



# Economic Letter

## Increased Credit Availability, Rising Asset Prices Help Boost Consumer Spending

by John V. Duca, Anthony Murphy and Elizabeth Organ

**ABSTRACT:** A combination of much less household debt, revived access to consumer credit and recovering asset prices have bolstered U.S. consumer spending. This trend will likely continue despite an estimated 50 percent reduction since the mid-2000s of the housing wealth effect—an important amplifier during the boom years.

**U**nderstanding aggregate consumer spending is important. Consumer spending accounted for more than two-thirds of U.S. gross domestic product (GDP) in 2015 and for 1.5 percentage points of the 2.0 percentage-point average GDP growth in the past five years.

Access to credit and the amount and composition of wealth greatly influence household consumption and saving. In the U.S., increased availability of consumer and mortgage credit, along with rising asset prices, contributed greatly to the consumption boom in the mid-2000s; reversals in these factors exacerbated the bust in consumption during the Great Recession.

Debt accumulated during the boom years restrained consumer spending for several subsequent years, and the housing wealth effect is only half what it was in the mid-2000s. More recently, however, large reductions in household indebtedness, revived access to consumer credit (credit not secured by real estate) and recovering asset prices have helped bolster U.S. consumer spending and will likely continue to do so.

### Drivers of Consumer Spending

Aggregate consumer spending and savings depend on a range of factors

including the usual suspects—incomes, aggregate wealth and interest rates. Higher incomes and household wealth boost spending. Higher, real (inflation-adjusted) interest rates—which encourage consumers to save—reduce current spending. Additionally, consumer spending varies notably with the availability of consumer credit and the ability to borrow against housing wealth—factors that merit attention here.

The ratio of consumer spending to income—the proportion of income that people spend—strikingly increased from the early 1980s to the mid-2000s (*Chart 1*).<sup>1</sup> The ratio rose from about 89 percent to 96 percent, peaking at almost 97.5 percent in 2005. With the onset of the Great Recession in late 2007, the ratio fell as consumers saved more.

The ratio slipped into a trough at 92.5 percent in 2012, raising fears that the savings rate would stay relatively high and future consumer spending would be weak. Those concerns proved unfounded, with the ratio subsequently rising to around 95 percent, where it has remained for the past three years.

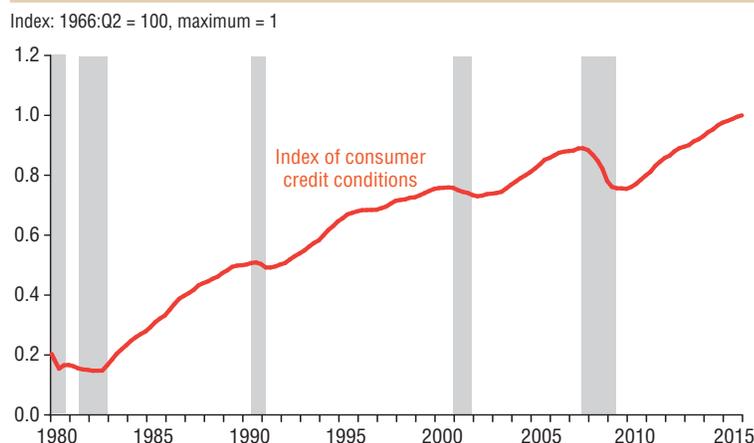
Changes in the availability of consumer credit explain much of the rise in consumer spending relative to income between 1980 and 2006. Increased access to con-

**Chart 1** Ratio of Consumer Spending to Income Recovers from Postrecession Drop



NOTE: Shaded areas are National Bureau of Economic Research dated recessions.  
SOURCES: U.S. National Income and Product Accounts; authors' calculations.

**Chart 2** Supply of Consumer Credit Steadily Increases



NOTE: Shaded areas are National Bureau of Economic Research dated recessions.  
SOURCE: "How Financial Innovations and Accelerators Drive U.S. Consumption Booms and Busts," by John V. Duca, John Muellbauer and Anthony Murphy, manuscript, April 2016.

sumer credit reduced the need for precautionary "saving for a rainy day," research shows.<sup>2</sup> Chart 2 depicts a consumer credit index measure that captures changes in the supply of consumer credit.<sup>3</sup>

Since the 1970s, improvements in financial technology reduced lenders' cost to review credit applicants and process loan payments. As a result, it became easier to acquire credit cards and auto loans. Credit availability also rose in the early 1980s following federal deregulation of interest paid on bank deposits and again in the late 1980s with the advent of securitiza-

tion—the bundling of receivables into debt securities that were subsequently resold to investors.

Consumer credit availability rose in the early 2000s, before retreating during the Great Recession. It has risen since 2010, as consumer balance sheets improved and loan delinquency rates fell, and is now higher than it was in 2007 before the Great Recession.

### Mortgage Debt and Deleveraging

The ratio of household debt to income rose steadily from about 80

percent in the mid-1980s to around 95 percent in 2000, largely because of increased mortgage debt (*Chart 3*). The ratio shot up during the subprime boom years—as mortgage lending standards were relaxed—and eventually peaked at 135 percent in late 2007.

One factor that increased households' ability to borrow against home equity was the greater prevalence of home equity loans. They gained popularity following the Tax Reform Act of 1986, which removed the tax deductibility of interest on consumer—but not mortgage—loans. Another factor was the rise of cash-out mortgage refinancing, a financial innovation that enabled households to increase the mortgage debt on their appreciated homes when they refinanced mortgages. Additionally, the decline in down payment requirements during the subprime boom notably contributed to the higher mortgage debt-to-income ratio.<sup>4</sup>

Since the Great Recession, the ratio of household debt-to-income has fallen back to about 107 percent, a more sustainable—albeit relatively high—level. The reduction in mortgage leverage was due to a combination of fewer mortgage originations (fewer home sales and tighter mortgage lending standards), more foreclosures and loan charge-offs and "active" mortgage deleveraging by consumers.

### Wealth Effects Vary

During the early to mid-2000s, household wealth (net worth) rose significantly (*Chart 4*).<sup>5</sup> The wealth-to-income ratio rose from about 530 percent in fourth quarter 2003 to 650 percent in mid-2007 as equity and house prices surged. Not surprisingly, consumer spending also jumped.

The conventional estimate of the wealth effect—the impact of higher household wealth on aggregate consumption—is 3 percent, or \$3 in additional spending every year for each \$100 increase in wealth.

In practice, however, wealth effects vary by type of asset. Liquid assets such as bank deposits are more spendable than illiquid assets such as pension contributions. Likewise, consumer and mortgage debt—which can be regarded as negative liquid assets—have a large depress-

ing effect, reflecting significant potential penalties (such as losing a home) that households face for not making loan payments. Housing wealth or collateral effects are also likely to vary over time as credit is liberalized or tightened.

Recent research suggests that the spendability, or wealth effect, of liquid financial assets—almost \$9 for every \$100—is far greater than the effect for illiquid financial assets, which explains why falling equity prices do not generate larger cutbacks in aggregate consumer spending (Table 1). Other things equal, higher mortgage and consumer debt significantly depress consumer spending. This effect was masked during the boom years of the 2000s, when equity and house prices were rising, but became more apparent with the onset of the Great Recession.

### Housing Wealth Effect Halved

The estimated housing wealth effect varies over time and captures the ability of consumers to tap into their housing wealth (Chart 5). It rose steadily from about 1.3 percent in the early 1990s to a peak of about 3.5 percent in the mid-2000s. It has since halved, to about the same level as that of the mid-1990s. During the subprime and housing booms, rising house prices and housing wealth effects propagated and amplified expansion of consumption and GDP.

During the bust, this mechanism went into reverse. High levels of mortgage debt, falling house prices and a reduced ability to tap housing equity generated greater savings and reduced consumer spending.<sup>6</sup> Fortunately, house prices have recovered, deleveraging has slowed or stopped, and consumer spending is strong, even though the housing wealth effect is only half as large as it was in the mid-2000s.

### Housing Wealth Elsewhere

When viewing the U.S. evidence, it is important to keep in mind that there is no “one size fits all” model of consumer spending that applies everywhere. Specifically, housing wealth effects vary by country. They are positive in the U.K. and U.S.—where consumers can borrow against net wealth in their houses—but negative in Japan, for example, where existing homeowners cannot as easily do

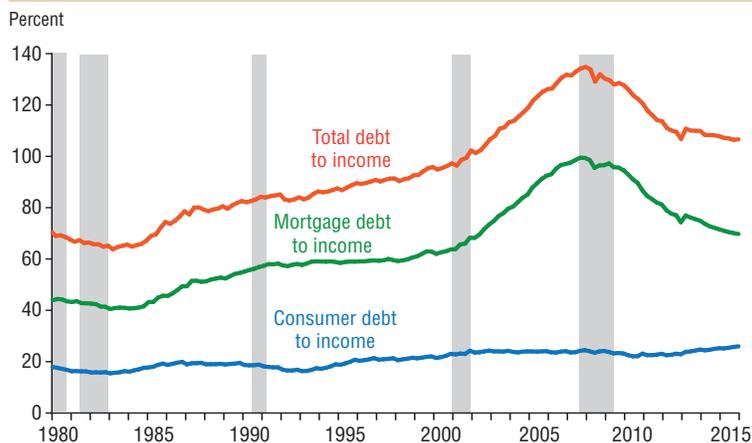
**Table 1** How Much of a \$100 Rise in Wealth Is Spent?

Source of rise in wealth		
Liquid assets minus debt	Other net financial assets	Housing
\$8.8	\$1.5	\$2.1 in mid-1995 \$3.4 in mid-2005 \$1.7 in late 2015

NOTE: The table shows the estimated wealth effect by type of asset. Net liquid assets = deposits (including money market shares) + debt securities – consumer loans – home mortgages. Other net financial assets include corporate equities, mutual fund shares and pension entitlements.

SOURCE: “How Financial Innovations and Accelerators Drive U.S. Consumption Booms and Busts,” by John V. Duca, John Muellbauer and Anthony Murphy, manuscript, April 2016.

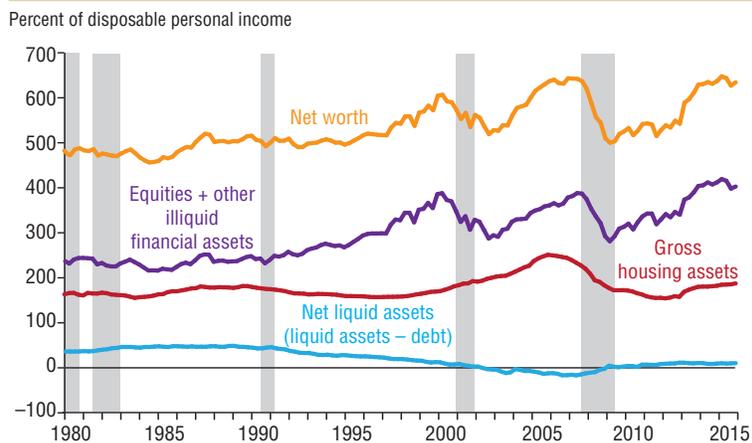
**Chart 3** Household Leverage Has Fallen Since 2007



NOTE: Shaded areas are National Bureau of Economic Research dated recessions.

SOURCES: Z.1 Financial Accounts of the United States, Board of Governors of the Federal Reserve, March 2016; authors' calculations.

**Chart 4** Household Wealth Recovers Since Great Recession

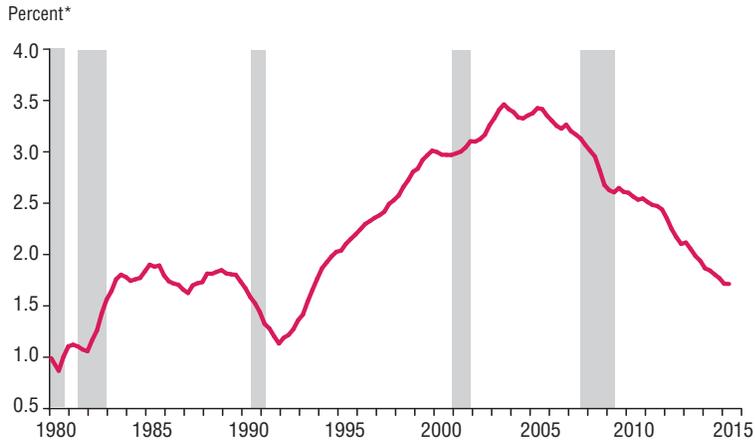


NOTE: Shaded areas are National Bureau of Economic Research dated recessions.

SOURCES: Z.1 Financial Accounts of the United States, Board of Governors of the Federal Reserve, March 2016; authors' calculations.

## Chart 5

### Housing Wealth Effect Halved Since Mid-2000s Peak



\*Percent increase in wealth attributable to housing.

NOTE: Shaded areas are National Bureau of Economic Research dated recessions.

SOURCE: "How Financial Innovations and Accelerators Drive U.S. Consumption Booms and Busts," by John V. Duca, John Muellbauer and Anthony Murphy, manuscript, April 2016.

so and where there has been little credit liberalization.

In Japan, rising residence prices negatively affect consumer spending, since higher savings are required for the down payment for a house. Japanese households also appear to be very forward-looking and, rather than spend against rising house prices, prefer to pass on any house price gains to future generations who need a place to live.<sup>7</sup>

### Bolstered Consumer Spending

Consumer spending during the Great Recession was depressed by falling wealth, reduced ability to draw on consumer credit or borrow against net housing wealth, and large payments on high levels of previously borrowed debt.

In recent years, a combination of reduced household indebtedness, revived access to consumer credit and recovering asset prices have bolstered U.S. consumer spending and will likely continue to do so.

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### Notes

<sup>1</sup> Chart 1 plots the average propensity to consume (APC) in percentage terms. The savings rate is 100 minus the APC. Consumer spending and household income are shorthand

for personal consumption expenditures (PCE) and disposable personal income variables in the U.S. National Income and Product Accounts, [www.bea.gov/national/index.htm](http://www.bea.gov/national/index.htm).

<sup>2</sup> See "How Financial Innovations and Accelerators Drive U.S. Consumption Booms and Busts," by John V. Duca, John Muellbauer and Anthony Murphy, manuscript, April 2016. The authors estimate a two-equation, time series model of consumer spending and mortgage refinancing, with a time varying housing collateral ("wealth") effect.

<sup>3</sup> See note 2. The consumer credit index in Chart 2 is derived from the net percentage of domestic banks reporting increased willingness to make consumer installment loans in the Senior Loan Officer Opinion Survey on Bank Lending Practices.

<sup>4</sup> See "House Prices and Credit Constraints: Making Sense of the U.S. Experience," by John V. Duca, John Muellbauer and Anthony Murphy, *The Economic Journal*, vol. 121, no. 552, 2011, pp. 533–51, and "How Mortgage Finance Reform Could Affect Housing," by John V. Duca, John Muellbauer and Anthony Murphy, *American Economic Review*, vol. 106, May 2016. Mortgage lending standards are proxied by the loan-to-value ratios of first-time homebuyers, a key marginal group of buyers.

<sup>5</sup> Household wealth or, more formally, the net worth of households and nonprofit organizations, equals the sum of the value of nonfinancial assets (such as real estate) and financial assets less financial liabilities. See the balance sheet Table B.101 in [www.federalreserve.gov/releases/z1/current/](http://www.federalreserve.gov/releases/z1/current/).

<sup>6</sup> For example, Fannie Mae and Freddie Mac have charged higher fees for cash-out mortgage refinancing since 2007.

<sup>7</sup> See "Credit, Housing Collateral and Consumption: Evidence from the U.K., U.S. and Japan," by Janine Aron, John V. Duca, John Muellbauer, Keiko Murata and Anthony Murphy, *The Review of Income and Wealth*, vol. 58, no. 3, 2012, pp. 397–423.

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