A Financial Analysis Measuring the Competitiveness of Large Housebuilders Vs Medium-Sized Housebuilders in the UK

by

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ABSTRACT

Prior research on the competitiveness of housebuilders suggests that larger firms tend to be more competitive due to reasons of economies of scale and scope, when compared to medium-sized firms. This effect is offset against medium-sized housebuilders which have shown in the past signs of higher profitability whilst remaining prone to failure during business cycle downturns. The report attempts to look at the effect of different financial structures retained by the two classes of housebuilders in 2007, and whether these vary a great amount with changes in size.

Upon analysis, the results in general indicated the following for housebuilders: 1) As housebuilder size reduces, the general pattern points towards increased gearing, 2) Increased gearing leads to a smaller interest cover, 3) Higher gearing results in lower net profitability, 4) Medium firms have lower estimated cost of debt, 5) Increased gearing leads to housebuilders being able to pay lower corporate taxes, 6) Larger firms are able to maintain a greater margin of liquidity when compared to the medium-sized firms when measured using the current ratio.

On the other hand market-related analysis showed that: 1) Increasingly smaller firms tend to have higher beta values, 2) Beta calculations and market share price fluctuations are somewhat correlated, 3) The relationship between gearing and beta is contrasting when the gearing ratio is calculated in different ways, 4) Medium-sized firms have higher price-earnings ratios, 5) And lastly, the valuation ratios measuring the market-value of a firm against the financial-statement-based-total-equity show higher values for medium-sized firms in 2007.

The results therefore demonstrate that firms have different capital structures in place in order to fulfil different organisational goals. This does however leave them more or less secure in different economic environments as well as affecting their profitability during business cycles.

Keywords: Housebuilding, UK, Financial, Competitiveness, Gearing.

Word Count: 11,113

Khawar Khan
Report 2007

CHAPTER 1

1.1: Aims and Relevance:

This research is based on a financial review comparing 'large' housebuilders (producers of 5000+ units; in 2007) against 'medium' housebuilders (defined as building between 500-5000 units; also in 2007) as shown in table 1.1. The objective of this paper is therefore to examine the two classes of housebuilders in the UK and compare them in terms of the financial structures they possess and the resultant effects of holding these structures. This report also involves a discussion of why medium-sized firms do not also pursue the similarly larger structures, as that of Barratt Developments Plc or Taylor Wimpey Plc, in order to hold the same advantages in the market place. This may be through gaining expansion via a process of financial leverage or gearing – defined as the use of debt to increase the expected return on equity (Brealey and Myers; 2003). This would potentially allow firms to be able to take advantage of financial leverage in a period of boom conditions by making greater returns on their investments. However, firms may be taking on greater risk and be vulnerable in a period of recession.

Table 1.1: List of Housebuilders In Order of Size (www.propertydata.co.uk):

	Year-End	Turnover	Profit	Units	Name	
1	31/12/2007	3999	609	20690	Taylor Wimpey Plc*	'Large' House-Builders
2	30/06/2007	3046	428	17168	Barratt Developments Plc*	
3	31/12/2007	3015	583	15905	Persimmon Plc*	
4	31/07/2007	1354	235	7638	Bellway Plc*	
5	30/06/2007	796	136.6	4823	Redrow Group Plc*	'Medium' House-Builders
6	31/12/2006	664	85.2	3854	Gladedale Holdings Ltd	
7	31/12/2007	722	n/a	3578	Miller Homes Ltd	
8	31/10/2007	677	69.7	3270	Crest Nicholson Plc	
9	31/12/2007	556	124	2930	Bovis Homes Group Plc*	
10	31/12/2006	n/a	n/a	2898	Charles Church Developments Ltd	
11	30/04/2007	918	177	2852	Berkeley Group Plc*	
12	31/08/2007	457	114	2327	McCarthy & Stone Dev. Ltd	
13	30/09/2007	397	42.7	1795	Countryside Properties Plc	
14	30/06/2007	317	47.6	1767	Kier Residential Ltd	
15	31/12/2007	398	23.9	1754	Lovell Partnerships Ltd	
16	31/12/2007	278	22.7	1630	Fairview New Homes Plc	
17	30/06/2007	346	48.9	1526	Galliford Try Plc*	
18	31/12/2007	244	18.2	1400	McInerney Homes UK*	
19	31/03/2007	n/a	n/a	1202	Places for People	
20	30/06/2007	250	n/a	1200	Stewart Milne Group Ltd	
21	31/03/2007	195	36.3	1100	Morris Homes Ltd	
22	31/03/2007	533	50.3	1077	Keepmoat Plc	
23	30/06/2007	271	29.5	1046	CALA Group Ltd	
24	31/03/2007	132	22.6	1028	Haslam Homes Ltd (Head Office)	
25	31/03/2008	160	17.7	1025	Telford Homes Plc*	
26	30/06/2007	124	8.9	710	David McLean Homes Ltd	
27	30/06/2007	157	-4.1	639	Gleeson Homes Ltd*	
28	31/12/2007	129	31.7	567	Croudace Homes Group Ltd	

* Housebuilders listed on the stock exchange in 2006/7

Gearing therefore is considered to be a valuable point of study in this report, in context of which type of housebuilders take on greater levels of debt and for what reasons. The report may be considered to be a timely study of the vulnerability of housebuilding firms in a downturn and may reflect how their financial standing is affected as a result. The credit crunch, causing the financial crisis, acted as a catalyst in setting a stage on which some housebuilders particularly suffered. As well as affecting the supply side in terms of the shortage of credit restricting operations of housebuilders, the demand side was also severely affected where house buyers were restricted due to problems with obtaining mortgages due to stricter banking policies. Bank losses caused mortgage lenders to become much stricter in their lending thereby reducing the same freedom of borrowing. As well as this, combined with low confidence levels in the housing market due to falling house prices, the housebuilders may be seen to be operating in an increasingly fragile market. This thereby exposed each firm's unique vulnerabilities as a product of their financial choices. A further point relevant to the report may be that of housebuilders' holdings of land banks. During a downturn where the land values are falling, housebuilders remain exposed in terms of risk carried, as seen through the eyes of investors in the market. As a result of this, housebuilders which have financial structures in place to comfortably survive the downturn, e.g. those with lower interest payments on debt, may be able to use their financial clout to buy the cheaply available land for future developments.

1.2: Land-Banking Behaviour as a Strategy for Gaining Competitiveness:

Prapas (2005), Wellings (2006) and Barker (2004) agree that the role of land banking is a critical factor in competitive pressure in the housebuilding industry as a result of the scarce supply of land. Housebuilders try to ensure that there is a satisfactory amount of future land supply for development purposes. Prapas (2005) in his study argues that there is competitive advantage attributed to the large housebuilders due to their use of economies of scale in being able to self-finance land-banks. However, Barker (2004) opposes the view of economies of scale being a hindrance to medium-sized housebuilders by showing that there is little evidence to suggest that land-banking is being used by large housebuilders in order to erect barriers to entry in the market in the UK. This is explained using the argument that new entrants into the industry are able to buy options from the firms which are already operating in the market. Furthermore, considering the time that housebuilders need to be able to secure planning permission as well as build houses on the site, the strategy of land-banking does not seem unreasonable or restrictive. Other reasons put forward by Barker (2004) and Wellings (2006) include that of evidence showing that regional housebuilders seem to be more profitable as opposed to their larger counterparts due to their local knowledge and expertise in acquiring sites which are, for example, more likely to obtain planning permission and where there is a better understanding of land value and section 106 requirements. A further incentive in not hoarding land in one specific area by housebuilders is due to the risks mitigated through diversification thereby providing some justification of the industry's reputation as fragmented (Barker; 2004).

An interesting characteristic of the housebuilding industry is the rate at which houses are brought to market by housebuilders. Many large housebuilders are known to 'trickle out' houses in order to protect themselves against price volatility as well as to ensure there is not an adverse effect on the local housing market (Barker; 2004). Therefore as a form of mitigation of business risk for firms, it is in their favour to keep a slight shortage of houses allowing for there to be sufficient demand. Barker (2004) and Wellings (2006) suggest there is a premium in obtaining valuable land for housebuilders as opposed to trying to push towards innovation and efficiency which to an extent forgoes consumer needs.

This report attempts to examine specifically the financial stances of housebuilders using published accounting figures and taking a corporate finance standpoint by using financial ratios to determine the factors which influence housebuilders' ability in staying competitive. In the case of listed housebuilders, since the financial statements are publicly available, they can in a sense be said to reflect public opinion in terms of values of shares etc.

1.3: Financial Structures; Strategies & Other Differentials for Housebuilders:

Barker (2004) suggests that the way housebuilders are financed is influenced by market risk. As well as this, the ability of even the major housebuilders to tap the capital markets has been suggested to be limited due to the following:

1. the shares of the major housebuilders are poorly rated
2. housebuilders have shown an unwillingness to take on significant fixed rate debt to finance their activities
3. most of the major housebuilders' capital requirements in recent times have been met through retained profit

In 2004 Barker argued that since there are no signs of investors and lenders making incorrect assessments of the risks and returns within the housebuilding industry, it is feasible to suggest there is no fault within the workings of the capital market and thereby there is not a restriction on the supply of capital. Indeed Wellings (2006) in his interviews with housebuilders records that historically housebuilders have had no difficulties in borrowing capital from banks or building societies. Therefore, the preference for housebuilders to reinvest their own profits on new developments is suggested by Barker (2004) to be down to the fact that the risk associated with developments by the market may raise the cost of capital to such a point that leaves the development as unfeasible in terms of profitability for firms.

Wellings (2006) puts forth the view that housebuilders in the past have failed during recessionary periods simply due to a misjudgement of demand and overtrading as well as not having the adequate financial strength to survive. As well as this, the characteristic of the development process requiring high levels of stock and work in progress, particularly land, is known to contribute to failures in the industry. Mistakes made in the industry in the past such as before the 1974 recession where removal of controls made acquiring of land attractive, leading to a large buying spree of land by housebuilders which was excessive and beyond their immediate needs. Some of this land was bought without planning permission and it later became almost un-saleable and therefore redundant, this led to financial difficulties for those housebuilders which had partaken in the activity. Similarly, the 1990 recession saw a fall in house prices thereby having a similar effect where land being held by the housebuilders led to losses being incurred. However, in this instance, banks were much more lenient in terms of not pushing large housebuilders into receivership as in the past (Wellings; 2006).

Some aspects of this report have therefore changed from the original outline, where:

1. Rather than approaching the study of the two different categories of housebuilders in a broad context, the decision was taken to compare their financial structures only. The conclusions reached from this would be compared and contrasted against previous areas of research on housebuilding.
2. This would therefore help derive some answers in regards to the approaches that the two different sized housebuilders take and how the financial structures accommodate this.

3. This would also help to point out the advantages and disadvantages that the approaches hold and therefore whether it is an effective approach as compared to other available options.
4. A central point of discussion and analysis will involve the effect of gearing and its effects within the housebuilding industry thereby investigating factors such as risk being undertaken with increased gearing as well as in the context of a number of other factors.

CHAPTER 2

Background

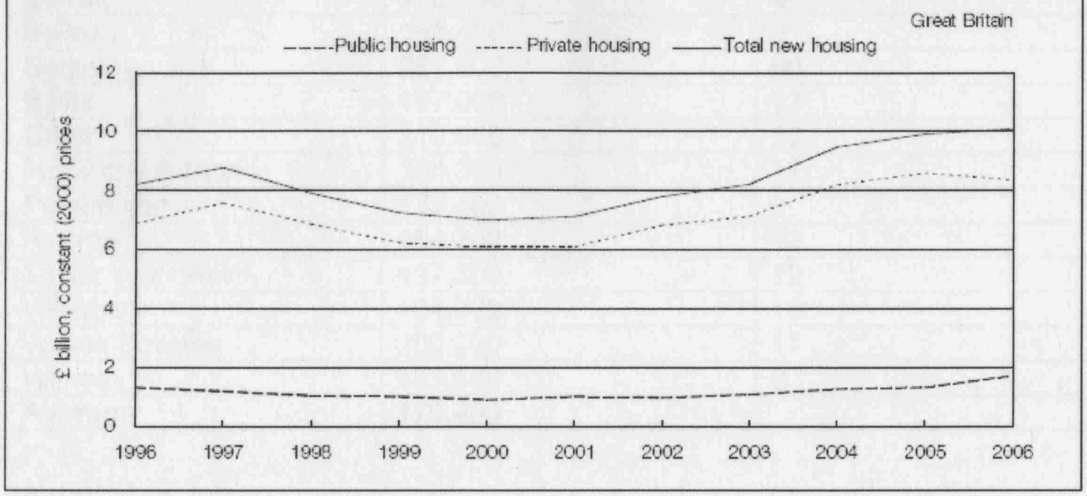
2.1: Business Cycles and Housebuilding:

Housebuilding activity may be argued to be heavily dependent on business cycles. In the event of an upturn, the low cost of capital (which follows a pattern of a slight time lag) is useful in helping to gather pace in the economy (Sherman and Kolk; 1996). For the housebuilding industry, further demand is created by businesses investing in resources and an attempt is made to meet the need for extra materials, requiring extra labour (at most stages), and thereby creates employment to meet this increasingly greater consumer demand (Bowles et al; 2005). As well as the income derived from investment (and then re-spent through consumption as in the multiplier process), extra income is further derived from credit obtained from the banking system - which is beyond current saving (Sherman and Kolk; 1996). The Minsky-Wolfson (1986) business cycle theory also outlines this in the first stage of the business cycle where speculation on rising asset prices creates the need for capital enhancing investment thereby leading to increased borrowing and of course increased lending by the banks[1]. Therefore in a time of wealth, demand for housing is high because of increased consumer expenditure and housebuilders remain optimistic as they observe increasing levels of profits gained through their activity.

Ball et al (1998) covers some explanation of the development cycle and its correlation with the business cycle. As there is seen to be an upturn in the business cycle, there is in-turn increased activity in the economy which leads to increased demand for property (below is an example for increases and decreases in demand during the cycle - Figure 1.1; New Housing Orders). The property already available in the market is absorbed at a quicker rate which leaves a gap in the market. The increased demand for houses as well as greater access to credit, drives up prices and thereby becomes a form of market-signal to housebuilders (Ball et al; 1998). This was seen in the recent boom where the low cost of borrowing with the interest rates at a 48 year low (ft.com) allowed there to be reduced borrowing costs and became a factor in helping profit rates to recover (Sherman and Kolk; 1996). Ball et al (1998) suggests that there is evidence to show that housebuilders make the mistake of using current market conditions to undertake appraisals and therefore such irrational behaviour combined with lending policies on behalf of banks (Wellings; 2006) leads to booms and busts.

Source: DBERR (2007)

Figure 1.1 New housing orders



[1] Extract taken from CM3 – Booms and Slumps paper by the author of this report

Therefore, as the economy reaches its peak and real interest rate rises make the cost of capital higher, a downturn in the economy commences leading to a fall in aggregate demand for new houses (Ball et al; 1998). This coincides with the market gaining new developments in high numbers due to the increasing optimism which was formed because of the recent past showing high growth behaviour for housebuilding firms. This effect causes an over-supply of houses in the market leading to developers being unable to cover interest payments (Ball et al; 1998). As a result, and as observed in the current financial climate due to a lack of credit and falling prices of houses, housebuilders respond by completely halting new developments, making employees redundant, and in the worst case scenario; firms themselves may go bankrupt (The Economist; 2008). Ball et al (1998) explain that only a partial or certain proportion of the building work is completed during the downturn due to the unpredictability concerned with future demand. This characteristic of the business cycle is as a result of a combination of the accelerator effect (with interplay alongside the multiplier effect) (Ive & Gruneberg; 2000) and lags experienced (Barras; 2005) thereby creating such fluctuations. Therefore some housebuilders remain optimistic whilst waiting for that eventual upturn in the economy so they can be most competitive in the market at the arrival of that time.

Ball et al (1998) discuss the implications of lending institutions and the part they play in the cyclical behaviour as experienced in the development processes. The authors explain this using the concept of asymmetric behaviour and specifically as lenders 'suffering from poor memories'. Lending is done through a process of using non-recourse debt; where the debt is secured by using collateral, e.g. real property, but for which the borrower is not personally liable (Black; 2002), therefore the downside risks are sustained by the lender whereas the upside risks are beneficial to the developer.

Also, since the industry primarily deals with the supply side, it seems reasonable to assume that the housebuilders which are able to respond to demand in housing at an appropriate time in the business cycle are in a more advantageous position to take greater profits than their rivals and hence be more competitive. However an assumption being made is that the houses being produced by all housebuilders are homogenous (Wellings; 2006). This is obviously not true since some housebuilders build bigger units, some of better quality and so forth. But it can be argued that across the board, as table 1.2 illustrates for 2003, most housebuilders do not have an excessive difference in product mix if measured by market price as shown:

Table 1.2: Wellings (2006); Average Selling Prices of Units in 2003 by Different Housebuilders:

Company	**Average Selling Price £**	**Deviation %**
Barratt	170,000	4
Bellway	161,400	8
Berkeley	282,000	60
Bovis	197,900	12
Crest	210,000	19
McCarthy & Stone	154,300	12
Persimmon	172,400	2
Redrow	154,700	12
Taylor Woodrow	197,300	12
Westbury	194,000	10
Wilson Bowden	206,000	17
Wimpey	193,000	9
Average	**176,400**	

Therefore the point outlined above, in terms of the quality of the final product being delivered in the form of houses, can be eliminated as a discrepancy factor in exploring the competitive advantages arising between housebuilders. Hence, it seems logical that housebuilders which are able to respond to demand by bringing houses to market at a time of peak demand will stand to make greater profits. This response must therefore be business cycle affiliated. Thereby housebuilders which are able to develop at a time to coincide with the point of highest demand in that cycle remain in a better position and more competitive. It therefore seems logical that different housebuilders must differ in their structures, and hence respond differently to points in the business cycle, otherwise all housebuilders would behave exactly the same during upturns and downturns for profit maximisation.

To summarise, Prapas (2005) and Barker (2004) both describe that housebuilders which are able to re-invest their profits into future investments remain more competitive whilst Ball (1998) describes that expectations about the future form the decision-making of a developer. Also, as discussed, housebuilders reaching the market at a time of high demand are likely to take a greater proportion of profits. If these statements are coupled, it seems reasonable to assume that housebuilders build speculatively by predicting future demand and therefore are dependent on the outturn of the business cycle (Ball; 1998). This introduces a great deal of uncertainty in the investment strategy. Keynes suggests that herd-like behaviour tends to determine the result and Ball (1998) suggests this leads to, during upswings, property developers to be more optimistic and thereby bring to market a greater number of projects. Another problem is that housing markets by their very nature are highly cyclical, with evidence of `long-wave' behaviour, and that although theories exist about trends, none are proved to be properly applicable or completely synchronised (Ball & Wood; 1996).

2.2: Economies of Scale and Scope; Arguments For and Against:

Wellings (2006) discusses how larger housebuilders possess advantages with size which helps them to gain a competitive edge over their smaller rivals in the market place. This is seen to be through a process of economies of scale and scope when looking at production of housing units (efficiency) as well as financial factors (e.g. being able to borrow more). Financial economies of scale is considered to be a useful asset to large housebuilders (Wellings; 2006), and is discussed in more detail later in the report. Wellings (2006) and Gruneberg and Ive (2000) argue that technological factors may not be advantages gained through economies of scale since the activities involved in the industry mean access to suppliers is open to all sized firms. Wellings (2006) also however puts forward the theory that although larger housebuilders gain some advantages, they also suffer from disadvantages such as diseconomies of scale. 'Diseconomies of scale' is defined by Sloman and Hinde (2007) as 'where costs per unit of output increase as the scale of production increases'. Wellings (2006) however narrows this down and describes this to be in the form of management structures, where the size of large housebuilders often means that there is a loss of entrepreneurial drive which is critical to achieving success in the industry. This is described by the author in the sense of having a process of filtering as one travels down the management structure. The effect can be hugely damaging to housebuilders since the industry remains very much dependent on entrepreneurial flair particularly in the phase of land buying where negotiation for pricing is paramount alongside local knowledge. This therefore may be advantageous for smaller firms which possess the attributes in greater quantity.

However, Wellings (2006) and Prapas' (2005) work both comes to the conclusion that housebuilders have tended to consolidate in the recent years and since the theory of economies of scale and scope necessitating the creation of large housebuilders does not offer a satisfactory explanation for this trend towards

consolidation, an alternative explanation is put forward by Wellings (2005). The author suggests that a complex interaction between personal motivation, judgemental qualities of entrepreneurs at critical points in the housing cycle, stock market issues and financial incentives are the driving force behind growth and consolidation. The points measured quantitatively as part of this report are that of the stock market factors and the financial incentives achieved in displaying certain financial structures, and these are therefore analysed as part of this report and remain relevant focuses for discussion.

2.3: Financial Economies of Scale and Scope Influencing Housebuilding:

Prapas (2005) makes an argument for the financial strength of the UK housebuilding industry where larger firms are able to retain a very large portion of their profits (65%-80%) and can take advantage of this especially in the downturn where they can use this to buy land cheaply. Property and land prices are important in the sense that they both affect the wealth and credit worthiness of all property owners and the profitability of housebuilders (Ive and Gruneberg; 2000) therefore being able to buy land cheaply would remain a distinct advantage for those housebuilders which are able to do so in a downturn. Economies of scope indicates an increasing benefit gained from changes in the demand side, whereas, economies of scale is concerned with changes in the supply side. Therefore Wellings (2006) defines the role of economies of scope in the form of land acquisition, marketing and purchasing as part and parcel and as a justification in the edge gained for the larger firms. These factors can be thought to be capital driven (and therefore thought to be beneficial to larger firms), in the sense that with the greater availability of finance, housebuilders are able to acquire greater land, advertise better, and hold advantages during purchasing etc.

Lastly, Wellings (2006) remains doubtful of the necessity of housebuilders to have an increased size in order to have certain financial advantages in order to acquire land. The author describes there being no consistent evidence to support the theory of economies of scale and scope being applicable to the housebuilding industry if using profit margins as a source of comparison. In fact it is shown that some smaller housebuilders have a much greater profit margin when compared to their larger rivals. An important factor in this context is that the access to capital through banks, building societies or capital venture firms means that the availability of finance is no more difficult for the smaller builder as it is for the larger firm. Therefore as Wellings (2006) points out, barriers to entry as a result of lack of access to capital or finance can be regarded as a weak reason and not fully explanatory as a reason for firms not expanding in size. This is further supported by the work of Bundock (1974) and Barker (2004) showing that financial organisations in the past such as banks or building societies have been willing to lend to housebuilders 'even where they were inexperienced' and this continued to be a trend well into the future. In fact, Wellings (2006) suggests a case could be made that banks are guilty of over-lending to housebuilders if determined using data from the past.

The rationale for expansion or consolidation in context of financial incentives and stock market are as follows. As profits accumulate for housebuilders, Barker (2004) describes that other than paying excess salaries or dividends, the three choices housebuilders have are:

1. Accumulate cash balances (which will be distributed or invested at a later stage anyway)
2. Invest in an area which is already well understood (i.e. housebuilding)
3. Invest in something not understood (although the past has shown that housebuilders who had taken this strategy via diversification into construction or commercial property did not succeed)

Therefore from a rational perspective, it makes sense for housebuilders to re-invest that capital within housebuilding - their area of expertise, rather than an area they do not understand (Barker; 2004). Initially although a growing firm will invest in their local areas, they will eventually diversify their activities geographically due to exhaustion of natural resources, e.g. land (Wellings; 2006). The incentive to re-invest in the business is further driven by the nature of the housing cycle, where rising house prices raises the price of stock and thereby giving long period of greater than average returns. As this increases confidence over prolonged periods, the stage for a downturn is set thereby catching investors by surprise leading to losses. As well as financial incentives, further opportunities for growth are available through flotation on the stock market for housebuilders. From the 1960's, the existence of a market for securities, where shares could be traded and annual profits capitalised allowed there to be an encouragement of company growth (Wellings; 2006, Brealey and Myers; 2003). The three steps which are interrelated and placed a premium on size are as follows:

1. Firstly, there was an incentive for companies to be of a certain size in order to be listed on the stock exchange
2. Secondly, the floatation allowed there to be a market where funds could be raised thereby allowing leeway for financing acquisitions for further growth
3. Thirdly, there was an external pressure from shareholders to continue to grow the business through profit and it was the job of the company management to accommodate this. In a static market, the answer to this was increasing market share (Wellings; 2006).

CHAPTER 3

Housebuilding & Corporate Finance

3.1: Gearing/Financial Leverage and Housebuilders

There is a clear indication based on Wellings' (2006) studies that housebuilders have histories of high leverage or gearing. He mentions surveys in the 'Investor Chronicles' in 1974 as showing average borrowings of housebuilders as 82% of the cost of the land holdings and in 1975, 162% of equity capital. Similarly this was shown to continue in the 1990's where large quoted housebuilders had gearing levels of 50% with companies such as Countryside and McCarthy & Stone having gearing of over 150% in the same period. This further continued into 2001 where Wellings' (2006) work showed that five independent housebuilders had a combined debt of £515 million whilst being supported by £66 million of net equity, of which most was made up of goodwill. This is therefore a clear statement of a high level of gearing shown in the not too distant past by housebuilders. There is also an indication from the work of Wellings (2006) that the larger housebuilders tend to be slightly lower geared compared to their smaller rivals due to the ability in being able to plough back retained profits to finance their activities. This also keeps their gearing ratios low and thereby allows them to be seen as safer investments by the market.

Financial risk is defined as 'an increase in stockholders' risk, over and above the firm's basic risk, resulting from the use of financial leverage' (Brigham & Houston; 2004) whilst financial leverage (or gearing) is defined as 'the extent to which fixed-income securities (debt and preferred stock) are used in a firm's capital structure' (Brigham & Houston; 2004). These definitions give an indication of the riskiness that is associated with debt. The leverage hypothesis (Campbell et al; 1997) states that when the total value of a leveraged firm falls, the value of its equity becomes a smaller proportion of the total thereby changing the value of the firm. This is therefore an indicator of risk being assumed with greater leverage. Penman (2003) states that when a firm borrows from a bank, it gets an amount of cash equal to the present value of debt service (the principal plus the interest rate it has to pay back in the future). This implies that debt financing is irrelevant to the value of the firm. Penman (2003) also argues that since interest on debt is deductible against income in assessing corporate taxes, the issuing of debt therefore leads to a tax advantage that shareholders cannot get in paying personal taxes and thereby generates value for the shareholder. However, Brealey & Myers (2003) point out that there is an optimum level at which this is applicable beyond which the threat or cost of financial distress (bankruptcy) outweighs the advantage of having a tax shield. This is because at moderate levels of gearing, the present value of the tax shield is low and tax advantages dominate. But once the optimum level of gearing is crossed, it is noted that the probability of financial distress accelerates rapidly thereby substantially reducing firm value. Therefore the theoretical optimum of gearing is reached when the present value of tax savings is just offset by increases in the present value of costs of distress (Brealey & Myers; 2003). This is called the trade-off theory of capital structure.

A firm's most basic streams of cash flows is said to be produced by its assets (Brealey & Myers; 2003). A firm may be financed by stockholders and/or debtholders and therefore has its capital structure based on this depending on the different mix of securities it holds. This therefore remains a marketing issue for the firm since it must have an attractive structure in place to further attract capital into the firm from investors. Brealey and Myers (2003) propose that it is in the firm's interest to hold a capital structure which maximises its market value since this is also beneficial for its stockholders. An interesting way to look at the effect of gearing of a publicly listed company is to discuss it in the context of the market value of the shares being held of

a company in the ordinary domain. One would assume that with increased gearing prior charges will rise thus making the ordinary shares more risky and causing an increase in the rate of discount used by the market to value them (Briston; 1975). However, more traditional theory suggests that increased gearing, up to an optimum point, will not change the market value of the shares since the higher level of dividends being paid will maintain the share prices when these shares are priced on a higher yield basis (Briston; 1975). On the other hand, it is suggested that once an optimum point has been passed in terms of gearing, the higher market discount of the market price of the shares will outstrip the additional expected profits thereby causing share prices to fall (Briston; 1975).

3.2: The Modigliani-Miller Theorem

A proposition put forward in the Modigliani-Miller theorem states that 'two firms that generate the same future profits have the same market value regardless of their debt-equity ratio' (LeRoy & Werner; 2001). Briston (1975) reiterates this by stating that the 'aggregate market value of a company is entirely independent of its capital structure' therefore two companies with identical assets and earnings of identical size and quality will always maintain the same total market value despite their different methods of financing.

This suggests that if a firm takes on greater debt, as long as the investor is compensated fairly for the increased risk to the investment, the increase in the expected return on equity does no more than compensate you for the increased risk that you bear (Kohn; 2004). Therefore, since the same returns are being made from the shares, the shares are valued the same, thereby holding the theory that gearing of the firms does not affect the value of firms.

Also, Modigliani and Miller propose the following equation:

$$r_e = r_a + \frac{D}{E}(r_a - r_o)$$

r_e = required rate of return on equity / cost of equity
r_a = cost of capital for an all equity firm
D/E = debt to equity ratio
r_o = required rate of return on debt / cost of debt

This suggests that the expected rate of return on the common stock of a levered firm increases in proportion to the debt to equity ratio (Brealey and Myers; 2003). This means that as a firm becomes further geared, this leads to a higher required rate of return on equity since there is now a greater risk involved for equity holders in the company with debt. Bevan A & Danbolt J (2002) however state the assumptions made in the Modigliani-Miller principle such as the existence of: perfect capital markets, no market imperfections (such as taxation), no transaction costs, costs of bankruptcy or financial distress and information asymmetry (may result in companies preferring certain types of financing to others). This means that the Modigliani-Miller theorem becomes somewhat obsolete in a real world situation as the mentioned factors come into play [2] (Bailey; 2007). The theorem does however maintain importance in regards to the understanding of capital structures since it tells one where to look for determinants of optimal capital structure and how the factors may affect such a structure.

In the case of housebuilders when using the theorem, as long as the business operates in a system where the conditions are satisfied (such as perfect capital markets etc), the effect of gearing should hold no weight according to the first proposition. Therefore theoretically gearing can be eliminated as a factor which separates the large firms from the smaller firms. Therefore taking on debt does not alter the value of the firm, and in fact raises earnings per share when gearing is at an optimal point. Therefore it may be relevant to say that there exists an incentive for firms to take on debt and increase the debt to equity ratio, however, it remains clear that higher gearing also increases the risk profile of a firm. Since the cost of equity is decided by the difference between weighted average cost of capital, and cost of debt

[2] Although there are extended versions of MM theorem which can work with the inclusion of taxation

and gearing ratio, assuming weighted average cost of capital is constant, the increased debt leads to an increase in cost of equity and cost of debt (Penman; 2003, Bodie and Merton; 2000, Brigham & Houston; 2004). Therefore bond holders would demand higher yields as the gearing ratio increases. The equation below gives the same answer if the equation was being interpreted from a beta point of view whereby an increase in leverage will increase the beta of equity and debt:
$\beta_e = \beta_a + \frac{D}{E}(\beta_a - \beta_o)$.

3.3: Betas, Market Values and Financial Ratios

Beta (β) is defined as 'a measure of the market (or systematic) risk of a company's shares, i.e. the sensitivity of the share price to movements in the market' (Parker; 1999). Stocks with a beta greater than 1.0 tend to amplify the overall movements of the market whilst stock with values between 0.0 and 1.0 tend to move in the same direction as the market but not quite as far (Brealey & Myers; 2003). This though may not always be the case since company specific factors can cause the stock's realised return to decline even though the markets return is positive (Brigham & Houston; 2004). However, studies carried out by Eugene Fama and Kenneth French show that in the past there has been only a weak correlation between stocks' returns and their market betas (Brigham & Houston; 2004).

Briston (1975) outlines the effect of leverage in three broad terms using a traditional view. The first is that by taking on loan capital, the reaction of the market may be to increase the market value of the ordinary shares partly because of the expectation of higher earnings without a material increase in risk, and partly because of the publicity given to the issue of shares is a bull factor. The second point is that subsequent issues over a broad range would most probably have little effect on ordinary shares since the extra earnings would be compensatory of the additional risk taken on which is consistent with Modigliani and Miller's first principle. Thirdly, too high a gearing (above optimum level as considered by the market) would result in a fall in the market price of the firm as the higher equity earnings would be outweighed by the greater risk involved (Briston; 1975). Finally, the Hamada equation also demonstrates this scenario where the beta increases with increased financial leverage and was shown to do so in both theoretical and empirical studies (Hamada; 1969).

Other financial ratios may also be a useful point of study in this report and important in helping to derive answers as to what determines the competitiveness of housebuilders. The valuation ratio comparing market value against the book value may be used to give some idea to those in the market about investment in the company. Kohn (2004) describes that, firstly, a lower stock price to the book value may indicate that the stock in being unfairly or incorrectly undervalued by investors due to some passing circumstance and is in fact a bargain. However, another reason may be that the growth prospects of the firm are weak, and assuming that growth investors are correct, an investment will be stagnant at best or at its worst, a losing proposition. Bodie and Merton (2000) also explain why the book value per share may not be equal when compared to the market value per share. The further two reasons offered are that accounting figures do not include all of a firm's assets and liabilities e.g. intangible assets such as a good reputation or liabilities; in the form of pending law suits. Secondly, the authors state that assets and liabilities on a firm's balance sheet are for the most part valued at original acquisition cost less depreciation rather than at the current market value. This therefore presents a gap in 'true' potential values. Similarly, the aggregate value of shares issued by a firm versus the total equity as indicated in company financial statements may be represented and differ for the reasons given above (although the initial two reasons may be seen to be most influential to the result).

Other ratio's which can be considered to be useful in dividing the housebuilders in terms of their competitiveness is their price/earnings ratios, current ratios and interest cover. Price/earnings ratios show how much investors are willing to pay per pound sterling of reported profits and are higher for firms with strong growth prospects, other things held constant, but are lower for riskier firms (Brigham & Houston; 2004). This therefore implies that investors will pay a higher price for each unit of income due to its future potential prospects and may be related to the level of leverage as a factor. Current ratios play a part in comparing the firm's cash and other assets expected to be converted into cash within a company's normal operating cycle with the company's liabilities expected to have been paid within the cycle (Parker; 1999). This is therefore useful as a measure of the liquidity of a firm and relevant to a housebuilder's ability to survive in an economic downturn. Also, another ratio which can be useful as to the financial analysis of a firm is that of the interest cover/times-interest-earned. This evaluates the ability to which interest is covered by earnings before interest and taxes plus depreciation for a company (Brealey & Myers; 2003). In the case of this report, since housebuilders have long histories of high gearing, this would be directly relevant in measuring by how much a company is able to clear its payments of interest being paid on loans using its earnings.

CHAPTER 4

Methodology

4.1: Method

The aim of the method was to carry out an investigation in order to identify which factors play a role in giving housebuilders a competitive edge over their rivals in the same industry. In order to do this, initial reading was undertaken to understand the housebuilding sector through sources such as Wellings (2006), Ball et al (1998), Prapas (2005) and Barker (2004). As well as this, the subject of corporate finance was also studied using literature such as Principles of Corporate Finance by Brealey and Myers (2003) in order to help apply it to the analysis of the quantitative data in an appropriate way.

However before the undertaking of analysis, categories were initially created to differentiate the 'larger' housebuilders from the 'medium' sized housebuilders using 'units built per year' for the year 2007 [3]. The options which were seen to be the most obvious measurements in separating the large builders from the medium sized ones were those of 'turnover', 'profit', and 'units built in 2007'. The option chosen to create the two separate categories was the latter; 'units built in 2007'. Similarly, Wellings (2006) in his studies is also seen to class and then compare the two different sizes of housebuilders using the same method of measurement. This does however have its limitations in that there is a lack of homogeneity in houses being built and the factor of the overlap of social housing (Wellings; 2006). On the other hand, if firms were allocated their size using accounting data such as turnover or profit, interpretational problems could lead to limited insight into the financial review being undertaken.

Therefore once a point of measurement was selected, a division was formed between the two classes of housebuilders using a cut-off point where a housebuilder building units of 5000+ in the year of 2007 was a considered 'large' housebuilder. In the same way, medium housebuilders were defined and allocated their category if building units between 500-5000 units in 2007. From this a total of 28 housebuilders were chosen for review. From this list, four housebuilders were placed in the bracket of 'large housebuilders' whilst the remaining 24 were classed as medium-sized housebuilders. Although there is not a large number of firms in the 'large housebuilders' category, this is still a fair representation of 'large' firm size and therefore a useful comparison point. Also, another separation or cut-off point would arguably lead to ambiguous results which may potentially be irrelevant in answering the report question.

The next step required a study of individual company finance information as obtained from sources such as Companies House and FAME. Whilst FAME was used as the main resource for electronic data importation, company income statements and balance sheets as obtained from Companies House were also a useful source for firm policies on types of debt undertaken etc. The information derived from the financial statements was used to construct a table of financial ratios as well as other measures in order to carry out a comparative analysis for the two categories of housebuilders. The types of ratios calculated included those of leverage ratios, such as gearing ratios. These gearing ratios were calculated in two different ways, using long term liabilities as the first measurement i.e. long term liabilities / (long term liabilities + equity), and secondly, using long term debt i.e. long term debt / (long term debt + equity). In order to draw a comparison to the theory as discussed earlier about higher leverage leading to the payment of lower corporate tax, a calculation undertaken was that of tax as a percentage of gross profit. Another leverage-based ratio calculated was that of interest cover which was calculated using: profit before interest / interest [4].

[3] Although for Gladedale Holdings, the most recently published financial statements, or the closest published to the year 2007, are those in 31/12/2006 and these are therefore used in the study

[4] All methods of ratio calculations are shown in the tables for each individual ratio as calculated. Please refer to tables for clarification in appendix

Further ratios calculated for each of the 29 housebuilders included that of a liquidity ratio in the form of current ratio for housebuilders, as well as a profitability ratio in the form of a net profit margin calculation for all firms. Lastly, in order to help establish market values of firms, calculations were carried out such as; price/earnings ratios, normalised standard deviation of share prices over the past year to reflect fluctuations, stock market worth of firms, average share prices over the year, earnings per share for each firm and the number of shares issued per firm. The link between the data collated from the financial statements and the data collected using market values was brought together to calculate the valuation ratio. This was done so in order to see the difference in valuation and whether this is reflective of investor opinion on firm growth at a point in time, the effect of risk through leverage and the issue of accounting methods not including assets such as a good reputation of a housebuilder etc. The valuation ratio would also help reflect the role of the credit crunch in causing the market to value the firm lower than its book value, whilst exploring ideas which may cause this. Finally the beta values (β) of firms were calculated in order to understand its correlation with share price fluctuations.

The method of analysis is therefore mainly quantitative, where the results extracted are discussed in context to the relevant theory on housebuilders as well as the theory on corporate finance. The aim remains to observe the inclination of particular sized housebuilders to preferring certain financial structures to achieve their set business outcomes and whether these differences clearly divide the larger-housebuilders from the medium-sized firms. The data is represented in both table and graphical form in order to give a more visual representation of the results obtained. This is finally used to draw conclusions and is followed by a discussion of potential future research.

CHAPTER 5

Results and Analysis:

Note: All the data referred to in the results is shown in a table format in the appendix alongside individual calculated formulae as discussed in the results.

5.1: Average Gearing Ratios for the Two Categories of Housebuilders:

Table 1.3: Average Gearing Ratios for the Two Categories of Housebuilders

	H/B Size	Average (%)	Standard Deviation (%)
Gearing Ratio [1] (LT debt/LT debt + equity)	*Large*	*18.67*	*10.96*
Gearing Ratio [2] (LT liab/LT liab + equity)	*Large*	*27.28*	*12.31*
Gearing Ratio [3] (LT debt/LT debt + equity)	*Medium*	*40.66*	*30.49*
Gearing Ratio [4] (LT liab/LT liab + equity)	*Medium*	*35.35*	*28.85*
Gearing Ratio [5] (LT debt/LT debt + equity)	*Overall*	*36.26*	*28.15*
Gearing Ratio [6] (LT liab/LT liab + equity)	*Overall*	*34.00*	*26.20*

**Note: the gearing ratio (measured using long-term liabilities) can be seen to be lower for 'medium housebuilders' and 'overall' when compared against gearing (measured using long-term debt) due to some unobtainable data therefore is not comparable against each other. However, it is representative when comparing the size of housebuilders and when used as an individual set of figures.*

When looking at the average gearing ratio (LT debt/LT debt + equity) for large housebuilders, there is a clear difference showing that larger housebuilders have less than half the gearing as those of the intermediate housebuilders. However, when using the average gearing ratio (LT liabilities/LT liabilities + equity) as a point of comparison, the difference between the two classes of housebuilders becomes much narrower where the average for larger housebuilders is 27.28% compared to the medium housebuilders' 35.35%. This therefore means that medium-sized housebuilders have tended to take on debt to a greater extent when compared to the larger housebuilders. This correlates to the theory that the larger housebuilders do not need to take on a large amount of loans from banks because they are able to use their retained profits to fund activities thus eliminating borrowing costs. The medium housebuilders however are somewhat forced into borrowing larger amounts due to lack of ability in being able to also use retained profits and therefore are shown to have the higher gearing ratios. This is further supported by previous research showing that lenders have been happy to lend capital to housebuilders in the past and it is therefore the choice of the larger housebuilders not to become geared to the same extent as the medium-sized housebuilders.

Gleeson Homes is shown to have no gearing at all since they have no long term debt or long term liabilities as shown on the company financial statements (and as confirmed by an accountant within the company) and is therefore an unusual prospect. This causes a large variation of data for medium-sized housebuilders and therefore the standard deviation can be as a result observed to be a multiple of that of the larger housebuilders. Another reason for the large variation in data may be explained by the larger sample size of the medium housebuilders. Croudace Homes Group Ltd is also another housebuilder with very little gearing (0.17% - in the case of both long-term liabilities and the long-term debt). Therefore, as can be seen from the bar charts in figures 1.2 and 1.3, the overall data seems to indicate a higher gearing for the intermediate sized housebuilders whilst the larger housebuilders show a relatively smaller percentage of gearing. Lastly, as shown in the last two columns of table 1.3, the gearing can be seen to be slightly higher for the medium sized housebuilders when compared to the average gearing for all housebuilders, and

significantly lower for the larger housebuilders. Once again, this significant difference may be attributed to the larger sample size of the medium housebuilders.

5.2: Net Profit Margin:

Figure 1.5 is a bar chart representing the net profit margin for each housebuilder (excluding McCarthy & Stone and Croudace Homes due to much higher than normal profits). Therefore taking into account the exclusions, the chart shows that most housebuilders seem to have very similar levels of net profit margin. On the other hand, the same data when represented in an alternative way using a scatter diagram with a line of best fit (figure 1.6) indicates a slight trend toward medium-sized housebuilders earning lesser profits as compared to the bigger firms. However the trend line may be seen to become steeper and therefore slightly more conclusive with the omission of the two data points (McCarthy & Stone and Croudace Homes) therefore indicating that larger firms have a higher net profit margin. On the other hand, this does not mean that smaller firms would be performing similarly in a different economic environment. Therefore it seems reasonable to say that in the time frame the data was collated, there is not a large difference between the large and the medium-sized firms in terms of their net profit margins.

5.3: Relationship between Interest Cover & Gearing:

Table 1.4: Average Interest Covers for the Two Categories of Housebuilders

	Large H.B. Average	Medium H.B. Average	Medium H.B. Average (omitting 5 discrepancies)	Standard Deviation Large H.B.'s	Standard Deviation Medium H.B.'s
Interest Cover (profit before interest/ interest)	9.86	9.59	3.97	1.28	11.59

Figure 1.4, a bar graph representing interest cover, shows the four large housebuilders as having similar levels of interest cover with an average of 9.86. From the large-housebuilder category, Bellway is the safest in this respect at 11.28 x interest cover whilst Barratt Developments remains lowest at 8.68 x interest cover thereby making it potentially the most exposed in a financial downturn. The standard deviation is shown to be 1.28, as shown in table 1.4, thereby showing that the spread of data is not wide ranging for the larger firms. On the other hand, the average interest cover for the 'medium' category of housebuilder is 9.59 (therefore slightly lower than the large firms on average) whilst the spread of data is much higher as opposed to the larger housebuilders. However, with the omission of data (due to extraordinarily large interest covers as compared to others within the same data set) for five medium-sized housebuilders: Bovis Homes, Berkeley, Lovell, Haslam Homes and Croudace, the average interest cover become a much smaller figure of 3.97 compared to the original average (as shown in table 1.4). This suggests that the ability of medium sized housebuilders in covering interest by earnings before interest and taxes plus depreciation is much lower compared to their larger counterparts.

Since a greater number of results are available for gearing when measured using long-term liabilities, it is more appropriate to use this as a source of measurement when trying to establish a link or a relationship against the variable of interest cover. Figure 1.7 represents a graphical relationship between the two variables for the housebuilders. The scatter graph shows that there was a strong trend toward housebuilders with higher gearing having in-turn lower interest covers. This means that from the housebuilders chosen as part of this review, as the level of

gearing became smaller, the ability to pay back interest on debt taken on becomes easier. This relationship is represented in figure 1.7 when using a line of best fit.

5.4: Financial Economies of Scale In-Regards to Estimated Cost of Debt for Housebuilders:

Table 1.5; Estimated Cost of Debt for Housebuilders

Average - All HB's	13.11	Standard Deviation – All HB's	9.21
Average - Large HB's	16.20	Standard Deviation Large HB's	10.67
Average - Medium HB's	12.23	Standard Deviation Medium HB's	8.99

Table 1.5 shows that the larger housebuilders have a higher cost of debt (when measured using long-term debt) as compared to their smaller rivals. Since the financial statements show that only Taylor Wimpey and Bellway from the four large firms use secured debt, albeit a very small amount, the results are therefore be in-line with the theory where the larger firms have the greater finance costs due to a higher required rate of return by lenders due to riskiness of lending. The medium-sized firms are, on the hand, quite consistent in showing that a much greater portion of their debt is driven by mortgage debt, where the loans and borrowings are secured on assets held such as developments, land etc. This translates into the medium-sized firms as having comparatively smaller finance costs which is beneficial to them, although remains risky upon loan default (Brealey and Myers; 2003). Figure 2.9 also shows a similar pattern where the estimated cost of debt (when calculated using both short and long term debt) for medium-sized firms is an average of 7.8% (omitting Places for People due to an irregular result) whilst for large housebuilders is an average of 12.14%. It is also noticeable from table 2.1 that the medium housebuilders tend to rely much greatly on short term debt as compared to the larger housebuilders. This makes them much more risky and prone to failure in the case of a recession where they would have problems repaying the short term loan over the required 12 month period. Also, as can be seen from figures 1.8 and 1.9, it may be argued that the estimated cost of debt (measured using only long term debt) for all housebuilders across the spectrum is extremely similar and the level of difference is not massively conclusive in differentiating the two classes of firms.

A further argument which may be put forward based on these results may be that since medium sized housebuilders tend to acquire comparably smaller sites for development in regions which are known to them, there is therefore a greater chance of that development being successfully and efficiently sold due to a better understanding of demand before the development was undertaken. This means that the banks may see the developments of smaller housebuilders as less risky and hence offer debt for a lower cost. Alternatively in the case of larger housebuilders, banks may fear that since larger housebuilders are acquiring large sites and building upon them, once the development is complete, the large amount of units being supplied to the market in a micro-environment (e.g. a certain area or district of town/city), may cause market saturation and therefore units are harder to sell. This may potentially mean that housebuilders face a loss in such a situation and thereby banks demand a higher return for the comparatively riskier investment.

5.5: Housebuilders' Gearing and Tax as a Percentage of Gross Profit

Since the theory, as discussed, suggests that the advantage for firms in taking on debt leads to a reduction in corporate taxes due to the ability in being able to deduct interest from earnings, a highly geared housebuilder should essentially display results where it pays lower taxes as compared to those with lower gearing ratios. Figure 2.0 attempts to show a relationship between the factors of gearing (as

measured using long-term liabilities) and tax (when calculated as a percentage of a firm's gross profit). The top 8 largest housebuilders as shown in the graph do not display a dramatic change in taxes paid, albeit with differences in their gearing, though there is still a visible correlation as according to the theory. It can be observed that as firms take on lesser debt and therefore have lesser gearing (when measured using long-term liabilities), housebuilders in turn pay higher corporate taxes and vice versa. This relationship becomes clearer in the case of Bovis Homes, Charles Church, Berkeley and Countryside Properties, where it can be observed that changes in gearing between housebuilders leads to a noticeable change in the tax being paid. This relationship continues to be apparent throughout the graph except in the case of some housebuilders such Kier Residential, Morris Homes and Gleeson Homes but this may be due to unique characteristics and attributes of those individual housebuilders which offset the expected pattern. It must also be taken into account that the graph is measuring each housebuilder relative to another in order to attempt to find a trend or a relationship as stated in the theory and therefore the graph is useful more so as a comparative tool. Hence, figure 2.0 is helpful in clarifying the position of financial theory where there is benefit derived for housebuilders with increased gearing where lower taxes are paid as a consequence but this, as discussed, can only be utilised up to an optimal level after which the risks may offset the benefits and firms may potentially face the risk of costly bankruptcies (Brealey and Myers; 2003).

5.6: Current Ratios – Measuring a Housebuilder's Margin of Liquidity:

The linear trend line in figure 2.1, as plotted using the scatter graph, shows a slight tendency for there to be smaller current ratios with decreasing housebuilder size. Kier Residential, Bovis and Morris Homes are shown to have unusually high current ratios which cause the linear trend line to be almost horizontal. However, if these three data points were to be removed and classed as anomalies, the trend line may be observed to have a steeper and more conclusive slope with a negative gradient which would be indicative of relatively lower interest covers for smaller housebuilders. The red trend line plotted using moving averages confirms the data spread as quite variable. This means that housebuilders tend to make quite different choices in the make up of their structure (in terms of their current assets and liabilities) and this is especially visible in the case of medium-sized housebuilders. As seen in Figure 2.1, the five largest housebuilders do not tend to have such a variance in their current ratios. Table 1.6 confirms this when looking at the standard deviation of large housebuilders where it is a fraction of the standard deviation of intermediate-sized housebuilders. The table also shows that the larger housebuilders have a higher average current ratio as compared to the average current ratio of medium housebuilders.

Table 1.6: Average Current Ratios and Standard Deviations for the Two Categories of Housebuilders

Average (Large Housebuilder)	3.42
Standard Deviation (Large Housebuilder)	0.22
Average (Intermediate Housebuilder)	2.77
Standard Deviation (Intermediate Housebuilder)	1.82

5.7: Beta (β) – Market Risk

The beta is used as part of this report to compare the different housebuilders and their market risk with differing gearing ratios. Figures 2.2 and 2.3 attempt to measure this, where figure 2.2 looks at the relationship between beta and gearing

ratio when calculated using *long-term debt*, whilst figure 2.3 looks at the same relationship except the gearing ratio is calculated using *long-term liabilities*. Since theory states that there is an optimum level of gearing beyond which the risk taken on by the firm becomes unsustainable, thereby greatly increasing the beta, the result should show that firms with extremely high gearing should therefore face higher market risk. Figure 2.2 is consistent with this theory in showing a pattern where an increase in gearing (as measured using long-term debt) leads to an increase in the firm beta. This relationship therefore exhibits a positive gradient when measured using a line of best fit. In the same way, figure 2.3 measures the relationship between gearing (but this time measured using long-term liabilities) and beta. In this case, the graph displays a negative gradient using a line of best fit. This relationship therefore is contradictory and draws different conclusions depending on the way the gearing is calculated. However, as according to the Modigliani-Miller principle, irrespective of gearing the market risk of a firm should not change. On the other hand, it would also be inappropriate to apply the Modigliani-Miller principle in this scenario since the housebuilders being studied in this instance operate in a market where conditions such as no taxes, perfect competition etc do not exist. Therefore the analysis carried out in order to measure the relationship between beta and the calculated gearing ratios ultimately gave opposing and ambiguous answers.

However, when looking solely at the betas of housebuilders and comparing the large housebuilders versus the medium-sized housebuilders, a clearer set of results were found to be obtained. Table 1.7 shows that larger housebuilders tended to be less exposed to market risk when measured using their average beta. As well as this, the value of the large-sized housebuilders' beta was found to be almost half the value of the average beta when measured across all 28 housebuilders. Furthermore, the larger firms were shown to have little variance in data when looking at the four housebuilders, whilst the intermediate housebuilders were shown to have a greater exposure to market risk with the average beta being more than twice the size of that of larger housebuilders. As well as this, the medium sized firms returned a large and varied set of results as indicated in the standard deviation (shown in table 1.7).

Table 1.7: Average Betas and Standard Deviations for the Two Categories of Housebuilders

Average Beta; as measured using all 28 housebuilders	2.51
Average Beta for Large-Sized Housebuilders	1.27
Standard Deviation of Beta for Large-Sized Housebuilders	0.57
Average Beta for Medium-Sized Housebuilders	2.80
Standard Deviation of Beta for Medium-Sized Housebuilders	2.28

5.8: Fluctuations and Volatility of Housebuilder Share Prices:

Since the beta measures stock volatility and the analysis showed that larger housebuilders tended to denote a smaller beta, this should show that the degree to which the price will fluctuate for larger housebuilders should indeed be lower. Therefore, the market risk for smaller housebuilders would be greater when compared to larger housebuilders and would be reflected in the fluctuations of the price of housebuilder shares as shown on the stock exchange.

Table 1.8 and Figure 3.0 indicate that the data equates, to an extent, to the theory of housebuilders with the larger betas (medium housebuilders) having larger fluctuations in their share price. Though, the limited data availability in terms of the

lack of large and medium housebuilders listed on the stock exchange does limit further exploration of this relationship. Also, betas may not always be the best guide to judging stock fluctuations since each individual housebuilder has different characteristics and therefore the stocks may not behave always as expected in the market.

Table 1.8: Tables Representing Share Price Data:

	Taylor Wimpey	Barratt Dev.	Persimmon	Bellway
Share price (average annual stock price) (pence)	207.0	531.0	836.0	927.0
Difference Between Highest and Lowest Share Prices	313.0	916.0	1040.0	921.0
Percentage Change from Average Share Price	151.2	172.5	124.4	99.4
	Redrow	**Bovis Homes**	**Berkeley Group**	**Galliford Try**
Share price (average annual stock price) (pence)	350.0	618.0	1266.0	104.0
Difference Between Highest and Lowest Share Prices	449.0	517.0	1180.0	129.0
Percentage Change from Average Share Price	128.3	83.7	93.2	124.0
	McInerney Homes	**Telford Homes**	**Gleeson Homes**	
Share price (average annual stock price) (pence)	107.0	244.0	316.0	
Difference Between Highest and Lowest Share Prices	134.0	298.0	254.0	
Percentage Change from Average Share Price	125.2	122.1	80.4	

5.9: Price/Earning Ratio (share price/earnings per share):

Figure 2.8 shows the plotted price/earnings ratios for the studied housebuilders. The average ratio for all housebuilders is 7.01, with the line of best fit showing that across the board the housebuilders have similar values. However, as shown in the graph (figure 2.8) and table 1.9, overall the larger housebuilder have a smaller price/earnings ratio compared to the medium housebuilders.

Table 1.9: Average Price:Earning Ratios for Housebuilders

Price:earning ratio - 'Large' Housebuilder Category	6.38
Price:earning ratio - 'Medium' Housebuilder Category	7.38

Since a higher price/earnings ratio suggests that investors are paying more for each unit of income, as seen to be the case for medium sized housebuilders in table 2.0, this is therefore an indicator for investor preference for stock of that category of housebuilder due to its potential higher earnings growth. This therefore is contradictory to the discussed theory suggesting that higher leverage (as is the case for medium housebuilders) would lead to investors asking for a greater return on investment, thereby lowering the price/earnings ratio to a level below that of larger housebuilders. In this case therefore, the traditional view as suggested by Briston (1975) may be applied where the taking on of extra loan capital may lead the market to increase the market value of the ordinary shares because of reasons relating to expectations of higher future earnings without a large material increase in risk, but to an optimum point. The price-earnings ratio for medium housebuilders can therefore be argued to suggest that investors are willing to pay more per share due to the category of housebuilder showing stronger future growth.

5.91: Stock Market Worth and Valuation Ratios:

The graph, as seen in figure 2.4, shows that larger housebuilders in the year 2007 were more highly valued by the market as compared to their smaller counterparts. This is illustrated when comparing the highest valued housebuilder, Persimmon – a 'large' housebuilder, against the 'smallest' listed housebuilder, Gleeson Homes, where the larger is valued more than 60 times greater than the 'smallest' listed firm. Figure 2.4 also indicates, using the line of best fit, that as housebuilders get smaller in size, they also have a smaller market valuation as a result attached to them. This may primarily be due to the greater assets the larger firms retain. However, since the market attaches significance to a large national housebuilder's brand, its reputation etc when investing, this may therefore also play an important part in the market-based company valuation.

The valuation ratio is also useful in helping to determine whether the stock market valuation of a firm is inflated or deflated when compared to total equity as shown on a company's financial statement. A value of over 1.00 would mean that the market values the firm higher than as stated in the financial statements (total equity) and a value lower than 1.00 would indicate the opposite. The value placed by the market on a firm is ever-changing due to the constant trading of shares in the market and therefore may be seen as a 'perceived value' given to the firm at certain point in time based on its future earnings or growth prospects. Figure 2.5 shows the valuation ratio in the form of a line graph for housebuilders listed on the stock market. The graph shows that for 2007, from the list of four large housebuilders, three including Taylor Wimpey, Barratt and Bellway were priced below the total equity value as shown in the individual company financial statements. Alternatively, from a list of seven medium-sized housebuilders listed on the stock market, only three can be seen from figure 2.5 to be below the value of 1.00. This reflects the market valuation of larger firms as being lesser and therefore is an indicator of a lack of investor confidence and lower expected future earnings for that time in larger firms. In the same way, since the graph shows that more than half of the housebuilders in the medium-size category lie above the 1.00 value of the valuation ratio, this suggests there is greater investor confidence in that category as compared to their larger rivals. This is further shown in figure 2.5 where the line of best fit shows that the comparatively smaller firms are valued higher by the market.

Lastly, bond ratings are useful in judging a particular firm's financial and business prospects and are rated in different ways without any one fixed formula. Nonetheless, investment bankers, bond portfolio managers etc use a few key indicators to form those judgements such as a firm's debt/equity ratio, ratio of earnings to interest and the return on assets (Brealey and Myers; 2003). From the list of 28 housebuilders being looked at, only one was shown by Fitch Ratings to be issuing bonds – Taylor Wimpey Plc. The senior unsecured bonds were rated BB- thereby showing them to be non-investment grade or junk bonds, and hence reflective of the credit worthiness of the housebuilder's debt issues. The company would therefore be seen as having a high risk of defaulting on a loan and may lead to lenders either refusing loans or asking for higher interest rates as a consequence.

CHAPTER 6

Conclusion and Recommendations:

6.1: Conclusion:

The results are indicative of the willingness of medium-sized housebuilders to take on extra debt due to easy access to credit, albeit at the expense of higher risk exposure to the firm. It is also clear that the larger housebuilders are able to reinvest some of their retained profits into the firm thereby keeping gearing levels lower. However medium-sized firms, which cannot do the same, are arguably in a better position to receive higher expected returns on equity during booming economic conditions due to higher comparative gearing (Brealey and Myers; 2003). This therefore allows the smaller housebuilders to be more competitive at the peak of an upturn whilst the large housebuilders should, theoretically, remain relatively safer during a period of downturn.

Gearing can also be seen to have a clear effect on the interest cover where the highly geared firms would be expected to have a much lower resultant interest cover. The results in this case were in agreement with the theory where the medium-sized firms had a lower interest cover. However the difference was found to be marginal but if, for example, some housebuilders were excluded (5 out of 24) when counted as anomalies, the difference became decisive. Figure 1.7 was useful in showing this link where the highly geared firms had clearly much smaller interest covers leaving them vulnerable.

Similarly it would be expected that those firms with higher gearing, and as a result higher interest payments in 2007 as shown and discussed in the results, may subsequently be left with smaller net profits. The results were found to be representative of this, where in the time frame within which the study was undertaken (2007), the smaller firms were shown to have lower net profits. In context, since the difference in gearing and interest cover were found to be not exceptionally large for the two sizes of housebuilders, the net profits were also found to not vary by a large margin. The link between gearing, interest cover and net profits thereby became clear where the results showed that as gearing levels reduced for housebuilders, the ability to pay back interest on the debt taken on from banks became smaller, and therefore larger housebuilders were able to earn the higher net profits.

The argument concerning higher gearing leading to a lower interest cover and lower net profitability may be argued to be outweighed when looked at from the perspective of banks or lenders. This perspective is taken into account when measuring the factor of estimated cost of debt. The results show a lower estimated cost of debt for medium housebuilders thereby making the case for financial economies of scale for larger housebuilders as somewhat redundant. This is primarily explained in the results to be due to the reason that medium housebuilders are much more likely to secure mortgage debt, whereas larger housebuilders tend to obtain most of their debt on an unsecured basis, thereby this should theoretically raise their cost of debt. The higher returns demanded therefore by banks on unsecured debt may be explanatory on this basis due to the increased risk burden borne by lenders. A further concern for lenders may be that the unsecured debt also raises the issue of moral hazard where this type of debt can lead to the borrower being less careful (e.g. buying land without planning permission, in order to make greater potential profits in their operations) leading to a problematic relationship (Sloman and Hinde; 2007). The problem of information asymmetry remains a principal and agent problem (Douma and Schreuder; 2002) where the housebuilders may take advantage of greater sector knowledge and put this to use in securing debt on a basis which is not as safe as is put across to lenders thereby further encouraging riskier projects. The result showing a higher cost of debt for the larger

firms may also be argued to be due to medium-sized housebuilders' proven past track-record in being more successful in judging their local market forces, acquiring more profitable sites etc (Wellings; 2006). This therefore suggests a lower risk involved in providing the debt to medium housebuilders (and as a result a greater willingness for the housebuilders to take on that debt in maximising the retained value of equity) whilst reducing costs through borrowing at lower charges.

Furthermore, since the results obtained break down the previous theory on financial economies of scale for larger housebuilders, this may be explained in another context. Since larger housebuilders tend to develop larger sites, in that they are able to buy land using retained profits (economies of scale in that sense belongs to larger housebuilders), the argument put forward in this report suggests that the investment may still be seen as more risky by banks or lenders. This is because upon completion, banks may see the units coming to market (since the development sites taken on by the larger housebuilders are larger) as being overpowering to the local market. This is in the sense that houses would not be sold at the required rate or achieve the desired prices due to what may be described as market saturation on a micro-level. Therefore in other words, the coming to market of a large quantity of units leads to less market demand, and as a consequence, leads to a drop in market prices of units.

The Barker report (2004) however states that the characteristic behaviour of housebuilders is to 'trickle out' completed units upon completion to prevent the 'market saturation on a micro-level'. However, banks may take the view that in order for housebuilders to try to attempt to maximise profits and prevent costs such as maintenance of site etc from mounting during peak demand, firms may indeed take such an initiative where they attempt to sell units as quickly as possible. A further argument which may be put forward in order to support the case may be that banks may simply not be aware of this tactic of 'trickling out' units, due to a lack of industry knowledge and therefore the larger housebuilders are unintentional victims of asymmetric information (Ball et al; 1998). These potential risks, such asymmetric information and moral hazard, in giving debt to the larger housebuilders may therefore lead banks to demand a higher cost of debt as compared to the medium-sized housebuilders.

Other conclusions which can be drawn from the results include the confirmation of financial theory stating that with increased gearing for firms comes a reduction in corporate taxes since interest is deducted from earnings. The trend showed that the relatively smaller housebuilders did indeed pay lower taxes when measured as a percentage of gross profits whereas the larger housebuilders showed a tendency to pay comparatively higher corporate taxes with reduced gearing. Also, since the current ratio is a measure of a firm's margin of liquidity, the results obtained showed that larger firms have, on the whole, greater liquidity as compared to their smaller rivals. However, the data also shows that the margin of liquidity tends to fluctuate considerably between the medium-sized housebuilders. This is the case with Kier Residential, Bovis and Morris Homes, which display higher than expected liquidity ratios. This therefore suggests that less liquid firms may therefore encounter problems during a downturn when needing to meet short-term obligations.

When exploring the relationship between beta; a standard measure of market risk, and gearing, the results obtained were found to be ambiguous. This is because the relationship between beta and the gearing ratio (when measured using long-term *debt*), and, the relationship between beta and the gearing ratio (when measured using long-term *liabilities*), returned contrasting results. The results respectively showed that increased gearing led to an increased value of beta and vice versa for the other calculated gearing ratio. Such a result was in accordance with Bevan and Danbolt's (2002) previous studies showing that calculations involving gearing led to similarly contrasting results and therefore remains a difficulty when carrying out comparisons or exploring relationships with other factors. However, a less

ambiguous relationship was discovered when comparing firm size with their respective beta values. It was found that as firm size reduced, the value of the firm beta increased suggesting that the medium-sized firms were more likely to be prone to market risk as opposed to the larger-sized firms. Therefore according to the theory, as larger beta values exist for medium firms, this should result in greater fluctuation in share prices for the medium-sized housebuilders. Figure 3.0 confirmed this where it was found that the medium housebuilders tended to have greater fluctuations since higher betas suggest increased systematic risk of a company's shares. This would, and does, therefore lead to greater sensitivity of the share price to movements in the market (Parker; 1999).

As the price/earnings ratio is representative of how much investors are willing to pay per pound of reported profits (Brigham & Houston; 2004), a higher ratio shows that investors are paying more for each unit of income. Therefore the results imply that the medium-sized firms have stronger growth prospects, other things held constant, when compared to the larger firms (Brigham & Houston; 2004). Also the valuation ratio is seen to be lower for the larger housebuilders as compared to the medium housebuilders. This illustrates that the market values for smaller firms are respectively higher than the stated total equity on the company financial statements and is therefore reflective of higher investor confidence and the higher expected future earnings.

Finally, this study is therefore useful in showing that both large and medium housebuilders hold certain advantages, as well as disadvantages, according to their capital structures. These have a direct and relevant knock-on effect on other financial aspects of firms and dictate the way housebuilders act under certain economic conditions. There is some indication that firms which are able to retain reasonable levels of gearing are able to respond better than those with excessive gearing during an economically turbulent environment and hence are shown, to an extent, to be judged by investors in the market according to this. It is also suggested that housebuilders which do take on the extra risk by greater leverage, but to their optimal level, may expect a higher share of profits as a result of a greater return on equity during an upturn, but may suffer during a downturn. Beyond this, the lack of liquidity due to a high interest cover may lead to lower profitability for housebuilding firms.

6.2: Recommended Areas of Future Study:

Future areas of research in measuring competitiveness in the housebuilding industry may potentially look at a timeline rather than at a certain point in time. This could include periods of downturns/recessions as well as upturns/booms depending on data availability. This would give a multi-faceted model for analysis to establish how housebuilders react or respond in these periods. This would also be applicable since over a longer period the 'smoothed-out' data would potentially lead to more relevant results. This is because investor behaviour over the short-term has been shown in the past to be irrational and somewhat erratic. Such a research method would also reduce the chance of collecting ambiguous or contradictory data, as was found to some degree in the case of this report when looking at market based factors over the short-term such as beta.

As well, the method would be helpful in providing more definite answers as to how market conditions affect the way investors behave in a certain period or environment and the consequential effect this has on firms. Another interesting area which may be explored by looking at business cycles may be the relationship between housebuilders' land-banks and how investors in the market value them over the period of a business cycle. Theory would suggest that those with large land-banks would suffer particularly during a downturn due to lower land valuations etc, whilst during an upturn the market would see much greater business potential in these land-banks thereby giving the same firm a much higher market value. The

comparison during the two extreme phases would in such a case be expected to be reflected in the valuation ratios, which in the market echo the opinion of investors in terms of future firm prospects in terms of growth. Lastly, this type of study would create potential for observing how changing market or economic conditions affect housebuilders with different financial structures over the course of time.

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Appendix: Research Results

Figure 1.2: Gearing Ratio (Long-Term Debt / Long-Term Debt + Equity) vs. Housebuilder Size:

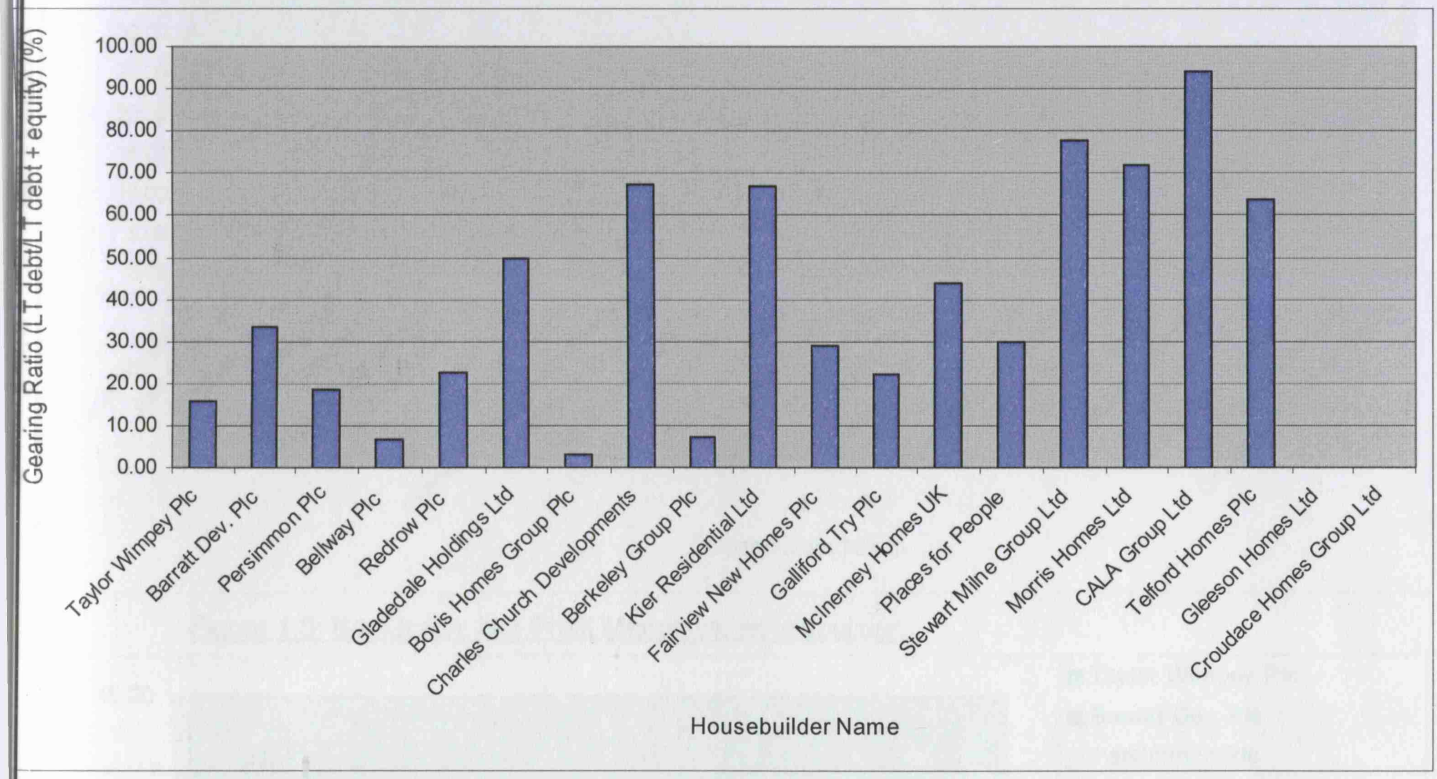

Figure 1.3: Gearing Ratio (Long-Term Liabilities/ Long-Term Liabilities + Equity) vs. Housebuilder Size:

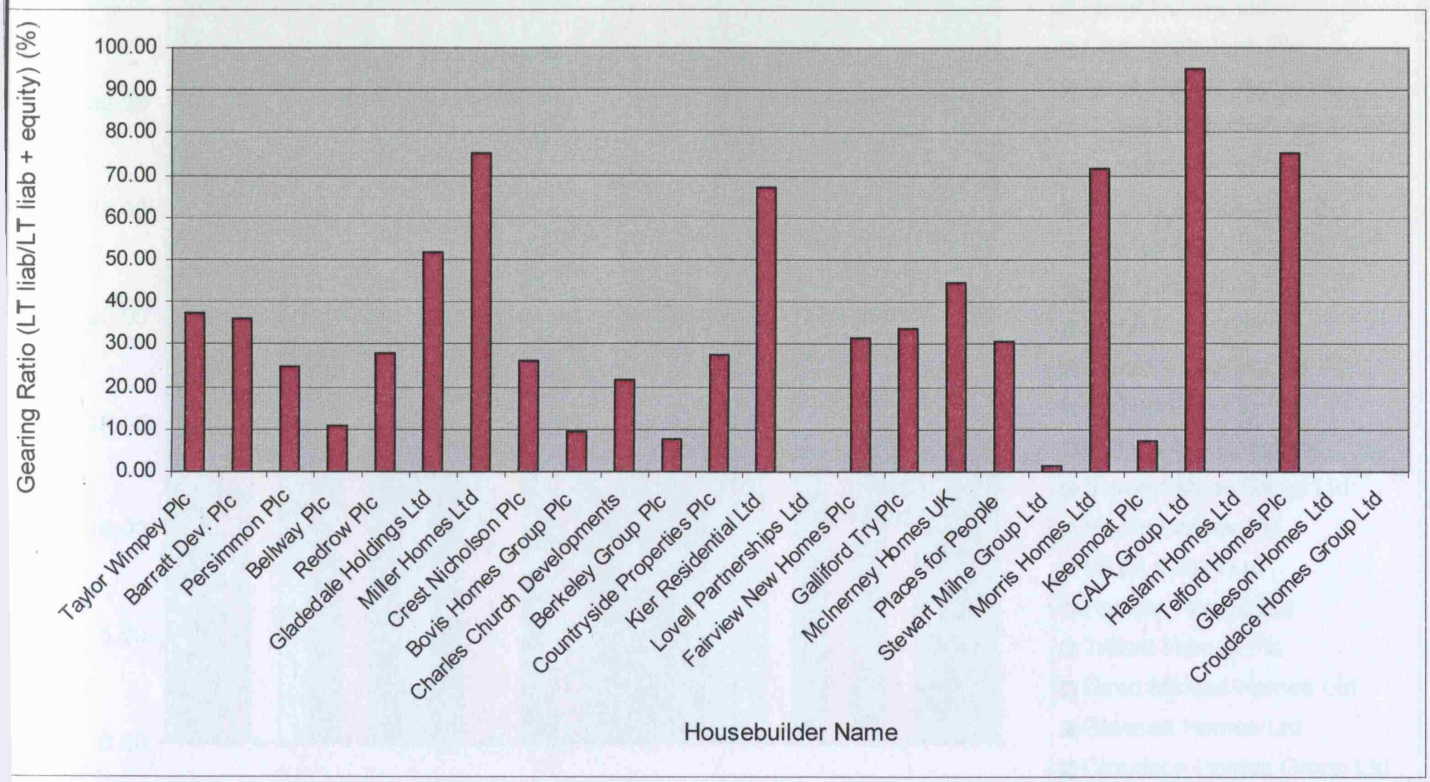

Figure 1.4: Interest Cover vs. Housebuilders:

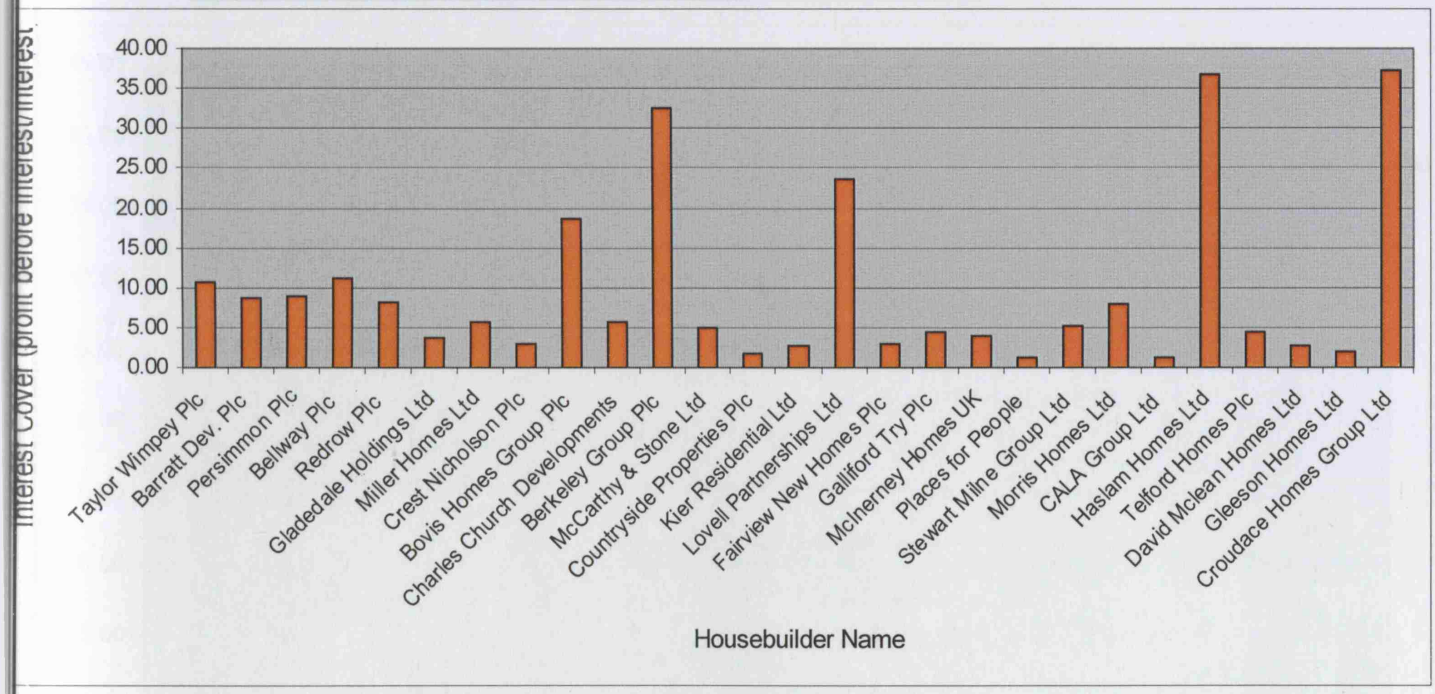

Figure 1.5: Bar Graph: Net Profit Margin vs. Housebuilder:

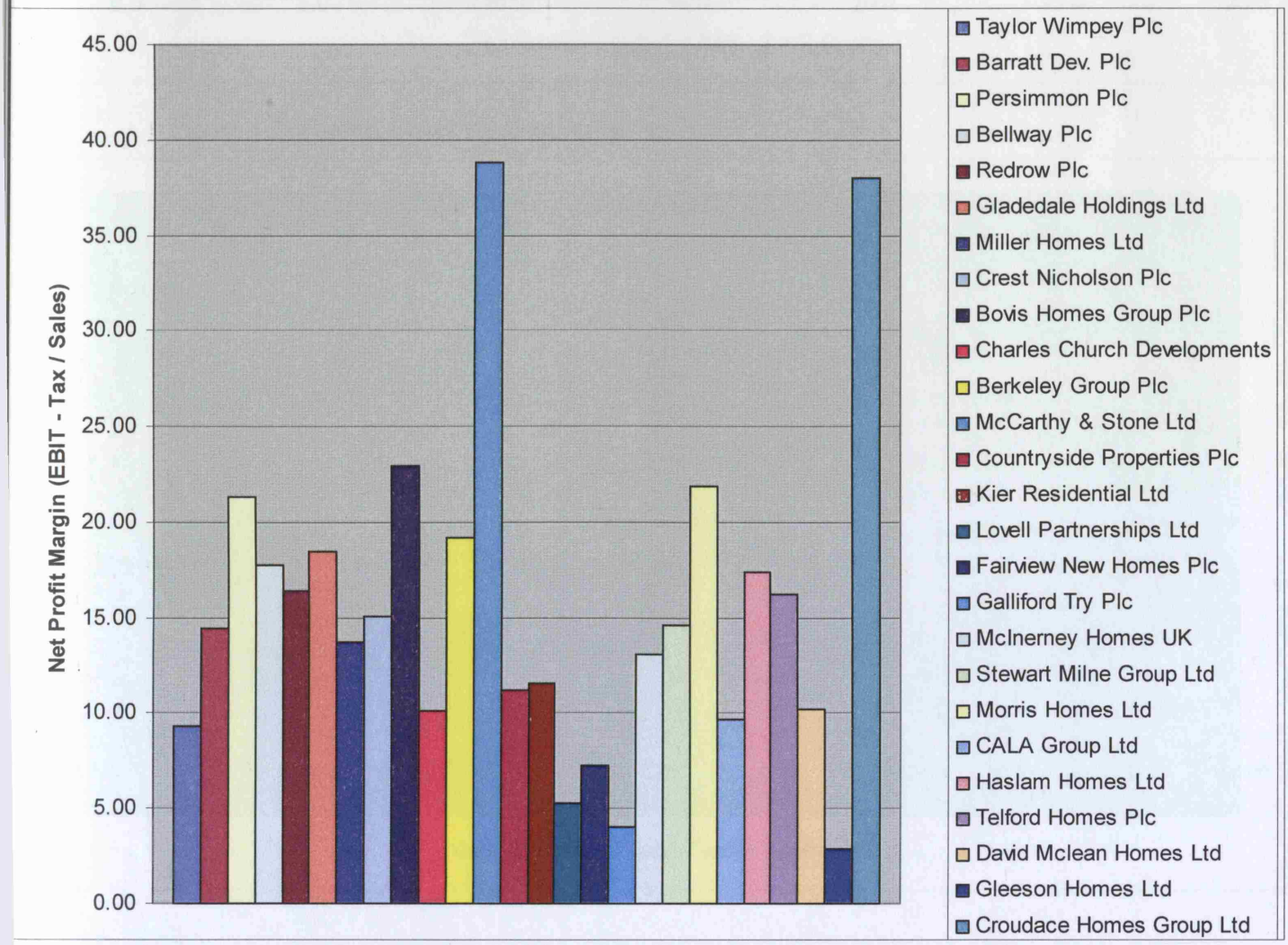

Figure 1.6: Scatter Diagram: Net Profit Margin vs. Housebuilder:

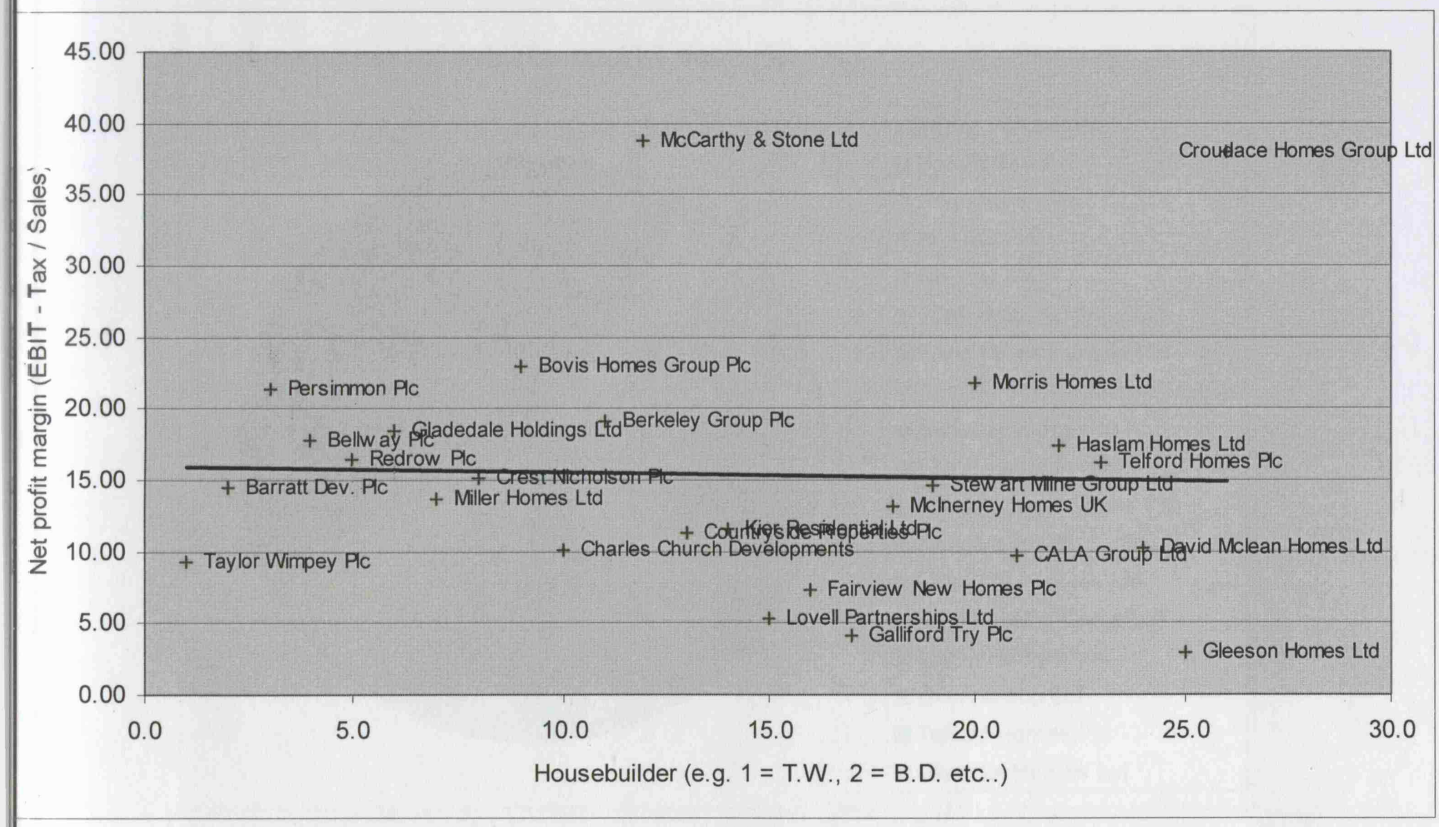

Figure 1.7: Interest Cover vs. Gearing Ratio:

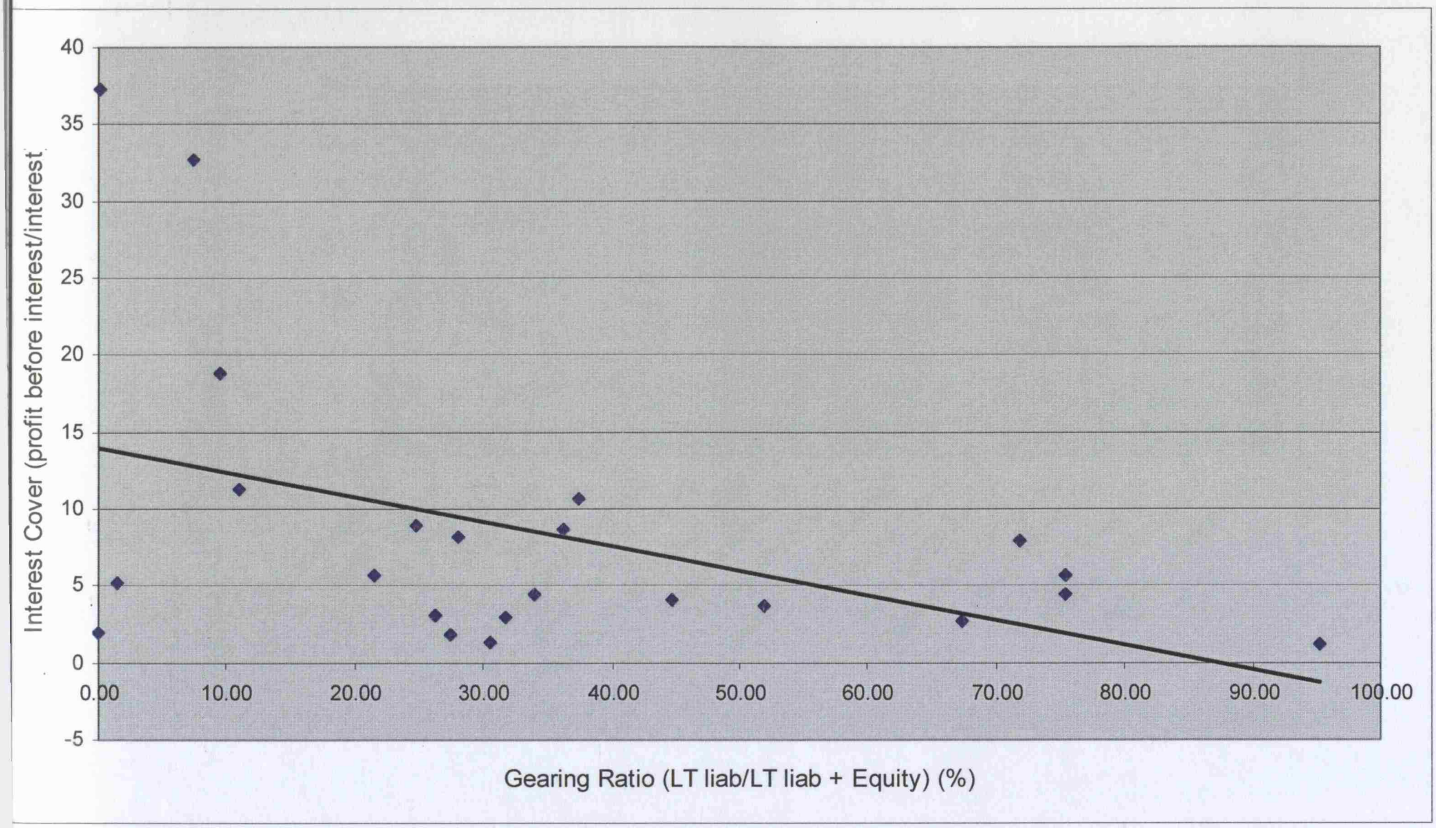

Figure 1.8: Pie Chart Representing the Estimated Cost of Debt for All Housebuilders:

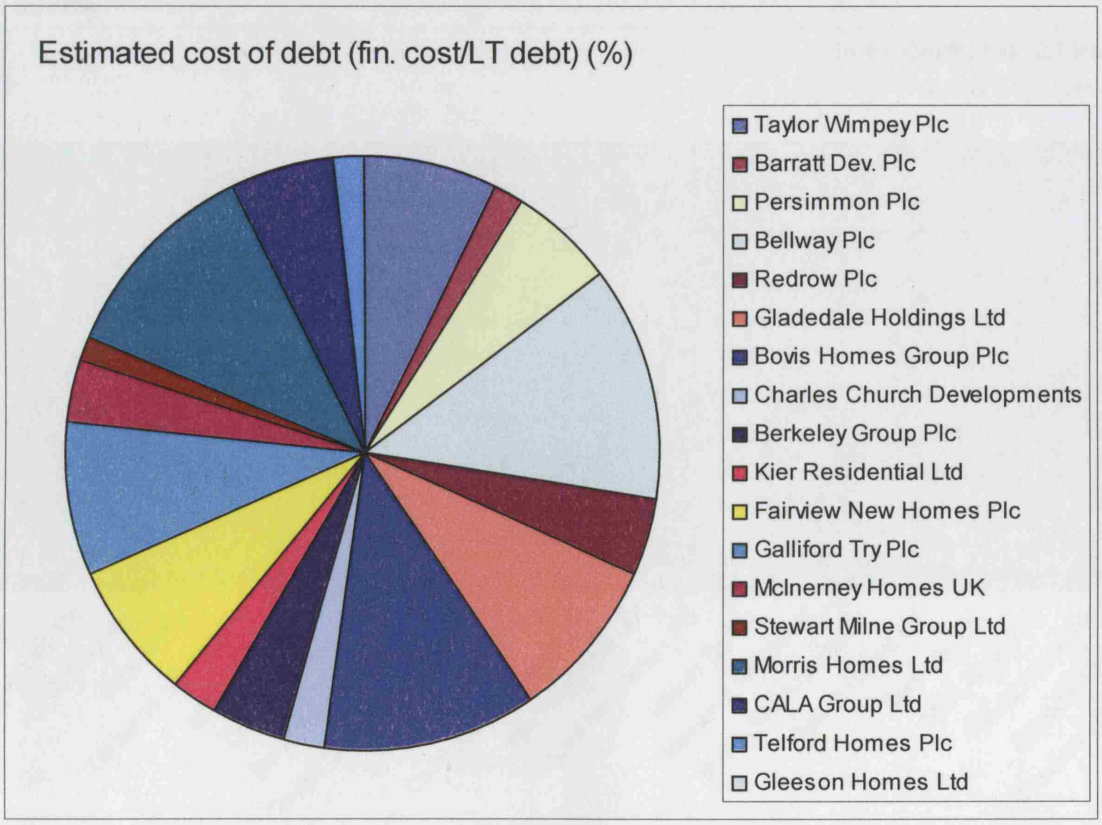

Figure 1.9: Bar Graph Representing the Estimated Cost of Debt for All Housebuilders:

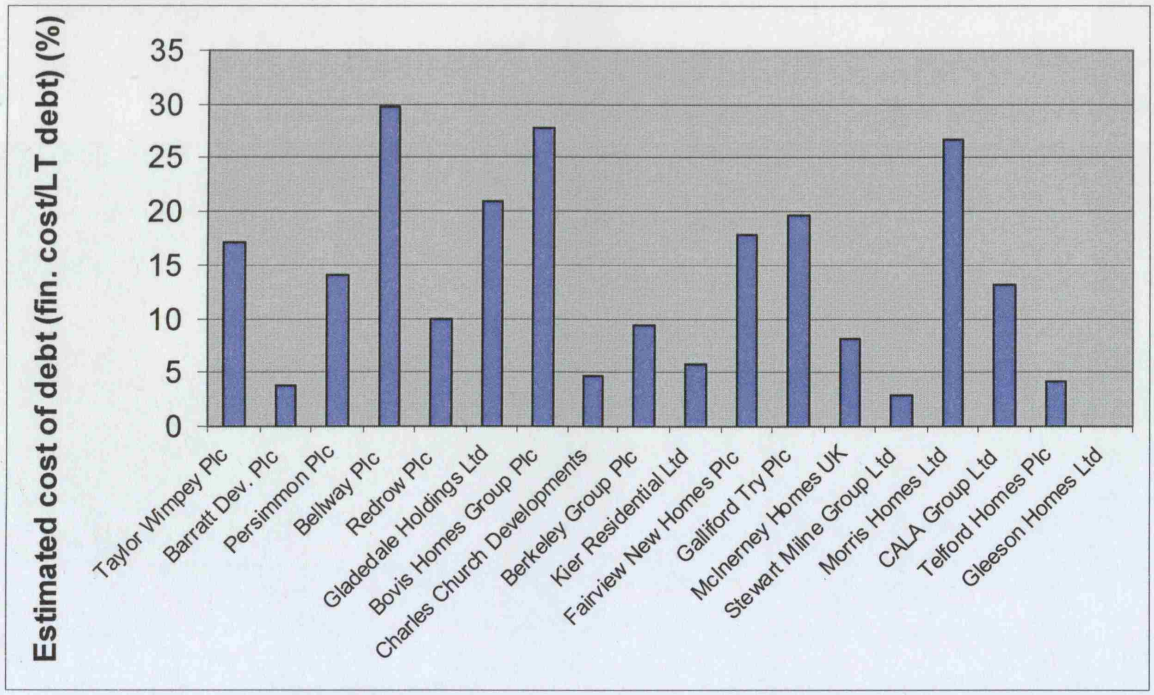

Figure 2.0: Relationship Between Housebuilder Gearing and Tax (as a % of gross profit):

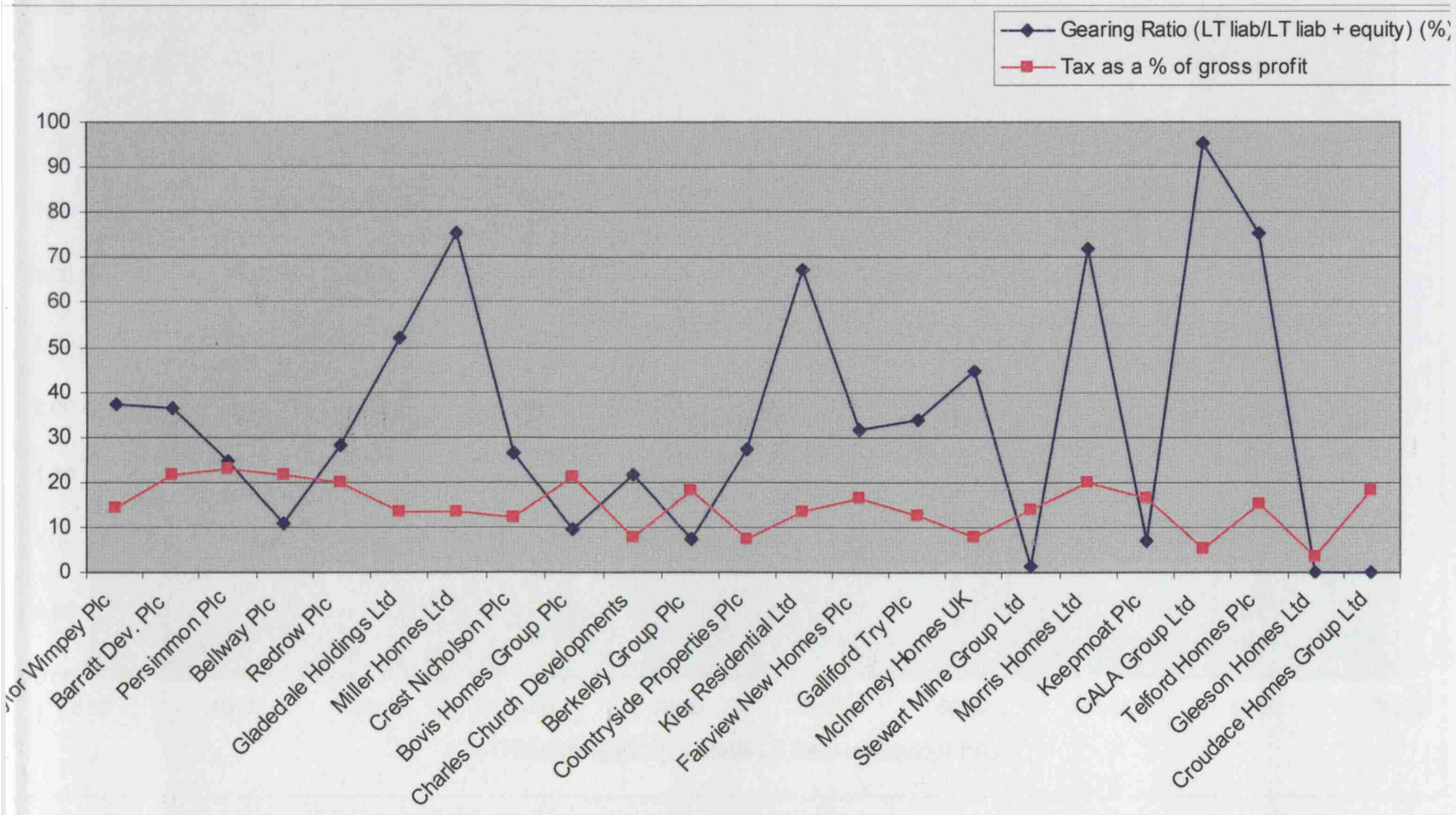

Figure 2.1: Current Ratios of Housebuilders:

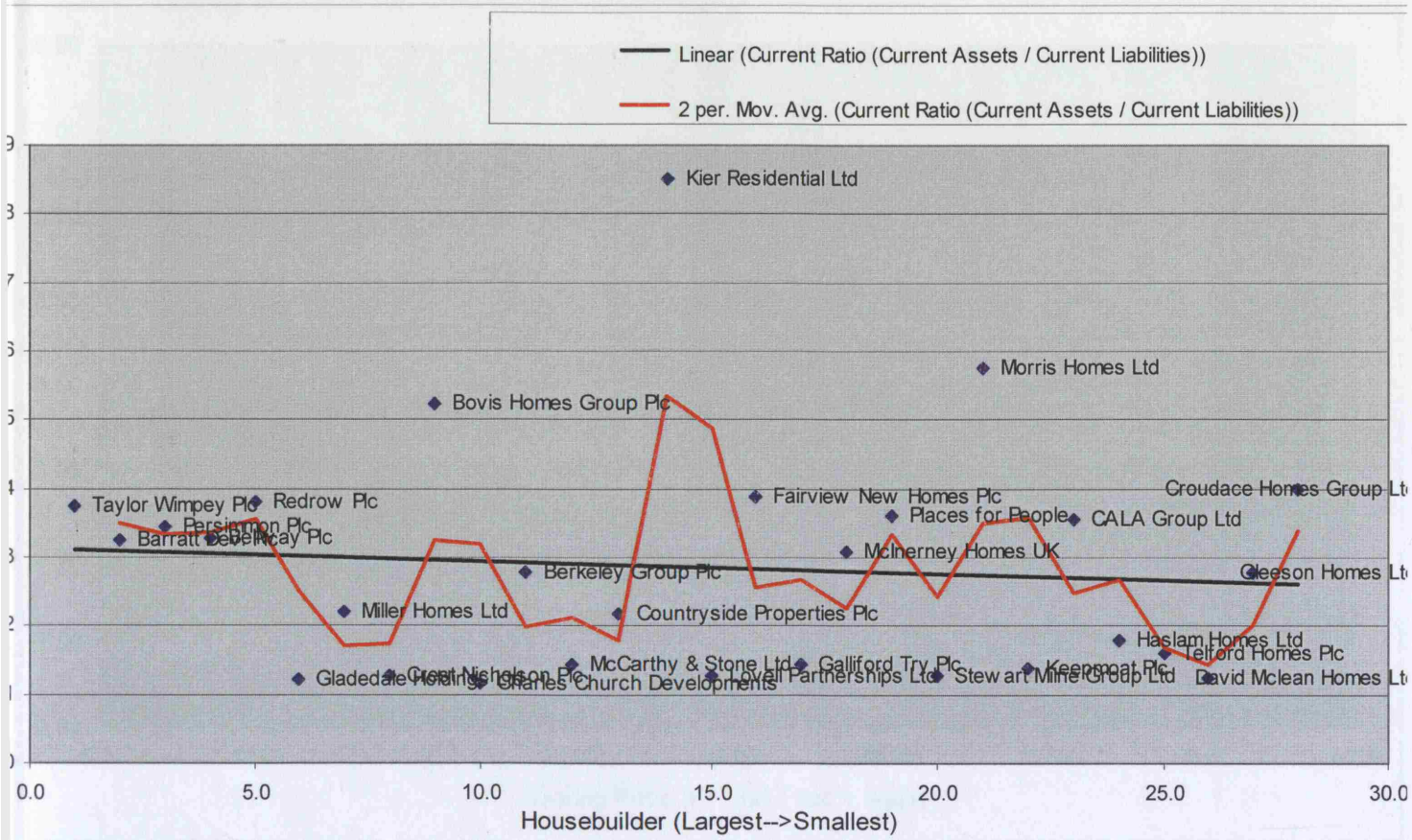

Figure 2.2: Gearing Ratio (Long-Term Debt / Long-Term Debt + Equity) vs. Beta:

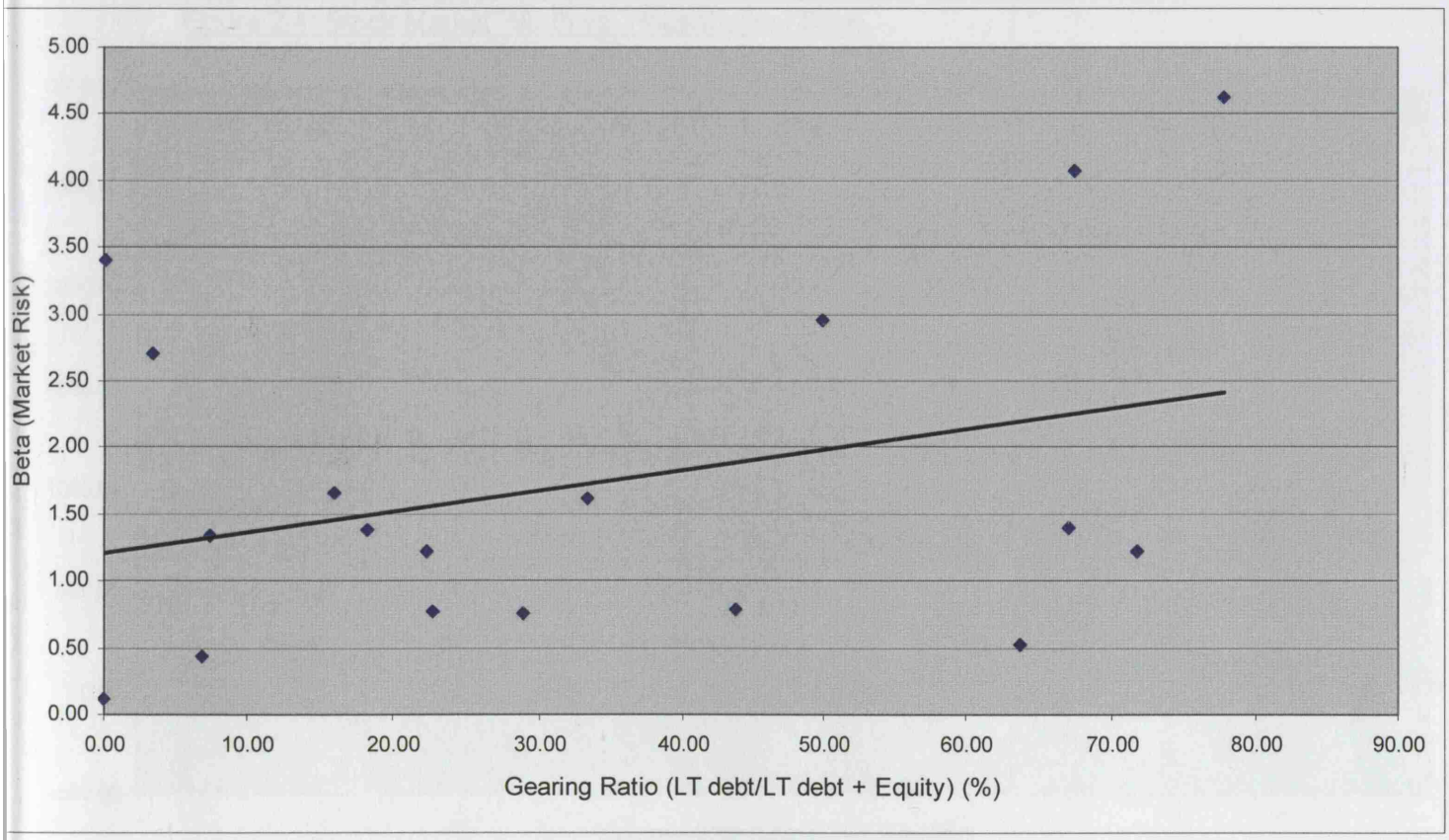

Figure 2.3: Gearing Ratio (Long-Term Liabilities/ Long-Term Liabilities + Equity) vs. Beta:

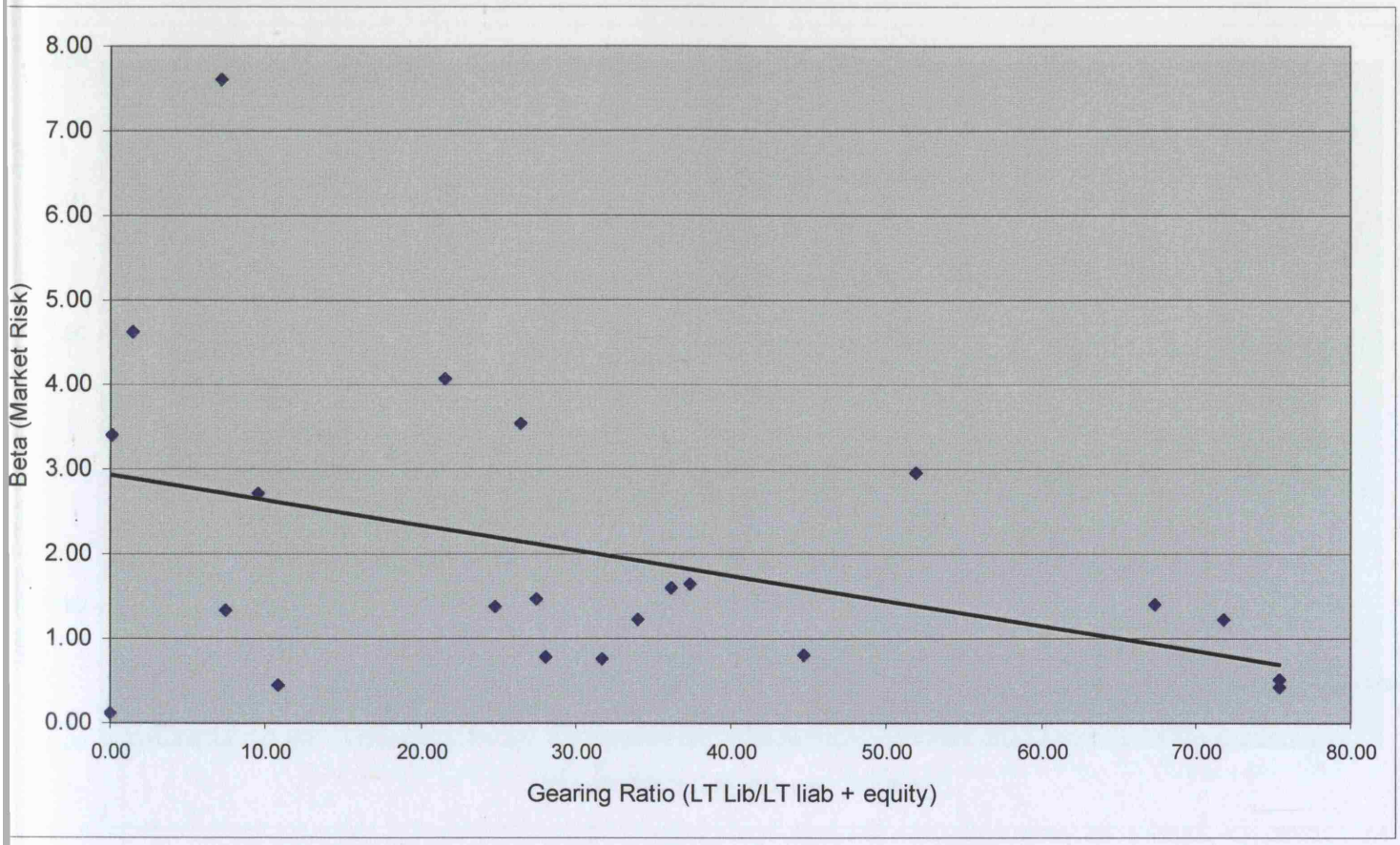

Figure 2.4: Stock Market Worth vs. Housebuilder Size:

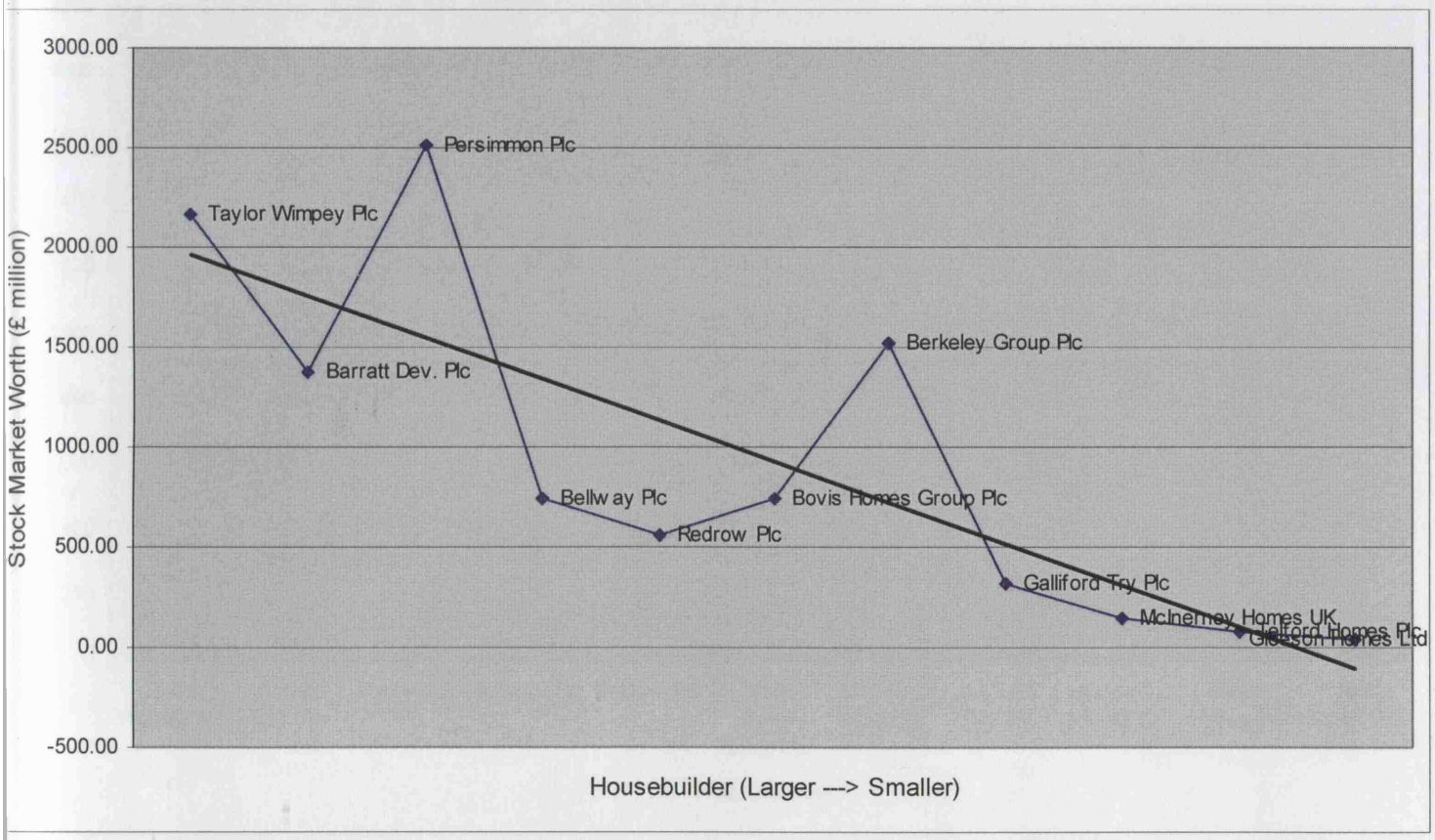

Figure 2.5: Valuation Ratio vs. Housebuilder Size:

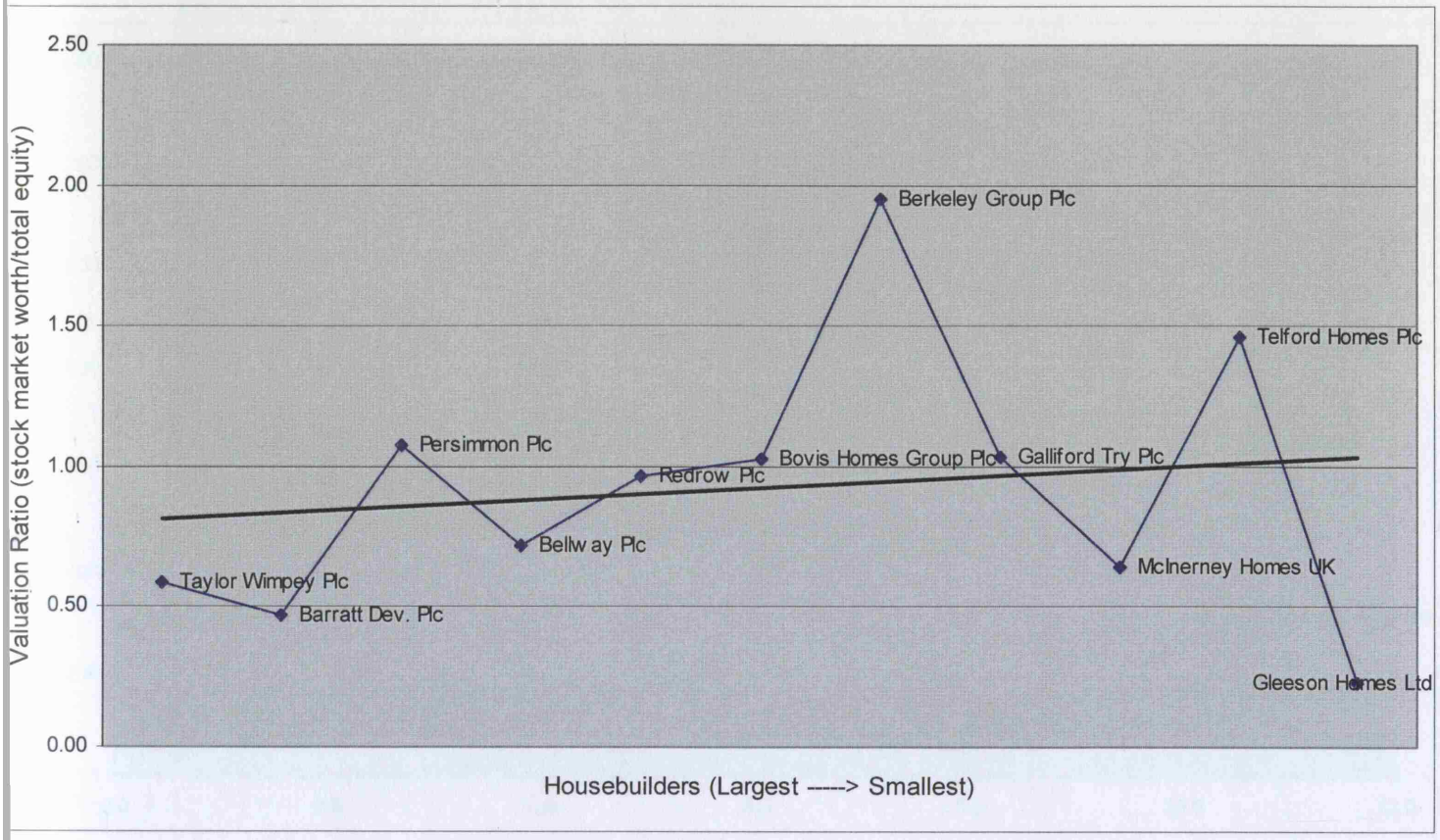

Figure 2.6: Share Price Fluctuations for Housebuilders in 2007:

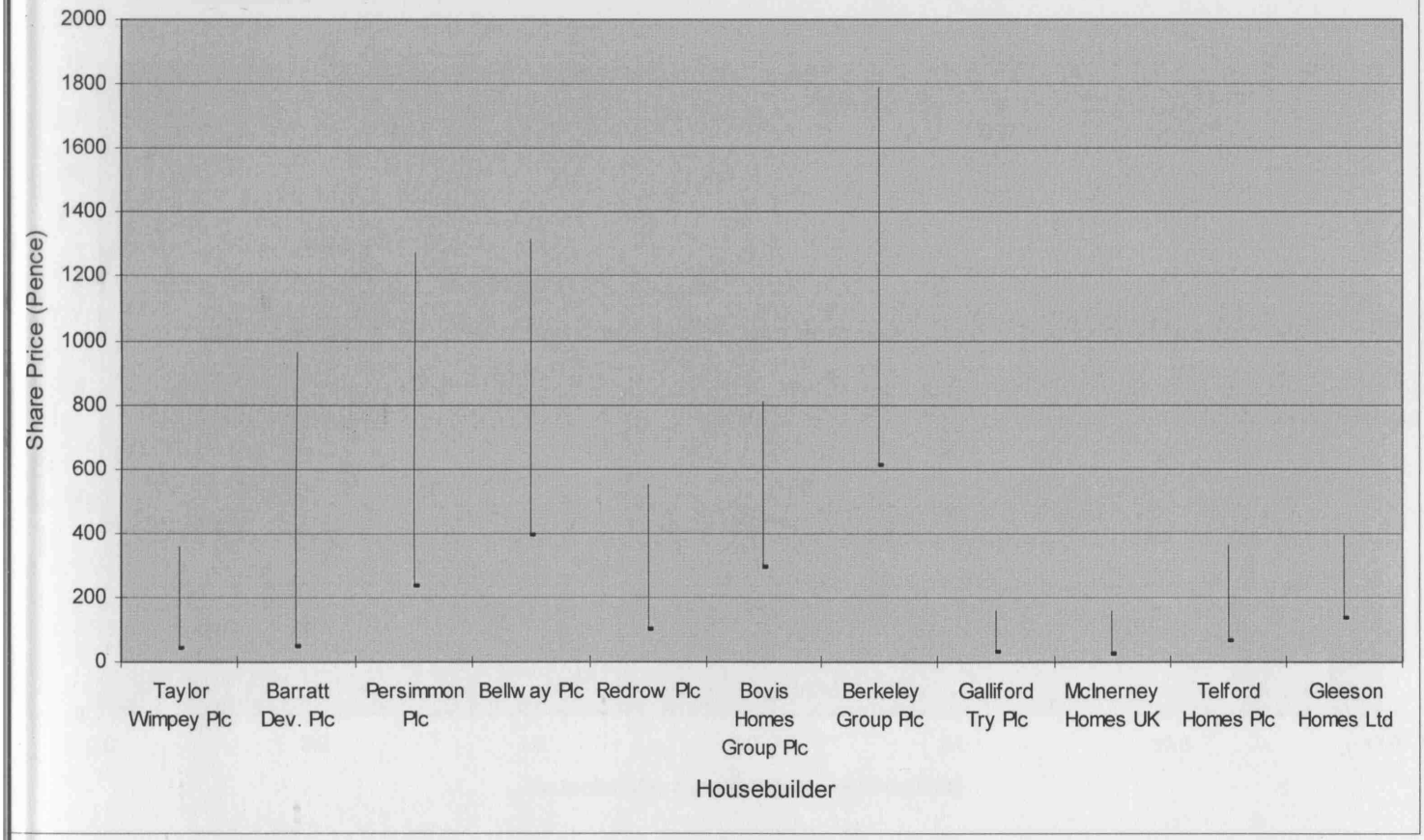

Figure 2.7: Scatter Graph Showing Share Prices for Housebuilders with Line of Best Fit:

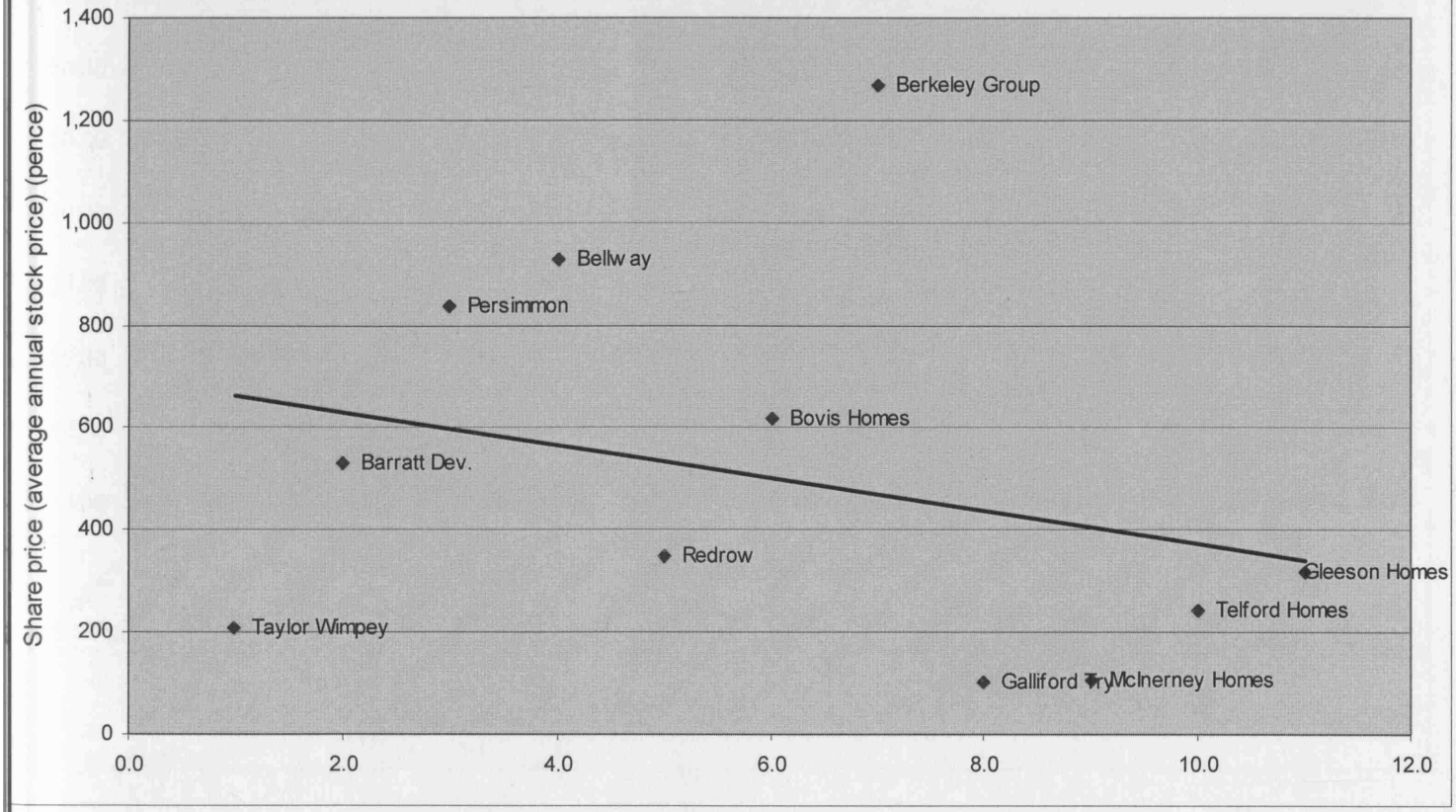

Figure 2.8: Scatter Graph Showing Price:Earnings Ratios for Housebuilders with Line of Best Fit:

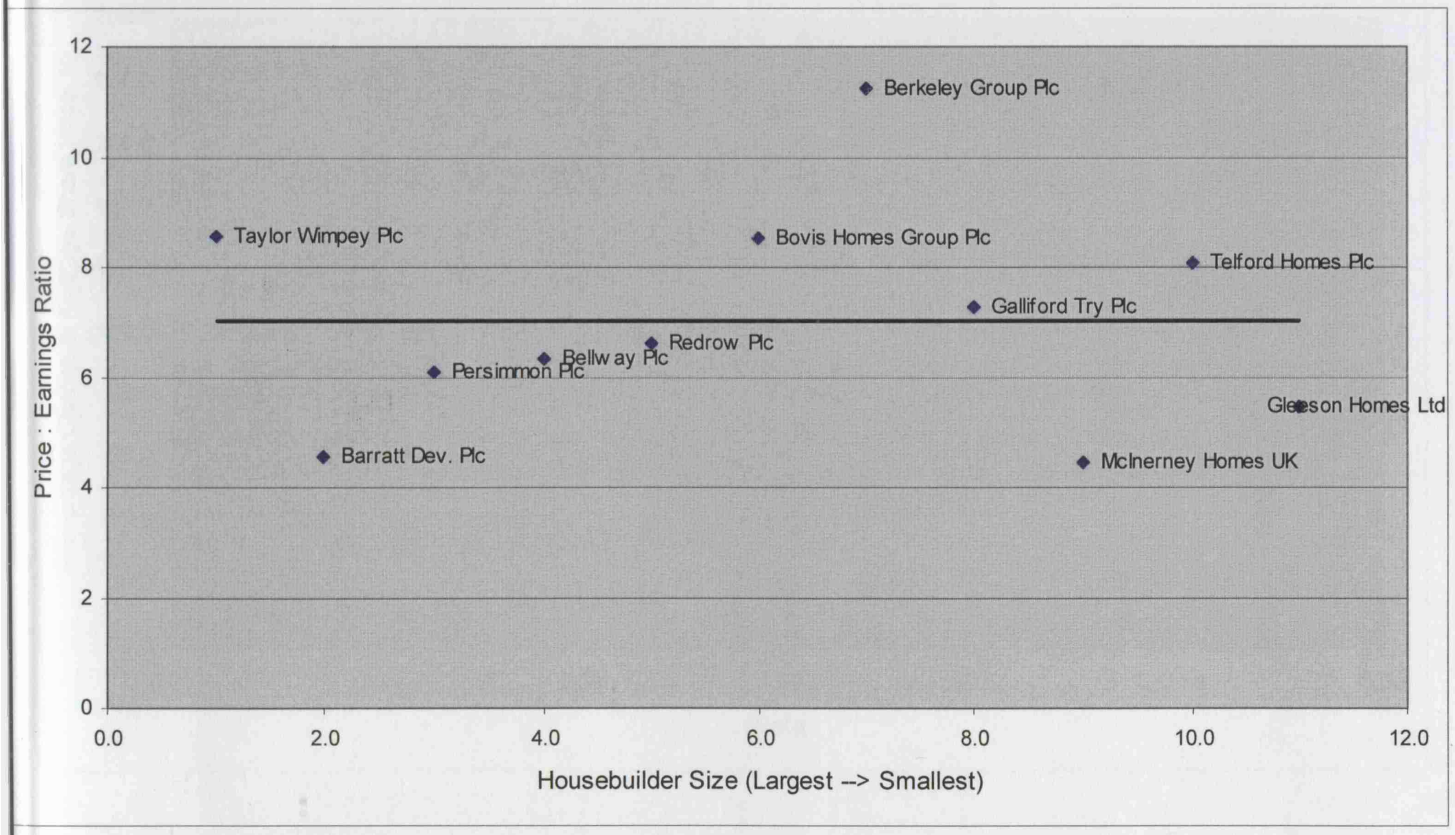

Figure 2.9: Estimated cost of debt (fin. cost/LT debt + ST debt) (%):

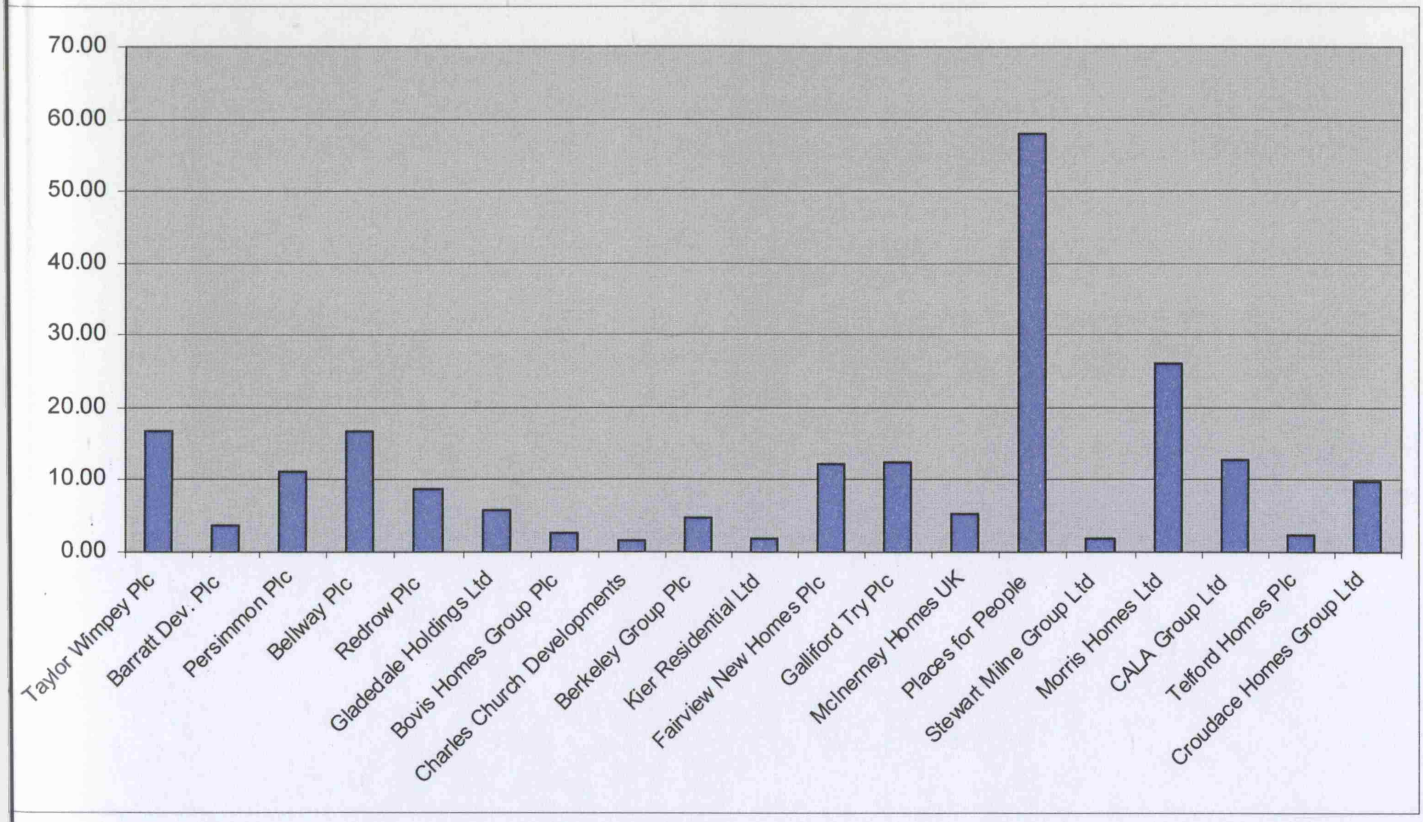

Figure 3.0: Beta vs. Share Price Fluctuations:

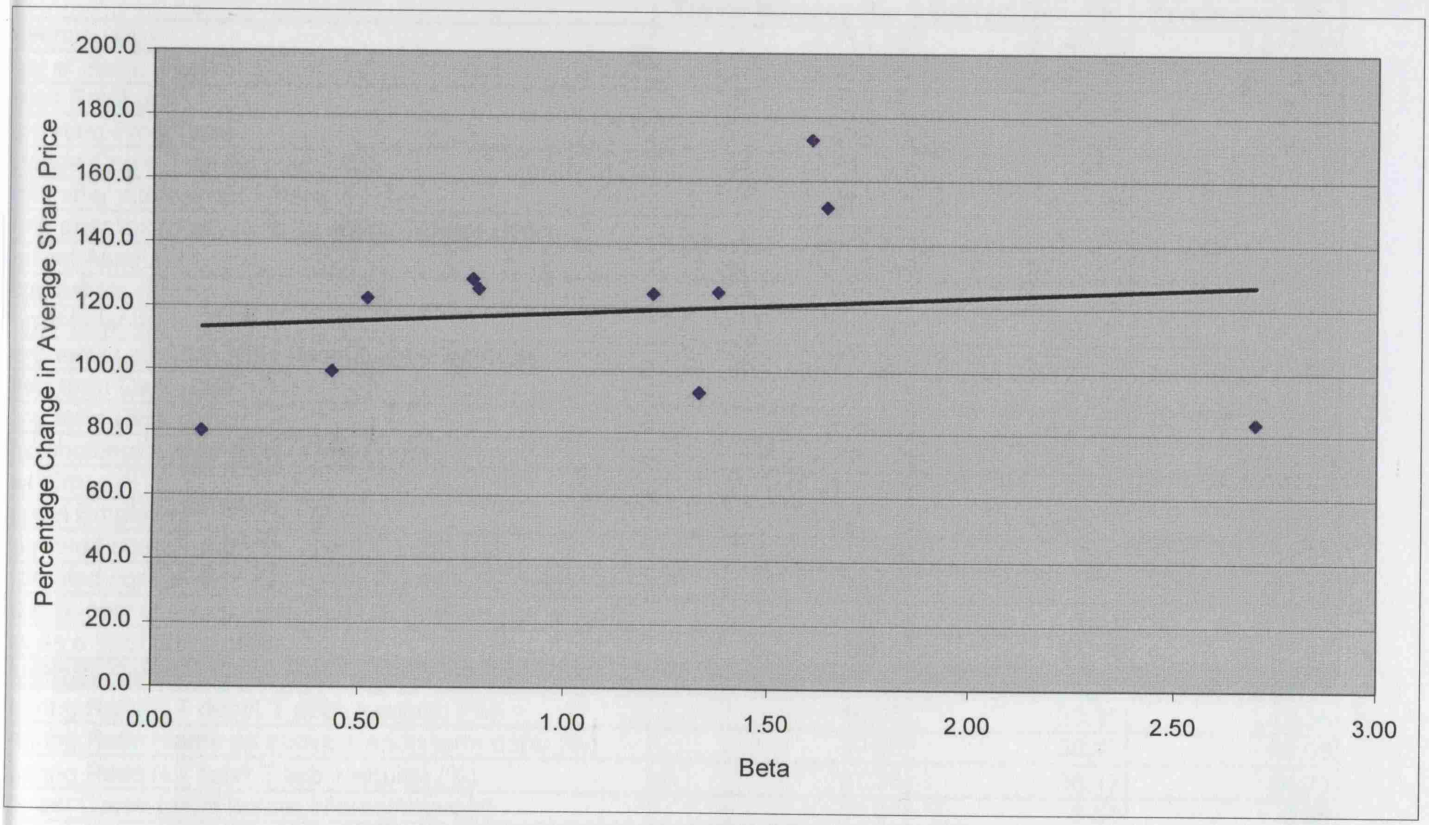

Table 2.0: Housebuilder Financial Ratios

	Taylor Wimpey Plc	Barratt Dev. Plc	Persimmon Plc
Revenue (£m)	4,714.30	3,046.10	3,014.90
Cost of Sales (£m)	3,975.90	2,452.20	2,278.80
Gross Profit (£m)	738.40	593.90	736.10
Operating Profit (£m)	476.00	481.00	654.90
Finance Costs (interest paid) (£m)	121.80	55.70	74.10
Profit after interest but before tax (£m)	360.20	427.80	582.70
Profit after tax (profit attrib to shareholders) (£m)	253.20	300.40	413.50
Current Assets	6,555.90	5,093.40	3,568.90
Total assets (£m)	7,669.20	6,130.00	3,568.90
Current Liabilities (£m)	1,756.50	1,569.30	1,040.30
Long term Liabilities (£m) (Non-current liabilities)	2,207.50	1,649.70	770.60
Short term Debt (£m)	12.20	26.70	130.90
Long term Debt (£m)	708.50	1,456.60	527.50
Shareholders Funds (£m) (Total Equity)	3,705.20	2,911.00	2,345.40
Tax (£m)	107.00	127.40	169.20
Capital Employed (TA - CL) (£m)	5,912.70	4,560.70	2,528.60
Estimated cost of debt (fin. cost/LT debt) (%)	17.19	3.82	14.05
Estimated cost of debt (fin. cost/LT debt + ST debt) (%)	16.90	3.76	11.25
Beta, β (cost of equity - risk free rate/market risk return)	1.65	1.61	1.38
Tax as a % of gross profit	14.49	21.45	22.99
Leverage Ratios			
Gearing Ratio (LT debt/LT debt + equity) (%)	16.05	33.35	18.36
Gearing Ratio (same as above + short term debt) (%)	39.95	50.97	40.06
Gearing Ratio (LT liab/LT liab + equity) (%)	37.33	36.17	24.73
Interest Cover (profit before interest/interest)	10.67	8.68	8.86
Interest Cover (interest/profit before interest)	0.26	0.12	0.11
Debt - Equity Ratio (LT debt/equity)	0.19	0.50	0.22
Market Value Ratio			
Price:earning ratio (share price/earnings per share)	8.55	4.57	6.08
Earnings per share (pence)	24.20	116.20	137.50
No. of shares (total earnings/earnings p. share)	10,462,809.92	2,585,197.93	3,007,272.73
Share price (average annual stock price) (pence)	207	531	836
Stock market worth (share price x no. of shares)	2,165.80	1,372.74	2,514.08
Valuation Ratio (stock market worth/total equity)	0.58	0.47	1.07
Standard Deviation of share prices	313	916	1040
Liquidity Ratio			
Current Ratio (Current Assets / Current Liabilities)	3.73	3.25	3.43
Profitability Ratio			
Net profit margin (EBIT - Tax / Sales) (%)	9.28	14.42	21.31

Table 2.0: Housebuilder Financial Ratios

	Bellway Plc	Redrow Plc	Gladedale Holdings Ltd
Revenue (£m)	1,354.02	795.70	644.03
Cost of Sales (£m)	1,042.10	612.70	490.17
Gross Profit (£m)	311.92	183.00	153.85
Operating Profit (£m)	253.10	136.60	111.27
Finance Costs (interest paid) (£m)	22.90	16.90	31.74
Profit after interest but before tax (£m)	234.85	120.50	85.23
Profit after tax (profit attrib to shareholders) (£m)	166.70	84.40	64.63
Current Assets	1,557.60	1,030.50	586.89
Total assets (£m)	1,636.60	1,073.30	798.82
Current Liabilities (£m)	473.94	270.60	484.09
Long term Liabilities (£m) (Non-current liabilities)	126.86	224.90	163.40
Short term Debt (£m)	60.55	20.10	398.26
Long term Debt (£m)	77.00	169.70	151.05
Shareholders Funds (£m) (Total Equity)	1,035.81	577.80	151.32
Tax (£m)	68.15	36.10	20.60
Capital Employed (TA - CL) (£m)	1,162.66	802.70	314.72
Estimated cost of debt (fin. cost/LT debt) (%)	29.74	9.96	21.01
Estimated cost of debt (fin. cost/LT debt + ST debt) (%)	16.65	8.90	5.78
Beta, β (cost of equity - risk free rate/market risk return)	0.43	0.78	2.95
Tax as a % of gross profit	21.85	19.73	13.39
Leverage Ratios			
Gearing Ratio (LT debt/LT debt + equity) (%)	6.92	22.70	49.95
Gearing Ratio (inc. short term debt)	34.72	43.25	80.76
Gearing Ratio (LT liab/LT liab + equity) (%)	10.91	28.02	51.92
Interest Cover (profit before interest/interest)	11.23	8.13	3.69
Interest Cover (interest/profit before interest)	0.09	0.12	0.29
Debt - Equity Ratio (LT debt/equity)	0.07	0.29	1.00
Market Value Ratio			
Price:earning ratio (share price/earnings per share)	6.34	6.62	n/a
Earnings per share (pence)	146.10	52.90	n/a
No. of shares (total earnings/earnings p. share)	798,767.97	1,595,463.14	n/a
Share price (average annual stock price) (pence)	927	350	n/a
Stock market worth (share price x no. of shares)	740.46	558.41	n/a
Valuation Ratio (stock market worth/total equity)	0.71	0.97	n/a
Standard Deviation of share prices	921	449	n/a
Liquidity Ratio			
Current Ratio (Current Assets / Current Liabilities)	3.29	3.81	1.21
Profitability Ratio			
Net profit margin (EBIT - Tax / Sales) (%)	17.75	16.40	18.50

Table 2.0: Housebuilder Financial Ratios

	Miller Homes Ltd	Crest Nicholson Plc
Revenue (£m)	681.61	690,694.00
Cost of Sales (£m)	537.30	549.39
Gross Profit (£m)	144.31	141.31
Operating Profit (£m)	93.14	99.79
Finance Costs (interest paid) (£m)	34.54	46.42
Profit after interest but before tax (£m)	62.70	59.32
Profit after tax (profit attrib to shareholders) (£m)	43.37	42.36
Current Assets	981.66	746.14
Total assets (£m)	960.14	781.01
Current Liabilities (£m)	448.60	594.40
Long term Liabilities (£m) (Non-current liabilities)	385.81	49.13
Short term Debt (£m)	272.38	338.10
Long term Debt (£m)	n.a.	n.a.
Shareholders Funds (£m) (Total Equity)	125.73	137.48
Tax (£m)	19.33	16.97
Capital Employed (TA - CL) (£m)	511.54	186.61
Estimated cost of debt (fin. cost/LT debt) (%)	n/a	n/a
Estimated cost of debt (fin. cost/LT debt + ST debt) (%)	n/a	n/a
Beta, β (cost of equity - risk free rate/market risk return)	0.43	3.54
Tax as a % of gross profit	13.40	12.01
Leverage Ratios		
Gearing Ratio (LT debt/LT debt + equity) (%)	n/a	n/a
Gearing Ratio (inc. short term debt)	n/a	n/a
Gearing Ratio (LT liab/LT liab + equity) (%)	75.42	26.33
Interest Cover (profit before interest/interest)	5.61	3.00
Interest Cover (interest/profit before interest)	0.37	0.47
Debt - Equity Ratio (LT debt/equity)	n/a	n/a
Market Value Ratio		
Price:earning ratio (share price/earnings per share)	n/a	n/a
Earnings per share (pence)	n/a	n/a
No. of shares (total earnings/earnings p. share)	n/a	n/a
Share price (average annual stock price) (pence)	n/a	n/a
Stock market worth (share price x no. of shares)	n/a	n/a
Valuation Ratio (stock market worth/total equity)	n/a	n/a
Standard Deviation of share prices	n/a	n/a
Liquidity Ratio		
Current Ratio (Current Assets / Current Liabilities)	2.19	1.26
Profitability Ratio		
Net profit margin (EBIT - Tax / Sales) (%)	13.74	15.08

Table 2.0: Housebuilder Financial Ratios

	Bovis Homes Group Plc	Charles Church Developments
Revenue (£m)	555.70	653.56
Cost of Sales (£m)	382.60	536.14
Gross Profit (£m)	173.04	117.42
Operating Profit (£m)	124.39	63.31
Finance Costs (interest paid) (£m)	6.95	11.29
Profit after interest but before tax (£m)	123.59	52.40
Profit after tax (profit attrib to shareholders) (£m)	86.86	43.41
Current Assets	923.62	995.78
Total assets (£m)	955.19	1,000.97
Current Liabilities (£m)	176.17	855.73
Long term Liabilities (£m) (Non-current liabilities)	76.35	31.24
Short term Debt (£m)	246.31	464.32
Long term Debt (£m)	25.00	237.00
Shareholders Funds (£m) (Total Equity)	723.74	114.00
Tax (£m)	36.73	8.99
Capital Employed (TA - CL) (£m)	779.02	145.24
Estimated cost of debt (fin. cost/LT debt) (%)	27.81	4.76
Estimated cost of debt (fin. cost/LT debt + ST debt) (%)	2.56	1.61
Beta, β (cost of equity - risk free rate/market risk return)	2.70	4.07
Tax as a % of gross profit	21.22	7.66
Leverage Ratios		
Gearing Ratio (LT debt/LT debt + equity) (%)	3.34	67.52
Gearing Ratio (inc. short term debt)	21.75	90.55
Gearing Ratio (LT liab/LT liab + equity) (%)	9.54	21.51
Interest Cover (profit before interest/interest)	18.75	5.64
Interest Cover (interest/profit before interest)	0.06	0.18
Debt - Equity Ratio (LT debt/equity)	0.03	2.08
Market Value Ratio		
Price:earning ratio (share price/earnings per share)	8.54	n/a
Earnings per share (pence)	72.40	n/a
No. of shares (total earnings/earnings p. share)	1,200,276.24	n/a
Share price (average annual stock price) (pence)	618	n/a
Stock market worth (share price x no. of shares)	741.77	n/a
Valuation Ratio (stock market worth/total equity)	1.02	n/a
Standard Deviation of share prices	517	n/a
Liquidity Ratio		
Current Ratio (Current Assets / Current Liabilities)	5.24	1.16
Profitability Ratio		
Net profit margin (EBIT - Tax / Sales) (%)	22.91	10.13

Table 2.0: Housebuilder Financial Ratios

	Berkeley Group Plc	McCarthy & Stone Ltd
Revenue (£m)	918.41	456.64
Cost of Sales (£m)	649.55	250.72
Gross Profit (£m)	286.86	205.93
Operating Profit (£m)	177.07	130.89
Finance Costs (interest paid) (£m)	5.94	29.16
Profit after interest but before tax (£m)	188.05	114.44
Profit after tax (profit attrib to shareholders) (£m)	135.55	80.80
Current Assets	1,225.93	795.65
Total assets (£m)	1,284.30	812.39
Current Liabilities (£m)	439.91	553.25
Long term Liabilities (£m) (Non-current liabilities)	62.82	n/a
Short term Debt (£m)	59.79	291.86
Long term Debt (£m)	62.82	n/a
Shareholders Funds (£m) (Total Equity)	781.58	259.13
Tax (£m)	52.51	33.64
Capital Employed (TA - CL) (£m)	844.39	259.13
Estimated cost of debt (fin. cost/LT debt) (%)	9.46	n/a
Estimated cost of debt (fin. cost/LT debt + ST debt)	4.85	n/a
Beta, β (cost of equity - risk free rate/market risk ret	1.33	5.08
Tax as a % of gross profit	18.30	16.33
Leverage Ratios		
Gearing Ratio (LT debt/LT debt + equity) (%)	7.44	n/a
Gearing Ratio (inc. short term debt)	39.14	n/a
Gearing Ratio (LT liab/LT liab + equity) (%)	7.44	n/a
Interest Cover (profit before interest/interest)	32.65	4.92
Interest Cover (interest/profit before interest)	0.03	0.22
Debt - Equity Ratio (LT debt/equity)	0.08	n/a
Market Value Ratio		
Price:earning ratio (share price/earnings per share)	11.24	n/a
Earnings per share (pence)	112.60	n/a
No. of shares (total earnings/earnings p. share)	1,203,374.78	n/a
Share price (average annual stock price) (pence)	1,266	n/a
Stock market worth (share price x no. of shares)	1,523.47	n/a
Valuation Ratio (stock market worth/total equity)	1.95	n/a
Standard Deviation of share prices	1180	n/a
Liquidity Ratio		
Current Ratio (Current Assets / Current Liabilities)	2.79	1.44
Profitability Ratio		
Net profit margin (EBIT - Tax / Sales) (%)	19.18	38.79

Table 2.0: Housebuilder Financial Ratios

	Countryside Properties Plc	Kier Residential Ltd
Revenue (£m)	448.99	77.56
Cost of Sales (£m)	370.67	64.87
Gross Profit (£m)	78.32	12.69
Operating Profit (£m)	47.48	9.19
Finance Costs (interest paid) (£m)	32.95	3.57
Profit after interest but before tax (£m)	26.46	5.53
Profit after tax (profit attrib to shareholders) (£m)	20.63	3.84
Current Assets	407.28	103.84
Total assets (£m)	428.10	105.71
Current Liabilities (£m)	188.35	12.19
Long term Liabilities (£m) (Non-current liabilities)	65.75	62.95
Short term Debt (£m)	59.16	138.00
Long term Debt (£m)	n.a.	62.27
Shareholders Funds (£m) (Total Equity)	174.00	30.57
Tax (£m)	5.83	1.69
Capital Employed (TA - CL) (£m)	239.75	93.52
Estimated cost of debt (fin. cost/LT debt) (%)	n/a	5.73
Estimated cost of debt (fin. cost/LT debt + ST debt)	n/a	1.78
Beta, β (cost of equity - risk free rate/market risk ret	1.46	1.40
Tax as a % of gross profit	7.44	13.32
Leverage Ratios		
Gearing Ratio (LT debt/LT debt + equity) (%)	n/a	67.07
Gearing Ratio (inc. short term debt)	n/a	70.90
Gearing Ratio (LT liab/LT liab + equity) (%)	27.42	67.31
Interest Cover (profit before interest/interest)	1.80	2.74
Interest Cover (interest/profit before interest)	0.69	0.39
Debt - Equity Ratio (LT debt/equity)	n/a	2.04
Market Value Ratio		
Price:earning ratio (share price/earnings per share)	n/a	n/a
Earnings per share (pence)	n/a	n/a
No. of shares (total earnings/earnings p. share)	n/a	n/a
Share price (average annual stock price) (pence)	n/a	n/a
Stock market worth (share price x no. of shares)	n/a	n/a
Valuation Ratio (stock market worth/total equity)	n/a	n/a
Standard Deviation of share prices	n/a	n/a
Liquidity Ratio		
Current Ratio (Current Assets / Current Liabilities)	2.16	8.52
Profitability Ratio		
Net profit margin (EBIT - Tax / Sales) (%)	11.24	11.56

Table 2.0: Housebuilder Financial Ratios

	Lovell Partnerships Ltd	Fairview New Homes Plc
Revenue (£m)	397.95	240.26
Cost of Sales (£m)	338.13	193.00
Gross Profit (£m)	59.82	47.26
Operating Profit (£m)	24.94	21.71
Finance Costs (interest paid) (£m)	1.06	11.93
Profit after interest but before tax (£m)	23.95	22.69
Profit after tax (profit attrib to shareholders) (£m)	16.93	15.51
Current Assets	163.24	312.52
Total assets (£m)	170.59	319.58
Current Liabilities (£m)	130.32	80.50
Long term Liabilities (£m) (Non-current liabilities)	n.a.	75.77
Short term Debt (£m)	181.00	29.83
Long term Debt (£m)	n.a.	66.68
Shareholders Funds (£m) (Total Equity)	40.27	163.31
Tax (£m)	7.02	7.72
Capital Employed (TA - CL) (£m)	40.27	239.08
Estimated cost of debt (fin. cost/LT debt) (%)	n/a	17.89
Estimated cost of debt (fin. cost/LT debt + ST debt)	n/a	12.36
Beta, β (cost of equity - risk free rate/market risk ret	7.00	0.75
Tax as a % of gross profit	11.73	16.33
Leverage Ratios		
Gearing Ratio (LT debt/LT debt + equity) (%)	n/a	28.99
Gearing Ratio (inc. short term debt)	n/a	47.40
Gearing Ratio (LT liab/LT liab + equity) (%)	n/a	31.69
Interest Cover (profit before interest/interest)	23.68	2.90
Interest Cover (interest/profit before interest)	0.04	0.55
Debt - Equity Ratio (LT debt/equity)	n/a	0.41
Market Value Ratio		
Price:earning ratio (share price/earnings per share)	n/a	n/a
Earnings per share (pence)	n/a	n/a
No. of shares (total earnings/earnings p. share)	n/a	n/a
Share price (average annual stock price) (pence)	n/a	n/a
Stock market worth (share price x no. of shares)	n/a	n/a
Valuation Ratio (stock market worth/total equity)	n/a	n/a
Standard Deviation of share prices	n/a	n/a
Liquidity Ratio		
Current Ratio (Current Assets / Current Liabilities)	1.25	3.88
Profitability Ratio		
Net profit margin (EBIT - Tax / Sales) (%)	5.30	7.25

Table 2.0: Housebuilder Financial Ratios

	Galliford Try Plc	McInerney Homes UK	Places for People
Revenue (£m)	1,409.40	464.97	338.16
Cost of Sales (£m)	1,275.80	369.47	113.41
Gross Profit (£m)	133.90	96.50	224.75
Operating Profit (£m)	68.30	55.89	65.97
Finance Costs (interest paid) (£m)	17.40	14.27	68.28
Profit after interest but before tax (£m)	60.20	42.69	19.70
Profit after tax (profit attrib to shareholders) (£m)	43.60	35.20	14.26
Current Assets	1,023.90	531.11	241.22
Total assets (£m)	1,176.20	584.32	1,369.85
Current Liabilities (£m)	711.90	171.73	67.11
Long term Liabilities (£m) (Non-current liabilities)	157.70	184.12	106.10
Short term Debt (£m)	50.00	91.98	14.91
Long term Debt (£m)	88.20	177.73	102.73
Shareholders Funds (£m) (Total Equity)	306.60	228.03	241.70
Tax (£m)	16.60	7.48	-544.10
Capital Employed (TA - CL) (£m)	464.30	412.60	1,302.73
Estimated cost of debt (fin. cost/LT debt) (%)	19.73	8.03	66.46
Estimated cost of debt (fin. cost/LT debt + ST debt) (%)	12.59	5.29	58.04
Beta, β (cost of equity - risk free rate/market risk return)	1.22	0.79	0.30
Tax as a % of gross profit	12.40	7.75	-242.10
Leverage Ratios			
Gearing Ratio (LT debt/LT debt + equity) (%)	22.34	43.80	29.83
Gearing Ratio (inc. short term debt)	72.30	60.51	41.27
Gearing Ratio (LT liab/LT liab + equity) (%)	33.97	44.67	30.51
Interest Cover (profit before interest/interest)	4.46	3.99	1.29
Interest Cover (interest/profit before interest)	0.25	0.26	1.04
Debt - Equity Ratio (LT debt/equity)	0.29	0.78	0.43
Market Value Ratio			
Price:earning ratio (share price/earnings per share)	7.27	4.47	n/a
Earnings per share (pence)	14.30	23.94	n/a
No. of shares (total earnings/earnings p. share)	3,048,951.05	1,361,737.68	n/a
Share price (average annual stock price) (pence)	104	107	n/a
Stock market worth (share price x no. of shares)	317.09	145.71	n/a
Valuation Ratio (stock market worth/total equity)	1.03	0.64	n/a
Standard Deviation of share prices	129	134	n/a
Liquidity Ratio			
Current Ratio (Current Assets / Current Liabilities)	1.44	3.09	3.59
Profitability Ratio			
Net profit margin (EBIT - Tax / Sales) (%)	4.05	13.10	537.91

Table 2.0: Housebuilder Financial Ratios

	Stewart Milne Group Ltd	Morris Homes Ltd	Keepmoat Plc
Revenue (£m)	347.96	194.55	532.56
Cost of Sales (£m)	258.38	145.06	439.15
Gross Profit (£m)	89.58	49.49	93.41
Operating Profit (£m)	50.32	41.59	47,384.00
Finance Costs (interest paid) (£m)	10.13	52.72	0.04
Profit after interest but before tax (£m)	42.11	36.33	50.31
Profit after tax (profit attrib to shareholders) (£m)	29.52	26.41	34.99
Current Assets	365.88	317.36	217.45
Total assets (£m)	394.21	329.47	234.81
Current Liabilities (£m)	290.05	55.20	156.61
Long term Liabilities (£m) (Non-current liabilities)	1.56	196.95	5.56
Short term Debt (£m)	191.26	4.83	85.00
Long term Debt (£m)	360.00	196.95	n.a.
Shareholders Funds (£m) (Total Equity)	102.60	77.32	72.65
Tax (£m)	12.58	9.92	15.32
Capital Employed (TA - CL) (£m)	104.16	274.27	78.20
Estimated cost of debt (fin. cost/LT debt) (%)	2.81	26.77	n/a
Estimated cost of debt (fin. cost/LT debt + ST debt) (%)	1.84	26.13	n/a
Beta, β (cost of equity - risk free rate/market risk return)	4.62	1.22	7.60
Tax as a % of gross profit	14.05	20.04	16.40
Leverage Ratios			
Gearing Ratio (LT debt/LT debt + equity) (%)	77.82	71.81	n/a
Gearing Ratio (inc. short term debt)	86.37	76.53	n/a
Gearing Ratio (LT liab/LT liab + equity) (%)	1.50	71.81	7.11
Interest Cover (profit before interest/interest)	5.16	7.89	n/a
Interest Cover (interest/profit before interest)	0.20	1.27	0.00
Debt - Equity Ratio (LT debt/equity)	3.51	2.55	n/a
Market Value Ratio			
Price:earning ratio (share price/earnings per share)	n/a	n/a	n/a
Earnings per share (pence)	n/a	n/a	n/a
No. of shares (total earnings/earnings p. share)	n/a	n/a	n/a
Share price (average annual stock price) (pence)	n/a	n/a	n/a
Stock market worth (share price x no. of shares)	n/a	n/a	n/a
Valuation Ratio (stock market worth/total equity)	n/a	n/a	n/a
Standard Deviation of share prices	n/a	n/a	n/a
Liquidity Ratio			
Current Ratio (Current Assets / Current Liabilities)	1.26	5.75	1.39
Profitability Ratio			
Net profit margin (EBIT - Tax / Sales) (%)	14.61	21.83	10,786.40

Table 2.0: Housebuilder Financial Ratios

	CALA Group Ltd	Haslam Homes Ltd	Telford Homes Plc
Revenue (£m)	223.76	132.42	104.41
Cost of Sales (£m)	173.91	94.51	81.04
Gross Profit (£m)	49.86	37.92	23.37
Operating Profit (£m)	19.53	23.20	16.69
Finance Costs (interest paid) (£m)	24.95	0.63	3.98
Profit after interest but before tax (£m)	6.31	22.56	13.51
Profit after tax (profit attrib to shareholders) (£m)	3.65	15.80	9.95
Current Assets	314.23	88.27	143.92
Total assets (£m)	343.22	88.93	144.77
Current Liabilities (£m)	88.27	49.43	90.08
Long term Liabilities (£m) (Non-current liabilities)	242.77	n.a.	167.00
Short term Debt (£m)	3.95	20.61	73.32
Long term Debt (£m)	189.57	n.a.	96.00
Shareholders Funds (£m) (Total Equity)	12.19	39.49	54.52
Tax (£m)	2.66	6.77	3.56
Capital Employed (TA - CL) (£m)	254.96	39.49	54.69
Estimated cost of debt (fin. cost/LT debt) (%)	13.16	n/a	4.15
Estimated cost of debt (fin. cost/LT debt + ST debt) (%)	12.89	n/a	2.35
Beta, β (cost of equity - risk free rate/market risk return)	3.30	6.70	0.52
Tax as a % of gross profit	5.33	17.84	15.22
Leverage Ratios			
Gearing Ratio (LT debt/LT debt + equity) (%)	93.96	n/a	63.78
Gearing Ratio (inc. short term debt)	95.80	n/a	77.34
Gearing Ratio (LT liab/LT liab + equity) (%)	95.22	n/a	75.39
Interest Cover (profit before interest/interest)	1.25	36.70	4.39
Interest Cover (interest/profit before interest)	1.28	0.03	0.24
Debt - Equity Ratio (LT debt/equity)	15.55	n/a	1.76
Market Value Ratio			
Price:earning ratio (share price/earnings per share)	n/a	n/a	8.05
Earnings per share (pence)	n/a	n/a	30.30
No. of shares (total earnings/earnings p. share)	n/a	n/a	326,732.67
Share price (average annual stock price) (pence)	n/a	n/a	244
Stock market worth (share price x no. of shares)	n/a	n/a	79.72
Valuation Ratio (stock market worth/total equity)	n/a	n/a	1.46
Standard Deviation of share prices	n/a	n/a	298
Liquidity Ratio			
Current Ratio (Current Assets / Current Liabilities)	3.56	1.79	1.60
Profitability Ratio			
Net profit margin (EBIT - Tax / Sales) (%)	9.70	17.38	16.21

Table 2.0: Housebuilder Financial Ratios

	David Mclean Ltd	Gleeson Homes	Croudace Homes Ltd
Revenue (£m)	124.14	194.25	129.47
Cost of Sales (£m)	98.33	171.07	76.63
Gross Profit (£m)	25.81	23.18	52.84
Operating Profit (£m)	13.89	5.70	38.76
Finance Costs (interest paid) (£m)	5.27	1.46	0.88
Profit after interest but before tax (£m)	8.90	8.26	31.74
Profit after tax (profit attrib to shareholders) (£m)	5.03	7.47	22.10
Current Assets	118.50	214.25	131.60
Total assets (£m)	120.12	260.08	136.39
Current Liabilities (£m)	94.84	76.73	33.00
Long term Liabilities (£m) (Non-current liabilities)	n.a.	0.00	0.18
Short term Debt (£m)	62.92	n/a	8.63
Long term Debt (£m)	n.a.	0.00	0.18
Shareholders Funds (£m) (Total Equity)	25.28	183.32	103.21
Tax (£m)	3.88	0.79	9.64
Capital Employed (TA - CL) (£m)	25.28	183.35	103.39
Estimated cost of debt (fin. cost/LT debt) (%)	n/a	n/a	494.35
Estimated cost of debt (fin. cost/LT debt + ST debt) (%)	n/a	n/a	9.93
Beta, β (cost of equity - risk free rate/market risk return)	3.97	0.12	3.40
Tax as a % of gross profit	15.02	3.40	18.24
Leverage Ratios			
Gearing Ratio (LT debt/LT debt + equity) (%)	n/a	0.00	0.17
Gearing Ratio (inc. short term debt)	n/a	29.51	24.33
Gearing Ratio (LT liab/LT liab + equity) (%)	n/a	0.00	0.17
Interest Cover (profit before interest/interest)	2.69	1.96	37.27
Interest Cover (interest/profit before interest)	0.38	0.26	0.02
Debt - Equity Ratio (LT debt/equity)	n/a	0.00	0.00
Market Value Ratio			
Price:earning ratio (share price/earnings per share)	n/a	5.47	n/a
Earnings per share (pence)	n/a	57.75	n/a
No. of shares (total earnings/earnings p. share)	n/a	129,870.13	n/a
Share price (average annual stock price) (pence)	n/a	316	n/a
Stock market worth (share price x no. of shares)	n/a	41.04	n/a
Valuation Ratio (stock market worth/total equity)	n/a	0.22	n/a
Standard Deviation of share prices	n/a	254	n/a
Liquidity Ratio			
Current Ratio (Current Assets / Current Liabilities)	1.25	2.79	3.99
Profitability Ratio			
Net profit margin (EBIT - Tax / Sales) (%)	10.18	2.87	38.00

Formulae:

1. Gearing Ratio (%) = Long-Term Debt / (Long-Term Debt + Equity)
2. Gearing Ratio (%) = Long-Term Liabilities/ (Long-Term Liabilities + Equity)
3. Estimated Cost of Debt (%) = (Finance costs / Long Term Debt)
4. Estimated Cost of Debt (%) = Finance costs / (Short Term Debt + Long Term Debt)
5. Beta, β = cost of equity - risk free rate / market risk return
6. Tax as a % of gross profit = (Tax / Gross Profit) x 100
7. Interest Cover = Profit before Interest / Interest
8. Price/Earnings Ratio = Share Price / Earnings per Share
9. Stock Market Worth = Share Price x Number of Shares
10. Valuation Ratio = Stock Market Worth / Total Equity
11. Current Ratio = Current Assets / Current Liabilities
12. Net Profit Margin (%) = ((Earnings Before Interest & Tax – Tax) / Sales) x 100