated in London and southeast England (IPF 2007), particularly in central London where offices represented a share of around 20% in 2009 (Property Data Report 2010). London has been identified as one of the most at risk cities globally for flood hazard, associated with the high level of economic activity coupled with high asset worth (EA 2009; ABI 2009b). As a class of property, retail warehouses are particularly identified as being in locations at risk of flooding, but according to Woollam (2010) long lease lengths and the limited supply of 'safer' alternatives might be expected to reduce any negative impact on value.

While the potential for flood risk to institutional investment property can be generalised from published facts and figures for the UK market, data on the relationship between actual assets, their value and areas at risk is not currently readily accessible. This looks set to change for clients of IPD, which has included flood risk questions as part of its new sustainability monitoring service (IPD 2012a) designed to enable analysis of environmental variables and their effect on investment performance at asset and portfolio level because:

*'To fulfil their fiduciary responsibilities, investors have to understand these impacts and the extent to which their investments and funds are at hazard as a result, in both absolute terms and relative to their peers.'* (IPD 2012b)

## Fund management, flood risk and due diligence

At the strategic fund management level, risk of flooding is just one of the potential direct impacts on property associated with an anticipated increase in extreme weather events. Others include droughts, subsidence and heat wave stress. In portfolio management, climate change impacts need to be considered collectively, reflecting the asset profile and risk attitude of the investor and its tenants, because each fund profile is unique (Acclimatise 2009).

Institutional investors are seen as uniquely placed to address climate change risks, because of their size and the 'universal' nature of their investments. Investors in direct property face immediate exposure to climate change risks and potentially have most direct control through adopting risk management and mitigation strategies, including engagement with tenants and occupiers (Mansley and Dlugolecki 2001). Guidance to institutions in recent years emphasises their important role in determining fund policy toward climate change risks and in communicating their attitude to fund managers and advisers (for example, Cogan 2004; Mercer Investment Consulting 2005; IIGCC 2008; IIGCC 2010). This is crucial to how these risks are investigated, analysed and addressed through the process of due diligence as each new investment property acquisition is contemplated.

Given that most investments are traded in a climate of uncertainty, investors seek to reduce uncertainty through market research to secure useful information that can aid decisions and enable them to make good, less risky investments (Baum and Crosby 2008). Having identified a potential acquisition, institutional fund managers employ due diligence, a systematic process for investigating the physical, financial, environmental and legal characteristics of a specific property (RICS 2010a). The purpose is to identify risks associated with the nature of the property, reduce uncertainties related to its value, inform the purchase decision and any subsequent actions geared to mitigating or managing the identified risks (PwC, 2010).

In the UK regulation is an important driver of due diligence by institutions. In managing pension funds, trustees are responsible for ensuring proper due diligence is conducted within their fund managers' competence (Pensions Regulator 2010). Institutions and firms managing assets on their behalf are also expected to comply with the UK Stewardship Code 2010, alongside the UK Governance Code (FRC 2010a; FRC 2010b). Principle 4 explains when and where interventions should be made to protect and enhance shareholder value, including concerns about environmental and social risks (FRC 2010c). The Code aims to promote disclosure and increase the transparency of institutional investors' actions, in the words of Baroness Hogg to 'create a stronger link between governance and the investment process' (Hawser 2010).

According to research by Roulac (2010) more resources are devoted to due diligence in a difficult market rather than under more optimistic conditions. Since the economic downturn UK environmental advisers have experienced a boom in due diligence work driven by stricter regulation, mounting pressure for transparency and accountability, increased awareness of environmental risks and greater sensitivity to their impact on corporate reputation (Bell 2010). This situation was reflected by a UK investment surveyor interviewed for the flood risk research who said:

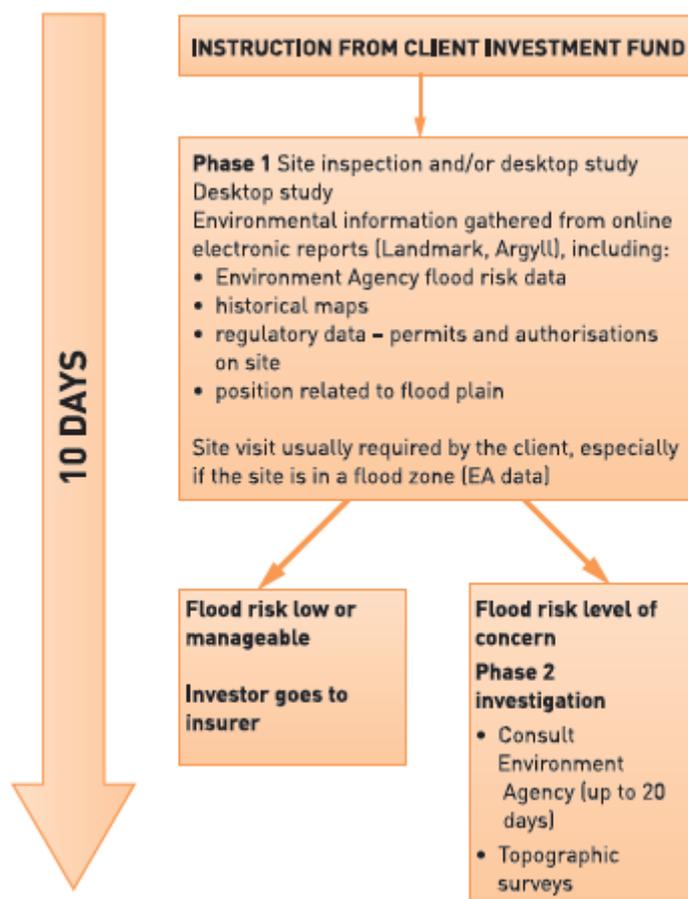
*'... in a strong market the level of due diligence tends to be a lot lower, people are rushed to do deals before somebody else jumps in and does it under your nose. So there tended to be a lot less due diligence back in 2005/6 and 7. Whereas now it is almost an overreaction in that*

*everything is being checked and certainly the flooding side of things is being checked a lot more than would have been done. And any property that does have any warts or issues or problems, the transactions are tending to stall because the market is a lot more sensitive to anything that comes up negative.’ (Pottinger and Tanton 2011: 26)*

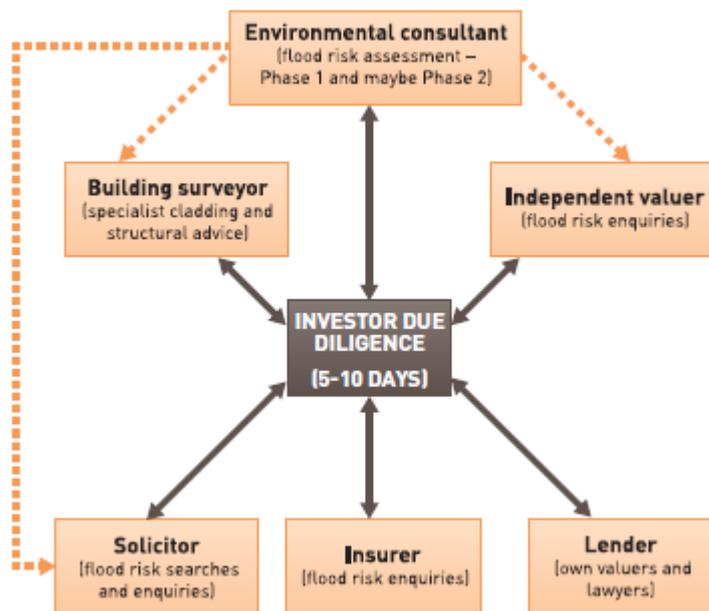
### How flood risk due diligence is conducted

Interviews for the research explored how flood risk due diligence is conducted by investment funds working with their environmental consultants, lenders, valuers and solicitors. The process is briefly summarised here as the basis for examining how information feeds through into the investment decision. The relationship between the investor and advisers is illustrated in Figure 1 and the environmental consultant process for investigating flood risk is shown in Figure 2.

**Figure 1 Environmental consultant process for flood risk due diligence**



(Source: Pottinger and Tanton 2011: 72)

**Figure 2 Due diligence for flood risk - dynamics**

(Source: Pottinger and Tanton 2011: 76)

In large funds the due diligence process starts once an asset manager has agreed heads of terms for a property acquisition and is normally co-ordinated by one person, who first commissions an environmental report, including the flood risk status of the property, and specialist building surveys. The environmental consultant makes first stage investigations, usually involving a desktop study and often a site visit, and if this indicates a level of risk of concern to the investor, second stage investigations include greater in depth enquiries of the Environment Agency (EA). If a lender is involved, possibly in cases involving development, the bank will normally make its own flood risk enquiries and use its own lawyers and valuers, but may also receive a copy of the borrower's environmental report.

Valuers, whether acting for the investor or a lender, will also make their own flood risk enquiries, although the independent valuer commissioned to make a final check on value prior to completion of the purchase will usually receive a copy of all the survey information gathered by the investor, to make sure they are working from the same information base. The solicitors, undertaking legal due diligence will also undertake environmental searches in parallel with the 'operational' due diligence being handled by environmental consultants and surveyors. Finally solicitors review all of the legal and survey information to identify the impact of any constraints or risks on the transaction and advise on how they may be addressed through contacts, including the relationship between freeholder and leaseholder liabilities for managing residual risks.

It is a feature of the process that, for reasons of speed and professional liability to the client, each adviser makes their own enquiries on flood risk in parallel, based on searches of Environment Agency data using a commercial search provider such as Argyll and SearchFlow, rather than working from the same set of information from the start. The whole due diligence process usually takes 5-10

working days between agreeing heads of terms through to clearing surveys. Investors usually require a high level of confidentiality and in a competitive market time pressure is intense. Gathering all the information ideally required by the deadline for completing the transaction can therefore be difficult, especially if second stage flood risk enquiries are needed when the EA can take a statutory maximum 20 days to respond. Where a property meets the funds criteria in all other respects, the investor may therefore be called on to make a judgement on whether to proceed with the purchase based on imperfect information about flood risk or lose out to a competitor.

### How flood risk affects investment decisions

The research found that there is greater awareness of flood risk amongst institutional investors, following high profile events in recent years. However, unless a property is obviously close to a river or on a flood plain, many still tend to view flooding as a risk with low probability of occurring that must nevertheless be investigated (Pottinger and Tanton 2011).

Environmental consultants reported that improvements in flood risk modelling were needed and being developed, which should in future enable them to advise more accurately on potential flood depths, hydraulic pressure and the effects of surface water run-off. However, it appeared to them that these issues are less well understood by their investment clients. It is still not common for investors to review the flood risk status of property post acquisition unless a flood event occurs. One interviewee suggested this was because 'it's not a variable you would expect to change' and if 'in your experience there has never been a flood you wouldn't ask the question because you wouldn't want to know the answer' (Pottinger and Tanton 2011: 87).

Case studies developed from the research interviews, summarised in Table 1, illustrate the following key points:

- The primary consideration for the investor is whether flooding is likely to affect the occupier's business, because if trading is interrupted that can adversely affect occupier demand for the property, income flow and the value of the investment.
- Flood risk will not automatically lead to an investment transaction being aborted if the risk can be mitigated or managed to reduce it to a level where an occupier, although inconvenienced, can remain trading.
- Accurate information about the risk of flooding is key to making good decisions and investigations may need to go beyond preliminary standard searches that cover flood risk in a locality to more detailed investigation by an environmental consultant to establish more clearly the risk at the property level.
- For large shopping centres a perimeter approach to flood defences is probably the right choice where possible, rather than property level flood resilience or resistance.

**Table 1 Case studies of flood risk and commercial property investments**

<b>Case Study</b>	<b>The investment and flood risk</b>	<b>Investor's decision / outcome</b>
<b>1 Supermarket purchase</b>	Investigations showed that the car parking was at risk of flooding and at quite a high frequency all the access roads would be cut off.	The purchase was aborted because a retail tenant was likely to be dissatisfied with the site, its income generating potential would be severely disrupted and there would be a serious impact on investment value.
<b>2. Supermarket sale</b>	This supermarket was in an area that had been subject to severe flooding, but had not itself flooded, all the access roads remained open and the store traded really well during the floods because it was one of the few open for trading.	The vendor commissioned more detailed investigations to prove to the purchaser that the risk to this property was low and the sale went ahead.
<b>3. Office investment purchase</b>	The ground floor and basement at risk of flooding contained vulnerable plant and equipment, and was used for car parking. In the event of flooding the site would still have just under half of its parking useable, the access roads would be open and the offices could still function.	As part of major refurbishment the plant and equipment was moved to roof level. The office user would be inconvenienced in a flood, but could still operate so the risk was considered manageable and the purchase proceeded.
<b>4. Block of high shops in outer London , long held by investor</b>	The investor was alerted to a potential flood risk problem because planning permission for additional development at the site was turned down, although the site had not been known to flood in 35 years.	Lowering the risk requires off-site defences and on-site adaptation is not viewed as an option. There was no evidence of tenant concern about flood risk and the property was still held as an investment.
<b>5. Management of existing shopping centre investment</b>	A shopping centre built some years ago is at risk of flooding to malls and the basement because some of the malls dip down and a culvert runs under the centre.	Flood risk is addressed through business continuity planning and depends on management staff taking steps to combat flood water, including deploying sandbags. This is not ideal.

The research indicated that by 2011 the threat to reduced insurance availability due to flood risk, becoming of increasing concern in the residential and small business market, had not so far become a main concern for institutional property investors. From 2013 the 'Statement of Principles' agreed between the UK insurance industry and government, to continue flood risk cover for home owners and small businesses in high risk areas, comes to an end and will not be renewed. A trend for flood insurance premiums to rise to reflect properties' true risk profile that has already started will then accelerate (Highmore 2012). While large commercial property owners fall outside the 'Statement', the basis of flood risk insurance through block policies also looks set for renegotiation to more accurately reflect the assessed risks. While insurers had opened discussions with commercial property clients about the theory of measures to manage flood risk it was not clear if this would be done through exclusions or a special pool. Insurers and brokers were certainly encouraging clients to implement risk assessment, risk management and business continuity planning to actively reduce

risk exposure, protect assets and reduce the cost of their insurance (for example, Marsh 2011; JLT 2011a; JLT 2011b).

More recently, Oliver and Hayne (2012) warn against an over reliance on insurance, advising commercial property lenders to review their existing due diligence requirements and standing instructions to valuers and lawyers to establish whether the risk of flooding is adequately covered, and to tighten up on loan clauses covering their position in the event that insurance ceases to be available on standard terms. A lender that fails to do so could find the security worth is significantly reduced, that the property is hard to sell and that they may have no recourse in negligence against their valuer or lawyer. A similar fate could fall on investors.

Valuers therefore face an increasingly demanding situation in addressing the effect of flood risk on the value of commercial property. Those whose clients subscribe to IPD will certainly be subject to additional requirements to cover environmental matters in their reporting because:

*'To understand properly and manage the risks they face, investors need this information at asset level and this is one of the reasons why valuers are coming under increasing pressure to reflect the relevance of environmental characteristics of buildings in their valuations.'* (IPD 2012b:1)

Valuers must have regard to RICS guidance on environmental issues (RICS 2010b) and RICS valuation standards contained in the Red Book (RICS 2011), both under review in 2012. This is at a time when property has come under intense scrutiny for its pivotal role in the banking crisis. Valuers therefore have plenty to think about, highlighted by Crosby and Hughes (2011) who, in the face of apparent regulatory indifference in the UK, argue the benefits of moving to investment value (IV) as the basis for secured bank lending on commercial investment property, as providing a rational approach to modelling an uncertain future.

Investors normally use investment value to inform investment decisions (Baum et al 2000) and conveying an elevated form of risk would usually be done through increasing the required investment yield and / or reducing the rent payable based on market evidence. In the case of flood risk, valuers interviewed for the research had not identified any market evidence for yield or rent adjustments, but acknowledged that this might conceivably start to happen in future. Any concerns about flood risk would be expressed in the valuation report, as a valuer explained 'Where we think there is a material issue, then that will be transposed through the valuation commentary ... on how that risk may be considered by the market at large' (Pottinger and Tanton 2011: 86). This valuer also reported a perception that investors' sentiment toward flood risk had shown a change in recent years:

*'We have recently valued a property ... where we know that there is a recorded flood risk. It was openly marketed and received very strong bidding. ... I think it was because clearly investors got comfortable with the fact that the risk was a manageable one ... the property obviously had other very strong credentials and ... those won the day in the market place ... Now that thought process, I am pretty sure, would not have happened in the same way five years ago. I suspect that ... the level of information they would have had available to them would have been less.'* (Pottinger and Tanton 2011: 86).

## Conclusions

In the economic downturn many thousands of small investors have had returns to their pensions and savings badly affected through poor decision making by banks and major institutions, and property has been at the heart of it. It somehow seems especially perverse that in 2007 the start of the worst financial crisis since the 1930s should have coincided with the worst floods in England since 1947, and be followed by further serious flooding in 2010.

This paper shows how major investment funds are paying greater attention to flood risk due diligence when making property acquisitions. However, in many ways it would appear to be the effect of the downturn, and consequent tightening regulation, as much as the major flood events that have driven them to what might be regarded as more 'responsible' action and decision making. Certainly in a slower transaction market there is more time for fuller investigation and consideration of the risks. The challenge will be for quality improvements in flood risk due diligence developed in the downturn to be carried forward into a more active property market.

Nevertheless, it would also appear that a potential change in flood risk level to those properties long held in investment portfolios could still go undetected, due to a mistaken assumption that the degree of risk is unlikely to change and a reluctance to expose a problem that is otherwise safely under wraps. This is why, the paper argues, the value, location and flood risk exposure to property investment assets held by funds requires further investigation: to stimulate good investment decisions; to encourage implementation of measures that improve flood resilience; and to facilitate a planned response to flood events that can limit adverse impacts on earnings and reputation.

Moves by IPD represent a step forward by including flood risk status, gathered during periodic portfolio revaluations, within its new sustainability index and will provide subscribing investment funds and their valuers with more information about the fund's performance in absolute terms and relative to its peers. But by definition information provided commercial in confidence is not fully transparent, not to the pension or savings customer nor to the wider property market and professional advisers.

Valuers face particular pressure to understand and reflect the effect of flood risk in their valuation advice to investors, lenders and occupiers. They are reliant on market evidence of changes in investor and occupier sentiment toward flood risk leading to yield and /or rent adjustments and an identifiable effect on market value. The stage looks set for significant change in the next few years, particularly driven by the insurance industry being unable to maintain the standard of cover for flooding that has been viewed as a norm in the UK property sector. A potential differentiation in lending policies toward properties with high or low flood risk has as yet unknown consequences for market values and loan to value ratios.

Good information is essential to market adaption and good valuation, and it is in the arena of knowledge transfer that independent research can contribute. Overall, the greatest risk to investment property from flooding stems from investors and their advisers not doing enough to both fully expand their understanding of the problem and then devising solutions.

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