Center for American Progress

Making Sure Money Is Available When We Need It

Protecting Household Assets Must Become an Integral Part of U.S. Savings Policies

Christian E. Weller   March 2013

Center for American Progress

Making Sure Money Is Available When We Need It

Protecting Household Assets Must Become an Integral Part of U.S. Savings Policies

Christian E. Weller   March 2013

Contents

Introduction and summary

Household wealth—the difference between a household's assets and its debt—is a crucial aspect of economic security. It allows households to pay for necessities during an economic emergency, and it permits families to invest in their future—pay for their children's or their own education, start a business, switch jobs, move to advance their careers, and plan for a secure retirement.

For a family to benefit from it, household wealth has to actually be there when households need the economic security that comes from having wealth. Over the past few decades, however, household wealth has become increasingly volatile, meaning that wealth has swung up and down much more widely over the past two decades than it did in the preceding decades after World War II.[1] Macroeconomic instability due to the housing and stock market bubbles—and bursts—is one of the contributing factors, but so is greater household-wealth risk exposure due to more investments in the housing and stock markets and greater household debt than in the past.

Some risk in household wealth is unavoidable; wealth will always fluctuate somewhat due to household risk exposure in the stock and housing markets and debt. But families need to better manage their risk exposure to make sure that they can rely on their wealth when they need it. Household-wealth risk captures the unpredictability of future incomes that are derived from household wealth. Financial markets, especially those for stocks and housing,[2] will always be subject to substantial ups and downs and will thus entail risk. Households could, in theory, buy insurance to protect themselves from financial risk, but insurance products can be costly and ineffective—if, for example, the insurance companies fail just when financial markets crash. The alternative is for households to manage their risk in such a way that they take advantage of potential investment upsides while keeping the downsides to an acceptable level. Households, for instance, could maintain a steady allocation of their assets in the stock and housing markets by selling stocks when prices rise and investing more in the markets as prices fall.

Poorly managed risk could result in excessive wealth volatility and—ultimately—in less wealth than would be the case with well-managed financial risk. First, increased wealth volatility likely reduces the amount that households save. This is because households react to rapidly rising wealth by saving less or borrowing more so that they can spend more on things such as food and clothing than they have in the past. This is known as the "wealth effect," when households believe they have more money on paper than they actually have. But when a market correction occurs and wealth suddenly decreases, households often cannot save enough money—or shed debt quickly enough—to make up for their losses.

Second, greater wealth volatility makes it harder for households to plan and save for their future. When faced with greater wealth volatility, households have a harder time predicting how much money they will be able to rely on for retirement—which is the main reason people save money. Households are left guessing what their future retirement income will be, and their guesses can become increasingly inaccurate if their wealth fluctuates more as they get closer to retirement. Some households will retire too early—in other words, they will have a lot less money in retirement than they thought they would have, lowering their standard of living in retirement. Alternatively, some households will retire much later or save more and spend substantially less than they did before retiring. Less spending by retirees, though, could slow overall economic growth.

Third, greater wealth volatility also means that people will be unhappier than they would be if they managed their risk well. They will feel more anxious about their financial future and thus buckle down, investing less in long-term projects such as starting a business, sending their kids to college, and switching to careers where their skills are a better fit. They will put their money into cash accounts instead of investing it, they will not save enough money to pay for their children's college education, and they will stay in jobs that no longer adequately fit their skills—and again, households end up with lower standards of living over time.

This report considers data on household wealth—and particularly, household-level data for older nonretirees[3]—to see if household risk exposure, on average, has become excessive and if policymakers should therefore consider encouraging better risk management strategies for savers. The comparison of household risk exposure over time—specifically, from 1989 to 2010—and between household groups can provide a general indication of whether risk has been more poorly managed in recent years, thus becoming excessive.[4]

The first indication that risk has become excessive is that the amount of wealth over time has not trended upward. Well-managed risk would have allowed households, on average, to reap the upsides of booming markets without losing their shirts in the down markets. Wealth-to-income ratios—a typical measure of economic security, since wealth is intended to replace income once it disappears—should have therefore trended upward over time.[5] The evidence shows, however, that wealth-to-income ratios were essentially flat from 1989 to 2010, although they have fluctuated much more than in the past.

Second, risk exposure between household groups should have converged over time. Financial-market changes—especially greater access to individual investments through retirement savings accounts, broader access to credit markets due to regulatory changes, lower costs of investing due to increased competition, and lower interest rates as inflation has declined—should have made it easier for households to manage their risk. The gap between those groups of households that had high levels of risk exposure and those who had low levels of risk exposure in 1989 should have declined by 2010. The household-level data, however, shows no convergence in household risk exposure. In fact, the gap widened depending on some household characteristics such as race and ethnicity.

Third, household risk exposure should have fallen during market crises, when asset prices fall and access to debt declines, lowering the exposure to further asset-price declines in the future. The United States experienced three substantial economic and financial crises between 1989 and 2010—the savings and loan industry crisis that took place in the late 1980s, the bursting of the dotcom bubble coupled with the recession of 2000 to 2001, and the burst of the housing bubble in 2007 coupled with the Great Recession of 2007–2009. Crises are periods of substantial financial and economic turmoil that make it harder for households to properly manage their risk exposure. In other words, external trends—stock- and house-price changes, as well as debt—dominate what happens to household risk exposure, but not necessarily how households make decisions. All external trends should primarily decrease during a crisis, as stock and house prices fall and access to credit declines. Household risk exposure should therefore decline as actual risk materializes because risky asset prices fall, making it harder to go into debt and allowing households to save. The data analyzed in this report suggest that risk exposure did not actually fall during the three crises that have occurred since 1989—and that households may have, in fact, been exposed to more risk as risk materialized, which has possibly set the stage for the next boom and bust cycle.

Fourth, household risk exposure between the crises should have been relatively stable. According to the data, there were two periods of stability between the three crises: one lasting from 1992 to 1998 and the other lasting from 2001 to 2007. These should have been periods of less economic and financial turmoil than the crisis periods, which should have made it easier for households to manage their risk exposure. Household risk exposure, therefore, should have been relatively stable between crises, at least in the aggregate. The data suggest, however, that household risk exposure grew, especially in the latter period.

The data on household risk exposure suggest that household risk was not managed well from 1989 to 2010 and that there is room for policymakers to encourage better strategies to manage household risk as part of incentivizing the public to save more money. Better risk-management strategies include greater transparency of financial risks to households, more accessible risk disclosure for households, and more comprehensive risk disclosure in financial statements to households. Policymakers can also suggest more regulatory and financial incentives by, for example, promoting model investment portfolios—whereby the ratio of risky assets stays constant over time—and safe investments—such as Treasury Inflation Protected Securities and life insurance annuities, among other strategies.

It is time to start addressing rising household risk exposure. Policies addressing household risk exposure have changed little in the aftermath of the Great Recession: Requirements for risk disclosure are still limited and complex, and there is still only some regulatory relief for employers who offer safe investments with some rate of return as default investments in their 401(k) plans, among other things. There are already signs that household risk exposure may rise again, especially because banks stopped tightening lending standards for mortgages and other key forms of consumer debt in 2010.[6]

Greater wealth volatility has led to rising risk exposure

Private wealth is a key measure of income security. Wealth is the store of income that households can draw upon to replace their after-tax income when their income shrinks—in, for instance, an economic emergency or upon retirement. This report therefore uses wealth relative to after-tax income to capture trends of average economic security over time. This ratio gives a sense of how wealth has changed relative to what it is meant to replace: current income. The advantage of this ratio is that it is economically meaningful; the disadvantage is that it is harder to interpret than, for instance, a dollar amount of household wealth.

Retirement is the primary reason that people save money.[7] Middle-class seniors get a basic income guarantee from Social Security upon retirement, but these benefits can only do so much, and many retirees require additional income from pensions and their own savings to maintain a middle-class lifestyle. The savings necessary to pay for this additional income during retirement can be substantial, as a simple example demonstrates: A couple in which both spouses receive average earnings subject to Social Security taxation would retire at age 65 in 2010 with a combined annual income of $82,118 immediately before retirement.[8] They would, upon retiring, receive 40.8 percent of that $82,118 from Social Security. Following the rule of thumb that retirees need about 75 percent to 80 percent of their preretirement earnings, to maintain their standard of living after they retire, this means that the couple would need another approximately 35 percent to 40 percent of the $82,118—or between $28,741 and $32,847 in annual income plus inflation—to come from private savings each year. This hypothetical two-earner couple would therefore need to have saved $422,000 in wealth when they retired in 2010 to last them 18 years.[9] This is substantially more than most middle-class households have saved.[10]

The ratio of wealth to after-tax income shows increasingly large swings over time.[11] Household wealth to after-tax income first peaked at 507.9 percent in December 1958, eventually falling to 439.1 percent in June 1970—a drop of 68.9 percentage points in a little less than 12 years. The ratio gradually increased again through

June 1995 before it rapidly climbed to a peak of 618.6 percent in March 2000. The burst of the Internet bubble reduced the ratio of wealth to after-tax income to 507.3 percent in September 2002, and the subsequent stock- and housing-market bubbles brought the ratio back up to 651.8 percent in March 2006. Wealth to after-tax income then fell drastically to a low of 477.5 percent in March 2009. The ratio thus swung up and down twice by more than 100 percentage points from mid-1995 to mid-2007, dwarfing the changes that occurred before 1995.[12]

Wealth losses have become progressively worse since the late 1980s, considering what happened to household wealth during the most recent three crises—the savings and loan crisis of the late 1980s, the bursting Internet bubble and recession of the early 2000s, and the housing crisis in 2007 coupled with the Great Recession that occurred from 2007 to 2009.[13] From December 1989 to September 1990, the ratio of wealth to after-tax income fell by 25.6 percentage points—a quarterly average drop of 8.5 percentage points. From March 2000 to September 2001, it fell by a total of 68.6 percentage points—a quarterly average drop of 13.7 percentage points. And from June 2007 to March 2009, it fell by 171.4 percentage points—a quarterly average fall of 24.5 percentage points.[14]

This increasing volatility in household wealth goes hand in hand with increased risk exposure.[15] Financial risks—to which a household's savings can be exposed—refer to the uncertainty of future wealth and therefore future income. Greater risk means greater up-and-down gaps between the bottom and the top of financial markets over time. Households experience risk only if they have risk exposure. As discussed in detail below, risk exposure has risen over time. Households have experienced large up-and-down movements of their wealth since the late 1980s because there has been more risk in the market and because they have been increasingly exposed to those risks.

Household risk exposure partly depends on leverage—typically the ratio of debt to assets. Leverage translates into risk exposure because asset gains and losses are magnified.

This is best shown with a simple example. Take a household that buys a home valued at $100,000 with a down payment of $10,000 and a mortgage of $90,000. The household now has equity equal to $10,000 in its home—this is the household's wealth. Now assume that the home's value falls by 10 percent. The home price drops to $90,000, but the home equity gets wiped out—a loss of 100 percent—since the household still owes a mortgage of $90,000. The loss to the household

is 10 times larger—100 percent—than the price decline of 10 percent because the asset—the home—fell in value but the outstanding debt stayed the same. The more highly leveraged a household—the larger the ratio of debt to assets—and the greater the risk of losing substantial shares of wealth from comparatively smaller drops in asset price. The opposite is also true when asset prices go up, as more leverage translates into greater gains.

This report hence uses the share of debt to assets, or leverage, as another measure of risk exposure—one in which a larger ratio of debt to assets indicates more leverage and hence more vulnerability to drops in asset values.[16]

Risk exposure also stems from investment in risky assets—specifically, in stocks and housing. Both housing and stocks come with substantial risks—specifically, the risks of a fall in value and less income in the future than households had originally planned.[17] Home and stock prices depend on demographic changes, changing preferences, and rising unemployment, and both will fall when demand weakens due to these three factors. Less demand for housing means lower rents and thus less income due to foregone rent to the homeowner, whereas less demand for stocks translates into lower sales, less income, and fewer dividends for stock owners. Consequently, this report uses the share of stocks and housing assets as a part of total household assets as another risk-exposure measure.[18]

## Rapidly rising household debt

To some degree, greater wealth volatility resulted from greater household debt. Debt growth first accelerated in the mid-1980s; it accelerated again after the 2001 recession. (see Figure 1) Debt to after-tax income, for instance, grew at a relatively high quarterly average rate of 0.6 percentage points, driving households quickly into debt and slowing the growth of their wealth from December 1982—when the recession ended—to December 1989—when the next crisis started.[19] This is double the debt-to-after-tax income growth that occurred from the end of the recession in June 1954 to the start of the recession in June 1980.[20] The ratio of debt to after-tax income expanded again at a quarterly rate of 0.2 percentage points from March 1991—the end of the recession—to March 2000—the start of the next crisis. The ratio of debt to after-tax income then accelerated again, growing an average of 1.3 percentage points each quarter from the end of the recession in December 2001 to the start of the next crisis in June 2007. In other words, debt expanded mainly in the 1980s and after 2001.

The rise in debt after 1982 and through 2000 is due to a number of key economic factors. These include declining interest rates, greater use of home-equity lines of credit—whereby the equity in a home serves as collateral for the line of credit—increased financial-market deregulation, and greater financial-market competition.[21]

The rapid increase in debt after the recession that ended in November 2001 likely followed slightly different trends. Interest rates continued to fall—but at a much slower pace than in the 1980s and 1990s. Home values, however, increased at an unprecedented pace after 2000 because households had more collateral to borrow against due to the boom in housing prices. And households' demand for credit likely went up due to slow income growth amid comparatively slow employment growth. Finally, financial-market deregulation continued during the same period, allowing for the proliferation of more credit products to more diverse population groups.[22]

The Great Recession of 2007–2009 saw the first sustained debt decline on record due to a massive wave of mortgage foreclosures. The debt-to-after-tax-income ratio fell from a high of 129.3 percent in September 2007 to 116.5 percent in December 2010. (see Figure 1) But even after years of deleveraging—declining levels of debt relative to household income in the wake of massive numbers of foreclosures—household debt levels were still comparatively high.

FIGURE 1

Household debt to after-tax income, 1952–2012

Percent of after-tax income
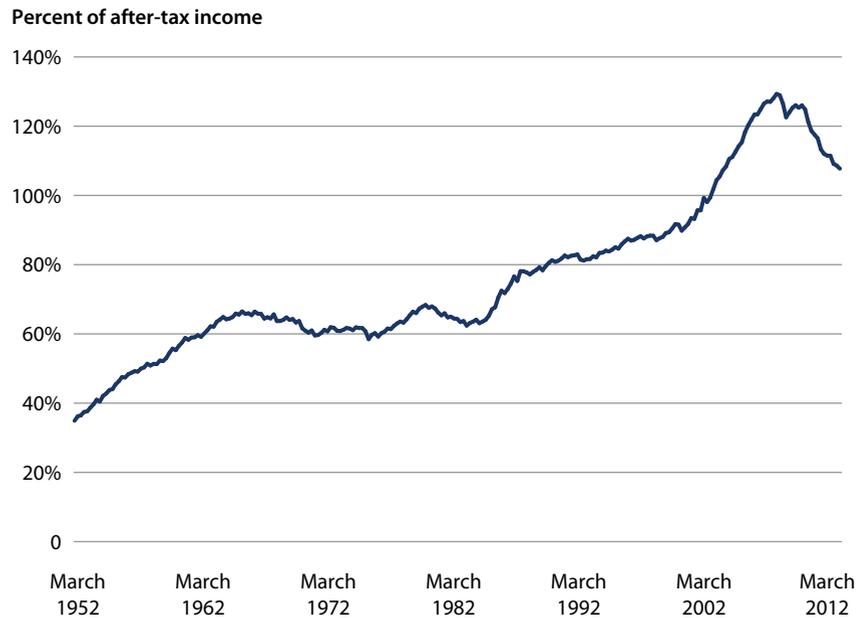
Note: Figures are in percent of disposable after-tax personal income.
Source: Author's calculations based on: Board of Governors, Federal Reserve, "Release Z.1 Flow of Funds Accounts of the United States" (2012).

Higher concentration of risky assets

Wealth has also become more volatile due to a rising concentration of risky assets, especially stocks and housing.[23] This is shown as a share of total household assets in Figure 2. The share of risky assets grew from the mid-1970s through 2007, largely following the general pattern of both stock and housing prices. The share of risky assets fell dramatically during the Great Recession, in large part because stock and housing prices dropped.

The concentration of risky assets typically rose just before the onset of crises. The share of risky assets rose by a quarterly average rate of 0.1 percent from the end of the recession in December 1982 to the start of the crisis in December 1989; by 0.4 percentage points each quarter from the end of the recession in March 1991 to the start of the crisis in March 2000; and by 0.02 percentage points each quarter from December 2001 to June 2007.

The share of risky assets fell during the crises—by 0.6 percentage points each quarter in the late 1980s, by 0.7 percentage points each quarter in the early 2000s, and by 1.6 percentage points each quarter in the late 2000s.[24] This means that households did not fully compensate for the drop in prices by buying more stocks and homes in order to maintain a relatively stable ratio of risky assets in their portfolios.

This pattern of risky-asset concentration suggests that households' risk exposure is driven more by market forces than individual decisions. Households should move away from risky assets as their prices rise because the chance of a sharp downward correction increases.

FIGURE 2
Share of housing and stocks out of household assets, 1952–2012

Percent of after-tax income
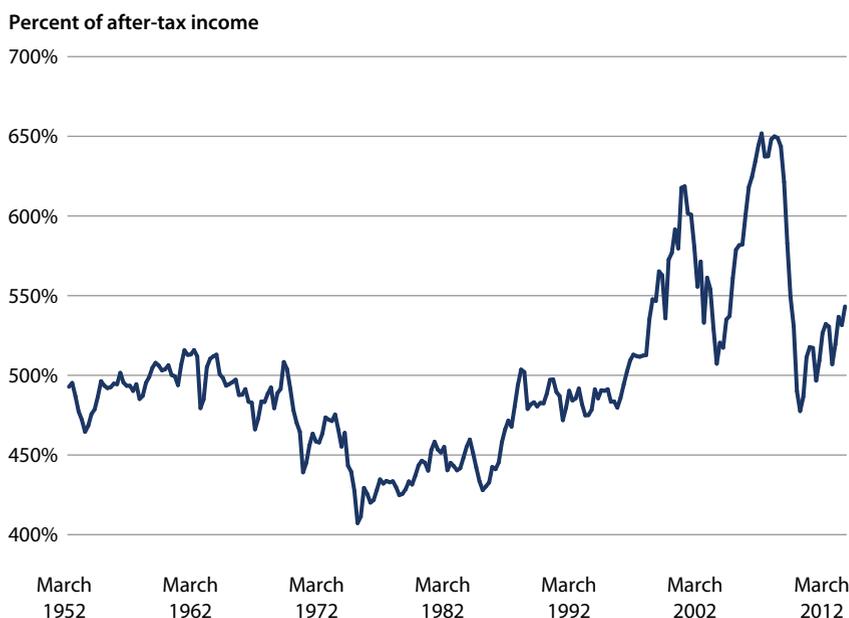
Notes: Figures are in percent of total household assets. Risky assets include residential real estate and stocks owned both directly and indirectly. The calculation assumes that the average share of stocks out of all mutual-fund assets and pension reserves holds steady for the household sector.

Source: Author's calculations based on Board of Governors, Federal Reserve System, "Release Z.1 Flow of Funds Accounts of the United States (2012).

They should invest more in risky assets as prices fall because the chance of sharp upward movements rises. But in reality, however, the opposite happened: The trends in risky-asset concentration appear to follow market-price movements, suggesting that households did not typically rebalance their portfolio to maintain a relatively constant share of risky assets over time. This share would be relatively constant if households had sold more risky assets when prices were high and bought more risky assets when prices were low. If households did not regularly rebalance their entire asset portfolio, though, the end result would be a "buy high, sell low" strategy.

The problem of households' risk exposure moving up and down with the prices of risky assets may have become worse over time. This is largely a result of a shift from defined-benefit pension plans—where assets are professionally managed on behalf of households—to defined-contribution retirement-savings plans, where households typically manage their own asset allocations. Few households seem to actively rebalance their portfolios in defined-contribution plans, even when the prices of stocks—and therefore the allocation of retirement savings in risky assets—changes drastically.[25]

Risk exposure has increased over time and across groups

The aggregate data highlight a growing risk exposure for American households due to a greater risky-asset concentration and growing leverage. The remainder of the report uses household data from 1989 to 2010 to detail risk exposure for groups of older households over time.[26] The demographic groupings include age, retirement status, marital status, race, and ethnicity, while the economic groupings include income and defined-benefit pension coverage.[27]

This analysis only considers households that are headed by someone 50 years of age or older who is not yet retired. The circumstances and behaviors of younger households can change drastically over time, making conclusions about individual risk exposure too unreliable.

The summary data also analyze risk exposure for those households that can expect benefits from a defined-benefit pension and those that cannot. Retirement savings come from Social Security, defined-benefit pensions, and individual savings. Households should be able to withstand more risk in their individual savings if they have more security from Social Security and their pensions. Almost all households can expect some retirement benefits from Social Security.[28] Having a defined-benefit pension, then, can be a key distinction between households and the amount of economic security that they can expect in retirement.

Very high risk exposure grows over time for middle-class preretirees

This report first calculates the share of households with very high risk exposure to show a summary of trends and differences across groups. This is only intended to provide a concise but rough approximation of risk-exposure trends and comparisons. The subsequent sections of this report offer more detailed information on household risk exposure, broken down by risky-asset concentration and leverage.

A household is defined as having very high risk exposure if its ratio of debt to assets is greater than 25 percent and the concentration of stocks and houses within its asset portfolio is greater than 75 percent.[29] This combined measure thus captures two separate aspects of risk exposure: the concentration of assets in investments that are subject to substantial price fluctuations and leverage, which could exacerbate such price movements. The measure avoids double counting, even though it includes two distinct aspects of homeownership—the value, for instance, of a house and the value of any outstanding mortgage.

This indicator of very high risk exposure is not a scientifically designed index but rather an easily understandable indicator of whether households will be on the tail end of the distribution of risky-asset concentration and the distribution of household debt. The conclusions derived from this indicator about trends in risk exposure and in comparisons between groups are not very sensitive to changes in the thresholds for high risky-asset concentration and high leverage. In other words, defining very high risk exposure as having a debt-to-asset ratio greater than 20 percent and a risky-asset concentration greater than 90 percent, for instance, does not change the conclusion that risk exposure has become excessive.

Table 1 presents the average share of households with very high risk exposure, which stood at 23.7 percent in 2010. Nonwhites, Hispanics, younger households, married couples, households in the third and fourth income quintile, and households without defined-benefit pensions had larger shares of very high risk exposure than their respective counterparts. More than a quarter of all households in the third and fourth income quintile, for instance, had very high risk exposure in 2010—the first full year after the Great Recession ended—compared to 17.1 percent in the bottom quintile and 13.5 percent in the top quintile.

These differences reflect population differences prior to the Great Recession. The share of all households with very high risk exposure was 22.6 percent that year. The differences in very high risk exposure in 2007 by household characteristics mirror the differences in 2010. But in 2007, 31.6 percent of nonwhite households had very high risk exposure—the largest share of households with such exposure. (see Table 1)

TABLE 1
Share of households with very high risk exposure, by selected household characteristics and by selected years

Variable	1989	1992	1998	2001	2007	2010	1989 to 1992	1998 to 2001	2007 to 2010	1989 to 2007	1989 to 2010
Total	11.9%	13%	18.9%	17.3%	22.6%	23.7%	1.2%	-1.6%	0.4%	8.3%	8.7%
White	11.1%	11.3%	18.5%	15.8%	20.3%	22.7%	0.6%	-1.8%	1.8%	6.7%	8.5%
Non-white	14.5%	19.9%	20.6%	24%	31.6%	27%	3.3%	-0.9%	-5.1%	14.2%	9.1%
Non-Hispanic	11.4%	12%	18.4%	16.9%	22%	23.3%	1%	-1.2%	0.6%	8.4%	9%
Hispanic	19.7%	31.1%	26.3%	24.3%	33.6%	28.9%	3.8%	-7.2%	-1.9%	5.6%	3.7%
50 to 64, not retired	13.6%	15%	22%	19.4%	24.7%	25.5%	1.8%	-2.5%	0.1%	8.8%	8.9%
65 plus, not retired	7.8%	7.7%	7.3%	9.7%	10.7%	14.1%	-0.7%	2.3%	1.9%	3.8%	5.7%
65 plus and retired	2.8%	3.1%	3.6%	4.9%	8.8%	11.8%	-0.3%	0.8%	3.4%	5.9%	9.3%
Married	12.7%	13.7%	21%	19%	24%	23.2%	0.2%	-2.5%	0.4%	7.1%	7.5%
Single women	11.8%	12.2%	14.8%	14%	20.4%	26.7%	2.6%	-0.2%	2%	9.2%	11.2%
Single men	7.3%	11.6%	18%	14.4%	20.4%	20.1%	0.1%	-2.9%	-2.4%	9%	6.6%
Bottom quintile	5.9%	8.6%	11.5%	16.1%	11.4%	17.1%	1.3%	1.7%	2.1%	3.3%	5.4%
Second quintile	18.3%	15.7%	12.8%	12.7%	24.1%	23.9%	-0.4%	1.7%	-0.6%	6.9%	6.2%
Third quintile	14.6%	18.5%	26.6%	22.3%	30.6%	35.5%	3.8%	-3.1%	5.1%	9.3%	14.4%
Fourth quintile	14.7%	16.8%	22.5%	18.9%	26.8%	31.3%	1%	-4.7%	4.6%	8.7%	13.3%
Fifth quintile	8.7%	8%	18.7%	16.1%	18.6%	13.5%	-0.7%	-2.7%	-5.4%	7.5%	2.1%
Without DB pension	9.1%	11.4%	17.8%	16.5%	21.5%	24.9%	2.4%	0%	2.9%	9.3%	12.2%
With DB pension	16.8%	15.9%	21.3%	18.2%	24.5%	19.4%	-1.3%	-5.8%	-5.4%	5.9%	0.5%

Notes: All levels are in percent and all changes are in percentage points. Very high risk exposure means that households had below median wealth to income, more than 75% of their assets in risky assets, and debt greater than 25% of their assets. The sample only includes households with any assets, who are 50 years old or older, and who are not retired, except for the comparison by retirement status. All demographic characteristics refer to the head of the household. All economic characteristics refer to the entire household.

Very high risk exposure increased slightly both during and after the Great Recession. Households headed by white non-Hispanics, single women, those in the third and fourth income quintile, and those without defined-benefit pensions saw their share of households with very high risk exposure go up from 2007 to 2010. Very high risk exposure narrowed by race and ethnicity but widened by income during the Great Recession.

The risk-exposure gap also widened in key instances over the longer period of 1989 to 2010. The risk exposure for nonwhite households, for example, has grown faster than the risk exposure for white families. It has also grown faster for younger households than for households headed by someone 65 years old or older and for middle-income households than for lower-income or higher-income households.

The data suggest that risk exposure did not converge between groups over time, as it would have if risk had been managed well.

Very high risk exposure only declined during the bursting of the dotcom bubble, remaining relatively stable during both the savings and loan crisis and the Great Recession. The share of households with very high risk exposure, for instance, increased slightly from 11.9 percent in 1989 to 13 percent in 1992, fell from 18.9 percent in 1998 to 17.3 percent in 2001, and rose again from 22.6 percent in 2007 to 23.7 percent in 2010. (see Table 1) A breakdown by population groups during these three crises shows that the risk exposure increased for the majority of household groups, although there are some for which it fell. The summary data indicate that sharp stock- and house-price drops were short lived and asset prices recovered quickly, that household took more risk during crises, or both. The data do not support the notion that when risk materialized, crises resulted in downward corrections of risk exposure.

In fact, risk exposure has gone up between crises, even though we would have expected stable risk exposure since times were quiet enough to allow households to best manage their risk exposure. The share of households with very high risk exposure rose by 5.9 percentage points from 1992 to 1998 and by 5.3 percentage points from 2001 to 2007. (see Table 1) The data suggest that household risk exposure was driven by external factors such as stock- and house-price bubbles and debt booms and that households did not counteract these forces during non-crises times by, for instance, regularly rebalancing their portfolios.

High leverage and lack of asset diversification contribute to risk exposure

But which factor—leverage or risky asset concentration—drove very high risk exposure to new highs? Table 2 briefly summarizes trends in risk exposure by risky-asset concentration and total leverage.

The summary of very high risk exposure in the previous section showed three key points about thet share of older nonretiree households with very high risk exposure. First, risk exposure trended up from 1989 to 2010. Second, it remained relatively stable during crises. Third, it grew between crises.

Table 2 shows that these three factors did not depend on risky-asset concentration or on leverage alone, but rather on a combination of both factors.[30] Both risky-asset concentration and leverage trended up from 1989 to 2010; both measures were more likely to go up than down during crises; and both measures rose between crises. The growing risk exposure of older nonretiree households was thus the result of two distinct phenomena: rising risk exposure and increasing leverage. This implies that policy solutions must address household risk exposure comprehensively by giving households the financial-management tools to address both asset diversification—or lack thereof—and debt.

TABLE 2
Median risky asset concentration and leverage

Variable	Measure	1989	1992	1998	2001	2007	2010	1989 to 1992	1998 to 2001	2007 to 2010	1989 to 2010
Debt to assets	Median	5.4%	6.7%	12.8%	11.6%	16.1%	19.1%	1.3%	-1.2%	3%	13.7%
Risky assets to total assets	Median	60.3%	60.3%	67.5%	68%	69.1%	64.5%	0%	0.5%	-4.6%	4.2%

Notes: All figures are in percent. Changes are in percentage points. Averages and medians calculated for households 50 years old and older, who are not retired. Debt to income is summarized only for households with any debt. Home equity share out of total house values is also summarized only for homeowners. The share of stocks out of financial assets is summarized only for households with any stocks. Stocks include directly and indirectly held stocks. Risky assets are the sum of stocks and residential real estate. Author's calculations based on Board of Governors, Federal Reserve System. (various years). Survey of Consumer Finances. Washington, DC: BOG.

Detailed data show that risk exposure has become excessive

The following discussion considers again the four concepts related to well-managed household risk. First, household wealth should have been trending upward if households had indeed taken advantage of investment opportunities. Second, there should have been convergence in risk exposure between groups over time. Third, there should have been a downward correction in risk exposure during crises—or at least not an increase in risk exposure. And fourth, risk exposure should have been relatively stable between crises, and it should not have increased.

The discussion relies on the median wealth-to-income ratio, the median ratio of debt to assets, and the median share of risky assets out of total household assets.[31] The median is the number that divides the sample exactly in half, so that one half of households shows more leverage, for instance, and the other half shows less leverage than the median. Median values capture the "typical" household's experience.

Wealth-to-income ratios were consistently unstable and fell to nearly 20-year lows in 2010

Median wealth-to-income ratios varied by household characteristics in 2010. (see Table 3) Whites, for example, had a ratio that was three times that of nonwhites, and non-Hispanics had a ratio that was more than double that of Hispanics. Younger households also had a lower ratio than older households; nonretirees had a lower median ratio than retirees; single men had a lower ratio than single women; and single women had a lower ratio than married couples.

Additionally, median wealth-to-income ratios increased with income in 2010. (see Table 3) Households with defined-benefit pensions had a substantially higher median ratio of wealth to income—357 percent—than households without defined-benefit pensions, which had a median ratio of 239.5 percent in 2010. (see Table 3) Communities of color, lower-income households, single-parent-headed

households, and households without defined-benefit pensions enjoyed less eco-nomic security than their counterparts after the Great Recession.

Wealth to income, by selected demographic characteristics and selected years

Variable	1989	1992	1998	2001	2007	2010	1989 to 1992	1998 to 2001	2007 to 2010	1989 to 2010
White	320.6%	380.3%	327.9%	362.9%	412.2%	332.9%	59.7%	35%	-79.3%	12.3%
Non-white	148%	121.4%	121.8%	156.2%	203.1%	107.6%	-26.6%	34.4%	-95.5%	-40.4%
Non-Hispanic	281.3%	329%	298.9%	324%	370.5%	286.9%	47.7%	25.1%	-83.6%	5.6%
Hispanic	132.5%	96.2%	135.8%	121.2%	169.8%	135.9%	-36.3%	-14.6%	-33.9%	3.4%
50 to 64, not retired	254.7%	279%	261.3%	286.6%	338.3%	239.7%	24.3%	25.3%	-98.6%	-15%
65 plus, not retired	368.3%	438.5%	480.5%	488.9%	539.7%	414.4%	70.2%	8.4%	-125.3%	46.1%
65 plus and retired	533.6%	558.9%	612.4%	743.7%	774.7%	589.4%	25.3%	131.3%	-185.3%	55.8%
Married	305.9%	305.6%	309.4%	340%	381.3%	320.3%	-0.3%	30.6%	-61%	14.4%
Single women	224.4%	320.2%	254.7%	262.7%	325.2%	180.5%	95.8%	8%	-144.7%	-43.9%
Single men	185.4%	369.4%	269.4%	236.8%	281.7%	141.6%	184%	-32.6%	-140.1%	-43.8%
Bottom quintile	57.5%	191.3%	65.7%	153.6%	117%	32%	133.8%	87.9%	-85%	-25.6%
Second quintile	366.6%	319.9%	305.7%	264.5%	281.5%	115.8%	-46.7%	-41.2%	-165.7%	-250.8%
Third quintile	294.9%	296.9%	233.5%	260.9%	331.8%	228.7%	2%	27.4%	-103.1%	-66.2%
Fourth quintile	254.6%	323%	285.8%	332.5%	355.6%	252.1%	68.4%	46.7%	-103.5%	-2.5%
Fifth quintile	348.8%	373.7%	408.5%	447.6%	520.3%	521%	24.9%	39.1%	0.7%	172.2%
Without DB pension	296.8%	320.2%	296.9%	284.1%	366.3%	239.5%	23.4%	-12.8%	-126.8%	-57.3%
With DB pension	246.7%	299.4%	277.4%	337.9%	359.8%	357%	52.7%	60.5%	-2.8%	110.3%

Notes: All figures are in percent. Changes are in percentage points. Averages and medians calculated for households 50 years old and older, who are not retired. Debt to income is summarized only for households with any debt. Home equity share out of total house values is also summarized only for homeowners. The share of stocks out of financial assets is summarized only for households with any stocks. Stocks include directly and indirectly held stocks. Risky assets are the sum of stocks and residential real estate. Author's calculations based on Board of Governors, Federal Reserve System. (various years). Survey of Consumer Finances. Washington, DC: BOG.

Wealth-to-income ratios dropped sharply during the Great Recession. Median ratios for key population groups in 2010 were lower than in 1989 as a result of the large wealth losses that occurred during the Great Recession. This was true for nonwhites, Hispanics, younger households, single-parent-headed households, households in the bottom 60 percent of the income distribution, and households without defined-benefit pensions. (see Table 3) In other words, wealth-to-income ratios were unstable when comparing the two endpoints of our data series, 1989 and 2010. In fact, they went down.

But median wealth-to-income ratios also fluctuated between 1989 and 2010. There is no single pattern that dominates the wealth-to-income trends, but the data in Table 3 show that wealth-to-income ratios typically did not follow a clear upward trend. Take, for instance, the wealth-to-income ratio for white households. It rose from 1989 to 1992, but it then fell and did not surpass 1992's high level until 2007, finally falling to a level close to that of 1989 in 2010. The median wealth-to-income ratio for households in the third quintile stayed relatively stable from 1989 to 2001, rising to its highest level—331.8 percent—in 2007 and falling to its lowest level—228.7 percent—in 2010. The data in Table 3 show similar movements for households in the fourth income quintile, for single women, and for nonwhites.

The data thus suggest that there is no clear upward trend in wealth-to-income ratios for large shares of the population, although—or perhaps because—these are often the same population groups that have experienced disproportionately large increases in risk exposure, as shown below. That is, the data do not indicate that households by and large managed their risk exposure well enough to take advantage of investment opportunities. The implications, then, are that changes in household wealth were the result of external forces more than the result of personal financial decisions and that household wealth was poorly managed during a time of growing external financial risks.

Differences in amount of leverage between groups widened

Wealth-to-income ratios did not trend upward over time, as the previous section shows. The next question that will help determine whether household wealth was well managed is whether risk exposure converged between groups over time. It will also help to look at the movement of risk exposure during and between crises.

Table 4 summarizes the median debt-to-assets ratio for household groups from 1989 to 2010. In 2010 leverage was higher among nonwhites, Hispanics, younger households, nonretirees, single women, households in the middle income quintile, and households without defined-benefit pensions than among their counterparts. (see Table 4)

TABLE 4
Debt to assets, by selected demographic characteristics and selected years

Variable	1989	1992	1998	2001	2007	2010	1989 to 1992	1998 to 2001	2007 to 2010	1989 to 2010
White	4.3%	5.5%	9.3%	10%	14.8%	17.4%	1.2%	0.7%	2.6%	13.1%
Non-white	9.1%	12.7%	18.4%	21.8%	25.3%	26.4%	3.6%	3.4%	1.1%	17.3%
Non-Hispanic	5.2%	6%	12.3%	11.3%	16.3%	18.8%	0.8%	-1%	2.5%	13.6%
Hispanic	9.1%	18.3%	20.8%	26%	14.5%	24.9%	9.2%	5.2%	10.4%	15.8%
50 to 64, not retired	9.1%	12.2%	17.2%	15.1%	19.8%	22.7%	3.1%	-2.1%	2.9%	13.6%
65 plus, not retired	0%	0%	0.2%	1.1%	4%	8.2%	0%	0.9%	4.2%	8.2%
65 plus and retired	0%	0%	0%	0%	4%	0%	0%	0%	0%	0%
Married	7.7%	11.5%	15.4%	13.4%	18.1%	19.1%	3.8%	-2%	1%	11.4%
Single women	0.4%	0.6%	7.5%	4.8%	14.2%	23.3%	0.2%	-2.7%	9.1%	22.9%
Single men	0.5%	3.4%	8.9%	8%	10.2%	14.3%	2.9%	-0.9%	4.1%	13.8%
Bottom quintile	0.4%	0%	0%	2.3%	3.5%	10.4%	-0.4%	2.3%	6.9%	10%
Second quintile	2.7%	3.1%	7.4%	9.8%	16.3%	18.3%	0.4%	2.4%	2%	15.6%
Third quintile	8.3%	12.7%	21.1%	15.7%	24%	32.4%	4.4%	-5.4%	8.4%	24.1%
Fourth quintile	7.5%	11.3%	19.5%	14.5%	20.7%	24.2%	3.8%	-5%	3.5%	16.7%
Fifth quintile	7.9%	12.1%	13.1%	11.3%	14.6%	13.3%	4.2%	-1.8%	-1.3%	5.4%
Without DB pension	2%	4%	10.7%	9.3%	14.3%	20.3%	2%	-1.4%	6%	18.3%
With DB pension	11.7%	14.6%	17.1%	13.4%	19.9%	15.8%	2.9%	-3.7%	-4.1%	4.1%

Notes: All figures are in percent. Changes are in percentage points. Averages and medians calculated for households 50 years old and older, who are not retired. Debt to income is summarized only for households with any debt. Home equity share out of total house values is also summarized only for homeowners. The share of stocks out of financial assets is summarized only for households with any stocks. Stocks include directly and indirectly held stocks. Risky assets are the sum of stocks and residential real estate. Author's calculations based on Board of Governors, Federal Reserve System. (various years). Survey of Consumer Finances. Washington, DC: BOG.

Leverage increased for almost all groups during and after the Great Recession. Households in the middle income quintile saw a particularly large increase of 8.4 percentage points, from 24 percent in 2007 to 32.4 percent in 2010. Leverage for most other groups typically increased by between 2 percentage points and 5 percentage points in those years. The exceptions were households in the top income quintile and households with defined-benefit pensions. Leverage fell in both these instances during and after the Great Recession, from 2007 to 2010. (see Table 4)

These changes highlight largely widening differences in household leverage from 1989 to 2010. A number of household groups started out with higher leverage than their counterparts in 1989 and saw faster increases in leverage from 1989 to 2010. This was true of nonwhites, Hispanics, younger households, nonretirees, and middle-income households. These groups of households moved further apart

from their counterparts in terms of leverage from 1989 to 2010. (see Table 4) Two household groups—single women and households without defined-benefit pensions—even overtook their counterparts in terms of leverage: Both had less leverage than their counterparts in 1989 but higher leverage in 2010. That is, the data do not support the notion of convergence in risk exposure, which, had it been the case, typically would have meant that households were managing their risk well.

Leverage was more likely to rise during crises than to fall. Leverage almost universally increased during both the savings and loan crisis and the Great Recession. But the record was a little more mixed during the bursting of the dotcom bubble—some groups saw increasing leverage, while others saw it fall. (see Table 4) The overarching trend, however, was increasing leverage during crises, a sign that risk was not managed well.

The debt-to-assets ratio for most households also increased sharply between crises, from both 1992 to 1998 and 2001 to 2007. This is surprising because those periods were also periods of rather strong asset gains due to stock- and house-price booms. Leverage likely rose between crises because households saved less than in the past as a result of the wealth effect during the period from 1992 to 1998. And households may have borrowed at a faster rate than they built assets due to a mix of rising prices for housing, education, health care, and slow income growth in the period from 2001 to 2007.[32] Well-managed risk, however, would have meant stability in terms of leverage between crises, and certainly not an increase.

Risky-asset concentration follows price movements

Table 5 shows the data on households' concentration of risky assets. Well-managed assets should again be indicated as convergent risk exposure between groups, decreasing risk exposure during crises, and comparatively stable risk exposure between crises.

There were few differences in risky-asset concentration in 2010 by race, ethnicity, defined-benefit pension coverage, preretirees between the ages of 50 and 64, and retirees aged 65 years and older. (see Table 5) These groups had a median share of about two-thirds of their assets allocated in stocks and housing.

TABLE 5
Measures of risky asset concentration, by selected demographic characteristics and selected years

Variable	1989	1992	1998	2001	2007	2010	1989 to 1992	1998 to 2001	2007 to 2010	1989 to 2010
White	57.7%	57.9%	67.5%	68.1%	67.8%	64.2%	0.2%	0.6%	-3.6%	6.5%
Non-white	74.2%	74.9%	65.7%	67.8%	77.3%	64.9%	0.7%	2.1%	-12.4%	-9.3%
Non-Hispanic	60.3%	59.3%	67.1%	68%	68.8%	64.5%	-1.0%	0.9%	-4.3%	4.2%
Hispanic	59.1%	96%	81.1%	71.0%	80.7%	65.6%	36.9%	-10.1%	-15.1%	6.5%
50 to 64, not retired	62.6%	60.6%	67.9%	69.4%	70.2%	65.2%	-2.0%	1.5%	-5.0%	2.6%
65 plus, not retired	52.9%	63.9%	66.4%	59.2%	59.7%	61.6%	11%	-7.2%	1.9%	8.7%
65 plus and retired	53.2%	61.1%	59.4%	70.6%	70.3%	66.7%	7.9%	11.2%	-3.6%	13.5%
Married	63.2%	58%	67.6%	68.8%	69.2%	63.6%	-5.2%	1.2%	-5.6%	0.4%
Single women	61%	65.8%	67.4%	64.6%	71.4%	71.3%	4.8%	-2.8%	-0.1%	10.3%
Single men	41.8%	57.5%	68%	72.2%	62.6%	56.0%	15.7%	4.2%	-6.6%	14.2%
Bottom quintile	55.2%	79.9%	76.8%	73.5%	45.9%	46.7%	24.7%	-3.3%	0.8%	-8.5%
Second quintile	77.3%	67%	54.6%	64.5%	75.5%	65.2%	-10.3%	9.9%	-10.3%	-12.1%
Third quintile	58.2%	69%	72.4%	70.1%	72.1%	74.3%	10.8%	-2.3%	2.2%	16.1%
Fourth quintile	60.5%	64.2%	68.5%	67.7%	70.8%	73.8%	3.7%	-0.8%	3%	13.3%
Fifth quintile	52%	51.2%	64.9%	66.6%	64.3%	56.2%	-0.8%	1.7%	-8.1%	4.2%
Without DB pension	53.2%	59.4%	66.4%	63.1%	65.2%	64.6%	6.2%	-3.3%	-0.6%	11.4%
With DB pension	68.1%	60.8%	68.6%	72.2%	72.8%	63.2%	-7.3%	3.6%	-9.6%	-4.9%

Notes: All figures are in percent. Changes are in percentage points. Averages and medians calculated for households 50 years old and older, who are not retired. Debt to income is summarized only for households with any debt. Home equity share out of total house values is also summarized only for homeowners. The share of stocks out of financial assets is summarized only for households with any stocks. Stocks include directly and indirectly held stocks. Risky assets are the sum of stocks and residential real estate. Author's calculations based on Board of Governors, Federal Reserve System. (various years). Survey of Consumer Finances. Washington, DC: BOG.

The risky-asset allocation by other characteristics, however, varies substantially. Households in the third income quintile had 74.3 percent of their total assets in risky assets, compared to only 46.7 percent for households in the bottom income quintile and 56.2 percent for households in the top income quintile. And single women held more than 70 percent of their total assets in risky assets in 2010, compared to only 56 percent of single men.

There is no clear trend toward convergence in risky-asset allocation across household groups from 1989 through 2007 and before the Great Recession, when risky-asset allocations reversed. Hispanics and non-Hispanics, for instance, had roughly the same risky-asset allocation in 1989, but the risky-asset allocation of Hispanics grew much faster than that of non-Hispanics through 2007, in large part because

Hispanics held more of their risky assets in housing than did non-Hispanics. There was also a widening gap by age from 1989 to 2007 and a roughly steady gap between single women and married couples during the same time period.

The concentration of household assets in stocks and housing declined for almost all groups from 2007 to 2010. The largest decreases came for nonwhites, Hispanics, younger households, retirees, single women, households in the top income quintile—which was closely followed by households in the second income quintile—and households with defined-benefit pension coverage. The larger losses in the share of risky assets for these groups than for their counterparts typically reflect a higher concentration in risky assets in 2007.

The share of stocks and houses out of total assets in 2010 was typically at its lowest level since at least 1992.[33] That is, households either may have had too much risk exposure built up in the years prior to the crisis or less than their desired risk exposure in 2010. The sharp reversal in risky-asset concentrations during and after the Great Recession, therefore, may have not reflected desired asset-allocation changes by households, instead reflecting sharp price declines that were not countered by active portfolio rebalancing.

Table 5 shows a mixed record of changes in risky-asset concentration during crises. It typically rose during the savings and loan crisis; it rose for some groups and fell for others during the bursting of the dotcom bubble; and it declined widely during the Great Recession. There is some evidence that large-asset price declines—a reflection of financial risks materializing—led to a correction in households' risk exposure alongside large wealth losses, as discussed above.

The facts that wealth did not grow, that households lost increasingly large shares of their wealth during crises, and that risky-asset concentration dropped increasingly during crises alongside the wealth losses indicates that households built up more risk exposure between crises. Indeed, Table 5 shows substantial jumps in risky-asset concentration from 1992 to 1998 and from 2001 to 2007.

But there are some key differences in the timing of the jumps by population characteristics. Whites, non-Hispanics, and single men, for instance, saw large increases in their risky-asset concentration from 1992 to 1998, with little change thereafter through 2007. Nonwhites, Hispanics, and single women, meanwhile, actually saw falling asset-concentration ratios through 2001 before they increased again through 2007. Additional data not explored here show that these differ-

ences did not result from a greater emphasis on stocks by whites, non-Hispanics, and single men than by nonwhites, Hispanics, and single women. During the earlier period through 1998, the share of stocks out of nonhousing financial assets increased, staying flat through 2007 for all groups, regardless of race or ethnicity. That is, the different build-up patterns in risky-asset concentration—earlier for some groups than for others—are likely a confluence of other factors.[34]

The above data discussion shows that household risk has not been managed well in the past and that risk exposure has hence become excessive for many near-retiree households.

Conclusion and policy implications

Households can face substantial financial risk exposure due to their level of debt—leverage—and a high concentration of assets in risky investments. That is, when prices for stocks and houses move up or down, total household assets can also experience substantial fluctuations—in extreme cases, even augmented fluctuations can occur.

Households can gain and lose massive amounts of wealth in risky financial markets. This volatility can come from large asset-price movements, the likes of which occur during stock- and housing-market bubbles. It can also happen when households are exposed to those price fluctuations through leverage and through having a large concentration of risky assets as a share of their total assets.

Both price fluctuations and risk exposure are part of saving and investing in financial markets. The issue, though, is whether households face excessive risks and thus save too little for key life events such as retirement. Policymakers have started to put policies in place to potentially lower the risks of large-asset price bubbles—through, for example, increased capital requirements for banks, which would mean that banks would become more careful in speculating because they would have more of their own money at stake, and the Financial Stability Oversight Council, which is tasked with identifying emerging risks that can threaten the health of the entire U.S. economy and thus hopefully lead policy-makers to intervene earlier in potentially dangerous situations than they did before the Great Recession. But there have been few efforts to actually address households' risk exposure.

The summary of household-level data presented in this paper shows that households have typically not managed their risk exposure well. In other words, households did not gain as much wealth as they could have if they had better managed their risk exposure. The data, for instance, show that wealth fluctuated and did not trend upward as households took on more risks in search of greater rewards. There was also no convergence in risk exposure between households, no systematic

downward correction of risk exposure during crises, and too much risk exposure built up between crises, when times were less turbulent and households could have better managed their risk exposure. The data do suggest that both leverage and risky-asset concentration play a role in household risk exposure, although leverage appears to be the more widespread and more consistently poorly managed risk factor.

Policy implications

The discussion in this report highlights the need for greater policy emphasis on helping households manage their risks. Such an approach should be as comprehensive as possible. Households lost wealth during the Great Recession, for instance, both because they were heavily invested in risky assets and because they were comparatively highly leveraged due to a housing and mortgage boom before the crisis. Policy responses that are targeted at helping households better manage their nonhousing assets separately from their housing assets may miss a large part of households' risk exposure and their need to manage financial risks. Practically speaking, this means that policy efforts should focus on making mortgages as affordable and as safe as possible, and that efforts intended to increase homeownership should be coupled with efforts to increase savings outside of the home so that households have a buffer to fall back on when house prices dip or income otherwise diminishes.

Broadly speaking, households have two venues in which to manage their risk exposure. Purchasing insurance is one such venue, and better risk management is the other. Policymakers can consider possible steps to give households better access to affordable and appropriate insurance and better risk-management tools.

Households could purchase insurance to secure some of their financial assets. These insurance-type products include financial derivatives such as futures, options, and swaps, which offer investors a promise of future asset prices and thus some assurance against losses. Insurance products also include rate-of-return guarantees offered by insurance companies for mutual funds, through which investors are assured that their assets will not perform worse than a predetermined average rate of return over long periods of time such as one or two decades.

Insurance products, however, are burdened by a number of problems that make them less than ideal as universal tools. First, they carry a fee, especially for middle-

income and lower-income households. Second, insurance markets may be limited, and they may only be available for households that already have substantial assets—although policymakers can help grow markets through financial incentives. Third, any insurance product is only as good as the insurance company that offers it. As the Great Recession has shown, however, insurance companies can fail if the insured incidence—asset losses—occurs on a large enough scale. Policymakers can help strengthen the insurance market, but some chance that insurance companies will fail will still remain.

The bottom line is that households may experience practically uninsurable risk exposure. They can alternatively engage in financial strategies to manage their risk exposure by counteracting the potential threat of more leverage and a greater risky-asset concentration than they want. They can reduce their leverage by saving more, especially by investing in assets that are not directly linked to their debt. So they could save in nonhousing assets if most of their debt is in the form of a mortgage. And they can diversify their assets away from risky assets, especially after risky-asset prices have increased.

These strategies are best explained with an example. A household may owe $80,000 on a $100,000 home, for instance, and own no other major assets. This household has a debt-to-asset ratio of 80 percent and a risky-asset concentration of 100 percent since all of its assets are in the form of its home, which is considered a risky asset. The same household can lower its leverage and risky-asset concentration by saving money outside of the home—putting, for example, $10,000 into a 401(k) savings account. Its debt-to-asset ratio then falls from 80 percent to 72.3 percent—$80,000 divided by $110,000—and the risky-asset concentration decreases to 91 percent—$100,000 divided by $110,000—assuming that all of the money in the household's 401(k) account is invested in assets other than stocks. Had the household instead used the extra $10,000 to pay off the mortgage faster, lowering its debt from $80,000 to $70,000, its debt-to-asset ratio would have dropped to 70 percent instead of 72.3 percent, but its risky-asset concentration would have remained at 100 percent since all of its assets would still be in its house. By saving more and diversifying its assets—investing in something other than a house and stocks—the household lowers its risk exposure through less leverage and a lower risky-asset concentration.

Households that are in debt often do not have sufficient income to save a lot of extra money and quickly reduce their leverage. They could instead reduce their leverage over time by refinancing their debt into debt with a lower interest rate.

This may include, for example, taking out a home equity line to pay off a higher-interest credit card and payday loan—depending on the interest rates on each loan and the households' tax situation. Households could use the savings from lower interest payments to invest in other less-risky assets such as savings accounts.[35]

Households could also use existing investment products to help them manage their risk exposure with financial assets.[36] Households can invest part or all of their assets in so-called target-date funds or model portfolios.[37] These mutual funds combine stocks and other financial assets at a risky-asset ratio desired by the investors—60 percent invested in stocks, for example, and 40 percent in bonds. The fund managers will make sure that the model portfolio maintains the desired risky-asset allocation on a regular basis, so that the risky-asset allocation can never get too far away from the original level of 60 percent. These funds often also reduce the risky-asset allocation—the share of stocks in the portfolio—as households get older and closer to retirement and typically want less risk exposure. In the above example, the allocation of stocks drops from 60 percent as the household nears retirement to better ensure that the household will have enough savings upon retirement.[38]

Another step would be to take advantage of professional risk-management strategies. Households with higher incomes and more wealth tend to be much more likely to rely on professional advice from regulated individuals such as accountants and lawyers. Relying on such advice may allow for a more comprehensive risk-management strategy than a "do-it-yourself" approach. Policymakers could support such efforts by offering tax credits for qualified regulated professional advice.[39]

Households will find it easier to use available risk-management strategies in the right policy environment. Policymakers can facilitate risk management through greater transparency of risk exposure, automating desired investment choices through default investment options, and helping develop key markets such as those for insurance and reinsurance products and those for professional advice. Policies that will help households better manage their risk exposure will automatically increase future income security since the available assets will last longer. Comprehensively managing household financial risk exposure should thus be an integral part of all asset-building policies.

About the author

Christian E. Weller is a Senior Fellow at the Center for American Progress and a professor of public policy at the McCormack Graduate School of Policy and Global Studies at the University of Massachusetts, Boston. His areas of expertise include retirement income security, macroeconomics, money and banking, and international finance. He is also a research scholar at the University of Massachusetts, Amherst, Political Economy Research Institute and an institute fellow at the University of Massachusetts, Boston, Gerontology Institute. Prior to joining CAP, he was on the research staff at the Economic Policy Institute, where he remains a research associate.

Appendix A: Review of the relevant literature on wealth and risk exposure

In this report, household risk refers to the uncertainty of future income, especially for retirement, in both upward and downward directions. This uncertainty results from household-wealth risk exposure since it can fluctuate up and down more if there is more risk exposure.

Individual risk exposure

The composition of wealth has changed over the past decades, resulting in greater individual risk exposure. This added risk is typically not fully accounted for in calculations of retirement wealth.

Wealth is the difference between assets and debt. Assets include personal savings such as owner-occupied homes and financial assets, future defined-benefit pension benefits, and Social Security benefits. Debt includes mortgages and other money owed.

Private savings directly expose households to a number of financial risks, including market and investment risks.[40] Market risk exposure follows from large price swings for stocks and houses[41] because of the timing of purchases and sales[42] and because savings decisions can change.[43] Investment risks exist because complex investment decisions open the possibility for suboptimal outcomes based on market fluctuations.[44]

Only limited risk protections are available. Workers can protect themselves from investment risk by contributing regularly to savings accounts and stably diversifying their assets. Optimization of contributions and investments, however, is often hindered by psychological obstacles such as the inability to fully process complex information, the inability to stick to a financial plan, status-quo bias in financial decisions—not wanting to change the way things are currently even if they aren't working well—and herd behavior—making decisions based on what a larger group of peers is doing—all of which leads to too little savings and too much risk.[45] There also isn't the same protection against market risk in private savings as there is in Social Security and defined-benefit pensions. Individual savings accounts have finite horizons, while defined-benefit plans, for instance, have longer time horizons that allow them to smooth out the losses sustained in a shorter time period with gains in another.[46]

The lack of risk protections poses a growing problem since the share of private-sector workers with a defined-benefit pension has declined and the share of workers with a defined-contribution plan has risen since the early 1980s.[47] Retirement-wealth studies often eliminate market, investment, and longevity risk exposure by assuming that retirees will follow a uniform savings rate and make balanced investment choices, by assuming that asset markets will produce a stable rate of return, and by assuming that households will annuitize their wealth.[48] More risk exposure means that the same amount of wealth can buy less income security.

The economic logic of rising individual risk exposure

As discussed in this report, the trends over the past three decades show a growing household risk exposure. Policymakers intended for this greater explicit risk exposure to happen: The original economic logic was that more risk poses a cost to individuals, who generally do not like risk. Individuals would consequently save more to compensate for the greater risk exposure.[49]

More recent research done in the field of behavioral economics has shown that this logic has its limits since it makes unrealistic behavioral assumptions about individual decisions.[50] The traditional economic logic assumes that individuals fully understand complex risks, completely understand how to protect themselves from these risks, and will act upon this knowledge. But humans generally do not have the full appreciation of all of the complexities of their financial decisions, and even when they do, they do not necessarily act on that knowledge. It thus seems that greater risk exposure has resulted in more savings—but not enough to fully compensate for the increase in individual risk exposure over time.[51]

Appendix B: High wealth went along with high insecurity before the crisis

Household wealth increased over time, but this growth went along with rising demands on personal wealth as households became increasingly responsible for saving for their own retirement, health care, rising housing costs, their children's education, and other demands.

Increasing demands on household wealth, in fact, meant that more average wealth went along with growing economic insecurity during the 2000s. The share of families that are prepared for medical or economic emergencies, for instance, has fallen since 2000.[52] Only an estimated 33.9 percent of families had sufficient savings to cover a medical emergency in 2007, down from 43.7 percent in 2000. And the share of families that had enough wealth to cover an economic emergency—equal to three months of their income—fell to an estimated 29.4 percent in 2007, down from 39.4 percent in 2000.[53] Economic insecurity rose even before the Great Recession and during a time of growing average wealth.[54] The increases in economic insecurity reflect rising demands on household wealth—especially for medical care—and increasing wealth inequality, which leave a growing number of households economically vulnerable.[55]

This so-called wealth-insecurity paradox—high wealth and low security—is also apparent in aggregate economic distress measures that grew alongside rising average wealth. Bankruptcy rates, for instance, increased through 2005 and rose again after dropping in the wake of a new bankruptcy law that went into effect in the fall of 2005 and made it harder for households to get a fresh start in bankruptcy court.[56] Similarly, following the recession that ended in November 2001, the share of mortgages in foreclosure rose to a peak of 1.5 percent in March 2002 before dropping to 1 percent in June 2006 and rising again to 2 percent in December 2007, before the start of the Great Recession. Since 1979 the foreclosure rate had never exceeded 1.2 percent before the recession in 2001.[57] Especially during the 2000s, Households experienced increasing economic distress despite the fact that wealth on average outpaced after-tax income between 2000 and 2007.

Rising household risk exposure and increasing demands on household savings can explain the wealth-insecurity paradox. The bottom line is that the increases in wealth have not been enough to compensate for the higher risk exposure of personal wealth and the increasing demands on personal wealth from households' growing needs.

Appendix C: Indicators of individual risk exposure

Household-wealth risk exposure has grown because of more debt, more investments in risky assets, or a combination of the two. The data summaries below therefore report wealth-to-income ratios and several risk-exposure measures, specifically those on household leverage and the concentration of risky assets.

Household leverage or household debt

Leverage translates into risk exposure because gains and losses of assets are magnified when asset prices go up or down. This is best shown with a simple example, also used above. Take a household that buys a home valued at $100,000 with a down payment of $10,000 and a mortgage of $90,000. The household now has equity equal to $10,000 in its home—this is the household's wealth. Now assume that the home's value falls by 10 percent. The price of the home drops to $90,000, but the home equity gets wiped out—a loss of 100 percent—since the household still owes a mortgage of $90,000. The loss to the household is 10 times larger—100 percent—than the price decline of 10 percent because the asset—the home—fell in value, but the outstanding debt stayed the same. The more highly leveraged a household—the larger the ratio of its debt to its assets—the greater the risk of losing substantial shares of wealth from comparatively smaller-asset price drops. This is also true when asset prices go up and more leverage translates into greater gains. This report thus uses the ratio of total debt to assets as one indicator of leverage, whereby a larger ratio of debt to assets indicates more leverage and hence more vulnerability to drops in asset values.

Diversification of assets—or lack thereof—as measured by the concentration of risky assets

The concentration of household wealth in risky assets is the opposite of diversified assets. Diversified assets are those that are spread out across many different categories. Diversification offers some protection for household wealth against large price swings. Consider a simple illustrative example of two separate households with two different asset allocations. Both households initially have $100,000 in assets, but one allocates 80 percent—or $80,000—in stocks and the other puts only 40 percent—or $40,000—in stocks. The rest of both households' money is invested in government bonds. A drop in the stock market of 20 percent results

in a loss of $16,000 to the first household but a loss of only $8,000 to the second household. Spreading out assets across several categories—diversifying assets—reduces the chance that loss in one market translates into massive wealth declines.

Households often end up with comparatively high concentrations of risky assets because they did not sell those assets when the prices increased—not because they desired to expose themselves to a lot of risk. The allocation of household assets to risky assets followed the boom and bust cycles in the stock and housing markets, suggesting that households often had more risk exposure than they had planned because risky assets such as stocks and houses experienced a boom and therefore took up a larger part of household portfolios.

Consider this example of the effect of rapidly rising risky-asset prices. A household may have $100,000 invested in stocks and bonds at the beginning of a five-year period—the middle of 2002, for example—and decide to put half of its money in stocks and half of its money in bonds. The stock portfolio grows each year by 13 percent for five years through the middle of 2007. Bonds, on the other hand, grow by only 5 percent annually. This hypothetical household would have had a ratio of stocks to bonds of 59.1 percent after five years—rather than the initially intended 50 percent—because the stock market grew more quickly than anticipated. This hypothetical household became more exposed to a potential drop in stock prices than it had initially intended.[58]

Households invest in a range of both risky and nonrisky assets.[59] This report follows common nomenclature and defines stocks and houses as risky assets. It calculates the share of all risky assets—stocks plus houses—out of total assets as one measure of diversification. Larger values reflect greater concentrations of risky assets and therefore increased vulnerabilities to declines in the market.

Housing as a risky asset

Economists usually consider housing a risky financial asset akin to stocks. Households have equity stakes in both kinds of assets that allow them to benefit from the price appreciation of a house or a stock and from the income earned on the equity—specifically, saved rent minus mortgage payments and depreciation in the case of a house and corporate income minus costs and taxes in the case of stocks.

Both houses and stocks come with substantial risks—namely the risks of a fall in value and less income than expected. House and stock prices depend on demographic changes, changing preferences, and rising unemployment; prices will fall when demand weakens along with these three factors. Less demand for housing means lower rents and thus less income due to foregone rent to the homeowner, and less demand for stocks translates into lower sales, less income, and fewer dividends for stock owners.

Housing prices are less volatile than stock prices, but owning a house comes with its own risks that offset the somewhat lower price fluctuations. First, households may need to sell their home in its entirety at a specific time to move into a residence that is more appropriate for their changing needs. Unlike with a stock portfolio, households typically cannot sell bits and pieces of their home. A household may thus be forced to sell its largest asset in its entirety when prices are down.[60] This is a timing risk that is substantially larger for home than for stocks since stocks often come in much smaller denominations—especially when they are indirectly held through mutual funds. The sale of a stock portfolio can therefore occur gradually in order to avoid massive losses.

Second, households may need to borrow against the equity in their homes to pay for nonhousing consumption, especially health care and long-term care. Credit-market constraints due to an overall economic weakness, falling home prices, and incomplete markets—for reverse mortgages, for example—may force households to either cut their consumption or sell their homes at a loss.[61]

Third, housing assets are very illiquid, making it difficult for homeowners to diversify their assets when housing prices increase.[62] Households are consequently tied to the ups and downs of the housing market without the opportunities usually available with financial assets to diversify out of an asset when its price increases and diversify into an asset when its price falls.

Fourth, the illiquidity of housing assets is further exacerbated by the fact that homeowners tend to be leveraged and thus have to invest in their homes by paying back the principal on their mortgage. All households that are somewhat financially constrained will consequently see their exposure to housing-market risk increase because they cannot build sufficient assets outside of their home to offset the rising exposure of their total assets to housing-market risk.[63]

Fifth, the illiquidity of housing assets is made even worse by the interaction between housing and labor markets at the regional level. House-price swings are often regionally concentrated and not a national phenomenon, but regional house-price swings are highly correlated with labor-market conditions; house prices fall, for example, when unemployment rates increase. This correlation further reduces the liquidity of housing assets since the pool of potential buyers in the local labor market falls when unemployment goes up and when house prices consequently fall. The correlation between housing and labor markets makes housing a risky asset since house prices experience procyclical swings, which occur, for example, when the housing market goes up as unemployment falls or the housing market crashes as unemployment rises.[64]

Houses are comparatively risky assets for individual homeowners at any point of investment. House prices tend to be more volatile than bonds, while the rate of return earned on housing assets does not fully compensate for the greater risk as compared to bonds.[65] Homes are risky assets due to their geographic specificity. Most households will therefore be exposed to substantial risks and uncertain future income from their housing assets.

Appendix D: Rising risk exposure over time and changing risk exposure during crises

Risk exposure matters most when risk materializes since households stand to lose substantial amounts of their wealth. Economic risks typically materialize for a large number of households during financial crises[66]—when, for example, the stock and housing markets plunge. This report focuses on household wealth and risk exposure before and after three economic and financial crises that occurred between 1989 and 2010. (see Table A-1) Households that have a lot of risk exposure at the start of a crisis will experience more economic damage in a crisis than households that have less risk exposure. Their wealth should decline further than is the case for households that have less risk exposure.

The three crises include the savings and loan crisis of the late 1980s coupled with the recession of 1990 and 1991; the bursting of the dotcom bubble and the subsequent bear market on Wall Street from early 2000 to late 2001 combined with the recession in 2001; and the end of the housing boom that started in 2006 combined with the Great Recession, which began in 2007 and ended in 2009. The discussion of the aggregate macroeconomic data will use the actual start and end dates of the crises detailed in Table A-1. But the discussion of triennial household data from the Federal Reserve's *Survey of Consumer Finances* will compare data from 1992 with data from 1989, data from 2001 with data from 1998, and data from 2010 with data from 2007.

TABLE A-1
Description of recent crises

	Recession and S&L crisis	Recession and IT bubble bursting	Great Recession and housing and mortgage crisis
Recession dates	Third quarter 1990 to first quarter 1991	First quarter 2001 to fourth quarter 2001	Fourth quarter 2007 to second quarter 2009
Change of unemployment rate during recession	from 5.7% to 6.8%	from 4.2% to 5.5%	from 4.8% to 9.3%
Dates of wealth losses	Fourth quarter 1989 to third quarter 1990	First quarter 2000 to third quarter 2001	Second quarter of 2007 to first quarter of 2009
Change in real household wealth (in percent)	-4.4%	-9.9%	-27%
Change in real financial, non-housing wealth (in percent)	-5.5%	-18%	-24.8%
Change in real housing wealth (in percent)	-3.8%	20.6%	-48.5%

Notes: All figures are in percent. Unemployment data taken from Bureau of Labor Statistics. (2011). Current Population Survey. Washington, DC: BLS. Author's calculations on wealth data are based on Board of Governors, Federal Reserve System. (2011). Release Z.1 Flow of Funds Accounts of the United States. Washington, DC: BOG. Business cycle dates are from the National Bureau of Economic Research. (2011). Business Cycle Dates. Cambridge, MA: NBER.

The three crises have several aspects in common. All of them included a financial crisis in which households sustained substantial wealth losses, ranging from an inflation-adjusted decline of 4.4 percent in the savings and loan crisis to a decline of 27 percent in the housing crisis. All three crises also included a recession with unemployment-rate gains ranging from 1.1 percentage points in the early 2000s to 4.5 percentage points during the Great Recession. (see Table A-1)

The three crises occurred against the backdrop of several major trends. First, American households have borrowed ever-increasing amounts of money, especially after the crisis in the early 2000s. Second, the U.S. stock market experienced an unprecedented stock market run up from 1983 to 2000 and a strong recovery from 2001 to 2007, after the burst of the dotcom bubble in 2001. Third, the U.S. housing market gained steam in the mid-1990s, with home prices eventually reaching unchartered territory in the late 1990s as the housing market experienced a major house-price bubble.[67]

Endnotes

1 For detailed discussions of asset market volatility, see: Dean Baker, Paul R. Krugman, and J. Bradford DeLong, "Asset Returns and Economic Growth," *Brookings Papers on Economic Activity* 36 (1) (2005): 289–315; John Y. Campbell and Robert J. Shiller, "Valuation Ratios and the Long-Run Stock Market Outlook," *Journal of Portfolio Management* (1998): 11–26.

2 See Appendix C for a detailed discussion of why housing is a risky financial asset.

3 This report focuses on data trends in the risk exposure for nonretiree households that are headed by someone are 50 years old or older from 1989 to 2010. First, older households have less time than younger households to recover wealth losses before they need the money for retirement or other demands. Second, older households increasingly have to rely on private wealth to compensate for lower Social Security benefits, fewer employer-sponsored retirement benefits, and rising health care costs. The current generation of older households is a test case for how well the push to individualized savings has worked over the past few decades.

4 See Appendix A for a review of the relevant literature. There was a noticeable wealth-insecurity paradox even before the Great Recession. Household wealth trended up before the crisis started in 2007, presumably offering households more economic security. Economic distress measures—such as bankruptcies and credit card defaults—also trended up prior to the crisis. See Appendix B for additional information on wealth and household-distress trends prior to 2007. There is substantial reason to believe that household risk exposure was not well managed over the past few decades. The goal of this report is to provide more nuanced information as to which type of risk exposure—risky-asset investments or leverage —is responsible for the trends over time, as well as to provide comparisons between population groups.

5 A separate yet related argument says that households have needed wealth-to-income ratios to go up as demands on household wealth have grown over time. People can now expect to live longer and to spend more time in retirement than in the past, requiring more savings outside of Social Security. Job security has decreased and employers have cut back on retirement and health insurance benefits, requiring even more savings to cover the additional costs. In other words, flat wealth-to-income ratios consequently leave households with declining economic security as the demands on wealth have grown over time. See Appendix B for a discussion of increasing demands on older households' wealth.

6 Board of Governors, Federal Reserve System, "Senior Loan Officer Opinion Survey on Bank Lending Practices" (2013).

7 For a summary of the basic theoretical literature on consumption and saving, see: Martin Browning and Annamaria Lusardi, "Household saving: Micro theories and micro facts," *Journal of Economic Literature* 34 (4) (1996): 1797–1855.

8 Calculations based on: Social Security Administration, "Social Security Trustees Report, Supplemental Single-Year Tables, Table VI.F10 – 'Annual Scheduled Benefits Amounts for Retired Workers with Various Pre-Retirement Earnings Based on Intermediate Assumptions'" (2011).

9 This example assumes an inflation-adjusted interest rate of 3 percent. It ignores the fact that the need to save for retirement outside of Social Security has increased over time. The wealth-to-income ratios should have risen over time to meet households' increased needs.

10 An estimated 60 percent of households did not have enough savings to maintain their standard of living in retirement in 2009. See: Center for Retirement Research, Boston College, "National Retirement Risk Index Fact Sheet No. 2" (2010).

11 Calculations based on: Board of Governors, Federal Reserve System, "Release Z.1 Flow of Funds Accounts of the United States" (2012).

12 The summary of the household data shows that the experience of wider wealth swings is not uniformly shared by households but that groups of households have experienced wider swings in wealth than others, and wealth fluctuations have become worse over time for some groups but not for others.

13 See Appendix D for a detailed discussion of the dates and characteristics of the three economic and financial crises that occurred between 1989 and 2010.

14 All calculations based on: Board of Governors, Federal Reserve System, "Release Z.1 Flow of Funds Accounts of the United States."

15 Appendix C provides additional details on the indicators of risk exposure.

16 The conclusions in this report are not sensitive to the specific leverage measure. Using a debt-to-income ratio or the share of home equity out of housing values for homeowners, for example, lead to similar conclusions.

17 Appendix A-3 includes a more in-depth discussion of housing as a risky asset, as well as references to the relevant literature.

18 The conclusions in this report are not sensitive to the specific risky-asset concentration measure. The share of stocks out of nonhousing financial assets, for instance, leads to very similar conclusions.

19 The calculations and conclusions are similar when the end of a crisis is used as a starting point for comparison. The end of a recession is used as a starting point only because there is no clear financial crisis that occurred in the early 1980s. Using the end of a recession as a starting point allows for consistent comparisons for all three crises.

20 The recession that occurred in the early 1950s is the first recession covered by the data. Recession dates are from: National Bureau of Economic Research, "Business Cycle Dates" (2011).

21 For more detail on these trends, see: Christian E. Weller, "Credit Access, the Costs of Credit and Credit Market Discrimination," *Review of Black Political Economy* 36 (1) (2009): 7–28.

22 For more detail on these trends, see: Weller, "Credit Access, the Costs of Credit and Credit Market Discrimination"; Christian Weller and Derek Douglas, "One Nation under Debt," *Challenge* 50 (1) (2007): 54–75.

23 For a discussion of the relevant literature and for data through 2004 on the rising risk exposure of U.S. homeowners, see: Christian E. Weller and Kate Sabatini, "From Boom to Bust: Did the Financial Fragility of

Homeowners Increase in an Era of Greater Financial Deregulation?," *Journal of Economic Issues* 42 (3) (2008): 607–632; See Appendix C for a detailed discussion of housing as a risky asset.

24 Author's calculations based on: Board of Governors, Federal Reserve System, "Release Z.1 Flow of Funds Accounts of the United States."

25 For evidence on investors' rebalancing behavior in defined-contribution plans, see: Olivia S. Mitchell and others, "The Inattentive Participant: Portfolio Trading Behavior in 401(k) Plans" (Philadelphia: Pension Research Council, Wharton School, University of Pennsylvania, 2006). For a comparison of investment behavior between defined-contribution plans and defined-benefit plans, see: Christian E. Weller and Jeffrey B. Wenger, "Prudent Investors: The Asset Allocation of Public Pension Plans" *Journal of Pension Economics and Finance* 8 (4) (2009): 501–525.

26 The summary data for household wealth and risk exposure are taken from the Federal Reserve's triennial Survey of Consumer Finances. Consistent data for all key variables are available from 1989 to 2010. The discussion relies on households that are headed by somebody who is 50 years old or older and who is not retired. The exception is the breakdown of the data by retirement status, which separates the data for households headed by someone 50 years old or older between those who self-identify as retired and those who do not.

27 Comparisons by age and retirement status are combined to simplify the data presentation.

28 See Christian E. Weller and Edward N. Wolff, "Retirement Income: The Crucial Role of Social Security" Washington, DC: Economic Policy Institute, 2005).

29 This ratio implies relative risk aversion. For more discussion of the role households' risk aversion plays in financial decisions related to financial-portfolio allocations, see Kenneth J. Arrow, "The Theory of Risk Aversion." In Kenneth J. Arrow, *Essays in the Theory of Risk Bearing* (Chicago, Markham Publishing Company, 1971); David Cass and Joseph E. Stiglitz, "The Structure of Investor Preferences and Asset Returns, and Separability in Portfolio: A Contribution to the Pure Theory of Mutual Funds," *Journal of Economic Theory* 2 (2) (1970): 122–160; Irwin Friend and Marshall E. Blume, "The Demand for Risky Assets," *American Economic Review* 65 (5) (1975): 900–923. The share of very high risk exposure is only calculated for households with assets. Households without assets cannot have any risk exposure. Fewer than 5 percent of households headed by someone over the age of 50 have no assets. The conclusions of this discussion remain robust with changing cutoff points for very high risk exposure.

30 Table 2 shows median values, but averages lead to the same conclusion: that both risky-asset concentration and leverage mattered for the growing household risk exposure over time.

31 The conclusions are not sensitive to using the median versus the average, nor are they sensitive to the specific leverage measure. Other measures, such as debt-to-income ratios and the share of home equity out of house values, materially lead to the same conclusions.

32 For more detail on these trends, see: Weller and Douglas, "One Nation under Debt."

33 See Table 7 for more information. There are no clear trends in the risky asset share out of total assets discernible by income.

34 One possibility here is that nonwhites, Hispanics, and single women gained greater access to some financial products and services later than their counterparts.

An exploration of the exact causes of the timing of the risky-asset buildup for each household group is beyond the scope of this paper. The data here do suggest, however, that all household groups saw substantial increases in their risky-asset concentration, although different groups saw it at different times.

35 For a detailed discussion on the effect of refinancing into lower-interest rates on household leverage, see: Christian E. Weller, "Unburdening America's Middle Class" (Washington: Center for American Progress, 2011).

36 Households can also use mutual funds to diversify into other assets. They could invest in real estate, for instance, if they are renters. Real Estate Investment Trusts offer investors the opportunity, for a fee, to invest in a range of real estate projects.

37 For details on these investment products, see: Financial Security Project at Boston College, "Why Target Date Funds?" (2012).

38 It is important to note that reducing stock investments near retirement lowers the household's risk exposure, but it also reduces the potential rate of return on the household's assets. For a discussion of the related literature and for some estimates of the possible losses to investors in retirement-savings accounts from moving out of stocks into more secure assets as they near retirement, see: Beth Almeida and William B. Fornia, "A Better Bang for the Buck: The Economic Efficiencies of Pensions" (Washington: National Institute on Retirement Security, 2008).

39 Avoiding conflicts of interest is a key way to regulate professional advice.

40 Longevity risk is another key financial risk. We do not, however, explore it further in this report. We only consider household assets that do not counter longevity risk; we do not, for example, account for defined-benefit-pension wealth and Social Security wealth. Additionally, longevity risk has changed little over time, so individual risk-exposure comparisons over time are not influenced by excluding longevity risk.

41 See, for example: Baker, Krugman, and DeLong, "Asset Returns and Economic Growth"; Campbell and Shiller, "Valuation Ratios and the Long-Run Stock Market Outlook."

42 John Y. Campbell and others, "Investing retirement wealth? A life-cycle model" (Cambridge, MA: Harvard Institute of Economic Research, 1999); Christian E. Weller and Jeffrey B. Wenger, "Integrated Labor and Financial Market Risks: Implications for Individual Accounts for Retirement," *Journal of Aging and Social Policy* 21 (2) (2009): 256–276.

43 See: Congressional Budget Office, "Background Paper: Housing Wealth and Consumer Spending" (2007).

44 For a summary discussion of the most relevant problems arising from the intersection of psychology and economic decision making, see: Shlomo Benartzi and Richard Thaler, "Heuristics and Biases in Retirement Savings Behavior," *Journal of Economic Perspectives* 21 (3) (2007): 81–104.

45 Benartzi and Thaler, "Heuristics and Biases in Retirement Savings Behavior."

46 See, for example: John Y. Campbell and Luis M. Viceira, "Strategic Asset Allocation: Portfolio Choice for Long-Term Investors" (New York: Oxford University Press, 2002); David McCarthy and David Miles, "Optimal Portfolio Allocation for Pension Funds in the Presence of Background Risk," London School of Economics, May 2007.

47 For data on coverage of defined-benefit and defined-contribution plans in the private sector, see, for example: Bureau of Labor Statistics, *National Compensation Survey* (U.S. Department of Labor, 2008); Employee Benefit Security Administration, *Private Pension Bulletin 2006, Abstract Form 5500* (U.S. Department of Labor, 2008).

48 See: B. Douglas Bernheim, "The Adequacy of Personal Retirement Saving: Issues and Options." In David A. Wise, ed., *Facing the Age Wave* (Stanford, CA: Hoover Institute Press, 1997): 30–56; Eric M. Engen, William G. Gale, and Cori E. Uccello, "The Adequacy of Household Saving," Brookings Papers on Economic Activity 1999 (2) (1999): 65–165; Eric M. Engen, William G. Gale, and Cori E. Uccello, "Lifetime Earnings, Social Security Benefits, and the Adequacy of Retirement Wealth Accumulation," Social Security Bulletin 66 (1) (2005); Alan L. Gustman and Thomas L. Steinmeier, "Effects of Pensions on Savings: Analysis With Data From the Health and Retirement Study," Carnegie-Rochester Conference Series on Public Policy 50 (99) (1999): 271–324; James F. Moore and Olivia S. Mitchell, "Projected Retirement Wealth and Saving Adequacy." In Olivia S. Mitchell, P. Brett Hammond, and Anna M. Rappaport, eds., Forecasting Retirement Needs and Retirement Wealth (Philadelphia: University of Pennsylvania Press, 2000): 68-94; Alicia H. Munnell, Anthony Webb, and Francesca N. Golub-Sass, "What Moves the National Retirement Risk Index? A Look Back and an Update" (Boston: Center for Retirement Research, Boston College, 2007); Christian E. Weller and Edward N. Wolff, "Retirement Security: The Particular Role of Social Security" (Washington: Economic Policy Institute, 2005); Edward N. Wolff, "Retirement Insecurity: The Income Shortfalls Awaiting the Soon-to-Retire" (Washington: Economic Policy Institute, 2002).

49 For a summary of the related literature, see: Browning and Lusardi, "Household saving: Micro theories and micro facts."

50 For a review of the relevant literature, see: Stefano DellaVigna, "Psychology and economics: Evidence from the field," Journal of Economic Literature 47 (2) (2009): 315–372; Benartzi and Thaler, "Heuristics and Biases in Retirement Savings Behavior."

51 See: Christian E. Weller, "Did retirees save enough to compensate for the increase in individual risk exposure?" Journal of Aging and Social Policy 22 (2) (2010): 152–171.

52 For some discussion of the trends before and after 2001 and for detailed descriptions of the data and methodology used to calculate economic security estimates, see: Christian E. Weller and Eli Staub, "Middle Class in Turmoil: Economic Risks Up Sharply for Most Families since 2001" (Washington: Center for American Progress, 2006).

53 Christian E. Weller and Amanda M. Logan, "Measuring Middle Class Economic Security," Journal of Economic Issues 43 (2) (2009): 327–336.

54 For a discussion of similar trends on related economic-security measures, see: Jennifer Wheary, Thomas M. Shapiro, and Tamara Draut, "By a Thread: The New Experience of America's Middle Class" (New York and Waltham, MA: Demos and Institute for Assets and Social Policy, Brandeis University, 2008).

55 Edward N. Wolff, "Recent Trends in Household Wealth in the United States: Rising Debt and the Middle Class Squeeze." Working Paper 589 (Avon-upon-Hudson, NY: Levy Economics Institute, Bard College, 2010). This working paper provides a detailed discussion of recent wealth trends and estimates of changes in wealth inequality through 2009.

56 For a detailed analysis of the effect of the legal changes on the bankruptcy rate, see: Christian E. Weller, Bernard J. Morzuch, and Amanda M. Logan, "Estimating the Effect of the Bankruptcy Abuse Prevention and Consumer Protection Act of 2005 on the Bankruptcy Rate," American Bankruptcy Law Journal 84 (3) (2010): 327–360. The data suggest that the new law did not disrupt the long-term trend of rising bankruptcy rates before the Great Recession, although it lowered the average rate, such that the trend grew from a lower level after 2005.

57 Mortgage Bankers Association, "National Delinquency Survey" (2011).

58 This example assumes that households do not rebalance their assets on a regular basis to maintain their desired risk balance between stocks and other assets—specifically, government and private-industry bonds. The resulting problem from a growing concentration in risky assets may ultimately be larger than this hypothetical example suggests. Households change their saving behavior in response to unexpected gains in wealth. A growing concentration of assets in risky assets during market upswings means unexpected wealth gains for the household. Unexpected wealth gains, though, lead households to consume more and save less than they would have without these gains. This so-called wealth effect tends to be greater for changes in housing wealth than for changes in stock wealth. A growing concentration of assets in risky assets that see above-average gains during a boom period also means that households will save less than they otherwise would, which could mean that they have less of a wealth buffer when markets drop. For summary discussions of the wealth effect, see: Congressional Budget Office, "Housing Wealth and Consumer Spending" (2007); James M. Poterba, "Stock Market Wealth and Consumption," *Journal of Economic Perspectives* 14 (2) (2000): 99–118.

59 Economists consider houses financial assets since they resemble other financial assets such as stocks. But we designate them as nonfinancial assets here in accordance with more common use of the terminology.

60 Martijn I. Dröes and Wolter H.J. Hassink, "Sale price risk of homeowners" (Utretch, the Netherlands: Utrecht School of Economics, 2009).

61 Sewin Chen, "Spatial lock-in: do falling house prices constrain residential mobility?", *Journal of Urban Economics* 49 (3) (2001): 567–596.

62 Richard Meyer and Kenneth Wieand, "Risk and return to housing, Tenure Choice and the Value of Housing in an Asset Pricing Context," *Real Estate Economics* 24 (1) (1996): 113–131.

63 Peter Englund, Ming Hwang, and John M. Quigley, "Hedging housing risk," *Journal of Real Estate Finance and Economics* 24 (1/2) (2002): 167-200.

64 Dröes and Hassink, "Sale price risk of homeowners."

65 For a discussion of the relevant literature, see Weller and Sabatini, "From Boom to Bust."

66 This paper uses the term "crisis" rather than "recession" to denote declines in asset price rather than fluctuations in output and of the labor market. The past three crises were associated with substantial wealth losses as prices in the housing and stock markets fell.

67 The exact date of the start of the housing bubble depends on one's definition of comparable prices. It is clear, however, that by 2001 home prices had lost any historic relationship to other relevant prices—mainly rents. See: Weller and Sabatini, "From Boom to Bust."

The Center for American Progress is a nonpartisan research and educational institute dedicated to promoting a strong, just, and free America that ensures opportunity for all. We believe that Americans are bound together by a common commitment to these values and we aspire to ensure that our national policies reflect these values. We work to find progressive and pragmatic solutions to significant domestic and international problems and develop policy proposals that foster a government that is "of the people, by the people, and for the people."

Center for American Progress