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House building companies have a long history as listed entities on the UK Stock market – following the removal of building controls in 1954 there were approximately 51 flotations until the end of the 1960's. In contrast to contracted building the firms are principally *speculative* in that they have no arranged buyer for houses before they are built or have acquired the land necessary, which could happen 5 or 6 years prior to the sale. Speculative house builders construct homes on a land bank of planning consented plots which they have acquired – the land bank represents the bulk of any house builder's net asset value. They also generally hold strategic land banks, where they own options on land or where planning consent has not been granted and they hope to benefit from the future uplift in valuation where planning for them to build is granted. At various times some house builders will have engaged in social housing – building for contract, which commands lower margins but a certainty of purchase by the local authority. Other house building enterprises have existed as divisions within larger conglomerates, most notably the large engineering and contracting conglomerates which grew out of the pre-WW2 house building firms such as; George Wimpey, Taylor Woodrow and Costain.

Due to the time delay between acquiring land and completing a housing development changes in land prices and corresponding changes in house prices are a significant driver for the profitability and asset value of all house builders. The previous decade has seen prices of land and houses increase every year in the UK. Between 1996 and 2006 the Halifax index of average house prices has increased 11.0% per annum. Residential land with planning consent has increased 16.0% per annum over the same period (according to figures from the Office of Deputy Prime Minister). In an environment of continual rises in house and land prices the profitability of house builders has also seen a marked increase.

There are a number of potential criteria on which valuation of house building shares could be undertaken, however many of the mainstream analysis provided by the City is focussed on short-term factors, in an industry where cycles can last for over a decade. In order to make a reasonable assessment as to the likely future returns of the builders we have undertaken a long-term review of the sector and explored the resulting valuations based on scenarios of future housing and land activity.

Candidates for analysis

Following the merger of George Wimpey and Taylor Woodrow in 2007, Taylor Wimpey is the largest UK-listed house builder – completing a combined 31,128 homes in 2006. Both businesses trace their origins back to before the second world war; George Wimpey had acquired a number of smaller house builders over the last decade – beginning with McLean Homes in 1996, McAlpine's housing operation in 2001 and Laing Homes in 2002. Taylor Woodrow had acquired Bryant in 2001 and Wilson Connolly in 2003 before the two companies merged. Barratt Developments was formed in 1958 and pursued a strategy of totally organic growth since the mid 1970's until its acquisition of Wilson Bowden in 2007; it constructed 15,517 homes in its 2006/7 year. Persimmon which formed in 1972 acquired Beazer Homes in 2001 and Westbury in 2006 which took its total completions up to 16,071 homes. Bellway started in 1946 and has focused historically on the North-east of the UK and increased its number of completions to 7,117 in 2006. Redrow dates from 1974 and acquired the residential business of Costain Group in 1993; it built 4,823 homes in 2006/7.

Table 1 – Top 5 UK listed house builders by completions

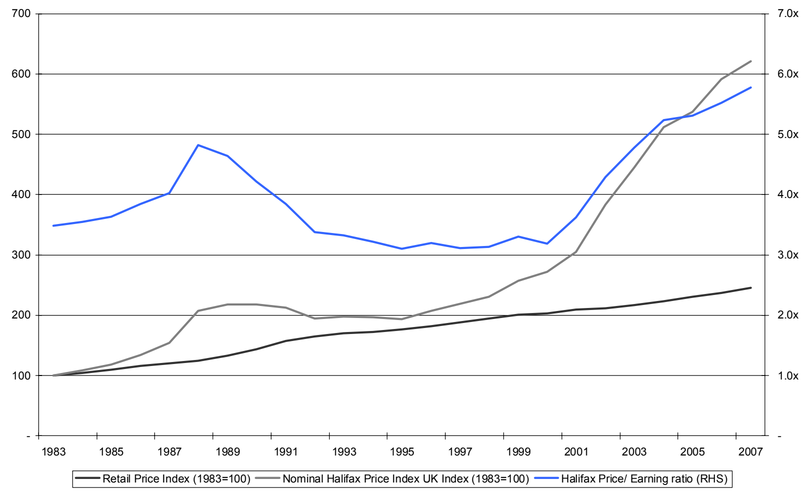
	Completions in 2006/7
Taylor Wimpey*	31,128
Barratt Developments†	21,003
Persimmon	16,071
Bellway Homes	7,117
Redrow	4,823

* Includes non-UK completions
† Including total Wilson Bowden completions

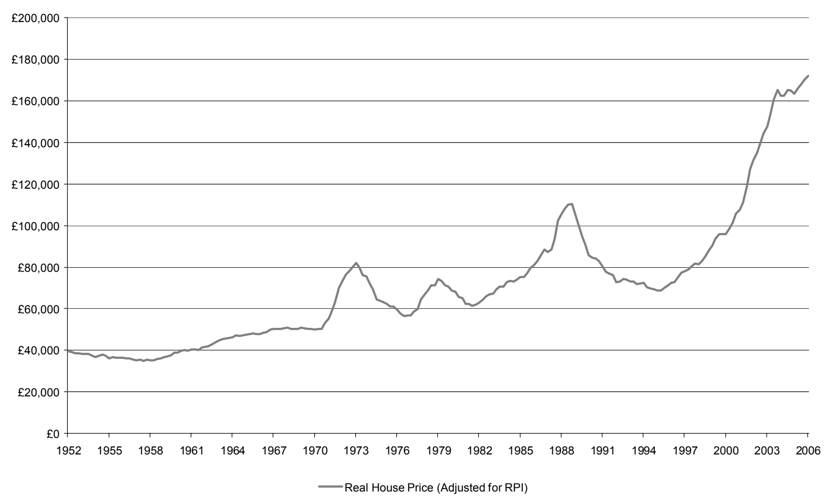
To analyse the major drivers of profitability in the industry and development of fundamentals we have conducted an analysis of the current top 5 builders over last few years. Some of the companies have from time-to-time been involved in activities other than residential house building but these have generally not been a significant proportion of their business. In the case of Taylor Wimpey; both George Wimpey and Taylor Woodrow were involved to some degree in house building in the US and abroad – however UK building was still the major activity of the companies during the period under examination.

Background to housing activity

The scale of the 'house price boom' which has occurred in the last 10 years in the UK, mirrored in the US, is demonstrated in the following chart of house prices and the RPI – along with an index of the house price ratio. The ratio is published by Halifax (one of the largest mortgage lenders in the UK) and demonstrates the level of 'affordability' of homes across different periods. The prices have been indexed to 100 in 1983 and it can be been seen clearly that as house price growth has outstripped retail price inflation affordability as measured by the house price/earnings ratio has become stretched in both the 1989 boom and during the current period.



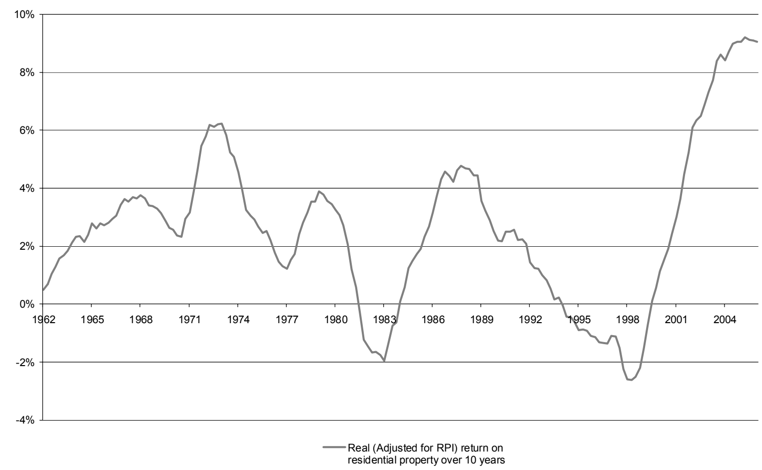
It is suggested that the four major factors contributing to house prices are; the level of earnings, availability of housing stock, interest rates and the lending restrictions of banks and building societies. Interest rate volatility has been substantially lower during the 1991-2006 period than it was for the previous 15 years. The general level of interest rates during this time have also been lower. Lending conditions have since 2000 loosened significantly, as seen with the emergence of sub-prime and other stretched mortgage products which allow borrowers to increase their financial leverage when purchasing a home. Throughout 2006 and 2007 falling prices in US homes have started to cause problems in this area of the market and there have been over 150 US mortgage lenders which have gone bust indicating that perhaps lending conditions have reached the peak of their generosity to borrowers.



The long-term history of UK house prices in real terms (2006 pounds sterling, adjusting for RPI) shows a number of booms and busts on a long term positive trend. However the magnitude in real terms of the recent boom, coupled with the expansion of price/earning ratio of house buyers suggests that extreme caution is required when assessing the profitability of the house builders over recent history – they have benefited from the large rise in both the price of houses and the even greater increases in the price of land for development which has boosted their net asset value.

Planning restrictions have significant impact on house and land prices – availability of housing development sites is a highly political issue and government intervention in the process can create very large distortions in the price of land. Land speculation occurs frequently and can cause major distortions to the price of land – peaks and troughs of land prices have historically been greater than those of house prices.

The very long-term history of real estate across the world has shown that they have not grown significantly ahead of price inflation when looked at over a period of several decades. During periods of rapid urban growth land values can soar for short periods but these often correct, studies in the US show that land value per capita was almost the same when adjusted for inflation in Chicago between 1845-1930[1]. Other research conducted by Atack and Margo[2] has demonstrated that any price increase in parcels of land in New York City between 1835-1900 was due to inflation and in real dollar terms prices had not appreciated ahead of this. More significantly with regard to house prices a 1997 paper by Eicholtz[3] found that there was little *real* growth in Amsterdam house prices since 1628 – with the real level in 1973 approximately twice that of 1628 or real gain of 0.2% per annum. However there exists much evidence for sustained swings in real prices over periods ranging from as short as a decade to as long as 50 years. Many housing indices are based on data from WW2 onwards and this period shows a 3.2% real increase per annum in Eicholtz's study – as he points out 'this indicates that data from the post World War Two era is likely to give an overstated impression of the performance of real estate [over the long-term]'.



The boom in house prices when viewed as the real return (adjusted for RPI) over a 10 year holding period shows that the recent rises in UK house prices have seen the most significant real rise since at least the 1960's. The long-term real return on the Halifax house price index has been 2.8% per annum between 1952 and 2006 (in-line with Eichholtz) – between the first quarters of 1996 and 2006 the real return increased to 9.2% per annum.

The emergence of buy-to-let as a strategy for investment has gained in popularity – however real net yields across the UK have now fallen well below the risk free rate. This suggests that investors believe house price appreciation in real terms will provide sufficient compensation for the lack of return currently earned on housing assets or that substantial increases in rent achieved will provide support for current house prices. The Council of Mortgage Lenders statistics show that buy-to-let mortgages have increased from around 59,000 in 1998 to 938,500 in 2007 – more than 500,000 of these additional mortgages were put in place since 2003 after the largest percentage house price gains had passed. Many of the private landlords involved in buy-to-let own a number of houses, ARLA data showed that the average number of properties owned had increased to 7.0 in September 2007 from 6.0 only 3 months earlier and 4.1 in 2004. In 2007 respondents to the ARLA survey indicated that on average they had been residential landlords for an average of 6.3 years. Given that as a group they have on average only operated as landlords during a period which has seen the largest boom in real house prices in living memory it is not surprising that 86% said they would not sell their investments if house prices fell, since the majority will not have experienced real declines in house prices whilst investors in property. With an average loan-to-value of 59% across their portfolio of 7 properties a decline in house prices of only 10% would see a significant reduction in 'net worth' of the average buy-to-let investor, whilst a reduction of prices by 20% would see half their 'wealth' wiped out (this is only the average investor – many recent entrants or high LTV portfolio's would fall into negative equity).

In the past high consumer price inflation and interest rates have obscured the losses made by home owners during house price corrections. The real house price correction from 1974-77 seen in the previous chart, was a 31% fall, yet in nominal terms house prices increased 30%. The 1979-82 correction saw a 17% fall in real prices and 12% gain in nominal terms. Since the Second World War only the 1989-95 correction, which was 38% in real terms, saw a fall in nominal prices of 19% - this has contributed to the sentiment that 'house prices only ever go up' and that 'nothing is as safe as bricks and mortar'.

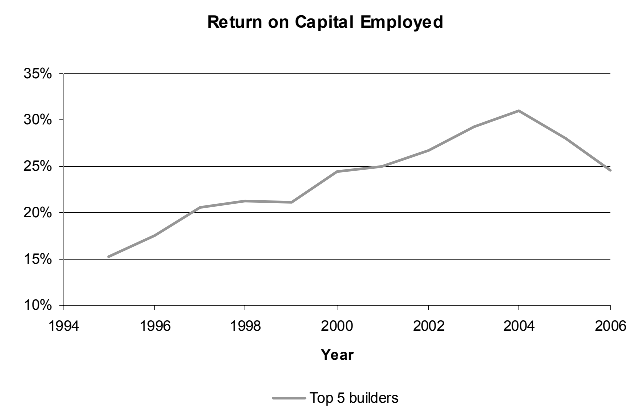
[1] Homer Hoyt, One Hundred Years of Land Value in Chicago, University of Chicago Press (1933)
[2] J. Atack and R. Margo, The Price Gradient for Urban Land, *Journal of Real Estate Finance and Economics* (1998)
[3] Piet Eicholtz, A long run house price index: the Herengracht Index 1628-1973, *Real Estate Economics* (1997)

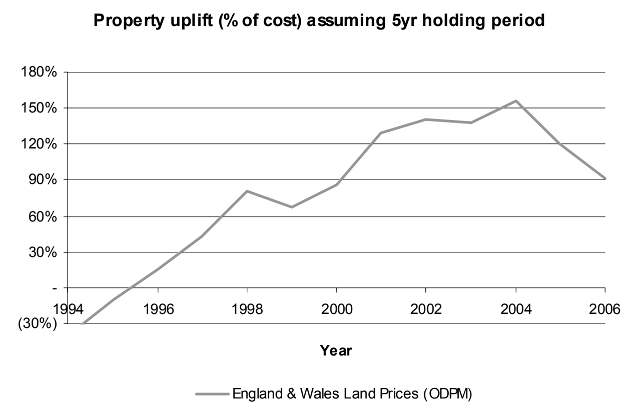
Aggregate results of current top 5 UK builders

In order to establish the general performance of the sector during the recent boom we undertook analysis of the previously referenced 5 house builders over the last decade. It is apparent from a general survey of the fundamentals that whilst net assets have increased year-on-year for all the companies, the returns on capital peaked on the whole in 2004.

The business model of all the house builders is to hold a land bank on which to build, some is strategic and has options over it, whilst some is owned and already has planning consent for development. The land bank is accounted as a current asset – but in the majority of cases this land is held on balance sheet for several years from the original purchase until completion and sale of the plots. The relative size of the land bank has increased over the past decade and we now estimate that the land bank of the top 5 builders represents 4.4 years of supply at current completion rates – this has increased from just over 3 years of land bank a decade ago.

In periods of consistently rising land and house prices the maximum profit can be made by building on land which was bought the earliest – a first in, first out inventory. Since the cost of plot of land that the house sits on makes up a proportion of the sale price (historically this has been 20-30%), house builders can be said to generate their returns from two principal and interlinked sources, physical building at a margin and land speculation. In order to assess the impact of land speculation on returns we plotted the uplift in land valuations over the last decade against the returns on capital the house builders generated.



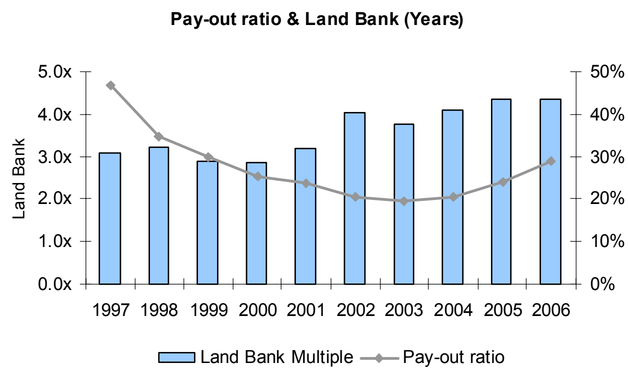


The property uplift represents the increase on cost of a plot of development land assuming that it has been held for 5 years. The source of this data is the Office of the Deputy Prime Minister and Land registry; it represents average valuations of residential building land with outline planning permission in England. It can clearly be seen that the average returns of the builders have shown considerable correlation to the property uplift – which represents an approximation to the speculative gains on land holdings. In 1995 when land prices had approximately just recovered their value from the land boom of the late 1980's average returns on capital employed for the builders were only 15%, in 2004 following 9 years of land price appreciation they peaked at 31%. The returns on capital represent a simple average of the 5 builders rather than weighted by capital. Whilst there are significant differences between the most profitable and least profitable over the period a general correlation is certainly apparent when the results are looked at in aggregate.

Following the introduction of the Town and Country Planning Act in 1947 which introduced the greenbelt and 'planning departments' house building around major towns and cities in the UK has effectively been heavily restricted. The government's Barker Review on the housing market in 2004 identified planning restrictions as a major cause for concern. Whilst opening of greenbelt land would increase the value of some firms strategic land banks their existing planned land bank would be likely to decrease in value following the possible introduction of new supply. Rising house prices have caused significant affordability issues especially for public workers in the UK whose earnings have barely kept pace with inflation – the possibility that a politically-motivated change to planning regulations having a significant negative impact on land prices should not be underestimated. There are several groups actively lobbying the government to increase the supply of 'affordable houses' at a greater rate than currently being achieved – housing is certainly becoming a more politicised issue, especially with an election due sometime over the next couple of years.

Land Bank dynamics and excess returns

Ultimately house builders have 3 possible uses of their cash profits – pay dividends to shareholders, purchase more land in order to grow or purchase a competitor. As the builders recovered from the mid-90's we consider it very likely that confidence amongst management of house builders has increased. This confidence has resulted in an increase in the propensity to buy competitors or purchase land than to return capital to shareholders. The following chart shows the pay-out ratio for the aggregated top 5 builders and the progression in their land bank. It is apparent (although exceptional capital returns have not been included) that as the dividend pay-out decreased the additional cash was spent on acquiring land bank – consolidation activity has also increased noticeably in the last 5 years.



Having increased the years of land bank held on their balance sheet the builders have, as a cohort, increased their bets on continued land price appreciation. In periods of increasing prices holding land for the longest period on the balance sheet yields the greatest profit, and land has appreciated in the UK well ahead of inflation for many years. However, if land prices were to stabilise for a number of years, or indeed fall, then both the asset values and returns of builders would also fall – as demonstrated in the previous charts. During periods of falling land prices the maximum profits are achieved by holding onto land for a shorter period and either holding land purchased at higher prices until prices recover (reducing returns) or accepting lower margins. Whichever strategy is selected holding a smaller land bank would be the optimal as land prices decline. The appetite amongst the largest UK house builders to increase their land banks during this period is also very likely to have been responsible for some of the increase in land prices itself. The largest increases in house prices were experienced in 2000 and 2001 as low interest rates worldwide fuelled easy credit conditions and property speculation; residential land in England increased in value 53% between 1999 and 2001 according to government statistics and it is around this period where a step change is visible above as the builders added roughly an additional year of land bank.

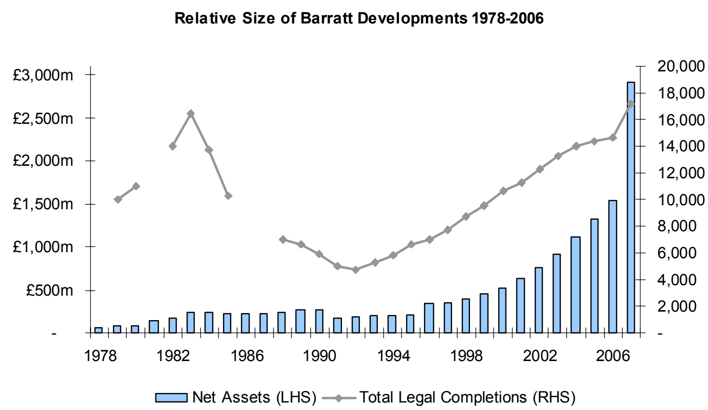
It seems odd at first that management should have become more aggressive buyers of land rather than returning more excess capital to shareholders as the boom in land and house prices has continued over the last few years – however since land banks serve to increase net assets and serve as a mechanism to 'grow' the business, purchasing more land provides an individual builder more capacity to do a 'take-over' rather than become prey to a larger competitor themselves. When viewed from the perspective of management wanting to retain both control over an organisation and their job it is possible that management are not acting in the interests of shareholders as they try to achieve greater 'scale'.

An excellent history of the sector; *British Housebuilders, History & Analysis* by Fred Wellings (2006) provides an overview of the changes which have occurred to the firms from the 1930's until shortly after the start of this decade. Having examined the financial positions of a large number of firms over many decades the author is in a good position to make significant conclusions about the industry. His key findings are that; size does not in itself lead to economies of scale, entrepreneurial flair and tight management control (normally focussed on a small region) is likely to lead to the highest returns and that a recession is disproportionably harsh on firms without focus. He concludes that much of the consolidation activity which occurs does not provide value for shareholders in the form of higher returns but is driven by large shareholders who pressure management to grow the business.

The avoidance of incurring bank debts to fund the purchase of land at prices which subsequently fall is the single most important role that a management team can undertake to avoid collapse or serious impairment to shareholders capital. In evitable downturns – which given the currently stretched affordability already mentioned could become a reality within the next 24 months, given the current tightening of lending standards – it is highly likely that the more overleveraged house builders will see large falls in their net assets. The tenure of management is highlighted by Wellings as a key factor in the propensity of a house builder to recover from 1989 recession and we continue to see this as a vital area for analysis in differentiating between the house builders as we potentially head into another housing recession.

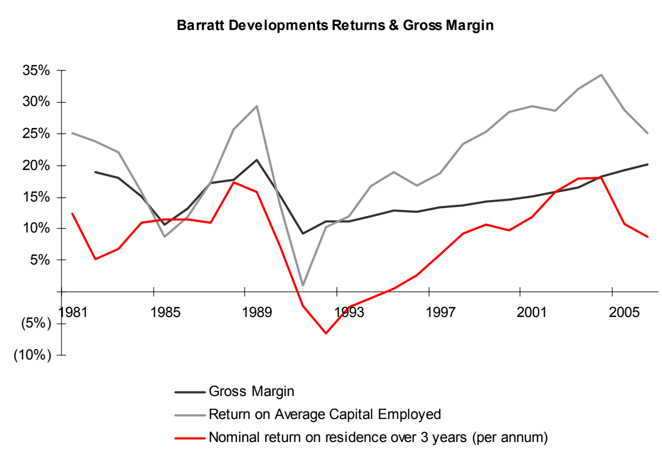
Long-term view: Barratt Developments

Barratt Developments founded in 1958 by Sir Lawrie Barratt and listed in 1968, it purchased a number of small firms in the early 1970's the most significant being Janes; it then expanded (and contracted) organically from then until its acquisition of Wilson Bowden in 2006. By the late 1970's the company was building a wide range of houses across the UK, it also had a small American operation in California until 2004. The majority of the business however was focused on UK house building – both private builds and some re-generation activity in inner-cities. Throughout the 1980's Barratt was the largest UK house builder by some margin and had one of the most recognisable brands in the industry. Sir Lawrie Barratt remained Executive Chairman of the company until 1988, and then following the problems the company faced in the 1989-1993 recession came out of retirement to lead the company in the early nineties. Barratt has several advantages in making a long-term analysis of dynamics of house builders over a long period – over the period examined it did not make any acquisitions until Wilson Bowden in 2006 and the management was consistent for a long part of its history. The following analysis examines the results of Barratt's from 1978-2006.



There are two useful indicators which can be compared over a long-term history of the results of Barratt Development to examine the profit cycle inherent in the house building business – Gross Margin and Returns on Capital. Return on Equity is affected significantly by the reduction in corporate tax rates from the 52% level in 1978 to 30% in 2006, it is also subject to fluctuations in the level of gearing applied to the balance sheet, for this reason Average Returns on Capital Employed should provide a better indicator. As previously discussed the price of the land making up plot cost is the largest single factor in gross margin, which given in an environment of relatively stable construction costs is the largest factor affecting operating profits and returns on capital. The price of development land can broadly be expected to be driven by the current price of houses *and* the expectation of house price appreciation in the future; for this reason the swings between the peaks and troughs of land prices have been greater than of house prices.

Shown quite clearly below is the correlation between the Returns on Capital achieved by Barratt and the nominal return (or loss) on houses over the preceding 3 years. When consideration of the behavioural economics of speculative land prices and house prices is taken into account there are genuine reasons to believe that the strength of the correlation should remain of a similar magnitude in the future.

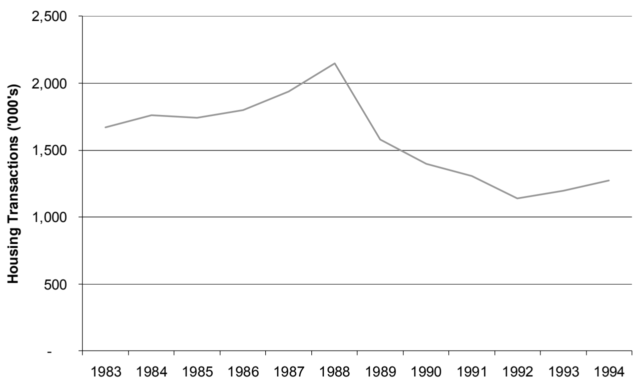


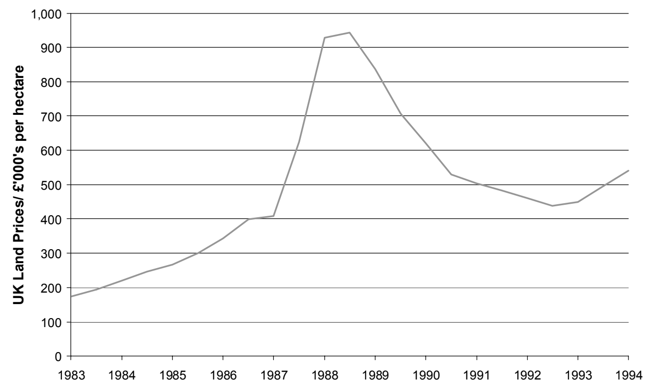
Nominal returns on houses have been higher than real returns and this effect is greater in the early 1980's when inflation and interest rates were higher. In 1991 Barratt wrote-down the value of land and property on its balance sheet by £84m from a 1990 total of £514m (this was non-cash), the return shown excludes this write-down, however the subsequent returns on capital are flattered through lower values for these assets as a result. This is explored in more detail below.

Lessons from history: 1989-1993

There are clearly a number of economic differences between the late 1980's and the current time, however several important developments during this time are useful in assessing the risks of forecasting future returns of house builders and analysing their current net asset value. Prior to the 1980's approximately a third a new construction activity was subsidised by the government and in the early 1980's there was a number of tax initiatives that distorted the market, encouraging people to become homeowners.

A review of the statements made by Barratt Developments in the late 1980's shows that, at least publicly, they did not recognise a boom in house prices which would end in the near future. Although the number of completions fell significantly from the peak of 16,500 in 1983 following 2 years of declining returns into 1985, Sir Lawrie Barratt indicated in 1987 that the company had been restructured to allow completions to increase to 10,000 per annum from the current level of approximately 7,000 per annum. In the specific case of Barratt the company had received a good deal of negative publicity about the quality of its house – which damaged its branded and marketing driven business model. This period coincided with a shift in focus from first-time-buyers to second and third homeowners and initiatives to rehabilitate existing inner-city properties. Property investment and construction, including construction of office buildings and factory units also featured in the late 1980's and whilst this creates a distortion to the comparison of returns over a long period it does not detract from importance of examining the effect of property price changes and returns achieved by Barratt.





In 1989, despite falling housing activity John Swanson, now Chairman following Sir Lawrie's retirement, gave a confident picture to shareholders '*Even if the chancellor maintains the high interest rates into 1990 our geographical diversity promises to mitigate the worst effects on our business. The medium term outlook for the house building industry in the UK is extremely good.*' However, as seen from the charts above, both activity (as measured in housing transactions) and land prices continued to fall and in 1991 Sir Lawrie came out of retirement to lead the company following the departure of John Swanson. Contemporary reports suggest a 'rescue' at the company and although there were possibly operational issues which had gone awry under new leadership it is difficult not to believe that many of the problems facing the company were as a result of the housing recession affecting land prices across the board.

Other examples may be found of management failing to recognise the stretched affordability and impending collapse in 1974, nine of top 30 house builders in 1974 either collapsed completely or were so badly affected by that recession that they withdrew from housing. Northern Developments was the second largest house builder in the early 1970's and collapsed in 1975. David Church which completed around 1200 house per annum at its 1970's peak had a confident management and asserted that '*Mr Buckingham does not subscribe to the current pessimism surrounding the housing sector. He believes that this side will continue to expand for a good few years and, as a mark of confidence, he is raising output from 1200 to 1500 houses this year.*' The firm failed in 1977. High borrowings entering the recession were the most likely recipe for collapse – as demonstrated further in the fates of Bacal and Federated Land which failed in the 1990's recession. In Fred Wellings analysis 'overambitious spending on land at the wrong time in the housing cycle.'

Considering these factors and after a detailed review of the financial performance of various firms and management in the UK house builder sector over a number of decades the following qualities are those which are expected to give the greatest possibility of a successful investment;

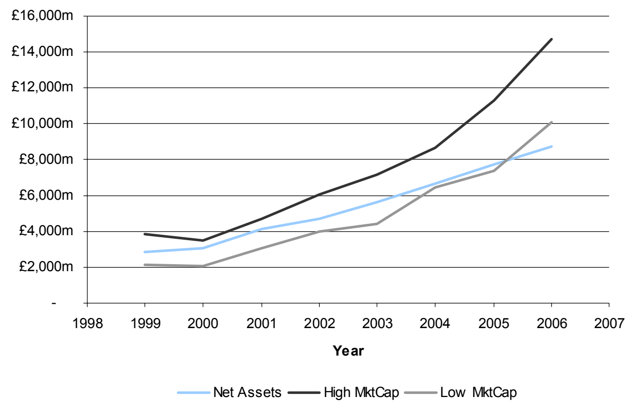
1) Purchase in the years following an extended period of decline in the price of houses and when general sentiment in housing is extremely poor – (negative equity, widespread disillusionment with buy-to-let etc.)

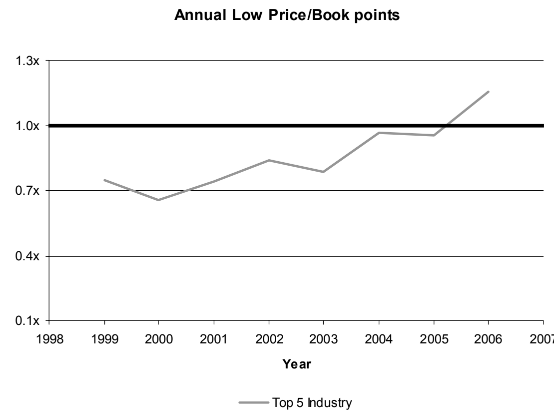
2) A management team who have a long history with the firm and who acted prudently in the boom phase, ie. not increasing debt levels, making expensive/numerous acquisitions or aggressively purchasing land

3) A firm with a strict policy of focus (not a construction conglomerate) and preferably regional focus as this is likely to lead to highest level of returns in difficult periods

Valuation of house builders

Amongst analysts there are a number of methodologies used to value house building companies – the majority are based on asset valuations – as previously mentioned land makes up a large contribution of the net assets. Net asset values can include intangible assets – where a builder has purchased a competitor above book value – and vary in the levels of gearing that they apply to their balance sheets. Clearly additional gearing results in a higher rate of return on equity with the additional risks that come from interest-bearing liabilities.





In the years since the dot-com boom in 2000 as interest rates were lowered and house price inflation significantly increased sentiment toward house builders has increased. The graph on the left shows that as a group the 5 builders analysed traded in a similar range around a growing net asset value until 2004, when the lowest valuation at which the top 5 could be purchased (independently) was much closer to net asset value than several years ago (this can be seen in the graph on the right). During 2007 there have been significant falls in the share prices of house builders down between 40-50% from their peaks – as of the date of this paper they trade as a group at a level close to net asset value.

Candidates for investment

After a good deal of acquisitive activity amongst the top 3 firms and recent changes in management from long-term/founders it is considered that Taylor Wimpey, Persimmon and Barratt Developments do not make attractive potential candidates. They have increased the years of land bank held and increased their financial leverage following acquisitions. Their focus on particular geographies is significantly diminished and it is considered that a housing recession could cause a disproportionate level of damage to their businesses as a result – based on examination of firms in the previous two housing recessions in ‘74 and ’89.

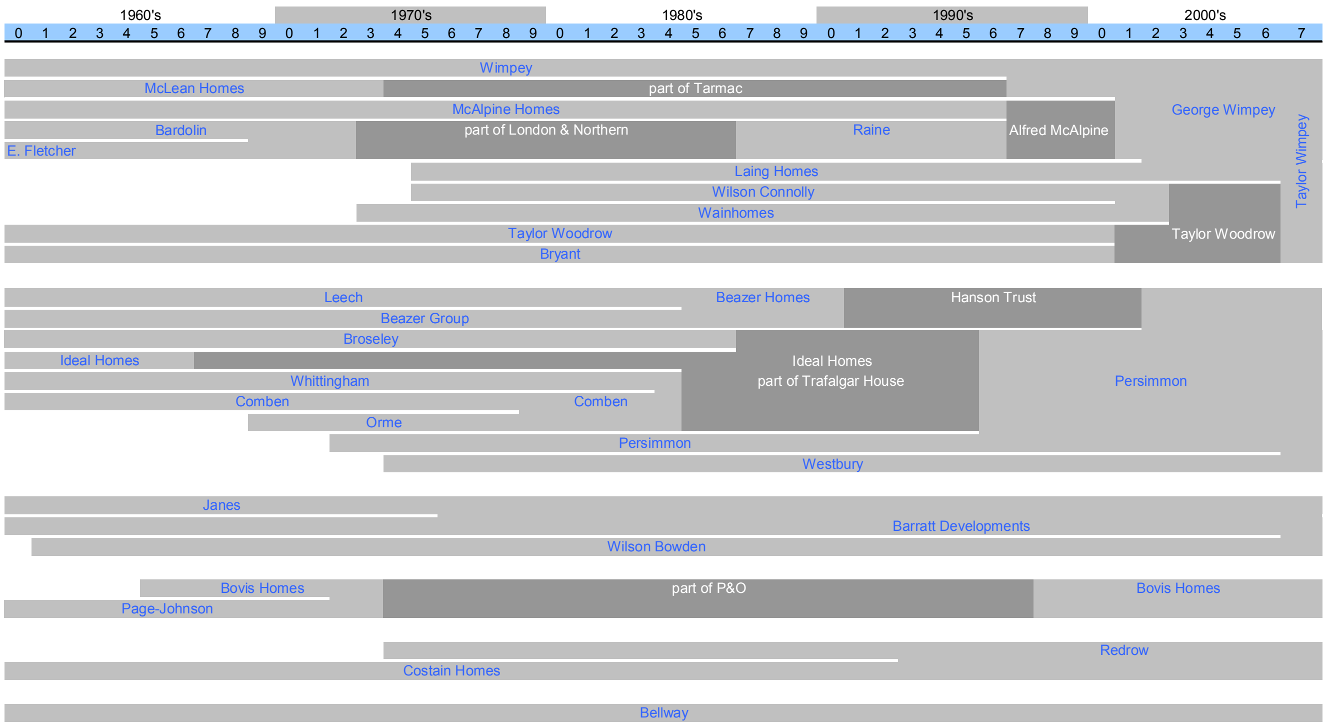
Second-tier listed house builders of sufficient size include Bellway, Bovis and Redrow – it is considered that these firms have the greatest potential to be acquirers of distressed land selling by the top 3 firms and others at such a point in time that land prices fall. None of the firms has seen significant increases in their land bank years held and all have increased their completions by between 4-5.5% per annum.

It has been previously noted that long management tenure is of significant advantage in both extrapolating previously achieved results and is a factor linked to a higher level of return through recessionary periods in the housing market – in this regard Bellway has the best record followed by Bovis and trailing with a somewhat less experienced management team, Redrow. This can be seen in the appendix chart. It is considered that these 3 firms make better candidates for a future investment under the conditions previously described and a brief summary is included below:

							Average Returns on Equity	
Firm Name	Year End	Completions	Net Assets	Net Income	Price/Book	P/E	1998-Current	1992-1997
Bellway	30 Jun 2007	7,638	£1,036m	£164m	1.1x	7.2x	18%	13%
Redrow	30 Jun 2007	4,823	£578m	£84m	1.0x	7.0x	21%	15%
Bovis	31 Dec 2006	3,123	£678m	£95m	1.1x	8.0x	16%	n/a

							Land Bank	
Firm Name	Ticker	Share Price	Shares O/S	Market Cap	Dividend	Yield	Current	Strategic
Bellway	BWY	1023p	115m	£1,178m	43p	4.2%	3.1yrs	2.8yrs
Redrow	RDW	371p	160m	£594m	16p	4.2%	4.3yrs	5.1yrs
Bovis	BVS	634p	120m	£758m	33p	5.1%	4.2yrs	7.9yrs

Chart showing acquisition activity amongst noted firms



Management History at Redrow, Bellway and Bovis