

PLANNING ADVISORY SERVICE VIABILITY TRAINING COURSE



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Planners and Development Economists

Michael Beaman LIMITED
regeneration solutions

Handbook and Exercises
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DISCLAIMER

This Handbook (and exercises) has been prepared by Roger Tym & Partners (RTP) and Michael Beaman Limited to illustrate and reinforce the PAS Viability course. Its contents should not be published¹ without the consent of PAS, RTP and Michael Beaman.

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¹ These materials are freely available to users on an 'open source' basis; PAS and the authors, however, reserve the right to sanction formal publication.

1 INTRODUCTION

- 1.1 This handbook accompanies the PAS Viability Training Courses run between July and December 2010. The handbook has been prepared by Roger Tym & Partners (RTP) and Michael Beaman Limited. It provides delegates with an aide memoir to key material in the training course and further information on some of the topics taught. It also provides some exercises at the end of the handbook for delegates to try and a glossary of terms. The handbook may also prove useful to those that have not been on the course but wish to learn more about viability for planners.

2 THE BASICS OF DEVELOPMENT

Introduction

2.1 The structure of the handbook is as follows:

- In this section we set out some of the fundamentals of property development and the distinctions between the main types of development, i.e. residential and commercial development.
- In section 3 we look at residential development in more detail.
- In section 4 we look at commercial development in more detail.
- In section 5 we outline the basics of property development itself, such as the issues of return, risk, timing, finance and yields. These are illustrated with some simple exercises. Later in the section we go on to provide more detailed examples of assessing viability in planning.
- In Section 6 we provide some exercises (with answers) for users to work through.
- In Section 7 we discuss methods of commissioning and interrogating viability assessments.
- In section 8 we provide a glossary of terms.

Insight to the development industry

2.2 Within the development industry there are some fundamental distinctions. The first is between residential developers and commercial developers. This is embodied in the share price listing section in the Financial Times where you will find commercial developers listed under 'Real Estate' while residential developers are listed under 'Household Services'.

2.3 For the most part, commercial developers make substantial investments in individual buildings. Bigger projects and longer time scales make it difficult to be confident about the price that will be obtained once the building is complete so the risks are high. If you compare the list of developers from the Financial Times thirty years ago with today you would find that many are now missing, most having crashed in the periodic recessions that plague the business.

2.4 In contrast the major housebuilders are creating large numbers of small buildings. When they develop a large site they don't build all the houses in one go but aim to build a few, sell a few and then build a few more in order to minimise the amount of their precious capital tied up in the scheme at any point in time. Major housebuilders don't tend to go bust as often as commercial developers. A similar comparison of lists of housebuilders from twenty years ago with the present will also reveal absentees but mainly as a result of takeovers rather than collapse. When the going gets tough, larger housebuilders often take over smaller firms for their land.

2.5 Culturally, commercial developers are very focused on 'the deal'. It is unsurprising that many have a background in the major commercial estate agencies. This is sometimes seen as the glamour end of the business. In contrast, residential developers pay more

attention to process issues such as programme and cash flow management. Many come from a construction background.

- 2.6 As you would expect there are a mixture of characters in most firms. At the highest level there are plenty of accountants with the very occasional architect or lawyer, together with people who have no particular qualification but a keen appreciation of the opportunities and hazards of the business. And finally there are many individuals who confound the stereotypes. If you want to be a developer it helps if you have a 'nose for a deal', an instinctive grasp of how plans relate to the three dimensional realities of the built environment, a talent for networking and a good grasp of financial hydraulics and legal documentation. Like any good team, developers may be a collection of those with one or more of these skills, but it would take a very talented person to have all.
- 2.7 The size of the company also makes a big difference to the way in which it does business. Some of the larger firms have to work very hard to persuade anybody that they are nimble and entrepreneurial. On the other hand, many small firms have to struggle to convince people that they can actually deliver on their undertakings. Many people assume that the smaller companies must be more adventurous. This cannot be taken for granted. The larger companies, even the less forward thinking ones, can experiment a bit, because they (and their bankers) know that a single mistake will not sink the company. But all developers are acutely aware that they are in a risky business in which mistakes can be very, very expensive. They need to be flexible and as a result, in our experience, one common factor is their word is that their bond only while the undertaking is advantageous.
- 2.8 Perhaps the major practical distinction between larger firms and smaller firms is the way in which they finance their projects. Generally smaller firms are more dependent on borrowed money than larger firms and commercial developers are more highly geared² than housebuilders. There are also important differences in the commercial sector between the (usually larger) development companies who sometimes retain their buildings as investments, and those that simply aim to sell them as soon as is reasonably possible.
- 2.9 Notwithstanding the issue of size, this distinction between residential and commercial development is paramount. Many texts books use commercial development as the primary model. But in most places house building is the main form of development and, critically, the main provider of planning gain. And most houses are built by the large quoted housebuilders; we therefore focus first on the large housebuilders before covering the commercial sector. First, however, we set out the basic economics and commercial concepts involved.

² A definition of gearing is provided in the glossary in Section 8

The basics of property development

2.10 At the heart of development lies the simple mechanism of buying land, constructing a building and then selling it at a profit. In real life, any project like this is instantly complicated by:

- The way the project is financed
- Timing and cash flow issues
- The risks involved

2.11 Here is an example:

Example 1

- Scratch & Sniff are commercial developers. They have just made a profit of £50,000. Impressed?
- You shouldn't be, because you don't have enough information to make a judgement. If they had only invested £1,000 it would indeed be an impressive return. On the other hand, if they had invested £10,000,000 it would be pitiful.
- To expand the example a little, Scratch & Sniff buy a plot of land for £50,000. They then spend another £150,000 on constructing a small office scheme which they sell for £250,000. On the face of it that looks straightforward. Their outlay is thus £200,000 and their receipts are £250,000, giving them a gross profit³ of £50,000 or a margin of 25% over their outlay. You might regard this as handsome.

Gearing

2.12 Now let us assume that Scratch and Sniff used their own money to buy the land and then borrowed money from the bank to pay for the building work on the basis that both the original loan and the accumulated interest would be paid back once the building had been sold. The bank treats Scratch & Sniff as a bad risk, more likely to invest in bad aftershave than good professional advice, and charges them 10% interest per annum on the loan. The project takes a year from the commencement of construction to the sale of the building and repayment of the loan.

2.13 Their sums might now look like this:

³ i.e. before taking into account all of the other costs they might incur. We expand on this in 2.26 below.

Receipts:	£ 250,000
<i>Less Outgoings:</i>	
Cost of Land	£ 50,000
Construction Cost	£ 150,000
Interest (1 year loan of £150,000 @ 10%)	<u>£ 15,000⁴</u>
Total Project Costs	£ 215,000
 Gross profit	 £ 35,000

- 2.14 Notice that the gross profit on the cost on the scheme as a whole has fallen because of the extra cost of paying the interest on the loan; from the £50,000 in the simple Example 1 to £35,000. But from Scratch & Sniff's point of view they only invested £50,000 of their own money (the rest came from the bank loan) and at the end of the scheme the £35,000 profit represents a 70% margin on the £50,000 on their own investment.
- 2.15 This example shows how the use of loans or 'gearing' magnifies the gains (or losses). This concept should be familiar to most homeowners. If you buy a house for £100,000 with a £80,000 mortgage, your share or 'equity' is worth £20,000. If the value of the house goes up by 10% or £10,000, the value of your share increases by £30,000, or 50%. Conversely, if house prices drop then your share might become worthless or worse. Both investors and developers in property use borrowed funds in the confident anticipation that in the medium to long term the percentage return that they make from their investments will be significantly greater than the percentage paid on their loans, thus improving the overall return on their own money. They adjust the level of this gearing depending on their market outlook. When they are confident, they borrow more. When times get hard, there is usually an almighty effort to repay as much debt as possible in order to reduce interest payments and to ensure that they have the cash available to pay their bills and to avoid bankruptcy.

Timing

- 2.16 Timing is critical because the key to a good investment isn't really the gross profit but the annual return on the money invested. After all, you judge a savings account by the annual interest rate on offer and not by the actual amount of money that you might get back.
- 2.17 In the example above it only took one year for Scratch & Sniff to move from drawing down the bank loan to start the construction work and selling the building. If, for instance, it took an extra year to sell the building the calculation would look like this:

⁴ In practice the financing calculation would be much more complicated. Loans would usually be drawn down as expenditure is incurred. On the other hand the bank would charge fees as well as interest.

Receipts:	£ 250,000
<i>Less Outgoings:</i>	
Cost of Land	£ 50,000
Construction Cost	£ 150,000
Interest (2 year loan of £150,000 @ 10%)	<u>£ 30,000</u>
Total Project Costs	£230,000
Gross profit	£ 20,000

2.18 As you can see the actual margin on cost, expressed as a percentage return on their original £50,000 investment in the land, has fallen sharply from 70% (i.e. £35,000 as calculated in paragraph 2.14) to 40% (i.e. £20,000 as above). But in this case it took them two years to make it so their **annual** return is only 20%. Not bad, but nowhere near as impressive as the 70% achieved by getting the project built and sold in a year. This illustrates that timing makes a massive difference and delays to the project, particularly in selling the completed building, can decimate the annual return on the money invested.

Risk

2.19 The other key factor that needs to be considered is risk. Scratch & Sniff will be investing their own time and skills in the project and also accepting the risk of losing their money. Paragraph 2.18 above shows what happened to the returns when the project was delayed. An equally large risk lies in overestimating receipts or underestimating costs.

2.20 Let us go back to Example 1 above. If the development was sold for 10% less than expected i.e. £225,000, then the gross profit would fall to £10,000. If the receipts stayed the same but costs went up by 10% and the increase was paid for by an increase in the bank loan (Scratch & Sniff having used up their cash when buying the land) then the gross profit would fall to £18,500. If both happened the project would be worth £225,000 and cost £231,500, and Scratch & Sniff would have lost their money.

2.21 In practice, a 10% estimating error is common not least because market conditions change and at the outset a scheme is not fully designed so cost estimates are provisional. Timing is a factor here too. Quite simply, as project timescale increases, the crystal ball used for estimating tends to cloud and the increasing likelihood of changing market conditions or unforeseen events makes it more difficult to confidently predict receipts and costs.

2.22 This illustrates that while the returns from development can be good the risk of making a loss, and possible bankruptcy, is horribly real. The rule of thumb when developing speculatively is that one scheme in three will turn out to be a 'lemon', another will cover its costs, and the third will be a 'pearl'. The ratio of pearls to lemons rises during a market upswing and sinks on the way into a recession.

2.23 Usual risks include:

- Overestimating what the completed development might be worth or how long it will take to let and / or sell it. This can simply be a mistake or the result of unforeseen market movements during the project period.
- Underestimating costs, or unforeseen events causing budget overruns subsequently.
- Paying too much for the site. This often happens in competitive situations in which the winner is usually the party with the most optimistic view of the market rather than the most realistic one.
- Delays, which can be costly in themselves especially once a building contractor is involved, but which also reduce the annual return on capital by extending the period before the returns are achieved.

2.24 Later sections cover some of these risks in more detail and also risks that are specific to various types of schemes.

2.25 When considering the risks and rewards it is useful to imagine that the money involved is your own. You will seek a higher reward if you are risking your hard earned cash rather than leaving it in the Post Office savings account. Longer term projects and highly geared projects are inherently more risky. What return you would want before risking your savings in a speculative office development scheme? **Most developers will target a return of around 20% per annum or more on their investment with a wide range of difference depending on individual styles and the circumstances.**

Profits and pedantry

2.26 In the examples in the previous sections we referred to the 'gross profit' on Scratch & Sniff's scheme. Note that the gross profit made on a single project does not equate to the net profit that a company can use to pay a dividend to its shareholders. To get to the latter you have to deduct all of the general expenses of running the company (as opposed to the individual project) such as salaries and office rents.

2.27 Note also that profit is a measure of performance. A common misconception is that a firm can go bankrupt because it fails to make a profit. Many companies fail to make a profit for years on end and are kept going by their investors' faith that there will be 'jam tomorrow'. In fact bankruptcy occurs when they have no cash to pay their bills and can't raise any more.

2.28 This underlines the extent to which 'profit' is just one of several yardsticks that can be used to measure business performance; cash is tangible, while profit is not. Profit is therefore open to interpretation and may mean different things to different people. It is important to understand how developers measure the performance of both their companies and their individual projects because this in part explains why they operate the way they do.

2.29 The Scratch & Sniff examples illustrate that, at the level of individual projects, most developers will estimate the likely returns on development of land bought, or the amount

that they can afford to pay for a site, using a simple calculation based on the margin between potential sales and costs.

- 2.30 We have referred to this as the gross profit. For short term projects where the bulk of the investment takes place over a year or so, this might provide a reasonable guide to whether or not the annual return is adequate, so its simplicity appeals to smaller house builders and many commercial developers. For longer projects such as large housing schemes or business parks it does not provide a good guide because it fails to deal with the impact of time on the annual rate of return, so the development appraisal models used for final decisions are usually on the cash flow over the life of the project, which will provide a better guide to profitability. These models are extremely varied and we will explore some of these later in the handbook.

Property investment - the yield

- 2.31 The concept of the 'yield' is crucial to understanding the dynamics of investment in commercial property. Although simple, the concept of 'yield' often causes confusion. It is relatively straightforward to work out how much a house is worth for owner occupation. The motives of a buyer who wants to buy a home and live in it are obvious. It is more complicated to put a price on commercial property because, as we explained earlier, unless the buyer intends to occupy it the purchaser will not be interested in the building itself as much as in the rent that will be obtained from letting it.

What is the yield?

- 2.32 Very simply the "yield" is the rent as a proportion of the purchase price:

$$\text{Yield} = \frac{\text{Rent}}{\text{Purchase Price}}$$

- 2.33 For example, if a property is bought for £1,000,000 and the rent is £75,000 per annum, the yield is 7.5%. **Typical property yields range from approximately 5% - 10%; note property investment is different to property development, where the risks are generally greater for the latter.**

What is the difference between return and yield?

- 2.34 While the yield relates to the income received from an asset (rent in the case of rented property and dividend in terms of shares), the return relates to the total gain from the asset. Critically, this can include capital appreciation, i.e. if you sell the asset for more than you bought it for. This means the return will include the yield, but won't be the same figure if the asset is sold for more or less than it was bought for.
- 2.35 For example if a property (say a buy-to-let flat) is bought for £100,000 and sold for the same price a year later having received a rent of £5,000, the yield and return are both only 5%. However, if it is sold for £110,000 instead, the yield is still 5% but the return is 15% (i.e. 5% income return and 10% capital return).

What affects yields?

- 2.36 The main two factors affecting yields are risk and future growth prospects (in terms of both income and capital growth); the higher the risk, the higher the yield but the higher the future growth prospects, the lower the yield.
- 2.37 The easiest way to think about the relationship between returns and rewards is simply to imagine that it is own your own money. If you are investing in the lower risk activities you will expect to get a lower return but will sleep soundly at night knowing that it is relatively safe. If, on the other hand, you decide to go to the casino and put all your money on number 23 coming up on the roulette table, you would be aiming for a high 'yield' in the form of winnings to compensate for the probability of glorious failure.
- 2.38 In terms of the main investment classes, required returns from government bonds (also known as 'gilts') are lowest because they offer fixed income (i.e. no growth) and there is little risk the payments won't be received. At the other end of the spectrum, required returns are usually highest from shares which have much higher risk but have more prospect of income and capital growth. Returns on property investment tend to be in the middle of the two other asset classes, offering more income and capital growth potential than gilts and less risk than shares (which broadly has higher growth potential, particularly in capital terms).
- 2.39 In terms of yields, an investor will accept a lower initial return from their investment if they believe that they will benefit from a higher return in the future. Therefore the yield on shares is often lowest (i.e. the income is a lower proportion of the purchase price), while the yield on gilts is highest (i.e. the initial income is a higher proportion of the purchase price).

What are the different yields referred to?

- 2.40 When talking about 'yields' there is more than one type that can be referred to, although this tends to be in commercial property valuation and agency rather than development.
- 2.41 Rent is likely to change over time and so investors want to know how the yield will change over time, such as at the start, at a fixed date in the future (such as when a rent review is due) or what the average yield will be over a fixed period of time. Some of the main ones are set out below and described briefly:
- **Initial Yield** - the income received as a proportion of the purchase price at the point the investment is bought. For example, if a property is bought for £100,000 and there is a lease in place for the tenant to pay £5,000pa, the initial yield to the investor is 5%.
 - **Reversionary Yield** - the future level of income as a proportion of the purchase price. In our example above, if the rent is projected to increase from £5,000pa to £10,000pa in a few years time, such as due to a rent review, lease renewal or re-letting, the reversionary yield is 10%.
 - **Equivalent Yield** - this averages the initial and reversionary yield. In the above examples, the equivalent yield will be between 5% and 10%; how close it is to either end will depend on how far away the reversion to a higher or lower rent is. For

example, if the reversion to £10,000pa is shortly after the property is purchased, the equivalent yield will be closer to 10%. Conversely if the reversion is a long way in the future, the equivalent yield will be closer to 5%.

- 2.42 The initial yield that an investor requires from property therefore tells you a lot about their view of its long term rental prospects. A high initial rental return on the capital invested (or initial yield) could mean a gloomy view of future prospects. Conversely an investor will accept a lower initial yield from his investment if he expects the rent to grow in the future, perhaps because the building is located in an improving area or because there is only a minimal chance of problems such the tenant failing to pay the rent or departing. Consequently, in a rising market, yields usually fall (or “soften”) and in a falling market yields usually rise (or “harden”).

What about yields on property?

- 2.43 As set out above, property returns tend to be in the middle of the two other asset classes, offering more growth potential than gilts and less risk than shares. We also noted that property investment is different to property development, where the risks are generally greater for the latter and therefore a higher return is usually required.

- 2.44 In terms of the risks in investing in rented property, these include:

- **The tenant** - Is it a strong tenant? The key here is security of income (or rent). That security is something that you would normally expect to pay for, perhaps by accepting a lower initial return on your £1m investment.
- **The area** - Is the location suitable for a building of this quality? Is it declining or improving? Is the access good?
- **The building itself** - What is it like? If the tenant goes bust, how easy will it be to find a new tenant? Do these and other lease clauses protect your investment?

- 2.45 Again, imagine that it is your own money being invested. For example, a shop let to a multiple retailer in a strong town centre might give you an initial return of 7%. This is not only much higher than the interest on a bank account or the dividend on most shares, but like the latter it might go up in the future. However, an old office in a small town let to a small company on a short lease is likely to command a much higher yield as the income is much less secure and there could be problems attracting tenants to it in the longer term.

How are yields used in development appraisals?

- 2.46 Yields are often used in development appraisals to estimate the value of the completed development when it is expected to be rented to a tenant (or tenants). This consequently usually applies to commercial property, although it can apply to residential property where it is also rented.
- 2.47 Going back to our developers, Scratch & Sniff, let us assume they plan to develop an office building and sell it as soon as they can. How do they estimate the price someone will pay for their office?

- 2.48 As previously outlined, offices are often not bought by companies who wish to occupy them, but investors such as pension funds. Let us assume a pension fund will buy the office when it is fully occupied by a tenant (or tenants). Scratch & Sniff should have a firm idea of what rent the building is likely to achieve; let us assume this is £100,000pa. In basic development appraisals, the initial rent is therefore used to help estimate the development value. In such appraisals, the question is therefore how much this rent should be multiplied by to calculate what price a purchaser will pay.
- 2.49 The “multiplier” is calculated by one divided by the yield. The value of a rented building as an investment is therefore calculated by:

$$\text{Development Value} = \text{Initial Rent} \times \frac{1}{\text{Yield}}$$

- 2.50 This effectively calculates the “present value” (PV) of the initial rent continuing in perpetuity (i.e. forever)⁵. Another way to explain it is the rent received in the future is “discounted” at the yield to arrive at its present day value i.e. what somebody would pay today for the rental stream.
- 2.51 We do not propose to explain this in detail; as set out in section 1, there are a number of text books aimed at surveyors which explain these more complicated property investment and valuation concepts. However, for this handbook we have concentrated on showing how the formula is used to calculate development value for the purposes of appraisals, rather than the theory behind the formula.

Examples of using the yield to estimate development value

- 2.52 We now set out some simple examples of how the yield can be used to estimate development value.
- 2.53 Firstly, lets assume a private investor (such as a pension fund) requires a 7.5% per annum return from the office that has been developed by Scratch & Sniff, which has now been let for £100,000 per annum. How much would our investor pay Scratch & Sniff for the office? Using our formula above, the multiplier would be 13.333 (i.e. 1 divided 0.075) and therefore it would pay £1.33 million⁶:

$$\text{£100,000} \times \frac{1}{7.5\% \text{ (i.e. 0.075)}} = \text{£1,333,333}$$

- 2.54 However, this assumes no rental or capital growth/depreciation, letting voids etc; i.e. it assumes the fund receives exactly £100,000 every year. As we discussed above, the rent of buildings is usually expected to go up over the long term. If the investor expects

⁵ the present value of rent far in the future is virtually zero, and therefore doesn't affect the overall value if it is assumed to continue into perpetuity

⁶ as we explain later, this is the gross development value, and a purchaser in reality would deduct its purchasing costs from this

the rent on the office to grow in the future (i.e. be higher than the initial rent of £100,000pa), they will accept a lower initial yield. For example, if the investor will accept a 5% initial yield on this basis (i.e. lower than their required return), the multiplier in this case is therefore 20 and the investor would pay £2 million for Scratch & Sniff's office:

$$\begin{array}{r} 1 \\ \hline \text{£100,000} \times \text{-----} = \text{£2,000,000} \\ 5\% \text{ (i.e. 0.05)} \end{array}$$

2.55 However, if the investor doesn't expect the rent on the office to grow in the future, but are concerned that at the end of the lease of the tenant found by Scratch & Sniff they might have difficulty in finding a new one, they would pay less than £1.33 million in the first example. This means the multiplier would need to be lower than 13.33, and therefore a higher yield needs to be applied i.e. the investor will want a higher initial return on the price they pay than their required return. Say they want an initial yield of 10% to reflect this it means they would pay £833,333 for the building:

$$\begin{array}{r} 1 \\ \hline \text{£100,000} \times \text{-----} = \text{£1,000,000} \\ 10\% \text{ (i.e. 0.1)} \end{array}$$

2.56 These examples demonstrate the inverse relationship between yields and values, i.e. a higher yield means a lower value and a lower yield means a higher value. We set out where to find information to estimate rents and yields in development appraisals in Section 5.

Summary

- 2.57 In summary, a developer will want to ensure the value of a building covers its costs and provides him with an adequate return on his investment.
- 2.58 Adequacy in this context reflects:
- The amount he had to invest to make the return.
 - How long it took to make it.
 - The risks involved.
- 2.59 Keep in mind that:
- To be 'real' all returns must be capable of materialising as cash at some point.
 - The objectives of developers differ and as a result they measure performance and appraise projects in different ways.
- 2.60 Beyond that, the key message from this section is that the returns from development can be impressive but timing is king and the risks are significant especially when using borrowed money. The key points are:
- The gross profit and the percentage margin of difference between receipts and costs is important, but the timing of those receipts dictates the annual return which is equally crucial.
 - Land values are hypersensitive to changes in the value or cost of development.
 - The inverse relationship between yields and value - a lower yield means a higher value.
 - Using borrowed money magnifies the chance of success and failure.

3 RESIDENTIAL DEVELOPMENT

Introduction

- 3.1 We now look in more detail at the different types of development. In terms of residential development, there are some important differences between the volume housebuilders who focus on large sites and the smaller builders and specialists in town centre blocks of flats.
- 3.2 A good place to start is with how they operate and what their objectives are. You will know the names of many of the former. In the last few years the market has been in turmoil so in order to give a picture of the industry in more normal times we will go back a few years. Taylor Wimpey, Barratt and Persimmon are all still with us. According to the Investors Chronicle, May 18th 2007, all sold 15,000+ units in the previous year. Bellway, Redrow, Berkeley and Bovis all sold between 3,000 - 7,000 units. No other quoted company sold over 1,000 units. So the major housebuilders are critical to the overall rate of delivery of new homes. A lot can be deduced about these companies from the Annual Reports that they provide to their shareholders which can be found on their websites.

The Volume Housebuilders

- 3.3 Figure 3-1 below shows an extract from the Annual Report of Taylor Woodrow shortly before their merger with Wimpey in 2007. At the very beginning of the report it provides information on how much profit they have made in the year and how the assets of the company have increased. It goes on to describe this in more detail using a group of operational performance measures.

Figure 3-1 - Taylor Woodrow: Extract from Annual Report

Chief Executive's Review continued

Monitoring our performance

Operating margin is calculated using profit from operations (excluding joint ventures' interest and tax) and revenue (including that of joint ventures). Please see Note 3 of the Consolidated Financial Statements on page 56 for further information. This measure represents the profitability of our operations.

Return on average capital employed (ROACE) is calculated using profit from operations (excluding joint ventures' interest and tax) and capital employed (pre-goodwill). This measure indicates how efficiently the business is using its capital to generate profits.

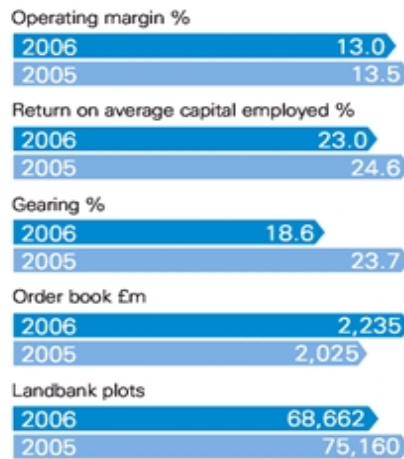
Gearing is calculated as net debt divided by shareholders' funds and represents the level of borrowing within the business.

Home completions include sales from within joint ventures, which are counted as a proportion of a unit in line with the percentage of the joint venture owned by Taylor Woodrow.

The order book represents future business, consisting of houses or lots reserved or amounts yet to be invoiced on construction contracts.

Landbank indicates the 'stock' available for new housing, for which planning consent has been received. Some of the landbank is owned outright, whilst other plots are controlled through options.

Customer satisfaction is measured by each of our businesses through the use of customer surveys. The way in which these surveys are conducted and the questions that they contain vary by business.



Results

Consolidated revenue for the year to 31 December 2006 was up 3 per cent at £3,572.1m (2005: £3,476.9m). Profit before tax was £405.6m (2005: £411.0m).

At 31 December 2006, total equity before minority interests was £2,103.5m (2005: £1,928.4m). Net debt was £391.3m (2005: £456.9m). Net gearing was 18.6 per cent (2005: 23.7 per cent).

Basic earnings per share was 50.5 pence (2005: 50.6 pence). Equity shareholders' funds per share increased by 7.8 per cent to 364.7 pence.

Group housing

	2006	2005
Revenue, including joint ventures £m	3,128.4	2,864.9
Profit from operations* £m	469.2	466.0
Operating margin* %	15.0	15.9
Ending capital employed £m	2,241.2	2,138.2
ROACE %	21.4	22.9
Home completions	13,165	12,516
Home average selling price £'000	207	204
Lot completions	6,413	4,495
Order book £m	1,070	1,318
Landbank plots	68,662	75,160

Group housing has had a good year, with our North American business reporting another year of record profits. Revenue increased to £3,128.4m (2005: £2,864.9m), reflecting an increase in both home and lot completions. Profits from operations were higher than last year, at £469.2m, as the increase in completions outweighed the reduction in overall Group housing operating margin.

Some 53 per cent of 2006 Group housing profit from operations* came from overseas operations (2005: 49 per cent). This reflects our decision to increase investment into those markets over the last few years.

The Group housing landbank (owned and controlled) was reduced to 68,662 plots (2005: 75,160), as a result of our more cautious approach to land buying in North America. The Group housing order book stood at £1,070m (2005: £1,318m), with a decrease in North America offsetting increases in the UK and Spain.

Throughout the Chief Executive's Review, profit from operations excludes joint ventures' interest and tax (see Note 3 of the Consolidated Financial Statements). Revenue is used in the margin calculation (see Note 3).

Source: Taylor Woodrow

3.4 As can be seen above, these measures include:

- **Completions.** How many houses have they built? More than last year? They will make more money if they can build and sell more houses while at least maintaining their operating margin.
- **Operating Margin.** Are they selling houses at a comfortable premium to the cost of building them? This is a good measure of whether or not their costs are under control and their houses are popular. It broadly equates to the simple 'margin on cost' measure of the return made by Scratch & Sniff and referred to above.
- **Return on Average Capital Employed (ROACE).** Are they using their capital efficiently, delaying investment until necessary and then selling houses quickly so that the funds can be recycled elsewhere in pursuit of further profit? This is a sophisticated equivalent of Scratch & Sniff's 'annual return' in paragraph 2.18 insofar as it shows how much the company earned in the year from each £1 it invested on behalf of its shareholders. This is a key operating target for most businesses. In contrast, as explained earlier, the reported profit means very little unless you know how much money was invested and how long it took to make it.
- **Gearing.** To what extent are the overall profits flattered by using borrowed funds? What impact does this have on the risk of a rapid fall in profits in a downturn?
- **Order book.** Have a reasonable number of the houses being constructed been pre-sold? That can reduce margins, but it can improve the annual return on capital (referred to as the ROACE⁷ in Figure 3-1).
- **Landbank plots.** Land is the stock-in-trade of housebuilders. How many years supply of the land that they need is 'in the bag'. Most major builders try to keep enough land to cover four to seven years of development. In this case it is 5.7 years.

3.5 The main aim of housebuilders is to achieve a high and consistent return on their capital. They focus much more on the 'process' of development than their commercial counterparts, trying to optimise the flow of homes that they release onto the market and the ratio of cost to price in each case. The key to success is not just building and selling houses, but in optimising the product and the pace of development to suit market conditions.

3.6 Conversely, the risk is that a company will have large amounts of debt once houses become difficult to sell. Like car manufacturers or retailers, the major housebuilders tend to control financial risks by limiting the amount of debt they use to fund their operations. In contrast commercial developers, and especially the smaller and medium sized firms in both the residential and commercial sectors, the major housebuilders tend to use more debt which is often secured against individual projects.

3.7 This is a less stable business model, especially when the debt is secured against all of the assets of the company rather than against individual projects. However, finance secured against all of the assets of a company is usually cheaper than finance secured against

⁷ Specifically, the Return on Average Capital Employed, a rather more sophisticated measure that is seldom defined the same way twice!

individual projects simply because the risks are lower⁸. We provided a simple example of “gearing” in section 2 in relation to a single development. In terms of a company’s gearing, this is the proportion of debt finance in comparison to the equity capital held. A company that has borrowed a large amount of money, in comparison to the equity capital it has, has a high gearing. When conditions in the market are improving, most companies will happily increase gearing to improve results. Conversely, when conditions are deteriorating they will cut gearing by limiting investment, perhaps by curtailing site buying and reducing the number of houses being built.

- 3.8 Housebuilders as a general rule don't tend to use much gearing; the Calcutt Review of House Building in 2007 suggested that housebuilders' average gearing level from 2000 - 2008 was only around 30%. However, there would have been wide differences between firms, not least because some borrowed money to buy competitors in this period.
- 3.9 Another important determinant of profitability, albeit one that they have less control over, is the effect of increasing (or sometimes decreasing) house prices on the value of the land they own during the period of development. Most developers don't distinguish between the profit they make from the appreciation in the value of their sites prior to development, and the profit made from building and selling the houses, in their Annual Reports and Accounts.

Smaller and Specialist Housing Developers

- 3.10 The main focus in this section is on volume house building but smaller and specialist firms also play a role. Smaller housebuilders do not have the funds to support a sophisticated land banking operation. Land for immediate development will be sourced through the trade press or perhaps from agents or contacts. For many cost minimisation will be key and design standards can 'disappoint'. In order to survive, let alone prosper, they have to be nimble and to get their timing right but they have the great advantage over their larger half-brothers in the commercial sector that even in a downturn, new houses can usually be sold at a discount whereas in the commercial market in particular occupier demand can simply dry up.
- 3.11 A few developers specialise in building blocks of flats. The economics of developing these is rather different, although we have not gone into detail on these in the handbook. There are an increasing number of private companies that specialise in care homes and supported accommodation for elderly people that do not need intensive support. They tend to buy sites for immediate development and calculate what they can pay on a 'per room' basis.
- 3.12 Gallagher Estates is an example of another model of development company that in their own words “is not a house builder but acts as a master developer (and) undertakes all aspects of the development process from site assembly, master planning and promotion

⁸ Commercial companies pay that premium in order to increase their effective gearing and thus the potential return on their own money at the cost of accepting higher risks. They then aim to unload as much of this risk as possible onto the bank which is why, in a recession, the banks as well as the developers bleed.

through to the construction of strategic infrastructure, (retaining) responsibility for the delivery of all planning obligations including community facilities benefits, schools, healthcare, landscaping, affordable housing and all aspects of the public realm". This underscores the perception that there is more money to be made in preparing land for house building than in the development itself. But with long term schemes, any initial investment has to be rewarded with a significantly larger return later, so management of the timing of investment becomes paramount.

Issues

Land Banks

- 3.13 We've already mentioned the one particular goal of housebuilders is to minimise the amount of capital that they have tied up in schemes at any point in time. Clearly owning a large land bank militates against that objective but as shown in Figure 3-1 the larger firms have a supply of sites for several years of development and frequently an additional potential supply comprising sites which they are taking through the planning process.
- 3.14 Where they want to secure large greenfield sites - perhaps part of a farm - a typical approach is to find a suitable site without planning permission and then offer the owner an option agreement. Typically this will give the housebuilder the right to buy the land at some point in the future, usually after planning permission has been obtained, at a discount to 'open market value' but with a stated minimum price. Both the discount and minimum price vary but have typically been 10% and £250,000 per hectare respectively, or rather more in better areas.
- 3.15 The advantage from the **landowners'** point of view is that:
- It relieves them of the considerable burden and risk of financing the pursuit of planning permission.
 - It gives them a price for their land which, although not as high as it might have been if they had obtained a good planning permission before selling the land, would be much higher than the value of the land in agricultural use.
- 3.16 The advantage from the **developer's** point of view is that:
- It gives them access to development land when they need it and at a discount to open market value without tying up their capital in land ownership.
 - It lowers the risk of overpaying for the land in open competition.
 - It protects them to a large extent from the adverse affect of longer term undulations in the price of land.
- 3.17 Most housebuilders also have a stock of land that they own directly. Very often they will make sure this can be developed within the timescale during which they feel that they can anticipate the movements in the wider market.
- 3.18 One oddity about volume housebuilders is that, unlike commercial developers, they are not averse to selling on chunks of their sites to competitors and then developing alongside them, cheek by jowl. Their only reservation might be to ensure that the ranges of homes

offered are to some extent complementary. The proceeds from these land sales can provide them with a quick receipt which will enhance their annual return on capital employed by reducing the net amount of money they have invested in the project. In some cases it is also used to reduce the risk of having too many eggs in one (locational) basket.

- 3.19 There has been a debate about whether the prime responsibility for the shortfall in completions of new homes lies with the planning system or the housebuilders 'land banking' policies. The former case has been made by the RTPI. It implies that the housebuilders don't in fact need to keep so much land in the development pipeline. Using the analogy of car makers, the Japanese masters of 'just in time' manufacture make sure that they have supplies of key components secured under long term contracts. Housebuilders cannot secure their supply of land in the same way and feel that because of the uncertainties in the planning process they effectively have to stockpile it.
- 3.20 If the planning process was to operate more efficiently from the point of view of releasing land suitable for development then, up to a point⁹, housebuilders could cut their land banks without risking their business. It is debatable who sits where in the chain of cause and effect, but official investigations have by and large exonerated the housebuilders simply because the risk to their business if they run out of land is clear. This is arguably in contrast to supermarket operators, where there is a much lower supply of suitable sites and they have been accused of acquiring land with no intention of developing it, purely to stop other supermarkets from bringing in unwanted competition.

Supply, demand and long term changes in the value of land for housing

- 3.21 As the time of writing, house prices and sales have fallen steeply from the high levels achieved in 2007 and the short term outlook remains uncertain. Building costs have not fallen anywhere near as much and the requirement for the higher and more sustainable construction standards embodied in the Code for Sustainable Homes is imminent. This is a perfect storm for the housebuilders. But in the long term their prospects are good in the context of a continuing need for lots more homes.
- 3.22 At the beginning of her admirably clear analysis of the UK housing market, Kate Barker states that the UK "has experienced a long-term upward trend in real house prices. She goes on to quantify this as a rate of increase in real terms¹⁰ averaging 3.3% per annum between 1971 and 2001. The trend figure¹¹ is given as 2.4%. This was higher than anywhere else in Western Europe except Spain.
- 3.23 In contrast, the rate of increase in construction costs in real terms was much lower; the annual rise in construction costs in the period 1991 - 2001 was approximately 0.5% in real

⁹ See Final 'Barker Report'. (Review of Housing Supply 2004 - Recommendations Section 1.51)

¹⁰ i.e. after excluding the effect of inflation

¹¹ The trend figure is based on a regression of (log) real house prices on a constant and a time trend and is the figure used by H.M Treasury in its macro-economic calculations.

terms. This is just the construction cost i.e. it doesn't include the cost of complying with planning obligations, etc.

- 3.24 This difference in the two rates, 2.4% and 0.5%, might not sound like a lot but remember that (a) it compounds over time; and (b) as repeatedly shown in this handbook, residual land values are hypersensitive to changes in values and costs. The result in most parts of the UK has been an increase in the value of housing land before taking planning obligations into account that far exceeds the rate of house prices and inflation generally. Valuation Office Agency data in January 2008 shows that land prices in England and Wales increased by 1,695% between 1983 and the end of 2007 from a typical figure of £174,000 per hectare to £2,950,000 per hectare. In the short term they will fall back a long way but in the longer term will almost certainly recover and the pattern will reassert itself.
- 3.25 Barker also asked what the impact of an increase in supply might be, on the rate of real increase in house prices. She concludes that, "to reduce the real price trend to either 1.8% or the EU average of 1.1% would require between 70,000 and 120,000 additional homes to be built each year". As it stands, nothing like this figure is likely to be achieved soon.
- 3.26 In short, while in the short term the housebuilders face difficult market conditions, in the longer term we may continue to experience medium and long term increases in the price of housing land (before planning contributions are taken into account). Barker attributes this to several factors, but principally to an inadequate supply of land for development as it has a real impact on the economics of house building.

4 COMMERCIAL DEVELOPMENT

Introduction

- 4.1 In this section we discuss the business of commercial development. One critical difference to residential development is that new commercial development is often owned by large private funds, such as a pension or life insurance fund whereas most houses are owned by you and me.
- 4.2 This makes the business of commercial development fundamentally different to residential development. While a housebuilder has one customer for each house, a commercial developer therefore often has two; it is leased to an occupier and then sold to an investor who is seeking a return from that investment in the form of rent which they expect to increase over time. Most buildings' leases currently allow the rent to be adjusted every so often - normally five years - to reflect the current market rent if this higher than the rent currently being paid. Property is a different asset class to shares and bonds for investors, and therefore offers diversification opportunities from these in addition to income returns from the rental stream and potential capital returns if it is sold in the future for more than it was acquired.

Commercial Developers

- 4.3 Commercial developers vary more widely than housebuilders. We have summarised the main types below:

Large established listed companies

- 4.4 There are a number of large commercial development and investment companies listed on the Stock Exchange. Many are now constituted as Real Estate Investment Trusts (REITS) which gives them some tax advantages. Their key strength is a large portfolio of well located shopping centres, office blocks and retail warehouses. It is the type of company that a professional investor might commend to their grandmother on the grounds that they have solid assets and a rental stream that should provide an inflation proof income for old age.
- 4.5 These companies tend to take a long term view and will invest a lot in a really good site which can be developed to provide a property asset worth retaining as an investment. They can limit the danger of buying a site in competition by simply aiming for sites to buy which smaller competitors cannot afford. Long term management and design issues are usually carefully addressed and this can be a real advantage from a regeneration point of view. The reliable stream of rental income provides them with a comfort cushion so that they won't go bust for want of cash when the property market hits a cyclical low point.
- 4.6 Examples include Land Securities, Derwent London and Hammerson (mostly office and retail); Capital and Regional and Liberty (mostly retail); SEGRO (mostly industrial), Great Portland Estates and Derwent London (Both mostly offices in London's West End).

Medium to large development companies

- 4.7 There is a second tier of large companies that mix development companies with investment depending on the opportunities at hand. They might be quoted on the stock exchange but are not usually REITS. These days, some of the largest are privately owned.
- 4.8 These companies often focus on slightly smaller schemes than the largest developers because both their financial and project management resources are more limited. It is an entrepreneurial concern whose progress through the cycles of the property market is like a big dipper, soaring to heights in those glorious moments when investor and occupier demand coincide and anything can seemingly be sold at a premium price, only to come crashing down when the bubble bursts. At that point, if it is still carrying a lot of debt and has no rental income to fall back on, it will go bust. In the past, entrepreneurial owners may well have sold out before that point is reached.
- 4.9 Their style of operation is usually to buy land and then complete the building and sell it as quickly as possible. They will aim to use someone else's money as far as possible either:
- In the simple form of debt;
 - By forming a joint venture to spread the burden;
 - By pre-selling the completed building to a long term investor on a basis which leaves the investor paying for construction costs and the developer managing the scheme and finding a tenant and with a share in any profit.
- 4.10 The attraction of these arrangements to these companies is that:
- If things go badly but their building is pre-sold, their losses are limited.
 - It frees up their (often limited) capital for other schemes. Whilst as a result they might make less on this, particularly in cash terms, it puts them in a position to reinvest (perhaps repeatedly) in other schemes and thus maximise their annual return on their capital and their aggregate profit.
- 4.11 The attraction of this arrangement to the funder is that:
- It gives them access to investment opportunities that they would otherwise not have.
 - The effective price that they pay is often rather less than it would be if they simply bought a complete and tenanted building 'off the shelf'.
- 4.12 In order to achieve a quick profit and turnover of capital, companies like this are not averse to selling development sites if someone will pay them more than they think it is worth. Larger examples of public companies of this sort exhibiting some, but in no case all, of these characteristics include Helical Bar, Chancerygate, Quintain and St Modwen. Heron, Castlemore and Targetfellow are good examples of private firms. Some are purely developers while other mix development and investment in varying proportions.
- 4.13 These companies often focus on 'total return' rather than simply the margin of sales over costs. This is broadly the amount that they have added to the value of the company each year. For instance, the 2006 accounts from Helical Bar, a major developer, state that, "*Our objective is to maximise growth in assets per share using a recurring stream of*

development and trading profits to build up the investment portfolio.....A property company's share price should reflect growth in net assets per share". The crucial distinction is that this emphasises an increase in the net value of the assets owned rather than the housebuilders goal of an increasing level of sales.

- 4.14 In recent years the number of larger development companies has increasingly been joined by overseas firms. Their origin varies over time. In the run up to the last recession the major players included Lend Lease (Australian), Brookfield (North American), Ballymore and Treasury Holdings (Irish). Major investment companies can also act as developers. Classic examples include life insurance giants Aviva and Prudential, which have both been active developers.

Regional to small development companies

- 4.15 Regional companies play a valuable role in developing small and medium sized schemes throughout the UK, making good use of familiarity with the local market. These companies operate in much the same way as the medium-large companies, but tend to concentrate on smaller schemes in areas they know well. Again, it tends to make good use of any means of limiting the scale of the risks it takes on.
- 4.16 There are still many small development companies. You have already been introduced to a prototype, Scratch & Sniff. For many firms like this, the key relationship is with the bank manager. They only have the capacity to create very small schemes at times when bank finance is readily available. Otherwise they often play a role in piecing together larger and more complicated schemes which they will then 'sell on' to a larger firm, often in return for an introduction fee or a project management contract and a share in the profits.

Specialist development companies

- 4.17 Finally, there are specialists. These are by no means always the smallest. Their role is best illustrated using specific examples. For instance, the market for very large distribution units is now dominated by giant international companies such as Pro Logis, a Denver-based U.S. multinational with 40m m² of space worldwide and which sees itself as offering an integrated worldwide logistics service as much as a building.
- 4.18 The important thing for them is to acquire sites of the necessary scale. At the other end of the size range, companies like Basepoint develop and manage economical space for small businesses (most firms offering space to small business do not develop the space, but buy existing buildings and convert them, e.g. Workspace at the economical end of the market, and Regus at the top end). Finally, there are a growing number of companies with niche specialism such as letting to doctors (e.g. Primary Health Properties) or student accommodation (e.g. Unite).

5 ASSESSING VIABILITY

Introduction

- 5.1 In the previous sections we tried to explain the way in which the property development business generally works. In this section we set out in more detail how to analyse individual developments and assess their viability. There are several good textbooks on analysing development, but most were written for surveyors rather than planners and therefore don't provide the context for assessing viability in planning. They can also be quite detailed on issues such as discounted cashflows which surveyors need specialist skills in, whereas planners may only need to know the key concepts and their application (which we discuss later).
- 5.2 This handbook provides information for planners on what they need to know to undertake basis appraisals and includes some very simple examples. Firstly in this section we will look at the different approaches to analysing development. Secondly we provide some guidance on how to assess values and costs using information that is readily available and flag up some of the potential pitfalls. Finally we provide some examples of basic development appraisals and provide some information on alternative approaches.

Background

What is viability?

- 5.3 The analysis of development in planning is often needed to assess "financial viability". To be financially viable, a development broadly needs to satisfy three main parties:
- i) **Developer** - an adequate return in consideration of the risks of development (as discussed in the previous sections)
 - ii) **Local planning authority** - in order to grant planning permission, including Section 106 requirements
 - iii) **Landowner** - who will only sell land to a developer at a certain price
- 5.4 Development in a planning context is broadly considered to be viable where the estimated land value from development exceeds the existing use value (EUV), or any alternative use value, of a site. For example, if the estimated land value for residential development is estimated at £1 million, the existing use value of the site is £0.5 million and there is no alternative use for the site, then residential development on the site would be considered viable. However, as we will go on to discuss the assessment of viability is not an exact science as both the estimate of land value and whether the existing use value is sufficient for the landowner to sell, can be subject to considerable differences of opinion.

Where is an assessment of viability required?

- 5.5 The need to be able to understand and assess development within the planning sphere could broadly be needed for:

- **Development management:** second guessing a developer's calculations in a negotiating situation. It helps to understand how these calculations are done and, importantly, where the assumptions made by the developer might be self-serving, and
- **Planning policy:** generalising about viability across a wider area - the sort of analysis that might underlay calculation of a CIL charge - you don't need the same degree of precision that is required to when dealing with the characteristics of a specific site.

Approaches to assessing viability

- 5.6 There are many ways of valuing a building but in essence only two ways of assessing development viability; a “comparative” approach and a “development appraisal” approach. We will initially concentrate on the assessment of the land value from the development appraisal rather than the existing use value of sites, which we will come back to later.
- 5.7 Both approaches face difficulties when assessing the land value. Firstly, there is the issue of imperfect information. Development constraints, such as physical issues including land conditions and other constraints such as planning requirements, may not be known to varying degrees by planners and developers. Secondly is the issue of accuracy in terms of quantifying the viability of development. While the methods of assessing the value of existing buildings can achieve a reasonable degree of accuracy, the various techniques of assessing viability, for instance in the case of how much can be paid for a site, can produce hopelessly varying answers.
- 5.8 It should be noted these two approaches are not mutually exclusive approaches when assessing viability; ideally both should be used to come to a rounded opinion of viability.

Comparative analysis

- 5.9 As practiced by professional valuers, this involves estimating the value of a site by comparing it with others that have been sold in the area at a known price, making adjustments to the reported price to reflect differences in circumstances.
- 5.10 However, development is not a homogeneous product. The limitation with the comparative method of analysis is that there is frequently a simple lack of even vaguely comparable sites and it is rare that all of the terms of supposedly comparable transactions are known. Sometimes the adjustments use hard data but in a worryingly high number of cases they are simply based on provisions and guesswork. This is the main problem with using data on land values from Valuation Office Reports which give typical values for residential and industrial land broken down by region and major centres¹².
- 5.11 The quality of information is also a key consideration, with only rumours rather than hard facts often available. For example, rumours that “old Charlie up the hill got a million an acre for his land” don't normally acknowledge the fact that Charlie had a flat, square site

¹² [Link to Valuation Office Agency Publications](#)

just off a major road and the site being compared with Charlie's is a long, thin, wet clay pit with buried bunkers located away from any decent road.

- 5.12 Many developers use a different approach which has more in common with benchmarking. For instance, there is an old housebuilders rule of thumb that the price you could afford to pay for a site was roughly 30% - 40% of the value of the houses that you could build on it. So, if you can develop 45 houses which would sell for £200,000 each, you could afford to pay £3m for the land. This 'ready reckoner' doesn't work for higher density sites and ignores any planning and affordable housing requirements but still seems to be used by some land buyers as a basis for initial estimates.
- 5.13 Another approach when looking at housing land on an area wide basis is to use Land Registry data on house prices to adjust Valuation Office Agency (VOA) information on land values. As set out above, the VOA only currently provides land values for major centres in each region. For instance, if the VOA doesn't provide land values for your location, but you know that similar houses in another location where it does provide information sell at roughly the same price, then it is reasonable to suppose that the site you are considering with similar physical and locational characteristics will be worth the same before taking into account any difference in planning policies.
- 5.14 It cannot be stressed enough that these are rules of thumb that are a helpful starting point to understanding viability at a strategic level but are hopeless at the level of individual sites. Bear in mind that both Land Registry and VOA data is historic and reflects transaction based in yesterday's markets under yesterday's planning policies and other rules.

Development appraisal analysis

- 5.15 The alternative to trying to estimate the land value from development based on information on how much other sites sell for, and try to adjust this information to reflect the particular characteristics and constraints, is to appraise the actual development itself. This entails estimating the likely costs and values, and their timing, of developing the site. As set out above, the output of an appraisal is often the "residual" land value.
- 5.16 The basic calculation of the residual land value is therefore:

Figure 5-1 Basic residual land value calculation

Estimated Development Value
<i>Less</i>
Estimated Development Costs
+
Estimated Interest Payments
+
Required level of profit
=
Estimated Residual Land Value

- 5.17 We have concentrated on the residual land value approach in this handbook, as this is most commonly used for assessing viability. However, the residual in a development appraisal can in theory be any one of the cost or value inputs. In addition to the residual land value, the other main residuals assessed are the residual development profit (or more correctly the gross profit or development surplus¹³) and the residual for developer contributions.

Value and worth

- 5.18 It is important to distinguish between the residual land value and worth. If you are a developer assessing how much you would pay for land, this is the residual worth; it is a calculation of how much it is worth to you based on your development plans. Other developers might have a different view of costs and values and thus a very different view on the worth of the site. Clearly as a developer one aim is to find sites which you can buy for less than they are worth!
- 5.19 When surveyors refer to value, they are usually referring to the 'open market value'; this has a strict definition and is contained in what surveyors refer to as the 'Red Book' (or more formally the Royal Institute of Chartered Surveyors Valuation Standards). The most important distinction with worth is that the value in this respect is the price that the land would obtain in the open market assuming a willing buyer and seller. The value can therefore be different to the worth.

Issues with development appraisals

Sensitivity to assumptions

- 5.20 There are numerous problems with using development appraisals to assess the residual land worth or value. The biggest is that the sensitivity of the result to the assumptions made. This is illustrated in the quote from a legal case below:

"Even more striking, the court in that case was shown the details of five different residual valuations of the same site (which had been carried out by leading firms) and found that, by taking the highest and the lowest figure from the five for each element in the valuation, one could arrive at residual site values of either £4,734,422 or £65,666. 'Which, as Euclid would say, is absurd!'"

Staughton LJ in Nykredit Mortgage Bank plc v Edward Erdman Group Ltd [1996]

¹³ As previously discussed, the gross profit made on a single project does not equate to the net profit that a company can use to pay a dividend to its shareholders. To get to the latter you have to deduct all of the general expenses of running the company (as opposed to the individual project) such as salaries and office rents.

- 5.21 A relatively small change in one variable can have a magnified effect on the residual land value. Later on in this section we provide some examples of simple development appraisals; in one example a 10% change in house prices results in a change to the residual land value of over 30%.
- 5.22 Clearly it is therefore very important when doing a residual value appraisal to make sure that the input assumptions are as accurate as possible. However, in practice it is simply not that possible to achieve a degree of accuracy that provides a great deal of comfort. It is therefore seen by the Lands Tribunal as the method of last resort.¹⁴ The best that can be said of it is that in spite of its unreliability it is the 'least bad' approach given the usual problems with the comparative site method which doesn't even have the virtue of making the assumptions explicit.

Not suited to all types of developers

- 5.23 In Sections 3 and 4 we discussed the differences between developers. This highlighted that the structure, financing and size of developers varies considerably. The basic forms of residual appraisals set out above are a way of calculating what you can afford to pay for land for the development of a single development that can be built quickly.
- 5.24 However, it is poorly suited to measuring returns from large and phased schemes in which the timing of costs and receipts is of crucial importance. You will recall from the previous chapter that the acceptability of the return earned by Scratch & Sniff was directly related to how long it took them to make it. Residual value analysis focuses on the total return but doesn't tell you much about annual return.
- 5.25 For this reason more sophisticated tools such as 'discounted cash flow analysis' can be more useful, which is discussed in more detail below.

Transparency

- 5.26 The complexity of the appraisal should generally reflect the complexity of the development. Our example appraisals are very simplistic, but in the real world they can become extremely complicated. This can be an issue when attempting to analyse another party's appraisal, such as a developer's as part of a planning application. It can be difficult to understand how an answer has been arrived at from a detailed appraisal, while a simplified appraisal can hide important assumptions (such as the assumed timing of costs and receipts) that have a critical bearing on viability.

Alternative appraisal approaches - discounted cashflow (DCF)

- 5.27 One alternative to the traditional residual value appraisal approach is to use discounted cash flow analysis (DCF). In terms of issues, this doesn't negate the first and third issues highlighted above (sensitivity and transparency) but can provide a more accurate

¹⁴ Lands Tribunal 1966 200 EG163 First Garden City Limited vs Letchworth Garden City Corporation. "...is a feature of residual valuation that comparatively minor adjustments to the constituent figures can have a major effect on the result"

assessment of some types of development, in particular large and phased schemes by developers using their own money. This handbook provides a simple explanation of the approach and an example. More information can be found in texts such as those by Andrew Baum¹⁵.

- 5.28 Simplistically, the DCF approach is based upon an estimate of the costs and receipts within each time period of the project and the resulting net income or outgoings. The core of this technique is that you then use your target rate of return to discount the net cash flow in each period.
- 5.29 The great advantage of discounted cash flow analysis is that it is much better at allowing for the effects of timing of costs and receipts on the real return from a project and is more aligned with the real corporate financial targets of the development company which is the size of the annual return they will make on their shareholders capital.
- 5.30 The main disadvantages are that the input information is still as crucial to the result, and the fact that it is a more sophisticated tool means that the 'output' calculation can run to reams and reams of Excel worksheets and huge number of formulae and calculations that are almost impossible to audit.

Development inputs and sources of information

- 5.31 In this section we discuss the key development inputs and where information on estimating these for a development appraisal can be found, before we set out some examples of development appraisals. This hopefully provides a starting point for helping you to analyse development appraisals yourself.
- 5.32 However, it is not intended to be an exhaustive list of information, and some figures provided are merely broad guides that won't necessarily apply to all developments. In addition, as with all the information in this section on analysing viability, the question that needs to be answered effects the appraisal. For example, analysis of a complex town centre mixed use development as part of a planning application may need a bespoke development appraisal (as opposed to a toolkit, for example) and require detailed cost and value estimates. Conversely, a more strategic assessment of affordable housing or contribution requirements may necessitate generic development cost information as it is not practical to consider all the likely developments in the area, with value information. Consequently, specialist surveyors and other consultants may be required to undertake all or part of the initial development appraisal itself.

Assessing development value

- 5.33 In order to assess development value, you need to know (i) how much space you are selling; and (ii) how much you might get for it on a pro rata basis. Neither is straightforward and there are important differences between different types of development.

¹⁵ For example, *The Income Approach to Property Valuation (Fourth Edition)*, London, Routledge by Baum, A and Mackmin, D (1996)

How much space is being sold and how is its value assessed?

- 5.34 While planners are generally interested in the overall size of a development (i.e. the **gross** area), surveyors are usually concerned with the **net** size of a development (i.e. how much of the space is considered useable by the owner or occupier for their primary activity).
- 5.35 An **office** building is usually sold on the basis of the net internal area. This definition normally excludes stairwells, toilets, plant rooms and reception space. The relationship between the areas of the building that can be used and the total area of the building (e.g. as calculated for the town planning application) is called the net to gross ratio. This can range from less than 70% to 90% or more. A typical office building will normally achieve something like 85%. Ironically the least efficient buildings in this respect are often those that are lauded from the design point of view. The GLA building at London Bridge is a classic example.
- 5.36 An **industrial or warehouse** building is also normally sold on the basis of the net internal area but since in practice the loss of space to circulation, toilets and whatnot is minimal this normally includes everything within the walls. But the height of these buildings is increasingly becoming an issue for distribution companies and some very large warehouses are now sold on the basis of cubic capacity.
- 5.37 Although the net internal area of **retail** is usually similar to industrial or warehouse building (i.e. a very high net to gross ratio), how it is valued can be radically different and more complicated. This is because the way in which retailers use their floorspace varies from company to company and sector to sector and you can't generalise much about the requirements of, say, a fashion company and a grocer. As far as high street shops are concerned, the usual approach adopted by valuers is to treat the area closest to the window as being the most valuable. It is often referred to as Zone A. Practice varies on size depending in part on how closely the valuer is related to the dinosaurs. It can be taken as 6 metres from the shopfront. The next 6m back is referred to as Zone B and the next 6m is Zone C, etc. The value of space in Zone A is taken to be twice the value of space in Zone B which in turn would be twice the value of space in any Zone C. The valuer can define as many zones as he or she wants but it will start to become rather meaningless after that. Storage space and access is also important but lots of other things make a difference. For instance, valuers add sums for what is called a 'return frontage', which is shop window space that extends around the corner. That will often use different rates for basement and upper floor space. Given the complexities of valuing retail floorspace, in more strategic studies where exact unit sizes and configurations are unknown, an overall rental value can be used based on a typical sized and proportioned unit.
- 5.38 Usefully, **retail warehouses** and **supermarkets** can be valued on this basis which you would think would make it a lot easier. The problem here is that the beauty of these larger units is often very much in the eye of the particular corporate beholder and can be difficult to predict.
- 5.39 Each type of **leisure** property has its own rules in terms of valuation. Most are valued using a proxy for the profit that can be made from them rather than by the square metre and therefore tends to be a specialist area for surveyors.

- 5.40 **Residential** property is different in so far as the method of measurement can be dictated to some degree by the needs of the analyst. In the development business they mostly concern new houses and have less need to concern ourselves with the issue of how you value old ones¹⁶. New houses are often valued on a gross internal area basis making no allowance for the efficiency of the subdivision within space. The only complication is usually how you count the garages and also the value attributable to the top floor in townhouses. Most estate agents and site marketing staff will tell you that this additional floor does not achieve the same proportionate value as the rest of the space because three-storey houses are comparatively unpopular.
- 5.41 Conversely, flats are more akin to commercial property in the sense that there are common areas that are not valued such as stairwells and lifts. The internal area of the flat is therefore normally considered the saleable space. The loss of some space to provide communal circulation will vary depending on the layout of the building, but a normal rule of thumb is a net to gross ratio of 85%. The internal layout of flats is also normally considered roughly to be equally as efficient in every case as the margin of error is relatively minor.

What value should I apply?

- 5.42 The next step in each case is to work out how much per square foot or square metre you might get for the development, and in the case of commercial property to apply an appropriate yield. You may also need this information to assess the existing use value of the development site. There are several sources of information you can use for both purposes.
- 5.43 The first port of call might be **property agents**. There is nothing to stop you simply telephoning an agent and asking their view and very often they are delighted to share it. The property industry isn't secretive in that respect (they will be more cagey about specific transactions). On commercial property, you might be surprised to know that, when you instruct a national firm of estate agents on a local job, very often the first thing they do is to ring up the local agents and get a better informed view from them. The main trick when dealing with agents is to be sure that, when they give you an idea of the price per square foot or square metre, you understand the basis of measurement they are using. It is easy to make mistakes of definition. In some cases you will find that the agent's websites contain details of property that is currently on sale. Clearly there is no guarantee that anything like the sale price will be achieved but usually agent's set a price that is not too far in advance of what is achievable.
- 5.44 In any event most developers will be looking to improve upon the current level of rents or banking on levels increasing during the time it takes to complete the scheme and in that respect simply using the current quoting prices provides a built-in bias to optimism that might better reflect what the developers might expect to achieve in the future in a rising

¹⁶ It is better to measure older houses on the basis of the internal area of the individual rooms. For instance, a house with long corridors and landings that would add little to the price that any buyer would pay for it.

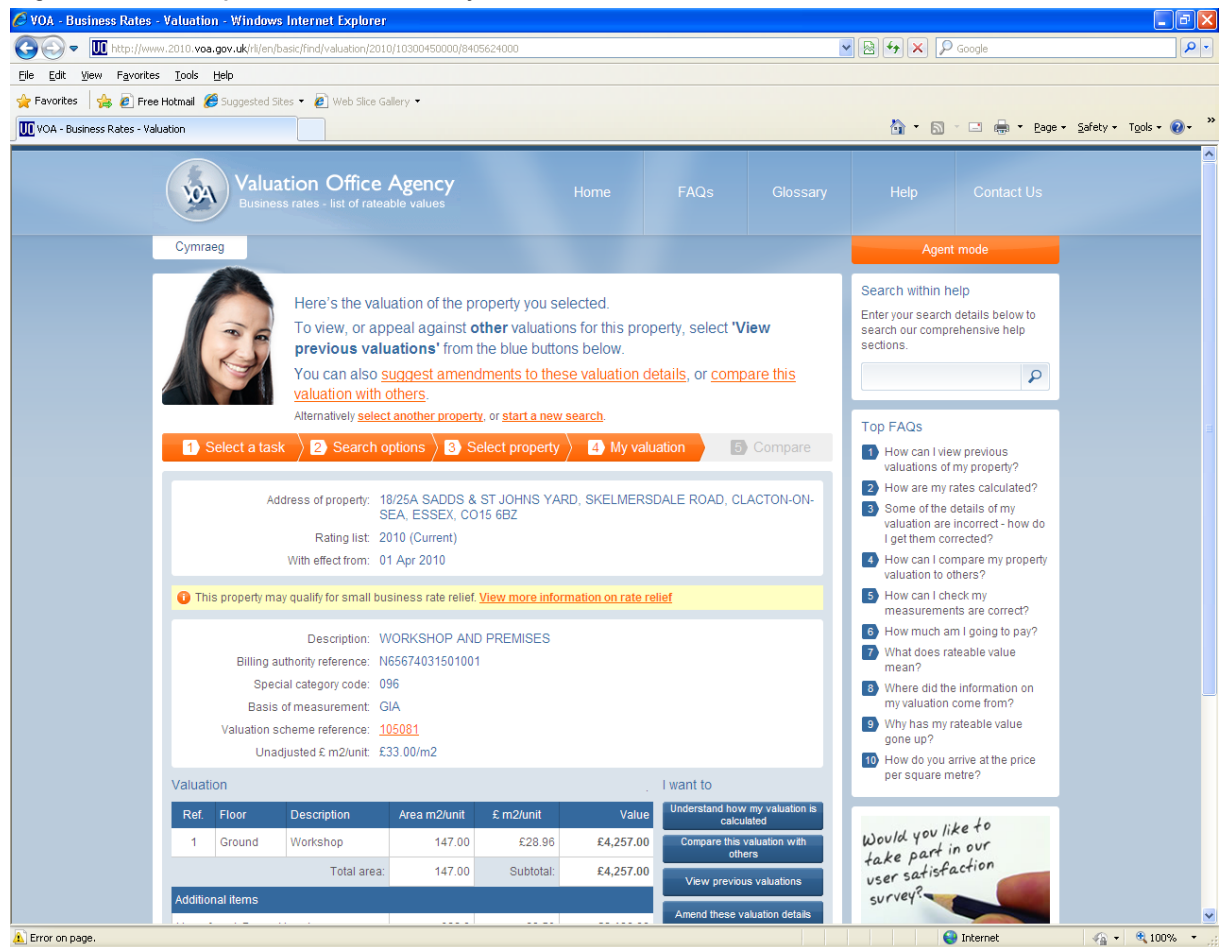
market. Finally, some of the national agents publish research which provides useful benchmark data, particularly on existing broad yield levels for the main categories of commercial property (i.e. retail, office and industrial) with varying levels of sub-division (e.g. differentiations between prime and secondary property).

- 5.45 If you are lucky, your organisation will have a subscription to one of the professional trade databases to provide information on historic transactions. Examples include the Estates Gazette EGi service, and the Focus and Promis databases. The latter provide much of the information upon which the agents report previously referred to is based. The Estates Gazette also provides a freely accessible service detailing the offer in every area¹⁷. One word of caution; the data on property for sale is much more complete than the data on transactions. It is therefore dangerous to use information from these databases as a definitive guide to the amount of space it has been sold in any town over a given period. Another source of information is auctions. Companies such as Allsops are specialists in this field. While this can provide useful yield information, it tends to be for lower value commercial property (such as individual shops in small towns).
- 5.46 Finally in terms of commercial property, there is the Rating List produced by the Valuation Office Agency (VOA). The VOA is responsible for assessing all business and non-domestic property in England and Wales, giving each one a rateable value. In broad terms the rateable value is professional view of the annual rent for a property if it was available on the open market on a set date. The VOA provides summary valuations for many of the properties online¹⁸ which include the rent (per m²) it applied to the property. An example is shown below:

¹⁷ www.egpropertylink.co.uk

¹⁸ <http://www.2010.voa.gov.uk/rli/>

Figure 5-2 Example of VOA summary valuation



Source: Valuation Office Agency

- 5.47 The VOA obviously has a lot of properties to assess and therefore can't be expected to get the market rent for every single property right but it is nevertheless a useful tool, especially for more strategic assessments where general rather than site specific values are required. However, the rating list is only currently updated every five years, with the current rateable 2010 rating list based on values assuming a valuation date of 1st April 2008. How close the market conditions at the rating list valuation date and those when the development appraisal is being undertaken therefore needs to be considering when using this information.
- 5.48 In terms of residential values, agent's websites are often the last resort when trying to assess the price of new houses though, simply because for the most part the houses they are selling are second-hand. Many houses are sold through the volume housebuilders who usually own their marketing operations. If you check their websites, you will often find details of its development plans; it is a fairly easy task to work out the gross internal area of the house from the information given or by using a ruler, checking scale from dimensions given or from other typical dimensions. It is even better if you can get to the sales showrooms where the staff, if they are not busy, will often have calculated their price per square metre and will give you some insight into what people are currently

buying and what the volume of sales is. And there are specialist websites which aggregate information on new housing developments¹⁹.

- 5.49 There are now a plethora of websites that provide information on sales prices recorded by the Land Registry²⁰ for different towns or postcodes, and new or second-hand houses. These can be useful in gaining an overall understanding of broad levels of house prices and differences between areas. This information is constrained as the size of the houses or flats is not reported which means only an approximation can be obtained on values per m² using typical unit sizes. The number of transactions is key; a large number means this approximation could be relatively accurate but a small number means the information can be skewed by the individual characteristics of the properties which may not be reflective of “typical” properties or the value of the properties on the development that are being assessed.
- 5.50 Finally, for both commercial and residential property, the “view” of an agent can be obtained. Clearly this is not always a reliable source, as it may be in their interests to talk up or down prices or appear knowledgeable. However, it can help to obtain a second opinion after other information sources have been analysed.

Assessing development costs

- 5.51 We turn next to development costs. We have concentrated on the following key cost categories that apply to most development:
- Land costs
 - Planning fees
 - Site preparation
 - Build costs
 - Fees
 - Marketing and sales
 - Finance costs

Land costs

- 5.52 You may need to find out land costs of other development sites where you are using the comparative method, or perhaps where you want to know what a developer paid for the site you are assessing (particularly in development management).
- 5.53 In both cases this can be difficult to ascertain. Information on specific land transactions are often commercially confidential and not readily available. And if the price paid can be established, perhaps through anecdotal information sourced from estate agents, it is often

¹⁹ See www.smartnewhomes.com or www.newhomesforsale.co.uk and www.ononemap.com give information on the price of recently built homes if you know where they are but doesn't usually help with dimensions. With practice, you can guess.

²⁰ Such as <http://www.rightmove.co.uk/>

necessary to understand the other terms of the deal, perhaps in relation to timing of payment or who was obliged to do what.

- 5.54 Where you are using the comparative method, you will need to find some truly comparable sites and then to adjust the prices to make it a real benchmark. The Valuation Office Agency has historically published statistics on average residential and industrial land prices based on historic transactions (prices for sites for other uses vary too much). These can provide a rough guide but in any particular instance you will run into the same old problems of applicability, i.e. the specific circumstances in each case can make a huge difference to the value.
- 5.55 The only other useful comment one can make about land values relates to the position of greenfield land owners. Many of the larger swathes are secured by the volume housebuilders using an option agreement. A typical option agreement between the housebuilder and the farmer will work on the basis that the developer will commit the funding or work necessary to try to secure planning consent and in return will have the right to draw down land the development as and when required that 90% of open market value subject to a floor price equivalent. That can vary a lot and some agreements don't have a floor price, but might average £300,000 a hectare. This type of arrangement relieves the landowner of the costs and risks involved in pursuing planning permission. From the housebuilder's point of view this gives them a reliable land bank without tying up their capital and spares and from the risk of having to compete to purchase land in the open market.
- 5.56 One advantage of this arrangement from the town planner's point of view is that it removes a lot of the housebuilders incentive to contest planning gain requirements because a great deal of the cost of meeting them will effectively fall to the landowner through a reduction in the 'open market' value at which the option is exercised.
- 5.57 Obviously a lot depends on landowner's motivation. If it is a farmer, his or her main motivation is to get as much as quickly as possible. Other major landowner, such as the Church Commissioners, the Crown Estate or Network Rail may be more prepared to wait much longer in order to achieve best value and drive a hard bargain.
- 5.58 When doing an appraisal, don't forget Stamp Duty Land Tax, which for most purchases will be 4% (check current rates and scales on the HMRC website).

Planning Fees

- 5.59 The next major cost that will often be encountered is the cost of preparing and submitting a planning application. Some of these costs will be covered by the standard budgets for project fees (see below), but the amount of information required to support planning applications has increased significantly over time. There are no real rules of thumb available in this connection, but as you would expect costs are highest when special studies such as EIAs or surveys of existing buildings are involved.

Site Preparation

- 5.60 The next phase of the scheme is to prepare the site for development. In the case of a greenfield site this will typically involve a fair amount of earth moving or removal. This is becoming increasingly expensive as landfill tax rates increase.
- 5.61 In some cases demolition will be required. The cost of this varies with the size of the structure, but also on whether it contains asbestos and how much material can be recycled. Other problems that can be encountered include underground water courses and a high water table, tree roots and archaeological remains. Again, there are no hard and fast rules for estimating what the overall cost impact might be; it really depends on the particular site.
- 5.62 Equally, there can be no hard and fast rules about the cost of remediating a brownfield site. If you want more information on site condition issues, the best 'rule of thumb' estimates of the costs associated with remediation that I have seen are in the English Partnerships Best Practice Note 27 entitled 'Contaminated Land Remediation Costs' which is now available from the Homes and Communities Agency website²¹. The best practical information we have found on the practical and cost implications of site issues such as tree cover and site slope is in Mark Brinkley's book, 'The Housebuilders Bible'²².
- 5.63 The cheapest and most basic forms of foundation used for houses are strip or trench fill and these are perfectly adequate where there is a firm layer not far below the surface and nothing untoward between the two. You sometimes get that on farmland, but all too often there are complications. Typical examples on greenfield sites include the deep layers of soft material on river banks, clay soils which expand and shrink as they get wet and dry out again and sites with trees and shrubs with roots that can cause damage.
- 5.64 Brownfield sites can be 'made ground'; a term covering sites that have been filled with rubble or the remains of older structures, in which case foundations have once again got to be taken down to solid ground below the level of the fill. There is no point in trying to guess the cost of dealing with each problem, but as an illustration you might reckon that a need to use piles in place of standard foundations would currently add around £5,000 to the construction cost of a medium sized house with short piles or a simple raft solution adding perhaps half that to costs.
- 5.65 Another major element of the costs of a major housing scheme is invariably the off-site and basic social infrastructure, e.g. open space and local areas for play, needed to support the development. Clearly it is not possible to generalise about the cost of these and a lot depends on whether there is capacity in the existing infrastructure and the extent to which public service providers are ready to meet their own costs.

²¹ <http://www.englishpartnerships.co.uk/landsupplypublications.htm>

²² Ovolo Publishing

Build costs

- 5.66 The biggest part of the costs of project is usually the cost of the superstructure of the buildings being developed. As you would expect, once the ground conditions and foundations are taken care of, the cost of houses depends on their design. For instance, the use of special local materials such as stone or additional external features such as balconies, bay windows chimneys will add to the cost. Detached and end of terrace units have a comparatively high ratio of roof and wall space in comparison to the internal floor area and this raises costs.
- 5.67 There are commercial building cost indices and guidance such as the BCIS service or Spons series and in particular their Architects and Builders Price Book which can be used where a specialist quantity surveyor isn't used. Both provide a range of likely costs and a large number of standard types of building, but how applicable this information will be will depend on how similar the development is in comparison; if a median cost is used is it a median type of development?
- 5.68 Some quantity surveyors publish cost studies which give you enough detail about the building being described to allow you to use it for this purpose. For example, Gardiner and Theobald, and Davis Langdon often produce their own studies which are made available online. There are other sources. For instance, John Prescott widely acclaimed competition from builder to create a £60,000 house was based on the rule that each dwelling must comprise not less than 76 sq m; this equates to a cost of approximately £800 per sq m. In fact, that isn't a terribly testing target and is a fairly good guide to what it took to build a reasonably well designed house in 2005. You will need to make some allowance for inflation (the National Office for Statistics provides these) and also an allowance for cost variation between regions. Again, this can usually be sourced from the research published online by the major consultancies such as those outlined above²³.

Fees

- 5.69 A project in typical commercial building or a block of flats might comprise an architect, civil engineer, mechanical and electrical engineer and quantity surveyor. There will always be the lawyers as well but they do not tend to be part of the development team. On larger schemes there can be a bewildering variety of other consultants specialising in project managements, town planning, environmental issues, transport, landscaping, acoustics, interior design, public relations, archaeology and listed buildings, and consultation.
- 5.70 At the extremes the simplest projects (perhaps a large scale but simple logistics scheme) might creep below 10% while smaller complex projects can see costs creep towards 20%. If you assume that the fees on a simple one-off building project will be around 12% and on small scale or more complicated projects around 15% you will not go far wrong. Large Housebuilders as ever are a bit different and here the issue is complicated because the larger firms in particular carry out some of the more exciting work in-house but the overall projects overheads bill will not be so different. Spons Architects and Builders Price Book

²³ e.g. <http://www.gardiner.com/pdfs/2010%20Q1%20Tender%20Price%20Indicator.pdf>

includes a section on scale fees but note that in practice most developers will (a) need a larger team than is covered by Spons; and (b) will be looking to pay less than scale fee.

Marketing, letting and sales

- 5.71 These can again vary but a typical budget for marketing might be in the region of 2% or 3%. Some developers will want to invest in events and stunts to market premium office block. The cost to the housebuilder will often depend on whether they are going to maintain a show home and, failing that, they are going to sell directly or use estate agents. However, these costs are relatively minor in comparison with other appraisal assumptions.
- 5.72 In terms of letting and sales, rules of thumb are generally 10% and 5% of the rent for letting for agents and lawyers respectively, and 1% and 0.5% of the value for sales.

Finance costs

- 5.73 We described how development is funded in Sections 2 - 4. Here, we set out some of the practical ramifications when doing appraisals.
- 5.74 When you try to calculate the rate of interest developer might be paying on loans taken out to finance a scheme it is almost impossible to guess what kind of arrangements they might actually be using. However, for the purpose of providing a starting point to understanding these costs, we have provided some guidelines.
- 5.75 Interest is often set by comparison with the London Interbank Borrowing Rate or LIBOR. This might not be the same as the so called 'base rate'. The actual cost of finance will reflect the standing of the developer and the risks and scale of the proposal. In normal times major public companies who secure a modest level of debt to support their entire operation rather than on a project by projects basis will normally have secured funding at a very low margin over LIBOR. Volume housebuilders fall into this category. This kind of financing is not specifically referred to in appraisals, corporate rather than project debt being regarded for all intents and purposes as the developers own money. We are concerned here with project finance, which is rather dearer.
- 5.76 Again, in normal times a substantial and experienced developer seeking bank finance towards the cost of a new development in a situation in which they are footing at least some of the costs directly, might pay between 2% and 4% over the current Bank of England base rate. Firms who want to achieve a higher proportion of funding usually use what is known as a 'mezzanine' loan which is a bit like a second mortgage. The interest rates on that will be considerably higher. Broadly speaking, small housebuilders are in the same boat as any other developer in this respect. At present, times are not 'normal' and bankers want higher rates.
- 5.77 Just to add to the complication, you have to remember that the average developer doesn't need all the money through development at once and upfront. Rather, funds are drawn down from the bank as and when required. A rule of thumb for simple residual appraisals is simply to calculate the interest payment on one half of the construction costs over the construction period. More complex models use a sophisticated assumption called the S curve which reflects the way in which the cost tend to accumulate in reality.

5.78 An alternative approach can be to ignore financing costs altogether if the developer might be using some of its own equity as it will be complicated to try and reflect the overall financing structure. A discounted cashflow (DCF) approach can be used to assess what the annualised level of return a developer will need and not make any assumption about how he chooses to find the capital to pay the building. For instance, a housebuilder may currently need a return of 20% per annum on their capital and thus use 20% as the discount rate in the DCF - we set out a DCF example later on in the section.

Developer's required return

5.79 In previous sections we discussed the different measures of return, from the basic profit on cost to more complicated annualised return measures such as the Return on Average Capital Employed (ROACE).

5.80 Of the more basic return measures, in addition to profit on cost there is also profit on gross development value (GDV) and net development value (NDV)²⁴. Where a positive residual land value is achieved, the required margin (or gross profit) on GDV and NDV will be slightly lower than the margin on cost. Typical required margins, depending on the developer and the risks of the development, are a 20% margin on cost and 17.5% margin on GDV. Typical annual rates of return (where finance costs are not included) are around the same levels. It should be noted a much lower margin or return is often applied to the affordable housing element of a residential development where there is a much lower risk of selling the units to a Registered Social Landlord (RSL) than private purchasers.

5.81 Good appraisal packages, such as Circle Developer (now called Argus Developer), show the full range of return measures.

²⁴ The net development value is the gross development value less costs involved in selling the development, usually referred to as purchaser's or buyers costs. These include stamp duty, agents and legal fees as shown in Example 1 below

Development appraisal examples

5.82 We now go on to set out some examples of development appraisals. These are designed for illustrative purposes only and should not be adapted for use as real “live” appraisals.

Basic residual land value appraisal

Example 1 - Office development

5.83 Firstly, we look at a simple residual land value (or worth in this case) development appraisal.

5.84 We go back to our developers, Scratch & Sniff, who wish to acquire a one hectare site for office development - what should they pay for the site? They have done their research and established the following:

- The site has planning permission for 5,000 sq m (gross) of offices
- The office space is estimated to achieve a rent of £250 per sq m and be acquired by an investor at a yield of 7%
- The offices Scratch & Sniff have in mind are likely to achieve a net/gross ratio of 85% and are estimated to cost £1,500 per sq m
- No off-site infrastructure is required
- Scratch & Sniff do not have their own capital to invest in the development and have to borrow at 7.5%p.a.
- They have a required margin on cost of 20%
- It is estimated it will one year to complete the development and 6-months to let the office to a tenant

5.85 Their simple development appraisal is set out below and shows a residual land value (or worth in this case) of approximately £1.2m. This means they should, in theory, offer up to £1.2m for the site if they wish to proceed with such a development and based on their assumptions they would make approximately £2m on the development.

Example 1 - residual land value appraisal of office development

	Quantum			Rate		Total
1. Development Value						
Floorspace	5,000	sq m	@	85.0%		
Rental Value	4,250	per sq m	@	£250	per sq m	
Investment Yield	£1,062,500	p.a.	@	7.0%		£15,178,571
Less, buyers costs	£15,178,571		@	5.76%		£874,665
Net Receipts						£14,303,906
2. Development Costs						
Construction Costs	5,000	sq m	@	£1,500	per sq m	£7,500,000
External Works (% of build cost)	£7,500,000		@	10.0%		£750,000
Fees (% of all construction)	£8,250,000		@	12.0%		£990,000
Marketing & Sales (% of value)	£15,178,571		@	2.0%		£303,571
Other Costs (% of build costs)	£7,500,000		@	3.0%		£225,000
Developer Contributions	5,000	sq m	@	£50	per sq m	£250,000
Development Costs Finance (on half build costs)	1.00	years	@	7.5%		£375,696
Void Finance (on total development costs)	0.50	years	@	7.5%		£389,785
Required Margin on Cost	£10,784,053		@	20.0%		£2,156,811
Total Costs						£12,940,863
Land Value Realised at Sale	£1,363,043					
Less						
Land Cost Finance	1.50	years	@	7.5%		£153,342
Residual Land Value						£1,209,700

- 5.86 For the purposes of this handbook, the above appraisal has been designed to be fully transparent i.e. all the information and calculations needed to arrive at the residual land value are shown. This means there is some compromise on accuracy from more complicated appraisal models where not all the calculations are shown.
- 5.87 The key simplification in the above appraisal is in the calculation of finance costs. To undertake an accurate assessment of this, the precise timing of cost and value items need to be factored into a calculation. We set out later on in Example 5 how a “cashflow” can be used in this respect, but in our simple example we have estimated finance on three main types of costs; development costs, void costs and land costs. This allows us to reflect the impact some of the key timing issues, such as the build period, will have on finance costs. A brief description of these are set out below:

- **Development cost finance** - this covers finance charged on items such as construction costs. A developer won't wish to “draw down” borrowed funds to pay these costs until they are needed as this would result in higher finance costs than would be necessary. We have therefore applied the finance rate to half of these costs for the build period (which in the above case was a year) - this simple approximation is therefore most accurate where development costs are equally spread over the build period.
- **Void cost finance** - until a development is sold (e.g. when the property is let), a developer has no funds to pay the financier back. Interest will therefore continue to be charged on the total funds borrowed (plus interest accumulated) after the development is completed where this is the case. The above example estimates these costs by multiplying the total development costs by the finance rate for the

“void” period i.e. the gap between when the development is completed and sold (which in the above case is 6-months as we assume it will be acquired when it is let)

- **Land cost finance** - land is often the first significant item of cost for a developer. This cost hasn't been included in the estimate of development cost finance as there may be a gap between when the land is acquired and when development actually commences (e.g. the time taken to secure planning permission). This is the most difficult calculation in our simple transparent appraisal as the total finance costs are needed to calculate the residual land worth, but you need to know the land cost to calculate what the finance would be on it i.e. a chicken and egg scenario²⁵! The calculation above gets around this by taking the residual land value before land cost finance is taken into account (referred to as the land value at sale in the appraisal) and applying the finance rate for the total period between when the site is acquired and when the development is sold (i.e. the receipts are received) - this is 1.5 years in the above case (i.e. development period + void period) as we assumed development started straight away. Not a perfect calculation, but at least transparent!

- 5.88 Also note that “buyers” (or “purchasers”) costs have been deducted from the estimated development value (or “gross” development value) as the buyer will normally deduct these from the price it will pay. These costs usually include stamp duty, agent and legal fees, assumed to be 4%, 1% and 0.5% (plus VAT on the fees) in our example. The net receipts are therefore slightly lower than the gross development value.

Example 2 - Residential development

- 5.89 Now let us assume Scratch & Sniff believe they might be able to secure planning permission for residential development. Again, they have done their research and established the following:

- The site could secure planning permission for 30 houses, of which 30% will need to be affordable units and contributions of £50 per sq m will be required
- Demand is likely to be for large houses of approximately 100 sq m which they estimate will sell for £2,500 per sq m, with the affordable units on average achieving half this value
- The houses are estimated to cost £850 per sq m to build
- No off-site infrastructure is required
- Scratch & Sniff do not have their own capital to invest in the development and have to borrow at 7.5%p.a.
- They have a target margin on cost of 20%
- It is estimated it will take 6-months to obtain planning permission and one year to complete the development, with all units sold on completion

²⁵ a potential “circular reference” problem in Excel for those familiar with spreadsheets

5.90 Their development appraisal is set out below and shows a residual land value (or worth in this case) of approximately £1.75m and they would make approximately £750,000 on the development.

Example 2 – residual land value appraisal of residential development

	Quantum			Rate	Total
1. Development Value					
Private Houses	2,100	sq m	@	£2,500 per sq m	£5,250,000
Affordable Houses	900	sq m	@	£1,250 per sq m	£1,125,000
Net Receipts					£6,375,000
2. Development Costs					
Construction Costs	3,000	sq m	@	£850 per sq m	£2,550,000
External Works (% of build cost)	£2,550,000		@	10.0%	£255,000
Fees (% of all construction)	£2,805,000		@	12.0%	£336,600
Marketing & Sales (% of value)	£6,375,000		@	2.0%	£127,500
Other Costs (% of build costs)	£2,550,000		@	3.0%	£76,500
Developer Contributions	3,000	sq m	@	£50 per sq m	£150,000
Development Costs Finance	1.00	year	@	7.5%	£131,085
Void Finance	0.00	year	@	7.5%	£0
Margin on Cost	£3,626,685		@	20.0%	£725,337
Total Costs					£4,352,022
Land Value Realised at Sale					£2,022,978
Less					
Land Cost Finance	1.50	years	@	7.5%	£227,585
Residual Land Value					£1,795,393

What is the value of the site?

5.91 The two appraisal examples above for office and residential development showed a residual land worth of £1.2m and £1.75m respectively. However, office development had planning permission whereas as residential development did not. So what is the value of the site?

5.92 Well, based on this information it is difficult to say with certainty due to the following:

- We don't know the existing use value of the site, which might be higher than the residual land worth estimates above
- Although the residual land worth estimated by Scratch & Sniff for residential development is higher than for office development, we don't know the chances of securing a residential planning permission
- We don't know how accurate Scratch & Sniff's assumptions are, and the sensitivity of the residual land worth to changes in key variables (such as the yield or the residential value per m²)
- We don't know if another developer would be prepared to offer more for the site, for example because they believe a higher value can be achieved for a similar scheme, or have a better scheme in mind.

The accuracy of residual land value/worth appraisals

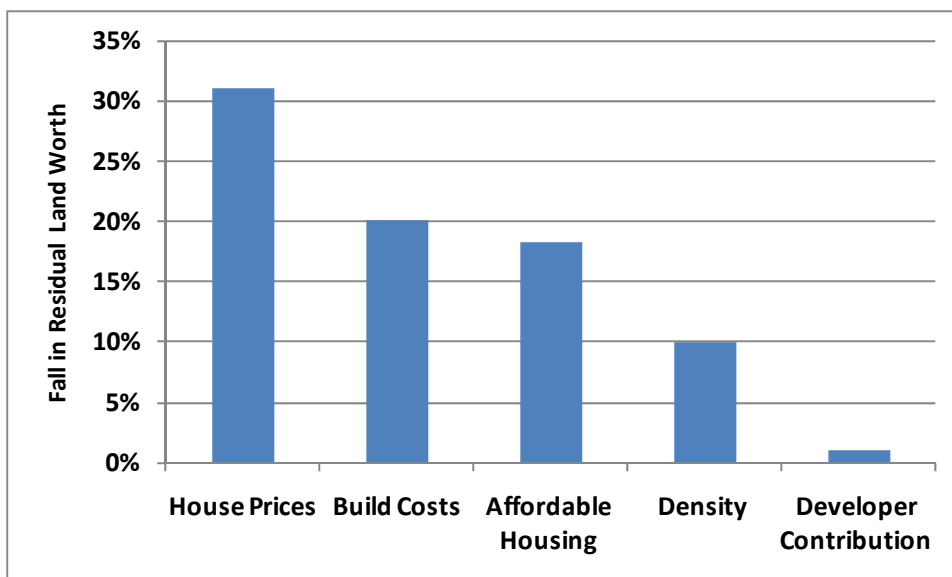
- 5.93 Earlier on in this section we set out that there are numerous problems with using development appraisals to assess the residual land worth or value, the biggest being the sensitivity of the result to the assumptions made.
- 5.94 If we take the residential development in Example 2 above, we will assess how much the residual land worth falls by making more pessimistic assumptions (either increasing or decreasing by 10%) for:
- House prices*
 - Build costs**
 - Density*
 - Affordable housing**
 - Developer contributions**

* decrease

** increase

- 5.95 In this example, the greatest impact is the assumption on house prices; if house prices were £2,250 per sq m instead of £2,500 per sq m (i.e. 10% lower), the residual land worth falls from approximately £1.75m to £1.25m (i.e. by over 30%). The impact of developer contributions is relatively low in this example as we are only assessing percentage changes - therefore the contribution was only increased from £5,000 per unit (£50 per sq m) to £5,500 per unit (£55 per sq m), which in turn only increases costs by £15,000²⁶. If the contributions were increased from £5,000 per unit to £15,000 per unit, the residual land worth in this case changes by a more significant 16%.

Example 4 - sensitivity analysis on example 2 residential appraisal



²⁶ Not including a corresponding small increase in finance costs

- 5.96 Indeed, the above sensitivity analysis only tests the impact on residual land worth of varying individual assumptions. If a development appraisal is inaccurate on a number of assumptions, the residual land worth could be wildly different to its true worth.
- 5.97 Sometimes a range in the value attributed to key assumptions, such as sales values, could be plausible. In the above example, if 10% either side were plausible, the residual land worth could be between £0.5m to £3.4m. If the existing use value of the site was £2m, it would be difficult to conclude if the development was viable purely based on development appraisal analysis.
- 5.98 This demonstrates the dangers of solely relying on a development appraisal in assessing the residual land worth and viability; where one is used, the assumptions made need to be sufficiently accurate to draw the necessary conclusions.

How would we assess the viability of development on the site?

- 5.99 Let us assume that the site has no prospect of securing residential planning permission, Scratch & Sniff's assumptions are spot on and that other developers would make the same assumptions.
- 5.100 As set out at the start of the section, we normally assess viability by comparing the residual land value to the existing use value. In this case the residual land value will be very close to that estimated for the office development i.e. approximately £1.5m. If the site is, say, a car park with an existing use value of £1m, office development on the site could be considered viable. Of course, the owner of the site may not wish to sell the site for £1m. Perhaps he or she is more optimistic that it could secure planning permission for a higher value use, such as residential development, in the future and won't sell for less than £1.5m. In this instance we might conclude the site is marginally viable as the residual land value is close to the existing use value, and we can't be sure how much more the landowner will want for the site above the EUV.
- 5.101 The existing use value is therefore critical to the viability of development. Even if a development has a relatively high residual land worth, there are still many types of sites where the EUV will be higher. Industrial estates are a particular case in point. These are often considered suitable for redevelopment in planning policy terms, yet in reality they are often unviable.
- 5.102 As an example of the indicative scale of the EUV of industrial estates, we have undertaken a simple valuation of two notional industrial estates. Both are one hectare and have a site coverage (i.e. the proportion of the site with buildings on it) of 60% leading to an overall gross floorspace of 6,000 sq m. We have assumed a net/gross ratio on this floorspace of 100% for simplicity. We have assumed the notional "lower value" estate has a rent of £35 per sq m and is valued at a yield of 10%, whereas the notional "higher value" estate has a rent of £50 per sq m and a stronger yield of 7%.
- 5.103 Example 3 below shows the value of the lower value estate based on the above assumptions is £2m (i.e. £2m per ha) and the value of the higher value estate is £4m (i.e. £4m per ha). Note the references to the multiplier and purchasers costs which we previously explained.

Example 3 - high level assessment of existing use value of indicative high value industrial site

Notional Lower Value Industrial Estate Valuation

1. Site Details		
Site Area	1	hectares
Site Coverage	60%	
Rental Value	£35.00	per sq m
Yield	10%	

2. Calculation		
Total Floorspace	6,000	sq m
Total Rent	£210,000	p.a.
Multiplier	10.000	

3. Value	
Gross Value	£2,100,000
<i>less purchasers costs @ 5.76%</i>	<i>£120,960</i>
Net Value	£2,000,000

Notional Higher Value Industrial Estate Valuation

1. Site Details		
Site Area	1	hectares
Site Coverage	60%	
Rental Value	£50.00	per sq m
Yield	7%	

2. Calculation		
Total Floorspace	6,000	sq m
Total Rent	£300,000	p.a.
Multiplier	14.286	

3. Value	
Gross Value	£4,285,714
<i>less purchasers costs @ 5.76%</i>	<i>£246,857</i>
Net Value	£4,000,000

- 5.104 These EUVs exceed the residual land worth estimates in our office and residential development examples above, and mean such development would not be viable. In the case of our indicative residential development, house prices would need to be 40% higher (i.e. £3,500 per sq m equating to a sale price of £350,000 based on our relatively large unit size of 100 sq m) to achieve a residual land worth of £4m per ha:

	Quantum			Rate	Total
1. Development Value					
Private Houses	2,100	sq m	@	£3,500	per sq m £7,350,000
Affordable Houses	900	sq m	@	£1,750	per sq m £1,575,000
Net Receipts					£8,925,000
2. Development Costs					
Construction Costs	3,000	sq m	@	£850	per sq m £2,550,000
External Works (% of build cost)	£2,550,000		@	10.0%	£255,000
Fees (% of all construction)	£2,805,000		@	12.0%	£336,600
Marketing & Sales (% of value)	£8,925,000		@	2.0%	£178,500
Other Costs (% of build costs)	£2,550,000		@	3.0%	£76,500
Developer Contributions	3,000	sq m	@	£50	per sq m £150,000
Development Costs Finance	1.00	year	@	7.5%	£132,998
Void Finance	0.00	year	@	7.5%	£0
Required Margin on Cost	£3,679,598		@	20.0%	£735,920
Total Costs					£4,415,517
Land Value Realised at Sale	£4,509,483				
Less					
Land Cost Finance	1.50	years	@	7.5%	£507,317
Residual Land Value					£4,002,166

Cashflow based development appraisal

- 5.105 In the simple examples above, we assumed the developments by Scratch & Sniff were debt financed. While the calculations for finance costs tried to reflect some of the key timing issues, depending on the level of accuracy required and information available, a more refined approach may be required. A “cashflow” is therefore often constructed to explicitly estimate when the receipts and costs are anticipated (or in some cases known) to fall.
- 5.106 Using the residential development in Example 2, the following cashflow (Example 5) would provide broadly similar finance costs as in our simple residual appraisal model above. As this is still only a simple cashflow, we have used the residual land worth from Example 2, and residualised the developers return to ensure it still equates to the required level of a 20% margin on cost:

Example 5 - simple residual profit cashflow appraisal

	Quantum	Rate	Total	1	2	3	4	5	6	7	8
1. Development Value											
Private Houses	2,100	sq m @ £2,500 per sq m	£5,250,000								£5,250,000
Affordable Houses	900	sq m @ £1,250 per sq m	£1,125,000								£1,125,000
			£6,375,000								
2. Development Costs											
Land Cost			£1,753,129	-£1,753,129							
Houses	3,000	sq m @ £850 per sq m	£2,550,000			-£637,500	-£637,500	-£637,500	-£637,500		
External Works (% of build cost)		10.0%	£255,000			-£63,750	-£63,750	-£63,750	-£63,750		
Fees (% of all construction)		12.0%	£336,600			-£84,150	-£84,150	-£84,150	-£84,150		
Marketing & Sales (% of value)		2.0%	£127,500			-£31,875	-£31,875	-£31,875	-£31,875		
Other Costs (% of build costs)		3.0%	£76,500			-£19,125	-£19,125	-£19,125	-£19,125		
Developer Contributions	3,000	sq m @ £50 per sq m	£150,000			-£37,500	-£37,500	-£37,500	-£37,500		
			£5,248,729								
3. Finance Costs											
Quarterly Total				-£1,753,129	£0	-£873,900	-£873,900	-£873,900	-£873,900	£6,375,000	£0
Cumulative Total				-£1,753,129	-£1,786,000	-£2,693,388	-£3,617,789	-£4,559,522	-£5,518,913	£752,607	£752,607
Finance Costs		7.5%	£373,664		-£32,871	-£33,488	-£50,501	-£67,834	-£85,491	-£103,480	£0
4. Developers Margin											
Margin on Cost					19.5%	£752,607					

- 5.107 In this example, the finance costs (shown in the yellow line) are calculated on the “cumulative total”; this means as the costs mount up, the finance costs in each quarter increase. The cumulative total adds in the finance costs from on the previous quarter, which means finance is also charged on previous finance costs incurred. The finance costs therefore increase as the negative cumulative total (i.e. cost) increases, and then fall to zero by quarter 8 when all the units have been sold.
- 5.108 As set out above, our timing assumptions on the costs and receipts for our cashflow reflect those used in our previous simple example. For example, the development costs (excluding land costs) are spread evenly over the build period of one year, which start 6 months after the acquisition of the land. In addition, the receipts from the sale of both the private and affordable houses are received in quarters 7 to equate to their being no “void” finance costs. Consequently the resulting margin on cost is roughly the target residual margin on cost of 20%.
- 5.109 In reality however, the sale of private houses may be over more than one quarter and the receipts for the affordable housing may not be at the same time. The costs may not be incurred equally over the development period with some costs, such as the developer contributions, being paid at a single date. Although our simple appraisal in Examples 1 and 2 allows us to broadly reflect some changes in the timing, if we want to be accurate we need to make assumptions on the exact timing of the costs and receipts.

Discounted cashflow (DCF) appraisal

- 5.110 As set out in paragraph 5.27 above, one alternative to the traditional residual value appraisal approach is to use discounted cash flow analysis (DCF). Some of the residential developments that you will deal with will be far larger than our relatively small one-hectare development by Scratch & Sniff. This could be a proposed strategic urban extension by a large housebuilder who will use some of its own capital rather than debt finance the whole development.
- 5.111 As previously discussed, such a developer is likely to be more concerned with the annual rate of return rather than the overall margin (or gross profit) in relation to the costs or development value. In these cases a DCF may be most appropriate, and indeed may be the type of appraisal used by the developer for its own internal calculations. These types of appraisals are slightly more complicated, so it may be a case of at least knowing they exist, where they are generally used and recognising the terminology rather than understanding the mechanics of how the residual land worth or IRR are calculated.
- 5.112 However, we have attempted to explain the basic mechanics in this handbook for those that wish to understand them. The DCF uses a target rate of return to discount the net cash flow in each period. This can be used in two ways; firstly, you can either use it to calculate what is called the net present value (NPV) of the land on day one of your project. This effectively becomes the residual land worth. Alternatively, if you know what price you'll have to pay to secure a site you can calculate the internal rate of return (IRR) on your project to see if it is higher or lower than the target rate of return on capital. If your IRR is higher, this suggests you should proceed with the development. However, if it is lower it suggests you may either need to accept the lower return, amend the development etc. The IRR can be calculated on an annual basis so it effectively becomes the annual return from the development.
- 5.113 Example 6(i) below shows a 20 hectare development as opposed to a 1 hectare development; a total of 600 units which equates to a reasonable sized urban extension. We have already seen how quickly receipts are received (in this case houses are sold) has an important bearing on viability. In this example we have assumed units are only built at the rate they can be sold, which in this case is 20 units per quarter (or 80 units a year). We have assumed all other assumptions reflect our development in Example 2.
- 5.114 We haven't shown the whole cashflow (as it is over 9 years), but instead shown the start and end as follows:
- up to quarter 8 when two quarters of receipts have been received, and
 - between quarter 32 and 37 with development costs ceasing in quarter 32 and the final receipts being received in quarter 36.
- 5.115 In this example, the present value (PV) of the receipts and costs aren't shown. We have used Excel to calculate what the IRR of the net cashflow (i.e. receipts less costs) is, and then multiplied this by four (as we have used quarters rather than years) to calculate the annual return. This shows an annual return of only approximately 8%, well below the 20% per annum return we assumed is required. In this instance, the developer should pay

approximately £17m (or £850,000 per hectare) to achieve its required annual return of 20%.

- 5.116 On large greenfield sites, there are also usually secondary infrastructure costs and some abnormal issues. Say these equate to approximately £500,000 per hectare (which we have reflected by increasing the external works from 10% of build costs to 30% for the purposes of simplistically), the land cost to achieve an annual return of 20% as shown in Example 6(ii) is reduced to around £11.5m (£0.6m per hectare). Again, in reality DCF appraisals will be more complex as some of these costs will be “upfront” and therefore not be spread evenly over the development period as we have assumed for our simple example.
- 5.117 In addition, we have assumed the net/gross site area is 100%; in reality this will be around 60% as some of the land will be required for distributor roads, open space, community facilities etc, so the gross site area in this case would be around 33 hectares. The gross land cost would therefore be approximately £0.35m per hectare; close to the average “floor” price for greenfield sites set out above.

Example 6(i) - simple discounted cashflow (DCF) appraisal to calculate annual return

	Quantum	Rate	Total	1	2	3	4	5	6	7	8	32	33	34	35	36	37
1. Development Value																	
Private Houses	42,000	sq m @ £2,500	per sq m £105,000,000								£3,500,000	£3,500,000	£3,500,000	£3,500,000	£3,500,000	£3,500,000	£0
Affordable Houses	18,000	sq m @ £1,250	per sq m £22,500,000								£750,000	£750,000	£750,000	£750,000	£750,000	£750,000	£0
			£127,500,000														
2. Development Costs																	
Land Cost			£35,907,860	-£35,907,860													
Houses	60,000	sq m @ £850	per sq m £51,000,000			-£1,700,000	-£1,700,000	-£1,700,000	-£1,700,000	-£1,700,000	-£1,700,000	-£1,700,000	£0	£0	£0	£0	£0
External Works (% of build cost)		10.0%	£5,100,000			-£170,000	-£170,000	-£170,000	-£170,000	-£170,000	-£170,000	-£170,000	£0	£0	£0	£0	£0
Fees (% of all construction)		12.0%	£6,732,000			-£224,400	-£224,400	-£224,400	-£224,400	-£224,400	-£224,400	-£224,400	£0	£0	£0	£0	£0
Marketing & Sales (% of value)		2.0%	£2,550,000			-£85,000	-£85,000	-£85,000	-£85,000	-£85,000	-£85,000	-£85,000	£0	£0	£0	£0	£0
Other Costs (% of build costs)		3.0%	£1,530,000			-£51,000	-£51,000	-£51,000	-£51,000	-£51,000	-£51,000	-£51,000	£0	£0	£0	£0	£0
Developer Contributions	60,000	sq m @ £50	per sq m £3,000,000			-£100,000	-£100,000	-£100,000	-£100,000	-£100,000	-£100,000	-£100,000	£0	£0	£0	£0	£0
			£105,819,860														
Quarterly Total				-£35,907,860	£0	-£2,330,400	-£2,330,400	-£2,330,400	-£2,330,400	£1,919,600	£1,919,600	£1,919,600	£4,250,000	£4,250,000	£4,250,000	£4,250,000	£0
Annual Rate of Return (IRR)			7.60%														

Example 6(ii) - simple discounted cashflow (DCF) appraisal to calculate annual return

	Quantum	Rate	Total	1	2	3	4	5	6	7	8	32	33	34	35	36
1. Development Value																
Private Houses	42,000	sq m @ £2,500	per sq m £105,000,000								£3,500,000	£3,500,000	£3,500,000	£3,500,000	£3,500,000	£3,500,000
Affordable Houses	18,000	sq m @ £1,250	per sq m £22,500,000								£750,000	£750,000	£750,000	£750,000	£750,000	£750,000
			£127,500,000													
2. Development Costs																
Land Cost			£11,500,000	-£11,500,000												
Houses	60,000	sq m @ £850	per sq m £51,000,000			-£1,700,000	-£1,700,000	-£1,700,000	-£1,700,000	-£1,700,000	-£1,700,000	-£1,700,000	£0	£0	£0	£0
External Works (% of build cost)		30.0%	£15,300,000			-£510,000	-£510,000	-£510,000	-£510,000	-£510,000	-£510,000	-£510,000	£0	£0	£0	£0
Fees (% of all construction)		12.0%	£7,956,000			-£265,200	-£265,200	-£265,200	-£265,200	-£265,200	-£265,200	-£265,200	£0	£0	£0	£0
Marketing & Sales (% of value)		2.0%	£2,550,000			-£85,000	-£85,000	-£85,000	-£85,000	-£85,000	-£85,000	-£85,000	£0	£0	£0	£0
Other Costs (% of build costs)		3.0%	£1,530,000			-£51,000	-£51,000	-£51,000	-£51,000	-£51,000	-£51,000	-£51,000	£0	£0	£0	£0
Developer Contributions	60,000	sq m @ £50	per sq m £3,000,000			-£100,000	-£100,000	-£100,000	-£100,000	-£100,000	-£100,000	-£100,000	£0	£0	£0	£0
			£92,836,000													
Quarterly Total				-£11,500,000	£0	-£2,711,200	-£2,711,200	-£2,711,200	-£2,711,200	£1,538,800	£1,538,800	£1,538,800	£4,250,000	£4,250,000	£4,250,000	£4,250,000
Annual Rate of Return (IRR)			20.00%													

Viability 'Toolkits'

5.118 There is an increasing use of consultants and formal development appraisal models of various types to try and second-guess the developers. There has been a lot of interest in buying appraisal software or models, such as the Three Dragons toolkit. While these can be helpful, there are two key issues that need to be borne in mind:

- the model needs to reflect the type of development being assessed; one model can never cover all types of development and developers
- the accuracy of the model's answer is still largely reliant on the inputs. Generic default assumptions might be useful to get an initial feel for the answer on a single development, or be broadly reflective over a number of relatively similar developments. However, we have already seen the sensitivity of residual values to the assumptions used; if a number of these are not quite right, the resulting residual can be very different to the residual a developer has estimated with better information.

6 EXERCISES

Introduction

- 6.1 In this section we set out some basic exercises to illustrate key issues and improve familiarity with doing development appraisals yourself. The responses are in a separate document entitled “PAS Viability Course Handbook - Responses to Exercises” which can be downloaded from the same page.
- 6.2 The exercises are divided in two sections. Firstly, there are some exercises illustrating key terms and concepts from section 2 on “the basics of development”. In particular, we have concentrated on yields as this is commonly a subject which causes confusion. You will only need a calculator for these initial exercises. Secondly, there are some more detailed exercises on assessing viability where you will need a computer. These are based on the Day 1 exercises which can be downloaded from the PAS website (entitled “Roger Tym & Partners PAS Viability Exercises (Day 1)”).
- 6.3 In addition to these exercises, there is also the simple appraisal model used in the Roger Tym & Partners workshop on day 2 (entitled “Roger Tym & Partners PAS Viability Exercises (Day 2)”) to refresh your memory and to have another go at trying out different assumptions and uses. There are also the basic appraisal indicative appraisal models on the website titled “RTP & Michael Beaman Ltd Basic Residential Appraisal Model Example”; there is also one for office development titled on the same basis.
- 6.4 Finally, as set out in section 1, it should be noted that all of the exercises and examples used in this handbook were prepared with the sole purposes of illustrating the principles and precepts of viability studies; further advice should be taken particularly in relation to specific circumstances before applying these in a practical policy or commercial situation.

1. The Basics of Development (Section 2)

- 1.1 **Gross profit:** Scratch & Sniff buy a piece of land for £100,000, it costs £250,000 to construct the development and they sell it for £450,000. What is the gross profit (total and as a percentage of cost)?
- 1.2 **Project gearing :** What if they have to borrow half the costs at an interest rate of 10% pa (do a simple finance cost calculation, such as in section 2 i.e. non-compound interest)? Assume it takes one year to acquire the land, build and sell the development. What is the margin on their own investment in the project?
- 1.3 **Risk :** What if the development sells for 10% less?
- 1.4 **Timing:** If it takes 2 years to complete and sell the development (at the original sale price), what is the annual return?
- 1.5 **Company gearing:** If a company has borrowed £10 million, and has £10 million of its own capital equity), what is its gearing?
- 1.6 Is it bad for a company to be highly geared?
- 1.7 **Yields:** What is the multiplier for a yield of 7.5%?
- 1.8 If a fund is prepared to acquire an office at a yield of 7.5%, and the estimated rent on the office is £100,000 per annum, what is the gross development value (i.e. how much will the fund acquire the office for from the developer)?
- 1.9 What is the net development value (NDV) of the office assuming purchasers costs of 4%?
- 1.10 What approximate yield would be applied to the office if the fund requires a return of 7.5% per annum, but the rent received will increase by 2.5% per annum (assuming no letting voids etc)
- 1.11 What would the NDV be at the same rent and yield (i.e. £100,000pa and 4%)?
- 1.12 If the rent on a property acquired for £5 million is £250,000pa, but this is expected to rise to £400,000pa at the next rent review, what are the initial and reversionary yields?
- 1.13 If little rental growth is anticipated, but there are high perceived risks to the rental stream (e.g. the tenant is on a short lease, it is unlikely to attract to large companies, and/or the property will be difficult to re-let in the future), would the yield be higher or lower than the required return of 7.5% per annum? Would this result in a higher or lower development value than in 1.3 and 1.5?

2. Assessing Viability (Section 5)

- 2.1 Download appraisal “Exercise 1”. Calculate the residual land value (or worth in this case) based on the following assumptions (and using information in Section 5 above).

Variable	Assumption
Gross Floorspace	2,500 sq m
Net/Gross Ratio	90%
Rental Value	£200 per sq m
Yield	7.00%
Build Costs	£1,250 per sq m
Developer contribution	£50 per sq m
Finance Rate	7.5%pa
Build period	1-year
Void period	0.5 years
Pre-development period	0.5 years

- 2.2 What happens if to the residual land worth if the yield rises to 8% or the void period increases from half a year to 1.5 years? Vary other assumptions and see what affect they have on the residual land worth. Find out office rents (and yields if possible) in your area, input these into the appraisal and see what the residual land worth is on this basis²⁷. Ensure that the construction price reflects the type of offices in your area; a high specification office may require a higher cost (per sq m) than we have assumed in Exercise 1, and a basic office may require a lower cost (per sq m) than assumed.

²⁷ please note the disclaimer in 6.4 - this exercise should not be used for evidence of viability in your area as it is only illustrative, but may provide a high level indication of viability in your area

- 2.3 Download appraisal “Exercise 2”. Calculate the residual land value (or worth in this case) based on the following assumptions (and using information in Section 5 above). What are the differences with the office appraisal from Exercise 1?

Variable	Assumption
Density	30dph
Affordable Housing	30%
Sales Value	£2,500 per sq m* <i>* affordable @ 50% of private values</i>
Build Costs	£850 per sq m
External Works	10% (of build costs)
Professional Fees	12% (of build costs)
Sales & Marketing	2% (of development value)
Other Costs	3% (of build costs)
Developer contribution	£50 per sq m
Finance Rate	7.5%pa
Margin on Cost	20%
Build period	1-year
Void period	0 years
Pre-development period	0.5 years

- 2.4 Undertake sensitivity analysis in the table below the appraisal in Exercise 2 (see below) for a 10% change in the variables set out (either increase or decrease as stated) - remember to put the value for the variable back to the original (i.e. in the table above) before assessing the impact of a change to the next variable. Note which variable has the greatest impact on the residual land value, and if this impact is greater or less than 10%.

	Residual Land Value following 10% change in variable	Fall in Residual Land Value (%)
House Price Decrease		100%
Build Cost Increase		100%
Affordable Housing Increase		100%
Developer Contribution Increase		100%
Density Decrease		100%

- 2.5 Download appraisal "Exercise 3". Calculate the existing use value of the site (industrial use) at a rent of £40 per sq m and a yield of 8.5%. Would the above developments be viable on this site? If not, what affordable housing could be afforded for the residential development to be viable?
- 2.6 Download appraisal "Exercise 4". Change the timing of the receipts from the sale of the residential units from quarter 7, to equally split between quarters 5 - 7 (i.e. over 3 quarters) to reflect units being sold prior to completion. Then change the timing to quarters 7 - 9 to reflect the units only being sold following completion and at a slow rate. What happens to the finance costs and the margin on cost in each scenario?
- 2.7 Go to the appraisal "Exercise 5" on your memory stick from the course. Change the external works costs to 30% to reflect additional secondary infrastructure and abnormal costs for an indicative unserviced greenfield site. In addition, change the land cost to £10,000,000 i.e. £500,000 per net hectare (£300,000 per gross hectare assuming the site has a net/gross site ratio of 60% to reflect a typical "floor" price for greenfield land). What happens to the annual return if the sales rate falls from 20 units per quarter to 15 units per quarter to reflect a more difficult sales market? What happens if all the developer contributions are required in quarter 3? What contributions could be secured to achieve the same annual return?
- 2.8 Say sales rates are a healthy 25 per quarter and sales values are back to £2,500 per sq m again - what is the maximum level of developer contribution that can be secured before the annual return drops below 20%?

7 COMMISSIONING AND INTERROGATING ADVICE

Introduction

- 7.1 The information in the handbook to this point has demonstrated that:
- Accuracy in assessing land values depends more on the ensuring that the various assumptions made accord with reality than the choice of model.
 - The outcome of the calculations is very sensitive to variations in these assumptions.
- 7.2 There are several instances in which planners might wish to obtain professional advice on viability issues for instance:
- To inform a negotiating position in relation to a specific application or project.
 - To guide policy.
- 7.3 Each requires a different method. For policy studies, a higher degree of generalisation is appropriate and thus normative assumptions about values and costs can be safely used. The sites you are concerned with will vary a lot and it is not sensible or practical to deal with all the ways in which development on them might differ. Rather, a typology-based approach should be used which may, for example, differentiate between strategic and local greenfield sites and also between out-of-centre brownfield and town centre sites.
- 7.4 When dealing with individual schemes, site-specific detail is required in order to achieve any degree of usefulness and accuracy. The planning system tends to deal with proposals in two ways:
- Confrontational: Each side uses its own information to form a view.
 - Collaborative: Both sides try to arrive at a shared view of the economics of a scheme
- 7.5 If the requirement is for advice to guide policy, it would be possible for planners to undertake their own appraisals using simple models of the type shown in Section 5. There might be merit in retaining an experienced consultant to effectively audit the conclusions and to check that they accord with local market realities. If the preference is to employ consultants to carry out the whole study, the brief should require the following:
- The proposed methodology must be made very explicit, particularly with a view to ensuring that the approach is sufficiently broad to reflect variations in market conditions across the study area.
 - It must cover demand as well as value issues, and includes adequate forecasting and an assessment of market risks. The main aim in this instance should be to obtain clear advice that can be used to help shape the policy, and not simply a large amount of undigested data.
- 7.6 When negotiating specific schemes in the 'confrontational' manner the developer has an immense advantage in terms of information. He or she will have:

- A detailed knowledge of the layout and design. Whilst this may be shared with the planners as part of the application process, the developer will often keep quiet about future options for improving on the layout proposed.
 - Specific advice on values and costs informed by the design and engineering studies.
 - Knowledge of the terms for the purchase of the land and how the scheme will be financed. This will usually be treated as commercially confidential.
- 7.7 This information cannot be easily replicated or second guessed. It is not at all uncommon for the preliminary studies either in relation to a significant building or site to cost well in excess of £100,000. The budget for a really large scheme can easily be several times that. In summary, the developer will almost certainly have superior information which he or she can use to advantage in any negotiation.
- 7.8 The collaborative approach is primarily usually used either where there is a shared interest and determination to see a development proceed, or a developer has requested relaxation of some planning requirements on the grounds of viability. Typically the local authority is provided with the various reports and studies commissioned by the developer to facilitate agreement on the key cost and value metrics. Sometimes the local authority is prepared to accept that the calculation will be based on the developer's own model, perhaps taking independent advice on its veracity.
- 7.9 In other instances there is agreement to use an alternative model that both sides believe will satisfactory represent the economics of the project. This is perhaps most common in situations where the affordable housing requirement is a key issue. The HCA and Three Dragons Models both go into detail on this. (In contrast they do not provide any significant capacity to analyse commercial or long term phased developments). This is sometimes referred to as the 'open book' approach but, in reality this is slightly misleading.
- 7.10 An open book agreement usually involves maintaining an auditable record of income and expenditure in order to subsequently ascertain the financial performance, often for the purpose of sharing profits. Given this, the advice from the developer's team will often be self-serving, particularly in relation to those elements such as financing arrangements that cannot be physically verified later. Information on values is not provided as often as the cost and engineering reports and in any event developers are usually loath to agree to values in excess of those currently obtainable in the market.
- 7.11 It is important to reiterate that a developer will usually only agree to the use of a particular model if it produces an outcome no less advantageous than predicted by their own model. In some cases when one of the standard models is used for short-term residential schemes, they are quite likely to produce a more conservative estimate of land value.
- 7.12 The issue then becomes to optimise your negotiating position. This involves second-guessing the developer's figures and is obviously more important in a confrontational negotiation where there is no value and cost information to question. Doing calculations in-house will only reveal the most blatant developer 'cover-ups'. A more forensic interrogation would normally involve external assistance, from the district valuer's department, the District Surveyor or a consultant. Where budgets are limited, input is most appropriately focused on the salient issues.

7.13 Section 5 provides some ideas on where information can be obtained. As stated earlier, to get a full picture on value, you need information on design, layout and phasing of a scheme. To get information on costs you will also need engineering and cost consultancy advice. This is an expensive proposition but some costs can be cut. Some needs (e.g. rental evidence) are usually easier met than others (e.g. on site infrastructure costs). As far as costs are concerned, a desktop study on ground conditions and local utilities should not be particularly expensive and while it does not provide the same insights as a survey based on a trial pits and boreholes, it will certainly be useful. When instructing expert advisers, try to avoid asking overly open-ended questions and avoid long ‘shopping lists’ of requirements.

7.14 If you are seeking advice on values, the main choice will often be whether to approach a locally-based agent or one of the major regional or national practices. Table 7-1 provides summary of the main differences:

Table 7-1 Differences between local and regional/national agents

Company	Advantages	Disadvantages
Local	Good knowledge of local market	Idiosyncratic – narrow focus
	Good on small schemes in local housing market	Weaker technical skills; little forecasting expertise
Regional/National	Technically proficient	Less time spent tailoring approach
	Good on larger schemes	Probably use local firms for information anyway

7.15 The major firms are usually technically proficient although they sometimes fail to pay enough attention to customising their usual approach to the particular needs of a client. They usually claim to have comprehensive knowledge of every area but, in fact, in most places outside of the larger and more established markets, they will turn to local firms for fine-grained information. Whilst these local firms might be better informed in that regard, their perceptions of the local market might differ more than would be expected. Very often their technical appraisal skills are weaker and they have little involvement in the wider commercial investment markets or capacity or appetite for forecasting. It is often the case that the larger firms can provide a better guide to the larger schemes but local firms provide more accurate information on smaller schemes and in particular on the local housing market.

7.16 If the information you want is straightforward (e.g. what could you sell a three-bed semi with a garage for or what rent might you get for a new 5,000ft² office block in Anytown), try simply phoning and asking nicely! Very often you will be told all that you need to know and more without charge. If you want a wider picture, try phoning several agents and comparing the answers.

- 7.17 When asked for a formal report, chartered surveyors are always aware of their potential liability when advising on values and sometimes resist revealing their calculations. It is a good idea to require sight of all calculations and full provision of background information on comparable transactions used to reach the conclusions, so you can better understand and interrogate them. Given the weakness in the residual land value method, it can also be worthwhile asking for a sensitivity analysis based on a realistic range of variables and weighted outcomes. There can often be a significant difference between the:
- land value arrived at using a residual land value analysis in the usual way; and
 - the mean, median and modal outcomes from a sensitivity analysis based on the same calculation.
- 7.18 A good sensitivity analysis will better illustrate the range of potential outcomes and indicate where the risks lie. It is also worthwhile asking for a quantified market forecast. Many will be reluctant to speculate but the question worth asking is, if you are unprepared to do so, then who will? Only the largest firms have a formal capacity in this respect but it can be useful to highlight areas in which a developer's negotiating position takes absolutely no account of short-term market movements. (Long-term forecasting is altogether more tenuous and developers should be forgiven for avoiding entering into commitments on the basis of these.).
- 7.19 There are a few further points worthwhile noting on the subject of procuring advice:
- Remember that development appraisal is at best an inexact science and at worst a black art. The appraiser might get it wrong. But generally speaking, their best estimate is more likely to be right than your best estimate!
 - When using local firms, it is important to distinguish between chartered surveyors and estate agents. The former have considerable formal training in valuation and appraisal. There are no comparable requirements for becoming an estate agent. But if you want advice on the local market you might get a larger volume of better information from an agent with a high turnover than a chartered surveyor who mainly specialises in professional rather than brokerage work.
 - If using a competitive approach to procurement, bear in mind that there might be wide and not readily apparent differences in suitability for a job. It is important to ensure that the selection criteria aren't geared to your ending up with the wrong firm at the right price!
 - In respect of the growing requirements in Pre Qualification Questionnaires (PQQs), bear in mind also that many smaller firms won't be able to tick all of the boxes on matters such as healthy and safety and equal opportunities policies. Moreover, in many cases, the minimum requirements of local authorities for professional indemnity and other insurances effectively preclude smaller firms from tendering for work. It is therefore advisable if seeking a smaller company to undertake the work, to use alternative procurement methods.

8 GLOSSARY OF KEY TERMS

- **Gearing** - total borrowings (including bank overdrafts, less short-term deposits, corporate bonds and cash), as a percentage of equity shareholders' funds
- **Yield** - very simply the "yield" is the rent as a proportion of the purchase price. In determining development value, there is an inverse relationship i.e. as the yield goes up, the value goes down. To calculate development value multiply the rent by 1 divided by the yield e.g. £100,000 x 1/10% (i.e. 0.1) = £1 million gross value.
- **Hardening / softening of yields** - rising yields (e.g. in a bad market) and falling yields (e.g. in a good market)
- **Net/gross ratio** - refers to the percentage of usable space or land. A typical net/gross ratio on an office is 85%, whereas on a large greenfield site it is around 60% as not all land can be developed (i.e. some is used as open space, for distributor roads, community uses etc)
- **Net receipts** - the value that is estimated that will be realised from the development are the gross receipts, with the net receipts deducting appropriate purchasers costs from this
- **Margin on cost** - the gross profit from the development as a percentage of the total costs (often referred to as the profit on cost)
- **Sales rates** - the rate at which residential units are sold (either by month, quarter or year)
- **Letting void** - the time taken to let a property to a new tenant. In the case of development, the void reflects the time taken to let the property following the completion of the development
- **Covenant strength** - how strong the company renting a property (such as an office) is, or its guarantor for the rent where appropriate. This will affect how secure the income stream for the property is; a weak covenant strength might be reflected in a higher yield to account for the risk of the tenant ceasing to pay rent (e.g. where it has gone bankrupt)
- **Serviced land** - land where the necessary infrastructure is in place. No off-site works are required and the developer simply has to connect the development with existing infrastructure
- **Residual land value and residual land worth** - the residual land worth is a calculation of how much land is worth for a particular development. Residual land value can mean the open market value of land for development which has a strict definition and method of assessment contained in the RICS "Red Book" (or more formally the Royal Institute of Chartered Surveyors Valuation Standards).
- **Discounted Cashflow (DCF)** - a development appraisal method where the costs and values are discounted. The output from the appraisal is often the internal rate of return (IRR) which can be the annual rate of return where the IRR is calculated on an annual basis, or converted to an annual basis. The IRR is then compared to a developer's required rate of return to assess whether the development is viable.

Alternatively, the net present value (NPV) for the land can be calculated, which is effectively the residual land worth.

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