

# After the Fall

## REBUILDING FAMILY BALANCE SHEETS, REBUILDING THE ECONOMY

*By Ray Boshara and William Emmons*



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Americans, imbued with great expectations and optimism, set several records in the past decade in pursuit of the American dream of homeownership. We had both the highest rate of homeownership and the highest concentration of wealth in housing ever recorded. Millions, including the most economically vulnerable, assumed risky mortgages to purchase these homes and ran up their other debts as well, leading to a personal debt-to-income ratio of 133 percent, an all-time high. And easy access to credit, along with rapidly rising home values, let our personal savings rate plunge to its lowest level since the 1930s.

**Leverage** was the price we paid, and are still paying, for that American dream.

The risk of leverage, of course, is that it can multiply losses. As house prices fell, the **balance sheets** of economically fragile families were damaged. And while **household** balance sheets have improved in the past few years—families are rebuilding their savings and paying down their debts—balance sheets have not yet fully rebounded. We estimate that only about 45 percent of the average inflation-adjusted household wealth that was lost since the onset of the downturn in 2007 has been recovered. (See sidebar on Page 14.)

In this essay, we present new research regarding the damage to household balance sheets resulting from the Great Recession of 2007-09. Specifically, we show which demographic groups lost the most wealth following the recession, and we illustrate how

economically vulnerable groups possessed especially risky balance sheets going into the crisis. We then address the importance of balance-sheet health at the micro level—that is, the importance of sound financial footing to families. Finally, we review research on the importance of healthy household balance sheets to the economy, and we briefly convey our future research plans on household balance sheets.

## The Financial Crisis and the Impact on Households

Household balance sheets were severely affected during the financial crisis and ensuing recession. According to the Federal Reserve's triennial Survey of Consumer Finances (SCF)—the most comprehensive examination of household balance sheets—average household wealth declined 15 percent between 2007 and

## Glossary

*In this column are definitions of terms that are highlighted in bold in the text.*

**Leverage:** In a qualitative sense, leverage refers to the degree to which a family's assets are financed with debt. In a quantitative sense, leverage is defined in this article as the ratio or percent of a family's debt relative to its assets.

**Balance sheet:** The financial accounting for an economic unit's financial and tangible assets and its liabilities. A balance sheet consists of two columns, containing all assets on the left-hand side and all liabilities on the right-hand side. The difference between the value of assets and liabilities is defined as net worth, or wealth. Net worth can be positive or negative.

**Household:** The U.S. Census Bureau defines a household as consisting of all the people who occupy a housing unit. (See "family," too.) A house, an apartment or other group of rooms, or a single room, is regarded as a housing unit when it is occupied or intended for occupancy as separate living quarters, that is, when the occupants do not live with any other persons in the structure and there is direct access from the outside or through a common hall. Because the definitions of family and household are very similar, we use the terms interchangeably in the text.

A household includes the related family members and all the unrelated people, if any, such as lodgers, foster children, wards or employees who share the housing unit. A person living alone in a housing unit, or a group of unrelated people sharing a housing unit, such as partners or roomers, is also counted as a household. The count of households excludes group quarters.

**Median:** The number that ranks precisely in the middle of a set of numbers arranged in order of magnitude. If the set of numbers has an even number of members, the median is the average of the two numbers that are closest to the middle of the ranking. In contrast, the **mean** is the **average** value of a set of numbers divided by the number of members in the set.

**Reverse causation:** A relationship between two variables, each of which may be important in explaining the other, rather than one being clearly causal with respect to the other. For example, income and marital status may be subject to reverse causation. Having a high income may increase the chance that an individual is married, but being married also might contribute to an individual's having a higher income. Thus, the causal relationship between the variables is ambiguous. Demographic variables such as age and race or ethnicity are not subject to reverse causation in the same way. Being a minority may reduce a family's chance of being a homeowner, due to discrimination in housing or mortgage markets, but not being a homeowner does not "cause" minority status. Causation clearly is one-way only, if it exists.

**Human capital:** A concept meant to capture the potential earning power of an individual. Unlike physical capital, such as a machine, human capital cannot be measured precisely because it is not legal to buy and sell financial claims on a person's future earnings. The concept is useful, nonetheless, to facilitate discussions of why people make investments in education and what financial benefits this investment might generate.

2010, while **median** household wealth dropped 39 percent.

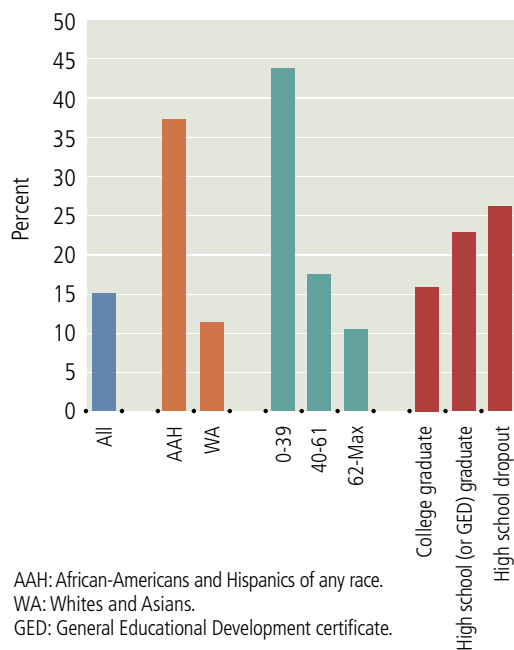
More important, however, we must understand who lost wealth and why. Accordingly, we focus on families grouped by age, educational attainment, and race or ethnicity—demographic and other “exogenous” dimensions that are reliably measured, that are not subject to choice or random variation over time, and that are not difficult to interpret due to potential **reverse causation**.

Although many subgroups experienced large declines, the Fed's survey suggests that families that were younger, that had less than a college education and/or were members of a historically disadvantaged minority group (African-Americans or Hispanics of any race) suffered particularly large wealth losses (Figure 1).<sup>1</sup>

Even before the crisis, younger, less-educated and historically disadvantaged minority families were known to be among the most economically vulnerable groups because of the particular occupations and sectors in which they were overrepresented, such as low-wage service-sector jobs and construction. What was not well-known—but which we document here—is that families in these economically vulnerable groups often also had very risky balance sheets going into the crisis. Our research suggests that both economic vulnerability and risky financial choices may stem from one or more common causes, including low levels of **human capital**, relative youth and inexperience, as well as the legacy of discrimination in education, employment, housing and credit markets. As we show later, these groups experienced the most-acute balance-sheet “failures”—high

FIGURE 1

### Percentage Losses in Mean Net Worth 2007-2010



SOURCE: Fed's Survey of Consumer Finances, 2007 and 2010.

concentrations of wealth in housing and high levels of debt.

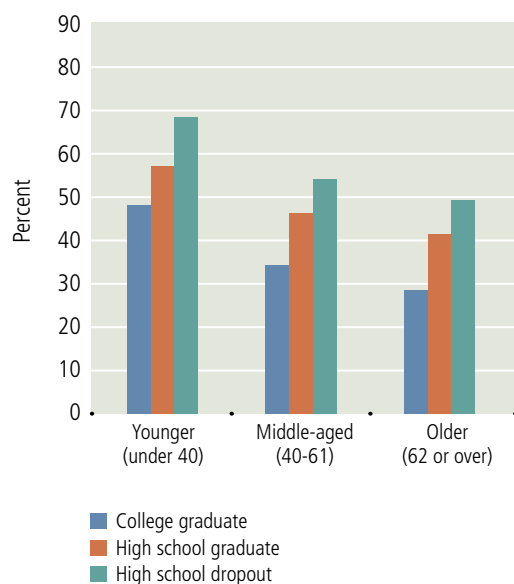
### Large Portfolio Concentrations in Housing before the Crash

Housing represented a relatively large share of total **assets** among economically vulnerable groups (Figures 2 and 3). Figure 2 shows the average share of total assets held in the form of residential real estate in 2007 by each of the nine white and Asian subgroups; Figure 3 shows the same information for the nine subgroups of blacks and Hispanics.

Among white and Asian families, the pattern of asset concentration in housing along both age and educational-attainment dimensions is remarkably clear. The younger the **family** and the lower the level of educational attainment—that is, the more economically vulnerable the family—

FIGURE 2

### Residential Real-Estate Portfolio Shares in 2007 among Whites and Asians



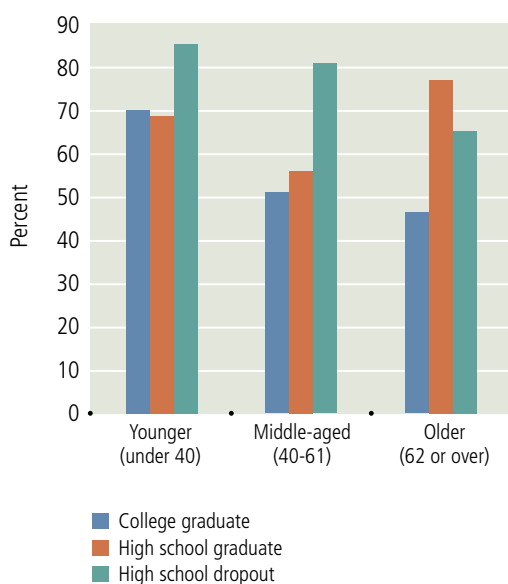
SOURCE: Fed's Survey of Consumer Finances, 2007.

the higher its average housing concentration. The difference in housing portfolio shares between the economically strongest subgroup (older college-educated families) and the economically weakest (younger high school dropouts) is an enormous 41 percentage points, making the latter group much more vulnerable to a housing-market decline. The high average real-estate share in total assets among all white and Asian high school dropouts as a group is even more striking when considering that the homeownership rate is relatively low in this group—52 percent in 2007 vs. 90 percent among older college grads. Said differently, if younger high school dropouts have any assets of significance, they are likely to be in the form of a house.

The age-education pattern for blacks and Hispanics is very similar to that for whites and Asians, albeit at uniformly

FIGURE 3

### Residential Real-Estate Portfolio Shares in 2007 among African-Americans and Hispanics



SOURCE: Fed's Survey of Consumer Finances, 2007.

higher levels (Figure 3). With a few slight exceptions, the general principles enunciated earlier hold here, too. The younger and the less-educated the family, the higher the average portfolio concentration in housing. The very low level of homeownership in 2007 among younger high school dropouts, 24 percent, makes the group's 86 percent housing share of total assets all the more remarkable. Comparing Figures 2 and 3, it is clear that the third dimension of economic vulnerability—belonging to a historically disadvantaged minority group—also was strongly predictive of a relatively high exposure to housing risk.

## High Levels of Household Debt

Economically vulnerable families generally had higher balance-sheet leverage, which meant that any decline in the value of their assets was multiplied into a

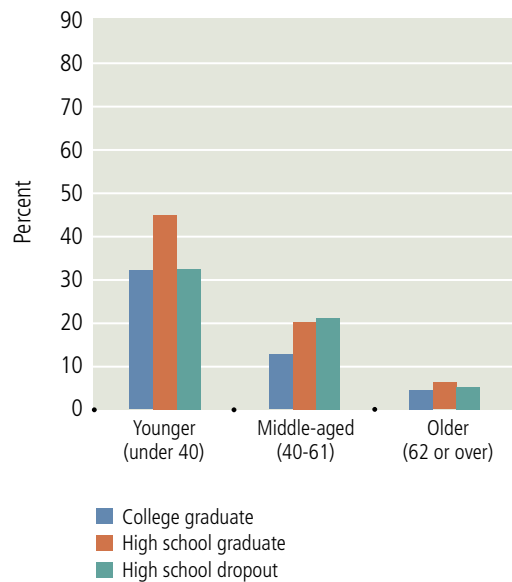
**Assets:** Tangible or intangible property owned by a family. Tangible assets include household durable goods, such as automobiles and home furnishings, and real estate, including a primary residence, vacation residences and investment real estate. Intangible assets include financial assets such as bank deposits, bonds, stocks, mutual funds, the cash value of life insurance and pension entitlements (although not anticipated Social Security benefits, which are not legally owned by the beneficiary).

**Family:** We follow the definition of “family” used by Bricker et al. in discussing the Federal Reserve’s Survey of Consumer Finances. (See “household,” too.) A household unit is divided into a “primary economic unit” (PEU)—the family—and everyone else in the household. The PEU (family) is intended to be the economically dominant single person or couple (whether married or living together as partners) and all other persons in the household who are financially interdependent with that economically dominant person or couple. Because the definitions of family and household are very similar, we use the terms interchangeably in the text.

**Family head:** The head of the primary economic unit (PEU) or family. (See definition of “family.”) Designation of a family head is not meant to convey a judgment about how an individual family is structured but as a means of organizing the data consistently. If a couple is economically dominant in the PEU, the head is the male in a mixed-sex couple or the older person in a same-sex couple. If a single person is economically dominant, that person is designated as the family head.

FIGURE 4

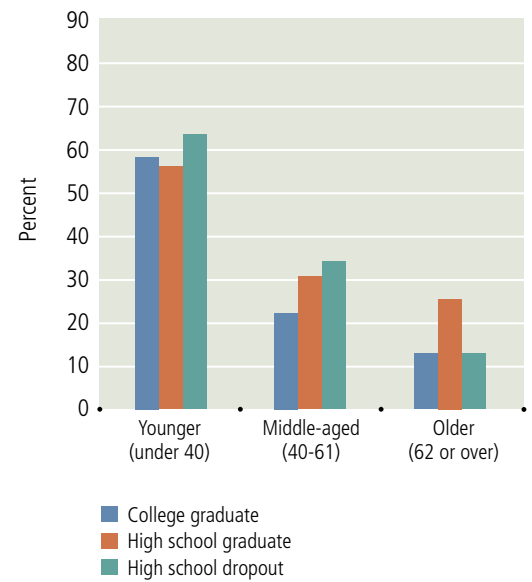
#### Ratio of Total Debt to Total Assets in 2007 among Whites and Asians



SOURCE: Fed's Survey of Consumer Finances, 2007.

FIGURE 5

#### Ratio of Total Debt to Total Assets in 2007 among African-Americans and Hispanics



SOURCE: Fed's Survey of Consumer Finances, 2007.

proportionately larger decline in the family's **net worth** (Figures 4 and 5). A high concentration in housing need not lead to financial distress in a housing market crash if the owner has sufficient net assets (including homeowners' equity) and sufficient cash flow after debt service to meet other needs. If the owner doesn't have sufficient assets or cash flow, however, the family may default on its debts, losing a house, a car and access to additional credit on good terms.

The SCF data reveal that economically vulnerable families often financed their housing investments in a risky way with lots of debt and little margin for error. That is, among the subgroups we consider, those who are economically most vulnerable have, on average, the highest concentrations in housing and the most debt, whether it is measured against assets or income.

Figure 4 shows that younger and less-educated white and Asian families tended to have higher debt-to-asset ratios in 2007 than older and better-educated families. (A similar pattern existed for debt-to-income ratios.) It appears that relative youth is the strongest influence on average debt ratios, while the effect of educational attainment is not as strong or clear-cut.

The dominant influence of age on balance-sheet leverage is evident also in Figure 5, which depicts debt-to-asset ratios for nine black and Hispanic subgroups. Educational attainment also may matter, as the debt ratios of all dropout groups were higher than those of college-graduate groups of the same age. Comparing Figures 4 and 5, race or ethnicity also emerges as a powerful predictor of debt ratios, as every black or Hispanic subgroup had more debt than the corresponding white or



TABLE 1

The Link between Saving and Graduating from College

| Savings Level                                      | No Savings Account | Only Basic Savings | School Savings <\$1 | School Savings \$1-\$499 | School Savings >\$500 |
|--|--------------------|--------------------|---------------------|--------------------------|-----------------------|
| % Who Graduated from College—All Children          | 14%                | 26%                | 30%                 | 31%                      | 49%                   |
| % Who Graduated from College—Lower-Income Children | 5%                 | 9%                 | 13%                 | 25%                      | 33%                   |

SOURCE: Elliott, Nam and Song.

Asian group. Illustrating the point made above, historically disadvantaged minority families tended to finance their assets with more debt than did white and Asian families, which amplified the effects of high housing concentrations on net-worth declines during the crisis.

Why Damage to Balance Sheets Matters for Families

To illustrate how balance sheets matter for families, let us look at some postsecondary education, economic **mobility** and family stability outcomes.

**College outcomes.** The economics literature is rich with data about the role that parental education and income levels, neighborhoods, high schools, race, test scores and other factors play in predicting college success, yet only recently have scholars closely examined how various balance-sheet components drive college access and completion.

William Elliott III, a leading researcher in this area, found that among youth who intend to go to college, those with savings accounts in their own name, regardless of the amount, were nearly seven times more

likely to attend college than youth lacking accounts. Elliott also found other powerful correlations between savings and postsecondary education outcomes—namely, that higher levels of savings are associated with higher rates of college graduation, even for lower-income children (Table 1).

No doubt these modest amounts of savings would not be enough to finance a college education, but the research suggests that dedicated college savings forge what is called a “college-bound identity,” which appears to extend a child’s planning horizon and spur behavior changes associated with college success, such as selecting more challenging classes and prompting parental engagement.

Levels of debt appear to play a role, too, in college success. Scholars Michael Sherraden and Min Zhan found that **liquid** and **nonliquid assets** are positively associated with later college completion, while **unsecured debt** is negatively associated with college completion. And researchers Elliott and Ilsung Nam found that student loans may reduce net worth later in life: Households with a four-year college graduate and outstanding student loans have \$185,996 less net worth than house-

**Net worth:** A family’s assets minus its liabilities. It is a synonym for **wealth** and is likely to be positively related to a family’s financial stability.

**Mobility:** Movement up or down in a family’s or individual’s level or ranking on an economic or financial measure. Absolute mobility refers to a change in an individual’s level of income, for example, regardless of any changes in other individuals’ incomes. Relative mobility refers to changes in an individual’s ranking among other individuals on some measure.

**Liquid assets:** Financial assets that can be sold or traded relatively easily and at little cost. These include bank deposits, stocks, bonds and mutual funds.

**Nonliquid assets:** Financial assets that cannot be sold or traded easily and at little cost, such as pension assets, as well as durable goods, business assets and real estate.

**Unsecured debt:** A loan that does not require the borrower to pledge collateral, such as a house or an automobile, to the lender. Examples include credit-card loans and student loans.

Economically  
vulnerable families  
that diversify their  
assets beyond  
housing achieve  
greater financial  
stability.



holds with a four-year college graduate but no outstanding student loans. The authors speculate that student loans may push down credit scores, reduce access to credit, and consume disposable income and savings—thus suppressing the acquisition of other productive assets and investments (for example, homes, businesses, retirement accounts) that typically lead to the building of net worth.<sup>2</sup>

**Economic mobility outcomes.** As with education, research on economic mobility has largely focused on the role of parents, earnings, education and other factors in predicting whether individuals and their children move up (or down) the economic ladder. The role of savings, assets and net worth has been, until recently, relatively unexamined.

Research thus far suggests that balance-sheet factors generate upward mobility. Heritage Foundation scholars found that financial capital, family structure and educational attainment are the three best predictors of economic mobility in America—with financial capital (savings and assets) the strongest predictor. Similarly, sociologist Dalton Conley reports, “While race, income, job status and net worth all tend to vary hand-in-hand, careful statistical parsing shows that it is really net worth that drives opportunity for the next generation.” Further, a study published by Pew’s Economic Mobility Project looked at the role of savings in economic mobility; the study found that among adults in the bottom income quartile from 1984 to 1989, 34 percent of those with low initial savings left the bottom within the period between 2003 and 2005, but 55 percent of those with high initial savings left the bottom during that period.

Thomas Shapiro, an expert on the racial dimensions of wealth, interviewed nearly 200 families throughout the U.S. and examined national survey data with 10,000 families. He found that families with private wealth are able to move up from generation to generation, relocating to safer communities with better schools and passing along the accompanying advantages to their children. At the same time, those families without wealth remain trapped in communities that do not allow them to move up, no matter how hard they work. Shapiro also reported that the presence of even small amounts of wealth at key moments in life—at the brink of launching a small business, starting college, purchasing a home, or the onset of unemployment or bankruptcy—can have a “transformative” effect on the life course.

**Financial stability outcomes.** Finally, a growing body of research shows that healthy balance sheets, and not just income, matter for basic **household financial stability**. Urban Institute researchers found that households that are “liquid-asset poor” are two to three times more likely than those with liquid assets to experience “material hardship”—being unable to pay a bill or skipping necessary spending on food or health care—after a job loss, health emergency, death in the family or other adverse event.

Experiments also show that households with savings may have fewer day-to-day financial worries, allowing them to be better planners and more future-oriented in their economic and social decision-making. Conversely, the lack of savings and assets can hurt future consumption and security: Seventy percent of workers report

withdrawing money from college and retirement accounts in order to make ends meet, and these withdrawals will likely lead to losses of wealth in future years.

Finally, researchers Tammy Leonard and Wenhua Di report that lower- and moderate-income families that invest in productive assets and reduce their debts were more likely to achieve and maintain financial stability (defined by them as a family having enough savings and assets on which to survive for three months). Leonard and Di define “productive” assets as businesses, nonhousing real estate, stocks or bonds—which underscores a key insight from our own research: Economically vulnerable families that diversify their assets beyond housing achieve greater financial stability.

## Why Damage to Balance Sheets Matters for the Economy

Prior to the Great Recession, many respected economists were not worried about the management of household balance sheets and the role balance sheets played in macroeconomic performance. This may have been due to the lack of recent historical evidence suggesting that household balance-sheet failures, such as high concentrations in housing or high levels of debt, actually harmed the economy. At the same time, many economists believed that consumer credit markets were reasonably competitive and efficient so that most households’ balance sheets were in pretty good shape. In short, policymakers thought that any household balance-sheet problems would largely work themselves out on their own without harming the economy. If some families reduced their

spending while they struggled with weak balance sheets, others likely would take up the slack, contributing to reasonably steady overall growth.

It has come as somewhat of a surprise, therefore, that many economists now are calling the Great Recession of 2007-09 a “**balance-sheet recession**” and that balance-sheet failures of the type described above are seen as important contributors to the downturn and weak recovery. Two key aspects of the current economic cycle explain this description: (1) wealth effects and (2) defaults and **deleveraging**.

**Wealth effects.** Economists long have sought to estimate how much a one-time, unexpected change in the value of households’ assets might affect their spending, both in the short term and in the long term—what are called “wealth effects.” Economists Karl Case, John Quigley and Robert Shiller found, first, that housing-wealth effects are much larger than financial-wealth effects (stocks, bonds, mutual funds). They estimated that, between 1986 and 2012, an unexpected, one-time increase of 1 percent in housing wealth led to an increase of 0.08 to 0.12 percent in consumer spending each year afterward.<sup>3</sup> In contrast, the same increase in financial wealth was followed by a less than 0.03 percent permanent increase in consumer spending.

Second, they found that consumer spending reacts much more strongly to declines than increases in household wealth. In particular, between 1975 and 2012, an unexpected decline of 1 percent in house prices results in about a 0.10 percent permanent decline in consumer spending, while a 1 percent increase in house prices results in only about a 0.03 percent

**Household financial stability:** A concept meant to express the degree to which a family’s financial situation is stable, sustainable and resilient to temporary shocks and setbacks. There is no precise measure of household financial stability, but it is likely to be positively related to a family’s net worth, its stock of liquid assets, and its anticipation of cash flows from paid employment, trust funds, pensions, gifts or other sources.

**Balance-sheet recession:** A recession that is caused by or is made worse by many weak balance sheets in one or more sectors of the economy. A weak balance sheet, in turn, is one that has a low or negative ratio of net worth to total assets compared to historical experience.

**Deleveraging:** Reducing debt or a debt ratio (typically relative to assets or income) either by paying off debt, increasing debt more slowly than assets, if assets are increasing, or increasing debt more slowly than income, if income is increasing. Deleveraging may be voluntary or involuntary from the perspective of the borrower.



increase in consumer spending.<sup>4</sup> Applying these estimates to the actual declines in housing wealth experienced between 2005 and 2009—about 35 percent after inflation adjustment—the authors estimate that consumer spending ended up on a path about 3.5 percent lower than otherwise would have been expected, or roughly \$350 billion less than it would have been in 2010.

Based in part on studies like this, some macroeconomists analyzing the Great Recession and subsequent weak recovery believe that negative household wealth effects played an important role.<sup>5</sup> They describe the huge declines in asset values and net worth as one of the shocks that threw the economy into recession. Skeptics might argue that the asset-price declines themselves merely reflect anticipated deterioration elsewhere in the economy and, therefore, are not themselves fundamental causes of the downturn. These questions merit further study.

**Defaults and deleveraging.** There are two distinct but related ways in which the **liability** side of household balance sheets may have harmed the economy in recent years—namely, through defaults and deleveraging.

Defaults that discharge debt in excess of acquired collateral value result in a loss to the lenders; it is the concentration of losses at highly leveraged financial institutions that appears to give loan defaults their macroeconomic significance. An early, and remarkably accurate, analysis of likely mortgage defaults and their effects on financial institutions, mortgage lending and the economy as a whole by economist Jan Hatzius predicted a huge reduction of 2.6 percentage points in real GDP growth

in both 2008 and 2009 from a baseline of about 2.5 percent annual growth. Thus, Hatzius predicted roughly zero growth for the two years. As it turned out, real GDP fell 0.3 and 3.1 percent in those years, somewhat worse than he predicted.

Another body of research suggesting that large-scale defaults can have significant harmful effects on economic growth includes the work of Carmen Reinhart and Kenneth Rogoff, well-known for their book, *This Time Is Different*. They studied both banking crises and government debt defaults in many countries over a long time span and concluded that losses on loans or bonds can amplify economic weaknesses when the losses damage financial intermediaries, impairing the economy's credit-creation mechanisms.

There is a substantial amount of empirical evidence documenting the contours and extent of household “deleveraging”—households paying down their debts and rebuilding their savings—in the wake of the crisis. The International Monetary Fund combined an examination of current levels of household debt in 36 countries with an analysis of previous episodes of excessive household debt. The IMF confirmed that household debt can become so large and burdensome that it hampers economic growth; the organization also concluded that policy responses that involve debt restructuring can alleviate some of the burdens on the economy. In earlier work, economists at the McKinsey management consulting firm stressed the need for countries to avoid the buildup of excessive household debt in the first place.<sup>6</sup>

Economists Atif Mian, Amir Sufi and their co-authors wrote a series of papers



documenting the cross-sectional diversity of the housing and credit boom and bust at the county level. They showed that large precrisis increases in debt-to-income ratios were strong predictors of early and sharp corrections in house prices. Soon thereafter, those counties with the sharpest declines in house prices also experienced surges in unemployment and mortgage defaults, while auto sales and building permits plunged. Mian and Sufi also estimated that roughly two out of every three (4 million out of 6.2 million) jobs lost between March 2007 and March 2009 were indirectly attributable to weak household balance sheets.

Further, economists Karen Dynan and Wendy Edelberg found that individual households that had high leverage before the crash subsequently decreased their spending more than low-leverage households. A significant contribution of Dynan and Edelberg's work was to disentangle the two sides of households' balance sheets in harming the broader economy.<sup>7</sup> They document an independent debt-overhang effect: Households with greater leverage decreased spending more, even when holding constant the change in net worth across different households.

## Summary

Our examination of household balance sheets shows that while many Americans lost wealth because of the Great Recession, younger, less-educated and African-American and Hispanic families lost the most. We also found that these subgroups had both higher-than-average concentrations of their wealth in housing and higher debt-to-asset ratios than less economically vulner-

able groups. Thus, the very families most exposed to the economic fallout of a deep recession—fallout that came in the form of job loss or reduced income—possessed the weakest and riskiest balance sheets.

We also presented evidence suggesting that it matters—for both family and economic growth outcomes—whether households have healthy or unhealthy balance sheets. Surveying the research, we presented evidence associating various levels of household balance-sheet health with college access and completion, upward economic mobility, and financial stability. And the research suggests that both the asset-side wealth effect and the liability-side deleveraging effect appear to be important contributors to the overall household balance-sheet effects on spending and the economy.

## Looking Ahead

Examining the balance sheets of American households is relatively new territory for researchers and policymakers who are concerned about the economic health of families and our nation. Much remains to be learned, including a better understanding of the links between microeconomic activity and macroeconomic performance.

In the months and years ahead, the St. Louis Fed's newly launched Center for Household Financial Stability will take on the challenge of this important area of study. Instead of reacting to the last decade's balance-sheet failures—high levels of debts, low levels of savings and insufficient assets beyond homeownership—we aim to proactively assess and monitor the

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**Liabilities:** Amounts owed by a family to creditors. Examples include mortgages, auto loans, credit-card debts, student loans, security credit and taxes payable.

## Additional terms

**Mortgage debt:** Any debt secured by real estate, including first-lien mortgages, junior-lien mortgages, fixed-rate and variable-rate loans, balances owed on home-equity lines of credit (HELOCs), and home-equity loans.

**Nonmortgage debt:** Any debt not secured by real estate, including credit-card debt, auto debt, student loans and other personal loans.

# How Much Household Wealth Has Been Recovered?

The Federal Reserve reported March 7, 2013, that aggregate household net worth at the end of 2012 was \$66.1 trillion, nearly back to its precrisis peak of \$67.4 trillion, reached at the end of the third quarter of 2007. After falling to \$51.4 trillion at the end of the first quarter of 2009, the subsequent increase of \$14.7 trillion through the end of last year represented a recovery of 91 percent of the losses suffered. Does this mean that the financial damage of the financial crisis and economic recession largely has been repaired?

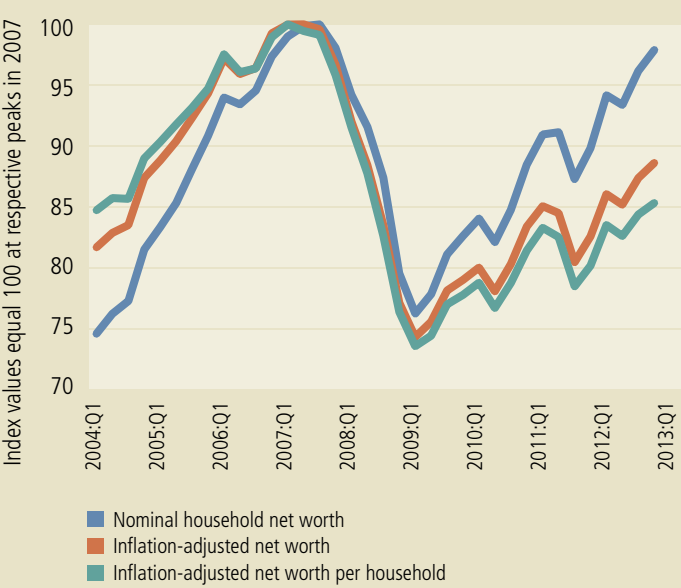
The simple metric of aggregate household net worth is misleading for at least three reasons. First, the effect of inflation is ignored. Consumer prices increased about 2 percent per year in the five and one-quarter years since the third quarter of 2007, reducing the purchasing power of a dollar by a total of about 10 percent. Therefore, a return to the previous nominal dollar peak does not mean that a given amount of wealth could buy as much as before.

Second, simple aggregate net worth does not adjust for population growth. The number of households increased by about 3.8 million between the third quarter of 2007 and the end of 2012, or about 3.4 percent. The wealth of all American households now is shared by more families than before.

Third, the recovery of wealth has not been uniform across families. Of the total recovery of \$14.7 trillion between the first quarter of 2009 and the fourth quarter of 2012, \$9.1 trillion, or 62 percent, of the gain was due to higher stock-market wealth. Stock wealth is unevenly held, with the vast majority of stocks owned by a relatively small number of wealthy families. Thus, most families have recovered much less than the average amount.

The figure and table provide details of three different measures of household net worth—aggregate nominal net worth, as reported

Household Net Worth: Nominal, Inflation-Adjusted and Inflation-Adjusted per Household



in the Flow of Funds accounts; aggregate inflation-adjusted net worth; and average inflation-adjusted net worth per household, a household-level measure consistent with the data format in the Survey of Consumer Finances as discussed in this article.

Clearly, the 91 percent recovery of wealth losses portrayed by the aggregate nominal measure paints a different picture than the 45 percent recovery of wealth losses indicated by the average inflation-adjusted household measure. Considering the uneven recovery of wealth across households, a conclusion that the financial damage of the crisis and recession largely has been repaired is not justified.

## Alternative Measures of Wealth Loss and Recovery

|   | Peak-to-Trough Percent Change | Trough-to-2012:Q4 Percent Change | Percent Recovery by 2012:Q4 of Peak-to-Trough Decline |
|---|-------------------------------|----------------------------------|---|
| 1) Nominal net worth (reported in Flow of Funds)  | -24%                          | 29%                              | 91%   |
| 2) Inflation-adjusted net worth (calculated as [1] deflated by Personal Consumption Expenditures price index)   | -26%                          | 19%                              | 56%   |
| 3) Inflation-adjusted net worth per household (calculated as [2] adjusted for population growth; corresponds to mean value reported in Survey of Consumer Finances) | -27%                          | 16%                              | 45%   |

SOURCES FOR CHART AND TABLE: Federal Reserve Flow of Funds accounts, Bureau of Economic Analysis and Census Bureau.

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health of household balance sheets, including the creation of new data warehouses and indexes. Along with our partners in the Federal Reserve System and beyond, we are excited about our new research on the health and consequences of household balance sheets for both struggling American families and the recovering economy.

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Researching Family Balance Sheets to Strengthen Families and the Economy | [stlouisfed.org/hfs](http://stlouisfed.org/hfs)

The Center for Household Financial Stability will focus on rebuilding the household balance sheets of struggling American families. The HFS team will be conducting and publishing research on key balance-sheet issues, organizing research conferences and symposia, establishing a web-based research clearinghouse, developing a Household Balance Sheet Index and organizing forums to better understand the balance-sheet issues affecting struggling families and communities.

#### ENDNOTES

- 1 Notice that the percent declines in average net worth between 2007 and 2010 for each of the education groups is larger than the overall average decline. This anomaly is due to changes in the number of families in each category and differences in the average wealth losses in those categories. To illustrate how changing cell sizes can produce individual category percentage declines that all are larger than the overall decline, consider a simple example. Suppose that, in 2007, you owned two cats and two dogs. The average weight of your cats was 5 pounds and the average weight of your dogs was 10 pounds; so, the average weight of your pets was 7½ pounds. Suppose that, in 2010, you had one 4-pound cat and three dogs with an average weight of 9 pounds. Comparing 2007 and 2010, the average weight of the cats you owned decreased 20 percent, and the average weight of your dogs decreased 10 percent. But the average weight of your pets actually increased 3⅓ percent, from 7½ to 7¾ pounds. In terms of wealth changes among families of different education levels, less-than-high-school families with relatively large average losses (analogous to cats) decreased as a share of the sample, while college-educated families with relatively small average losses (analogous to dogs) increased as a share of the sample. The number of families with college degrees increased between 2007 and 2010, from 35 to 37 percent of the sample, while the number of families with less than a high school degree declined from 14 to 12 percent. The number of high school-degree families stayed roughly the same, at about 51 percent.
- 2 Researchers at the Federal Reserve Bank of New York found that young people with student debt saw bigger declines in homeownership and vehicle purchases since 2008 than young people without student debt. See Brown and Caldwell.
- 3 See Table 7 in Case, Quigley and Shiller. (This sentence was modified from the original printing.)
- 4 See Table 8 in Case, Quigley and Shiller. (This sentence was modified from the original printing.)
- 5 For example, Federal Reserve Bank of St. Louis President James Bullard observed, "A better interpretation of the behavior of U.S. real GDP over the last five years may be that the economy was disrupted by a permanent, one-time shock to wealth." See Bullard. Federal Reserve Gov. Sarah Bloom Raskin highlighted the importance of wealth inequality for understanding the recession. See Raskin.
- 6 See Croxson et al.
- 7 The issue is that Mian and Sufi cannot rule out the possibility that the boom and bust together represented a huge positive wealth effect followed by an equally large negative wealth effect; in other words, they cannot verify an independent role for the liability side of the balance sheet in propagating the economic shock because they do not observe individual households' balance sheets.

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