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Title

The Perception and Management of Risk in UK Office Property Development

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Running title

An investigation into the risk perceptions of UK property developers before and during specific office development projects; and their reliance upon a range of risk management techniques in connection with those projects.

Key Words

Risk, Risk management, Property development, Offices, Property company

Title

The Perception and Management of Risk in UK Office

Property Development

Abstract

Risk is an ever-present aspect of business, and risk taking is necessary for profit and economic progress. Speculative property development is popularly perceived as a 'risky business' yet, like other entrepreneurs, developers have opportunities to manage the risks they face; techniques include phasing and joint ventures. The associated areas of investment portfolio risk, development risk analysis and construction risk management have all been addressed by research. This paper presents new knowledge about how developers perceive risks and the means they subsequently adopt to manage them.

The developers of office projects across the United Kingdom were sent questionnaires by post. Respondents were asked about their perceptions of risks at the first appraisal stage and currently and about the risk management techniques they had adopted. In-depth interviews with a selection of respondents were then used to discuss and augment the findings.

Developers were most concerned about market-based risks at both stages. Concern about production-orientated risks was lower and fell significantly between the two stages. A fixed price contract was the most common risk management technique. Risk management techniques were used more often outside London and the South East. Developer type affects both the perception and management of risk.

While developers do manage risk, decisions are made on the basis of professional and business experience. These findings should help development companies manage risk in a more objective and analytical way.

This paper reports research that aimed to discover how UK office property developers perceive the seriousness of the risks they face and the extent to which they employ risk response tactics. The first section covers theories of risk, distinguishing it from uncertainty and outlining an objective process of risk management. The second section discusses literature applying these concepts to speculative property development and associated fields. The methodology adopted, which had both quantitative and qualitative stages, is then outlined. The results of both stages are presented together firstly with developers' perceptions of various risks. Developers' responses to risk are analysed followed by a section covering regional differences. The limitations of the research are explained before a concluding section.

Uncertainty, risk and risk management

This section will firstly address concepts of risk. Technically biased descriptions of risk focus on concern over hazards and the danger of negative impacts. 'Pure' risks, such as fire, can result in either a loss or no loss (Laster 2001, 20). A hazard has the potential to inflict negative consequences, probability is the likelihood of the hazard occurring and impact is the degree of damage that would result. Risks can be compared in monetary terms by their 'expected values', which are the product of the impact and its probability (Walker and Greenwood 2002, 80).

"Risk is a combination of the probability, or frequency, of the occurrence of a defined hazard and the magnitude of the consequences of the occurrence", (British Standards Institute 1991).

Commercial decisions typically deal with uncertainties, such as interest rates, that may result in negative losses but also positive gains (Hillson 2002). This may be termed 'speculative' risk.

"..uncertainty of outcome, whether positive opportunity or negative threat. Risk is the combination of the probability of an event and its consequences" (RICS 2004, 7).

Secondly this section will distinguish uncertainty from risk. Hargitay and Yu (1993, 35) set out a risk spectrum from total uncertainty to certainty. Figure 1 shows that the points on the spectrum may be distinguished by the answers to three questions. Certainty exists when one can specify exactly what will happen during the period of time covered by a decision. If probabilities may be estimated, then risk rather than uncertainty exists. Byrne (1996, 33) demonstrates how expertise may be used to subjectively estimate probabilities thus, for example, a letting agent may turn partial uncertainty over rental value into risk. Although the distinction between uncertainty and risk is widely accepted, the terms are often used interchangeably (Adair and Hutchinson 2005) and in practice developers tend to refer to risk. Let us take as an example site geo-technical and environmental risks. When the developer first hears of the site there is total uncertainty and after a desk top study and site inspection partial uncertainty remains. After a site investigation and laboratory tests, risk remains and certainty can be reached after construction with the aid of warranties and insurance.

Finally this section will outline an objective process of risk management. Figure 2 illustrates a logical process of risk management¹ that begins with risk identification, when tools such as brainstorming, 'SWOT' or 'Delphi' are used to list and describe all possible risks. Risks are then classified by type and impact. Risks are analysed or assessed qualitatively by detailing and prioritising often using a probability-impact matrix. Risks may also be analysed or assessed quantitatively by applying, for example, sensitivity analysis and probability simulations. Risks are then monitored and controlled. The risk attitude of the decision-maker is applied to decision-making over risk response which is conventionally divided into four categories; avoidance, reduction, transfer and retention. Risk may be avoided, for example, by focusing on the core business and by market research. Risk may be reduced by loss prevention (e.g. safety equipment), loss control (e.g. fire sprinkler systems) or diversification (e.g. by customer type). Risk may be transferred, for example by insurance, contracts, limited

¹ The term 'risk management' is used here to describe the whole process from identification to response. Frosdick (1997) explains that the term is also commonly used to merely describe decision-making concerning a risk response strategy.

liability or hedging. Normally a risk should be transferred or allocated to the party that is most able and willing to manage and mitigate it. However, before transferring a risk, a decision must be made as to whether the price or 'risk premium' is worth paying. Risks that are only partially transferred are shared. Risk may be retained voluntarily, for example when a large corporation self-insures, or involuntarily, 'a risk ignored is a risk retained'. Residual or retained risks must be managed by setting up procedures designed to reduce the probability of occurrence of a hazard and/ or mitigate its impact (Flanagan and Norman 1993, 60-66; Frosdick 1997, RICS 2004, 8-10).

Uncertainty, risk and property development

The main focus of real estate literature concerning risk has been the application of investment theory, the risk profiles of property assets and the role of property in portfolios (Byrne and Lee 2000). Investors must judge the probability of future levels of return and the conventional measure of risk is the standard deviation of past returns (Hoesli and MacGregor 2000, 43). 'Unsystematic' risk, which includes for example tenant covenant, building quality and legal constraints, can be avoided by diversification in large portfolios. 'Systematic' or 'market' risk, which includes for example change in economic conditions, interest rates or taxation, remains after a portfolio has been diversified. Capital market theory has evolved to guide diversification towards efficient portfolios (Brown and Matysiak 2000). By contrast, discussion of risk in construction focuses upon unsystematic and even pure risk (Mills 2001). The treatments of risk, in investment and construction, are both aspects of the speculative developer's risk problem. Developers need to be aware of risks and approaches to risk in letting, investment, land, construction and finance markets.

Uncertainty lies at the root of property development, which produces a product in anticipation of unknown future demand. Development is a complex stochastic process whose features vary with time and place. A secondary concern in the literature has been the development of traditional development appraisal and discounted cash flow through the application of probability simulation, notably Monte Carlo Analysis (Mollart 1988). With these techniques developers and their advisers use judgement and experience to apply values and probabilities

to the main development appraisal inputs. This allows them to model the range of likely returns from alternative projects, which can then be compared for return and risk (Byrne 1996). So while the analysis of development risk is addressed in the literature, much less attention has been paid to risk perception and response. Graaskamp discussed risk avoidance, writing about developers who become emotionally attached to projects and fail in this respect; he also considered risk transfer in terms of insurance, limited liability and contracts (Ciochetti and Malizia 2000, 139). Development risks have to be borne for different durations. Thus for example the risk of discovering archaeological remains is typically short-term compared to the risk of letting. As the development project proceeds, developers' knowledge about likely outcomes increases as their room for manoeuvre through risk response diminishes.

The risks faced by developers are framed by market and other forces and the decisions of other organisations in what has been termed the property development process. The traditional 'event sequence' approach (Birrell and Gao 1997) has been augmented by the application of structure and agency theory (Healey & Barratt 1990), institutional analysis (Ball 1998) and institutional economics (Keogh & D'Arcy 1999). Development process modelling that encompasses the inter-actions of a wide range of variables and actors has the potential to provide a more sophisticated means to model risk. This is particularly the case where alternative courses of action give rise to different risk profiles, for example in decisions covering land use mix and phasing, and where risk is transferred between the various actors, for example in a joint venture. Space does not permit a more extensive consideration of the development process². This research adopted a developer's eye view of the process based on financial appraisal which is universally applied to assess risk and make decisions (Morley 2002). This focus, though narrow, was chosen as it was appropriate to the context and promoted effective communication with the research subjects.

² A contemporary review of the property development process is available in Fisher (2005).

Methodology

One property type was chosen to provide focus and offices was selected since service provision, normally based in offices, is the dominant form of economic activity in the UK³ and offices is the most common type of development project⁴.

Questionnaires were sent by post to property developers relating to specific office projects. No database of current office development projects was available so a sample of 200 questionnaires was selected, stratified geographically into standard statistical regions. The sample was allocated to regions according to the distribution of the value new orders for private sector commercial construction in 2000 (DTI 2001, 21). Construction cost was chosen, rather than property value, to reflect the distribution of floorspace under development. Greater London was divided into City, West End and Outer areas. Within each region, projects were selected to reflect the distribution of centres of office employment. The sizes of projects were not known initially, so the sample could not be structured by size and projects of all sizes were included within the sample.

63 useable survey forms were returned at a response rate of 32%. Response rates ranged from 10% to 50% by region without any geographical pattern. London, the South East and East of England accounted for 51% of the projects and 56% of the floorspace covered by the responses. This closely matched the basis of the sample, since London, the South East and East of England accounted for 52% of the value of new orders for private sector construction. The median size of project was 6,600 sq. m.⁵ and the distribution of sizes is shown in Figure 3. For 71% of projects (70% of floorspace) construction was complete, for 24% construction

³ Finance and business services produced the fastest growth in gross value added between 1992 and 2003 (ONS 2005).

⁴ In each year from 2000 to 2003 there were more new office developments than any other property type. Warehouses accounted for more new floorspace, but fewer projects (ODPM 2004, 11).

⁵ The median size of project was 6,600 sq. m., the mean was 9,100 sq. m. and the standard deviation was 7,800 sq. m.

had begun and for 5% construction had not yet begun. 32% of projects (34% of floorspace) were currently fully let, 43% partially let and 25% wholly unlet. Information on the statistical analysis is included in Appendix B.

Nine directors or managers of office development companies, who had earlier responded to the survey, were interviewed on a confidential basis at their offices in Central London. The purpose of the interviews was to gain expert in depth opinion on the research questions. In particular, the interviewees were asked for their views on the postal survey results and the underlying market mechanisms that underpinned them. Interviewees were sent in advance a report explaining the survey and the response and including graphs of the main findings. The questions related to current office development as a whole rather than the specific company's project. The questions are reproduced as Appendix 1. The interviews were semi-structured lasting between 40 and 50 minutes; digital audio recordings were made and coded into themes without the use of specialist software.

Developers' perception of risks

Respondents to the postal survey were asked to state the degrees of risk to the financial success of the project that they perceived at the time of the first feasibility study.

Respondents were asked to describe a set of risks as either 'major', 'real', 'minor' or 'nil'.

These data, which are illustrated in Figure 4, were tested in order to determine whether concerns over specific risks were correlated (Appendix B). Developers were then asked to state, using the same scale, the degrees of risk that they perceived at the time of responding to the survey. These data, which are illustrated in Figure 5 were similarly tested (Appendix C.). To compare the two stages, a weighted average score for each was constructed; 'major risk' was weighted at 3, 'real risk' at 2, 'minor risk' at 1 and 'nil risk' at zero, as illustrated in Figure 6. A further test was carried out on the weighted data in order to see whether changes in concern over specific risks between the two stages were significant (Appendix D).

Figure 7 shows the distribution of start and end times of construction for the projects surveyed. During this period, the office letting market was in sharp decline. Table 1 shows

that average national rental values fell and that the fall in Central London was more pronounced, which implies better performance elsewhere⁶.

The offices letting market has historically proved to be the most volatile and difficult to predict⁷. Letting was the greatest perceived risk at the feasibility stage when 85% of respondents perceived 'real' or 'major' risk relating to 'letting market and voids'. At the current stage, letting was the second greatest perceived risk correlated significantly with rent and investment. Concern over letting risk did not fall significantly between the two stages. For some developers letting had been achieved by the 'current' stage but others' perception of letting risk had increased. Letting is the developer's most crucial risk and, once it is fixed on satisfactory terms, many other risks can be resolved. Letting risk is clearly greater in some locations than others. Timing is fundamental since money has to be put at risk well in advance of the space becoming available on the market. In a weak market, letting will take longer which will lengthen the period over which interest charges are not covered by rent. The state of the letting market also determines the occupier covenant and the lease duration, which can be achieved and thus the capital value of the asset.

For most developers, achieving a good letting is more important than the initial level of rent. If the other parameters of the investment product are 'prime', the initial level of rent need not be a major handicap, provided the company can afford to wait for an upturn in the market. The lease and the income stream is the asset the developer holds, or has available to sell. In the

⁶ In 2002, there was zero rental value growth in Edinburgh, Leeds and Bristol but in Manchester (5.3%), Liverpool (6.7%) and Birmingham (19.1%), healthy growth continued (Jones Lang LaSalle 2002).

⁷ In terms of rental value growth, offices was the most volatile sector between 1981 and 2004. Standard deviations are 5.4 (retail), 7.2 (industrial) and 11.2 (office). Focussing on downside risk, rental value falls in monetary terms were recorded in 3 years (retail), 5 years (industrial) and 7 years (offices). 1992 saw the greatest falls in all three sectors, 3.3% (retail), 8.9% (industrial) and 20.4% (offices) (IPD 2004).

survey, concern over 'rental value and incentives' was second highest at the feasibility stage. At the current stage, concern over rent was highest and was correlated with letting, investment, and building risks. Concern over rent risk fell least between the two stages, probably associated with falling rental values in many markets. In a poor letting market potential tenants are able to negotiate not only lower rents but also costly incentives, often above the allowance made in the appraisal.

The yield at which the investment can be sold determines the capital value and thus the developer's profit. At the 'feasibility' stage, 'investment market and yields' was the third highest risk factor with 78% of respondents rating it as either a 'real' or a 'major' risk. At the 'current' stage, investment remained the third highest concern. The developer's ability to sell the investment depends on letting success and rent so these risks were significantly correlated. Concern over investment risks decreased only slightly between the two stages which may reflect that, for most projects, the investment sale occurs late in the process. Investment is thus a serious risk factor but less crucial than letting or rent particularly for an investor-developer, which is able to retain the freehold, at least in the short-term.

Building work clearly carries the risks of cost escalation, time delays or sub-standard work. 'Building procurement, cost and overruns' was the fourth highest rated risk perceived at the 'feasibility' stage. This risk was correlated for physical reasons with site condition and with finance due to the anticipated impact of time or cost overruns. By the 'current' stage this was still the fourth highest but the absolute level of concern over building risk fell significantly between the two stages. This relates to the fact that, for most projects, construction was either complete or well under way by 'current' stage. It may also relate to the type of construction contract adopted by the developer. There was a consensus among the interviewees that building related risks had decreased in recent years due to the increased use of partnering relationships and alternative dispute resolution in the construction industry. These innovations had enabled potential disputes to be identified at an earlier stage and resolved more quickly than in the past (Construction Industry Board 1997, Constructing Excellence 2004).

At the 'feasibility' stage, 50% of the respondents rated 'site assembly and purchase price' as 'major' or 'real'. Due to the high level of uncertainty at inception, this risk was correlated with site condition, planning and investment⁸. At the 'current' stage only 14% had a 'real' or 'major' concern and the fall in concern between the two stages was significant. When the purchase of only one interest in land is needed site assembly risk does not apply. In other cases, the development process is managed so that assembly risk can be resolved at an early stage before any major financial commitment. Site purchase is an area where risk is taken. Interviewees stressed the importance of being 'quick on our feet' in responding faster to an opportunity than competitors. Ownership of a good site(s) was described as the 'unique selling point' for a development company. Land purchase prices are linked to the 'expansion' phase of the property cycle (Mueller 1999; Ball et al 1998, 1996). Close to zero new development during a slump will be followed, as the market improves, by starts on prime schemes. As the market becomes very active, schemes in less prime areas or on difficult sites tend to be appraised as viable. With increased competition for scarce land, developers often seek to compete by adjusting their appraisals, for example by assuming that the current level of rental growth will continue until completion (Antwi and Henneberry 1995). Land may thus be acquired at prices that, with hindsight, prove excessive and risky. Buying any asset involves a risk, though opportunities exist for sharing this via a joint venture, for example with a site owner.

Site condition varies widely in its significance is becoming greater. At the 'feasibility' stage 49% of respondents perceived 'site or building condition including contamination' risks to be either 'real' or 'major'. These risks were correlated with 'site assembly' and 'building' risks, since physical uncertainties link all three. There was also a correlation with investment, since clearly investors will shun a project with unresolved uncertainties over site condition. At the

⁸The correlation found between 'site assembly and purchase price' and 'investment market and yields' may be due to the fact that investors are not likely to be interested in a development until the site has been fully acquired.

'current' stage this level of concern had fallen to 19% and this fall in concern was significant. While the condition of a site or building may be uncertain at the outset, a skilled developer has the tools to manage the risk. A contract to purchase the site can be made conditional upon expert professional surveys, testing and advice. Risk may then be transferred or shared by procuring suitable terms in the remediation contract (Syms 2002).

Planning might be expected to be a significant risk at an early stage since failure to achieve the right permission will terminate the project. However, for the majority of developers this was a 'nil' or a 'minor' risk at the 'feasibility' stage, which was correlated with 'site assembly'. At the current stage only 16% of respondents thought 'planning permission, conditions and agreements' was a 'real' or 'major' risk. This fall in concern was significant due to the fact that site purchase and associated financial commitments normally follow the resolution of any planning problems reflecting the normal risk-averse practice of developers. There was a strong consensus amongst interviewees that planning permission had become much more difficult, expensive and time consuming to obtain in recent years. When seeking a project related bank loan, a developer will have to show that it has already received planning permission.

Like other businesses, developers make use of other people's money to expand their activities and manage their risk. Bank borrowing makes up more than half of the total outstanding debt of the quoted property sector (Ooi 2000). Access to short-term debt finance is required for most development schemes on a project or corporate basis. 35% of developers said that 'debt finance and interest rates' was a 'real' or 'major' risk at the 'feasibility' stage. Finance and 'building' risks are naturally linked and were correlated. There was also a correlation between finance and site assembly risks due to the general uncertainty associated with the latter. Concern fell only slightly and at the 'current' stage 23% of respondents still felt that this was either a 'real' or a 'major' risk. When money is relatively easy and cheap to obtain, finance is not considered to be a major risk. Since UK interest

rates have been stable at a historically low level, this continuing concern probably relates to persistent letting problems with some projects in certain markets. If the developer has negotiated a substantial pre-letting, finance will not normally be a problem and in addition developers may hedge against the risk of interest rate rises. Property companies with large investment portfolios are able to manage reasonable development risk within their overall corporate finance package. If an otherwise good development hits the letting market at a bad time the company should be able to absorb the loss until the market turns. For such companies banks will provide flexible facilities often with limited security. Smaller property investment companies operate in a similar though more modest fashion with fewer resources to investigate opportunities and more reliance on external financing (Gallimore et al. 2000). Interviewees explained that specialising in one property use or geographical area may limit their risk and maximise the value of their experience and judgement. Trader-developers, large or small, have to constantly create profits through development to support their share price (Barkham 1997). This involves a close relationship with lenders and a sharp awareness of the downside risk of each project. New and smaller developers normally have to seek project-based loans and open their books to the bank. The availability of a development loan, its amount and pricing all depend on the bank's perception of risk. The developer's track record and the current state of the market are fundamental, however a survey of development lending by banks revealed that many were neglecting important aspects of due diligence (Savills 2003). Banks limit their risk via an equity contribution, collateral warranties and often pre-letting. Gordon (2003) explains the lender's use of underwriting criteria, percentages, weightings and scores to produce a 'global risk rating' for a development project. Following this process projects are graded on a scale of 'AAA' for excellent to 'BBB' for weak to inform approval and pricing decisions.

Developers' responses to risk

Respondents to the survey were asked to score their use of eight risk response methods as 'Crucial', 'Important', 'Not used' or 'Don't know'. The list of eight methods was drawn up with reference to literature on risk analysis and response in development (Byrne 1996, 1-16; Havard 2002, 361-375; Millington 2000, 219-228). Respondents were given the opportunity to

add further methods, but no significant extra tactics emerged. Figure 8 shows the distribution of the scores for each technique. It was suspected that developers might adopt risk response tactics in tandem so a test was carried out to investigate whether the uses of risk response tactics were correlated (Appendix E). Similarly it was suspected that developers might adopt certain risk response tactics as a result of their risk perceptions at the time of the initial appraisal. A test was carried out to see if risks perceived at the appraisal stage were correlated with the use of specific risk response tactics (Appendix F).

Building procurement

Different types of building procurement offer a range of risk transfer opportunities. The developer commissions the building and is thus able to require the type of contract that best meets its needs in relation to the particular site, design, market and financial circumstances. It has previously been found that experienced and inexperienced construction clients have dissimilar needs and that, contrary to expectations of rational behaviour, similar clients do not have similar procurement objectives (Love *et al* 1998). A 'fixed price building contract' was the most widely used form of risk management with 78% of respondents scoring it as either 'important' or 'crucial'. This contrasts with its rank as only the fourth highest perceived risk. There were no correlations between perceptions of risk at the feasibility stage, including 'building', and the use of a fixed price building contract, confirming the above findings.

The majority view amongst interviewees was that most developers favour fixing the majority of the construction price. In most cases this will involve a cost premium but most commercial developers prioritise certainty and risk transfer. This attitude springs from a tradition of mistrust between developers and contractors. The preferred method for most is the design and build contract, however, this is not always appropriate for very complex schemes, where quality is the prime consideration or where variations are expected (Ashworth and Hogg 2000). Interviewees stressed the importance of choosing a large contractor clearly able to shoulder the risk and deliver for the price set. A totally fixed price can be a false economy if the contractor has little incentive and becomes focussed on making claims. Some larger developers have adopted a long-term partnering approach or even formed joint ventures with a contractor. These methods provide incentives for the contractor who becomes part of the

team. Developers are wary of construction disputes and impatient to move on to the next project. The traditional JCT contract is viewed as being prone to claims and is thus not favoured. Most interviewees said that contractor relations have improved through the use of alternative dispute resolution, including adjudication and mediation, which is faster, cheaper and less adversarial.

Pre-letting

Genuine pre-letting takes place before building starts and is usually a trigger for the construction contract to be signed. An offer to let made early in the construction phase has some of the characteristics of a pre-letting but is not discussed here. Ratcliffe (1984) explained the benefits that typically flow to both parties from a pre-letting such as for the developer an improved yield and for the tenant the ability to influence design; however market opportunities to pre-let are limited in time and by place. Despite the fact that letting and rent were perceived to be the highest risks, only 48% of respondents viewed 'pre-letting i.e. before construction' as either 'crucial' or 'important' in relation to their scheme. Pre-letting was not correlated with concern over 'letting' risk probably because developers cannot control the availability of pre-letting opportunities and have to negotiate terms and prices. Pre-letting was correlated with the use of 'advance purchase' since a pre-let will normally be required for an advance purchase by a fund.

Occupier demand for pre-letting is normally associated with a period of economic growth where expanding companies need extra space. Pre-letting offers tend to come from large organisations, which have the staff to plan ahead. Fast expansion, mergers and acquisitions tend to lead to uncertainty about how much space will be needed, when and where. Companies often prefer new bespoke space to that already on the market. Demand for pre-letting tends to be associated with the early stages of the development cycle. Later in the cycle, with more new accommodation available, there is likely to be less demand for pre-lets. On the supply side developers are keen, especially in a weak market, to secure a pre-letting since it transfers the area of risk over which there is most concern (Figure 4). A pre-let creates a saleable investment asset and flexibility over other matters such as finance and the form of building contract. Clearly for the developer to accept an offer, the rent, incentives and

other terms of the agreement have to create the right balance between risk and profit. During a period of rapid rental growth, a developer may reject a pre-let in order to achieve a higher rent during the construction period. Only those developers which can afford to retain risk will reject a pre-let. A trader-developer may be keen to hang on for a higher initial rent but might have to take account of the views of an institutional partner. An investor-developer may accept an offer, expecting an increase in rent at the first review, or it could reject if it can afford to wait.

Tenants will not normally accept a rent review at practical occupation, but an initial rent at above the current market level and/ or rent uplifts in stages to the first review can be negotiated. Covenant strength is central to any pre-letting and a developer may seek a rent deposit or guarantees from a bank or parent. A blue-chip tenant, who increases the value of the asset, will expect to participate by way of a lower rent and/ or a longer rent-free period. Both banks and institutions will either require a pre-letting or be favourably influenced by it, particularly when the letting market is weak. Where only part of the property is pre-let, developers must balance the risk that multiple-letting may increase the yield with the security provided by diversifying the risk of future voids, which has been increased by shorter leases (Baum 2001, 430-434).

Forward sale

A forward funding arrangement with an institution provides 'take out' and limits the developer's downside risk. This involves a partial risk transfer from the developer to the fund and developers are normally willing to sacrifice some potential profit to achieve this. The developer is required to manage retained risks, especially construction, reporting regularly to the fund. Joint ventures and limited partnerships may be used as the vehicle for such arrangements. Once again track record and reputation are very important. The fund will frequently require some pre-letting before signing the deal. Interviewees stressed that the property funding market is imperfect and personal contacts are vital, particularly with individual investors. Only 45% of respondents adopted 'advance purchase or funding of the investment' despite the fact that funding was perceived as high risk. The use of advance purchase was correlated with pre-letting, which is frequently a requirement for the agreement.

Barkham (1997) demonstrates that forward sales are most commonly associated with property trading companies and this was confirmed by the interviews. Trader-developers need to be able to dispose of the assets they create without much delay. Some developers prefer to use other forms of long-term finance while others retain the project in the short-term, timing the sale to obtain the best price. Investor-developers' base of existing assets provides greater flexibility when funding development and permits some prudent risk retention.

Options to purchase the site

Developers use options to purchase and conditional contracts, when they have to, where there is uncertainty surrounding site assembly, site condition or planning permission. 46% of respondents believed that an 'option or conditional contract to purchase the site' was either 'important' or 'crucial' to their scheme. Naturally, concern over 'site assembly' at the feasibility stage was correlated with the use of options. The use of an option was also correlated with 'mixed or flexible use', which may relate to town planning uncertainty. Most interviewees felt that landowners today are invariably well advised and the developer has to eventually pay full market value for the land.

Joint ventures

Joint ventures may be with site owners, banks, institutions, contractors or other developers. Joint venture vehicles, which include joint venture companies, partnerships, limited partnerships and contracts, have differing advantages notably concerning liability and taxation (Stevenson *et al.* 1994). 43% of survey respondents felt that a 'joint venture' had been either 'important' or 'crucial' to their projects. Concern over 'finance' at the feasibility stage was correlated with the formation of a joint venture, reflecting an obvious risk response by developers. Joint ventures were also correlated with the use of a cap on the short-term interest rate. Unlike most risk responses, a joint venture partially transfers all risks. A joint venture does not alter the probability of development hazards occurring but reduces their negative impact on an individual developer. By forming a joint venture(s), a developer is able to achieve greater diversity and thus less risk in its portfolio.

Phasing

Phasing is used to match supply to demand, reduce risk and improve the developer's cash flow. Phasing is normal practice with office parks or where a site can be developed as a series of blocks. However, some sites or refurbishments do not permit phasing and this can increase their levels of risk. 40% of respondents felt that 'phased development' was either 'important' or 'crucial' to their projects. Most interviewees felt that phasing was less common in London due to small sites, high demand and high land prices.

Mixed use

While mixed use can be a means of risk avoidance, this survey was directed at office developments. Thus risk management via 'mixed or flexible use' was not common with only 28% of respondents rating it as either 'important' or 'crucial' to their projects. Concern at the feasibility stage over planning risk was correlated with the adoption of mixed use as a risk response. Mixed use was correlated with the use of options to purchase and phasing. These results confirm developer tactics when faced with the typical current requirements of UK planning authorities (ODPM 2005). None of the interviewees, however, mentioned 'mixed or flexible use' as a form of risk management they employed.

Short term interest rate cap

A 'cap on the short term interest rate' was the least popular method of risk management. Only 25% of respondents regarded it as either 'important' or 'crucial' to their scheme. The use of a finance cap was correlated with a joint venture. In the UK climate of stable low interest rates, it is probable that developers were willing to accept the risk of an increase in rates. In addition, finance is often corporate rather than project based.

Outsourcing

Outsourcing has always been central to the property developer's modus operandi and developers routinely employ a wide range of professional consultants, though this was not covered by the survey. The employment of external consultants provides necessary advice and also acts as a means of risk transfer. The interviewees were emphatic about the need to employ the very best team and that professional advice and consequent liability was an important element in their risk management strategy.

Regional differences in risk perception and response

The regions of London, South East England and East of England accounted for 51% of the projects and 56% of the total floor area in the survey. When the responses were divided into these two geographical halves, no correlations were found between regional location and the perception of any risks, at either stage. Respondents were asked to rate their company decision making in relation to the specific development project. A scale of one to five was adopted where one represented 'high concern with security' and five represented 'high willingness to take risk'. Figure 9 shows that there were no significant regional variations in developer risk attitude. It would appear, therefore, that developers do not perceive regional variations in risk or their risk taking. However, Figure 10 shows that, of the eight risk management techniques examined, seven were adopted more frequently in the rest of Britain than in the South East. There were significant correlations between region and both 'pre-letting' and 'phasing' (Appendix G). This demonstrates a more cautious approach in practice amongst regional developers and national developers when operating outside the South East; which was confirmed by the majority of interviewees. The size of projects could possibly explain the apparent regional differences. However the median sizes of projects in the two regions were similar⁹. Figure 11 shows the size of projects in the two regions. No significant relationships were found between the size of project and the use of specific risk management techniques¹⁰. Similarly, Figure 12 shows that the letting success actually achieved was similar in both regions.

The economy of South East England, dominated by London, is in many ways distinct from the rest of the UK. It is a more prosperous and dynamic economy where the office markets contain many head offices, international firms and fast growing business sectors. The London offices market has a history of rental volatility but this is understood and even appreciated by

⁹ The median sizes were 6,700 sq. m. in South East and 5,900 sq. m. in Rest of UK.

¹⁰ A Mann Whitney test was used to test the relationship between the sizes of projects and the use of risk management tools but no significant correlations were found.

the developers who operate there. The market cycle will typically deliver few years of rental decline and developers normally expect that strongly rising rental values will get them out of trouble. Opportunities to pre-let have tended to be concentrated in the active markets of central London and the Thames Valley. The large numbers of developers and the shortage of sites in the region mean that development is highly competitive and more risks have to be taken, particularly when buying sites.

The economies of regional cities are less strong and their office markets more stable, but around much lower levels of take-up, rental value and rental growth. Regional cities hardly ever enjoy favourable letting conditions to compare with the good years in the South East¹¹. Letting risk in regional markets is higher, profit margins are thinner and developers are forced to be more cautious and manage risk more thoroughly. Even in a fast growing city like Leeds developers are cautious.

“The market is well balanced for 2005-06, based on the average annual take-up of grade A and what is available, but there will probably be a slow down of speculative starts in 2006 and 2007 for new product coming to the market in 2007-2008. Historically, Leeds has waited until new schemes have been let before embarking on the next development cycle” (Knight Frank quoted in Estates Gazette 2005).

Banks and funds are also aware of the market reality and require a more cautious approach. Provided a tenant can be found, investment funding in regional markets is not normally a problem, though it is at a higher yield. The dominance of national risk factors in adjusting property yields leads to a lack of profitability in property development in the regions and to a skewed distribution of development compared to economic activity (Henneberry and Rowley 2000; Henneberry, Mouzakis and Rowley 2004). The majority view of the interviewees was that market forces not developer risk attitude were the reason for the greater adoption of risk

¹¹ For example, rental growth figures from 1991 to 2005 clearly illustrate far greater volatility in the south east, especially in central London, than in the rest of the UK (King Sturge 2006).

response tactics outside the South East. It is probable that developers appreciate these facts and in the survey rated their risk taking in relation to local market circumstances and practice.

Limitations

There are a number of problems that limit the usefulness of our research. The number of responses to the survey (63 from 200) meant that some interesting probable correlations could not be relied upon, due to a shortage of data in some cells. Respondents were asked to grade risks as 'nil', 'minor', 'real' or 'major'. This introduced a possibility for confusion amongst respondents, though the presentation of the risks in the questionnaire as a scale from 'nil' to 'major' makes this unlikely. In order to compare between the two stages, weights were applied to the risk perception data (from 'nil' = 0 to 'major' = 3). The results in Figure 6 and Appendix D therefore reflect those weights. The state of the property cycle is the inevitable background to the survey. Concern over letting and rental value risks may have fallen faster between the two stages had it not been for the deterioration in the letting market, particularly in the South East. This is borne out by the fact that concern over letting and rent risks was higher at the 'feasibility' stage in the Rest of the UK than in the South East and fell faster ending up lower at the 'current' stage. Only nine expert interviews were held in order to help the authors interpret the survey data. Many potential subjects could not spare the time to be interviewed while for some others it was difficult to find convenient times in full diaries. While all the interviewees were London-based developers they had nationwide experience and no purely regional developers were interviewed. However, despite these limitations the interviews provided good depth and detail that was consistent.

Conclusion

Decision makers may respond to risk by avoidance, reduction, transfer or retention. Figure 13 allocates typical risk responses by UK office property developers to these four categories.

Developers were less concerned about unsystematic risks. Planning permission, site assembly and purchase price and site condition were not viewed with great concern by respondents at the feasibility stage and the levels of concern reduced significantly between

the two stages. Developers' normal practice is to avoid planning risk by knowledgeable site selection, appropriate design and where necessary the use of an option to purchase or a conditional contract. Developers also use options to avoid site assembly risk though the level of price paid is a retained risk. When and where good sites are scarce, competition is fierce and there is a risk of paying too great a price. Site condition risk can be avoided by options to purchase and thorough site investigations. Developers are also able to reduce this risk by remediation or to transfer it to contractors, professionals or insurers. Building procurement and cost was a concern for many at the 'feasibility' stage but as building progressed the level naturally decreased and by the 'current' stage it had fallen significantly. The construction contract is within the control of the developer but nevertheless problems can occur. The most widely used risk transfer tactic was a 'fixed price' building contract and the most favoured means to fix most of the price was a design and build contract. This normally involves a premium but most developers are willing to pay this in order to achieve greater certainty. The size and reputation of a contractor or consultant is an important consideration when attempting to ensure effective risk transfer.

Office property developers in the UK were most concerned about the systematic or market risks of letting, rent and investment. These were the top three concerns at both the 'feasibility' and the 'current' stage and these levels of concern only fell marginally between the stages. This is because opportunities for risk transfer are not normally within the control of the developer. Most developers are keen to achieve pre-letting since this transfers risk and creates further flexibility. However, the negotiation of a pre-let is complex, requiring a sophisticated understanding of the market, the tenant covenant and company finance. Pre-letting is strongly associated with advance purchase which was used by almost half of developers to partially transfer risk.

Joint ventures are a popular means of transferring part of the risk of large projects to a partner. Phasing is a technique used by a minority of developers to reduce risk, though it is not appropriate for many sites. Developers make use of a wide range of expert consultants who accept liability for providing a professional service.

Developers operating outside London and the South East do not consciously perceive their risk or risk taking any differently yet are more likely to adopt risk response tactics, especially pre-letting and phasing. This is due to the market which tends to create opportunities for risk retention in the South East and pressure for cautious risk management elsewhere.

While risk management is certainly undertaken by UK office property developers, it would appear that the process could benefit from greater objectivity and standardisation. The techniques of risk scoring outlined in relation to American bank lending (Gordon 2003) and to UK property valuation (Adair and Hutchinson 2005) could usefully be adopted for this purpose.

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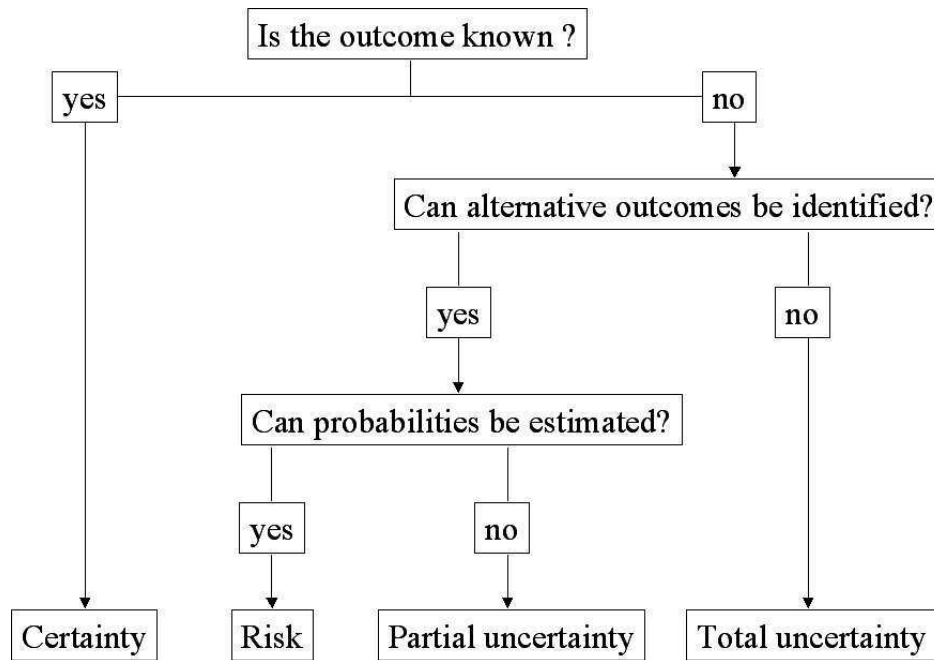
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Table 1. Office rental value growth

	2000	2001	2002	2003
Central London	23.30%	0%	-17.90%	-20%
United Kingdom	12.50%	4%	-7.20%	-10.10%

(GVA Grimley 2004; IPD 2004)

Figure 1. The spectrum of uncertainty



(after Hargitay and Yu 1993)

Figure 2. The management of risk

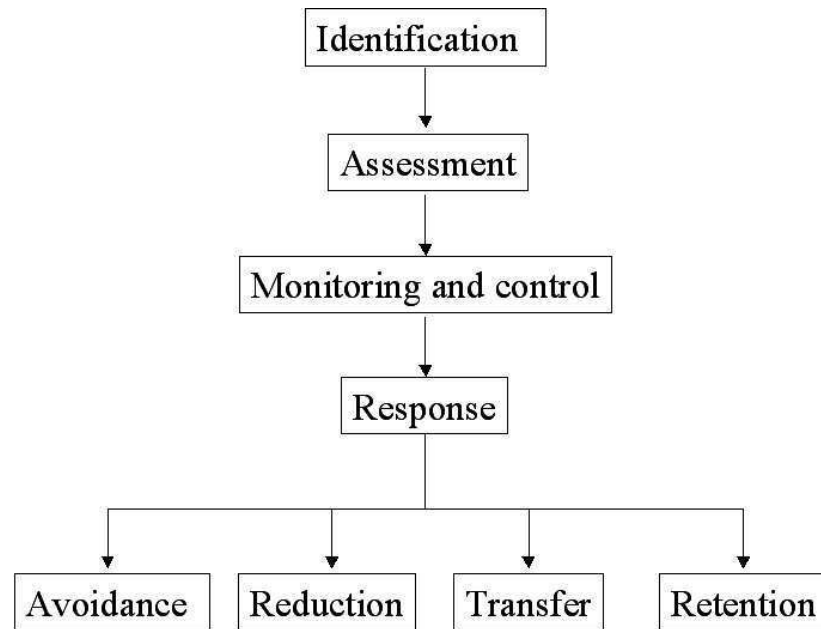


Figure 3. The size range of projects in square metres

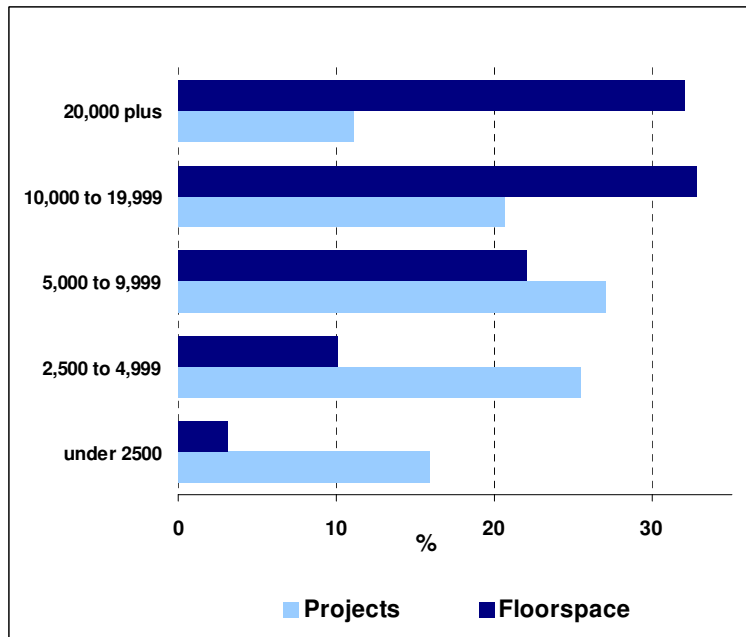


Figure 4. Risks perceived at the time of the first feasibility study (percentages)

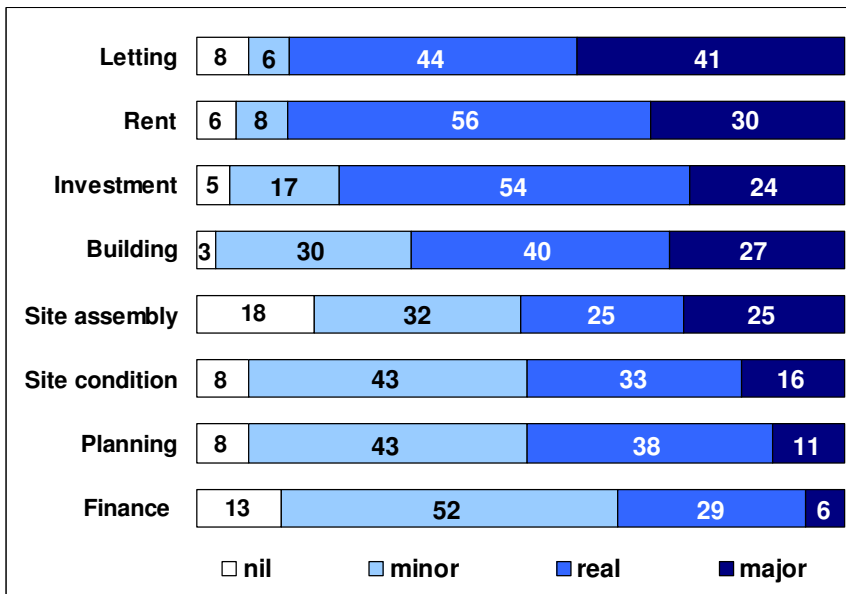


Figure 5. Risks perceived at the time of the survey (percentages)

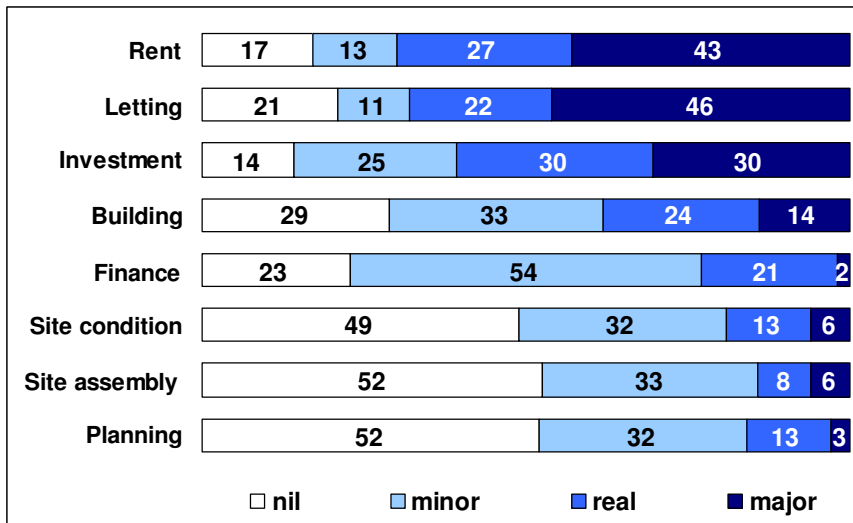


Figure 6. Risks perceived at both stages

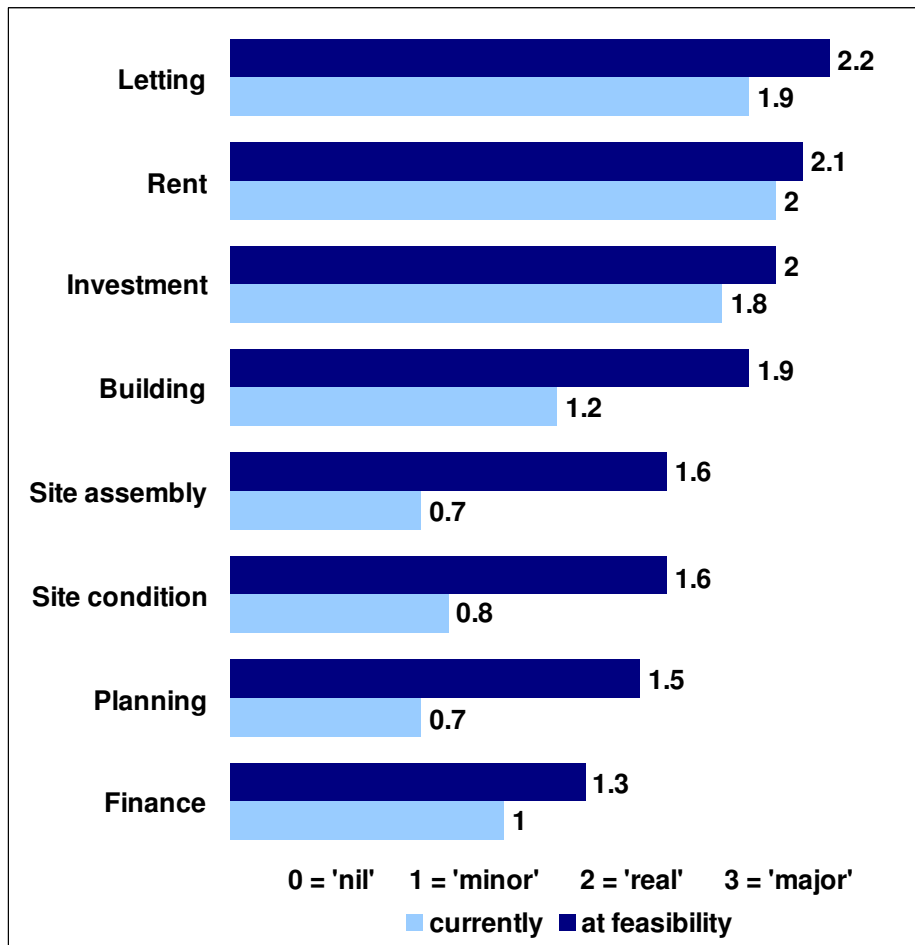


Figure 7. Construction start and end dates for projects

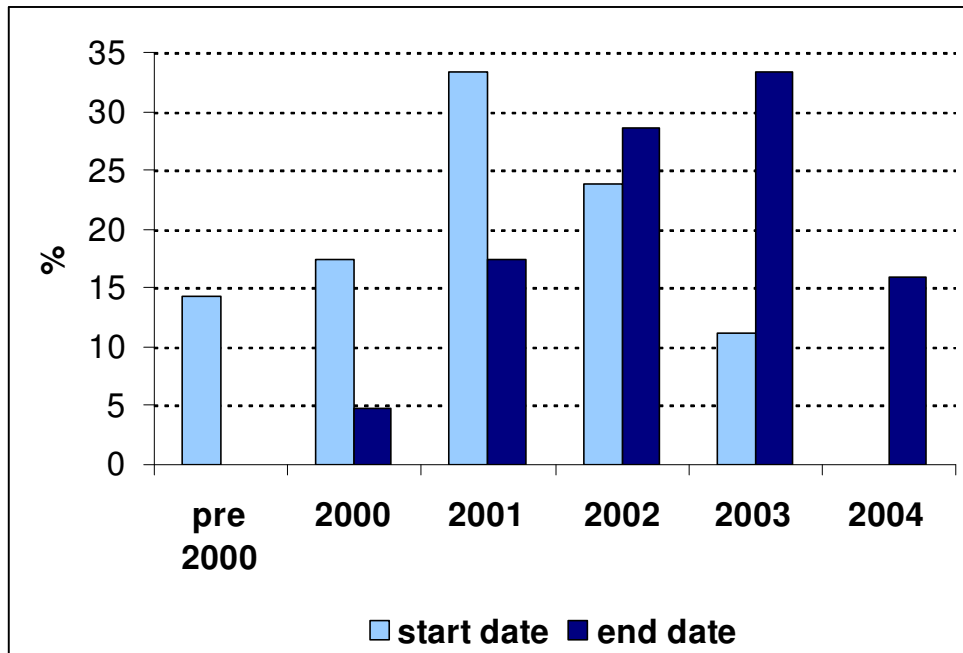


Figure 8 The use of risk management tactics

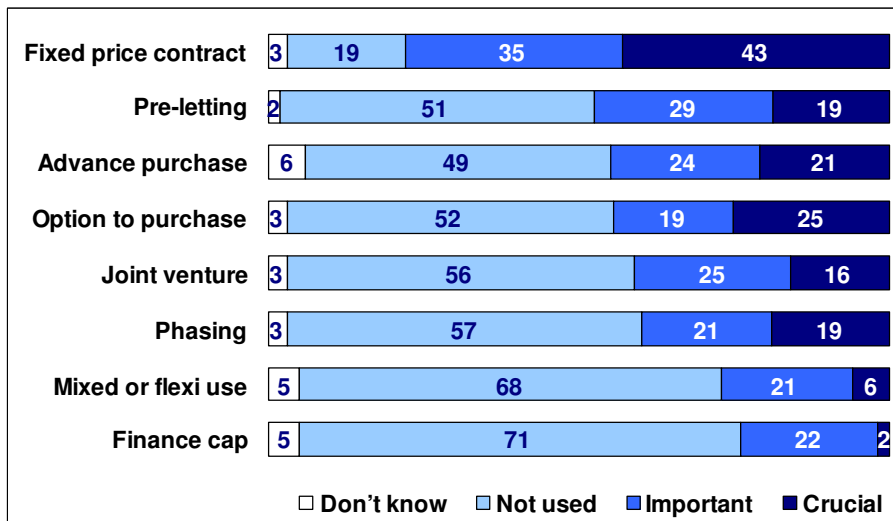


Figure 9 Developer perception of risk taking: regional distribution

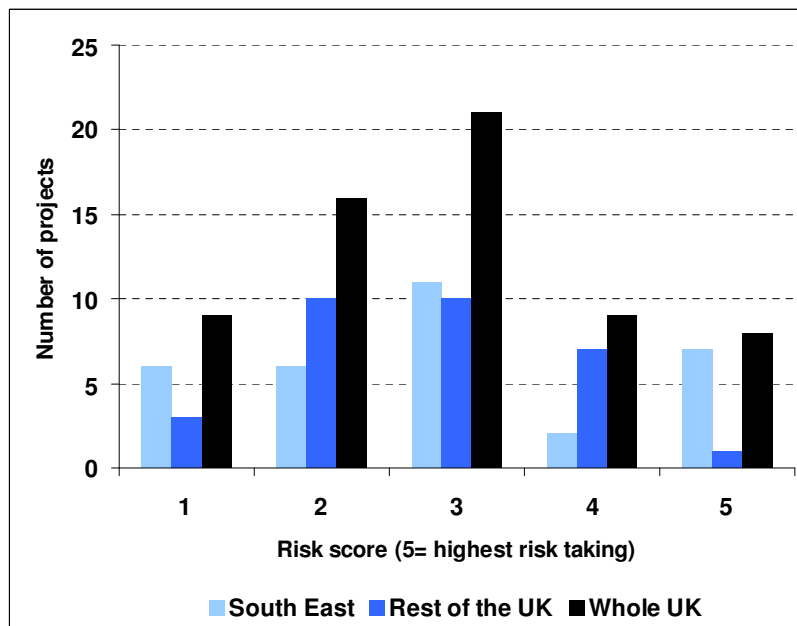


Figure 10 Regional variations in risk management

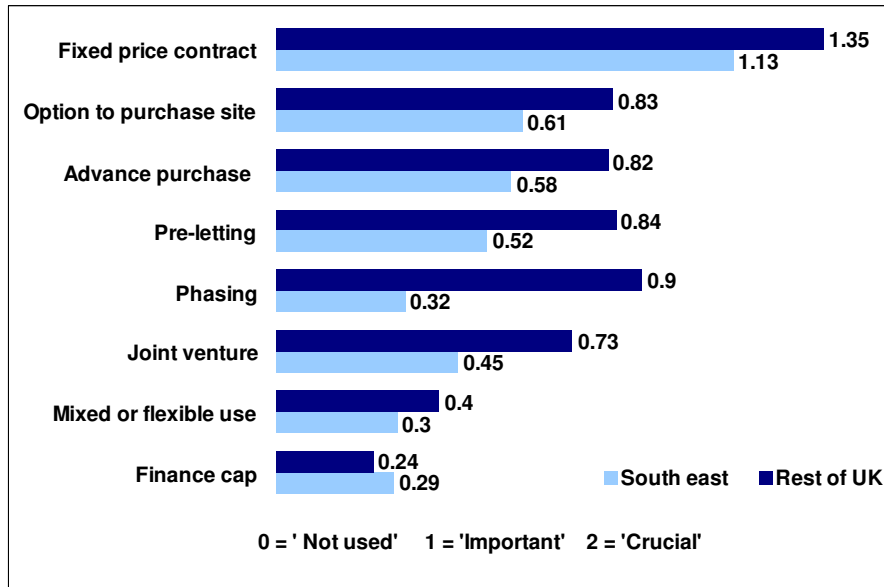


Figure 11 The size of projects by region

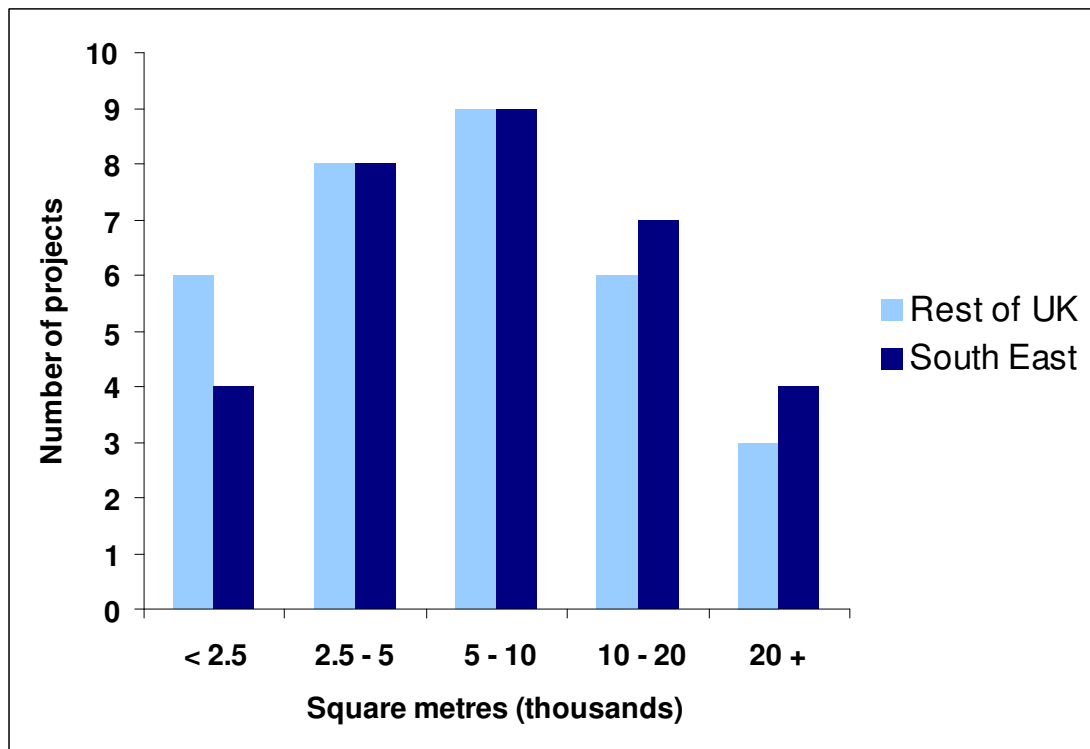


Figure 12 Letting success by region

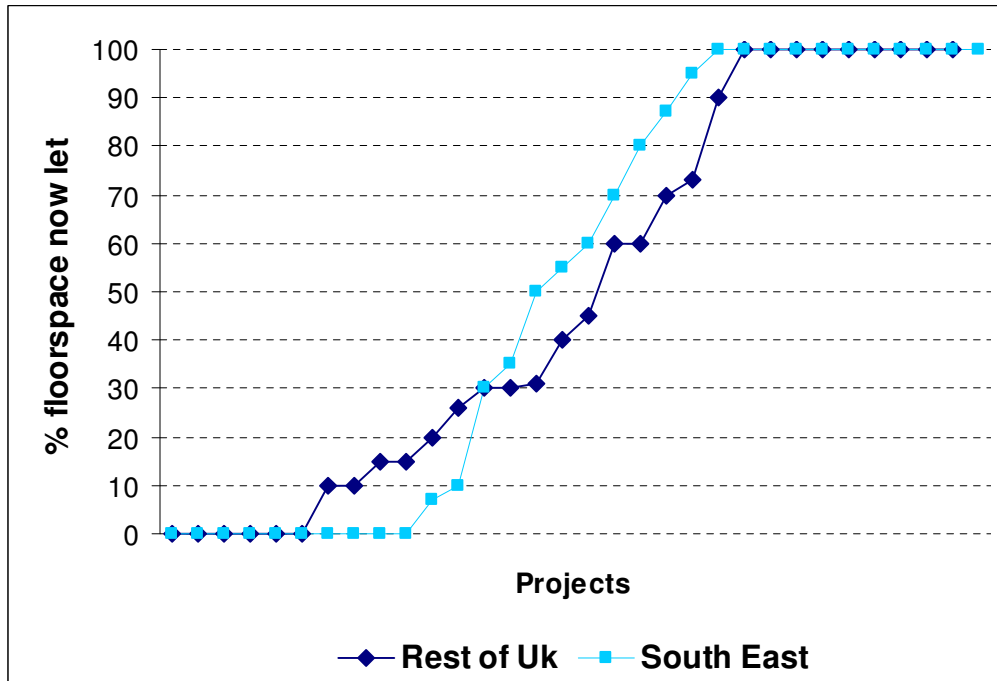


Figure 13: Risk responses in property development

	Avoidance	Reduction	Transfer	Retention
Planning permission, conditions and agreements	Location / site selection Land use / mix Option to purchase	Design		
'Site assembly and purchase price'	Location / site selection Purchase price Option to purchase		Joint venture	Purchase price
Site or building condition including contamination'	Location / site selection Purchase price Option to purchase Site investigation	Remediation design	Col. warranties Insurance Contract terms	Purchase price
'Building procurement, cost and overruns'	Site investigation Land use / mix	Design Phasing	Col.warranties Contract terms Joint venture	
'Debt finance and interest rates'	Equity only	Level of gearing Phasing	Rate cap Limited recourse	
Letting market, and voids.'Rental value and incentives'	Location / site selection	Market research Land use / mix Design Phasing	Pre-letting Joint venture	Letting
'Investment market and yields'	Location / site selection	Market research Land use / mix Design Phasing	Advance sale Joint venture	Sale

Appendix A. Interview Questions

1. What determines a developer's basic attitude to risk?
2. Do risk decisions relate more to the company or the project?
3. Are developers proactive or reactive about risk management?
4. Do banks and funds require developers to manage risk?
5. How do developers perceive risks (please refer to the survey report)?
6. Are risks characterised as 'market' or 'production'?
7. How do developers manage risks (please refer to the survey report)?
8. Why do developers tend to avoid construction risks (please refer to the survey report)?
9. What factors lead to more or less pre-letting of office space (please refer to the survey report)?
10. Why are developers operating outside London and the South East more proactive in risk management (please refer to the survey report)?

Appendix B: Perceptions of risk at the feasibility stage

	Site assembly	Site condition	Planning	Building	Finance	Letting	Rent	Investment
Site assembly								
Site condition	0.008							
Planning	0.032	0.379						
Building	0.373	0.000	0.212					
Finance	0.043	0.093	0.093	0.003				
Letting	0.064	0.304	0.758	0.445	0.018			
Rent	0.064	0.014	0.304	0.127	0.018	0.000		
Investment	0.013	0.003	0.590	0.001	0.002	0.001	0.000	

Pearson χ^2 test: asymp. sig. (two sided)

Nil risk' plus 'minor risk' were tested against 'real risk' plus 'major risk'.

Shaded results indicate an unreliable result due to insufficient data in one or two cells data

The above table refers to the data illustrated in Figure 4. Respondents to this question were asked to choose between four options and their answers were categories with no numeric equivalent and thus 'non-parametric'. The null hypothesis was that there was no relationship between one pair of variables. The chi-square (pearson) test of independence between two categorical variables was adopted and the test was performed using the SPSS statistical software package. The chi-square test of independence measures the risk of error in rejecting the null hypothesis, that the variables are independent, and accepting instead the alternative hypothesis that there is a relationship between them. The chi-square test compares observed data for the two variables in the cross-table with the expected data should the null hypothesis be true. The aim is to see if there is (or is not) a statistically significant relationship between two variables.

In order to maximise the number of records per cell, 'nil risk' responses were added to 'minor risk' and 'real risk' to 'major risk' to produce a two by two cross table. Nevertheless the results are still felt to be meaningful in the context of the research. The output from the test shown above is known as the asymptotic significance (two sided) statistic. Where this is below 0.05 then there is a 5% or less error in rejecting the null hypothesis. Where there were insufficient records in a cell and the chi-square result was thus unreliable, these were shown shaded and no statistical relationship was claimed.

Appendix C: Perceptions of risk at the 'current' stage

	Site assembly	Site condition	Planning	Building	Finance	Letting	Rent	Investment
Site assembly								
Site condition	0.000							
Planning	0.000	0.000						
Building	0.057	0.109	0.024					
Finance	0.083	0.072	0.140	0.835				
Letting	0.912	0.577	0.107	0.367	0.004			
Rent	0.179	0.258	0.023	0.017	0.005	0.000		
Investment	0.058	0.070	0.005	0.181	0.001	0.000	0.000	

Pearson χ^2 test: asymp.sig. (two sided)

Nil risk' plus 'minor risk' were tested against 'real risk' plus 'major risk'.

Shaded results indicate an unreliable result due to insufficient data in one or two cells data

Appendix D: Changes in risk perceptions between the ‘feasibility’ and ‘current’ stages

Building	0.000
Site assembly	0.000
Site condition	0.000
Planning	0.000
Finance	0.005
Letting	0.098
Investment	0.140
Rent	0.388

Wilcoxon signed ranks test assumpt. Sig. (2-tailed)
Data were coded as either (nil or minor risk) or (real or major risk)

Appendix E: The use of risk management tools

	Option to purchase	Pre-letting	Advance purchase	Finance cap	Fixed price contract	Joint venture	Phasing	Mixed or flexible use
Option to purchase								
Pre-letting	0.972							
Advance purchase	0.559	0.002						
Finance cap	0.917	0.598	0.498					
Fixed price contract	0.119	0.796	0.336	0.519				
Joint venture	0.973	0.944	0.131	0.039	0.152			
Phasing	0.426	0.221	0.847	0.849	1.000	0.078		
Mixed or flexible use	0.036	0.409	0.678	0.944	0.011	0.529	0.014	

Pearson chi2 test: asymp. sig. (two sided)

Shaded results indicate an unreliable result due to insufficient data in one or two cells data

'Not used' was tested against 'important' and 'crucial'

Appendix F: Risk perceptions at the feasibility stage and the use of risk responses

	Option to purchase	Pre-letting	Advance purchase	Finance cap	Fixed price contract	Joint venture	Phasing	Mixed or flexible use
Site assembly	0.030	0.806	0.243	0.005	0.062	0.029	0.714	0.485
Site condition	0.097	0.450	0.232	0.655	0.561	0.252	0.878	0.774
Planning	0.385	0.611	0.880	0.550	0.561	0.395	0.270	0.030
Building	0.518	0.533	0.573	0.527	0.521	0.461	0.913	0.704
Finance	0.462	0.851	0.779	0.527	0.373	0.027	0.445	0.241
Letting	0.529	0.328	0.171	0.297	0.021	0.038	0.613	0.718
Rent	0.529	0.798	0.877	0.835	0.174	0.542	0.819	0.822
Investment	0.726	0.638	0.915	0.724	0.340	0.211	0.435	0.360

Pearson χ^2 test: asymp. sig. (two sided)

'Nil risk' plus 'minor risk' were tested against 'real risk' plus 'major risk'.

For responses 'not used' was tested against 'important' and 'crucial'

Appendix G: The use of risk management tools and region

	Region
Phasing	0
Pre letting	0.011
Fixed price building contract	0.176
Joint venture	0.252
Option to purchase	0.527
Advance purchase	0.71
Mixed or flexible use	0.774
Finance cap	0.881

Pearson Chi² test : assump sig (two sided)
Region was tested as either London, South East and East or
Rest of Uk
Use was tested as either 'not used' or 'important' and 'crucial'