Housing equity withdrawal since the financial crisis

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The amount of housing equity withdrawal (HEW) has swung from being significantly positive before the financial crisis and recession, to negative over the past few years. The net effect of a chain of housing transactions is typically a large equity withdrawal. The fall in the number of housing transactions is therefore likely to have been a key driver of the fall in equity withdrawal since the financial crisis. There is little sign that, at the aggregate level, households are making an active effort to pay down debt more quickly than in the past.

To explain what is meant by housing equity withdrawal (HEW), it is useful to first define housing equity itself. The stock of housing equity is the portion of housing wealth which does not have lending secured on it:

Stock of housing equity = stock of housing wealth – stock of lending secured on housing

The stock of housing equity can change in three main ways: through changes in the stock of secured lending when households take out or repay debt; through changes in the stock of housing wealth when new properties are built or improvements are made to existing properties;[2] and from revaluations of the stock of housing wealth due to changes in house prices. The balance of the first two ways of changing equity (ie excluding revaluations) in each period is classed as HEW, which is calculated by the Bank of England.[3][4]

In 2008, HEW turned negative for the first time since the 1990s. That signified that the household sector as a whole was injecting equity into housing after a long period of withdrawals. While it might be tempting to interpret this as an active effort by households to pay down debt more rapidly than in the past, it is not clear that this is the case.

In practice, HEW summarises the net effect of many different ways in which individual households might inject or withdraw housing equity. For example, a homeowner might take out a further advance on their mortgage and so withdraw housing equity. Another homeowner might make improvements to their home and so inject housing equity. And HEW can also be affected by housing market transactions. When households, in aggregate, are withdrawing more equity than they are injecting, HEW is positive, and when they are injecting more than they are withdrawing, HEW is negative. As will be set out in this article, the weakness in housing market transactions has been an important driver of the fall in equity withdrawal.

Past *Bulletin* articles by Davey (2001), Benito and Power (2004) and Benito *et al* (2006) have considered the uses of withdrawn equity, for example for consumption or dwellings investment. That is beyond the scope of this article which focuses solely on what has driven the move to equity injections since 2008.

The first section of this article explains the many different injections and withdrawals which underlie the HEW figures. The second section looks at the HEW figures since the financial crisis started. It presents illustrative Bank estimates of the different gross flows making up HEW, and considers how their recent movements should be interpreted. The calculations behind the estimates of the gross flows are explained in the box on pages 130–31.

Understanding HEW

HEW occurs when withdrawals of housing equity by the household sector are larger than injections of equity. The Bank measures HEW by taking the difference between net lending secured on dwellings and households' gross investment in housing. But while this is the simplest way to estimate net withdrawals of housing equity, it does not offer insights into why HEW has changed.

(1) The author would like to thank Kishore Kamath and Varun Paul for their help in producing this article.
(2) Changes in the stock of housing wealth can also occur through transfers of properties between sectors, eg if a housing authority sells a home to the household sector, the stock of housing owned by households will have increased and so equity is injected. While this would be captured in HEW, it is excluded from this article due to its small relative size.
(3) The Bank publishes a quarterly HEW statistic. The data can be found on the Bank's interactive database with the code LPQBE92 and the statistical release is accessible via www.bankofengland.co.uk/statistics/hew/current/index.htm. Details of the method of estimation are explained at www.bankofengland.co.uk/mfsd/iadb/notesiadb/hew_notes.htm.
(4) Prior to 2007, Bank publications referred to HEW as mortgage equity withdrawal.

Although more difficult to measure, the different underlying gross injections and withdrawals that make up the HEW statistic can shed light on movements in HEW. These flows are set out in **Figure 1** and **Table A** and are drawn from Davey (2001). Some of these flows are closely related to housing market turnover, while others are carried out by homeowners but are unrelated to housing market transactions. These are considered in turn.

Gross flows related to housing market transactions

Some injections and withdrawals of housing equity are closely related to turnover in the housing market. Housing market transactions typically occur in chains — when buying a property most people first have to sell their own property. In order for a chain to start there usually needs to be a buyer who does not sell another property (typically a first-time buyer or buy-to-let investor). And for it to end, a seller who does not buy another property (for instance a house builder selling a new-build property or a 'last-time seller', for example when a property is sold after inheritance or emigration) is needed. In between, there are homemovers who sell one property and buy another.

Different buyers and sellers at different stages of the chain of housing market transactions may make equity withdrawals or equity injections (**Figure 1**). The buyer at the start of the chain injects equity, either to the value of their deposit or to the value of the property if they buy outright. Homemovers within the chain may make no change to their equity, choose to inject it through undermortgaging, or withdraw it through overmortgaging or trading down (see **Table A** for definitions). And the seller at the end of the chain withdraws equity, to the value of their equity share in the property, ie the house price less their outstanding mortgage (if they have one).

Figure 1 Housing chains and housing equity withdrawal

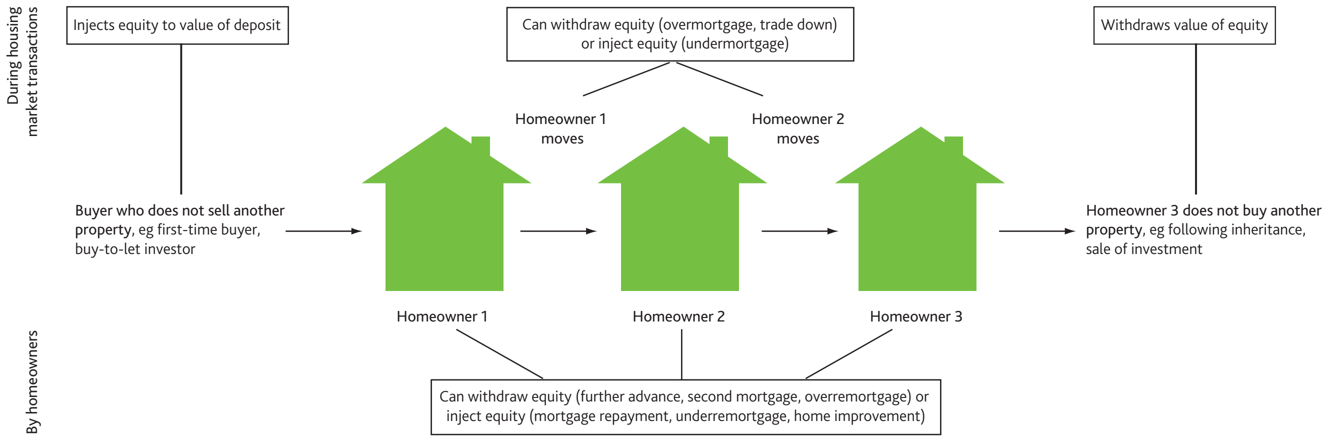


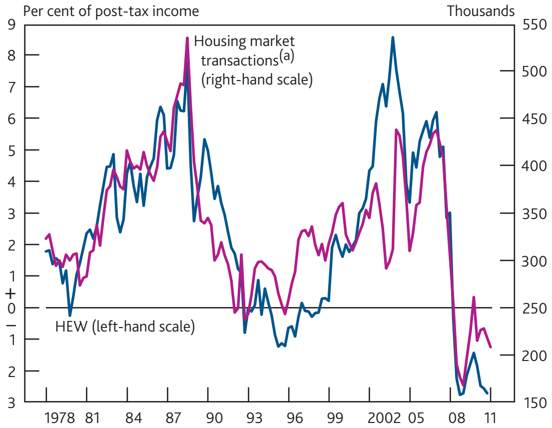
Table A Methods of withdrawing and injecting equity

Withdrawals		Injections	
During housing market transactions			
Last-time sales	A seller does not buy a new property, so the proceeds of the sale are released from the housing market.	Buyers who do not sell another property, eg first-time, buy-to-let purchases	The deposits paid by first-time buyers and buy-to-let investors.
Overmortgaging	A moving owner-occupier increases their mortgage by more than the difference between the old and new house prices.	Undermortgaging	A mover changes their mortgage by less than the difference between the old and new house prices.
Trading down	A seller moves to a cheaper property but reduces the mortgage by less than the difference between the old and new property prices, so leaving a cash sum.		
By homeowners			
Further advances and second mortgages	A borrower raises a further advance on an existing mortgage or takes a second mortgage without improving the property to the same extent.	Repayments of mortgage debt	Regular and lump-sum repayments of principal and the redemption of mortgages, except on sale or remortgaging.
Overremortgaging	A borrower taking a new mortgage increases their debt without improving the property to the same extent.	Underremortgaging	A borrower takes a new mortgage and reduces their debt without moving properties.
		Home improvements	Home improvements paid for with non-secured funds.

The net effect of a housing chain is typically a large equity withdrawal. This is because between buying for the first time and selling for the last, homeowners make mortgage repayments which increase their equity share. While the buyer at the start of the chain usually injects some equity, and homemovers may, on balance, inject equity (although they could also withdraw), these are typically dwarfed by the larger withdrawal by a last-time seller (Holmans (2001)).

So movements in HEW will be closely related to turnover in the housing market. And indeed, **Chart 1** shows that there is a close comovement between HEW and housing market transactions.

Chart 1 Housing market transactions and housing equity withdrawal



Sources: Bank of England, HM Revenue and Customs (HMRC) and Bank calculations.

(a) Number of residential property transactions in the United Kingdom with a value of £40,000 or above per quarter from 2005 Q2. Prior to that date, the series has been assumed to grow in line with quarterly HMRC data on particulars delivered in England and Wales.

HEW related to housing market transactions will also be influenced by house prices. House price rises increase the size of a homeowner's equity and so with the same number of housing chains, the size of total withdrawals by last-time sellers will be larger.

Gross flows by homeowners

Not all gross flows within HEW are related to housing market transactions; many withdrawals and injections are carried out by homeowners with no sale of property (**Figure 1**). Homeowners can renegotiate the size of their mortgage without moving — either by over or undermortgaging when moving to a new mortgage deal or by taking out a further advance. And regular repayments of mortgage principal, lump-sum mortgage repayments or improvements to a property, all constitute equity injections.[1]

Changes in HEW since the financial crisis

The different flows mentioned above are likely to have different motivations and therefore provide different signals about household behaviour. For example, further advances taken on a mortgage might be taken to finance a consumer purchase or a home improvement, while equity withdrawn following a last-time sale after inheritance may not have such a specific purpose. And regular mortgage repayments are often a condition of a mortgage, while lump-sum mortgage repayments might be an active effort to pay down debt. So understanding how the gross flows have changed is important for interpreting changes in the HEW figures.

This section first sets out some of the developments since the crisis that will have influenced HEW. It then goes on to present estimates of the different gross flows underlying HEW and explain how they have changed.

Factors that are likely to have affected HEW

The financial crisis was associated with a sharp tightening in credit availability, a fall in house prices and a fall in housing market transactions to around half of their pre-crisis levels. These developments (which are themselves interlinked) are all likely to have had implications for HEW.

First, the fall in housing market turnover will have reduced equity withdrawals related to transactions. Tighter credit conditions have led to a large reduction in the number of first-time buyers as the typical size of deposit needed has risen substantially. First-time buyers start housing chains and so the fall in their number will have reduced the number of chains. As explained above, housing chains typically lead to large equity withdrawals, so the lower number of housing market transactions, all else equal, will have led to lower equity withdrawals.

Second, equity withdrawals related to housing market transactions that have still taken place will be smaller. This is because house prices currently lie around 13% below their 2007 level and so the value of homeowners' housing equity is lower than it would otherwise have been.

And finally, withdrawals and injections by homeowners (unrelated to housing market transactions) will also have been affected. Tighter credit conditions may mean some homeowners have become less able to draw down on their housing equity than in the past. In addition, the crisis may have affected households' desire to either draw on or inject housing equity. Some homeowners may view their equity as a buffer against which they can withdraw when they experience falls in their income. During the financial crisis and subsequent recovery many households' real incomes have been squeezed, so it is possible that some homeowners will have chosen to draw on their equity as a result. But other homeowners may

(1) New house building increases the value of the housing stock but is not a separate gross injection. If a mortgage is used when purchasing the property, then the size of the stock of secured lending will also increase. Any net increase in the value of equity is captured by the equity injection of the first-time buyer or buy-to-let investor at the start of that housing chain.

Estimating the gross flows and considering their robustness

This box explains how each of the gross flows making up HEW (shown in **Chart 2** and outlined in **Table A**) are estimated and checks their robustness.

Table 1 sets out which flows are measured and which need to be estimated, and the method and sources used. Data are available on regular and lump-sum repayments of mortgage principal, improvements to the housing stock and further advances. But estimates are needed for injections by first-time buyers and buy-to-let investors; withdrawals by last-time sellers and households trading down; and the change in equity through over and undermortgaging and remortgaging.

Deposits of first-time buyers can be estimated using data on the number of first-time buyers, their average house price and the median deposit as a share of their house price. For buy-to-let investors' deposits, there are data available on the number of investors, but not their average house price nor their average loan to value ratio. These are therefore assumed to be the average house price in each period, and 75% respectively.

It is more difficult to estimate withdrawals by last-time sellers and homeowners trading down.(1) But data from the British Household Panel Survey (BHPS) can be used to give an estimate. These data provide the distribution of each age group's house prices relative to the average house price for each year of the sample considered (1993 to 2010, **Chart A**). This distribution is hump-shaped, reflecting homeowners moving to relatively more expensive properties as they move up the housing ladder and then down to relatively cheaper properties in later life. Using each year's ratio, and multiplying by the average house price (as measured by the average of the Halifax and Nationwide indices) creates an estimate of the house price of different groups of homeowners over time.(2)

Using the BHPS it is also possible to estimate homeowners' loan to value ratios for each age group. Alongside the house price ratios, this allows the average size of each equity withdrawal through last-time sale and trading down over time to be estimated.

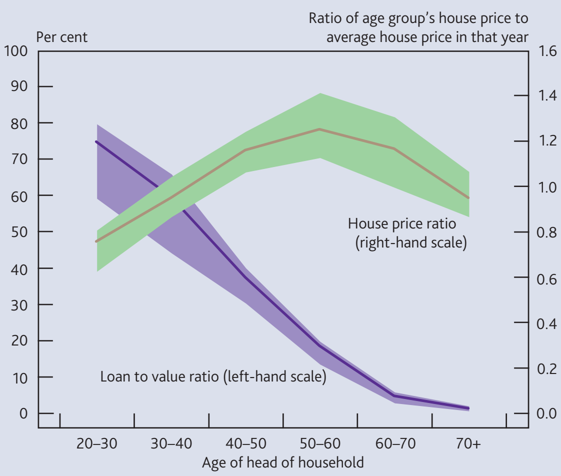
The method used to estimate the number of last-time sellers is based on the assumption that the number of buyers starting housing chains equals the number of sellers ending them. Housing chains can be started by first-time buyers and buy-to-let investors, and end with a last-time seller or a

Table 1 Estimating gross flows

Flow	Measured or estimated?	Method and sources
Injections		
Mortgage repayments	Measured	Bank of England data on regular and lump-sum repayments of mortgage principal(a)
Improvements	Measured	ONS data on dwellings investment spent on improvements(b)
Deposits from first-time buyers	Estimated	Product of: • average house price (Halifax and Nationwide standard price of first-time buyer) • number of first-time buyers (Council of Mortgage Lenders (CML) data on mortgages advanced) • average advance as a per cent of house price (CML)
Deposits from buy-to-let investors(c)	Estimated	Product of: • average house price (Halifax and Nationwide all houses) • number of buy-to-let investors (CML data on mortgages advanced for buy-to-let) • average advance as a per cent of house price (assumed 75%)
Withdrawals		
Withdrawals by last-time sellers	Estimated	Product of: • estimate of equity of last-time seller (estimated using BHPS data) • an estimate of the number of last-time sellers
Withdrawals by traders down	Estimated	Product of: • difference between estimate of equity in old house and estimate of equity in new house (estimated using BHPS data) • an estimate of number of down traders
Further advances(d)	Measured	Bank of England data on 'other secured lending'
Net effect of over and undermortgaging and remortgaging	Estimated as a residual	Estimated as a residual. Takes the difference between the Bank's HEW statistic and the other flows.

(a) Before 1999, total repayments data are not available. Before this date, data on repayments to building societies are scaled by building societies' share of outstanding secured lending in the period.
(b) Improvements are taken from disaggregated ONS dwellings investment data which are not published. They have therefore not been subject to the same level of scrutiny as published National Accounts variables.
(c) Buy-to-let data are only available from 1999. Before this, any injections of equity by buy-to-let investors will be captured in 'other'.
(d) Further advances data are only available from 1998. Before this, any withdrawals of equity through further advances will be captured in 'other'.

Chart A House prices and loan to value ratios by age group(a)



Sources: BHPS surveys 1993 to 2008 and Bank calculations.

(a) Swathes show the range of the profiles for each year of the survey and the lines are the averages across these surveys.

new-build property. Last-time sellers can therefore be estimated as the number of first-time buyers and buy-to-let purchases less sales of new-build property. Multiplying this by the average equity withdrawal of a last-time sale gives an estimate of how much equity is withdrawn annually through last-time sales.

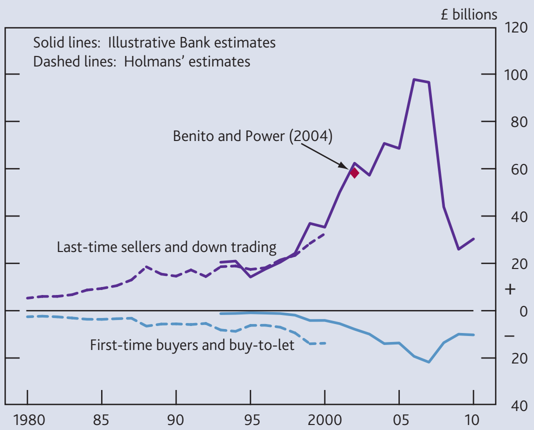
BHPS data suggest that households typically move into relatively cheaper properties between the ages of 50 and 70 (**Chart A**). In order to get an estimate of the number of households trading down it is assumed that every homeowner is equally likely to move home. Under that assumption, the number of transactions can be multiplied by the proportion of homeowners who are aged between 50 and 70 to get an estimate of the number of homeowners down trading each period. This is clearly stylised as different age groups probably have very different likelihoods of moving. Again, multiplying this number by the estimate of the average amount of equity withdrawn through trading down gives an estimate of the size of withdrawals through trading down each year.

Finally, it is not possible to estimate the balance of over and undermortgaging and remortgaging without detailed survey data. In theory, the net of the gross flows should be the same as the Bank's HEW statistic and so these flows are estimated by taking the difference between the aggregate HEW figures and the sum of the estimated and measured gross flows. This residual bar will also capture any error in the other estimates.

Robustness

The assumptions underlying some of the calculations are extremely stylised so it is important to test their robustness. It is reassuring that, where the samples overlap, these estimates of gross withdrawals from last-time sellers and households trading down are similar to those of Holmans (2001) and Benito and Power (2004) (**Chart B**). The estimates of injections by first-time buyers and buy-to-let investors presented in this article are smaller than Holmans'. If indeed these injections are underestimated, the 'other' bars, which are positive on average, might also be too small (**Chart 2**).

Chart B Comparing estimates of gross flows



Sources: Benito and Power (2004), Holmans (2001) and Bank calculations.

(1) A last-time seller is any homeowner who sells a property and does not buy another in the same transaction, eg after inheritance, emigration, divorce or sale of investment property. For simplification, the equity of a last-time seller is estimated as that of an elderly household (so focusing on last-time sales following inheritance). But the estimate of the number of last-time sales will capture last-time sales with any motivation.
(2) The BHPS is not available after 2008. For 2009 and 2010, the 2008 profiles are used.

have chosen to deleverage due to an increase in their uncertainty about the future.

Estimates of the gross flows

Holmans (2001) estimated the size of all the different gross injections and withdrawals for the years 1980 to 2000. This was a comprehensive summary of the different ways in which equity could be injected or withdrawn, drawing on detailed survey data, measured statistics and various assumptions.(1)

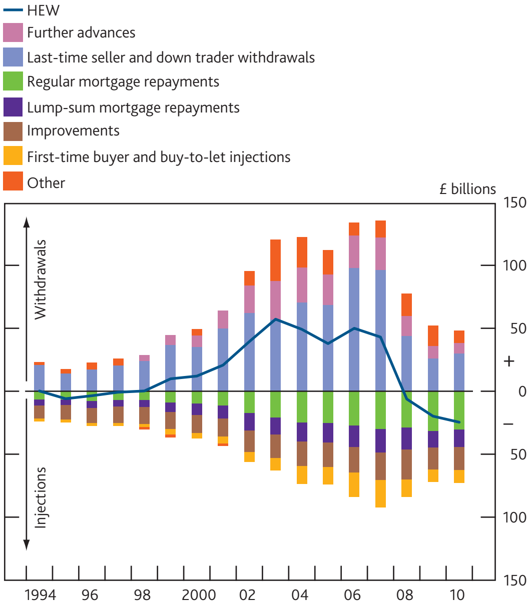
The method in this article follows on from Holmans, but in a simplified way. By making various assumptions the main gross flows can be estimated for recent years. And the analysis yields similar results to Holmans'. The box explains how the calculations are put together and their robustness.

Chart 2 shows estimates of the different gross flows making up HEW between the years 1994 and 2010. The line is the Bank's aggregate HEW statistic and the bars refer to the different gross flows. A positive number means that equity is being withdrawn, in aggregate; a negative number reflects an

(1) Benito and Power (2004) also used survey responses to identify the relative size of the different gross flows, but concentrated on withdrawals.

injection, in aggregate. Most of the different flows correspond closely to those set out in **Table A**. The 'other' bars are a residual category including the balance of four of the different flows (over and undermortgaging and remortgaging) for which there are no data, as well as any measurement error.(1) As mentioned above, these estimates are illustrative, and their robustness is discussed in the box on pages 130–31.

Chart 2 Gross flows of housing equity withdrawals and injections(a)



Sources: Bank of England, CML, Halifax, HMRC, Nationwide, ONS and Bank calculations.

(a) Data on further advances and buy-to-let injections are only available after 1998 and 1999 respectively. Before these dates, these flows will be captured in 'other'.

Chart 2 shows that between 1997 and 2007 withdrawals of equity were increasing at a faster pace than injections. This meant that withdrawals began to exceed injections and so HEW was positive. But since the financial crisis, there has been a large fall in withdrawals. With broadly unchanged injections, withdrawals have been smaller and so HEW turned negative.

There are two factors which have driven the fall in withdrawals: the fall in withdrawals by last-time sellers and down traders (lilac bars), and the fall in further advances (pink bars). Indeed, the fall in the lilac bars is large enough to account for the entire move to net equity injections. That is, the move to aggregate injections can be accounted for by a fall in the number of people withdrawing large amounts of equity through last-time sales and trading down. And that is likely to reflect the large fall in housing transactions (and to a lesser extent the relatively smaller fall in house prices).

Further advances on mortgages also fell by around two thirds between 2007 and 2010. This could indicate that households are *unable* or *unwilling* to withdraw equity as they have done in the past. It is impossible to judge from the data which of these factors are at play but survey responses suggest that both are contributing. In the 2010 NMG household survey, 22% of all households reported that they were credit constrained suggesting that some households were unable to acquire more debt (Nielsen *et al* (2010)). And a third of all households were avoiding taking on more debt, suggesting that some were also unwilling, perhaps due to heightened uncertainty.

While withdrawals have fallen sharply since the crisis, injections have been little changed. The green bars and purple bars in **Chart 2** show that injections of equity from regular and lump-sum repayments of mortgage principal have been relatively stable since the start of the crisis. This suggests that, as a whole, the household sector has not been actively paying down debt more quickly than in the past (although some individuals may have been). This is consistent with intelligence from the major UK lenders that there had not been widespread overpayments of mortgages in 2010.

The total injections of equity by first-time buyers and buy-to-let investors are also little changed. Since the crisis, the deposit required for each house purchase has risen. But there has also been a sharp fall in the number of first-time buyers and buy-to-let investors. So while each buyer may be making a larger injection of equity, the yellow bars in **Chart 2** show that the gross flow of injections from first-time buyers and buy-to-let investors has actually fallen.

Conclusion

The calculations of the gross flows underlying HEW presented in this article suggest that the weakness in housing market transactions is likely to have been the key driver of the move from equity withdrawals to equity injections. Fewer homeowners trading down and selling a property without buying another mean that a large source of equity withdrawal has disappeared. Flows of injections have changed little over the period. So the move to injections does not by itself suggest that the household sector as a whole is paying down debt more rapidly than in the past.

(1) It is not straightforward to compare the gross flows presented here with the series used by the Bank to estimate the HEW statistic. Most of the flows (further advances, last-time seller and down trader withdrawals, first-time buyer and buy-to-let injections, and mortgage repayments) will be captured in net secured lending. Improvements to the housing stock are one part of the investment series used in the Bank's calculations. But investment also includes other series such as new build which, as is discussed above, is not an individual gross flow.

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