How Has the Financial Crisis Affected the Incomes of Households Entering and in Retirement?

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The facts

- Stock prices fell by 57 percent between October 2007 and March 2009.

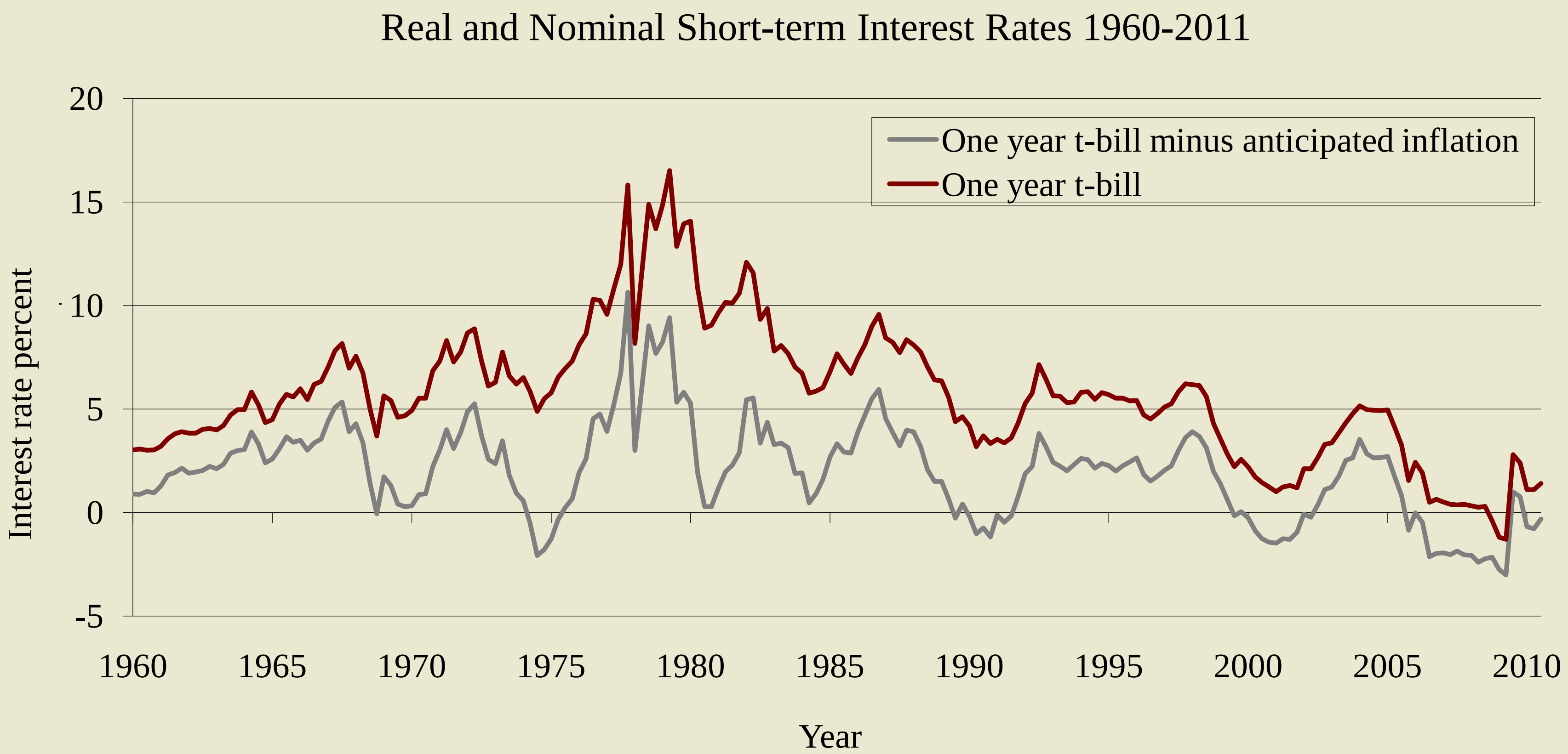
- In August 2011, they are still 24 percent below October 2007 levels.

- But this understates the loss relative to a counterfactual of expected long-run returns.

Stock returns relative to expectations

Source: Standard & Poor's. 2000-2011. "S&P 500 Index."

Nominal and real interest rates on short-term deposits have fallen to record lows.



Source: One Year Treasury Constant Maturity Rate. Federal Reserve Bank of St Louis. Consumer Price Index for All Urban Consumers, Bureau of Labor Statistics.

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Three ways of analyzing the effects of the financial crisis

- Reduction in wealth.
- Reduction in current income.
- Reduction in sustainable consumption.

Calculations based on reductions in wealth and income can mislead.

- Reduction in wealth disregards any changes in the income producing potential of that wealth.

- What matters for a household is not current income, but current <u>and</u> prospective total return.

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Reductions in wealth

- These were quite modest for most households, because most households hold large proportions of their wealth in short-term deposits. The wealthy lost most in both dollar and percentage terms because their portfolios were more heavily weighted toward stocks.

Reductions in wealth (cont'd)

October 2007 Portfolio Balances and Allocations, Households Ages 60-69

Wealth quintile	1	2	3	4	5
	Financial Assets ($)				
Stocks	0	512	14,505	93,407	647,185
Bonds	0	151	4,010	20,242	118,404
Cash	31	2,255	15,361	48,203	137,624
Total	31	2,918	33,876	161,852	903,213
	Asset Allocation (%)				
Stocks	0	18	43	58	72
Bonds	0	5	12	13	13
Cash	100	77	45	30	15
Total	100	100	100	100	100
Percentage loss of wealth to June 2011	0	2	5	7	9

Source: Authors' calculations based on *Health and Retirement Study* data.

Reductions in income

- Dividends on stocks declined only 10.6 percent, but interest rates on short-term deposits collapsed to zero.

- The wealthy experienced smaller percentage declines in investment income.

- But the declines experienced by the less wealthy were small, both in dollar terms, and as a percentage of total income.

Reductions in income (cont'd)

Reductions in Investment Income 2007-2011, Households Ages 60-69

Wealth quintile	1	2	3	4	5
Dollars	3	89	634	2,099	6,864
As percent of 2007 investment income	95	85	59	43	31
As percent of 2007 total income	0	1	7	9	15
Investment income as a percent of total income	0%	1%	12%	20%	49%

Source: Authors' calculations based on *Health and Retirement Study* data.

Reductions in sustainable consumption

Optimal strategy involves:

- focusing on total return;
- considering the distribution of prospective returns;
- decumulating wealth, trading off risk of outliving that wealth against the cost of unnecessarily restricting current consumption.

Optimal strategy (cont'd)

- We calculate an optimal decumulation and asset allocation strategy for a household age 65 in October 2007, based on October 2007 beliefs regarding investment returns.

- We assume CRRA utility.

$$C_{t,m} = \frac{(C_{t,m} + \lambda C_{t,f})^{1-\gamma}}{1-\gamma}$$

- This strategy expresses consumption as an age-varying percentage of current wealth.

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Optimal strategy (cont'd)

- We project consumption, assuming expected returns.
- We calculate actual consumption 2007-2010, given realized returns.
- In 2011, the household reassesses prospective investment returns, and recalculates its strategy.

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What were reasonable beliefs in 2007?

PE ratio was 20 – an earnings yield of 5 percent.

Reasonable beliefs might have been that:

- real stock returns were normally distributed with a mean of 5 percent and standard deviation of 18.0;
- real bond returns had a mean of 3 percent and standard deviation of 5.5 percent;
- returns on short-term deposits would remain at 2007 levels.

What were reasonable beliefs in 2007? (cont'd)

- Corporate profits have rebounded.
- PE ratio is about 13, implying an earnings yield of 6.5 percent.
- Current prices of Treasury securities imply that short-term rates will remain below 1 percent until 2014, but will surpass 4 percent by the end of 2017. This implies a real return of about 2 percent.

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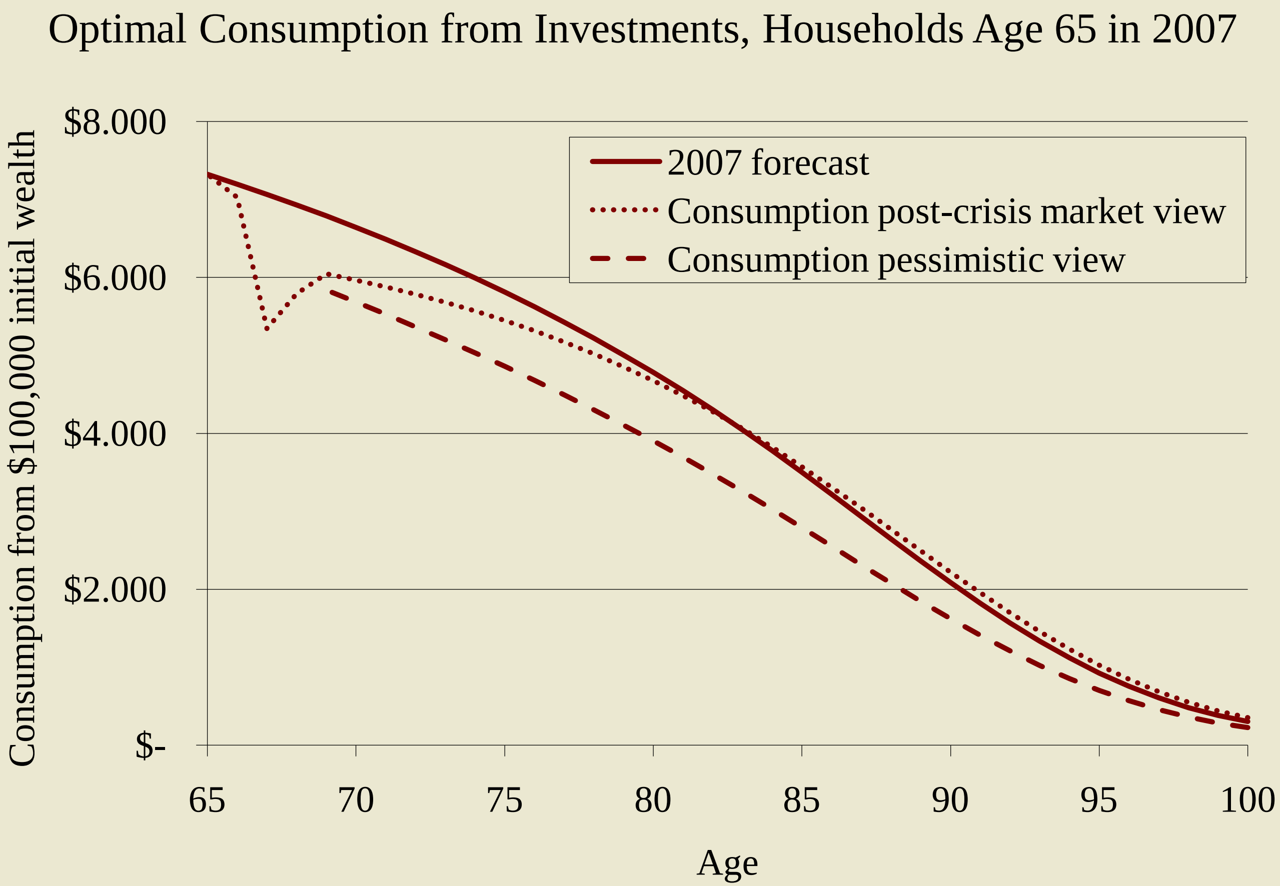
But what if the economy doesn’t recover as expected?

- Short-term interest rates might remain low for an extended period.
- But prospective stock returns of as low as 5 percent would require a substantial and prolonged decline in GDP and/or corporate profit share of GDP.

Optimal consumption from financial assets pre-and post-crisis



Source: Authors' calculations.

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Optimal total consumption pre-and post-crisis

Percentage Reductions in Optimal Consumption 2007-2011

Wealth quintile	1	2	3	4	5
	Percentage reduction in optimal consumption from financial assets				
Market outlook	6	5	9	13	15
Pessimistic outlook	9	7	12	16	18
	Percentage reduction in total consumption				
Market outlook	0	0	1	3	7
Pessimistic outlook	0	0	1	3	9

Source: Authors' calculations.

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Conclusions

- The bottom 40 percent had nothing and lost nothing.
- Most households hold large proportions of their financial assets in short-term deposits. This protected them against reductions in stock prices, but resulted in substantial declines in investment income.
- The wealthy hold larger proportions of their wealth in stocks and depend more on financial assets to fund post-retirement consumption. They were hit hardest by the crisis.
- The reductions in wealth and current income are partially offset by increases in prospective returns.

Lessons for the future

- Households can have a guaranteed return of capital, or a guaranteed return on capital, but not both. The latter is arguably more valuable.

- If the optimal stock-bond portfolio allocation at age 64 is 50:50, it is unlikely to be optimal to invest everything in a fixed annuity at age 65. Why is the market for variable immediate annuities so small?

- Stock returns are not normally distributed. Why do models of optimal wealth decumulation (mine included!) continue to assume normality?