BANK OF ENGLAND

# Quarterly Bulletin

2018 Q4

## Topical article

The financial position of British households: evidence from the 2018 NMG Consulting survey



ISSN 2399-4568

# The financial position of British households: evidence from the 2018 NMG Consulting survey

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- Households' expectations for their future income and spending growth held up in the latest survey (conducted between 5 and 26 September) with expectations for the wider economy remaining subdued.
- The size of the tail of highly indebted households has fallen slightly over the past year — somewhat reversing the gradual deterioration observed since its post-crisis trough. By contrast, subjective self-reported metrics of household vulnerability showed a small increase.
- The 25 basis point increase in Bank Rate to 0.75%, announced in August 2018, has already been passed through to higher interest rates for the majority of mortgagors on floating rates. The impact on borrower resilience and the availability of credit appears limited.
- One way higher interest rates affect households is through the higher interest they pay (receive) on the debt (assets) they hold. New estimates suggest a 1 percentage point increase in Bank Rate could reduce consumption by 0.2% through this channel, a smaller effect than previously estimated.


## Overview

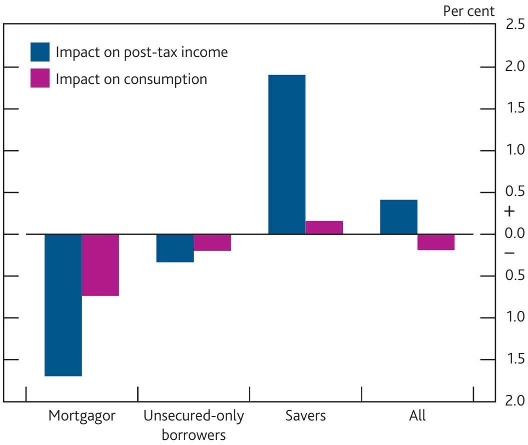
The financial situation of households is a key determinant of how they respond to changes in the economy and monetary policy. At the time of the survey, households' expectations for future income and spending growth held up, with expectations for the wider economy remaining subdued.

The size of the tail of highly indebted households has fallen slightly over the past year — somewhat reversing the gradual deterioration observed since its post-crisis trough. This appears to have been driven in part by stronger nominal income growth. In addition, mortgage interest rates have fallen for highly indebted households — likely reflecting borrowers refinancing onto lower mortgage rates.

In August 2018 the Monetary Policy Committee voted to increase Bank Rate by 25 basis points to 0.75%. Evidence from the NMG September survey suggests this has already been passed through to the majority of floating-rate mortgages. The impact of this on borrower resilience and credit conditions appears limited.

One way higher interest rates affect households is through the higher interest they pay (receive) on the debt (assets) they hold — the 'cash-flow' channel of monetary policy (**Summary chart**). New estimates from the latest survey suggest that a 1 percentage point increase in Bank Rate could reduce consumption by 0.2% through this channel, a smaller effect than previously estimated. This has primarily been driven by lower borrower sensitivity to interest rate changes.

**Summary chart** Impact of a 1 percentage point rise in interest rates on household income and spending[(a)]




Sources: NMG Consulting survey and Bank calculations.

(a) See footnotes to **Chart 12**.

## Introduction

Assessing households' finances is important for both monetary and financial stability. However, aggregate data can only provide limited insight in this regard. Differences between individual households' holdings of debt and assets will affect how they respond to shocks and the likelihood that they will face financial distress. Aggregate data omits such differences, meaning that surveys such as the NMG survey, which allow us to examine the distribution of households' debt and assets, are particularly valuable.

The NMG survey is a biannual household survey commissioned by the Bank of England. Though the NMG survey faces some inherent challenges (see Box 1), the motivation for conducting it is to gather timely disaggregated data on households' finances and to investigate topical policy issues where information from other sources is more limited.

The latest survey covered 6,000 households and was carried out online. It was conducted between 5 and 26 September. This followed the Monetary Policy Committee's unanimous vote to increase Bank Rate by 25 basis points to 0.75% on 1 August 2018. The Monetary Policy Committee previously voted to raise Bank Rate by 25 basis points on 1 November 2017.

The survey contained questions on a number of topics. These included: the latest developments in balance sheet positions, the impact of higher interest rates, credit conditions, and households' expectations in relation to both their personal circumstances and those for the wider economy.

This article begins by considering households' adjustment to the real income squeeze and households' outlook for their incomes, financial situations and the wider economy. It then considers developments in key household vulnerability metrics. This sets the context for the extent to which households have been impacted by, and may respond to, the recent increases in Bank Rate and any potential future increase.

## Household expectations and adjustment

Household spending is largely financed by households' current income. Real income growth has been weak for a decade. Since 2016 that has largely been due to rises in import prices (following the EU referendum-related depreciation of sterling) and subdued nominal income growth. However, consumption growth has slowed to a lesser extent, and therefore the household saving rate has fallen.

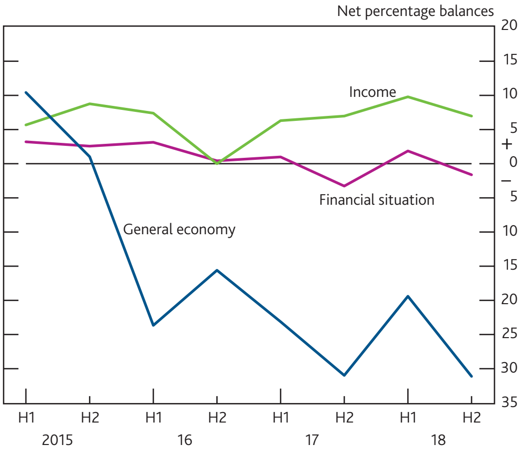
The NMG survey provides evidence on how households expect their incomes, financial situation and spending to evolve over the coming year. It can also give us insight into which types of households have adjusted over the past.

### Household outlook

Households' views of the outlook for their income, financial situation and wider economy are likely to be an important influence on their spending decisions. Indeed, the extent to which households choose to increase their savings will depend partly on their expectations of future income and economic prospects.

In the latest survey, the net balance of households expecting their incomes to increase over the next 12 months has been broadly flat over the past year. And households' expectations for their own financial situation have followed a similar pattern (**Chart 1**). However, since the decision to hold the EU referendum there has been a sharp divergence between households' expectations for their own incomes and financial situation and their outlook for the wider economy. This has been maintained over the past year and has if anything widened a little further.[(1)]

**Chart 1** Households' expectations over the coming 12 months[(a)(b)(c)]




Sources: NMG Consulting survey and Bank calculations.

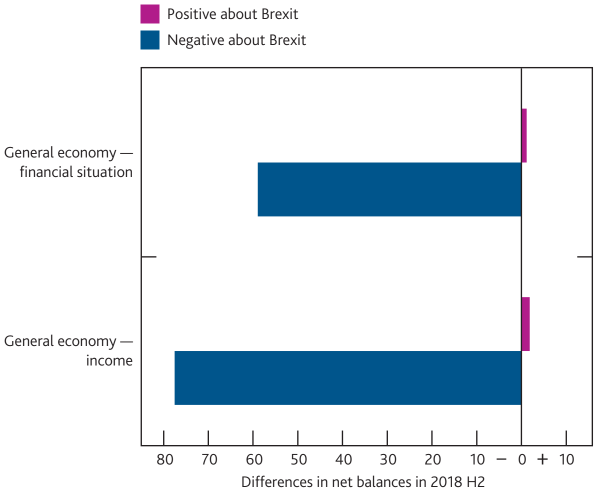
(a) Question: 'How do you expect the financial position of your household to change over the next 12 months?'.
(b) Question: 'Over the next 12 months, how do you expect your total household income (before anything is deducted for tax, National Insurance, pension schemes etc.) to change?'.
(c) Question: 'How do you expect the general economic situation in this country to develop over the next 12 months?'.

As in previous surveys, the divergence between respondents' expectations for the wider economy compared to their personal incomes or financial situations appear to have been predominantly driven by those who reported feeling negative about the referendum result (**Chart 2**). However, this apparent relationship could be driven by other characteristics not controlled for.

Households' responses may have been influenced by uncertainty in relation to the outcome of Brexit negotiations and heightened perceptions of risk.[(2)] However, the proportion

(1) Though some divergence might normally be expected, other data sources (eg GfK) are consistent with the divergence widening following the referendum.
(2) Uncertainty might have been elevated at the time of this survey — Government guidance on 'How to prepare if the UK leaves the EU with no deal' was published throughout the survey period. The Salzburg Summit also took place within the survey period.

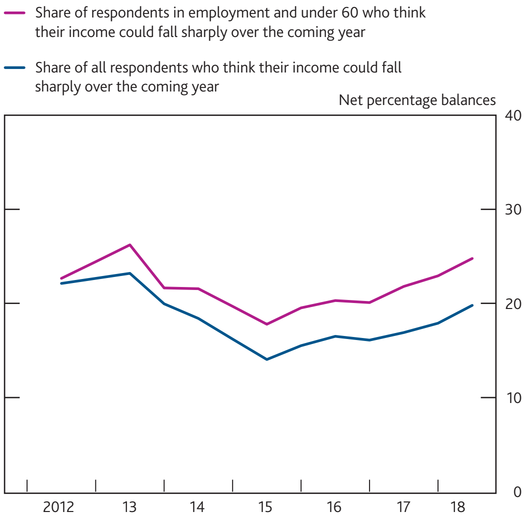
**Chart 2** Difference between households' expectations for the wider economy and their own financial situations and incomes(a)(b)(c)




Sources: NMG Consulting survey and Bank calculations.

(a) Bars compare the difference in the net percentage balance of households' expectations for the general economy relative to their own financial situation and income in 2018 H2.
(b) Questions for income, financial situation and general economy expectations as in the footnotes to **Chart 1**.
(c) Opinions on Brexit from the question: 'Taking everything into account, how do you currently view the UK voting to leave the EU (European Union) in the recent referendum — which has become known as 'Brexit'?'.

**Chart 3** Households' perceptions of income risk(a)



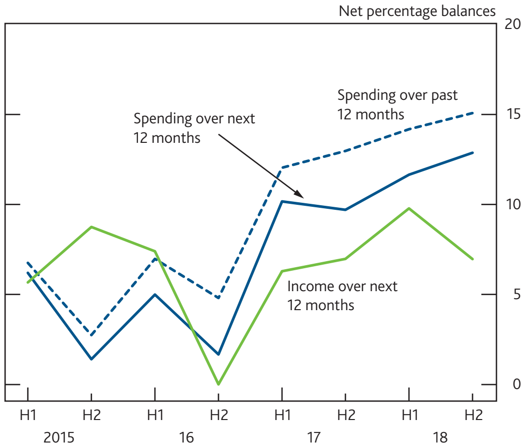

Sources: NMG Consulting survey and Bank calculations.

(a) Question: 'To the best of your knowledge, how likely is it that your household income will fall sharply over the next year or so (for example, because you or someone in your household is made redundant)?'.

of households who thought their income could fall sharply over the coming year only increased slightly in the latest survey (**Chart 3**).

Consistent with this, more households have increased nominal spending than have reduced it over the past year. And households expect spending growth to hold up, with the net balance of households who have increased spending over the past 12 months, and expect to increase it over the next 12 months, up since the previous survey (**Chart 4**).

**Chart 4** Households' spending and income expectations(a)(b)(c)




Sources: NMG Consulting survey and Bank calculations.

(a) Question for income expectations as in the footnotes to **Chart 1**.
(b) Question: 'How has your household changed its spending compared with a year ago? Please include all your spending on goods and services, but exclude money put into savings or used to repay mortgages, overdrafts, credit cards and other loans'.
(c) Question: 'How do you expect your household to change its spending over the next 12 months? Please exclude money put into savings and repayment of bank loans?'.

### Household wealth and consumption

Spending expectations remain a little above those of income expectations (**Chart 4**). The extent to which households (in aggregate) can continue to spend a greater proportion of their income will in part depend on the balance sheet position of those households who choose to increase their spending.

Higher holdings of wealth can allow households to smooth their consumption in response to adverse income shocks or increases in interest rates. The NMG survey provides evidence that is consistent with this. Respondents with higher levels of gross financial wealth (which captures households' total savings including investments) in the latest survey were less likely to report having decreased their spending over the past 12 months (**Chart 5**).(3)

A similar pattern holds with households' spending expectations over the next 12 months — wealthier households were more likely to expect to increase their spending and less likely to expect to decrease it relative to less wealthy households.

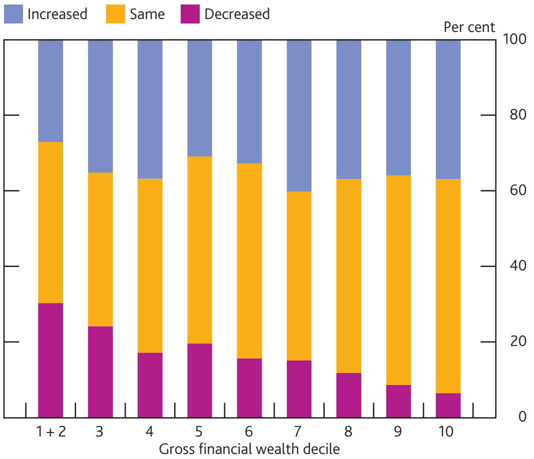
## Developments in household balance sheets

### Household financial vulnerability

How much debt households have relative to their income and wealth also affects their vulnerability to adverse shocks. In aggregate, National Accounts data show that household debt grew a little faster than income over the year to 2018 Q2, with consumer credit continuing to grow faster than secured credit. Despite the recent rise, the stock of household debt relative to

(3) Gross financial wealth is the sum of household savings, both in savings accounts and in other investments, such as stocks, shares and unit trusts.

**Chart 5** How households have changed their consumption over the past 12 months,[a] split by gross financial wealth[b]




Sources: NMG Consulting survey and Bank calculations.

(a) Question: 'How has your household changed its spending compared with a year ago? Please include all your spending on goods and services, but exclude money put into savings or used to repay mortgages, overdrafts, credit cards and other loans'.
(b) Gross financial wealth is given by households' total savings and investments.

household incomes (excluding student loans) was around 125% in 2018 Q2, lower than its 2008 Q3 peak of 144%. And the cost of servicing this debt has fallen largely due to current low levels of interest rates. The distribution of this debt is also indicative of vulnerability.

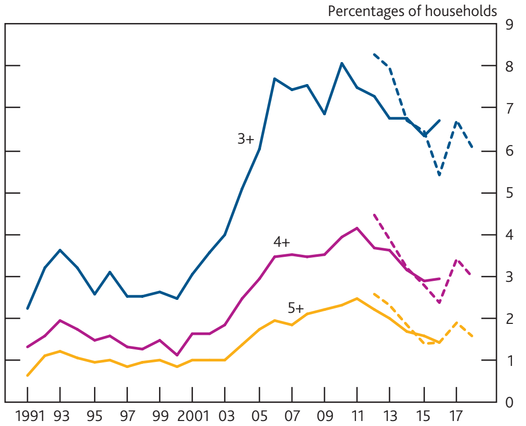
Two key indicators for analysing household vulnerability are the debt to income (DTI) multiples and debt-servicing ratios (DSRs) of households. The latter is the proportion of pre-tax income spent on loan repayments (both capital and interest). During the financial crisis, households with higher levels of mortgage debt relative to income cut spending more sharply than other consumers. Other survey data also suggest that the proportion of households experiencing repayment difficulties can rise sharply if a household has a mortgage DSR above 35%–40%.[4]

The latest NMG survey has seen a slight reduction in the proportion of households with high mortgage DTIs and DSRs, somewhat reversing the deterioration seen since the post-crisis troughs.

Around 3% of households reported an outstanding mortgage debt of more than four times their current pre-tax income, the lowest level reported since 2016 H2 (**Chart 6**). And the proportion of households with mortgage DSRs above 40% also fell — around 1% of households had mortgage DSRs above 40%, relative to 1.4% in 2017 H2 (**Chart 7**). It would take a 300 basis point increase in mortgage rates in order to return this percentage to around its 1997–2006 average (see Box 1 for further detail).[5]

The reduction in the proportion of highly indebted households appears to have been driven in part by strong nominal income

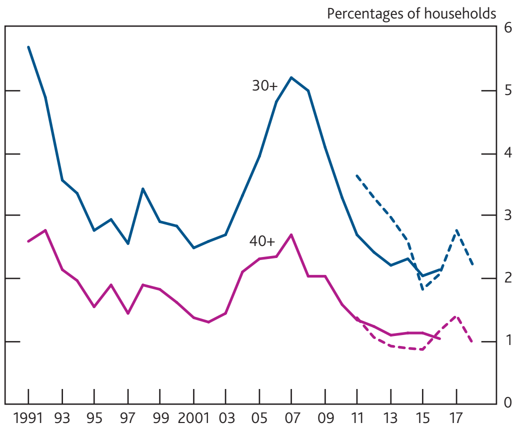
**Chart 6** Distribution of mortgage DTIs[(a)(b)]




Sources: Living Costs and Food (LCF) Survey, NMG Consulting survey and Bank calculations.

(a) Ratio of outstanding mortgage debt to pre-tax annual income.
(b) Data in solid lines up to 2016 are based on responses to the LCF Survey. LCF Survey data are on a financial-year basis up until 2016–17, shown in chart as 2016. Data in dashed lines from 2012 onwards are based on responses to the NMG Consulting survey. NMG data are from the H2 surveys only. NMG data before 2015 have been adjusted for a change in the income definition.

**Chart 7** Distribution of mortgage DSRs[(a)(b)]




Sources: British Household Panel Survey (BHPS)/Understanding Society (US), NMG Consulting survey and Bank calculations.

(a) Mortgage DSR calculated as total mortgage payments as a percentage of pre-tax income.
(b) Data in dashed lines from 2011 onwards are based on responses to the NMG Consulting survey (2011 to 2018). Data in solid lines are calculated using BHPS (1991 to 2008) and US (2009 to 2016). NMG data are from the H2 surveys only. NMG data before 2015 have been adjusted for a change in the income definition.

growth. Since 2017 H2, the average nominal income of a mortgagor is estimated to have increased by 5%, slightly higher than comparable measures of annual household income growth in the National Accounts of 3%–4% in 2018 Q2.[6]

Despite the August increase in Bank Rate, mortgage interest rates have also fallen for highly indebted households. Interest rates for mortgagors with DTIs above 4 were about 30 basis points lower on average in 2018 H2 relative to 2017 H2. This in part may reflect borrowers refinancing onto

(4) See 'The FPC's approach to addressing risks from the UK mortgage market', Bank of England *Financial Stability Report*, June 2017.
(5) This is a higher number than reported previously, as new questions in the survey have allowed for an improved method to calculate how DSR distributions change under mortgage rate rises.
(6) NMG Consulting reported income is net of benefits but not taxes. In the year to 2018 Q2 relative to the year to 2017 Q2, ONS aggregate gross disposable income grew by 3.1% and aggregate wages and salaries grew by 4.3%.

## Box 1
## Survey method and additional insights on household indebtedness

### Introduction and survey method

The latest NMG survey was carried out online between 5 and 26 September, covering 6,000 UK households. The survey has been run online since 2012, and has been carried out biannually since 2014, with the field work taking place in April and September every year.

The survey is weighted to be representative of the age, gender, region, housing tenure and employment status distributions of Great Britain. But one drawback of the NMG survey relative to other surveys is that there may be a greater risk of selection into the survey based on unobservable characteristics (that are not controlled for). This is because the sample is drawn from the Research Now panel used by the survey provider rather than the population as a whole. Thus, there is a risk certain households self-select into the survey. That said, the NMG survey data broadly follow similar trends to the aggregate data and other surveys in most respects.

The NMG survey also has a number of advantages relative to other household surveys. It is timelier than other surveys, such as the Wealth and Assets Survey, where results are typically available only around two years after the completion of the field work. It also contains questions on topical policy issues that are not often available in other surveys.

### Contractual repayments and DSRs

In every survey, mortgagors are asked how much they repay on their mortgage each month, and their responses are used to calculate their mortgage DSRs. But these might include any voluntary overpayments borrowers make.

However, when considering the vulnerability of mortgagors to adverse shocks, what matters are the contractual repayments mortgagors must meet in order to continue to service their debt. Mortgagors making overpayments could cut back on these following a shock, which lessens the extent to which they would need to reduce their consumption or draw down their savings. So removing voluntary overpayments provides a better indication of the vulnerability of households.

The most recent survey asked mortgagors if they made any voluntary overpayments on their mortgages — these were used to calculate their contractual DSRs.

In the latest survey, about 20% of mortgagors reported making overpayments. On average, these borrowers reported incomes that were about 25% higher than borrowers who did not make overpayments. And the average overpayment was about 25% of the average monthly repayment. But accounting for overpayments only reduces the proportion of households with high mortgage DSRs from 1% to 0.9%.

### The impact of increases in mortgage rates on DSRs

Extra information that has been collected on mortgage terms and interest rates in recent surveys has been used to improve estimates of the sensitivity of repayments to interest rate rises.

Previously, changes in repayments were based on the full outstanding balance of borrowers' loans. But most borrowers pay down some of the balance on their loans when making repayments (with the exception of borrowers on interest-only mortgages).(1) So this tended to overstate the impact on repayments and therefore DSRs from interest rate changes.

The new information on mortgage terms and rates allows us to take reductions in outstanding balances into account, reducing the impact on DSRs from increases in mortgage rates. For example, under the old method, a 300 basis point increase in mortgage rates would increase the proportion of households with mortgage DSRs above 40% from 1% to 1.9%. This is relative to the method used in this survey, in which the same mortgage rate rise would increase it to 1.8%.(2)

### Accounting for additional loans

In the latest survey respondents were asked if they had loans secured against their properties in addition to their mortgages. Types of additional loans include business loans or second charge mortgages. If these are not included when borrowers report their mortgage debt, this would underestimate the debt holdings of households. And it could also understate the proportion of highly indebted households. It might be particularly concerning if these borrowers have other characteristics that make them vulnerable to adverse shocks, such as having high DTI multiples or having volatile income streams due to being self-employed.

About 18% of mortgagors reported having such additional loans. And about a half of these borrowers had not included them in their reported mortgage debt. The median range of additional loans taken out on properties was £30,000–£39,000. Borrowers with additional mortgages taken out on their properties also had incomes which were about 30% higher than those who did not. But around 12% of respondents who had taken out additional loans on their properties were at least partially dependent on self-employed income (which has historically been more volatile). These households were more likely to report high DTIs: around 22% of these households had DTIs above 4 compared to 12% for those without a self-employed adult.

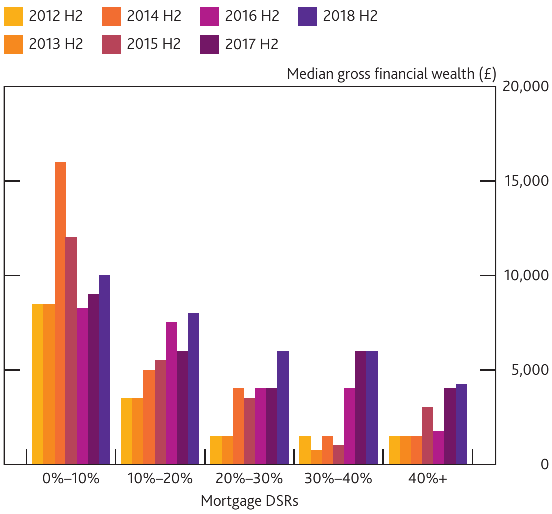
Taking additional loans secured on properties into account in the latest survey would only marginally increase the proportion of households with mortgage DTIs above 4 from 3% to 3.2%.

(1) Seventy-four per cent of borrowers had capital repayment mortgages, 18% had interest-only mortgages and the remaining 8% reported don't know/refused/other.
(2) This method still assumes full and immediate pass-through, regardless of the fixed-rate period.

lower rates, as spreads on the flow of new mortgage lending have declined since 2016. This is consistent with the fall in the average interest rate paid on the stock of fixed-rate mortgages. The survey also shows evidence of a reduction in the average interest rate for mortgagors with high loan to value (LTV) ratios, consistent with the compression in spreads for new lending at higher LTV ratios seen over the year.(7) The reduction in interest rates largely explains why the proportion of households with high DSRs fell more than the proportion of households with high DTIs.(8)

At the same time, the total savings of highly indebted households have increased in recent surveys. Nominal median gross financial wealth for all DSR and DTI groups was the same or higher relative to a year ago (**Chart 8**). This is particularly true for high DTI and high DSR mortgagors. For instance, the median gross financial wealth for a mortgagor with a DTI above 5 was £3,000 in 2018 H1 relative to £4,750 in 2018 H2, a series high. And mortgagors with high contractual DSRs also have comparable levels of savings (see Box 1 for a discussion on contractual DSRs). This would suggest households are more able to withstand adverse shocks. But some of these assets may not be easily liquidated, which might limit the extent to which these holdings can act as a buffer in a time of financial stress.

**Chart 8** Median gross financial wealth(a) by mortgage DSR(b)




Sources: NMG Consulting survey and Bank calculations.

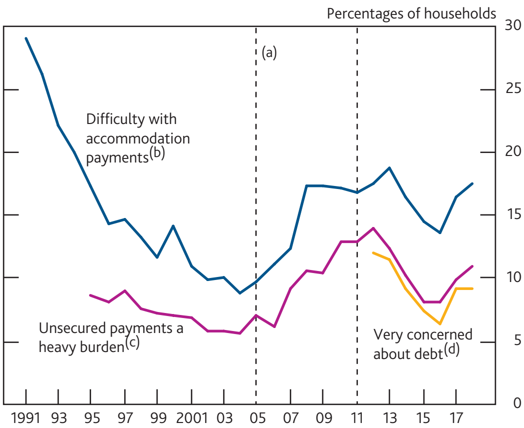
(a) Gross financial wealth as calculated in the footnotes to **Chart 5**.
(b) Mortgage DSRs as calculated in the footnotes to **Chart 7**.

The proportion of households with high total DSRs and DTIs — including both mortgages and consumer credit — has also fallen. But as discussed in Bracke *et al* (2017), over the past few years the NMG survey has not reflected the strength in unsecured credit recorded in official data. Any conclusions relating to consumer credit — and therefore total household debt — should be interpreted with caution.(9) More generally, as noted in Box 1, relative to other surveys the NMG survey suffers from a greater risk of selection into the survey based on unobservable characteristics.

Beyond measures of the distribution of debt across households, subjective metrics of financial distress can also be useful indicators of household vulnerability, as they incorporate households' perceptions of their wider circumstances.

There has been a small increase in perceptions of household vulnerability.(10) The proportion of households reporting unsecured debt was a heavy burden or who reported difficulties with accommodation payments both increased slightly. In contrast, the proportion of households who reported being very concerned about debt was broadly flat (**Chart 9**).

**Chart 9** Subjective metrics of financial distress




Sources: British Household Panel Survey (BHPS), NMG Consulting survey and Bank calculations.

(a) Data from 2011 onwards are from the online NMG survey. NMG data are from the H2 surveys only. Data from 2005 to 2010 are from the face-to-face NMG survey. Data from 1991 to 2004 are from the BHPS. Data from the BHPS and face-to-face NMG surveys have been spliced to match the online NMG survey results.
(b) Proportion of households reporting that they have difficulty with accommodation payments.
(c) Proportion of households reporting that they find unsecured debt repayments to be a heavy burden.
(d) Proportion of households reporting that they are very concerned about their current level of debt.

## Impact of higher interest rates

At its meeting ending on 1 August 2018 the Monetary Policy Committee voted unanimously to increase Bank Rate by 25 basis points to 0.75%. This marked the first time Bank Rate has risen above 0.5% since March 2009, and followed a previous increase of 25 basis points in November 2017. Since the September 2017 NMG Consulting survey, Bank Rate has risen by a total of 50 basis points. There are a number of ways this tightening in policy will affect the economy, such as

(7) See 'Global economic and financial market developments', Bank of England *Inflation Report*, May 2018.
(8) The average outstanding mortgage balance in the NMG survey fell by 2% over the year, relative to aggregate mortgage debt which grew by about 2% over the year to 2018 Q2.
(9) See 'The financial position of British households: evidence from the 2017 NMG Consulting survey', *Bank of England Quarterly Bulletin*, 2017 Q4.
(10) A plausible explanation for the divergence between the improvement in the tail of highly indebted households and responders' perceptions of financial vulnerability may be related to the deterioration in income expectations seen in this survey.

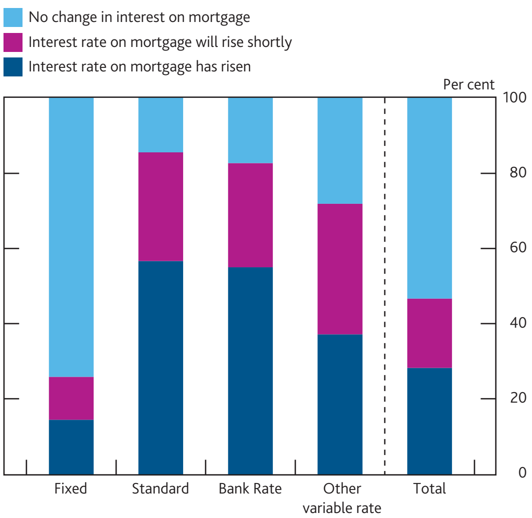
through changing asset prices or the exchange rate. The NMG survey can give us an insight into the impact this has had on households specifically.

The impact of higher Bank Rate will in part depend on the extent to which it has been passed through to higher retail rates on the stock of products households hold. Rising interest rates on the stock of debt and assets will have implications for households' disposable income, which in turn will affect their consumption. Tighter policy can also affect credit conditions through higher rates on new lending. Finally, how households respond to future policy changes will in part depend on if these changes were expected.

## Impact of the August Bank Rate rise on mortgagors

Results from the 2018 H2 NMG survey suggest that at the time of the September survey, the August Bank Rate rise had already been passed through to the majority of floating-rate mortgages, and most of those who had yet to see their interest rates change had been informed they would rise shortly. In total, of the 37% of mortgagors in the 2018 H2 NMG survey who were on a floating rate, only 19% reported not either having seen or having been informed of an upcoming change to their interest rates. Including those on fixed-rate mortgages (who would only see their rate change when they refinance or roll-off their existing mortgage), 47% of mortgagors had either seen their mortgage rates rise or would see them rise shortly (**Chart 10**).

**Chart 10** Percentages of mortgagors whose mortgage rates increased in response to the Bank Rate rise[(a)(b)]



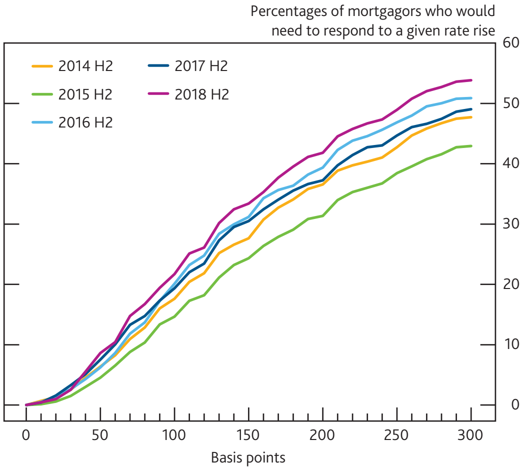

Sources: NMG Consulting survey and Bank calculations.

(a) Question: 'The Bank of England Base Rate was raised in August from 0.5% to 0.75%. Has the interest rate you pay on your mortgage risen as a result or have you been notified that it will rise shortly?'.
(b) Some mortgagors who report to be on a fixed rate have either seen their rate change or have been informed it will rise shortly. This may reflect those mortgagors who have refinanced since the Bank Rate rise, and those mortgagors on a fixed rate who may be about to roll onto a standard variable rate which has changed.

Of those households who saw their mortgage rates change, the median increase in monthly mortgage repayments was £15–£19. Higher mortgage repayments so far appear to have had a limited impact on the resilience of borrowers. If the higher repayments reported by households as a result of higher interest rates were excluded from DSR calculations, the proportion of households with high DSRs (above 40%) would fall from 1.0% to 0.9%. And some households have reported they have been informed of an upcoming increase in their interest rate. Once these rate rises are included, the proportion of high DSR households remains unchanged at 1.0%.

Consistent with this, the proportion of mortgagors who say they would need to respond to a given interest rate increase remained largely unchanged in the latest survey. Despite Bank Rate rising 50 basis points during this period, the proportion of households needing to take action (such as by cutting spending, working longer hours or requesting a change to their mortgage) in response to their mortgage interest rates increasing by 25 basis points fell from 2.6% in 2017 H2 to 1.8% in the latest survey (**Chart 11**).

**Chart 11** Percentages of mortgagors who would need to respond to a given increase in interest rates[(a)(b)]




Sources: NMG Consulting survey and Bank calculations.

(a) Question: 'About how much do you think your monthly mortgage payments could increase by for a sustained period without you having to take some kind of action to find the extra money eg cut spending, work longer hours, or even request a change to your mortgage?'.
(b) The answers to this question were then converted into an interest rate rise using data on each household's outstanding mortgage.

This might reflect the fact that many mortgagors will have refinanced onto *lower* interest rates during this period as they rolled-off previous fixed rates. This is supported by data on the average interest rate on the stock of mortgages. Between September 2017 and September 2018, the average effective interest rate on the stock of all mortgages only increased by 1 basis point.[(11)]

(11) The average effective rate on the stock of floating-rate mortgages increased by 50 basis points over this period. But this was counteracted by a 22 basis point fall in the average effective rate on the stock of fixed-rate mortgages.

## Impact on income and consumption through the cash-flow channel

One way in which higher interest rates affect households is through higher interest rates on the debt and assets that they hold. Their disposable income will change both as a result of higher repayments on their debts and higher interest receipts on their savings — this is the 'cash-flow' channel of monetary policy. The NMG survey allows us to calculate this cash-flow effect for each household, using their holdings of debt and deposits to estimate how much their interest payments and receipts would change in response to an increase in interest rates.

The survey also asks respondents how they would respond to the resulting change in their disposable income, for example by cutting spending, working longer hours or requesting a change to their mortgage. If they report that they would change their spending, it also asks them by how much. From their answers to these questions, we can calculate the marginal propensity to consume of each household. For a given change in income, this says how much each household would adjust their spending by. The impact of higher interest rates on households' spending is then given by each household's net change in income, multiplied by their marginal propensity to consume.

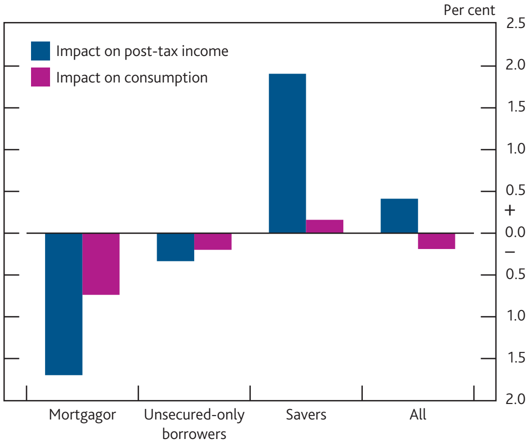
Taking these together we can estimate the impact of the cash-flow channel on income and consumption for each household as well as in aggregate. Assuming full pass-through to rates on the stock of debt and deposits, these results would suggest that a 1 percentage point increase in Bank Rate would increase aggregate disposable post-tax income through the cash-flow channel by 0.4%.[12] This would suggest that the positive income effect on savers more than outweighs the negative income effect on borrowers. But because savers tend to increase spending by less than borrowers reduce it, the net consumption effect is typically negative and estimated at -0.2% in aggregate in the latest survey (**Chart 12**). This is lower than previously estimated — the reasons for this difference are discussed in more detail in Box 2.

## Credit conditions

According to households' perceptions, credit conditions remain accommodative, although there is some evidence of tightening at the margin. The proportion of respondents that put off spending due to concern about a lack of available credit has picked up slightly, from 21% to 23%. But this remains well below historical highs (**Chart 13**).

And although the proportion of households who report being unable to obtain a mortgage has fallen a little since 2017 H2, the proportion concerned about their debt levels (both mortgage and unsecured) because banks are unwilling to lend further has ticked up. But both metrics are low in absolute terms, at 4.2% and 2.0% of all households respectively.

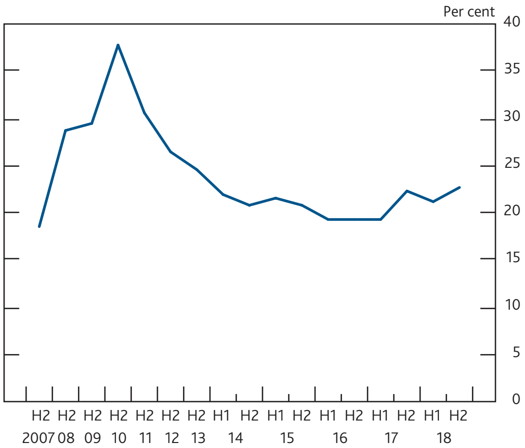
**Chart 12** Impact of a 1 percentage point rise in interest rates on household income and spending(a)(b)(c)




Sources: NMG Consulting survey and Bank calculations.

(a) Post-tax income is calculated by deducting estimates of National Insurance and income tax from reported individual gross income, which is then aggregated to produce household post-tax income. Current consumption is estimated as post-tax income less monthly saving. For each household, the impact of a 1 percentage point rise in interest rates on annual interest payments/receipts is calculated as 1% of current net debt/deposits, or as the increase in mortgage repayments for those on a repayment mortgage. Those estimates are then aggregated and scaled by current annual post-tax income.
(b) For each household, the impact on consumption is estimated as the change in interest payments/receipts multiplied by their reported marginal propensities to consume (MPC) out of higher interest payments/receipts from the survey (see footnote to **Table 1** in Box 2 for more details on how MPCs were calculated). Those estimates are then aggregated and scaled by estimated current consumption. Unsecured borrowers and savers with debt/deposits of less than £5,000 were not asked how they would respond to higher interest rates and are therefore assumed to have an MPC of zero.
(c) Mortgagors are defined as households with a mortgage whose net income impact is negative. Unsecured borrowers are households without a mortgage whose net income impact is negative. Savers are households whose net income impact is positive.

**Chart 13** Percentage of respondents put off spending due to concern about a lack of available credit(a)




Source: NMG Consulting survey.

(a) Question: 'Have you been put off spending because you are concerned that you will not be able to get further credit when you need it, say because you are close to your credit limit or you think your loan application would be turned down?'.

## Bank Rate expectations

How households respond to any future changes in Bank Rate will in part depend on whether they anticipate the change ahead of time. For instance, households who had not anticipated the change may react by cutting back more on

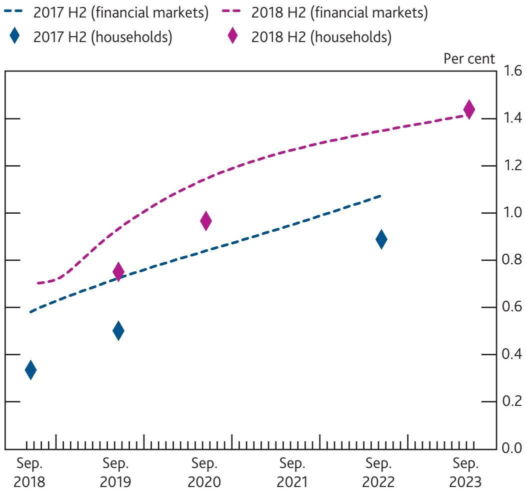
(12) Higher interest rates may also affect spending through other channels, such as changes in asset prices, the exchange rate, the cost of capital for firms and general equilibrium effects from all of the above. But these estimates focus on the cash-flow channel in isolation.

their spending. Households' expectations for Bank Rate in the NMG survey suggest that they currently expect a continued gradual tightening of policy over the next five years.

Bracke *et al* (2017) discussed how in the 2017 H2 survey households' Bank Rate expectations had not moved up in line with those of financial markets following the Monetary Policy Committee's guidance in September.(13) Since then, however, households' expectations have shifted up significantly and steepened. The median household currently does not expect any further Bank Rate rises within the next 12 months. But they expect approximately one rise within the next two years, and three within the next five years. At the same time, financial market expectations have increased further, but not by as much. As a result, the wedge between household and financial market expectations has reduced.

Households' expectations remain slightly below those of financial markets one and two years ahead (by 18 basis points at both horizons). And five years ahead the wedge has closed, with both expecting Bank Rate to be 1.4% in September 2023 (**Chart 14**).

**Chart 14** Households' and financial markets' Bank Rate expectations, NMG(a) and overnight index swap data(b)




Sources: NMG Consulting survey and overnight index swap data.

(a) Question: 'The level of interest rates set by the Bank of England (Bank Rate) is currently [0.25/0.75]%. At what level do you expect that interest rate to be in each of the following time periods (1 year, 2 years, 5 years)?'.
(b) Financial markets' expectations averaged over the period of the respective NMG survey dates.

## Conclusions

Notwithstanding the uncertainty around Brexit at the time of the survey, households' expectations for their future income and spending growth have held up.

From a distributional perspective, data from the latest survey suggest that there has been a modest improvement in the balance sheet positions of mortgagors over the past year — somewhat reversing the gradual deterioration observed since their post-crisis trough.

Evidence from the survey suggests the August 2018 25 basis point increase in Bank Rate has already been passed through to the majority of floating-rate mortgages. But the impact of that rise on borrower resilience and credit conditions has been limited.

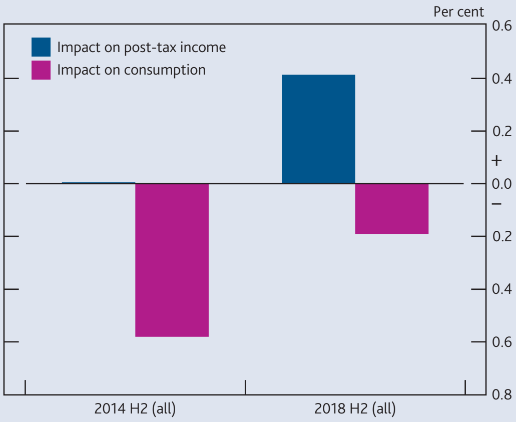
Another way higher interest rates affect households is through the higher interest they pay (receive) on the debt (assets) they hold — the 'cash-flow' channel of monetary policy. Assuming that interest rates on the entire stock of debt and deposits respond to changes in Bank Rate, the NMG survey suggests that a 1 percentage point increase in interest rates would reduce total consumption by 0.2% through the cash-flow channel, smaller than previously estimated.

(13) See 'The financial position of British households: evidence from the 2017 NMG Consulting survey', *Bank of England Quarterly Bulletin*, 2017 Q4.

## Box 2
## Estimating the cash-flow channel of monetary policy

As noted above, one way in which changes in monetary policy can affect consumption is through the '*cash-flow*' channel. Assuming rates on the entire stock of debt and deposits respond to changes in Bank Rate, the 2018 H2 NMG survey suggests that a 1 percentage point increase in interest rates would increase total post-tax income by 0.4%, and reduce total consumption by 0.2%. These results indicate higher interest rates may boost income by more and reduce consumption by less than previously estimated. For example, Anderson *et al* (2014) estimated the impact of a 1 percentage point rise in interest rates to be close to zero (but slightly positive) on post-tax income, and -0.6% on consumption (shown relative to current estimates in **Chart A**).[1]

**Chart A** Impact of a 1 percentage point rise in interest rates on household income and spending, 2014 H2 versus 2018 H2 surveys[(a)(b)(c)]




Sources: NMG Consulting survey and Bank calculations.

(a) For 2018 H2, household post-tax income and consumption is calculated as in the footnotes for **Chart 12**. In 2014 H2, post-tax income assumed each household paid tax and National Insurance as if it were an individual. Consumption was then calculated as post-tax income less monthly saving.
(b) In both 2014 H2 and 2018 H2, the income effect of a 1 percentage point increase in interest rates is calculated to be 1% of the outstanding balance for debt and deposits. For mortgage debt, in 2014 H2 the change in repayments is also calculated as 1% of the outstanding balance — equivalent to assuming all mortgagors have an interest-only mortgage. In 2018 H2, this is used for those with an interest-only mortgage. For those with a repayment mortgage, the remaining term and current interest rate are used to calculate the change in monthly repayment.
(c) The change in consumption is then calculated for each household as in the footnotes to **Chart 12**.

This box will first consider why these estimates have changed, before presenting new estimates of the cash-flow effect decomposed by time horizons.

Changes in these estimates reflect three factors: **changes in the asset position of households; falling borrower marginal propensities to consume (MPCs); and methodological improvements**.

### (1) Asset position of households

Changes in the asset position of households will change how household incomes respond to a given change in interest rates. For example, Saunders (2018)[2] recently showed that the ageing population has affected both sides of household balances sheets. Average household wealth holdings have risen, meaning that households will receive a larger positive income effect from higher interest receipts on their savings. And the share of mortgagors in the population has declined, as older households are more likely to own their home without a mortgage. This will have reduced the share of households facing a negative income effect in response to higher interest rates, pushing up on the aggregate income effect.

### (2) Falling borrower marginal propensities to consume

Since 2014 H2, the sensitivity of borrowers' spending in response to changes in their debt repayments has fallen markedly. Reported mean marginal propensities to consume (MPCs) in response to changes in mortgage repayments have fallen from 53% (implying that for an increase in mortgage repayments of £100, households on average would cut their consumption by £53) in 2014 H2, to 37% in the latest data. Similarly, mean MPCs on unsecured repayments have fallen from 79% to 60% (**Table 1**). Over the same period, MPCs on savings interest have increased a little — from 8% to 13%. Lower borrower MPCs mean that borrowers will cut their consumption by less in response to higher repayments following an increase in interest rates, whereas higher saving MPCs mean that savers will increase their consumption by more. This implies that for a given change in income, the impact on consumption would now be less negative.

**Table 1** Disaggregated MPC estimates from the NMG survey[(a)(b)]

**Per cent**

| MPCs for change in: | 2014 H2 | 2015 H2 | 2016 H1 | 2017 H1 | 2017 H2 | 2018 H1 | 2018 H2 |
|---|---|---|---|---|---|---|---|
| Mortgage repayments | 53 | 47 | 46 | 42 | 41 | 42 | 37 |
| Unsecured repayments | 79 | 66 | 68 | 65 | 63 | 60 | 60 |
| Savings interest | 8 | 8 | 7 | n.a. | 10 | 12 | 13 |

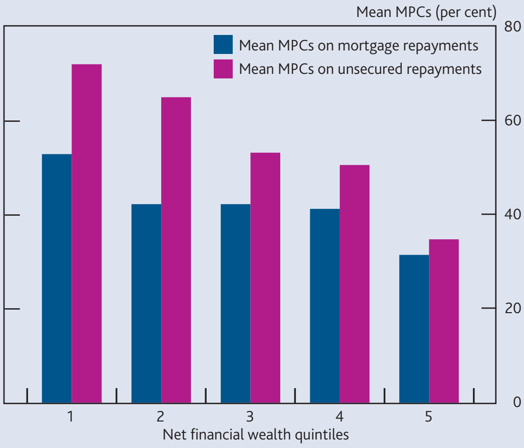
Sources: NMG Consulting survey and Bank calculations.

(a) For mortgage and unsecured repayments, this is calculated from the questions: 'If your monthly [mortgage payments/payments on all your secured loans] were to increase for a sustained period by £x [which is calculated automatically from software as the payment under a 2 percentage points higher rate] from tomorrow due to higher mortgage interest rates, how do you think you would respond?' and 'How much would you reduce your monthly spending by if your monthly [mortgage payments/payments on all your secured loans] were to increase for a sustained period by £x from tomorrow?'.
(b) For savings interest, this is calculated from the questions: 'If the monthly interest you receive on your savings were to increase for a sustained period by £z [which is calculated automatically from software as the payment under a 2 percentage points higher rate] from tomorrow due to higher interest rates on savings, how do you think you would respond?' and 'How much would you increase your monthly spending by if the monthly interest you receive on your savings were to increase for a sustained period by £z from tomorrow?'. These questions were not asked in 2017 H1.

Why borrowers' MPCs might have fallen can be explored by considering the relationship between households' MPCs and other household characteristics. For example, borrowers in the NMG survey with higher net financial wealth tend to be less sensitive to income shocks and have lower MPCs[3] (**Chart B**).

(1) Note that both estimates only consider the impact of the cash-low channel on income and consumption, and not the other ways (eg through changing asset prices and the exchange rate) that tighter monetary policy may affect spending.
(2) Saunders, M (2018), 'Some effects of demographic change on the UK economy'.
(3) Regression analysis suggests that this relationship is statistically significant at the 1% level.

**Chart B** Mean MPCs[a] on changes in mortgage and unsecured repayments by net financial wealth[b]

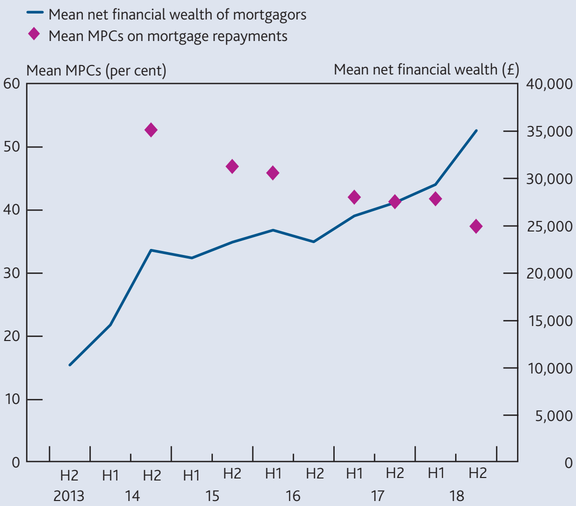



Sources: NMG Consulting survey and Bank calculations.

(a) MPCs calculated as in the footnotes to **Table 1**.
(b) Net financial wealth is defined as household total savings (including investments) less their unsecured borrowing.

This might give one possible explanation for why borrowers' MPCs have fallen over recent years — their average reported wealth holdings have increased sharply over this period. The mean net financial wealth of mortgagors increased from around £22,400 in 2014 H2 to £35,000 in 2018 H2 (**Chart C**). Other factors such as loosening credit constraints may also have played a role.

**Chart C** Mean net financial wealth[a] of mortgagors and mean MPCs on changes in mortgage repayments[b]




Sources: NMG Consulting survey and Bank calculations.

(a) Net financial wealth calculated as in the footnotes to **Chart B**.
(b) MPCs calculated as in the footnotes to **Table 1**.

## (3) Methodological improvements

New questions have enabled two methodological improvements, which have pushed up on our estimates of the disposable income effect of higher interest rates, and had a smaller positive effect on our estimates of the impact on aggregate consumption. Specifically, post-tax household income can now be calculated more accurately by aggregating up from estimates at an individual level.

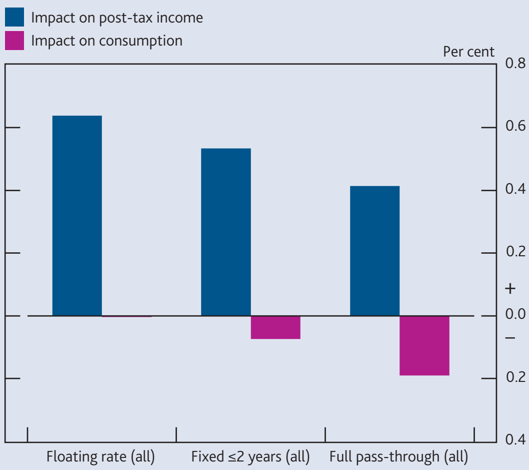
In addition, changes in mortgage repayments can now be calculated more accurately, as described in Box 1.

## Decomposing cash-flow impacts by time horizon

A feature of all of the cash-flow estimates above is that they assume that interest payments on the entire stock of debt and deposits respond immediately and fully to changes in Bank Rate. This is a simplifying assumption, but is unlikely to be realistic in the short term. For example, 67% of the stock of mortgage debt is fixed and so these borrowers are unlikely to see any change in their repayments for some time.

We can get a sense of what impact relaxing this assumption might have by excluding income effects where payments are fixed for a given period of time. **Chart D** compares estimates of the impact on income and consumption of a 1 percentage point rise in interest rates, restricting income effects to (a) only floating-rate products (ie those rates that would be able to change in the short term); (b) floating products and rates that are fixed for two years or less (ie those rates that could change in the medium term); and (c) no restrictions.[4] These estimates are only indicative. However, they do suggest that in the short term, the cash-flow effect on consumption may be close to zero and take some time to come through.

**Chart D** Impact of a 1 percentage point rise in interest rates on household income and spending,[a] for different horizons[b]




Sources: NMG Consulting survey and Bank calculations.

(a) Household post-tax income and consumption is calculated as in the footnotes to **Chart 12**.
(b) The 'floating-rate' scenario assumes full pass-through to 33% of mortgage debt (the share of mortgages that are floating rate), 76% of deposits (the share that are interest-bearing sight or redeemable at notice), and 20% of unsecured debt (the share of unsecured lending that is interest-bearing credit cards, overdrafts and floating-rate personal loans). The 'fixed ≤2 years' scenario assumes full pass-through to 66% of mortgage debt (the share that is either floating, or fixed for ≤2 years), 84% of deposits (the share that are sight deposits, or term deposits of ≤2 years), and 22% of unsecured debt (the share of the products above, and personal loans fixed for ≤2 years).

(4) For example, many products are priced off risk-free reference rates, which may move independently of Bank Rate in the short term. Likewise, previous analysis would suggest that rates on consumer credit are 'less responsive to changes in Bank Rate and tend to be driven predominantly by other factors', and that 'sight deposit rates have typically responded gradually to changes in Bank Rate over the past'. See Box 2 on the effects of the rise in Bank Rate on retail interest rates for more information, Bank of England *Inflation Report*, February 2017.

## References

**Anderson, G, Bunn, P, Pugh, A and Uluc, A (2014)**, 'The potential impact of higher interest rates on the household sector: evidence from the 2014 NMG Consulting survey', *Bank of England Quarterly Bulletin*, 2014 Q4.

**Bracke, P, Rockall, E, Sethi, H and Shaw, C (2017)**, 'The financial position of British households: evidence from the 2017 NMG Consulting survey', *Bank of England Quarterly Bulletin*, 2017 Q4.

**Carroll, C (2001)**. 'A Theory of the Consumption Function, With and Without Liquidity Constraints'.

**Saunders, M (2018)**, 'Some effects of demographic change on the UK Economy'.