

Changing Household Financial Opportunities and Economic Security

Karen E. Dynan*
Robert S. Kerr Senior Fellow
Vice President and Co-director
Economic Studies Program
Brookings Institution
Washington, DC 20036
202-797-6036
kdynan@brookings.edu

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Abstract

The principal force behind the many changes in household finances during the past several decades has been an expansion of financial opportunities. Such opportunities can yield benefits in terms of household economic security. However, the financial crisis that began in 2007 has powerfully illustrated that expanded financial opportunities can also pose dangers for households. To explore these issues, I examine household data on wealth, assets, and liabilities going back 25 years and, in some cases, 45 years. I argue that changes in household finances in the decades leading up to the mid-1990s—including the gradual rise in indebtedness—likely increased household well-being, on balance, and contributed to a decline in aggregate economic volatility. However, changes in finances since the mid-1990s—in particular, a much sharper rate of increase in household debt—appear to have been destabilizing for many individual households and ultimately for the economy as a whole. I conclude the paper with some speculations about how the lessons learned in the current crisis might change household financial opportunities and choices going forward.

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The principal force behind the many changes in household finances during the past several decades has been an expansion of financial opportunities. More elaborate tools for assessing and pricing risk, increased lending to households without strong collateral, and technologies that allow households to access a wide array of investment opportunities more easily have all enabled more people to engage in more financial activities. The shift in employer-based retirement benefits from defined-benefit plans toward defined-contribution plans has also given many households more direct control of their finances.

Such opportunities can yield benefits in terms of household economic security. The democratization of credit and development of new lending approaches increased the options for families looking to borrow against future income or accumulated home equity in order to enjoy a smoother path of consumption. Indeed, a wide range of indicators showed significantly less aggregate economic volatility between the early 1980s and mid-2000s than during the preceding two decades—a phenomenon linked by some researchers (including me) to this type of financial innovation. New financial opportunities also allowed households to choose to take more risks in pursuit of higher expected utility—an important reminder that reducing risk is not always good and increasing risk is not always bad.

However, the financial crisis that began in 2007 has powerfully illustrated that expanded financial opportunities can also pose dangers for households. By increasing the scope for investment in risky assets, people may end up with larger swings in wealth than they had anticipated. Households may borrow too much and then face obligations that are unsustainable given their resources. For the economy as a whole, greater access to

credit can create a self-reinforcing problem: more borrowing to purchase assets can help drive asset prices to unsustainable levels, and that high degree of leverage makes subsequent price drops especially damaging to the economy.

To explore these issues, I examine household data on wealth, assets, and liabilities going back 25 years and, in some cases, 45 years. I argue that changes in household finances in the decades leading up to the mid-1990s—including the gradual rise in indebtedness—likely increased household well-being, on balance, and contributed to a decline in aggregate economic volatility. However, changes in finances since the mid-1990s—in particular, a much sharper rate of increase in household debt—appear to have been destabilizing for many individual households and ultimately for the economy as a whole. I conclude the paper with some speculations about how the lessons learned in the current crisis might change household financial opportunities and choices going forward.

The Evolution of Household Wealth

The aggregate personal saving rate and the ratio of aggregate household wealth to aggregate personal income have both experienced dramatic movements in the past decade or two. As shown by the solid line in Figure 1, household wealth hovered around four times personal income from 1960 through the mid-1990s but subsequently climbed out of this range, reaching peaks of $5\frac{1}{4}$ and $5\frac{1}{2}$ times personal income in 1999 and 2006 respectively. The increase in wealth owed primarily to outsized capital gains, on holdings of equity in the latter part of the 1990s and then on houses in the first part of the current decade. Household saving out of income—the dashed line—stayed between 7

and 11 percent for most of the period between 1960 and the mid-1980s but then fell sharply and bottomed out around 2 percent from 2005 to 2007. Declines in home prices and equity prices since 2006 have caused the wealth-to-income ratio to drop back to its long-run average, and the personal saving rate has turned up noticeably (especially in early 2009) as households have pared back spending in response to both lower wealth and the broader downturn in the economy.

Of course, wealth ownership is highly skewed, so these aggregate data speak little to the experience of the typical U.S. household or to how experiences vary across the wealth distribution. I thus turn to household-level data. My primary source is the Survey of Consumer Finances (SCF), which has been conducted by the Federal Reserve Board on a triennial basis for nearly a quarter-century. The SCF contains comprehensive and high-quality information about the balance sheets of U.S. households, as well as data on household income, demographics, and attitudes. I use data from the 1983-2007 waves, each of which included between 3,000 and 4,500 households. In addition, because I am interested in changes in the household financial environment prior to the last quarter-century, I draw from the 1962 Survey of Financial Characteristics of Consumers (SFCC) for parts of my analysis. This survey, also conducted by the Federal Reserve Board, provides a somewhat more limited set of information, but is viewed as the direct ancestor of the SCF and includes many similar features. Both surveys include an oversampling of high-wealth households in order to better capture the full U.S. wealth distribution; I use

the weights provided in the surveys to make the results representative of the full U.S. population.¹

The first column of Table 1 shows the evolution of the median ratio of household wealth to before-tax income, where wealth is defined as the value of real and financial assets minus debt. At the time of the 2007 survey, the median household had wealth equal to roughly $2\frac{1}{4}$ times its income, up from about $1\frac{3}{4}$ times its income in the late 1980s and early 1990s and $1\frac{1}{4}$ times its income in the early 1960s. The change in the measure of wealth over time is boosted by the shift in private pensions away from defined benefit plans, which this measure of household wealth does not capture, and toward defined contribution plans, which I do capture. One way to remove this upward bias is to exclude defined contribution assets from the wealth measure. In the second column of Table 1, I consider household net worth excluding the value of assets in personally established retirement accounts (such as IRAs) and thrift-type pension plans (such as 401(k) accounts), the wealth-to income ratio rises from $1\frac{1}{4}$ in 1962 to $1\frac{1}{2}$ in the 1980s and 1990s, and to $1\frac{3}{4}$ in 2007.

Of course, major changes have occurred in the U.S. financial landscape since the 2007 survey was conducted. Stock prices and home prices fell considerably in the later months of 2007 and on throughout 2008. I lack a direct source of more recent data on household balance sheets, so I make a modest attempt to update the wealth of respondents to the 2007 survey as of the end of 2008. For each respondent, I extrapolate the value of equity held and businesses owned by the change in the Wilshire 5000 index, the value of residential real estate owned by the change in the LoanPerformance index of

¹ I did not use the 1986 SCF wave because it did not generate data comparable in scope with data from the other waves. For more information about the structure of the SCF, see Bucks, Kennickell, Mach, and Moore (2009). For more information about the SFCC, see Projector (1964).

national house prices, and the value of non-residential real estate owned by an index of commercial real estate prices published by Moody's Investors Service.² For all other variables, including income, the 2007 values were carried forward. The final row of Table 1 shows statistics based on these imputed data. By this calculation, recent declines in equity and home prices have returned the wealth of the median household to the range seen in the late 1980s and early 1990s—and to the level seen in the early 1960s after excluding IRA and thrift-type assets as defined above.

Of course, wealth is distributed very unequally in the United States, with households at the 10th percentile of the wealth-to-income distribution (the third column) having essentially no wealth and households at the 90th percentile (the last column) having wealth that is roughly ten times their income. Recent declines in asset values have left households above the median with about as much wealth relative to income as their counterparts in the late 1980s and only slightly more than their counterparts in the early 1960s or early 1980s. Meanwhile, households at the 25th percentile have seen their wealth-to-income ratio retreat to the level seen in the early 1960s, and households at the 10th percentile are estimated to have negative wealth for the first time in the last half-century.

Among different age and education groups, households with heads 55 and older and households with heads with a college degree have seen the most pronounced movements in wealth over time. The median wealth-to-income ratio for those with heads who are less than 35 years of age was roughly 0.4 in 1983 and stayed close to this value through the mid-2000s before declining slightly in the last couple of years. The median

² More information about this calculation and other features of the data can be found in an appendix available with this article at the JEP website, <<http://www.e-jep.org>>.

wealth-to-income ratio for those with heads in the 35-54 age group has stayed between 1.5 and 2. But the median ratio for those with heads 55 and older rose from 3.7 in 1983 to 5.7 in 2001 and remained high through 2007 before falling back to 4.6 in 2008. In education groupings, the median wealth-to-income ratio for households with heads lacking a high school degree has declined from 1.6 in 1984 to about 0.8 by 2008. (However, because the U.S. population has become more educated over time, the share of heads lacking a high school degree was less than half as large in 2007 as it was in 1983.) For households with heads with a high school degree but no college degree, the median ratio has fluctuated relatively modestly, staying close to 1.5 in the 1980s and 1990s before rising to 1.9 in 2007 and declining to 1.4 in 2008. But for households with a head with a college degree, the median wealth-to-income ratio rose from around 2 in the 1980s and early 1990s to 3.4 in 2007, and then fell back to 2.6 in 2008. These patterns arise largely because those who are older or have college degrees have generally been much more exposed to fluctuations in housing and equity prices.

The trends in household assets and debt taken separately have been far more pronounced than the trend in net wealth. Table 2 shows that the median ratio of assets (excluding retirement assets in IRAs and thrift-type plans) to income has climbed from 2.1 in 1962 to 2.2 in 1983 and 2.9 in 2008. Across the distribution, assets remain considerably higher relative to income than in the early 1960s and early 1980s, even given recent declines. Meanwhile, the median ratio of debt to income has risen from 0.1 in 1962 and 1983 to 0.3 in 1995 and 0.6 in 2008. A fair share of households continues to hold no debt, although debt has grown quite dramatically for some other households; those in the 90th percentile of debt relative to income now have debt more than triple their

income, up two-fold from levels of 25 years ago. The increase in indebtedness is much more pronounced since 1995 than in the preceding three decades.

The Rise in Household Debt and Its Implications for Economic Security

The preceding section documented the substantial increase in household debt relative to income during the past several decades and especially since 1995. What caused this rise in debt, and how does it matter?

Factors Contributing to Greater Indebtedness

Various competing explanations for the increase in U.S. household indebtedness are explored by Dynan and Kohn (2007). They present attitudinal data from surveys of households that suggest that household tastes, such as impatience or risk aversion, have not changed in a way that would explain the rise in debt. Survey data also suggest that household expectations of future income have not risen in a way that would induce households to borrow more in order to finance a higher level of current consumption. In addition, the net change in interest rates over time appears too small to explain much of the secular accumulation of debt. Finally, an increase in borrowing related to reduced precautionary saving seems unlikely given that Dynan, Elmendorf, and Sichel (2007) estimate that income volatility at the household level has increased over time.

Dynan and Kohn (2007) do find that demographics—the movement of the baby boomers into higher borrowing years and the greater educational attainment of the U.S. population—may have contributed to a boost in indebtedness. Economic theory suggests

that aggregate borrowing will tend to be higher if a greater share of the population is young or facing a more steeply sloped lifecycle income path (which in turn could result from the greater educational attainment of the U.S. population given historical differences in the lifecycle income patterns of different education groups). Indeed, Dynan and Kohn show that the estimated coefficients from a regression of debt-to-income on indicator variables for waves of the Survey of Consumer Finances are smaller when age and education variables are included as covariates. Greater educational attainment—along with the increased cost of higher education—may also have boosted borrowing directly through greater use of student loans; the number of households reporting having such debt climbed from 6 percent in 1983 to 15 percent in 2007, and the median ratio of student debt to income for households with this type of debt rose from 0.1 to 0.2 over this period.

But the most important factors behind the rise in debt, argue Dynan and Kohn (2007), have probably been increasing home prices and financial innovation. With regard to home prices, most of the increase in debt is attributable to mortgage debt. Specifically, aggregate household debt has risen from about 0.6 times personal income from the 1960s through the mid-1980s to close to 1.2 times personal income in recent years, according to data from the U.S. Flow of Funds Accounts and the National Income and Product Accounts. Nearly all of this increase can be attributed to mortgage debt, with the ratio of non-mortgage household debt to personal income barely ticking up between 1960 and 2008, from 0.2 to 0.3. Of course, this pattern might reflect an increase in desired debt for reasons unrelated to housing, with mortgages simply being the preferred form of debt, particularly after the Tax Reform Act of 1986 disallowed tax deductions for all interest

payments other than mortgage and home equity borrowing. However, Figure 2 shows a strong correlation between the growth rate of aggregate mortgage debt and the growth rate of national home prices, which suggests that the additional mortgage debt was at least partly linked to housing.

Several factors may explain this linkage. Increases in house prices would be expected to boost borrowing by raising desired consumption through conventional wealth effects: a homeowner who experiences a capital gain on her home may not appear to be better off because she faces a higher future cost of living in that house, but if she expects to downsize and is not fully altruistic toward her descendants, she might raise her consumption. In addition, higher house prices provide homeowners with more collateral, allowing those with binding borrowing constraints to borrow more. Also, to the extent that households take recent returns as an indication of future returns, high house price growth in the last decade or so may have stimulated borrowing in order to “invest” in such assets.

Assessing the role of financial innovation in the rise in indebtedness is difficult, because innovation has taken many forms and, in many cases, occurred gradually over time. Technological advances that made it easier for lenders to collect and disseminate information on the creditworthiness of prospective borrowers and new techniques for using this information to determine underwriting standards and manage risks rates have offered more households access to credit and also increased the amount of credit available and decreased its cost for those already able to borrow. Previous authors have identified the effects of some specific innovations. Adams, Einav and Levin (2009) argue that risk-based minimum payments have helped to mitigate adverse selection in the

subprime auto market, and Edelberg (2006) documents the effect of risk-based pricing on household balance sheets more broadly. Recent papers have also focused on the non-traditional mortgage products that became popular in the recent mortgage boom (for example, Mayer, Pence and Sherlund, 2009) and the implications of the rise of the payday lending industry (for example, Skiba and Tobacman, 2008). In addition, some studies (for example, Kolari, Fraser, and Anari, 1998) have found that mortgage securitization has lowered mortgage interest rates, which would be expected to raise borrowing. One might also include deregulation as a type of financial innovation. For example, Dick and Lehnert (forthcoming) argue that a key factor behind the expansion of credit card lending in the 1980s and 1990s was the relaxation of state bank entry restrictions, which increased competition and prompted banks to take advantage of technological innovation.³

Consistent with the incremental and thorough-going nature of financial innovation, increases in borrowing have been gradual over time and widespread across demographic groups. Figure 3 shows that median debt-to-income ratios have risen for all age groups, all education groups, homeowners and non-homeowners, and low-, medium-, and high-income households over the past quarter-century. In addition, Dynan and Kohn (2007), present evidence that observable factors such as house prices and demographics cannot fully explain the steady uptrend in indebtedness over successive waves of the Survey of Consumer Finances from 1983 through 2004.

Financial innovation is often characterized as having led to a “democratization” of credit. Indeed, the data show a rise in the share of households having some form of debt,

³ The effects of financial innovation on debt may not be fully separable from the effects of home prices; recent papers argue that innovations in mortgage finance contributed to the run-up in house prices seen earlier this decade (for example, Mian and Sufi, forthcoming).

from 67 percent in 1962 to 70 percent in 1983 and 77 percent in 2007. Since the early 1980s, the share of households with debt increased more for lower-income households than higher-income households and considerably more for nonwhite households than for white households. However, the share of the population holding debt has increased by only 15 percent over the past half-century. If those households newly admitted to credit markets held the same amount of debt relative to income as the average borrower, they would have pushed up the aggregate debt-to-income ratio by just 15 percent, which would explain only a small portion of the more-than-twofold increase in the ratio. Thus, financial innovation appears to have been more important for total indebtedness through increasing the amount of debt held by those households who already had access to credit than through making credit available to more households.

How Greater Access to Credit Has Affected Household Economic Security

The greater access to credit that has resulted from financial innovation has had both stabilizing and destabilizing effects on households.⁴ On the positive side, the expansion of credit card lending and the greater ease with which households can access accumulated home equity through lines of credit and cash-out refinancing transactions mean that more households should be able to smooth their consumption across time. Dynan, Elmendorf, and Sichel (2006) estimate that the aggregate marginal propensity to consume out of current income has fallen substantially in the past few decades and that the sensitivity of consumption to unusual declines in income has fallen much more than that for unusual increases—as would be the case if a reduction in credit constraints were

⁴ In principle, financial innovation can be stabilizing or destabilizing for the economy as a whole, and Dynan, Elmendorf, and Sichel (2006), my coauthors and I argue that ascertaining the net effect is an empirical question.

the cause of the change. In addition, the development of better ways for lenders to assess and manage risk has likely allowed younger households to borrow more to smooth consumption over the lifecycle. For example, Gerardi, Rosen, and Willen (forthcoming) present results suggesting that mortgage innovation has increased the capacity of young households to purchase homes that are more in line with their expected future incomes.

However, greater access to credit has also increased the risks faced by many households. All else equal, households that borrow more must make higher payments each month to service their debt. If households do not understand their commitments, or unexpectedly find that their income has fallen or that their spending needs have risen, they may not be able to meet their obligations. Late payments will generally tarnish households' credit records and impair future access to credit, and may ultimately lead to loss of property (if any) securing a debt. Greater access to credit may also expose households to more risk by making it easier to finance assets that are expected (perhaps unrealistically) to yield high returns.

One manifestation of this risk is the increase in the share of income devoted to required debt payments. The median "debt service ratio" among all households rose from 5 percent in 1983 to 10 percent in 1995 and 13 percent in 2007. Moreover, the share of households with debt service obligations that exceeded 40 percent of income rose from 4 percent in 1983 to 11 percent in 2007. Such households are more likely to have problems paying their debt; on average, since the Survey of Consumer Finances began asking about late payments in 1989, 12 percent of such households reported having been 60 or more days late on a required debt payment over the preceding year, compared with 7 percent of all households holding debt.

The recent mortgage boom and bust provides a vivid example of how changing credit supply can put some households at greater risk. Dramatic mortgage innovations in the middle part of this decade allowed more households to become homeowners and permitted those who already had access to the housing market to purchase larger homes. Mortgage originators relaxed underwriting standards notably from 2003 to 2006, increasingly extending mortgages with low or no down payments to households that had weak credit histories or did not fully document their income (Mayer, Pence, and Sherlund, 2009). Many of these loans had low initial interest rates that reset to market rates after a couple of years, thereby resulting in a significant increase in monthly payments. Other so-called “negative amortization” loans allowed borrowers to make payments that were less than the interest owed on the loans, with the shortfalls made up through increases in the loans’ principal.

Why did households and lenders enter into such arrangements? Although predatory lending practices no doubt played some role, many market participants appear to have been confident that house prices would continue on the (at times steep) upward trajectory seen in the first half of this decade, providing a cushion of home equity for borrowers that might otherwise struggle to make payments. Although this presumption may seem unrealistic in light of contemporaneous estimates that housing was already overvalued, and substantially so in some parts of the country, Gerardi, Lehnert, Sherlund, and Willen (2008) document that even well-informed Wall Street analysts viewed a substantial decline in house prices as extremely unlikely.⁵ In addition, the longer-term shift toward mortgage securitization, and away from lenders keeping the loans they made

⁵ Likewise, Himmelberg, Mayer, and Sinai (2005) argue in this journal that housing did not appear to be overvalued in most cities in 2004.

on their books, had reduced incentives for loan originators to underwrite carefully and to invest in gathering information about borrowers (for example, Keys, Mukherjee, Seru, and Vig, forthcoming). Moreover, originators and investors seem to have become more comfortable lending aggressively given that delinquency rates, even on higher-risk mortgages, had been extremely low in the early 2000s as a consequence of low interest rates, strong macroeconomic conditions, and rapid house price appreciation.

By 2006, however, house prices were decelerating sharply in most parts of the country and beginning to decline in some. Many borrowers were left with insufficient housing equity to qualify for refinancing or to extract equity to help fund mortgage payments. Homeowners increasingly had problems meeting mortgage obligations, and delinquency rates and foreclosure rates turned up markedly. In its initial stages, the negative effects of the mortgage crisis on households were limited largely to those who had taken on particularly large risks in their choice of homes and mortgages.

Subsequently, though, a much larger group was affected. Rising delinquency rates led lenders to tighten standards, which made it more difficult for borrowers to refinance or extract equity; this in turn put additional upward pressure on delinquencies. This adverse feedback loop was an important factor contributing to the financial crisis that began in mid-2007, as well as the widespread credit crunch and recession that soon followed. A key lesson is that innovations expanding credit supply may not only allow households to taken on larger direct risks, but to the extent that risk-taking is correlated across households, expanding credit may also lead to broader negative consequences when many risk-takers experience adverse outcomes at the same time.

Yet even the recent crisis does not imply that easier access to credit is always destabilizing for households. Figure 4 plots household debt relative to income around the last two business cycle peaks, as dated by the National Bureau of Economic Research, as well as the average for the preceding four peaks in 1969, 1973, 1981, and 1990 peaks (I omit the business cycle 1980 peak because the subsequent recession was so short). The thin dashed line shows that household debt expanded far faster in the recession that began in early 2001 than in earlier cycles. In the wake of a significant easing of monetary policy, low mortgage rates supported borrowing for home purchases and spurred a wave of cash-out refinancing transactions that provided funds for consumer spending; auto purchase loans also increased rapidly in response to aggressive financing programs offered by auto finance companies. The 2001 recession proved very mild, with real consumer spending slowing only modestly and real residential investment barely declining. In stark contrast, the current business cycle included a decline in household debt (the thin solid line), a dramatic drop in residential investment, a notable decline in consumer spending, and a severe recession overall. In this cycle, easy credit conditions not only spurred the initial boom, but also set the stage for a pullback by lenders that has served as an exacerbating rather than mitigating force.

Once the current business cycle is past, at least some of the expansion of credit supply that has resulted from financial innovation over the past several decades is likely to continue. To be sure, many of the nontraditional mortgage products behind the recent credit problems are unlikely to make a comeback, given stepped-up consumer protection regulation as well as lenders' and investors' now-greater understanding of the risks

involved.⁶ However, the wider availability of more-traditional credit products seems likely to persist, giving households the opportunity to smooth consumption through income shortfalls and across the lifecycle, but also creating risks of confusion and mistakes. For example, Bucks and Pence (2008) and Lusardi and Tufano (2009) have documented the difficulties that some households face in understanding the terms of loans beyond the most basic. Moreover, financial innovation will likely continue to yield new credit products that are subject to misinterpretation, particularly when first introduced.

Changes in Household Assets and their Implications

The asset side of households' balance sheets have seen three major developments over the past several decades—a larger role for housing, a shift in the locus of retirement saving, and more widespread holdings of corporate equities.

The Increased Importance of Housing

The national rate of homeownership (defined as the ratio of owner-occupied housing units to total housing units) fluctuated in a narrow range of 63 percent to 65 percent between the mid-1960s and the mid-1990s, and then it rose to 69 percent in 2004 before slipping back in the current crisis. Households have also become slightly more

⁶ Among the regulatory changes, the Federal Reserve amended Truth-in-Lending regulations in July 2008 to prohibit unfair, abusive or deceptive home mortgage lending practices and restrict certain other mortgage practices. This change is discussed at <<http://www.federalreserve.gov/newsevents/press/bcreg/20080714a.htm>>. Meanwhile, mortgage originators have been unable to securitize non-government-supported mortgages since late 2007. More recently, the Federal Reserve has adopted new rules regarding lending to households through credit cards. See <<http://www.federalreserve.gov/newsevents/press/bcreg/20090715a.htm>>.

likely to own vacation homes, as the share of housing units occupied only on a seasonal basis has risen from about 3 percent in the mid-1960s to about 4 percent now. More notably, the value of owner-occupied housing has increased considerably over time. As shown in the first column of Table 3, the median value of principal residence relative to income rose from 0.9 in 1962 to 1.2 in 1983 and 1.7 in 2008. The increases have been even more dramatic at higher points in the distribution. The 75th percentile of this ratio climbed from 2.0 to 3.4, and the 90th percentile jumped from 3.5 to 6.3.

The increase in the value of housing is attributable partly to capital gains on homes but also to households' willingness to pay more when buying houses. The median purchase price relative to income for recent homebuyers in the Survey of Consumer Finances moved up from 1.5 in 1983 to 2.8 in 2007. The increase in purchase price was most pronounced during the housing credit boom that followed the 2001 recession, although it began earlier; similarly, the rise in mortgage debt was most pronounced during the boom, but started earlier. Improved access to credit would be expected to matter most for lower-income households, and indeed, the median purchase price relative to income for recent homebuyers in the lowest third of the income distribution rose more sharply—from about three times income in 1983 to nearly six times income in 2007. However, there were notable increases for households in higher income groups as well, suggesting that financial innovation has also encouraged larger home purchases for households that already had good access to the credit market.

The increase in the value of housing on household balance sheets exposes households to larger wealth shocks from changes in home prices. Table 4 shows the reduction in wealth (expressed relative to income) that would be associated with a

20 percent decline in the price of households' principal residences for selected years; this percentage decline corresponds roughly to the drop in the LoanPerformance national house price index between its peak in mid-2006 and the end of 2008. In 1962, such a decline would have reduced the wealth of households by an amount equal to one-quarter of their annual income. By 1995, this share had increased to one-third of income, and by 2007, it had risen to one-half of income. Lower-income households have a larger exposure to home-price risk in all years and have experienced the largest increase in exposure over time.

The implications of this greater exposure of households might be mitigated if house prices had become less volatile over time. However, the recent enormous house price cycle points clearly to the contrary, as does the likely effect of financial innovation in accentuating cycles in lending and asset prices that was discussed earlier. In addition, Davis and Palumbo (2008) present evidence that the share of home prices represented by the value of land has increased significantly since the mid-1980s; they argue that the greater importance of this relatively inelastic factor raises the expected volatility of home prices.

Shift in Retirement Saving

During the past several decades, U.S. households have experienced a notable shift in their financial preparation for retirement. Again according to data from the Survey of Consumer Finances, about 25 percent of households had Individual Retirement Accounts (IRAs) or employment-based thrift-type accounts like 401(k) accounts in 1983 and more than 50 percent had them in 2007. Meanwhile, the fraction of households with rights to a

defined-benefit pension plan (other than Social Security) fell from 43 percent in 1989 to 32 percent in 2007. The Survey of Consumer Finances did not include the question about rights to a defined-benefit plan prior to 1989, but Aaronson and Coronado (2005) and other researchers document that this trend began earlier. A long literature explores various factors contributing to the shift away from defined-benefits plans and toward defined-contribution plans, including regulatory changes, technological innovations, and changes in workforce characteristics.

The Surveys of Consumer Finances do not generally include comprehensive data on expected payments from defined-benefit plans, which would be needed to estimate the value of retirement wealth associated with such plans.⁷ They do have information about the value of assets in defined-contribution accounts, however. The median value of assets in IRAs and thrift-type accounts relative to income, for households that held such accounts, rose steadily from 0.1 in 1983 to more than 0.6 in 2007, before falling back to roughly 0.5 in 2008.

The shift toward retirement saving through defined contribution pensions has given households more control over the amount and allocation of their retirement savings, but it also accentuates several types of risk for households. First, households may not save the optimal amount for retirement. The considerable literature on life-cycle saving decisions and the role of defaults in household decision-making (for example, Beshears, Choi, Laibson and Madrian, 2008) suggests that a significant number of households may make this decision based on simplistic rules of thumb or the default options offered by employers, leaving considerable room for error.

⁷ The Flow of Funds accounts provide information about the aggregate value of assets in defined benefit plans, but such figures are not very illuminating for this purpose as they are influenced by demographics and the degree to which the future liabilities of such plans are funded.

Second, the move toward defined-contribution plans means that households face greater risk associated with uncertainty about their length of life. A defined-benefit plan typically provides a payment (granted, not always adjusted for inflation or completely secure) until death. In contrast, individuals who wish to convert the accumulated assets from a defined-contribution plan into an annuity have been hampered by severe limitations in the products offered in U.S. annuities markets, even though some progress has been made in recent years (Brown, 2007).

Third, although households may be better able to reap the expected benefits of stock market participation, they are also more exposed to downside risk. In defined-benefit plans, declines in equity prices are borne by the shareholders and the current workers of firms providing these plans, or (for worse outcomes) by taxpayers through the Pension Benefit Guaranty Corporation; in defined-contribution plans, those declines are borne by the account holders. Holdings of defined-contribution assets are concentrated among workers that are close to or in retirement, and these workers generally have less scope than current workers to respond to price declines by increasing work effort or saving. Also, because those with defined-contribution benefit plans generally have lower income and wealth than other shareholders, they face larger losses in well-being from given declines in equity-related wealth. Averaging across all households, close to 60 percent of the amount in defined-contribution accounts in 2007 was invested in equities.

Of course, defined-benefit pensions are not without risk. Benefits are often not adjusted for inflation. In addition, managers invest a good share of the assets of these plans in risky instruments; according to the U.S. Flow of Funds Accounts, directly held equities and mutual funds accounted for a little more than half of the assets in defined-

benefit plans at the end of 2007. Plans are generally insured by the Pension Benefit Guaranty Corporation, but when companies go bankrupt, workers may not receive their full expected payments. Moreover, defined-benefit plans carry risk associated with job changes. Because defined-benefit plans are generally not portable, and because the rate at which benefits accumulate generally rises with tenure, workers who switch jobs often fail to qualify for a defined benefit plan or receive substantially less benefits than workers who spend their careers working for just one employer. Still, it seems probable that the shift from defined-benefit to defined-contribution pension plans has increased the risk faced by many (particularly less financially sophisticated) households.

Greater Holdings of Equities

Financial innovation has made it easier for households to invest in risky assets more broadly, both by opening new types of investments to typical households and by allowing households to borrow more and invest on a more-leveraged basis. Table 5 documents the share of households holding equity, including both direct ownership and indirect ownership through mutual funds, retirement assets, and other managed accounts. The share rose rapidly between 1989 (the first year for which we have such data) and 2001, and has since held roughly steady at around 50 percent. Some of the uptrend reflects the effects of the shift to defined contribution pension plans just discussed, but even outside of such assets, the share of households holding equities rose from about one-fifth to about one-third at its peak in 2001, before falling back to one-quarter more recently.

Although households with higher income are far more likely to hold equities, all income groups saw a marked increase in the propensity to hold non-retirement-account equity in the 1990s, albeit with some reversal of this trend in the current decade. For households with non-retirement-account equity holdings, median holdings amounted to one-fifth of income in 1989 and rose to close to one-half of income in 2001. However, median non-retirement-account equity holdings trended down thereafter, dropping to about 0.3 times income in 2007 and an estimated 0.2 times income in 2008—that is, back to the level seen in 1989.

Discussion

During the past several decades—and especially since the mid-1990s—an expansion of financial opportunities allowed households to pursue a path that exposed many of them to greater risk. This path included significantly greater indebtedness, much higher debt payments relative to income, and substantially greater exposure to swings in housing and equity prices.

These trends appear to have reversed to some extent in the past year or so. Aggregate outstanding mortgage debt contracted in 2008 and early 2009, the first declines seen in more than 50 years. Subprime mortgages from private lenders have been essentially unavailable since 2007, although some higher-risk borrowers have been able to turn to Federal Housing Administration programs to obtain mortgages. The growth of aggregate non-mortgage household credit has slowed dramatically over the past year, and the saving rate jumped to over 4 percent in the first half of 2009, from roughly 2 percent

between 2005 and 2007. Households are, of course, less exposed to stock price swings now that stock price declines have pushed down the value of their holdings; further, equity mutual funds saw large outflows in 2008, suggesting that households are actively reallocating their wealth away from the stock market.

It is too early to know what imprint the current crisis will leave on household balance sheets in the long run. However, we suspect that households' exposure to risk will remain lower than that seen a few years ago. On the liability side of the balance sheet, households are likely to be reluctant to take on large amounts of debt in the light of the vivid lesson many have received about the risk associated with high leverage. Likewise, lenders and regulators have learned more about the dangers of overly easy lending and are likely to keep the supply of credit more restricted than it was just prior to the crisis. On the asset side of the household balance sheet, precautionary saving is likely to rise and stockholdings may fall among some households. All of these factors combined with the sharp loss in household wealth might lead to a considerably higher saving rate.

To be sure, these adjustments to the household financial environment and household choices might be taken too far. A more restrictive supply of credit and less willingness to use credit would diminish the degree to which households smooth their consumption, both through business-cycle disruptions to income and over the lifecycle; meanwhile, households who choose to reduce their exposure to stock market fluctuations would not reap the expected long-term gains from holding some wealth in stocks. The best outcome would be to achieve an appropriate balance, with better-informed households and appropriate regulation enabling households to benefit from the more-

beneficial aspects of greater financial opportunities while being protected from the more-harmful aspects.

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Table 1
Household Net Worth Relative to Income

	Total	Excluding Assets in IRAs and Thrift-type Pension Plans				
	Median	Median	10 th percentile	25 th percentile	75 th percentile	90 th percentile
1962	1.30	1.28	0.00	0.20	3.65	8.61
1983	1.55	1.50	0.02	0.32	3.78	8.00
1989	1.72	1.52	0.00	0.27	4.27	9.36
1992	1.71	1.48	0.00	0.29	4.40	9.53
1995	1.69	1.39	0.00	0.34	4.12	9.39
1998	1.93	1.51	0.00	0.29	4.53	9.61
2001	2.04	1.56	0.00	0.34	4.86	10.99
2004	2.12	1.67	0.00	0.33	4.87	10.75
2007	2.28	1.72	0.00	0.31	5.12	11.53
2008	1.73	1.26	-0.09	0.20	4.14	9.27

Source. 1962 Survey of Financial Characteristics of Consumers, 1983-2007 Surveys of Consumer Finances, and authors' calculations for 2008.

Table 2
Household Assets and Debt Relative to Income

Assets (Excl. IRA/Thrift Assets) Relative to Income					
	Median	10 th percentile	25 th percentile	75 th percentile	90 th percentile
1962	2.06	0.07	0.46	4.21	9.27
1983	2.18	0.11	0.51	4.70	8.87
1989	2.37	0.10	0.57	5.37	10.43
1992	2.40	0.12	0.66	5.64	10.92
1995	2.52	0.17	0.79	5.80	11.12
1998	2.67	0.17	0.96	6.33	11.67
2001	2.75	0.18	0.99	6.93	13.45
2004	3.17	0.19	1.12	7.29	13.44
2007	3.29	0.18	1.12	7.96	14.57
2008	2.86	0.18	1.02	6.70	12.11

Debt Relative to Income					
	Median	10 th percentile	25 th percentile	75 th percentile	90 th percentile
1962	0.14	0.00	0.00	0.77	1.54
1983	0.14	0.00	0.00	0.75	1.55
1989	0.23	0.00	0.00	0.88	1.74
1992	1.24	0.00	0.00	1.05	1.98
1995	0.31	0.00	0.00	1.19	2.26
1998	0.38	0.00	0.00	1.34	2.44
2001	0.38	0.00	0.00	1.28	2.35
2004	0.54	0.00	0.01	1.79	3.09
2007	0.61	0.00	0.01	1.89	3.29
2008	0.61	0.00	0.01	1.89	3.29

Source. 1962 Survey of Financial Characteristics of Consumers, 1983-2007 Surveys of Consumer Finances, and authors' calculations for 2008.

Table 3
Value of Households' Principal Residence Relative to Income

	Median	75 th percentile	90 th percentile
1962	0.88	2.02	3.50
1983	1.18	2.40	4.31
1989	1.15	2.71	4.93
1992	1.27	2.79	5.14
1995	1.34	2.75	5.26
1998	1.40	2.87	5.21
2001	1.50	2.92	5.50
2004	1.88	3.73	6.47
2007	2.05	4.05	7.44
2008	1.73	3.43	6.29

Source and note: 1962 Survey of Financial Characteristics of Consumers, 1983-2007 Surveys of Consumer Finances, and authors' calculations for 2008. We do not have similar figures for all holdings of residential real estate by households, as vacation homes were included with investment real estate prior to 1989.

Table 4
Change in Wealth Implied by a 20% Decline in Value of the Principal Residence
Expressed as a Fraction of Income

	1962	1983	1995	2007
All Households	-.25	-.30	-.33	-.49
Lowest Income Third	-.40	-.46	-.57	-.77
Middle Income Third	-.23	-.32	-.37	-.57
Highest Income Third	-.23	-.28	-.29	-.45

Source. 1962 Survey of Financial Characteristics of Consumers; 1983, 1995, 2007 Surveys of Consumer Finances.

Table 5
Share of Households Holding Equity

	Any Equity	Equity Outside of IRAs and Thrift-type Accounts			
	All HHs	All HHs	Lowest Income Third	Middle Income Third	Highest Income Third
1989	31.9	21.0	4.8	17.2	41.1
1992	36.8	22.1	7.5	18.5	40.9
1995	40.6	23.2	7.5	21.1	41.6
1998	49.3	29.4	9.6	26.9	52.5
2001	52.4	31.6	10.5	30.3	54.1
2004	50.3	30.0	10.4	26.7	53.4
2007	51.1	26.8	9.9	22.8	48.0

Source. 1989-2007 Surveys of Consumer Finances.