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Are US households still scarred by the financial crisis?

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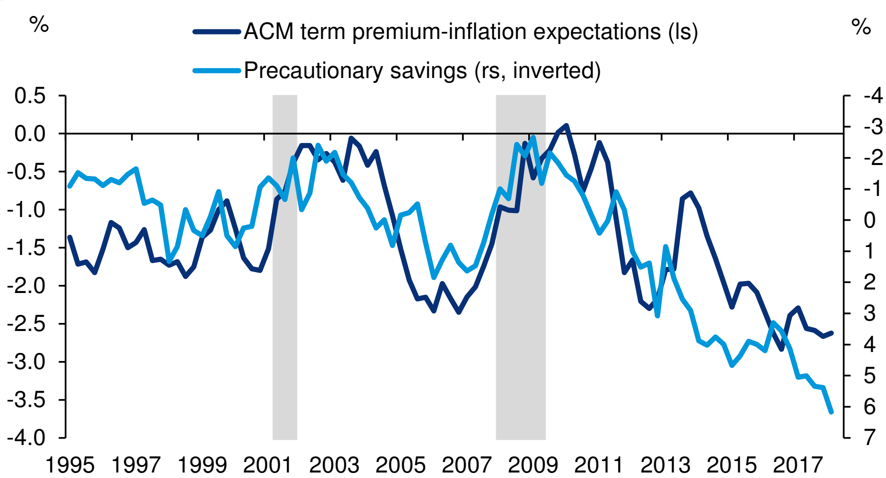
- From most vantage points, the US consumer hasn't looked better in a long time. Yet there is some evidence that this robust aggregate picture is masking vulnerabilities at the micro level. Last November, we wrote about the more fragile view of household balance sheets gleaned from data across the income distribution. In this report, we document how, a decade after the global financial crisis, household perceptions and economic decisions still show signs of scarring from those events.
- The most striking evidence of this scarring is a large disconnect between household savings and wealth, with the former being considerably higher than would be implied by the latter. Survey data suggest that this household "savings glut" is being driven by precautionary motives and that households continue to view key elements of the economic backdrop, including labor market prospects and housing, as riskier.
- Consistent with theory, these scarring effects may be impacting key market variables. Most notably, we show that our measure of excess household savings is likely one factor that continues to keep the term premium and r-star near historically low levels.

Figure 1: Household precautionary savings may be a key driver of term premium



Note: Precautionary savings is calculated as the gap between the household saving rate and the rate implied by the historical relationship with the wealth-income ratio. Source: HLW, BEA, FRB, Haver Analytics, Deutsche Bank

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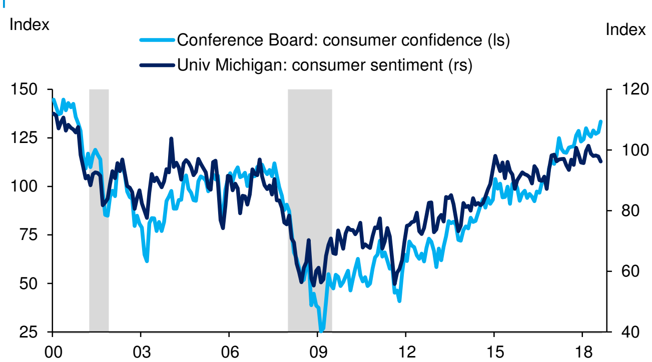
Introduction

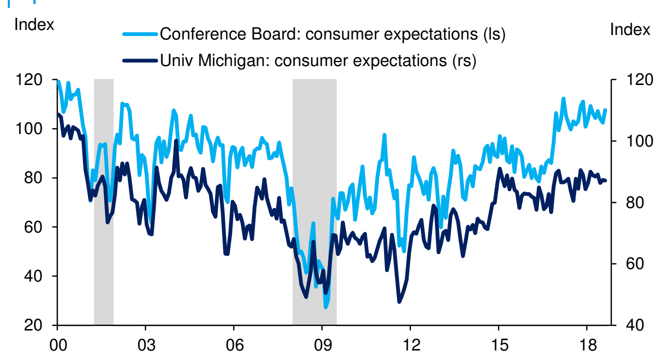
From most vantage points, the US consumer hasn't looked better in a long time: consumer sentiment is near the highest levels since the early 2000s; consumer spending growth rose a robust 4% in Q2; aggregate household balance sheets are sturdy with the wealth-to-income ratio near record highs, debt-to-income levels 30 percentage points below pre-crisis readings, and debt-service costs near several decade lows (Figures 2-5). Add to this solid picture the fact that US consumers just received a more than $1tn tax cut over the next ten years, and it is difficult at first glance to find soft spots in the US consumer outlook.

Figure 2: Consumer sentiment elevated…



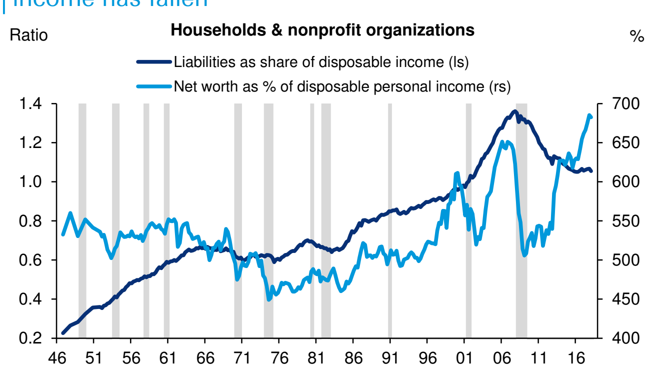
Source: Conference Board, Univ. of Michigan, Haver Analytics, Deutsche Bank

Figure 3: ...and consumer expectations remain optimistic



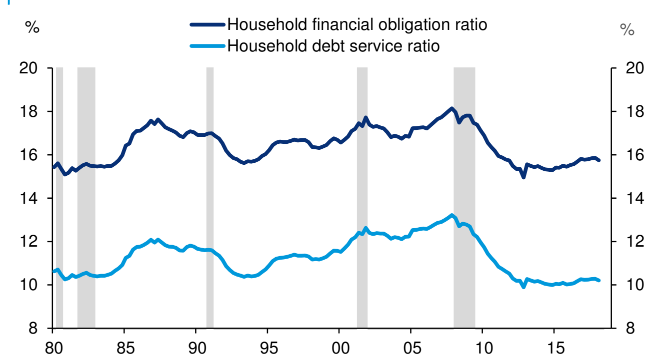
Source: Conference Board, Univ. of Michigan, Haver Analytics, Deutsche Bank

Figure 4: Household wealth-income high and debt-income has fallen



Source: Federal Reserve Board, Haver Analytics, Deutsche Bank

Figure 5: Household debt obligations low relative to income



Source: Federal Reserve Board, Haver Analytics, Deutsche Bank

Yet there are bread crumbs that suggest this robust aggregate picture could be masking vulnerabilities at the more micro level. Last November, we detailed that the robust aggregate story is not consistent across different aggregations and that, in fact, household balance sheets in some parts of the income and wealth distributions look a lot more fragile across a broad set of indicators.[1] In this report we highlight how there are various pieces of evidence suggesting that households

1 See Deutsche Bank US Economic Perspectives (November 21, 2017), "Consumer finances have spending chugging along."

remain scarred by the financial crisis even a decade after those events. This scarring is leading them to hold larger amounts of precautionary savings.

We conclude this report by discussing the market implications of these lingering effects from the financial crisis. Most importantly for markets, we find that our measure of excess household savings – constructed from the gap between actual savings and the level that would be consistent with the level implied by the historical relationship with the household wealth-to-income ratio – is highly correlated with several key variables, including the "headwinds" component of r-star and the 10-year Treasury term premium. Our analysis therefore suggests that the US household savings glut may be one factor that helps to explain the historically low levels of r-star and term premia. We also discuss a few other more tentative implications of our findings.

Theory: Scarring effects

The academic literature has documented that household perceptions about the riskiness of the economic environment tend to be influenced by individual experiences. These perceptions, in turn, impact a variety of economic decisions, including risk-taking behavior and asset allocation. For example, Malmendier and Nagel (2010) find that "individuals who have experienced low stock-market returns throughout their lives so far report lower willingness to take financial risk, are less likely to participate in the stock market, invest a lower fraction of their liquid assets in stocks if they participate, and are more pessimistic about future stock returns. Individuals who have experienced low bond returns are less likely to own bonds."[2] This research has also found that individuals' decisions are more sensitive to recent experiences and that the effects of past experiences tend to have a greater impact on younger people who have a shorter time horizon over which to condition their expectations.

Recent comments from NY Fed President John Williams echo the insights from this literature. In a public Q&A on September 6, 2018, Williams noted that behavioral economics has taught us that "people's views on what is risky and what is not…actually come from their experiences."[3]Williams also noted that "We know from the Great Depression…that there was a decade long approach for businesses and households to take less risk than you would normally think would be optimal", and he alluded to the possibility that something similar could be occurring in the wake of the global financial crisis. Below we detail a few pieces of evidence that suggest households may still be scarred by the financial crisis and then discuss the implications.

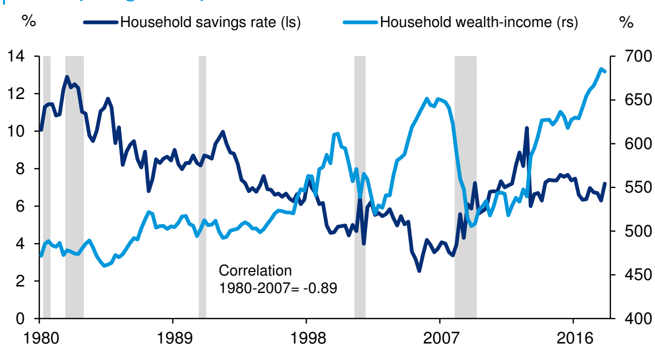
Evidence of scarring effects: Household savings is puzzlingly high

Despite the robust aggregate consumer picture detailed in the introduction there are a variety of data points that suggest all is not normal and that risk aversion may still be elevated a decade after the financial crisis. The most compelling piece of evidence is the surprisingly high household savings rate.

2 Malmendier, Ulrike and Stefan Nagel (February 2011), "Depression babies: Do macroeconomic experiences affect risk-taking?" Quarterly Journal of Economics, vol. 126(1), pp. 373-416. https://eml.berkeley.edu/~ulrike/Papers/DepressionBabies_59.pdf
3 John C. Williams Q&A at the University of Buffalo on September 6, 2018.

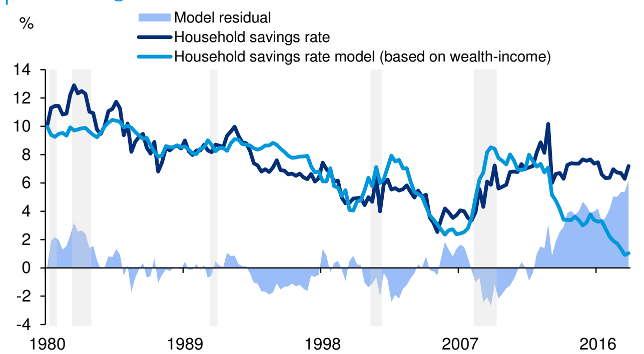
Historically, the personal saving rate has been closely (negatively) related to household wealth-income (Figure 6). The intuition for this relationship has been that if households have a wealth goal in mind when making economic and financial decisions, then an increase in their wealth due to, for example, a rise in the stock market or increase in house prices, could allow households to reduce their savings and still achieve the same wealth target.[4]This relationship was tight from the early 1980s until the crisis, with the wealth-income ratio alone explaining nearly 80% of the variation in the household savings rate during this period.

Figure 6: Household savings has historically been closely negatively related to wealth



Source: BEA, Federal Reserve Board, Haver Analytics, Deutsche Bank

Figure 7: Household savings rate should be near 1% according to wealth-income ratio



Source: BEA, Federal Reserve Board, Haver Analytics, Deutsche Bank

However, this historically tight relationship has completely broken down in recent years. Though savings rose initially in response to the crisis, as would have been expected given the plunge in household wealth, the former has remained elevated above 6%, even as household wealth has risen to a record high relative to household income. The historical relationship between these two variables would have implied that households savings should currently be significantly lower, near 1% (Figure 7).

The observation that household savings have completely disconnected from wealth is a relatively new revelation driven by the most recent GDP benchmark revisions which led to a significant upward revision to household income but little change to consumer spending. There could be a number of factors that can help to account for this divergence, including both structural and cyclical forces. Below we focus on evidence that suggests household scarring from the financial crisis could be one contributing factor. [5]

Why is household savings unusually high?

The behavioral literature mentioned at the outset suggests that a likely candidate to explain the divergence between still-elevated household savings and near record level household wealth-to-income is that the global financial crisis has had lingering effects on household risk-taking behavior. Similar to the Great

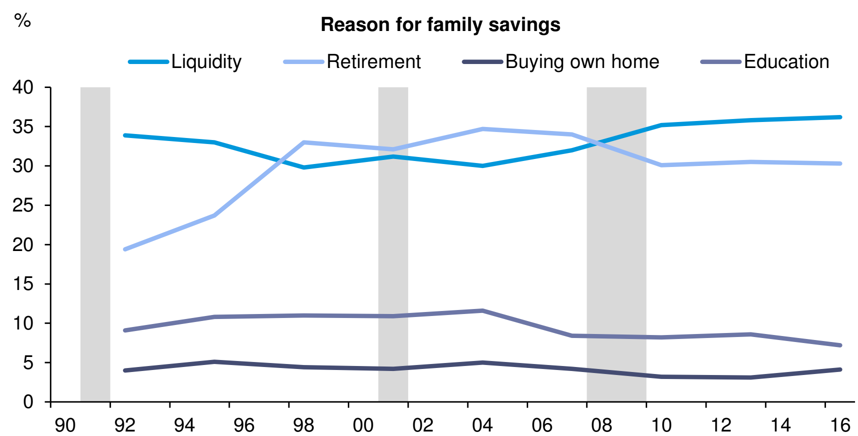
4 See Deutsche Bank Global Economic Perspectives (4 May 2016), "US consumers: saving more, spending less."
5 One potential driver would be demographic changes. However, as noted by Aladangady and Feiveson (2018), the share of the population that are spenders (ages 25-35 and over 65) was near historical norms in 2017 and has risen since the crisis. As a result, if anything, this would suggest downward pressure on the savings rate and upward pressure on spending from these demographic shifts in recent years.

Depression, it would not be surprising that the shock of the global financial crisis has led to a persistent shift in households' perceptions of the riskiness of the economic environment and that this shift could lead households to demand a higher buffer of precautionary savings. This section provides some evidence to this effect.

Liquidity reasons more important for saving

Data from the Federal Reserve Board's Survey of Consumer Finances (SCF) indicate that liquidity or precautionary factors have become the most important reasons for households to save, while during the decade prior to the crisis retirement was the most important reason for households to save (Figure 8). Among the answers included in this liquidity category are a variety of precautionary motives: reserves in case of unemployment; in case of illness or medical/ dental expenses; in case of emergencies or other unexpected needs; for liquidity or to have cash available on hand; and "wealth preservation" or to maintain life-style, presumably in response to an adverse shock.[6]

Figure 8: Liquidity, or precautionary, reasons now most important for household savings decisions



Source: Federal Reserve Board, Haver Analytics, Deutsche Bank

The turning point for the rise in the importance of precautionary motives was the financial crisis. In 2007, 34% of respondents suggested that retirement was their primary reason for saving, while a slightly smaller fraction (32%) indicated that liquidity was the most important reason. The next time the survey was conducted in 2010, 35% of respondents indicated that liquidity was the most important reason, versus only 30% for retirement. Most recently in 2016, the percentage of respondents suggesting that liquidity was most important rose further to 36%, a record high for this data series.

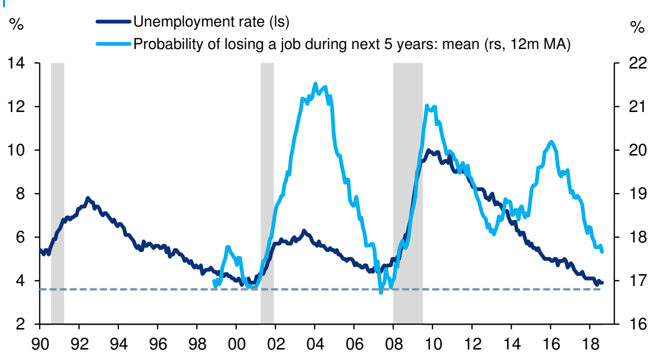
Worries about job security elevated

Why are households more inclined to save for precautionary reasons? One reason is that the shock of the global financial crisis led to a fundamental reassessment of the riskiness of the economic environment. A piece of evidence in support of this notion is that survey data suggest that households view the probability of becoming unemployed as higher than in previous cycles (Figure 9). While the

6 Of the responses the SCF classifies as liquidity reasons, "for the future" is the one that is least obviously related to precautionary motives.

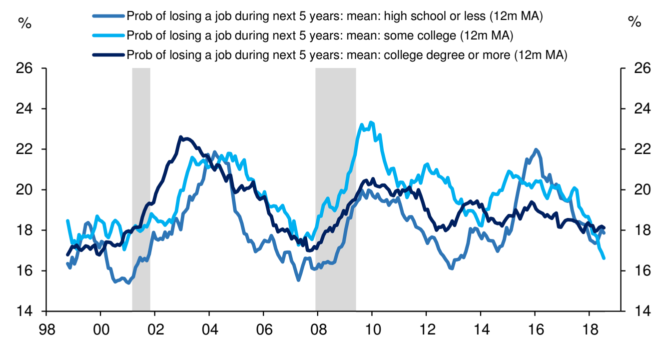
probability of losing a job during the next five years hit a low of about 17% during the previous two cycles, this probability has remained about a percentage point higher near 18% during this cycle. This finding is particularly surprising given that the unemployment rate has fallen to the lowest levels in recent decades and broader measures of labor market slack, such as the U-6 underemployment rate, are at the lowest levels since the early 2000s.

Figure 9: Perception of losing job still elevated relative to past cycles



Source: BLS, Univ. of Michigan, Haver Analytics, Deutsche Bank

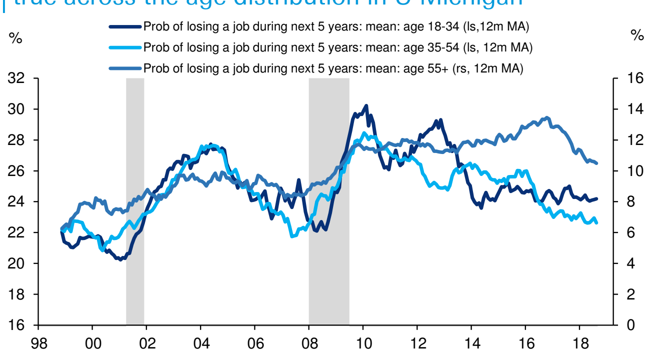
Figure 10: Job loss perceptions remain the most elevated relative to history for "high school or less" education



Source: Univ. of Michigan, Haver Analytics, Deutsche Bank

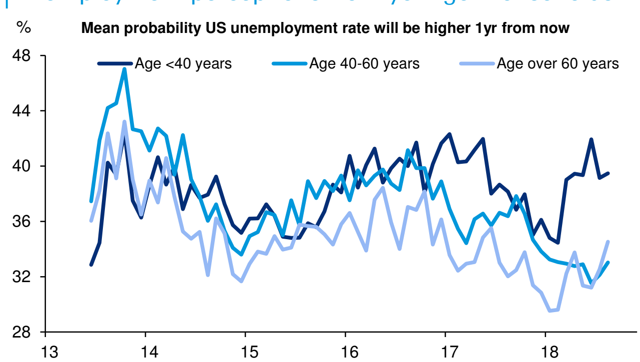
Looking at more granular data, job loss perceptions remain the most elevated relative to history for those with education levels of high school or less (Figure 10) but is relatively consistent across the age distribution (Figure 11). In addition, data from the NY Fed consumer survey indicate that job loss perceptions have risen for the youngest group of households this year, although this survey does not have data available prior to the crisis for comparison (Figure 12).

Figure 11: The elevated nature of unemployment risks is true across the age distribution in U Michigan



Source: Univ. of Michigan, Haver Analytics, Deutsche Bank

Figure 12: NY Fed survey has shown a rise in unemployment perceptions from younger households



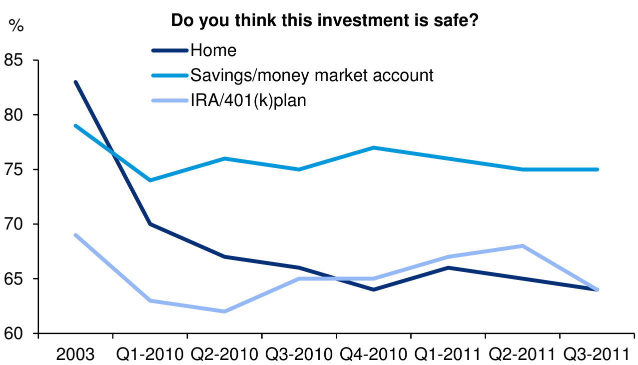
Source: FRB New York, Haver Analytics, Deutsche Bank

If households believe the likelihood that they lose there job is elevated relative to history, it is understandable that they may want to hold an additional buffer of precautionary savings to maintain their life-style in response to unemployment spells. In this sense, the data from the University of Michigan consumer survey presented here are fully consistent with the rising importance of precautionary savings motives for savings decisions.

A regime shift in how the riskiness of housing is viewed

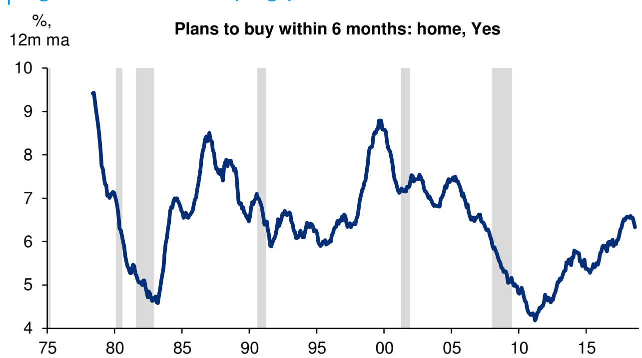
Additional evidence for how household perceptions about the riskiness of the economic environment may have shifted post-crisis is evident from the housing market, the epicenter of the financial crisis. Data from the Fannie Mae National Housing Survey indicate that households perceive owning a home as a significantly riskier decision than it was prior to the crisis. While more households believed in 2003 that a home was a safe investment (~84%) than savings (80%) or retirement (70%) accounts, as of the latest data point we have for this survey in 2012, much fewer (~63%) households ranked a home as a safe investment than savings and retirement accounts (Figure 13).

Figure 13: Housing viewed as riskier



Source: Fannie Mae National Housing Survey, Deutsche Bank

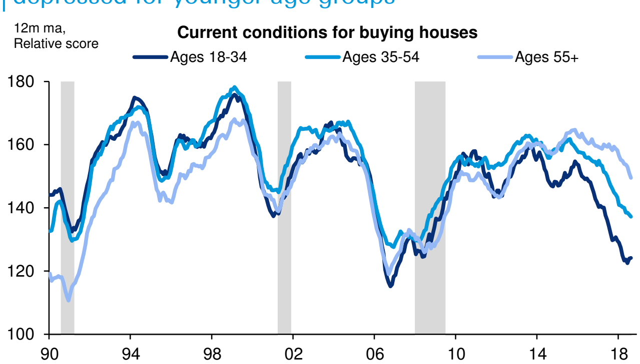
Figure 14: Homebuying plans remain subdued



Source: Conference Board, Haver Analytics, Deutsche Bank

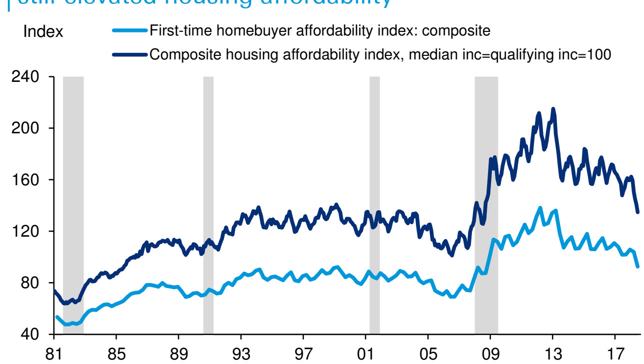
As households began to view owning a home as riskier, this could influence intentions for owning a home and ultimately impact home sales and housing starts. Consistent with this, household plans to buy a home have remained well below peaks during previous cycles even though housing affordability has remained elevated (Figures 14-16). While this more subdued trend in homebuying intentions is likely explained by a variety of factors – deferring home purchases until later in life due to higher indebtedness, preferences for living in urban versus rural areas, among others – it also likely reflects a "regime shift" in how households perceive the riskiness of owning a home.

Figure 15: Homebuying perceptions remain the most depressed for younger age groups



Source: Univ. of Michigan, Haver Analytics, Deutsche Bank

Figure 16: Homebuying intentions depressed despite still-elevated housing affordability



Source: NAR, Haver Analytics, Deutsche Bank

Consistent with the behavioral literature detailed earlier in this piece, perceptions of homebuying conditions remain the most depressed from a historical perspective for younger ages, namely the 18 to 34 group. Given that the experience of the housing boom and bust represents a much larger fraction of the personal experiences of the younger age groups, it would not be surprising that these groups are more scarred by the financial crisis and thus that their perceptions of the housing market continued to remain depressed.

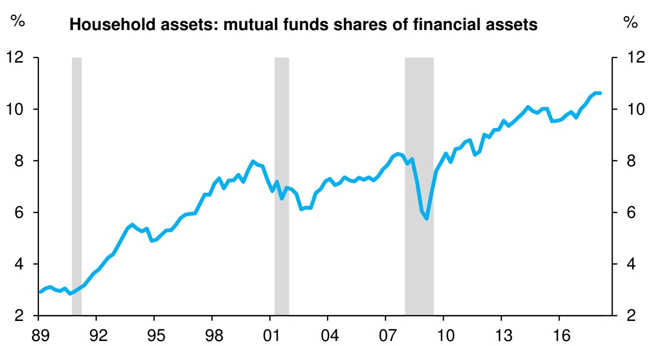
Economic and market implications of household scarring

The most straightforward implication of our analysis is that higher-than-expected household savings is equivalent to softer-than-expected consumer spending. Recent Fed research has emphasized this point, suggesting that consumer spending has remained surprisingly weak relative to its historical underlying drivers. [7]We consider four additional implications of our analysis.

Excess household savings compressing term premium

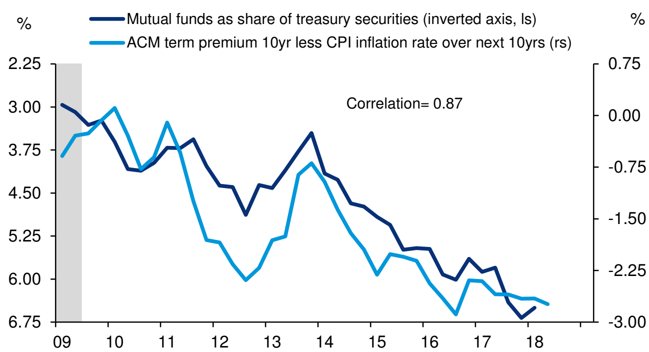
Perceptions of a riskier economic environment, heightened risk aversion and the stronger precautionary savings motives that come with it could show up in greater demand for bonds and other safer assets. This greater demand for relatively safe assets that can act as a hedge against negative shocks could, in turn, compress the risk premia associated with holding these instruments. In this way, a heightened perception of economic risk since the crisis could be contributing to the historically low term premium observed for long-term Treasury bonds in recent years. [8]Mutual fund data provide some tentative evidence that excess household savings may have been channeled at least partly into Treasury securities, which could compress the term premium.[9] While mutual funds have become a larger share of total household financial assets, mutual funds also own a much larger share of Treasuries, a development that has been inversely related to a measure of the 10-year Treasury term premium (Figures 17, 18).

Figure 17: Mutual funds have become larger share of household financial assets



Source: FRB, Haver Analytics, Deutsche Bank

Figure 18: Mutual funds own larger share of Treasuries

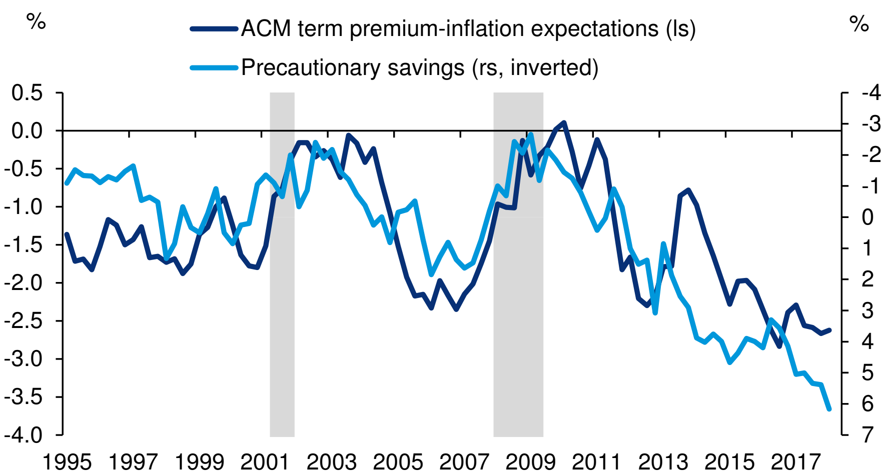


Source: FRB, FRB New York, FRB Philadelphia, Haver Analytics, Deutsche Bank

7 See Aladangady, Aditya and Laura Feiveson (March 8, 2018), "A not-so-great recovery in consumption: What is holding back household spending?" FEDS Notes.
8 As Fed Governor Brainard recently noted, bonds have become a better hedge for economic downturns and risk assets. As such, they have come under greater demand by risk averse investors, which may help to partially explain persistently low term premia. See Brainard, Lael (May 31, 2018), "Sustaining full employment and inflation around target." Speech at the Forecasters Club of New York.
9 There are likely indirect channels through which excess household savings could reduce the term premium as savings are funneled through the banking sector.

To investigate this possibility further, we compare the portion of the savings rate that is unexplained by the wealth-to-income ratio – a measure that we think is a decent proxy for the precautionary savings component of household savings – to a measure of the 10-year term premium. For the latter, we subtract long-term inflation expectations from the Federal Reserve Bank of Philadelphia's Survey of Professional Forecasters (SPF) to eliminate the trends driven by inflation expectations and to isolate the portion of the term premium driven by supply/ demand forces. The below chart shows that our measure of precautionary savings has been very highly correlated with the ACM term premium after adjusting for inflation expectations (Figure 19). This relationship suggests that the historically (and persistently) low term premium may be due in part to a rise in household precautionary savings since the crisis. Indeed, heightened precautionary savings may help to explain why the term premium has remained stubbornly low even as a number of the factors that have compressed it have begun to abate, such as the unwind of the Fed's balance sheet.

Figure 19: Precautionary savings highly correlated with term premium



Source: HLW, BEA, FRB, Haver Analytics, Deutsche Bank

The causation in this relationship likely runs in both directions. It may also be the case that a low term premium, perhaps driven by unprecedented QE policies by global central banks, induced households to save more in order to make up for lower returns on their savings. Nevertheless, the implication from an elevated precautionary savings motive is that the term premium may remain lower than expected even as QE flows unwind, unless household perceptions about economic risks improve. Analogously, this relationship suggests the term premium would move higher if household wealth-to-income fell without a corresponding rise in household savings or if households savings were to fall. This conclusion dovetails nicely with recent analysis from our colleagues in rates strategy who have noted that equity underperformance is likely to be an important catalyst for term premium restoration by curtailing pension fund demand for the long-end of the curve driven by portfolio rebalancing flows. [10]A potential driver of lower household savings that is unrelated to scarring is the aging of

10 See Deutsche Bank Special Report (10 September 2018), "Term premium: What's next?"

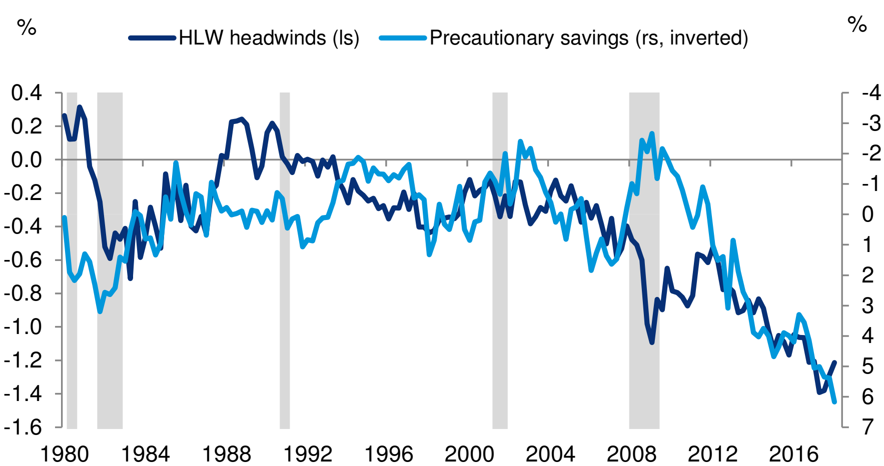
the population, which in the coming years will push more households into their dissaving years and put downward pressure on savings.

R-star has stayed low

An increase in the supply of savings due to precautionary motives could also be depressing a key input variable for monetary policy: r-star. While potential growth is viewed as a primary driver of r-star over time, shifts in the supply/demand dynamics of savings also tend to affect r-star. In the popular Laubach and Williams (2003) framework, these supply and demand factors get lumped into a statistical catch-all term that has had the common interpretation of "headwinds." [11]As we noted recently (see Data revisions lead to a brighter r-star), these headwinds continue to act as a significant depressing effect on r-star estimates even though recent data revisions led to a positive reassessment of their impact.

It has been a bit puzzling why r-star has stayed low even as many of the headwinds the Fed identified have since faded. One headwind that may not have faded, however, is heightened risk aversion since the crisis that has led to a greater supply of savings. The below chart shows that the gap between the actual household saving rate and the implied saving rate from the household wealth-to-income ratio (what we have called precautionary savings) has closely tracked the Holston, Laubach and Williams (2017) measure of headwinds in recent years.[12] As precautionary savings have risen the headwinds to r-star have intensified (see Figure 20). Therefore, a decline in this precautionary savings motive can be an important catalyst for driving r-star sustainably higher.[13]

Figure 20: R-star "headwinds" intensified as precautionary savings rose



Source: HLW, BEA, FRB, Haver Analytics, Deutsche Bank

11 Laubach, Thomas and John C. Williams (2003), Measuring the natural rate of interest." Review of Economics and Statistics, 85(4), 1063, 1070.

12 See Holston, Kathryn, Thomas Laubach, and John C. Williams (May 2017), "Measuring the natural rate of interest: International trends and determinants." Journal of International Economics, 108, S59-S75.

13 Our analysis is thus related to papers that have highlighted the importance of a heightened demand for safe assets in explaining the low level of r-star. See Del Negro, Marco, Marc P. Giannoni, Domenico Giannone, and Andrea Tambalotti (Spring 2017), "Safety, liquidity, and the natural rate of interest." Brookings Papers on Economic Activity, and Carvalho, Carlos, Andrea Ferrero, and Fernanda Nechio (September 25, 2017), "Demographic transition and low US interest rates." FRBSF Economic Letter.

Two other implications: Tax cuts less stimulative and housing to remain subdued

There are two additional implications of our analysis for the economy. The first is more speculative, but it would stand to reason that if households are more uncertain about the economic outlook and are more risk averse, then a heightened precautionary savings motive could reduce the propensity to spend an additional dollar of income, everything else equal. This lower marginal propensity to consume (MPC) suggests that fiscal stimulus in the way of tax cuts could have a more muted impact on the economy. It could also imply that the marginal propensities to consume for lower income households, which tend to consume more of an additional dollar of income, could fall, if those households are also the ones that feel more uncertain about the outlook. In this way, there could be some convergence in marginal propensities to consume for low income (typically high MPC) and high income (typically low MPC) households.

The second takeaway reinforces a theme we have noted recently, namely that, despite apparently supportive fundamentals, the housing sector is likely to remain a more subdued contributor to GDP growth.[14] Added to the factors we discussed in our earlier work, the fact that households likely continue to view housing as a riskier investment compared to before the crisis suggests that owner-occupied housing demand should remain muted. As a result, home sales and home-building activity, particularly for single-family housing units, should remain soft relative to past cycles.

14 See Deutsche Bank US Economic Perspectives (10 August 2018), "A closer inspection of the housing market."

Appendix 1

Important Disclosures

*Other information available upon request

*Prices are current as of the end of the previous trading session unless otherwise indicated and are sourced from local exchanges via Reuters, Bloomberg and other vendors . Other information is sourced from Deutsche Bank, subject companies, and other sources. For disclosures pertaining to recommendations or estimates made on securities other than the primary subject of this research, please see the most recently published company report or visit our global disclosure look-up page on our website at https://research.db.com/Research/Disclosures/CompanySearch. Aside from within this report, important risk and conflict disclosures can also be found at https://research.db.com/Research/Topics/Equities?topicId=RB0002. Investors are strongly encouraged to review this information before investing.

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