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HOW HAS THE FINANCIAL CRISIS AFFECTED THE CONSUMPTION OF RETIREES?

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Introduction

Despite the recovery of the stock market since the financial crisis, many retirees have seen significant reductions in their wealth relative to pre-crisis expectations and substantial declines in investment income due to very low short-term interest rates. What really matters, though, is the impact of the crisis on retirement consumption.

This *brief* updates a recent study which found that the crisis had little effect on the consumption of retirees with either very small or very large amounts of financial assets.[1] In contrast, the broad middle class did suffer a drop in consumption. Some of these households invest mostly in short-term deposits while others invest in a broader range of assets. Some attempt to live off the interest and dividends, while others follow the life-cycle model and draw down their wealth during retirement.[2]

The discussion proceeds as follows. The first section describes the impact of the crisis on financial assets. The second section analyzes its impact on retirees' wealth and income. The third section explains how the crisis affected the consumption of two illustrative types of middle-class retirees. The final section concludes that although life-cycle investors in balanced portfolios experienced relatively modest declines in consumption, the reductions for those attempting to live off the interest on short-term deposits were much greater. The results of the analysis for these specific behaviors, though, represent extremes – most people lie somewhere in between.

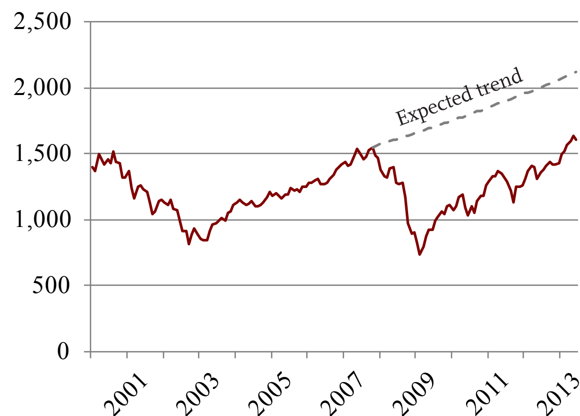
Impact of Financial Crisis on Financial Assets

The financial crisis had varying effects on stocks, short-term deposits, and long-term bonds.

Stocks

As shown in Figure 1, the stock market declined dramatically from October 2007 to March 2009 and then gradually recovered its pre-crisis peak. But the

Figure 1. S&P 500 Index, Actual and Expected, 2000-2013



Note: Expected trend assumes a 5.5 percent nominal capital return from October 2007 to June 2013.
Sources: Standard & Poor's (2013); and authors' calculations.

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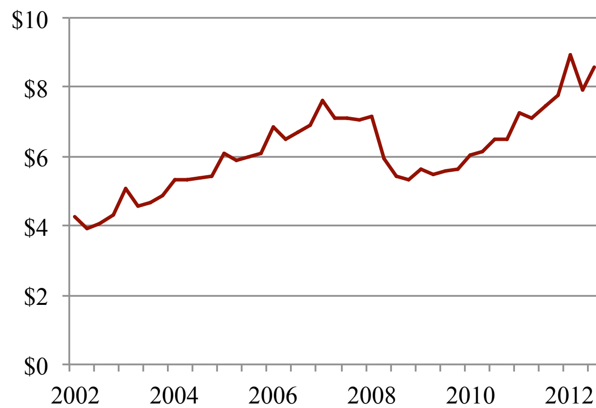
true measure of the decline is relative to pre-crisis expectations of continued increases in stock prices, as shown by the dashed line in the figure. By June 30, 2013, stock prices were 24 percent below the level that might have been expected from the vantage point of October 2007.

In contrast, after a blip, dividend payments on stocks recovered to hit record highs (see Figure 2), as have corporate profits.

Figure 2. Quarterly Dividends on S&P 500: 2002Q4-2013Q2

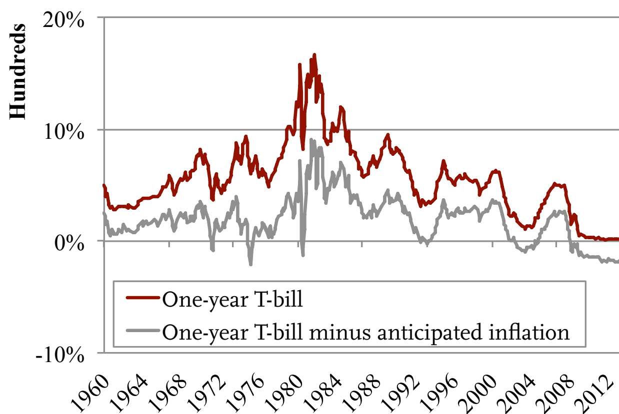


Source: Standard & Poor's (2013).

Short-term deposits

Short-term interest rates – both nominal and real – plunged in the aftermath of the financial crisis and have remained at depressed levels (see Figure 3).

Figure 3. Nominal and Real Short-Term Interest Rates, 1960-2013



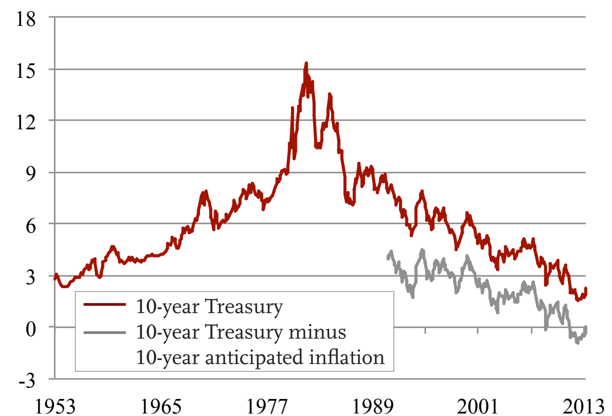
Sources: Federal Reserve Bank of St. Louis (2013); Federal Reserve Bank of Philadelphia (2013); and authors' calculations.

Households are experiencing the first extended period of negative real short-term rates in more than 50 years. Moreover, the stance of the Federal Reserve and prices in financial markets are consistent with rates remaining historically low for the next several years.

Long-term bonds

Long-term interest rates also declined (see Figure 4). This decline had little immediate impact on the incomes of bondholders. They continued to receive interest payments, while the capital value of their bonds increased, mirroring the decline in interest rates. Bondholders will suffer declines in income only if long-term rates are still depressed when their bonds mature. Long-term rates have recovered somewhat, reflecting the economic recovery and the prospect that the Federal Reserve may taper bond purchases, but are not yet back to pre-crisis levels.

Figure 4. 10-Year Treasury Constant Maturity Rate, 1953-2013



Source: Federal Reserve Bank of St. Louis (2013).

Impact of Financial Crisis by Wealth Level

Financial wealth is highly unequally distributed, with many households holding virtually no financial assets and a small minority holding very large amounts. Wealthy retirees hold much larger percentages of their assets in stocks, while those in the middle of the wealth distribution hold more in short-term deposits. The wealthy are also relatively more dependent on investment income to finance their post-retirement consumption.

Table 1. Wealth, Asset Allocations, and Changes in Wealth, Households Age 60-69, 2007

Item	Wealth quintile				
	Lowest	2	3	4	Highest
Mean financial assets (2007)	$31	$2,918	$33,876	$161,852	$903,213
Asset allocation (2007)					
Short-term deposits	100%	77%	45%	30%	15%
Bonds	0	5	12	13	13
Stocks	0	18	43	57	72
Actual change in wealth (nominal)					
Oct. 07-March 09	0	-9	-21	-29	-36
Oct. 07-June 13	0	3	6	7	7
Anticipated change in wealth (nominal)					
Oct. 07-June 13	0	6	15	20	25

Sources: Authors' calculations based on Standard & Poor's (2013); FINRA-Bloomberg (2013); Wilshire Associates (2013); and University of Michigan, *Health and Retirement Study* (HRS) (2008).

Table 1 reports October 2007 financial assets and asset allocation by wealth quintile for households aged 60-69 in October 2007. It also reports: 1) the average nominal percentage decline in financial assets between October 2007 and the market trough of March 2009; 2) the average nominal percentage increase from October 2007-June 2013; and 3) the average nominal percentage increase from October 2007-June 2013 that households might have expected, given historic returns.[3]

The bottom two quintiles had almost no financial assets, and experienced negligible losses in both percentage and dollar terms. The top quintile had the largest percentage of its financial assets in stocks, and experienced the largest percentage decline during the crisis, but the strongest recovery thereafter. Although stock prices have now surpassed pre-crisis levels, returns on stocks over the period 2007-2013 have been dismal, relative to a counterfactual of anticipated returns. During the above period, the Consumer Price Index increased by 11.8 percent, so the average household in all wealth quintiles experienced a decline in real financial wealth.

Table 2 reports the loss in investment income from 2007-2013 and the decline as a percent of total income for the same wealth quintiles. For the bottom two quintiles, investment income accounts for only a sliver of their total income, so the change in their total income was miniscule. The top three quintiles experienced almost identical declines as a percent of total income, reflecting the offsetting effects of wealthy households' greater reliance on, and smaller declines in, investment income.

Table 2. Reduction in Investment Income, 2007-2013, Households Age 60-69

Item	Wealth quintile				
	Lowest	2	3	4	Highest
Reduction in investment income	$1	$87	$553	$1,556	$3,022
As percent of 2007 total income	0	1	6	6	6

Note: Households are age 60-69 in 2007.
Sources: Authors' calculations based on the 2008 HRS; Standard & Poor's (2013); and Federal Reserve Bank of St. Louis (2013).

Impact of Financial Crisis on Post-Retirement Consumption

The impact of declines in stock prices and interest rates on retirees' consumption depends on the amount and composition of their financial assets, whether they plan to consume those assets during the course of their retirement, and the extent to which they rely on those assets to finance their consumption.

Roughly half of households were unaffected by the financial crisis. These are mostly households in the bottom two wealth quintiles who rely mainly on Social Security. But this group also includes households with generous defined benefit pensions who had little need to accumulate financial assets for retirement. It also includes a much smaller group of wealthy households, approximately the top 5 percent, who intend to pass on their assets to the next generation. These wealthy households invest mostly in stocks and long-term bonds. On balance, the dividend payments they receive from stocks will largely offset the reductions in bond interest as their existing holdings mature and are reinvested at lower interest rates. And any decline in the market value of their investments is irrelevant, because they have no plans to sell.

The other half of households, who are part of the broad middle class, were not so fortunate. Some of these households invest mainly in short-term deposits, whereas others hold a balanced portfolio including stocks and bonds. Some attempt to live off the interest, whereas others are life-cycle savers drawing down their capital during retirement. In the following discussion, for illustrative purposes, we consider those who were most affected – those attempting to live off the interest on short-term deposits – and those who were least affected – life-cycle investors in balanced portfolios. These represent extremes of both investment and drawdown behavior.[4] Most middle-class households lie between these extremes.

Households living off the interest on short-term deposits

As short-term interest rates went close to zero, households living off the interest on short-term deposits saw the almost total elimination of their investment income and adjusted their consumption accordingly. As an example, a household with $100,000 in short-term deposits would have earned and spent interest of $4,100 in 2007. As the crisis took hold and the Federal Reserve cut interest rates, their income and consumption from investments would have declined to $640 a year by March 2009, and $150 a year by June 2013. Eventually, short-term interest rates may well recover to pre-crisis levels. But, in any case, these households will likely spend a considerable part of their retirement years with only minimal income from their savings.

Life-cycle investors in balanced portfolios

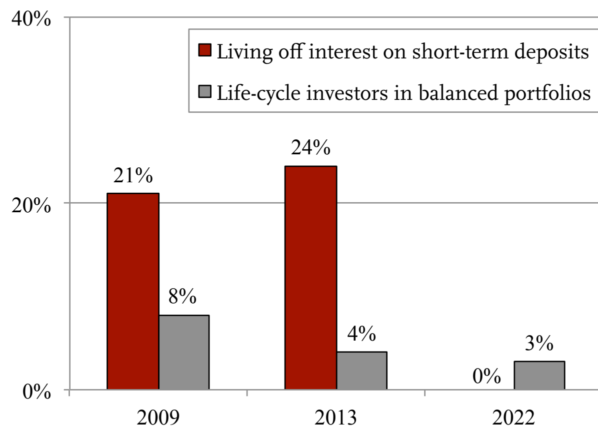
These households lack a strong bequest motive and follow the life-cycle model of savings behavior; they gradually decumulate their assets during the course of retirement. In our analysis, they are assumed to optimally allocate their wealth between stocks and both long- and short-term bonds. Stocks provide a higher expected return than that obtainable on risk-free assets, while long-term bonds provide a guaranteed income stream. These households revise their consumption each year to reflect the performance of their investments. Additionally, in 2009, at the nadir of the crisis, and in 2013, when stock prices have returned to pre-crisis levels, these households also reassess the prospects for interest rates and returns on stocks. (See the appendix for additional details on the methodology.)

The results of this exercise show that, by March 2009, consumption from investments was 21 percent below that anticipated before the crisis. These households were partially protected by their holdings of long-term bonds, which continued to pay interest during the crisis. By June 2013, consumption from investments was only 10 percent below that anticipated before the crisis, reflecting the continued recovery in stock prices. And by 2022, when these households will be 80 years old, consumption from investments will be only 7 percent below, reflecting higher anticipated post-crisis stock returns.

Comparing declines in consumption

Figure 5 (on the next page) compares the consumption declines of the two illustrative types of households – those who live off the interest on short-term deposits and those who are life-cycle investors in balanced portfolios – over three periods, each of which begins with October 2007. The percentage declines in total consumption will be substantially smaller than those discussed above because most households rely

Figure 5. Percent Reduction in Consumption Relative to 2007 Expectations for Two Illustrative Types of Households, 2009, 2013, and 2022



Source: Authors' calculations.

on Social Security for a substantial proportion of their spending. The comparison is for households in the fourth wealth quintile, who have significant amounts of financial assets but rely on investments for only one-quarter to one-third of total consumption. And the results in the figure represent the high and low extremes, with other middle-class households experiencing consumption losses that lie within this range.

For households living off the interest on short-term deposits, the declines are calculated relative to a baseline of October 2007 short-term interest rates. For life-cycle investors in balanced portfolios, the declines are relative to the amounts that the household anticipated consuming in March 2009, June 2013, and October 2022, given October 2007 pre-crisis expectations about stock returns and interest rates. As the figure shows, although life-cycle investors in balanced portfolios experienced significant reductions in consumption, these reductions were only a fraction of those experienced by the households living off the interest on short-term deposits.[5] However, if interest rates recover to historic norms, holders of short-term deposits will see their consumption bounce back to levels anticipated in 2007. Finally, again, most people exhibit some behavioral aspects of both of the illustrative household types, so their consumption losses will fall in between the extremes.

Conclusion

The declines in stock prices and interest rates had little effect on very poor and very rich retirees. In between – from roughly the 50th to the 95th percentile of the distribution of financial assets – are the broad mass of the middle class who rely on their investments to make the difference between living comfortably and just getting by. At one extreme are households who invest very conservatively, holding most of their financial assets in short-term deposits and attempting to live off the interest. Although they preserved their capital during the crisis, their investment income was wiped out for an extended period and will remain low until interest rates recover. At the other extreme, life-cycle investors in a balanced portfolio, who plan to draw down their investments to finance their retirement, experienced much smaller declines in consumption but large, albeit temporary, reductions in wealth. Finally, most households combine some behavioral aspects from both of the illustrative household types, so their consumption losses will be smaller than those living off the interest in short-term-deposits but larger than those life-cycle investors with a balanced portfolio.

Endnotes

1 Kopcke and Webb (2012).

2 In reality, many households may not fit neatly into the above categories. For example, a bequest motive and concerns about medical and long-term care costs may also inhibit some households from drawing down their wealth.

3 We use data from the 2008 wave of the *Health and Retirement Study* and restate stock market wealth to October 2007, assuming that households earned the average return on the Wilshire 5000 stock index and the FINRA-Bloomberg active U.S. corporate bond index between October 2007 and the date of the 2008 interview.

4 An examination of the *Health and Retirement Study* data reveals considerable heterogeneity in portfolio allocations, with some households investing exclusively in short-term deposits while others hold only small amounts of short-term deposits for transaction purposes.

5 The percentage declines in consumption differ from the percentage declines in income reported in Table 2. This is because life-cycle savers, who are drawing down wealth, and for whom investments contribute a larger share of consumption than of income, cut their consumption in response to reductions in stock prices, even though they experienced minimal reductions in income.

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APPENDIX

Appendix

This appendix briefly describes the model used to calculate the portfolio allocation and drawdown strategy of life-cycle savers. In each period, the household jointly chooses consumption and portfolio allocation between stocks and bonds. The model assumes that one-third of the household's bond portfolio is held in one-year Treasury bills. Campbell and Viceira (2002) show that there is almost no role for short-term deposits in the portfolio of a long-term investor. But we include short-term bonds in the portfolio to reflect observed behavior, which may be rational if consumption requirements are uncertain.

The household's goal is to maximize expected discounted utility by optimally trading off the risk of outliving its wealth against the cost of unnecessarily restricting consumption. Consumption will gradually decline with age, reflecting the diminishing probabilities of surviving to enjoy that consumption. The model parameters include: 1) constant relative risk aversion with a coefficient of risk aversion of five; 2) a rate of time preference of 3 percent; 3) Social Security covers basic living expenses that do not contribute to utility; 4) population mortality for the 1942 birth cohort; and 5) expected real stock returns of 5 percent in 2007, 6.5 percent in 2009, and 6 percent in 2013.

In the above model, current consumption depends on both current wealth and expected returns. At higher expected returns, households can consume more over their lifetimes, but are also more willing to postpone consumption, because current consumption is now more expensive in terms of foregone future consumption. For plausible parameter values, the former income effect is larger than the latter substitution effect.

The increase in expected stock returns from 2007-2009 reflects the view that the decline in stock prices was largely the result of an increase in the equity risk premium. Households would have consumed somewhat less in 2009 had they taken the view that the decline in stock prices largely reflected a reduction in long-run corporate profits.

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