

The Housing Sprint
Finance for Housing in England:
money and the market, investment, affordability and tenure

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Abstract

The housing crisis in England is characterised by rising house prices, unsatisfactory living conditions and (for many) the unattainable dream of owning a home. Policymakers have recognized this crisis, and focussed on a lack of new housing supply as the primary problem, deciding to tackle the complicated housing crisis with a policy resolution to build 300,000 affordable homes a year, according to the government's housing white paper in 2017.

This will require land; the skills needed to develop successful communities; and finance. In this report, we set out to examine where the money might be found. The questions we set out to address are as follows.

- How much private capital will be available over the next 10 years to develop and invest in housing in England? Is there enough private sector/third sector capital available to pay for 300,000 new homes a year?
- Will the available capital build the homes for which there is a demand? What is the likely distribution of privately-funded housing by housing type and geography?
- How much of this capital will be employed in land acquisition? If land were acquired at agricultural values, what would be the implications for the number of homes that could be produced?
- What is the likely distribution of privately-funded housing by tenure type? What are the likely mismatches? What innovations are most likely to increase the supply of new homes? What new forms of tenure would help affordability? What is the likely future role of alternative finance?

Our report suggests that a shortage of permitted land is a bigger constraint to building an extra 100,000 homes a year than is the unavailability of finance. In this paper, we find that around £19-25bn of capital is needed to build the extra homes. With moderate reforms and encouragement, UK institutional investors are the natural providers of equity capital, although it has to be noted that almost all of their appetite would be for rental housing, both privately rented and social/affordable. It is possible to envisage the necessary capital being made available, making the large assumption that UK investors will continue their expansion into the residential markets from negligible levels in 1990, and 7.5% today, to the global norm of around 20% or the US figure of 25%. In order for this to happen, some reforms and innovations will be helpful or perhaps necessary.

Focussing on investment into the broad rental market will have bigger positive impact on the housing shortage – especially the shortage of affordable units - than will focussing on owner-occupation.

To support more construction for owner-occupation will require help for SME builders, who are currently at a commercial, largely finance-based, disadvantage relative to the excessive concentration of large housebuilders. Existing tax breaks and financial support packages for owner occupiers may be necessary to support a market which is so difficult to access given current shortages and high price levels, but some policy support for professional rental investors would release liability-driven and annuity funds into the social and PRS sectors alongside specialist rental property funds encouraged particularly by the returns achieved by student housing investors.

In particular, this requires a government commitment not to change social rent indexation or rent levels. This might require an independent housing body to manage this imperative, free from political interference. Less radical would be a scheme for the government to sign long over-riding leases for social housing, as is the case in Ireland. This would produce an irresistible indexed bond-like investment priced in the current interest rate environment at huge multiples of rent, say 50 times (a 2% yield). Also, the re-direction of debt-financed local authority borrowing to affordable housing would almost certainly be of benefit to all interested parties.

Under-utilized homes can be part of the solution to the housing crisis. Policy measures are needed to start to free this up, and private sector innovations can help. Equity release products are designed to allow older people to remain in their homes despite a lack of financial wherewithal need for maintenance or living costs. We need a set of measures which encourage movement.

Around £19-25bn of capital is needed to build the extra homes. We estimate that potential annual institutional funding will be available at somewhere between £5bn and £18bn. There will be additional potential international investment flows of up to £3bn, and some private savings will also be attracted to the rental sector. The use of reasonable (25% loan to value) debt on top of these equity commitments would reduce an annual capital requirement of £19-25bn to an annual equity requirement of £14-19bn.

Given typical annual transaction volumes in the UK of around £50bn annually (RCA, 2019), plus Cushman and Wakefield of around \$500bn of new capital targeting real estate globally, an annual requirement of around £14-19bn seems just about achievable, but only at a stretch, requiring both the continued attractiveness of the UK as a destination for capital and the appropriate policy encouragement.

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1. Introduction and background: the UK housing crisis

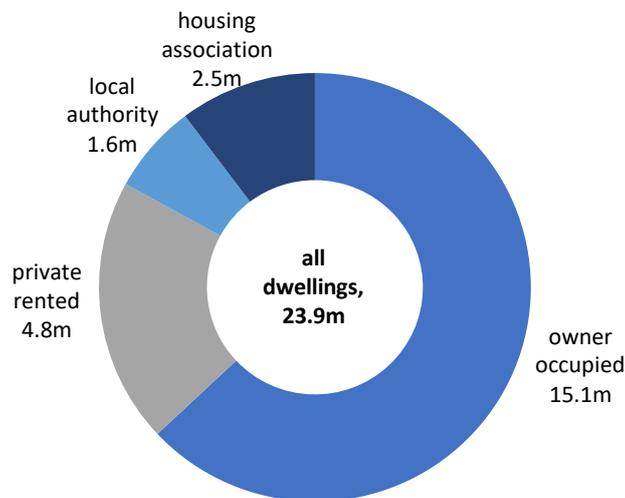
1.1 The housing stock, England and the UK

The housing crisis in England is characterised by rising house prices, unsatisfactory living conditions and (for many) the unattainable dream of owning a home. Policymakers have focussed on a lack of new housing supply as the primary problem, setting a building target of 300,000 new affordable homes a year (UK government, 2017).

According to research by Shelter (2019) and Heriott Watt University (Bramley 2018), England and the UK respectively are suffering supply shortages of 3m and 4m homes. What has led to this shortage and what is the current stock?

Figure 1 from the English Housing Survey (UK government, 2018) illustrates the ownership structure of the total of 23.9 million residential units in England as at 2017. Figure 2, from the same source, shows how households have moved between these tenure types.

Figure 1: dwellings by tenure, 2017

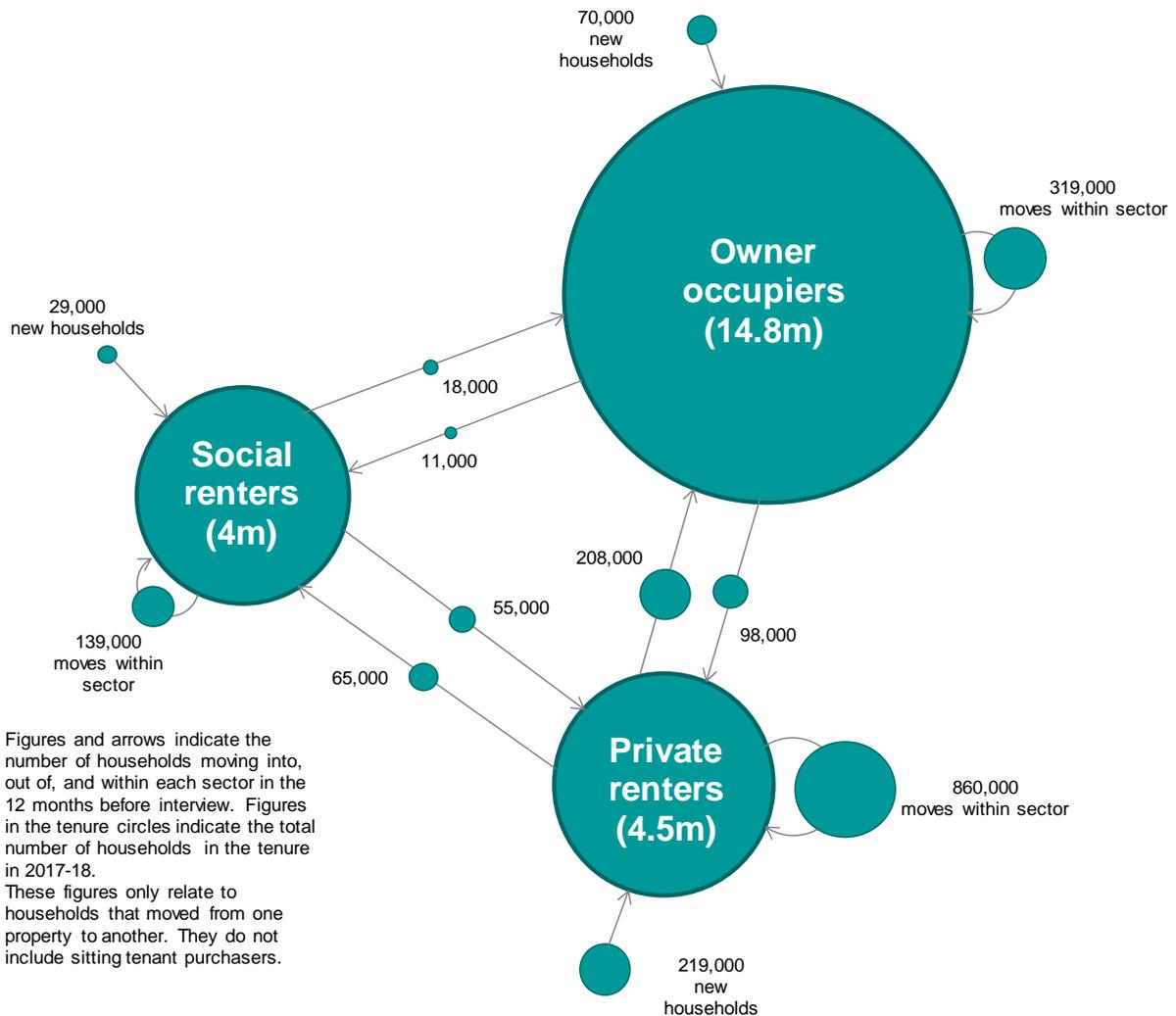


Source: English Housing Survey 2017/2018

We can see in Figures 1 and 2 that the majority of the units (63.5%) are owner-occupied, and the second most significant portion (19.5%) is private rented homes (known as PRS), which are likely to be owned by individual households (known as buy to let) or managed by property companies, REITs, asset managers and funds acting on behalf of investors. Social housing (17%) is managed by registered providers include local authority landlords and private registered providers (such as not-for-profit housing associations and for-profit organisations).

Figure 2: household moves by tenure, 2017-8

Household moves, by tenure, 2017-18



Source: English Housing Survey 2017/2018

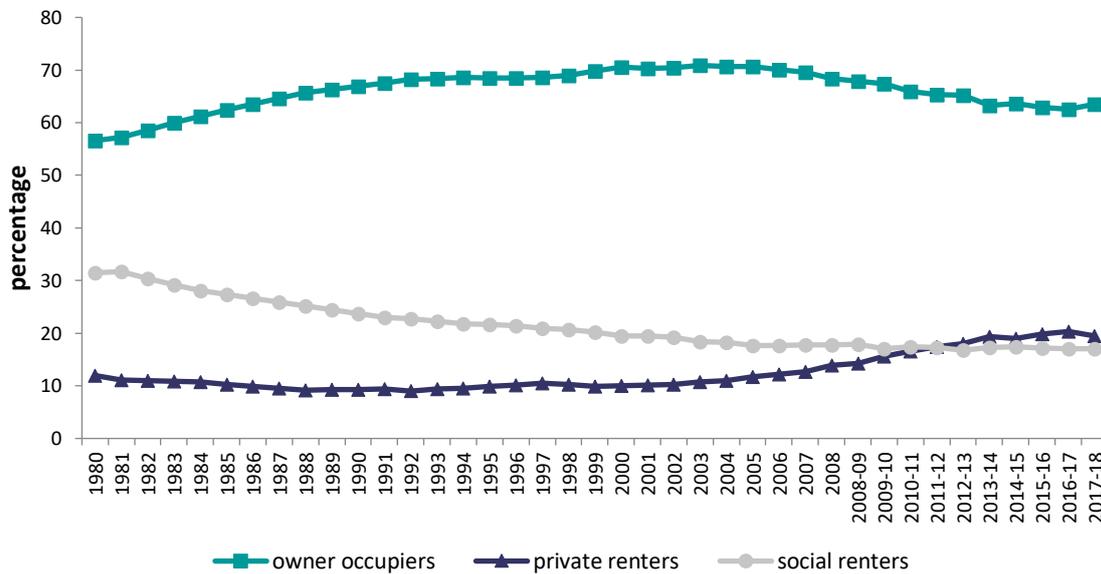
In Figure 3, we show the trend of housing ownership according to the same English housing survey data over the past four decades.

The long term trend of homeownership in the UK housing market is indicative of a developing housing crisis with three sub-texts. First, an increase in private renters at the expense of homeowners perhaps illustrates changes in preferences towards renting but is certainly affected by the unaffordability of homes in certain UK regions. The Deutsche Bank Long Term Asset Return Study (Deutsche Bank, 2018) suggests that UK house prices have risen on average by 3 per cent a year in real terms since 1939 (a total of 834 per cent). But before that they mostly fell — 50 per cent in real terms from 1290 to 1939.

Second, an inability to transition out of renting (either social housing or private sector housing units) puts pressure on the availability of the relatively more affordable housing for the ones who genuinely need it.

Finally, the decline of social housing tenure due to a shortage of social housing supply has certainly led to more homelessness.

Figure 3: trends in housing tenure, 1980 to 2018



Source: English Housing Survey 2017/2018

We can see from Figure 3 that owner-occupation peaked in the early 2000s and has been on the decline in recent years. Meanwhile, the private rented percentage has gone up substantially since 2000.

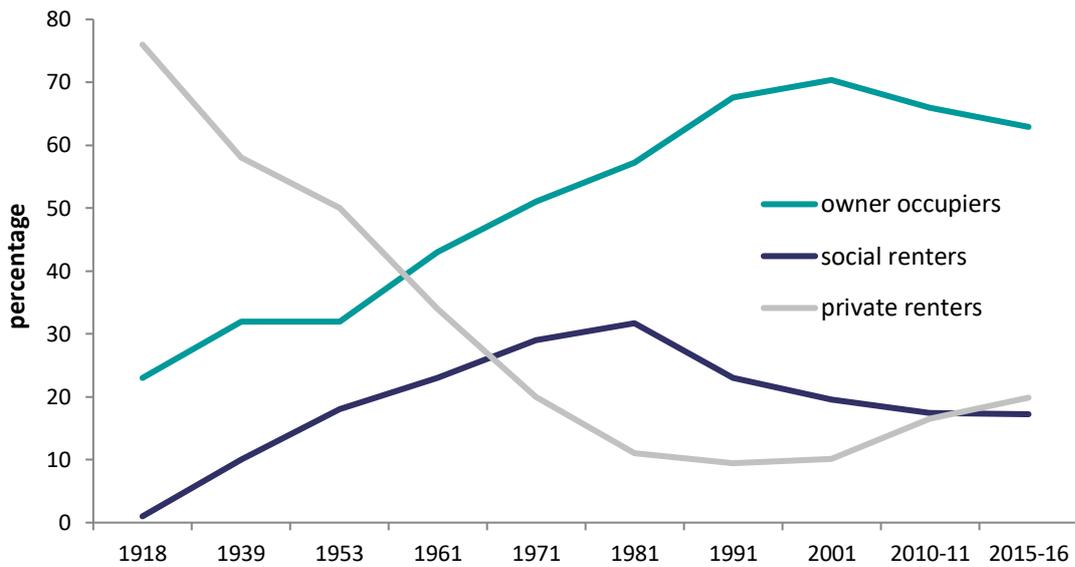
We should perhaps be happy to see a decline in the number of households living in social housing. However, given the recent increase in numbers of homeless people in the UK (UK government, 2017c) the decline of social housing tenure is likely to be at least partly due to a shortage of social housing supply instead of betterment of housing conditions for less fortunate people.

Meanwhile, homeownership has become less and less affordable for modern generations in the post-crisis economic era (Office for National Statistics, 2018). The homeownership percentage in 2018 is the lowest since 1985 – see Figure 4.

Compared with the other European countries, the UK has dropped to the lower end of the spectrum in terms of homeownership, only slightly above historically low homeownership countries such as Germany and Austria (see Figure 5).

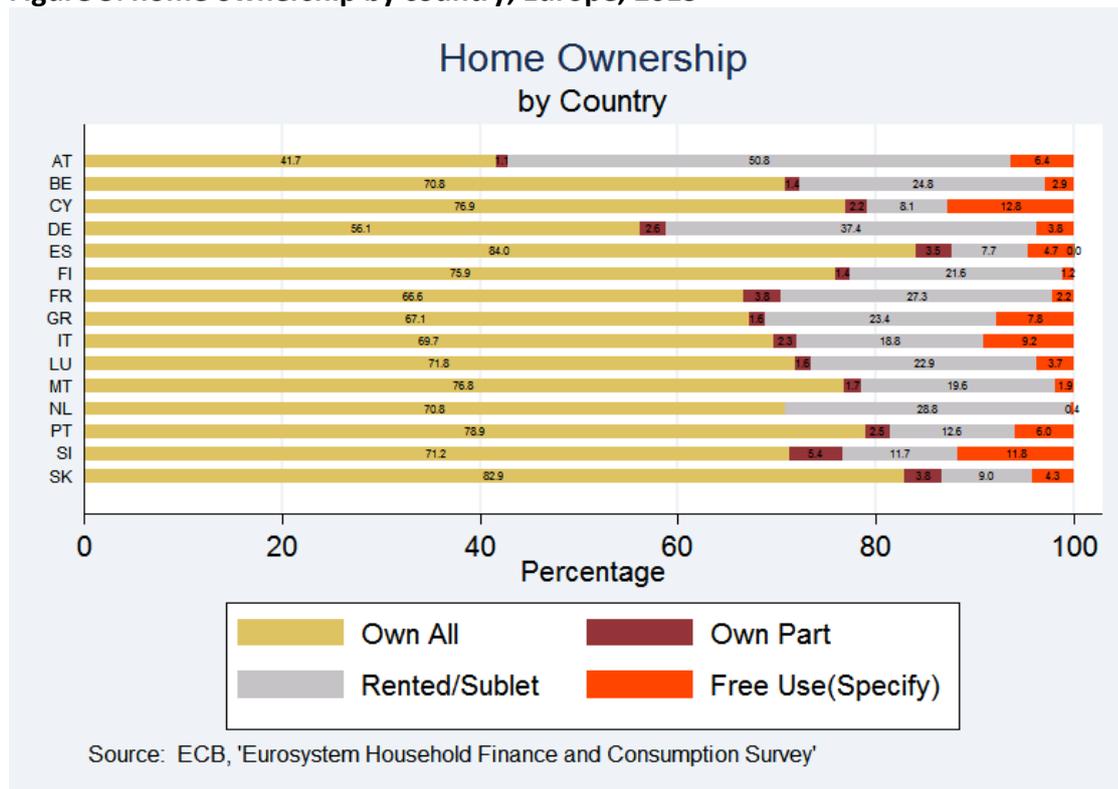
Although there is no theoretical consensus as to which level of homeownership is the best for an economy, homeownership is generally regarded as a welfare-improving finance decision. Investment in housing equity is often the main opportunity for households to invest and accumulate wealth for retirement.

Figure 4: trends in housing tenure, 1918 to 2016



Source: 50 years of the English Housing Survey

Figure 5: home ownership by country, Europe, 2013



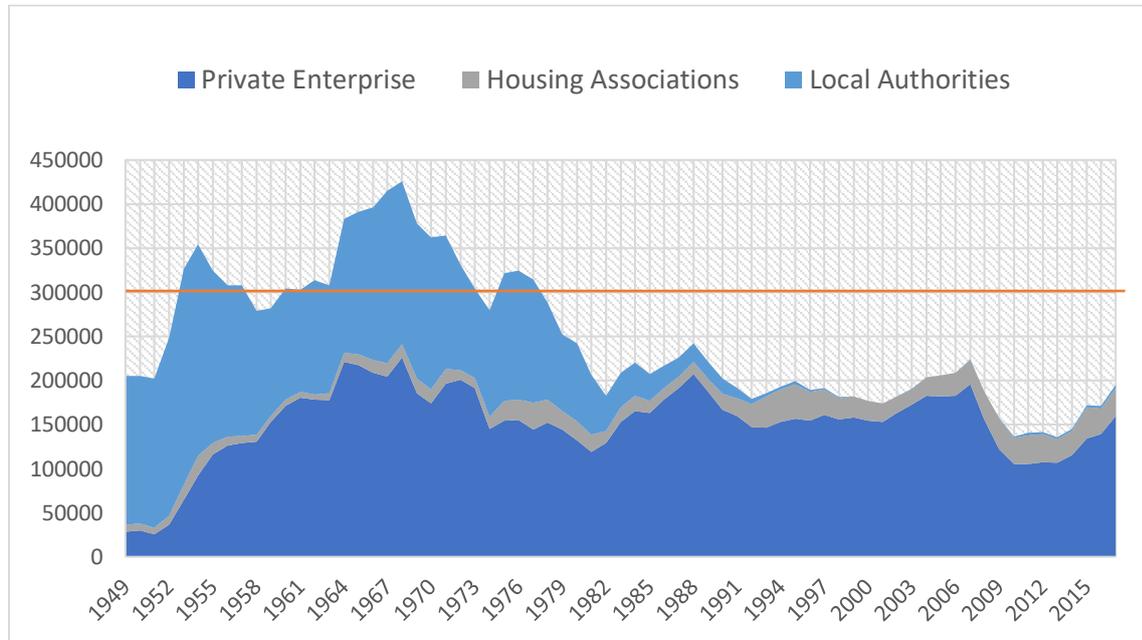
Source: ECB, 'Eurosystem Household Finance and Consumption Survey'

Considering typical life expectancy, the welfare improvement of investing in housing assets early on is very significant. It is generally helpful to encourage young households to homeownership early on, as this can have a substantial ripple effect in improving many other social, economic conditions of society. For instance, home equity investment is often a forced saving that can often bring capital gains later on, which in turn helps the households to be more financially robust and resilient so that they do not fall into the social safety net as often once hit by negative income shocks like temporary unemployment.

1.2 The UK housing crisis

The UK housing crisis is complicated with more than one cause. We can focus on a lack of supply; the cost and availability of credit; the poor distribution of housing; the poor quality of housing; and weak effective demand.

Figure 6: house building: permanent dwellings completed



Source: 50 years of English Housing Survey (UK government, 2018)

Figure 6 shows that building completion has been below average in the past three decades and it has been especially low in the past decade. Local authorities have almost disappeared as contributors to affordable housing supply due to local budget restrictions.

Housebuilding activity has recovered slightly in recent years. However, it remains significantly below the 300,000 houses a year target set by the government green paper in 2015 (marked as the red horizontal line in the chart). In section 3 we will discuss how much finance would be required to fill the gap between what we are building already and the target.

Research conducted by Heriot-Watt University (Bramley, 2018) suggests that England's total housing need backlog has reached four million homes. A new approach is needed to address this shortage, in order to provide a home for homeless people, private tenants spending huge amounts on rent, children unable to leave the family home, and couples delaying having children because they are stuck in unsuitable housing.

To meet this backlog and provide for future demand, the Heriot-Watt research suggests that 340,000 homes need to be built in England every year until 2031, significantly more than the Government's target of 300,000 homes annually. If we were to accept the results of this study, we are even further behind than we previously thought.

We can see from Table 1 that in the past ten years England has never delivered more than 200,000 homes a year. To make matters worse, before the recovery of house building in the

past three years, home completion in the early years of this decade was around half of the current target. This has led to the accumulated deficit of around 4 million homes.

Table 1: number of dwellings completed in the recent years, by tenure

	Private Enterprise	Housing Associations	Local Authorities	All
2008	155,100	31,590	630	187,320
2009	121,500	34,790	840	157,130
2010	105,250	29,380	1,360	135,990
2011	105,450	32,190	3,100	140,710
2012	107,670	31,400	2,510	141,580
2013	106,760	26,750	2,080	135,590
2014	115,060	27,930	2,150	145,140
2015	134,320	34,960	2,730	172,020
2016	138,980	29,090	3,290	171,350
2017	159,220	32,320	3,280	194,830

Source: UK government, 2019a

If we assume the current trend of house building to be steady at around 200,000 houses a year, we need at least 100,000 additional houses completed every year to meet the target.

We have seen that the private enterprise has been consistently building more houses every year since 2010. Given the right incentives in place, we should expect them to keep building more houses. The sector that really needs to catch up is the social and affordable sector, led by housing associations and local authorities.

Given the acute housing crisis, with a rising number of people being homeless and in overcrowded conditions, simply building 100,000 additional homes each year will not meet this need – we need the right types of homes in the right locations. Bramley (2018), supported by a National Housing Federation press release (NHF, 2018) and Savills (2019) research advocates that 145,000 of the annual targets of 300,000 new homes must be affordable homes. This means that around half of all new homes built every year must be affordable – but in 2017, only around 23% of the total built were affordable homes.

To put this in perspective, in recent years housing associations are only building 30,000 homes on average every year, which means an average deficit of 115,000 homes every year. If we were to use the NHF affordable homes target alone, we would reach the Government's target without providing any additional incentives to private enterprise.

The same research also breaks down exactly what type of affordable homes are needed: it suggests that 90,000 units should be for social rent; 30,000 units should be for intermediate affordable rent; and 25,000 units should be for shared ownership.

Therefore, the main challenge for the broad housebuilding sector is to how to efficiently finance housing associations and local authorities in building more affordable housing units.

Regional variations

It is important to regard the UK housing crisis as the combination of many problems with different regional and demographic impacts. For instance, the lack of supply is the largest problem in London and South East England; other parts of Britain, such as Northern England and Scotland, are over-supplied. This report also points out the poor distribution of the existing stock of houses, with overcrowded houses for the poor and under occupation for the better off and the elderly. A housing policy that applies to all of the UK with no respect for regional and local housing issues would be inappropriate.

The shortage of affordable housing

A short report published by the charity Shelter (2019) quantifies the severe housing supply shortage and measures unmet housing need. 1.3 million homes are needed to cure homelessness, over-crowding and poor conditions.

Table 2: unmet housing need

Homeless in temporary accommodation	79,900
Rough sleeping and hidden homelessness	128,000
Overcrowded	240,000
Living with poor conditions in the PRS	631,000
Ill health/disability	194,000
TOTAL	1,272,900

Source: Shelter (2019)

Younger trapped renters in the private rental sector

According to Shelter, a further 1.2 million homes would be required to address the anticipated increase in lower income young households who are not expected to be able to afford home ownership in their lifetimes. This portion of the population should expect to move up the housing ladder and into owner-occupied homes to free up the affordable housing supply. However, due to slow economic growth and rising house prices (partially due to under supply), younger generations find themselves unable to purchase a home.

Table 3 illustrates the Shelter projection of the trapped renter problem.

	Age 25 (observed)	Age 30 (observed)	Age 35 (predicted)	Age 40 (predicted)	% increase in trapped renters compared to baby boomers
Baby-boomers: observed homeownership	31%	52%	63%	69%	-
1986 cohort: pessimistic projection	10%	28%	43%	43%	25pp
1986 cohort: optimistic projection	10%	28%	49%	56%	13pp
Mid-point between optimistic and pessimistic projection	10%	28%	46%	50%	19pp

Source: Shelter (2019)

Older renters in the private rental sector

Finally, to house older (aged 55 and over) households on lower incomes in the private rented sector would require 690,000 homes. Those older renters quickly lose their ability to pay a market rental price due to retirement or lack of savings.

If all these needs were to be addressed through social housing over a 20-year period, 3.1 million social homes would be required. This calculation - roughly 150,000 additional social housing units per year - is way more than the government’s estimation.

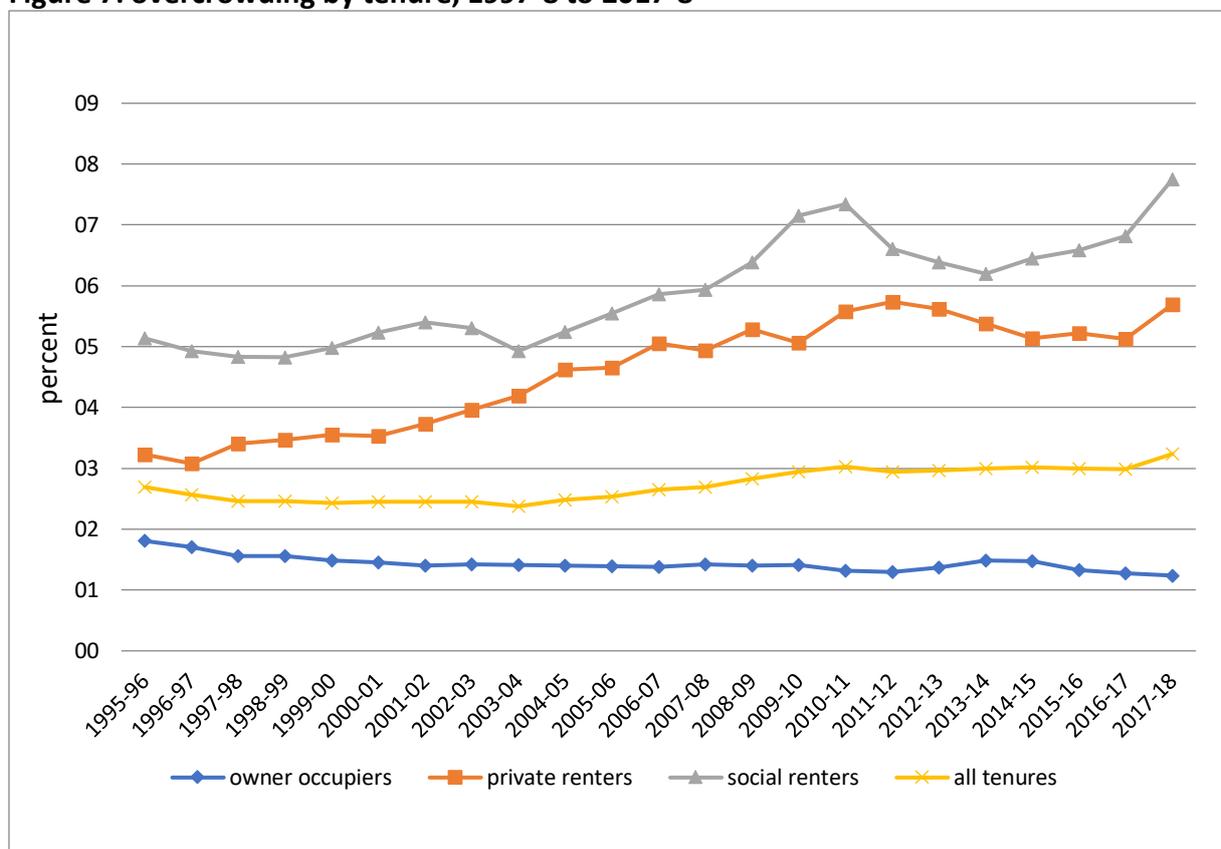
Overcrowding and the misallocation of resources

While the lack of affordable housing units is the main issue, some other critical housing conditions have also been exacerbating over last decade. One of the issues is overcrowding. This is likely due to higher house prices and the sub-letting of rooms; higher rents for private renters and the rent to rent market; or a shortage of social housing.

Overcrowding is essentially the difference between the number of bedrooms needed to avoid undesirable sharing (given the number, ages and relationship of the household members) and the number of bedrooms available to the household.

Figure 7 shows the overcrowding trend over last 20 years (English Housing Survey, 2018). We can see that the percentage of overcrowded households in the private rented and social rented sectors has risen from 3% to 5%, and from 5% to 8%, respectively.

Figure 7: overcrowding by tenure, 1997-8 to 2017-8



Source: English Housing Survey 2017/2018 (UK government, 2018)

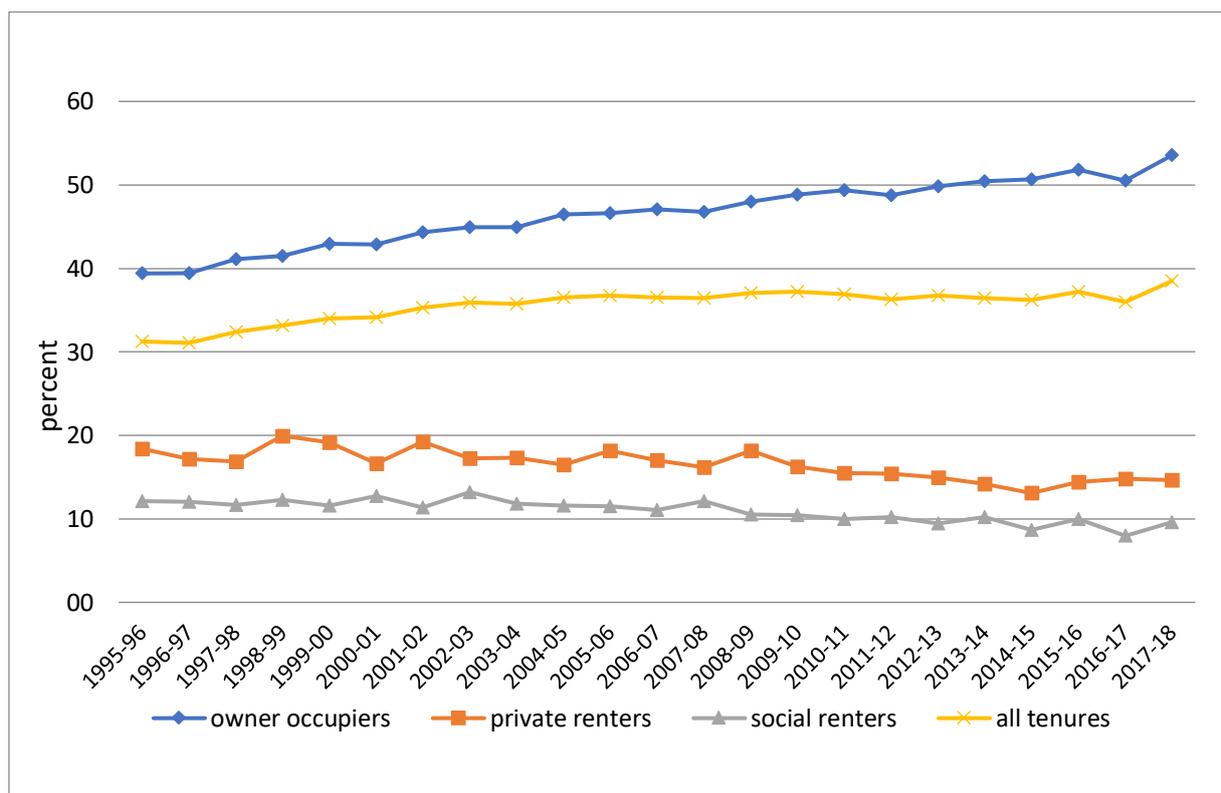
Under-occupancy

According to the English Housing Survey the severe lack of affordable housing is coupled with under-occupancy for wealthier and older homeowners. Figure 8 shows that under-occupation has been increasing in the UK’s owner-occupied sectors.

Wealthier white households who own a home are more and more likely to own a house bigger than they actually need (see Figure 8). This may be explained by investor speculation, as many households buy bigger and additional houses for capital gain. However, under-occupation is also likely to be explained by older households and empty nesters not wanting to reduce their housing consumption. Older households are likely to live in much larger houses than they actually need. This may be the result of living habit inertia, attachment to the community and preserving rooms for possible family reunions.

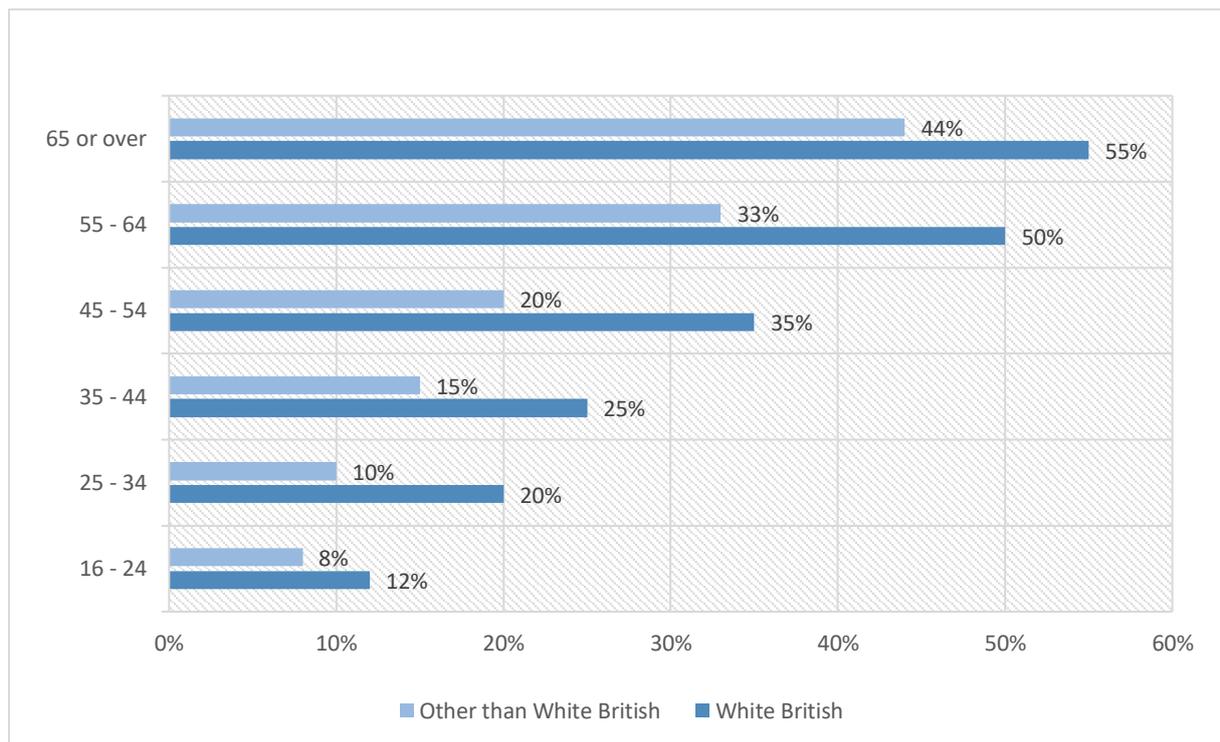
However, this phenomenon also indicates that housing investment is very lumpy and sticky. Those under-utilized homes can potentially be part of the solution to the housing crisis.

Figure 8: under-occupation by tenure, 1997-8 to 2017-8



Source: English Housing Survey 2017/2018 (UK government, 2018)

Figure 9: under-occupation by age and ethnicity, 2014-5 to 2016-7



Source: English Housing Survey 2014/15, 2015/16 and 2016/17 (UK government, 2018)

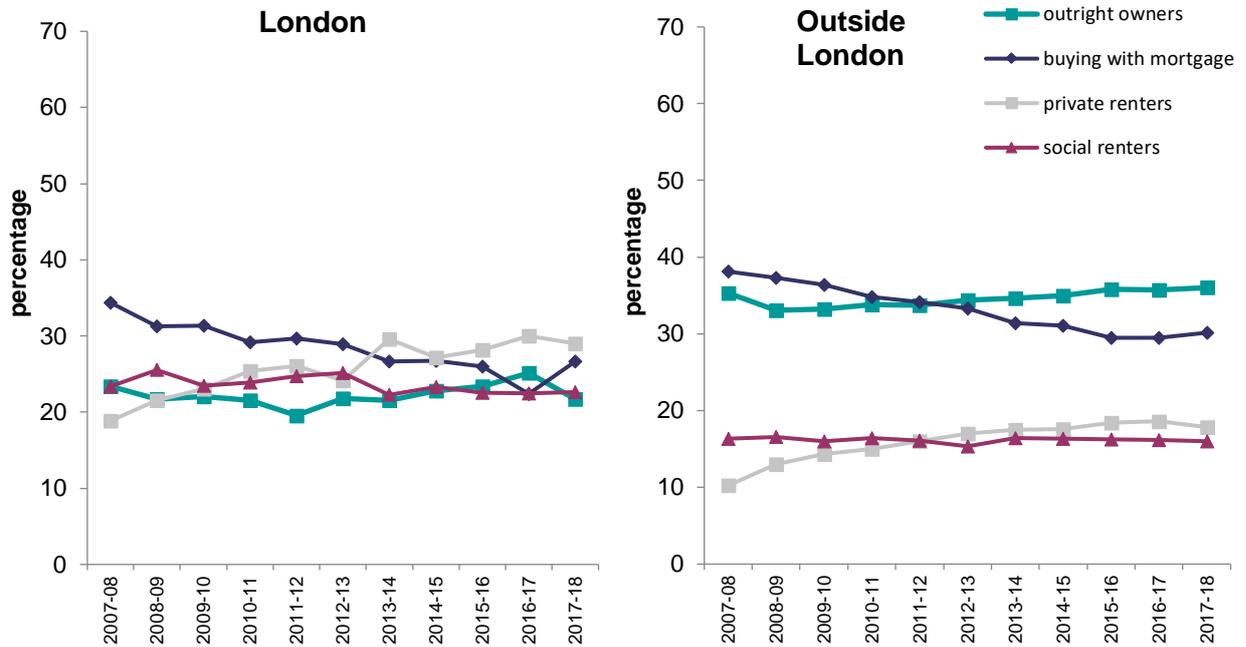
One England, two housing markets

The London housing market is substantially different from the rest of England and the UK. As the capital of the country and the financial capital of Europe, London is the most densely populated city in UK with many high wealth and high income working people. As the city is mature and fully developed, it is hard to find new sites for new housing supply.

It is necessary to consider the locational difference between London and the rest of the UK. We are very likely in need of two separate plans to deal with the housing crisis in these two different markets. For instance, London has a significantly different housing tenure structure with many more private and social renters and much lower ownership, as shown by Figure 10.

So it is clear that more homes are needed, mainly affordable, and London and the south east present a particular challenge. How does the supply side – the housebuilding sector and rental housing investors – think about the economic challenges and opportunities presented by owner-occupation, social and affordable homes, and the private rented sector?

Figure 10: Housing tenure, by region, 2007-8 to 2017-8



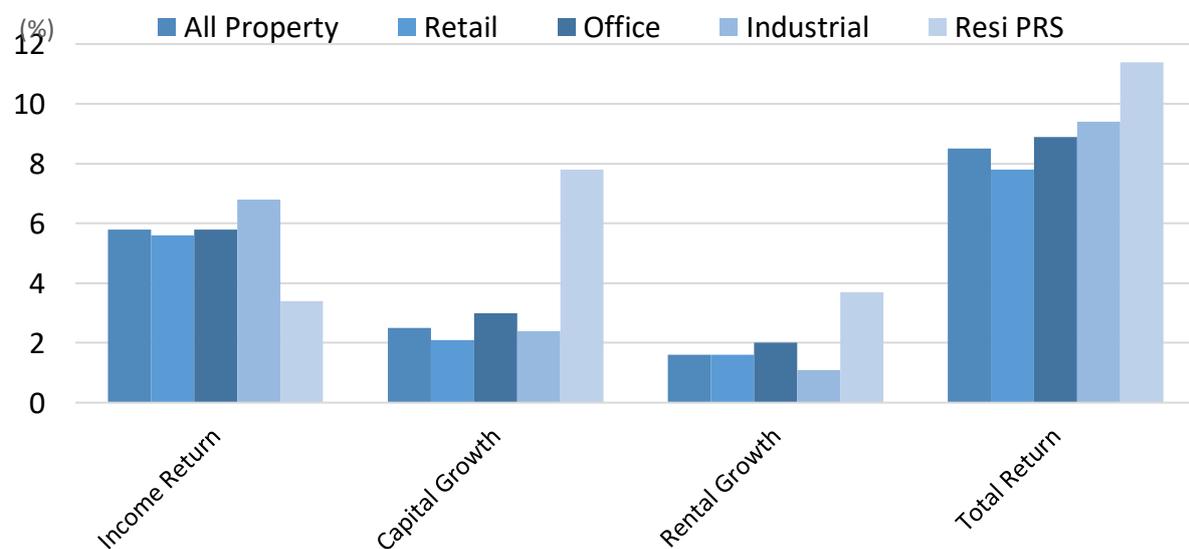
Source: English Housing Survey 2017-2018

2. The economics of residential development and investment

2.1 Introduction

The UK residential sector has been the best long-term performing UK real estate asset class over a long period (see Figure 11). It has also been the least volatile, and has been less correlated with the equity market, providing better diversification (Figure 12).

Figure 11: UK real estate asset class performance 2000-2017



Source: MSCI, PFR

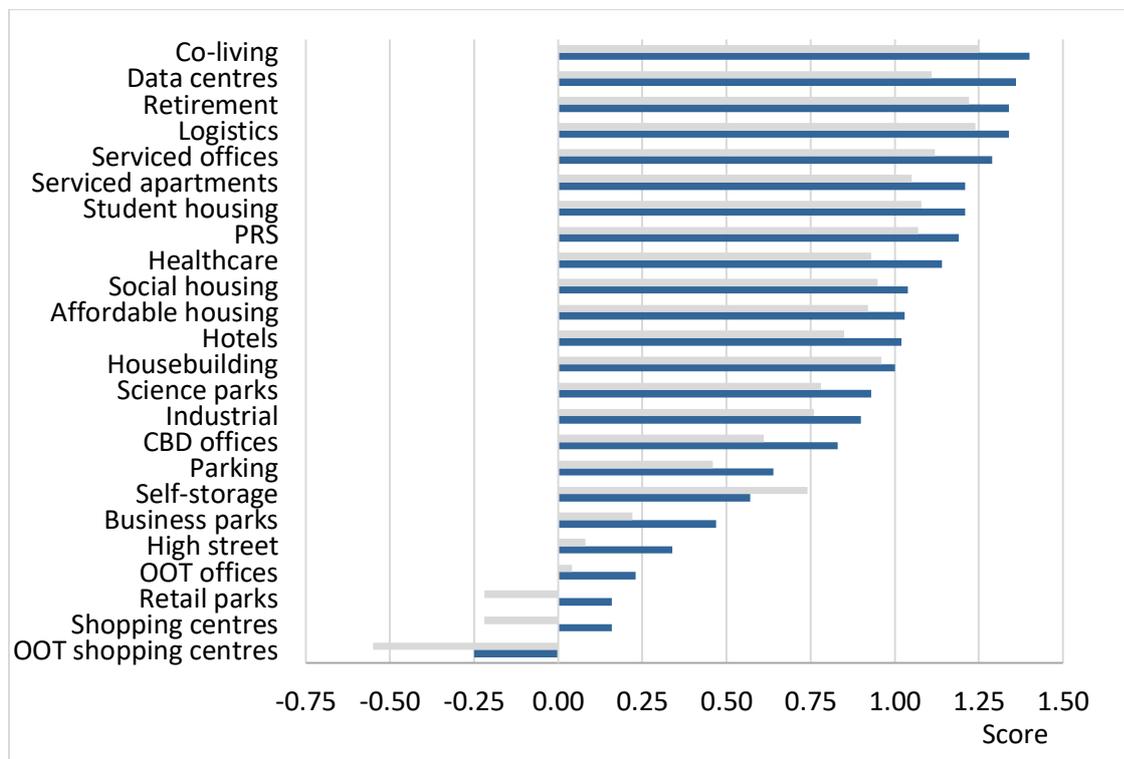
Figure 12: UK asset class correlations, 1990-2017

Correlations	Residential	Equities	Gilts	Commercial
Residential property	1			
Equities	0.26	1		
Gilts	-0.04	-0.06	1	
Commercial property	0.71	0.51	-0.21	1
Average total returns (%pa)	11.75	9.42	5.01	8.49
Historic volatility (Std Dev - %)	7.98	20.15	2.45	9.4

Source: MSCI, PFR

The only negative in this track record is the low net income return. As commercial property yields have dropped, this has become less of a relative problem. It is unsurprising, therefore, that investors are highly attracted to this asset class – see Figure 13, which reports the sector preferences among real estate investors as measured by the annual ULI Emerging Trends Survey at the end of 2018. Retail and office sectors are all less attractive to investors than co-living, retirement homes, serviced apartments, student housing, the private rented sector (PRS), social housing, affordable housing and hotels.

Figure 13: Real estate sector preferences, 2018



Source: ULI/PWC 2018 (Emerging Trends)

Co-living, retirement homes, serviced apartments, student housing and hotels are niche sectors. The housebuilding, private rented (PRS) and social rent sectors offer the greatest opportunities for bed-related investment at scale. Yet the challenge for investors interested in the rental residential sectors has always been how to assemble portfolios of rental housing

of sufficient size. A single office building or shopping centre can be worth £1bn; the average UK house price is £228,903 (HM Land Registry, 2019).

2.2 Build to sell: the economics of development

Of the residential- or beds-related sectors in the ULI survey, only housebuilding (build to sell) is in the lower half of the table. This is because institutional investors have a strong preference for longer term, income generating real estate, and for many building to sell is not an investment activity. This separation between the build to sell (housebuilder) market and the build to rent (BTR) markets is justified by very different economics and finance issues.

Table 4 illustrates the highly simplified economics of build to sell. A London or prime south east housing development might sell for £750 per square foot. At a construction cost of, say, £300 per square foot, and subject to a profit for the developer of 20% of building costs, a land price of up to £390 per sq ft might be justified.

If one acre supports 20 houses of 1,000 sq ft, this would suggest land values of as much as £7.8m per acre. However, no developer in this hypothetical situation would be likely to bid such a price, which would be discounted for several factors, including finance costs and risk. In particular, the risk of housebuilding could be very great. If a housebuilder buys land, he/she is likely to incur a variety of risks including planning, site preparation, construction and sales. Non-professional housebuilders are at a double disadvantage. Housebuilders engage in manufacturing (how efficient is their process?) and speculation (how strong will a volatile end-user new housing market be in the face of changing interest rates, mortgage availability, confidence and so on?).

Table 4: the economics of build to sell

Value psf		£750.00
Build cost psf		£300.00
Profit as % of cost	20.00%	£60.00
Land value psf		£390.00

Logic suggests that professional housebuilders will have a greater chance of success by (i) cutting down risk; (ii) efficient financing; (iii) an efficient manufacturing process; (iv) careful management of the end user market; and (v) maximising value per unit of space.

The UK's biggest housebuilders are accused of squatting on a dragon's hoard of land, restricting the number of homes built so they can reap the reward of higher prices. "*Careful management of the end user market*" might be seen by some as a euphemism for land hoarding. In 2018, Prime Minister Theresa May implored developers "*to do their duty to Britain*" and build more homes. Most businesses have an interest in selling more of the things they make. Not so housebuilders, as increasing sales under pressure means selling at a lower price than planned, as pointed out in the Letwin report (UK government, 2018).

Table 5 shows the top 10 housebuilders' profitability in 2017/2018. Recent profitability has been high. It is easy to suggest that government-prompted demand side measures (see

Section 4) have boosted end-user demand and prices, benefitting landowners including housebuilders with land banks.

Berkeley Group stands out in the chart as achieving the highest average selling price, average pre-tax profit and average cost per home. This is mainly due to the fact that Berkeley Group operates only in the London area.

The larger listed housebuilders are likely to hold significant advantages over smaller build to sell developers and SMEs. They can achieve this advantage by using their brands and experience to maximise values; developing efficient processes; and using their credit rating to achieve efficient financing. The latter, in particular, is a true differentiator. Housebuilder financing at its most simple involves buying land, holding it and hoping house prices rise over time. Housebuilder financing at its most efficient involves the use of optioned land banks and trade finance to reduce inventory costs and delay construction outlays.

Table 5: top 10 housebuilders' profit per house sale (2018)

Housebuilder	Average price (£)	Homes sold	Pre-tax profit per home sold (£)	Average Cost per home (£)
Barratt Developments	313,100	17,395	47,387	265,713
Taylor Wimpey	264,000	14,541	57,328	206,672
Persimmon	213,321	16,043	60,219	153,102
Berkeley Group	715,000	3,536	220,475	494,525
Bellway Plc	260,400	9,644	59,265	201,135
Redrow Group	309,800	5,416	59,453	250,347
Galliford Try	354,000	3,890	47,609	306,391
Crest Nicholson	340,000	2,935	72,095	267,905
Bovis Homes	272,400	3,645	35,125	237,275
Bloor Homes	300,000	3,023	52,002	247,998

Source: www.building.co.uk

Table 6: Top 20 homebuilders by housing turnover (2018)

2018	2017	Company	Total turnover (£000)	Change on 2017 (%)	Pre-tax profit (£000)
1	1	Barratt Developments	4,650,200	9.8	765,100
2	2	Taylor Wimpey	3,965,200	7.86	682,000
3	3	Persimmon	3,422,300	9.1	966,100
4	4	Berkeley	2,703,700	-0.73	934,900
5	5	Bellway	2,558,561	14.19	560,723
6	6	Redrow	1,660,000	20.12	315,000
7	11	Galliford Try	2,820,200	5.61	58,700
8	8	Crest Nicholson	1,043,200	4.63	207,000
9	7	Bovis Homes	1,028,223	-2.52	114,001
10	10	Bloor Homes	917,705	27.73	152,521
11	15	Countryside Properties	845,800	25.99	141,700
12	14	Cala	747,928	27.4	70,445
13	12	McCarthy & Stone	660,900	3.93	92,100
14	-	Morgan Sindall	2,792,700	9.02	64,900
15	17	Keepmoat Homes	423,199	25.7	25,435
16	16	Kier	4,282,300	4.9	25,800
17	-	Avant Homes	368,973	3.43	20,631
18	-	Telford Homes	316,241	8.33	46,308
19	20	Morris Homes	283,651	5.74	27,618
20	13	Places for People9	234,192	137.12	n.a.

Source: www.building.co.uk

The housebuilding industry in the UK has been slowly consolidating into a few very large players in the past few decades. The number of builders, especially SME builders, has dropped to a record low. Table 7 shows that the top ten housebuilders in UK produce 56% of the total turnover and a whopping 79% of the total pre-tax profit from the industry. The Home Builders Federation (2018) pointed out that SMEs in the house building industry had declined from more than 12,000 SMEs responsible for nearly 40% of all new homes in 1988, to only around 2,500 SMEs responsible for just 12% of new homes in 2017. England is now increasingly dependent on a small number of big house builders.

Table 7: Housebuilders – turnover and profit

	Turnover- recent	Turnover - previous	Pre-tax profit	Margin
Housebuilders	£43,560,176,792	£39,764,331,891	£5,997,157,795	13.77%
	100.00%	100.00%	100.00%	
Top ten	£24,769,289,000	£22,835,012,000	£4,756,045,000	19.20%
	56.86%	57.43%	79.30%	

Source: UK government, 2017

The Housing White Paper calls for more competition and innovation, more innovation in methods of construction, and support for new investors into residential development.

SME builders can often only finance housebuilding by short-term debt. Less debt availability coupled with the 2008 housing market downturn has probably contributed significantly to the reduction of small and medium housebuilders in the UK. Labour costs have increased, and the land available for residential development is scarce. Therefore, common practice in housebuilding is to obtain the building plot first and then slowly complete the building process. This requires builders to have significant capital to at hold the land. SME builders often do not have sufficient funds to secure a stable land reserve for a long sustainable pipeline. Meanwhile, larger housebuilders will use more sophisticated land financing methods including land banks acquired or optioned at historic values, delayed land payments as development proceeds, matching sales income with land payments, using fixed land prices plus overage payments if houses are sold at excess prices, and generally using their scale and expertise to make more profit and reduce risk.

A significant expansion of the supply of homes available to buy will require more efficient financing for SMEs, efficient and innovative manufacturing and (as in all housing sectors) an increased supply of land with permission to build.

2.3 PRS: investment characteristics

The economics of the build to rent sector are somewhat different (Table 8). A London or prime south east housing development might rent for £30 per square foot (although end users are unlikely to focus on this metric). At a construction cost of £300 per square foot, and subject to a profit for the developer of 20% of building costs, a land price of up to £390 per sq ft might be justified only if all of the efficiencies of a professional a build to sell operator are achieved but in addition (i) operating costs are minimised; (iii) a low cap rate is achieved on sale or valuation at completion.

Table 8: the economics of build to rent

Rent gross psf		30.00
Operating costs as %	20.00%	6.00
Net rent psf		24.00
Cap rate as %	3.25%	
Cap val psf		738.46
Build cost psf		300.00
Profit + land value psf		438.46
Profit as % of cost	20.00%	60.00
Land value psf		378.46

As the appetite among younger people shifts to high rise urban living close to work and renting becomes more acceptable, institutionally-backed PRS developers can be expected to become competitive through a lower cost of capital – pension funds being happy with 5% returns will accept 3% yields with inflation targets at 2% - and increasingly sophisticated design models for long term rental living. The US multi-family (private rented) sector has been the best

performing US real estate sector since 2007, and some of their biggest and most experienced operators (Related, Greystar) are building up UK portfolios of purpose-built to rent developments. This sector has the potential for major expansion.

While returns have been mainly driven by capital growth rather than income, cashflows from PRS benefits from income sources spread over a large number of tenants, with no large single tenant exposure and no major re-letting or renewal expenditures compared to the commercial market. The ability to adjust rental rates on an annual basis provides a viable inflation hedge, and many local authority pension funds like investing in the housing sector to combine social impact with prudent investment.

Leases are short: typically, 1-3 years. The asset class is management-intensive as the asset requires regular maintenance and occasional refurbishment. Because (unlike much commercial property) the owner is unable to delegate responsibility for repair and management costs to the lessee, an operational focus is vital. There is generally high occupancy, with a low risk of voids. It is difficult to assemble large portfolios unless development risk is taken, so the PRS sector is forcibly development-focused for large purpose-built schemes.

The demand side is strong; in a Knight Frank tenant survey (Knight Frank 2014), 32% of respondents said that they liked the flexibility of living in the private rented sector and/or they did not want a mortgage; well over a third (37%) of under-25s said that renting suited their lifestyle; and nearly a quarter of respondents said they were unlikely to ever move out of PRS accommodation. Typically, PRS tenants are characterised as being in full time employment or education; 20-35 years old; requiring an efficient commute to the workplace; not defined by income bracket; and accepting of long term tenancies (3+ years). However, the US experience shows that other age/income groups should not be ignored. Older people are turning to renting.

Figure 14: PRS providers, 2018



Source: PFR

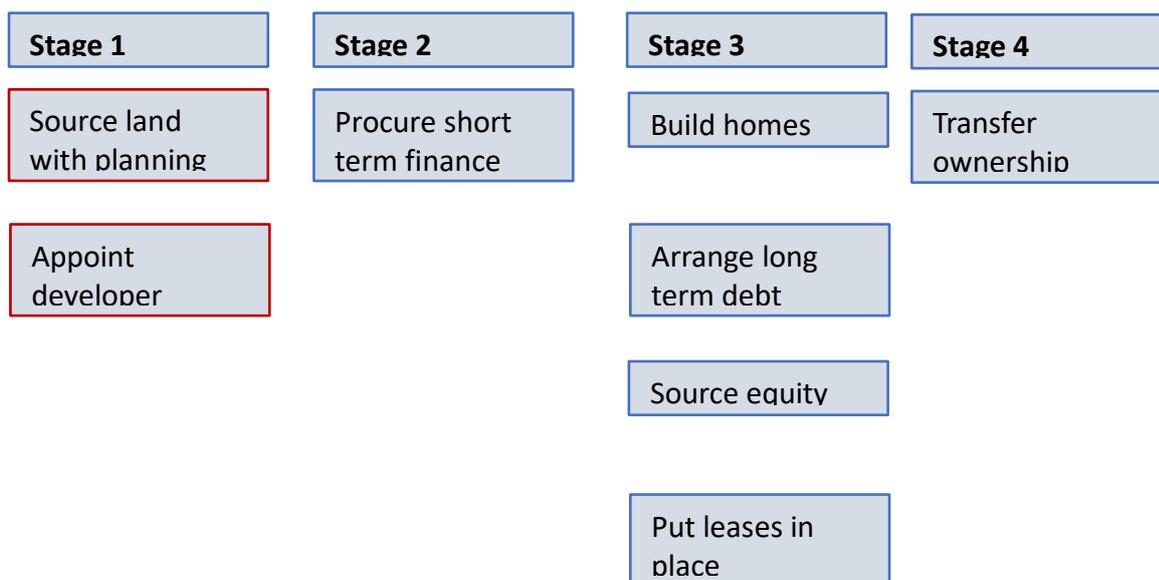
However, the PRS (or, for new stock, build to rent or BTR) sector is subject to a perceived risk of government interference, for example caps on rents or the imposition of security of tenure, as has happened under Labour governments. It also has to compete head-on for land and completed stock with the housebuilding (build to sell) sector.

The PRS and housebuilding sectors are of course closely related but in many ways very dissimilar. The return model is different, the risks are different, and the financing is different. The build to sell model is simple, and is focussed on short term profit. In a benign era for housebuilders, characterised by a housing shortage, rising house prices and land banks acquired or optioned at relatively low prices, the attractions of harvesting strong short term profits and re-circulating capital are extremely persuasive - meaning that housebuilding outbids PRS, as has broadly been the case in the period from 2009-2018.

However, when there is weakness in house prices the risk of this model is exposed. The relative risks of housebuilding and BTR are best expressed in terms of options. Housebuilders give away a valuable option to wait to harvest profits at the right time, whereas the BTR sector with the right financing in place retains the option to wait (to sell), and to sell in bulk to institutional, and other large scale, investors. The value of this option is likely to reveal itself in weaker market conditions and enable the BTR sector to compete with the housebuilders. Nevertheless, there remains a problem of scale. According to the Property Industry Alliance (2016) residential property accounts for over 70% of the real estate market; approximately 98% of PRS landlords own less than 10 properties, and there is a significant lack of aggregated stock available for institutional investors. At that time, institutional investors held less than 0.1% of the value of UK residential assets (c.£17 billion), compared to 36% of the commercial real estate market. This was expected to increase significantly over the next 0-15 years.

There is also a tax issue. Taxes are seen by some to be disproportionality applied to the BTR sector. These include mortgage tax relief and VAT, which can normally be reclaimed on the construction of new build residential unit, as the first grant of a major interest (freehold or 20+year leasehold) is deemed as a zero-rated supply. However, if a BTR scheme is developed and held by a developer/investor it is not possible to reclaim VAT on construction costs. From 2017 leveraged investors will face additional tax on rental income as tax relief on mortgage payments is phased out. This is also likely to discourage some buy-to-let borrowers.

Figure 15: the PRS development and finance process



In the UK listed real estate sector there are four housing-focussed REITS (of a total of 42 REITS) with total assets of around £4bn. These are Grainger plc, with gross assets of around £2bn and a market cap of £1.2 bn; PRS REIT, newly listed in May 2017 with current gross assets of around £1bn; Civitas, a social housing REIT with gross assets of over £800m; and Residential Secure Income REIT, which invests in social housing managed by local authorities, shared ownership housing and retirement rentals totalling £350m.

Germany has the main listed housing market in Europe; here the top three residential REITS have a market cap of €33.3 billion (and account for c. 75% of the total German REIT market).

2.4 Social and affordable housing: investment characteristics

The social housing sector has slightly different attractions to investors and developers. Again, the ability to adjust rental rates on an annual basis provides a viable inflation hedge, and the combination of social impact with prudent investment is more powerful than in PRS with organisation such as Big Society Capital raising capital for this purpose. If the purchase price reflects the discounted rent payable by tenants (the relevant metric being the net initial yield), it can be argued that there is limited vacancy risk and the RPI inflation-linked income is effectively government-backed. RPI index-linked government bonds currently (at July 2019) sell on a negative 2% yield (meaning that the total return on offer is 1% if inflation runs at the government CPI target of 2%, because CPI usually rises by c.1% less than RPI).

Figure 16: the social housing development and finance process

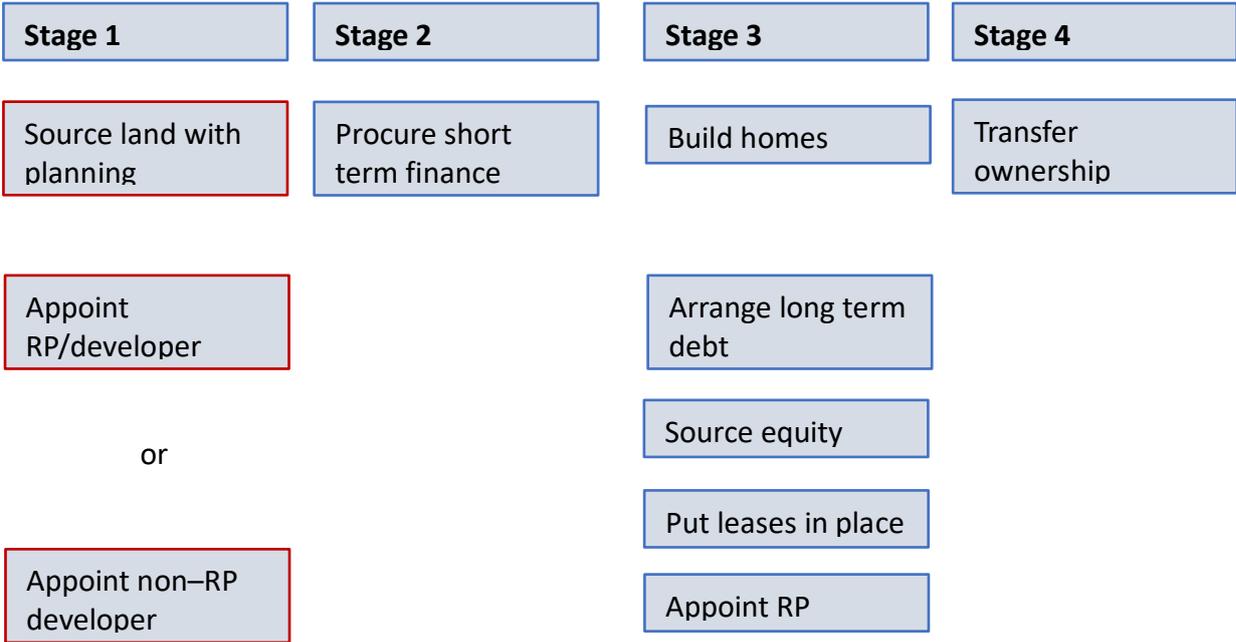


Table 9 shows that, even at a 2.5% net initial yield (where investors pay 40 times net rent to buy the asset), social housing can offer a 4.5 % return or risk premium over the government bond. If the asset is free of any default risk or any uncertainty over the government’s backing of the rent payment and its indexation, this is almost certainly too high, and the price of social housing could rise to (say) 50 times rent or even more. The relative risks would be to do with the relative lack of liquidity of the property asset, the need for long term repairs and perhaps reputational risk. A 4.5% risk premium is surely more than enough to cover this.

However, all that glitters is not gold, and social housing carries risks. The main risk is to do with government interference, exemplified by the government cutting the social rent by 1% p.a. over a four-year period from 2016 before resumption of the CPI+1% increase from 2021.

Investors are also wary of a change in government, and in particular of a more tenant-friendly regime. In addition, housing associations can no longer expect social rents to be paid directly to them by government, as universal credit (from which social rents have to be derived) is now paid to the claimant.

Nevertheless, this asset could be very attractive to investors, particularly if government were to guarantee the income stream in some way. This would permit RPs to raise very cheap finance through the bond markets, and would attract institutional equity investment (for an example, see the CBRE GI Affordable Housing Fund launched in 2018).

Table 9: UK index-linked gilt and social housing pricing

	Index linked gilt	Social housing
Net initial yield	-2%	2.5%
Indexation	RPI	RPI
Inflation delivered (CPI)	2%	2%
Inflation delivered (RPI)	3%	3%
Total return, nominal	1%	5.5%
Total return, real (CPI)	-1%	3.5%
Available risk premium	0%	4.5%

Social housing is managed, and often developed, by registered providers (RPs), usually housing associations. Under s106 agreements, commercial for-profit developers may be required to supply affordable or social housing as so-called 'planning gain'. This has been a source of stock for RPs. However, most RPs have moved away from the idea of purchasing homes from developers on the grounds of quality control, and the advantages of taking land at low prices and acting as a developer/operator are being recognised.

The economics of social housing managed by registered providers such as housing associations or local authorities relies upon subsidies for land acquisition coupled with government support for end user rent payments. Cheap land is provided by central and local government, or by private landowners and developers who have committed to a s106 (1990 Town and Country Planning Act) requirement to provide social and/or affordable housing as part of a larger development and supply part of the subject development land to a registered provider at a price reflecting its limitation to social and affordable housing uses, at say 35% of unrestricted market value.

Social housing tenants are typically out of work and claiming benefits or on low incomes and registered with a local authority. The Department of Work and Pensions pays benefits to social rented tenants to help cover the rent payment due to the registered provider.

Social rents are determined by the relevant Local Authority using a formula that varies according to regional differences in incomes and market prices as well as the quality and location of the individual units. Social rents appear to average roughly 35% of open market rents. They increase annually at CPI (consumer price inflation, usually lower than RPI) plus 1% for an initial period. However, the tenant usually occupies a unit on a lease agreement that typically ranges from 1-5 years, and following the end of a tenancy the initial rent is then re-set using the Local Authority formula.

The registered provider retains 20-30% of gross rents received from tenants to cover costs associated with the maintaining assets, rent collection, managing voids and letting units

The units cannot be sold by the fund at open market vacant possession value, as they have been designated as social rented accommodation in perpetuity.

Affordable rented housing units are let to eligible tenants who cannot afford to rent on the open market but are not eligible for social rented or council housing. The tenant occupies a

housing unit on an assured shorthold tenancy (typically 1-5 years). The initial rent is set at up to 80% of the local market rental value with the rent reset after each tenancy. While the tenant remains in occupation, the rent level is adjusted annually, as per social housing.

The major perceived risks in the social rent sector are founded on the nature of government support. The key phrase in the preceding text is: *“If the asset is free of any default risk or any uncertainty over the government’s backing of the rent payment and its indexation”*. Any uncertainty over this will increase the required risk premium, reduce the price and perhaps dissuade investors from supplying capital to the sector at current market prices.

3. How much additional finance do we need?

3.1 Introduction

An estimation of the total finance needed for the additional new homes required to meet the government target of 300,000 new homes a year in England (UK government, 2017a) necessitates many assumptions. To begin with, what is additional?

2018 was record year for net new housebuilding starts in England, with 165,100 units completed (UK government, 2019). Savills argue that this underestimates completions by around 30,000 units per annum, as the new build completions component of MHCLG’s net additional dwellings estimate for 2018 was 195,000. Net additional dwellings, the Government’s preferred measure which includes conversions, was higher at 220,000. If we assume a continuation of this level of activity and an average build rate of (say) 200,000 units in future from current sources, how much additional funding is required to fill the gap of around 100,000 more homes a year?

In this section we build a model to provide this estimate, and break down this task into the following questions:

- i. What is the assumed regional distribution?
- ii. What is the assumed housing type distribution (flats, houses, sizes)?
- iii. What are average construction costs per square metre in each region and for each type?
- iv. What is the required development profit margin?
- v. What are land prices in each region (and for each type)?
- vi. How much land is needed for each unit?

We also set out to estimate the funding required alternative scenario if central and local government were to support new home building commitment by providing free or cheap land, either through Homes England, s106 agreements, or compulsory acquisition at agricultural land values.

There are three key elements to the calculation model which should be explained.

Model

First, we adopt a very simply accounting model based on a top-down assumption that additional new builds will be spread across property types and all regions in England according to a broad conception of housing demand. This focuses particular attention on London and the south east.

Parameters

The values involved in the calculations are grounded in evidence from current policy and practice and subject to sensitivity analysis. We try to configure the parameters based on statistical evidence and current market trends as long as relevant data is available. Elsewhere, we have to make assumptions based on a literature review.

Policy variables

These are the key adjustable variables (the total number of new homes needed, types of homes needed, distribution across regions, etc.) that comprise the central and variant scenarios. These variables are not based on evidence of what currently happens, but rather what could or should happen in the future.

3.2 The model

We adopt a simple model, as follows:

Total finance requirement

$$= \sum_i^9 \sum_j^4 (land\ cost\ per\ unit_{ij} + construction\ cost\ per\ unit_{ij}) * (1 + profit\ margin_{ij}) * (regional\ weight)_i * (home\ type\ weight)_j * (total\ number\ of\ new\ homes)$$

The regional unit used is the NUTS 1 statistical regions of England. There is no universally agreed or categorisation of house type that we can adopt. We choose the following four home type to define the likely future profile of the housing market in England: Detached (4 bed), Semi-detached (3 bed), Terraced (2 bed), and Flat/maisonette (assumed to be 1 or 2 beds, averaging 1.5 bedrooms per unit).

3.3 Regional weights

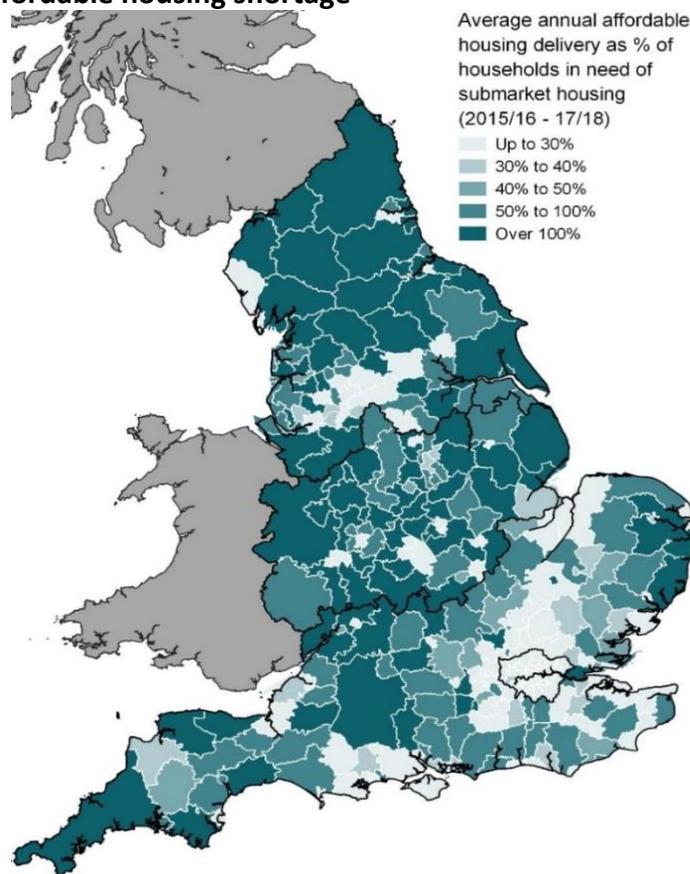
Table 10: regional weights

Regions of England	Regional weights
Greater London (UKI)	25.0%
North East (UKC)	3.6%
North West (UKD)	9.7%
Yorkshire and the Humber (UKE)	7.3%
East Midlands (UKF)	6.3%
West Midlands (UKG)	7.7%
East of England (UKH)	8.1%
South East (UKJ)	25.0%
South West (UKK)	7.3%
England	100.0%

Source: Office for National Statistics, 2019b

An obvious starting point for the regional allocation of new build homes across NUTS 1 regions in England is current population weights. However, it is clear (Savills, 2019 and Figure 1) that housing, especially affordable housing, is most needed in Greater London and South East (see Figure 17). We therefore assign a total of half of the total builds needed to those two regions, and split the rest of new builds among the regions according to their current population weight.

Figure 17: The affordable housing shortage



Source: Savills using HM Land Registry, EHS, Rightmove, MHCLG

3.4 Home type weights

We begin with the current dwelling stock types by tenure in the English Housing Survey (Annex Table 2.1: Stock profile, 2017). We group some property types together to fit our simpler four-type categorization.

For the base calculation shown in Table 11 column 2, we use current affordable home type weights grouped into the four categories discussed above (English Housing Survey, 2017 Annex Table 2.1: stock profile). We could also adopt an alternative weighting approach, adjusted to reflect the likely future need. For instance, we could use the trend of recent completion of housing units with respect to housing types (MHCLG 2019, column 3).

Table 11: dwelling type

Home type	Base percentage	Alternative weight
Detached (4 bed)	11%	5%
Semi-detached (3 bed)	17%	15%
Terraced (2 bed)	27%	20%
Flat/maisonette (1 or 2 bed)	45%	60%

Table 12, taken from the 2017 English Housing Survey, shows that meeting the need for affordable housing, which is currently serviced mainly by housing associations, places more weight on terraced homes and flats.

Table 12: dwelling type, by tenure, 2017

Types		owner occupied	private rented	local authority	housing association
<i>percentage</i>					
Houses	small terrace	7.3	17.1	10.4	11.0
	medium/large terrace	18.3	19.3	14.1	17.3
	semi detached	30.5	16.7	17.9	16.5
	Detached	25.2	5.9		0.6
	Bungalow	10.3	4.3	11.4	10.3
Flats	converted flat	1.7	11.2	2.6	4.6
	purpose built flat, low rise	5.9	21.6	37.1	36.3
	purpose built flat, high rise	0.8	3.9	6.4	3.5

3.5 Construction cost per unit

The construction cost per unit is the product of the average construction cost of a particular type of home, including labour, capital equipment, and materials, and the average size of the respective home types.

$$\text{construction cost per unit}_{ij} = \text{construction cost per sqm}_{ij} * \text{average size}_{ij}$$

The average construction cost per sqm with respect to regions (i) and housing types (j) is provided by Savills (see Table 4). Savills have also provided the average size of home with

respect to different regions and types. These two important sets of information combined allow us to calculate the average construction cost per unit for different home types in different regions.

Table 13: construction cost per unit

Government Region	Type	Median total floor area (2016 new build)	Median £psm (new build 2016)	2016-2018 Growth	2018 £psm
East Midlands	Detached	125	£2,359	11.3%	£2,624
East Midlands	Flat	63	£2,117	11.3%	£2,356
East Midlands	Semi-detached	82	£2,256	11.3%	£2,510
East Midlands	Terrace	75	£2,224	11.3%	£2,474
East of England	Detached	127	£3,064	9.4%	£3,351
East of England	Flat	61	£3,796	9.4%	£4,153
East of England	Semi-detached	89	£3,047	9.4%	£3,333
East of England	Terrace	93	£2,890	9.4%	£3,161
London	Detached	139	£4,545	1.0%	£4,592
London	Flat	67	£7,235	1.0%	£7,308
London	Semi-detached	120	£4,737	1.0%	£4,785
London	Terrace	118	£4,545	1.0%	£4,592
North East	Detached	112	£2,056	3.6%	£2,131
North East	Flat	65	£1,954	3.6%	£2,025
North East	Semi-detached	79	£1,726	3.6%	£1,789
North East	Terrace	85	£1,645	3.6%	£1,705
North West	Detached	115	£2,321	9.0%	£2,530
North West	Flat	61	£2,503	9.0%	£2,727
North West	Semi-detached	82	£2,026	9.0%	£2,208
North West	Terrace	79	£2,018	9.0%	£2,200
South East	Detached	131	£3,468	6.6%	£3,698
South East	Flat	64	£4,106	6.6%	£4,379
South East	Semi-detached	92	£3,478	6.6%	£3,709
South East	Terrace	95	£3,526	6.6%	£3,760
South West	Detached	123	£2,800	9.0%	£3,053
South West	Flat	63	£3,149	9.0%	£3,433
South West	Semi-detached	87	£2,756	9.0%	£3,005
South West	Terrace	83	£2,711	9.0%	£2,955
West Midlands	Detached	118	£2,526	11.1%	£2,806
West Midlands	Flat	56	£2,520	11.1%	£2,800
West Midlands	Semi-detached	79	£2,295	11.1%	£2,549
West Midlands	Terrace	77	£2,214	11.1%	£2,460
Yorkshire and The Humber	Detached	118	£2,296	7.7%	£2,472
Yorkshire and The Humber	Flat	59	£2,190	7.7%	£2,358
Yorkshire and The Humber	Semi-detached	82	£1,935	7.7%	£2,084
Yorkshire and The Humber	Terrace	84	£1,971	7.7%	£2,122

Source: Savills

3.6 Profit margin

Homebuilders need to earn sufficient profit margin to be encouraged to keep building new homes every year. We set the profit margin across types and regions to be uniformly 20% of total cost (see Table 5). This may be a minimum target profit, as housebuilders are thought to target at least 20% on gross development value, the metric shown in Table 14, column 6. Note also that the average profit margin shown in Table 14 is the corporate operating margin rather than the site level margin.

Table 14: Profit margins of the top 10 builders in the UK

Housebuilder	Average selling price (£)	Homes sold	Pre-tax profit per home sold (£)	Average Cost per home (£)	Average Profit Margin
Barratt Developments	313,100	17,395	47,387	265,713	15.1%
Taylor Wimpey	264,000	14,541	57,328	206,672	21.7%
Persimmon	213,321	16,043	60,219	153,102	28.2%
Berkeley Group	715,000	3,536	220,475	494,525	30.8%
Bellway Plc	260,400	9,644	59,265	201,135	22.8%
Redrow Group	309,800	5,416	59,453	250,347	19.2%
Galliford Try	354,000	3,890	47,609	306,391	13.4%
Crest Nicholson	340,000	2,935	72,095	267,905	21.2%
Bovis Homes	272,400	3,645	35,125	237,275	12.9%
Bloor Homes	300,000	3,023	52,002	247,998	17.3%

Source: www.building.co.uk

3.7 Land cost per unit

Average residential land value per hectare is taken from 2017 government land value estimates, (UK government, 2017b). We aggregate the land value estimate to 9 NUTS1 regions in England, as seen in Table 6, which shows that London has extremely high current land prices, five times greater than the second most expensive region.

Table 15: average land prices, 2017

Regions	Average of £/ha
East	3,614,300
East Midlands	1,371,027
London	24,186,643
North East	1,037,083
North West	1,481,667
South East	4,953,358
South West	2,528,243
West Midlands	1,773,500
Yorkshire and The Humber	1,533,333
Average	6,220,086

Source: MHCLG Land Value Estimates. Note: the average land price for London uses a weighted average; elsewhere, we use a simple arithmetic average

We calculate the land cost per unit based on the land value and the building density with respect to home types as follows:

$$\text{land cost per unit}_{ij} = \frac{\text{residential land value per hectare}_i}{\text{units per hectare}_{ij}}$$

3.8 Land required per unit

The units per hectare assumptions are also taken from the 2017 government land value estimates. Based on densities per gross hectare assuming 80% net to gross developable area, these assumptions are as follows:

- Out of London: 35 units per hectare
- Inner London: 215 units per hectare
- Outer London: 97 units per hectare

We adjust these assumptions to take account of the need for a greater weight of affordable housing and therefore increase the building density across all regions, as shown in Table 16. This is by no means uncontentious: we are assuming a step-change in density.

Table 16: building density assumptions

	Units per hectare
Greater London	
Detached (4 bed)	50
Semi-detached (3 bed)	100
Terraced (2 bed)	150
Flat/maisonette (1 or 2 bed)	400
The rest of England	
Detached (4 bed)	35
Semi-detached (3 bed)	70
Terraced (2 bed)	100
Flat/maisonette (1 or 2 bed)	250

Note that building density can be even higher, as illustrated by the 43-storey Berkeley Homes development at Saffron Square, Croydon (LSE, 2019):

Saffron Square will have 791 homes in 5 podium buildings and a dramatic 43 storey tower all set around a one acre public square. The key features of the scheme are as follows: 791 dwellings (of which 378, or just under half, are currently occupied); of the total number, 36 are shared ownership homes (managed by Affinity Sutton) and 755 for private sale. 104 social rented homes have also been provided elsewhere in the borough of Croydon but do not form part of this assessment. The site is small, covering less than a hectare.

Increased density near transport nodes makes a lot of sense in London, but is much harder to achieve in the rest of England where suburban development is the norm. Past efforts to increase density by top down dictat (via PPG3 in the 1990s and 2000s) produced poor quality outcomes. It may be that the case for increased density has yet to be made: but see Bishop and Timmerman (2019).

3.9 Results

Base scenario

Our base case calculation of the total finance requirement for 100,000 additional new homes per year is presented in Table 17.

Table 17: total finance requirement for 100,000 additional new homes annually at 2019 prices – base scenario

Regions	Regional weights	Total new builds	Total finance needed
Greater London (UKI)	25.0%	25,000	£9,937,884,823
North East (UKC)	3.6%	3,586	£495,786,082
North West (UKD)	9.7%	9,740	£1,395,412,108
Yorkshire and the Humber (UKE)	7.3%	7,297	£991,360,834
East Midlands (UKF)	6.3%	6,261	£984,441,530
West Midlands (UKG)	7.7%	7,737	£1,079,746,741
East of England (UKH)	8.1%	8,075	£1,492,698,805
South East (UKJ)	25.0%	25,000	£5,513,022,120
South West (UKK)	7.3%	7,304	£1,244,484,216
England	100.0%	100,000	£23,134,837,260

Approximately £23 billion is needed to finance 100,000 additional new homes per year across England. Almost half of the finance required would be needed in the Greater London area. (It should be noted that the draft London Plan suggests that there is not enough land in London to build all of the homes required in Table 17, implying that a proportion will need to be in places connected to London and a need for new transport infrastructure.) By implication, at least 35% of these houses will be social or affordable, assuming conformity with the London Mayor's 2016 announcement to that effect.

Policy scenario 1: reduced land cost

National government, acting through Homes England, and local government will provide land at nil or low cost to deliver social or affordable housing. Local planning authorities, using planning gain agreements under Section 106 of the Town and Country Planning Act 1990, will often require developers to contribute land for affordable housing at nil cost. The London norm, the threshold at which viability testing is not required, is 35%. If we were to assume that a total of *half* of the land required for 100,000 new homes is granted by government at nil cost, this would save around £4bn annually.

If *all* land required were acquired at nil cost or at agricultural land values using compulsory purchase powers, the total annual finance required for 100,000 new homes would fall to around £15bn. (It should be noted that most developable land in London has an alternative developed use, so would not be acquired at nil cost nor at agricultural value. The alternative is the use of government – currently Homes England – grant.)

Table 18: total finance requirement for 100,000 additional new homes annually at 2019 prices – reduced land cost

Regions	Regional weights	Total new builds	Total finance needed
Greater London (UKI)	25.0%	25,000	£7,455,730,567
North East (UKC)	3.6%	3,586	£473,258,756
North West (UKD)	9.7%	9,740	£1,308,011,023
Yorkshire and the Humber (UKE)	7.3%	7,297	£923,593,477
East Midlands (UKF)	6.3%	6,261	£932,454,367
West Midlands (UKG)	7.7%	7,737	£996,645,875
East of England (UKH)	8.1%	8,075	£1,315,933,185
South East (UKJ)	25.0%	25,000	£4,763,012,925
South West (UKK)	7.3%	7,304	£1,132,635,708
England	100.0%	100,000	£19,301,275,883

Policy scenario 2: higher flat percentage, greater density

We now implement the alternative home type weights as shown in Table 12. The numbers are loosely based on the current stock profile of housing units held by housing associations. However, the exact numbers are our own estimates. Considering the high cost of land and construction of larger housing units, it makes more sense to tilt towards smaller flats for affordable housing builds. This would reduce the finance needed by around £4bn.

Table 19: total finance requirement for 100,000 additional new homes annually at 2019 prices – greater density

Regions	Regional weights	Total new builds	Total finance needed
Greater London (UKI)	25.0%	25,000	£8,397,191,409
North East (UKC)	3.6%	3,586	£461,538,299
North West (UKD)	9.7%	9,740	£1,280,929,794
Yorkshire and the Humber (UKE)	7.3%	7,297	£899,371,644
East Midlands (UKF)	6.3%	6,261	£905,789,644
West Midlands (UKG)	7.7%	7,737	£973,917,953
East of England (UKH)	8.1%	8,075	£1,325,353,786
South East (UKJ)	25.0%	25,000	£4,881,989,735
South West (UKK)	7.3%	7,304	£1,127,842,123
England	100.0%	100,000	£20,253,924,387

Policy scenario 3: different regional weights

In this policy scenario, we recalibrate the regional weights based on work by Heriot Watt (Bramley, 2019). We now keep the percentage of Greater London and South constant and split the percentage into more detailed regions using their relative population weights. This produces a total finance requirement of c. £25bn.

Table 20: Heriot Watt housing requirements

Numbers (Annual)	Total Dwellings	Private Sector	Social Rent	Shared Ownership	Intermediate Rent	All Affordable
North	68,992	38,354	19,988	4,379	6,271	30,638
Midlands	56,030	31,034	17,849	3,889	3,258	24,996
South	90,810	43,119	27,211	8,650	11,830	47,691
Greater London	121,682	73,083	32,387	5,555	10,657	48,599
England total	337,513	185,590	97,435	22,472	32,016	151,924
Wales	12,951	6,184	4,514	848	1,405	6,767
Scotland	22,304	11,296	5,088	3,086	2,834	11,008
GB Total	372,769	203,070	107,037	26,406	36,256	169,698

Source: Bramley, 2019

Table 21: total finance requirement for 100,000 additional new homes annually at 2019 prices – Heriot Watt scenario

Regions	Regional weights	Total new builds	Total finance needed
Greater London (UKI)	32.0%	31989	£12,716,128,183
North East (UKC)	3.1%	3076	£425,231,179
North West (UKD)	8.4%	8354	£1,196,832,178
Yorkshire and the Humber (UKE)	6.3%	6259	£850,281,103
East Midlands (UKF)	6.9%	6926	£1,089,040,931
West Midlands (UKG)	6.6%	6636	£926,088,885
East of England (UKH)	5.4%	5370	£992,611,834
South East (UKJ)	19.5%	19467	£4,292,945,227
South West (UKK)	11.9%	11924	£2,031,556,845
England	100.0%	100000	£24,520,716,366

A figure of between £19bn and £25bn seems to be the capital required to build an extra 100,000 homes a year in England,

4. Financial innovation

4.1 A simple model

In a simplified model of UK housing market production and finance, Figure 18 identifies and connects housing finance providers; housing finance deployers (developers); and housing end users (investors),

Figure 18: UK housing finance actors



Housing finance providers

Housing finance providers supply equity (through the capital markets, such as new share issues by listed housebuilders or through institutional investors committing equity to separate accounts or funds); debt, via mortgages to end users, or bank loans or capital market bond issues such as debentures; and grants to subsidise otherwise non-viable housing and infrastructure development, The latter is largely the preserve of Homes England, formerly English Partnerships,

Housing finance deployers

The main deployers of housing finance are housebuilders, large and listed such as Barratt Homes, Taylor Wimpey, Persimmon or Berkeley Group, or SMEs, both categories being largely profit-driven and focussed on building to sell; housing associations, local authorities and other registered providers, largely needs-driven and focussed on social and affordable housing; and institutions/asset managers such as insurance companies, fund managers and some new alternative managers of capital, largely return driven and focussed on the private rented sector,

Housing end users

Housing end users are the occupiers, either renters or buyers, These end users may also be reliant on housing finance, whether this arrives in the form of equity and mortgage debt (owner-occupiers, co-owners, shared ownership, buy-to let investors); or housing benefit/universal credit (social renters), Only private renters are free of these shackles,

This structure provides an insight into the nature of housing investment and the associated risks, Housebuilders have to be concerned about their own financing but also about end user financing, including in particular mortgage markets and interest rates, Social housing providers have to be concerned about housing benefit/universal credit, PRS developers are in principle less subject to the risks of changes to end user finance availability, as end-investors seek stock in bulk,

However, all deployers are subject to the risk of market interference, which uniquely affects residential property as a political issue, Governments might change the tax and stamp duty rules as they apply to mortgage debt, affecting housebuilders, buy-to let landlords and owner-occupiers; they might introduce schemes such as help to buy; they might change housing benefit/universal credit systems, affecting the registered providers of social and affordable housing; and they might interfere in the private rental market, introducing rent limits or security of tenure, as previous Labour governments have done and the current Labour opposition has threatened to do, This is a significant problem affecting potential future flows of capital to the housing sector, However, it is not clear that tenant protection is a bad thing for investors: see below,

4.2 Government support to owner-occupiers

Numerous programs already exist to help owner-occupied buyers to achieve home ownership, either by providing an interest-free loan, easing the difficulty of obtaining a mortgage, providing equity support or encouraging households to save up for a down payment,

One of the most critical issues in owning a house is the significant lump sum investment in the form of the down payment when families try to buy a home with a mortgage, It is necessary to help households to reach the bare minimum down payment requirement, which would make mortgage providers much more willing to lend to potential homeowners, In a sense, this is a very efficient way of using public funds to finance homeownership, For instance, a small amount of interest-free loan (5% of the house price) would encourage a young family to buy a home with their savings (another 5% of the house price) and fill the gap with a mortgage (90%), This example shows a 19-fold efficiency improvement in financing new homes compared with building a house using public funds, The 5% public funding can usually be recovered to be repeatedly used to catalyse more home purchases,

In the regular life-cycle of a household, with the growing need for housing and household income/savings as household members move forward in their lives, most families would like to move up the housing ladder from renting (either from social housing or private rented sector) to owning (out-right or partial), Such upward movement in the housing ladder is critical to create a steady stream of housing demand for the owner-occupied sale market and to ensure the release of sufficient affordable housing for the poor and young, It is critical to help

the relatively better off households to finance their upward movement in the housing ladder, Hence we can observe - and list below – a variety of schemes which provide assistance to intending owner-occupiers,

Stamp Duty exemption

First-time buyers are exempt from stamp duty if the purchase value of the property is £300,000 or less, For higher value properties, buyers must pay 5% tax on the value of the property between £300,000 and £500,000, There is no discount/exemption for property worth more than £500,000 (UK government, 2019b),

Help to Buy ISAs

The Help to Buy ISA provides savings assistance to first-time buyers through Individual Savings Accounts, available until November 30, 2019,

If an intending homeowner saves money into a Help to Buy ISA the Government will boost the savings by 25%, For every £200 saved, a government bonus of £50 is payable, The maximum government bonus available is £3,000,

Lifetime ISAs

This is another government assistance in saving for homeownership, where first-time buyers can save a maximum of £4,000 a year and the Government provides a 25% bonus, As households save, they can hold cash or stocks and shares or combination of both in an ISA, Savers can open a Lifetime ISA if they are aged between 18 and 39, and they can pay into the account until they reach the age of 50, meaning up to £32,000 in government bonus payments could be earned,

Households can withdraw money and get the bonus if they are UK residents, aged 18-49 and first-time buyers where the payment will be put towards a house costing £450,000 or less,

Help to Buy shared ownership scheme

When a household cannot quite afford the mortgage on 100% of a home, Help to Buy: Shared Ownership offers the chance to buy a share of a home (between 25% and 75% of the home's value) and pay rent on the remaining share, Staircasing allows occupiers to buy bigger shares when they can afford to, Shared ownership homes must be purchased through a housing association and there are fewer mortgages available under this scheme,

Help to Buy: equity loan scheme

This is a government scheme for intending owner-occupiers with a deposit shortfall, Applicants need a 5% deposit, and Government loans add up to 20% (40% in London) for the targeted purchase, A mortgage will cover the rest of the purchase cost, This scheme can only be used on properties worth up to £600,000 and from registered Help to Buy builders, The equity loan is interest-free for the first 5 years; at the 6th year, homeowners will be charged a fee of 1.75% of the loan; and the interest increases each year according to RPI+1% (on top

of the monthly mortgage), The households must pay back the loan when they sell the home or after 25 years (whichever comes first),

4.3 Private market products

In the PropTech wave of 2008-2019, there have been many innovations including on-line mortgage brokers, house purchase websites, rental brokers, and some products aimed directly at the intending owner occupier short of adequate equity or debt finance, Such innovations have included crowdfunding and peer-to-peer lending, shared ownership and equity loans,

Crowdfunding and peer-to-peer lending

Capital raising in the private markets remains a vital, difficult activity, Equity may be appealing, but it is generally more time consuming to raise than debt, Hence, we can observe tech-driven entrepreneurial activity in the raising of equity, The shared economy model – real estate crowdfunding - has captured the imagination of young entrepreneurs and SME developers,

Crowdfunding has the potential to resolve the capital requirement problem for less financially capable buyers, but also to remove geographical barriers, Reducing the minimum deal size for an investor should widen the potential buyer base and the pool of available capital,

Capital raisers – Brickvest, Property Partner, Capitalrise, Property Crowd, Property Moose, Piggyback and Mashvisor, in the somewhat patronising yet hopeful words of the latter, have claimed to *“let average people become savvy individual investors to make profitable real estate investments and rental strategy decisions through an online platform that instantly aggregates real estate data”*,

Increasingly, new GP platforms (for example, Cogress or Shojin) use their own crowdfunding solutions as a retail distribution channel to fund single property investments and developments, Single properties are unregulated, so the result of the collision of retail crowdfunding and regulated investment management business is yet to become clear, The mechanism used for more sophisticated investments involves retail investors being grouped into one LP, advised by the platform, Whether good advice is being proved by professionals in these platforms is at best unclear,

Debt crowdfunding and mortgage platforms including Trussle and pioneer peer to peer real estate lending platform LendInvest are also in place – as are a fascinating group of residential co-ownership sites including The Unmortgage and Stride Up, whose proposition is to help prospective homeowners without adequate deposits co-invest with equity-rich capital providers,

Up to 2016, real estate crowdfunding had raised \$3,5 billion for 125 companies in the US, around 10% of global crowdfunding capital raised (Esbaitah, 2016), However, the crowdfunding and peer to peer lending markets have since seen several failures and lack any real scale,

Shared ownership and equity loans

Startups offering private shared ownership schemes include StrideUp, Unmortgage, HoP, Your Home and others, These are private market shared ownership products through which no debt is used in the house purchase but a minority owner, who is also occupier, co-invests with a particular capital source or with a pool of capital which in turn charges a rent for their commitment, This is useful for intending homeowners with insufficient deposits but has been undercut at the lower end of the market by government Help to Buy equity loans,

We have also seen the emergence of equity loan providers such as Ahauz, Proportunity and others, These organisations will provide cash to bridge the deposit shortfall in return for a minority equity position,

Shared ownership and equity loan products have all struggled to achieve scale, although some have managed to raise Series A venture capital funding,

4.4 New sources of finance

Builders, especially SME builders, often face obstacles in financing their projects, In this section we discuss possible solutions to those problems,

Debt finance, especially short-term debt, can cause great problems for SME builders, They might not be able to obtain finance if lenders deem their projects too risky; they might not be able to get a good price on the debt due to their disadvantageous negotiation positions; they might not be able to properly manage debt maturity due to the uncertainty of sales timing; and they might not be able to remain solvent if and when they receive a negative shock on their building projects, It would be helpful if they could call on more efficient and cheaper financing by pooling the specific risk of small builders through a diversified and larger security,

Covered bonds

A possible solution to circumvent the financing problems of SME builders is to explore the option of covered bond pools, Smaller operations mean that SME builders often must face higher risks compared with larger builders who can hedge risk across among numerous and heterogenous projects, One single SME builder project is risky; therefore, the market will ask a higher return for short-term debt, But if it is possible to pool 100 projects from different SME builders and from different regions with different types of properties, the overall risk of the pooled portfolio of those projects is no longer as high thanks to diversification,

SME loan-backed covered bonds could be attractive options for all parties involved, Banks will be more willing to lend to SMEs as they can recover liquidity more easily, the high individual risks of SME loans are hedged within the covered pool, and the investors have more flexible maturity in investing in SME builders thanks to the dynamic revolving nature of the covered pool, For potential options, see OECD 2019,

Covered bonds have already been used to help housing associations raise funds, For instance, in 2018Q2, the HBOS Social Housing Covered Bonds LLP had lent a total of £1,2bn (FCA, 2019),

When debt financing is difficult for SME builders, the alternative is equity financing. They can look to the end user; if they can sell houses before they start building them, SME builders will have to give up any potential profit coming from an upswing of house prices during the construction period, but risk will be alleviated. They can pre-sell homes to the owner-occupier market; they could alternatively look beyond the end user and build for the PRS market,

Forward funding

New unlisted PRS funds (see below) and residential REITs are seeking to grow and institutional investors are very keen to acquire PRS stock. We can also expect new PRS funds and REITs to be created. The typical financing structure favoured by such investors is a forward funding, whereby the equity investor provides the finance to fund the construction project and takes ownership of the completed scheme at a pre-agreed price. A recovery in the SME market requires that these opportunities are not consistently outbid by housebuilders benefitting from demand side measures inflating house prices (see above),

PRS funds

Fund managers acting on behalf of a variety of investors would like to expand their PRS portfolios (see Figure 19),

Figure 19: New sources of UK housing finance: PRS funds

ABERDEEN STANDARD INVESTS IN BIRMINGHAM RESIDENTIAL

The Aberdeen Standard Pan-European Residential Property Fund (ASPER) has made its first investment in the UK, with an investment of approximately €67,7 million, representing an initial yield of 4,25 percent. ASPER will forward fund the redevelopment of a 10-storey post office building into 259 apartments for private rental. The development is located between the Jewellery Quarter and Paradise Circus in Birmingham's city centre. The asset will deliver a range of high quality one, two and three bedroomed contemporary apartments on Lionel Street. Construction is expected to be completed by the summer of 2021. Since launch in March 2018, ASPER has raised total equity of €398,2 million with the intention of reaching €1,5 billion in assets under management over the medium term,

L&G UK PROPERTY FUND INCREASES ALTERNATIVE EXPOSURE

Legal & General Investment Management has acquired a build-to-rent site at Chelmer Waterside in Chelmsford City Centre on behalf of the £3 billion L&G UK Property Fund. The site is being developed by Taylor Wimpey in conjunction with Legal & General. The site comprises 104 studio, one, two and three bedroom apartments in two adjoining freehold blocks. Chelmer Waterside forms part of a major mixed-use development in Chelmsford. Legal & General said this is the first BTR acquisition for the fund as it continues to diversify its holdings into more operational assets, whilst adding to its alternative exposure, Abstracted from: www.irei.com, 21/01/19,

M&G REAL ESTATE ADDS ASSETS TO FUNDS

M&G Real Estate's UK Residential Property Fund is adding 300 private rented sector (PRS) apartments to its portfolio by investing in a Bristol project managed by property developer

Linkcity, In a separate deal the £4,1 billion M&G Secured Property Income Fund will fund the development of the 620-room hotel and aparthotel scheme in Paddington, The development will be carried out by development consortium known as Concierge 3, Abstracted from: www.ipe.com/realassets, 24/01/19 and 22/01/19,

CORDING FORWARD FUNDS NOTTINGHAM BTR SCHEME

Cording Real Estate Group has secured the third deal for its new €457m (£400m) Cording UK Residential Investment Fund, which invests in the private rented sector (PRS) on behalf of Continental European investors, The fund has agreed to forward fund a build-to-rent development in the Lace Market area of Nottingham by Abode Nottingham for €19,8m (£17,3m), Located on High Pavement and Short Hill, the scheme will involve a mix of refurbishment of Grade II-listed buildings and new build, It will provide 117 studio, one and two-bed apartments for rent, Construction is expected to commence on site in the first quarter of this year and is expected to be completed in the first quarter of 2021, The lettings and management services for the completed development will be provided by Cording's in-house PRS team,

Source: PFR

As noted above, PRS investors are subject to the risk of market interference, which uniquely affects residential property as a political issue, Governments might interfere in the private rental market, introducing rent limits or security of tenure, as previous Labour governments have done and the current Labour opposition has threatened to do, However, it is not clear that tenant protection is a bad thing for investors, Greater security of tenure, including longer leases, can lead to longer average stays and better security of income for landlords, As long as rents are indexable to inflation, rental investment is not necessarily made less attractive by reasonable levels tenant protection, as evidenced by Germany, Austria and others European countries, Excessive interference could, however, kill interest in the sector for decades,

Over-riding government leases and nomination agreements

Table 9 shows how valuable government-backed indexed income can be when index-linked gilts are selling on negative yields, Social and affordable housing, the most needed residential asset type, offers a close proxy because it is indirectly government-backed and rents are linked to CPI plus 1%, close to RPI, This asset class could be extremely sought after by institutional investors such as pension funds with real (inflation-linked) liabilities,

However, while it is fair to describe this as a proxy for index-linked gilts, it is a poor one, This is due to the lack of certainty regarding both government support for rents and the certainty of indexation when government can at any time change the way in which rents are paid (previously directly from the DSS to RPs, but since the introduction of universal credit now via a likely credit-unworthy occupier); and the rent level was cut by 1% a year for four years from 2016, This makes a big difference to the attractiveness of the asset class to a liability driven investor,

In Ireland, the Department of Housing, Planning and Local Government has introduced the Enhanced Long-Term Social Housing Leasing Scheme (Irish Government, 2018) in order to:

“target newly built or yet to be built houses and apartments for leasing, target property developers and investors who are in a position to deliver housing at a reasonable scale; and provide for 25-year lease terms that require the property owner to provide day to day maintenance of the properties under a schedule of management services, The Housing Agency is the national co-ordinator of this scheme and manages and administers it on behalf of the Department and local authorities, It is now seeking proposals from interested parties,”

If the UK government were to take similar over-riding 25-year indexed leases of social and affordable rented property, and if sufficient land were made available (Cheshire and Carozzi, 2019) the resulting assets (if acquired at prices which reflect the relevant rent restrictions) would be very valuable indeed and a flood of capital is likely to emerge (see section 5), It is relevant to examine the case of student housing, which took off as an investable asset initially because universities signed long term nomination agreements holding the assets and executing transactions (direct lettings) on behalf of the owner – but now direct lettings by more confident investors are common,

Local authority investment

Many property professionals are very concerned by the current actions of many UK local authorities, as illustrated by this BBC news item (referenced as Knight Frank, 2018):

Local councils have spent more than £800m on the purchase of UK shopping centres over the last three years,

In many struggling town centres, these big properties have become something of an unloved asset by investors,

Buyers are thin on the ground, But councils have been stepping in and acquiring them,

According to the commercial property consultancy Knight Frank, since 2016, councils have snapped up 26 shopping malls - 10 this year alone,

"As traditional buyers have shied away from retail, councils have picked up their activity to become the most active single group buying shopping centres, with nearly one in every three that has sold in 2018 being acquired by a council, within their boroughs," says Mark Smith, a partner at the firm,

"Their activity has been spread across England, with the uniting factor being the desire to effect change,"

Bolton Council is one of them, It spent more than £14m this year to gain control of Crompton Place, a 1960s-style shopping centre along with its car park covering more than 280,000 sq ft,

"It was a big button to press, but I think it's money well spent," says Councillor Ebrahim Adia, Deputy Leader of Bolton Borough Council,

"We recognise that Bolton town centre is in a bit of a decline, We've taken the view that the council has a big responsibility to make sure that we help rejuvenate it,

"The shopping centre is strategically very important, right opposite the town hall and I think residents expect us to do whatever it takes to ensure we have a viable town centre,"

Crompton Place has seen better days, There's an empty BHS at the main entrance, New Look recently moved to a new location and the gaps are getting harder to fill,

The council has now lined up a private consortium to completely redevelop the site, It plans to broaden its use, reducing the number of shops and putting in place residential and leisure units in the hope that this will bring more people into town,

So where's the money coming from?

'Un-quantified risk'

The council isn't using council tax or money from existing budgets, which have already been slashed by some £155m over the last seven years, It's borrowed the money, Like other authorities, it's able to secure loans at far cheaper rates than the private sector,

Councils have been pouring record amounts of money into all sorts of commercial property, to generate new sources of income to help fund services,

Bolton has borrowed a total of £100m for its town centre fund as part of a wider £1bn plan to regenerate the town centre,

Councils have recently been issued a warning about the growing scale of these investments,

It seems an eminently reasonable question to ask: why would a local authority borrow to invest in a depreciating asset type? There may be some homes in their plans but why not focus on rental housing when there is a local shortage of homes and the prospects for rental housing returns are strong?

4.5 Solutions for under-occupation

A severe lack of affordable housing is coupled with under-occupancy of homes by wealthier and older homeowners, many of which are concentrated in London and the south east, Under-occupation has been increasing and wealthier white households who own a home are more and more likely to own a house bigger than they need, This may be the result of living habit inertia, attachment to the community and preserving rooms for possible family reunions, but it comes at a price, It reduces the liquidity of the housing market, and increases the risk of accumulated depreciation in ageing housing stock, It inhibits migration and economic efficiency, and exaggerates the housing shortage, Given the baby boomer generation's good fortune in benefitting from inflation-fuelled house price growth and good pensions, the distribution of rooms across age groups and according to need is likely to be very distorted,

Those under-utilized homes can potentially be part of the solution to the housing crisis, Policy measures are needed to start to free this up, and private sector innovations can help, Equity release products are designed to allow older people to remain in their homes despite a lack of financial wherewithal need for maintenance or living costs, We need a set of measures which encourage movement,

Private sector innovations

Private sector innovations include many startups focussed on providing more liquidity to the housing market, Open Door in the US, followed by Nested in the UK, uses artificial intelligence

(machine learning) to rapidly value and acquire properties, Other companies are promoting property passports, which store all the information relating to an individual property in its own unique digital data file, to be maintained by the owner or tenant and transferred along with the title,

A property passport which sits at the nexus of many new technologies, combining official land registry title documentation with data from technologies such as Internet of Things and Building Information Models, could create a 'digital twin' of both the functioning and rights over an asset, In the most optimistic minds, a complete property passport serves to warrant a higher asking price at re-sale, providing a motivation for owners to keep information correct and up to date, and a faster transaction process, As digital data becomes more available, it is also possible that we are moving towards a world in which all properties are potentially for sale at all times, and the age of the owners may become a matter of public record, prompting some natural exchanges and house sales,

Lifetime saving towards a retirement lifestyle is also possible, If younger households could better imagine a pleasant retirement in less urban areas and plan for that by saving, there would be more automatic liquidity creation as owners age, Unfortunately, retirement housing is unappealing to many, and innovation is needed, Schemes to combine younger family accommodation with senior living to the mutual benefit of both have been developed, and apps such as Airbnb will continue to expose the inefficiencies of housing under-occupation,

Policy support

Such changes are unfortunately some way away, and government policy encouragement will be needed to prompt behavioural change, Carrots are likely to be less contentious than sticks, so a measure to abolish stamp duty for pensioners buying main residences outside London and the south east might go some way to create liquidity at a low cost to government,

4,6 Conclusions

Financial help is available from government and the private sector to assist intending owner occupiers, No such assistance is available to private renters, No assistance is provided to providers of private rental housing, despite strong evidence that this is a necessary and desirable component of a healthy housing market, A strong commitment to provide independent support to both PRS and social sectors could pay large dividends, The private (including the institutional) sector will provide finance to all three sectors, given the appropriate encouragement and risk assurances, But how much money could be available? Will it stretch to £19-25bn annually?

5. How much additional capital is available?

5.1 Introduction

In this section we assume that supply of properties for owner-occupation will continue at current levels, due to the dominance of large house builders and no obvious inclination on their part to raise more capital, flood the market with stock and encourage price falls in a weakening market, These natural limits are discussed in Section 2, To find the capital for an additional 100,000 homes a year requires a focus on the natural growth sectors of social/affordable housing and the private rented sector, noting that both owner-occupied and PRS sectors bring with them an expectation of social/affordable housing via S106 agreements,

Given the recent trend of housing tenure choice, there is growing interest from institutional investors to participate in the housing market in the form of PRS or BTR models to generate longer term stable revenue, BTR investors looking to hold housing assets for the long-term are less sensitive to short term house price changes as long as they can earn the expected net rental income, Build to rent or PRS is in many ways an ideal investment for liability-driven institutional investors with a strong preference for a steady inflation-proof income, Institutional investors who are interested in such a long-term investment are less likely to have liquidity issues, However, PRS (and social housing) investors also take on the certainty and risk of the cost of maintaining the assets, Moreover, there are non-negligible operating costs, Hence this is a market likely to be increasingly dominated by specialist developer/operators (such as US-based Greystar),

5.2 Investment vehicles for PRS, social housing and specialist accommodation

Table 24 lists the active unlisted property funds that aim at various types of PRS or BTR or other residential investment, all created in recent years, This list may not be completely exhaustive, but it clearly shows that there has been increasing interest in PRS investment for fund managers and for the capital sources from which they raise equity, The total capital already raised by these funds exceeds £5 billion, This is in addition to the £1bn combined gross asset value of the residential REITs listed in section 3, Knight Frank (2019) estimates that further expansion in the market is very likely, Given the current trend, they estimate that the total capital committed to PRS sector investment will increase to £75 billion in the year 2025, Their estimates are based on their interviews with more than 25 of the biggest funders and developers of professionally managed PRS properties, including those in the retirement housing market,

More than half of the fund managers in their survey suggested that they are willing to hold such housing assets for more than 10 years, Given that the rental market is mostly young households or low income households, PRS investment is initially more likely to be directed to smaller housing types,

If we were to project additional annual investment of around £20bn, who could supply the capital in sufficient weight? Investors all over the world are looking for safe assets to preserve the value of their wealth at a time when government bonds offer very low or even negative yields, Potential capital sources include pension funds and insurance companies, international investors and sovereign funds, liability-driven investors and private investors (family offices),

Table 22: Unlisted UK funds that target long term residential investment

Vehicle	Manager	Est GAV £m	Target equity £m	Launch	Target Sector Detail
Aberdeen PRS Investment Club	Aberdeen Standard Investments	115	500	2016	Existing or new PRS residential apartments
Arlington Student Accommodation Fund	Arlington Advisors	150	400	2018	Targets PRS residential assets
Cheyne Social Property Impact Fund	Cheyne Capital Management	110,7	300	2014	Social housing
Cording UK Residential Investment Fund	Cording Real Estate Group	100	250	2018	Targets the residential PRS sector
Curlew Student Trust 2	Curlew Alternative Asset Management	38,6		2018	Acquires and forward-funds purpose-built student accommodation in leading university towns and cities
Europa Generation Student Fund	Europa Capital Partners	88,32	300	2017	Targets purpose-built student accommodation
Grainger Real Investment Partnership	Grainger	696		2013	Residential in the PRS sector
Hearthstone TM UK Residential Property Fund	Hearthstone Investments	54,67	1000	2012	Targets PRS residential assets across the UK
Hearthstone Housing Fund for Scotland	Hearthstone Investments	30	150	2014	Social and affordable housing for multi-family and single family
Hearthstone Residential Fund I	Hearthstone Investments	24,32	200	2017	Targets PRS residential assets across the UK in targeted areas offering strong, sustainable rental demand including low rise apartment blocks and large clusters of family housing,
Henley Secure Income Property Trust	Henley Investments	142,17	400	2017	Targets supported multi-family and single-family assets
Hermes Vista UK Residential Real Estate Fund	Hermes Real Estate Investment Management	115	1000	2015	Private-rented sector with focus on modern, purpose-built properties in growing regional cities, Max exposure to London 30%
Invesco UK PRS Fund	Invesco Real Estate	250		2016	Multi-family
LaSalle UK PRS Residential Fund	LaSalle Investment Management	59,7		2015	PRS - High quality income-producing and new build residential assets
Legal & General Build to Rent Fund	Legal & General Investment Management	36		2016	Targets the residential build-to-rent sector
London Central Apartments III	London Central Portfolio	80	100	2015	Studio, 1- or 2-bedroom apartments
London Central Apartments IV	London Central Portfolio			2016	Studio, 1- or 2-bedroom apartments
M&G UK Residential Property Fund	M&G Real Estate	484,2		2013	PRS - Mid market apartments and houses in areas offering the prospect of rental growth and capital appreciation
Mayfair Capital Residential Fund 2	Mayfair Capital Investment Management	31,13	50	2016	Residential assets (apartments and houses) outside of London zones 1 -2
Mill Group Accessible Housing Fund	Mill Group		400	2017	Targets 1- or 2-bedroom apartments new build homes that are wheelchair accessible
PfP Capital Build To Rent Fund I	Places For People Capital	150	550	2018	Targets high quality build-to-rent assets
PfP Mid-Market Rent Fund	Places For People Capital	47,5	135	2018	Targets mid-market rental homes in Scotland
Savills IM Prime London Residential Development Fund II	Savills Investment Management			2015	Prime central London mid-market residential development schemes
Unite UK Student Accommodation Fund	Unite Integrated Solutions	2191		2006	Student accommodation

Source: PFR

According to investor surveys conducted by BlackRock (2019) and INREV (2019), there is growing interest from institutional investors to participate in the housing market directly or indirectly for longer term stable revenue, Pension Funds and Insurance Companies have a strong need for low risk and long-term investments due to the nature of the financial services they provide, They might be return or liability driven, and will manage pots of capital dedicated to both strategies, These investors should be the prime targets if we were to reach out for additional financing sources to build 300,000 homes a year for the UK housing market,

For example: Legal & General has bought 167 homes in Croydon, south London, and has leased them over 40 years to the local council, which will pay a rent initially representing 2,5% of the invested sum, After the 40-year term ends, the properties will belong to the council, Croydon council identified the properties before L&G stepped in to buy them for £44,6 million, The homes will be managed by Croydon Affordable Tenures, part of Croydon Affordable Housing, a local housing charity set up by the council,

L&G will earn a real 2,5% return, avoid the administrative burden of building and get a free property management service from the local council, This type of investment can be a win-win situation for both parties,

“UK pension funds are interested in investing in UK residential property vehicles if some form of institutional residential investment market can be established, according to the British Property Federation (BPF), Gareth Lewis, director of finance and investment at the BPF, told IPE Real Estate that the professional body is currently investigating how to develop a UK residential property market as an asset class of interest to pension funds, along with the creation of residential REITs, as the group believes there is sufficient interest and this would help to meet the government's own 2020 target for social housing development,” (IPE, 2019),

5.3 Capital flows into and out of UK pension and insurance funds

Table 23 shows that insurance and pension funds took in around £280bn in 2017, It is assumed that this has to be used partly as working capital and partly invested in short term and longer term assets, so it sets a maximum value or over-estimate for allocations to all investments (equities, bonds, private assets including private equity, real estate and infrastructure) made by these institutions,

5.4 Institutional allocations to real estate

Unfortunately, real estate investment is not measured by ONS as a major category investment activity by UK institutions,

We first eliminate the obvious non real estate investment such as: short-term assets, government sterling securities, ordinary equity shares, and loans, That leaves us the “other assets” – mutual funds and assets not elsewhere classified and UK land buildings and new construction, From the Office of National Statistics, 2019 we can see (in the Appendix) the overall institutional allocation of assets by category in the past 5 years, We use this as the indicator as to what would be likely the investment portfolio of long-term insurance companies and pension funds,

Table 23: Income and expenditure by institutional group, UK

£ billion	Long-term insurance		General insurance		Self-administered pension funds		
	Annually	Premiums	Claims	Premiums	Claims	Contributions	Payments
2013		108,2	152,0	37,3	24,2	47,3	53,9
2014		116,8	153,5	36,0	22,7	41,1	51,6
2015		127,5	161,9	35,6	22,5	40,6	53,6
2016		130,0	163,8	34,6	21,7	47,4	54,6
2017		163,0	189,7	34,9	22,8	50,7	55,9
2018		194,5	198,4	35,2	23,0	50,2	58,2
Quarterly							
Q1 2013		23,7	34,7	9,6	6,0	16,0	13,0
Q2 2013		30,6	38,8	9,6	6,0	10,0	13,2
Q3 2013		26,6	39,4	9,2	6,0	10,2	13,6
Q4 2013		27,3	39,1	8,8	6,3	11,0	14,0
Q1 2014		30,4	34,3	9,1	5,7	11,8	12,3
Q2 2014		29,3	39,0	9,6	5,8	9,3	12,9
Q3 2014		27,3	36,9	8,8	5,6	9,3	13,1
Q4 2014		29,8	43,3	8,6	5,5	10,7	13,2
Q1 2015		25,3	34,6	9,1	5,8	12,0	12,7
Q2 2015		28,2	47,9	9,2	5,5	9,3	13,2
Q3 2015		35,5	39,6	8,3	5,6	9,1	13,6
Q4 2015		38,4	39,8	9,1	5,7	10,3	14,2
Q1 2016		31,4	44,9	8,5	5,4	17,3	13,6
Q2 2016		30,9	38,3	8,7	5,2	9,6	13,6
Q3 2016		29,5	37,0	8,8	5,3	9,7	14,0
Q4 2016		38,3	43,6	8,6	5,9	10,8	13,4
Q1 2017		35,6	43,5	8,9	6,0	14,2	13,6
Q2 2017		37,8	47,8	8,5	4,9	13,6	13,9
Q3 2017		43,3	46,3	8,6	5,9	11,2	14,2
Q4 2017		46,3	52,1	8,9	6,0	11,8	14,2
Q1 2018		48,1	61,3	8,6	5,6	13,3	14,0
Q2 2018		38,5	41,7	9,0	5,6	12,1	14,7
Q3 2018		49,8	46,2	8,8	5,6	12,6	14,5
Q4 2018		58,1	49,3	8,8	6,2	12,1	15,0

Source: Office for National Statistics, 2019a

Overall, institutional investors appear to invest approximate 2,5% of their total assets into real estate directly, and 15% into mutual funds and unclassified assets, which is very likely to include joint ventures and non-listed real estate funds, Given a very generous share to the mutual funds, say 7,5%, on average UK institutional investors are likely to invest 10% of their total assets in real estate directly or indirectly, This figure is very close to the estimated shared calculated from investor survey conducted by INREV, the European Association for Investors in Non- Listed Real Estate Vehicles,

The 2018 Hodes Weill Allocations Monitor (Hodes Weill/Cornell 2018) included research collected on a blind basis from 208 institutional investors in 29 countries, The 2018 participants held total assets under management exceeding US\$11,0 trillion and had portfolio investments in real estate totaling approximately US\$1,0 trillion or 9% of total assets, Average

target allocations to real estate increased to 10,4% in 2018, up 30 bps from 2017 and up approximately 150 bps since 2013, Despite an increase in actual allocations, institutions remained meaningfully under-invested relative to target allocations, While 92% of institutions reported that they are actively investing in real estate, institutions remained approximately 90 bps under-invested relative to target allocations, Insurance companies were the most under-invested, Approximately 60% of institutions were under- invested relative to target allocations by an average of 200 bps,

It appears that 10% is a robust estimate of current allocations to real estate, Given that the total combined assets of long-term insurance companies and pension funds amount to £4,000 billion (Table 24), we could expect that these two institutional investor groups hold stock of approximately £400 billion worth of UK real estate assets, which is around 35-40% of the UK market (IPF, 2018),

However, we are more interested in the flow of investment into real estate from insurance companies and pension funds, For instance, the average asset growth of insurance companies and pension funds is 4,88% annually, Given the estimated 10% real estate allocation, we can expect that $£4,000bn * 0,0488 * 0,1 = £19,52$ billion (say £20bn) available to be invested in real estate annually, (Note that this is remarkably close to the required additional investment in housing, but by no means all of this real estate allocation will go to residential,)

Blackrock (2019) suggest *“UK institutions plan a significant shift out of equities, a modest decrease in hedge funds and increases in real assets and fixed income”*,

This trend has been confirmed in the Appendix, We can see that the overall share of equity has been steadily declining while the share of other assets has been increasing, It appears we can count on such a trend to continue for a few years and to expect larger inflow of funds to real estate,

We should also note the possibility that these institutions find capital sources outside their traditional allocation pots, As an example, Legal and General, announcing a joint venture with Oxford University to invest £4bn over 10 years in housing for staff and students alongside science and innovation districts, sourced the capital from three sources,

These were: Legal and General Investment Management, which looks after a set of property funds for ‘internal’ capital (Legal and General insurance and pension receipts) and ‘external’ money (separate accounts and funds available to a variety of investors); shareholder funds, which means the L&G balance sheet; and annuity funds, non-property specific vehicles with strict liability matching criteria,

Table 24: Total net investment and asset holdings by institutional group

£ million	Total assets	Long-term insurance companies	pension funds	Combined Total
Holdings at market values				
2012	3,283,884	1,410,411	1,603,292	3,013,703
2013	3,472,513	1,449,526	1,706,682	3,156,208
2014	3,654,780	1,535,547	1,784,104	3,319,651
2015	3,696,092	1,559,670	1,850,276	3,409,946
2016	4,187,653	1,717,351	2,119,834	3,837,185
2017	4,444,365	1,803,167	2,218,985	4,022,152
2018	4,391,817	1,790,196	2,221,345	4,011,541
Average growth rate	4,96%	4,05%	5,58%	4,88%
Net investment				
2013	48,375	-17,280	18,788	1,508
2014	12,549	-14,605	10,322	-4,283
2015	27,586	-4,984	13,570	8,586
2016	-5,657	3,913	20,425	24,338
2017	33,803	-5,310	-2,718	-8,028
2018	-52,548	-12,971	2,360	-10,611

We now need to acknowledge that not all real estate investment will go to the housing sector, as a significant portion will go to industrial, office, retail and other real estate assets, We now need a realistic assumption about the likely share of investment that will go to the residential sub-sector within the real estate asset class,

Table 25: residential stock and invested stock value (£bn)

	2013*	2016	2017	% change 2013-2017
Total residential stock	4410	6149	6498	47
Total private rented stock	837	1110	1152	38
Invested private rented	12	23	32	169
Invested student accommodation	6	14	17	178

Source: IPF (2018); prior IPF estimates; ONS,

Note: * Relates to "mid-year" 2013

Due to rounding, some percentage calculations may vary if derived from figures recorded in table,

The value of the total residential stock in 2017 was around £6,5 thousand billion, Over the period mid 2013 to end 2017, this had increased by around 10% annually, The value of the total private rented residential (PRS) stock in 2017 was around £1,15 thousand billion, Over the period mid 2013 to end 2017, this had increased by around 8% annually, MSCI's sample of the total UK investable market size is USD687bn, The IPF 2018 report measures the size of the UK market at around £980bn, which would suggest that the MSCI value represents around 60% of the investable stock,

According to MSCI, the UK residential weight estimate is 7,5%, one of the smallest global allocations (Table 26), while the average global weight of residential property (it can be assumed that this is close to 100% rental property) in 2018 was 19,3% (MSCI 2018),

Table 26: MSCI real estate allocations to residential (%)

	Residential share
Netherlands	58,6%
Switzerland	46,8%
Denmark	31,2%
Austria	30,4%
US	25,1%
Japan	19,5%
Sweden	18,7%
Germany	16,9%
Canada	10,9%
France	9,7%
UK	7,5%
Italy	6,8%
South Africa	5,6%
Spain	3,4%
South Korea	1,7%

Source: MSCI (2018)

In order for the UK residential investment market to grow to a 19,3% weight (implying that the total market size would grow to \$787bn) new investment of \$152bn would be required, This is £15bn each year over the next 10 years, Rounding up to take account of the MSCI 60% market sample, new investment of \$250bn would be required, This is £25bn each year over the next 10 years,

We can also refer to the INREV survey on investors to have an idea how fund managers allocate assets within real estate sector, INREV (2019) offers such a split, (Figure 20), As we can see, almost 20% of real estate investment goes to residential sector in Europe,

Figure 21 (INREV, 2019) further breaks down the investment strategy within real estate sector by providing an investor type analysis,

Figure 20: INREV real estate sector allocations

Figure 17: Current allocations to real estate by sector

- Retail
- Office
- Industrial/logistics
- Residential
- Healthcare
- Student accommodation
- Other

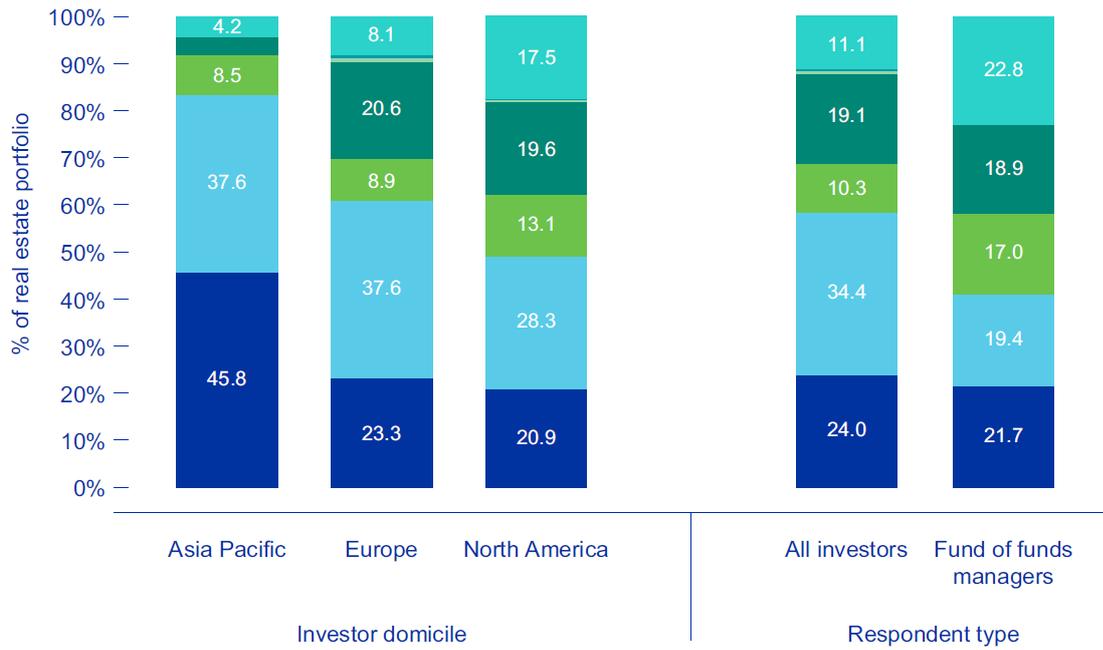
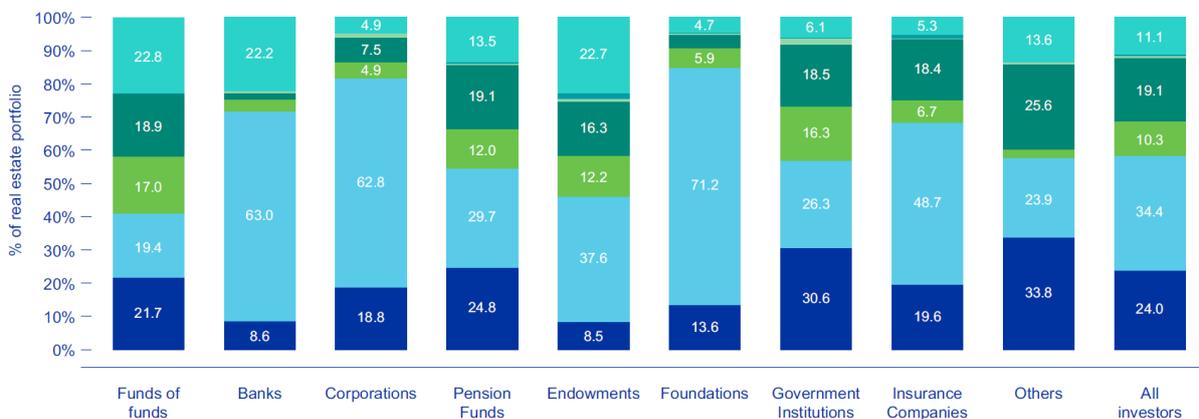


Figure 21: INREV real estate sector allocations

Figure 18: Current allocations to real estate by sector strategy and investor type

- Retail
- Office
- Industrial/logistics
- Residential
- Healthcare
- Student accommodation
- Other



We can see that across the world, pension funds and insurance companies have around 19% of their real estate asset in residential real estate, If we include student accommodation as part of residential real estate, we can consider that around 20% of total real estate investment is in the residential sector, In the UK, we can imagine rapid growth towards this value given appropriate government support and the absence of political interference,

5.5 Results

Baseline results

Now we can estimate how much extra funding we can get from insurance companies and pension funds,

Table 28: base case result

£ million		20% in residential real estate			
	Estimated added investment to real estate				
Year	2019	2020	2021	2022	2023
Total Asset	4,207,392,54	4,412,805,95	4,628,248,06	4,854,208,49	5,091,200,758
Real Estate	25,405,95	26,646,32	27,947,25	29,311,69	30,742,75
	Estimated added investment to residential real estate				
Residential	5,081,19	5,329,26	5,589,45	5,862,34	6,148,55

Assuming that 20% of real estate allocations will go to the investable residential sector, we can expect that £5-6 billion annual extra funding would go to residential real estate,

Alternative result 1

Now, we consider a mild increase in investment intensity in the residential sector within the real estate sector, This could come from active policy encouragement, or by liability-driven investors looking for higher yield indexed income. If this trend were to bring the share of residential real estate to 35%, we would be able to envisage around £9-11 billion going into residential housing, mainly in PRS and social/affordable housing projects,

Table 29: alternative result 1

£ million		35% in residential real estate			
	Estimated added investment to real estate				
Year	2019	2020	2021	2022	2023
Total Asset	4,207,392,54	4,412,805,95	4,628,248,06	4,854,208,49	5,091,200,76
Real Estate	25,405,95	26,646,32	27,947,25	29,311,69	30,742,75
	Estimated added investment to residential real estate				
Residential	8,892,08	9,326,21	9,781,54	10,259,09	10,759,96

Alternative result 2

Another possible outcome is that investors not only seek to invest more of their real estate portfolio into the residential sector, but they also speed up the shift from equity to real estate, which is a very likely scenario given the current global trend. In this scenario, we assume that overall asset rebalancing creates an 1% additional allocation to real estate, 35% of which would be invested in the residential sector. We can then expect an annual influx of funds of around £15 billion into rental housing. This figure is already very close to the total need of funding for 100,000 additional affordable homes. We have not yet considered any other potential sources of investment, such as sovereign wealth funds or private investment.

Table 30: alternative result 2

£ million		1% inflow to real estate and 35% in residential				
		Estimated added investment to real estate				
Year	2019	2020	2021	2022	2023	
Total Asset	4,207,392,54	4,412,805,95	4,628,248,06	4,854,208,49	5,091,200,76	
Real Estate	42,073,93	44,128,06	46,282,48	48,542,08	50,912,01	
		Estimated added investment to residential real estate				
Residential	4,725,87	5,444,82	6,198,87	6,989,73	7,819,20	

5.6 Sovereign wealth funds and other sources

Sovereign wealth funds are also known to be active in real estate investment. Given that the UK remains one of the most favourable real estate investment destinations, it is likely to attract substantial amounts of funding from this source. There has been a persistent phenomenon in international finance known as the reverse capital flow: developing countries have constantly net negative foreign investment flows to the developed countries, especially countries like China, Qatar and UAE. The leading explanation of such capital flows is that poor institutions and a lack of protection of property right in developing countries has led investors to seek the more stable developed countries for safe investments.

We examine top sovereign funds worldwide and their investment portfolios to assess how much potential there is for investment in the UK residential real estate market. Given the sheer size of those sovereign wealth funds, and assuming that a small fraction of total assets is allocated to the UK residential market, this source would create a substantial capital source for new rental assets, and possibly the riskier build to sell market too. Indeed, the need for liability matching being largely absent for these funds, they may prefer a higher risk position.

According to Pensions and Investments Online (2018) sovereign wealth fund assets globally increased 13% to a record \$7,45 trillion in the year ended March 31, 2018. If we assume that the sovereign wealth fund asset base grows and provides new capital at a rate of 10% annually, and 20% is allocated to real estate, of which 10% comes to the UK and 25% of this is allocated to the residential sector, we find an additional annual $(\$7,45\text{tr} * 0,1 * 0,2 * 0,1 * 0,25) = \$3,75\text{bn}$ or £3bn.

Table 31: Top 10 Sovereign Wealth Funds – potential for UK real estate investment

Rank	Profile	Total Assets (mils)	Region	Current share in Real Estate	Total Value of Assets in Real Estate (mils)	5% Real Estate investment in UK (mils)
1	Norway Government Pension Fund Global	\$1,072,840	Europe	0.038	\$ 40,767.92	\$ 2,038.40
2	China Investment Corporation	\$941,417	Asia	0.03	\$ 28,242.51	\$ 1,412.13
3	Abu Dhabi Investment Authority	\$696,660	Middle East	0.05	\$ 34,833.00	\$ 1,741.65
4	Kuwait Investment Authority	\$592,000	Middle East	0.05	\$ 29,600.00	\$ 1,480.00
5	Hong Kong Monetary Authority Investment Portfolio	\$509,353	Asia	0.03	\$ 15,280.59	\$ 764.03
6	SAFE Investment Company	\$439,836	Asia	0.03	\$ 13,195.08	\$ 659.75
7	National Council for Social Security Fund	\$437,900	Asia	0.05	\$ 21,895.00	\$ 1,094.75
8	GIC Private Limited	\$390,000	Asia	0.07	\$ 27,300.00	\$ 1,365.00
9	Temasek Holdings	\$374,896	Asia	0.16	\$ 59,983.36	\$ 2,999.17
10	Public Investment Fund	\$320,000	Middle East	0.05	\$ 16,000.00	\$ 800.00
				Exchange Rate 1,25	Total Potential Inflow:	\$ 14,355 £ 11,484

We can also expect that there will be substantial interest from the typical family office, especially in the BTR sector, plus crowdfunding and buy-to-let capital, The size of this capital pool is not known, There are also large endowments and charities that typically like to allocate to private assets, mainly real estate, Given potential annual institutional funding of somewhere between £5bn and £18bn, plus potential international investment flows and private money, and given typical annual transaction volumes in the UK of around £50bn annually (RCA, 2019), an annual requirement of around £20bn seems just about achievable, but a stretch, and requiring both policy encouragement and continued attractiveness of the UK as a destination for capital,

Finally, will any of these sources use debt on top of these equity commitments? The low running yields on rental residential makes this less obvious than for higher yielding assets, but most residential REITs and PRS funds aim for leverage of around 25-30%, Using 25% debt, this would reduce an annual capital requirement of £19-25bn to an annual equity requirement of £14-19bn,

6. Conclusions

Cheshire and Carozzi, 2019 suggest that *“There is a serious and growing crisis of housing supply and affordability substantially, but not only, caused by a long term failure to allow enough land to be used for building, This in turn is mainly caused by policy constraints imposed on land supply since the evidence shows that the quantity of suitable land is very great – far exceeding the area of all existing development even avoiding all land with any environmental or amenity designation,”*

Given this, it appears that a shortage of permitted land is a bigger constraint to building an extra 100,000 homes a year than is the unavailability of finance, In this paper, we find that around £19-25bn of capital is needed to build the extra homes, With moderate reforms and encouragement, UK institutional investors are the natural providers of equity capital, although it has to be noted that almost all of their appetite would be for rental housing, both privately rented and social/affordable, It is possible to envisage the necessary capital being made available, making the large assumption that UK investors will continue their expansion into the residential markets from negligible levels in 1990, and 7,5% today, to the global norm of around 20% or the US figure of 25%, In order for this to happen, some reforms and innovations will be helpful or perhaps necessary, It also has to be said that unlocking greater demand for rental housing without releasing more permissioned land for development will risk creating even higher and less affordable house prices,

We appear to be in a situation in which there is a national presumption, backed up to some extent by household finance economists, in favour of owner occupation over rental housing, This is not the situation in other successful European economies, Germany being the prime example, Yet there is evidence that younger citizens are happy to stay in rental housing, and there is effectively zero vacancy in the rental market, There is also a far greater pool of capital naturally attracted to the private rental sector than to housebuilding for owner-occupation, and this pool has an extremely low cost of capital in the current interest rate environment, The private rental sector should produce the same number of social and affordable units through s106 agreements, and the same pool of capital is also directly interested in investing in social and affordable units, Private and social rental capital will also focus on London and the south east where the shortage is greatest, For these reasons, focussing on investment into the broad rental market will have bigger positive impact on the housing shortage – especially the shortage of affordable units - than will focussing on owner-occupation,

Nevertheless, a very healthy housing sector would be firing in all fronts, To support more construction for owner-occupation will require help for SME builders, who are currently at a commercial, largely finance-based, disadvantage relative to the excessive concentration of large housebuilders, Providing lower cost and more easily available debt finance through promotion of a covered bond market would be a big help, Existing tax breaks and financial support packages for owner occupiers may be necessary to support a market which is so difficult to access given current shortages and high price levels,

However, assuming that more permissioned sites are made available, some policy support for professional rental investors – not the buy-to-let market – would help to uncork the bottle, releasing liability-driven and annuity funds into social and PRS sectors alongside specialist rental property funds encouraged particularly by the returns achieved by student housing

investors, It is not clear that a reasonable level of tenant protection is a bad thing for investors, Greater security of tenure, including longer leases, can lead to longer average stays and better average occupancy and security of income for landlords, As long as rents are indexable to inflation, rental investment is not necessarily made less attractive by reasonable levels of tenant protection, as evidenced by Germany, Austria and others European countries, However, excessive interference could damage investor appetite for decades,

While the natural supply of capital might favour private rental housing, a serious boost to rental supply is by no means unhelpful to aspiring owner-occupiers, Given the right economics, the break-up of purpose-built rental blocks, or their conversion to innovative shared ownership tenure, is easily envisaged, More rental housing should provide choice, and cool house price rises, A moderate over-supply of rental homes is likely to be positive for owner-occupiers,

In the social sector, a government commitment not to change social rent indexation or rent levels would be extremely helpful, This might require an independent housing body to manage this imperative, free from political interference, Less radical would be a scheme for the government to sign long over-riding leases for social housing, as is the case in Ireland, This would produce an irresistible indexed bond-like investment priced in the current interest rate environment at huge multiples of rent, say 50 times (a 2% yield), Also, the re-direction of debt-financed local authority borrowing to affordable housing would almost certainly be of benefit to all interested parties,

Around £19-25bn of capital is needed to build the extra homes, We estimate that potential annual institutional funding will be available at somewhere between £5bn and £18bn, There will be additional potential international investment flows of up to £3bn, and some private savings will also be attracted to the rental sector,

The use of reasonable (25% loan to value) debt on top of these equity commitments would reduce an annual capital requirement of £19-25bn to an annual equity requirement of £14-19bn,

Given typical annual transaction volumes in the UK of around £50bn annually (RCA, 2019), plus Cushman and Wakefield of around \$500bn of new capital targeting real estate globally, an annual requirement of around £14-19bn seems just about achievable, but only at a stretch, requiring both the continued attractiveness of the UK as a destination for capital and the appropriate policy encouragement,

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Appendix: COMBINED INSTITUTIONAL GROUPS: TOTAL NET INVESTMENT AND SUMMARY BALANCE SHEET BY ASSET TYPE											
£ million											
				UK corporate securities		Overseas securities			Other assets		
			UK government sterling securities	Ordinary shares	Other ³	Corporate securities				Mutual funds and assets not elsewhere classified ⁴	UK land, buildings and new construction
	Total assets	Short-term assets ²				Ordinary shares	Other ³	Government securities	UK loans		
Holdings at market values											
2012	3,283,884	446,571	435,209	489,255	319,703	588,087	276,594	79,906	34,005	526,715	87,839
2013	3,472,513	483,382	449,095	525,762	305,670	664,126	274,473	82,875	35,108	563,389	88,633
2014	3,654,780	556,491	500,139	502,466	334,795	718,598	298,827	88,541	37,642	520,042	97,239
2015	3,696,092	560,944	508,047	485,185	327,332	727,224	310,243	94,516	38,888	542,439	101,274
2016	4,187,653	617,328	614,714	504,932	339,227	858,695	326,382	107,714	52,568	653,840	112,253
2017	4,444,365	635,715	659,732	514,944	339,332	946,980	335,326	126,145	56,338	716,960	112,893
2018	4,391,817	613,650	674,711	488,171	350,913	876,220	355,243	127,330	60,373	730,994	114,212
2014 Shares	100%	15.23%	13.68%	13.75%	9.16%	19.66%	8.18%	2.42%	1.03%	14.23%	2.66%
2015 Shares	100%	15.18%	13.75%	13.13%	8.86%	19.68%	8.39%	2.56%	1.05%	14.68%	2.74%
2016 Shares	100%	14.74%	14.68%	12.06%	8.10%	20.51%	7.79%	2.57%	1.26%	15.61%	2.68%
2017 Shares	100%	14.30%	14.84%	11.59%	7.64%	21.31%	7.54%	2.84%	1.27%	16.13%	2.54%
2018 Shares	100%	13.97%	15.36%	11.12%	7.99%	19.95%	8.09%	2.90%	1.37%	16.64%	2.60%
Average Shares	100.00%	14.68%	14.46%	12.33%	8.35%	20.22%	8.00%	2.66%	1.20%	15.46%	2.64%
Net investment											
2013	48.375	24.882	12.625	-25.188	4.739	955	13.049	4.060	1.103	10.745	1.405
2014	12.549	5.906	10.193	-18.052	-4.543	-12.000	11.500	-238	2.534	12.437	4.812
2015	27.586	4.453	790	-10.201	-10.356	651	11.794	6.384	1.246	21.821	1.004
2016	-5.657	-8.480	37.808	-18.954	1.607	-26.940	-5.110	169	13.680	2.731	-2.168

2017	33.803	23.734	18.493	-34.675	1.555	-26.644	12.547	15.356	3.770	21.183	-1.516
2018	-52.548	-22.065	14.979	-26.773	11.581	-70.760	19.917	1.185	4.035	14.034	1.319
Net percentage change											
2015		-0.050%	0.061%	-0.621%	-0.304%	0.014%	0.217%	0.135%	0.022%	0.447%	0.079%
2016		-0.435%	0.934%	-1.069%	-0.756%	0.830%	-0.600%	0.015%	0.203%	0.938%	-0.059%
2017		-0.438%	0.165%	-0.471%	-0.466%	0.802%	-0.249%	0.266%	0.012%	0.518%	-0.140%
2018		-0.331%	0.519%	-0.471%	0.355%	-1.356%	0.544%	0.061%	0.107%	0.513%	0.060%
Average change		-0.313%	0.420%	-0.658%	-0.293%	0.072%	-0.022%	0.119%	0.086%	0.604%	-0.015%

