NOTES

1 The Elusive Goal of a Secure Retirement

1. All quotes taken from *Retirement Security 2015: Roadmap for Policy Makers: Americans' Views of the Retirement Crisis*, a biennial public opinion research conducted by the National Institute on Retirement Security and Greenwald & Associates, March 2015.
2. Katherine Porter, "The Damage of Debt," *Washington and Lee Law Review* 69, no. 2 (2012); Claire M. Renzetti, "Economic Stress and Domestic Violence" (Harrisburg, PA: VAWnet, a project of the National Resource Center on Domestic Violence, September, 2009).
3. Christian E. Weller, "Raising the Retirement Age for Social Security: Implications for Low Wage, Minority, and Female Workers" (Washington, DC: Center for American Progress, 2005); Monique Morrissey, "Beyond 'Normal' Raising the Retirement Age Is the Wrong Approach for Social Security," EPI Briefing Paper no. 287 (Washington, DC: Economic Policy Institute, 2011); Maria Heidkamp, William Mabe, and Barbara DeGraaf, "The Public Workforce System: Serving Older Job Seekers and the Disability Implications of an Aging Workforce" (New Brunswick, NJ: NTAR Leadership Center, John J. Heldrich Center for Workforce Development, 2012).
4. There is one corporate governance argument that links rising labor and financial market risks with increasing risk exposure. Addressing the causes of macroeconomic fluctuations in addition to discussing policies to improve household risk protections is beyond the scope of this book. See William Lazonick, "Labor in the Twenty-First Century: The Top 0.1% and the Disappearing Middle Class," in Christian E. Weller, ed., *Inequality, Uncertainty and Opportunity: The Varied and Growing Role of Finance in Labor Relations* (Ithaca, NY: Cornell University Press, 2015).
5. See Christian E. Weller and David Madland, "Keep Calm and Muddle Through" (Washington, DC: Center for American Progress, 2014) for a more detailed discussion of the consequences of inadequate retirement savings.
6. For a summary of John Maynard Keynes's discussion of savings motives, see Martin Browning and Annamaria Lusardi, "Household Saving: Micro Theories and Macro Facts," *Journal of Economic Literature* 34, no. 4 (1996): 1797–1855.
7. See Camilo Mondragon-Velez, "How Does Middle-Class Financial Health Affect Entrepreneurship in America?" (Washington, DC: Center for American Progress, May 2015), for some of the relevant literature and for data on the importance of household savings for the growth of entrepreneurship among older households.
8. This is merely an illustrative example. The specific savings needs will differ by household characteristics. For details and a discussion of some of the relevant factors determining required savings, see Fidelity Brokerage Services, "'How Much Do You Need to Retire?' Fidelity Viewpoints" (Smithfield, RI: Fidelity Brokerage Services, January 30, 2014),

accessed May 4, 2015, https://www.fidelity.com/viewpoints/retirement/8X-retirement-savings

9. Fidelity Brokerage Services, "How Much Do You Need to Retire?"
10. Combining these four savings forms—Social Security, DB pensions, financial assets, and nonfinancial assets—often feels strange because the way these savings are reported is not directly comparable. Benefits from Social Security and DB pensions are generally expressed as expected future payments, while savings in financial and nonfinancial assets is expressed as lump sums. A typical DB pension benefit will be something like 1.5 percent times the number of years of service times an employee's final pay. Someone who retires with a salary of $50,000 after 20 years working for a company with a DB pension in this example will receive $15,000 each year or $1,250 each month for the rest of her life. In comparison, the value of a 401(k), IRA, or house is reported as one single lump sum, not as a stream of future payments. Researchers often convert expected Social Security and DB pension benefits into a lump sum. To express future expected benefit payments as a lump sum, one first needs to estimate the monthly benefit one can expect to receive from Social Security or a DB pension. Assuming a retirement age of 67 years and maximum life expectancy, researchers can then calculate how much income a beneficiary will receive from this particular source over the course of a life time. Using a calculation called discounting, researchers can figure the amount a household would need to set aside today (or at any point in time) to generate, together with expected future incomes, this stream of future income payments. Researchers can then express all forms of savings in a similar way, making them comparable with each other. See Christian E. Weller and Edward Wolff, *Retirement Security: The Particular Role of Social Security* (Washington, DC: Economic Policy Institute, 2005), for a description of one methodology to convert expected Social Security and DB pension benefits into lump sums.
11. Social Security Administration, "Retirement Benefits," SSA Publication No. 05–10035 (Washington, DC: Social Security Administration, January 2015), 6, http://www.ssa.gov/pubs/EN-05-10035.pdf; *Social Security Amendments of 1983*, H.R. 1900/P.L. 98–21, 98th Congress (1983).
12. Jennifer M. Ortman, Victoria A. Velkoff, and Howard Hogan, "An Aging Nation: The Older Population in the United States. Population Estimates and Projections, Current Population Reports" (Washington, DC: US Census Bureau, 2014), accessed on May 7, 2014, http://www.census.gov/prod/2014pubs/p25-1140.pdf
13. Joseph E. Stiglitz, *The Price of Inequality: How Today's Divided Society Endangers Our Future* (New York, NY: W. W. Norton & Company, Inc., 2013), liv–lv, 45–46, 137.
14. Pension Protection Act of 2006, H.R. 4/P.L. 109–280, 109th Congress (2006).
15. "Regulation Relating to Qualified Default Investment Alternatives in Participant-Directed Account Plans," US Department of Labor, Employee Benefits Security Administration, Fact Sheet (Washington, DC: EBSA, April 2008), accessed October 20, 2014, http://www.dol.gov/ebsa/pdf/fsQDIA.pdf; "Field Assistance Bulletin No. 2008–03" (Washington, DC: EBSA, April 2008), accessed October 20, 2014, http://www.dol.gov/ebsa/pdf/fab2008-3.pdf
16. This is not a question of the size of the welfare, to be clear, but rather a question of the balance between Social Security and private savings. The United States spends similar amounts on offering households basic protections for health, retirement, disability, and unemployment as other advanced economies do. But, a larger share of these expenditures comes in the form of foregone tax revenue to help households get health insurance and retirement savings in the private market, and a smaller share comes in the form of direct government spending. That is, all countries strike a balance between public and private savings, while the balance is tilted more toward private savings than public savings mechanisms in the United States. See Organisation for Economic Cooperation and Development

(OECD), "Social Expenditure Update—Social Spending Is Falling in Some Countries, but in Many Others It Remains at Historically High Levels" (Paris, France: OECD, November 2014), 8.

17. My discussion here only focuses on policy support for households to save not on the policy rationale to support employer interests. Retirement benefits, historically DB pensions, also exist because private and public employers want to recruit and retain the most skilled workers. Public pensions in the United States, for example, date back to 1775 when the Continental Congress offered military pensions to officers in the Revolutionary War as a retention incentive. For an in-depth discussion of the historical development of public pensions in the United States up to the creation of Social Security, see Robert L. Clark, Lee A. Craig, and John Sabelhaus, *State and Local Retirement Plans in the United States* (Northampton, MA: Edward Elgar Publishing, 2011).
18. For the modest levels of benefits paid to beneficiaries, see, for instance, Social Security Administration (SSA), "Benefit Types and Levels, Annual Statistical Supplement, 2014," Tables 2.A20–2.A28 (Washington, DC: SSA, 2014); and for the shares of household incomes of people 65 years and older that come from sources other than Social Security, see SSA, "Income of the Population 55 or Older, 2012," SSA Publication No. 13–11871 (Washington, DC: SSA, 2014).
19. OECD, "Social Expenditure Update."
20. A wide variety of political theories exist that aim to explain the differences in the size of the welfare state as well as the differences of the forms of public policy interventions. For one example, see Nicholas Barr, *The Economics of the Welfare State* (Oxford, UK: Oxford University Press, 2012), Chapters 3 and 4. See also Gøsta Esping-Anderson, *The Three Worlds of Welfare Capitalism* (Princeton, NJ: Princeton University Press, 1990), for a discussion of the foundations of welfare states.

2 Americans' Growing Risk Exposure

1. All quotes taken from *Retirement Security 2015: Roadmap for Policy Makers: Americans' Views of the Retirement Crisis*, a biennial public opinion research conducted by the National Institute on Retirement Security and Greenwald & Associates, March 2015.
2. Dean Baker, J. Bradford De Long, and Paul R. Krugman, "Asset Returns and Economic Growth," *Brookings Papers on Economic Activity* 2005, no. 1 (2005), 289–330, doi: 10.1353/eca.2005.0011; John Y. Campbell and Robert J. Shiller, "Valuation Ratios and the Long-Run Stock Market Outlook," *The Journal of Portfolio Management* 24, no. 2 (1998), 11–26, doi: 10.3905/jpm.24.2.11; Sewin Chan, "Spatial Lock-in: Do Falling House Prices Constrain Residential Mobility?" *Journal of Urban Economics* 49, no. 3 (2001), 567–586, doi:10.1006/juec.2000.2205; Martijn I. Dröes and Wolter H. J. Hassink, "Sale Price Risk of Homeowners" (Utretch, the Netherlands: Utrecht School of Economics, 2009); Peter Englund, Ming Hwang, and John M. Quigley, "Hedging Housing Risk," *Journal of Real Estate Finance and Economics* 24, no. 1/2 (2002), 167–200; 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, no. 1 (1996), 113–131, doi: 10.1111/1540–6229.00683.
3. Campbell and Shiller, "Valuation Ratios and the Long-Run Stock Market Outlook"; George Akerlof and Robert J. Schiller, *Animal Spirits: How Human Psychology Drives the Economy and Why It Matters for Global Capitalism* (Princeton, NY: Princeton University Press, 2010); Baker et al., "Asset Returns and Economic Growth."
4. Englund et al., "Hedging Housing Risk," 167–200; Meyer and Wieand, "Risk and Return to Housing, Tenure Choice and the Value of Housing in an Asset Pricing Context."

5. David G. Blanchflower and Andrew J. Oswald, "Does High Home-Ownership Impair the Labor Market?" NBER Working Paper No. 19079 (Cambridge, MA: Natural Bureau of Economic Research, 2013), doi: 10.3386/w19079.
6. Benjamin H. Harris, "Tax Reform, Transaction Costs, and Metropolitan Housing in the United States," State and Local Finance Initiative (Washington, DC: Tax Policy Center, Urban Institute and Brookings Institution, 2013).
7. For a discussion of the relevant literature, see Christian 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, no. 3 (2008), 607–632.
8. See, for instance, Jacob S. Hacker, *The Great Risk Shift: The New Economic Insecurity and the Decline of the American Dream* (New York, NY: Oxford University Press, 2008).
9. Jesse Rothstein, "Unemployment Insurance and Job Search in the Great Recession," NBER Working Paper No. 17534 (Cambridge, MA: National Bureau of Economic Research, 2011).
10. Jacob S. Hacker, *The Great Risk Shift*; Karen Dynan, Douglas Elmendorf, and Daniel Sichel, "The Evolution of Household Income Volatility," Working Paper (Washington, DC: Brookings Institution, 2012).
11. Neoclassical economic theory suggests that, based on expansions of the so-called life cycle hypothesis, the existence of labor market uncertainties should translate into households building up precautionary savings that they can rely on when earnings unexpectedly fall. That is, savings should move with earnings to some degree. But, the link between earnings and savings is not necessarily straightforward. Households theoretically should borrow more money if they experience unexpected earnings declines. But, many households may face credit constraints that prevent them from borrowing when they lose their job or see their wages fall. Households may cut their spending and maintain some or all of their saving when they face labor market risks. For reviews of the life cycle, see Martin Browning and Annamaria Lusardi, "Household Saving: Micro Theories and Micro Facts," *Journal of Economic Literature* 34, no. 4 (December 1996), 1797–1855; Martin Browning and Thomas F. Crossley, "The Life-Cycle Model of Consumption and Saving," *Journal of Economic Perspectives* 15, no. 3 (2001), 3–22, doi: 10.1257/jep.15.3.3. More recent theoretical development further suggests that behavioral obstacles may prevent households from optimally saving, possibly exacerbating savings fluctuations when earnings decline. For a review of the relevant literature on psychology and economics, see Stefano DellaVigna, "Psychology and Economics: Evidence from the Field," *Journal of Economic Literature* 47, no. 2 (2009), 315–372, doi: 10.1257/jel.47.2.315.
12. Susan Dynarski, Jonathan Gruber, Robert A. Moffitt, and Gary Burtless, "Can Families Smooth Variable Earnings?" *Brookings Papers on Economic Activity* 1997, no. 1 (1997), 229–303.
13. Both stocks and housing constitute risky assets. This does not mean that renters automatically have less financial market risk exposure than homeowners. Homeowners should have fewer stocks relative to their assets than renters to compensate for their higher housing market risk exposure (João F. Cocco, "Portfolio Choice in the Presence of Housing," *The Review of Financial Studies* 18, no. 2 [2005], 535–567, doi: 10.1093/rfs/hhi006). A selective risk exposure measure that considers only stocks should undercount the risk exposure of homeowners, for instance, and a selective measure that looks only at housing risk ignores, by definition, the risk exposure of renters.
14. Obviously, greater risk exposure also creates more upside potential, which should have led to rising wealth over time. But, that has not been the case, suggesting that the downside risks have outweighed the upside potential for households in large part because policy failed to help households build meaningful risk protections.
15. Harry M. Markowitz, *Portfolio Selection: Efficient Diversification of Investments* 16 (New Haven, CT: Yale University Press, 1970).

16. John Y. Campbell and Robert J. Shiller, "Valuation Ratios and the Long-Run Stock Market Outlook: An Update," NBER Working Paper No. 8221 (Cambridge, MA: Natural Bureau of Economic Research, 2001), doi: 10.3386/w8221; Baker et al., "Asset Returns and Economic Growth."
17. Lower bond rates also imply higher bond prices and thus an inverse relationship between stock and bond prices. Stocks behave in long-term cycles, which is not the case for bonds, so that there is little longer term correlation between stocks and bonds. Campbell and Shiller, "Valuation Ratios and the Long-Run Stock Market Outlook: An Update."
18. Karl E. Case and John M. Quigley, "How Housing Booms Unwind: Income Effects, Wealth Effects, and Feedbacks through Financial Markets," *European Journal of Housing Policy* 8, no. 2 (2008): 161–180; Karl E. Case, John M. Quigley, and Robert J. Shiller, "Home-buyers, Housing and the Macroeconomy," RBA Annual Conference Volume no. acv2003–09, in *Asset Prices and Monetary Policy*, ed. Anthony Richards and Tim Robinson (Sydney, Australia: Reserve Bank of Australia, 2003), 149–188.
19. Shlomo Bernartzi and Richard Thaler, "Heuristics and Biases in Retirement Savings Behavior," *Journal of Economic Perspectives* 21, no. 3 (Summer 2007), 81–104; John Y. Campbell, "Household Finance," *The Journal of Finance* 61, no. 4 (2006), 1553–1604; B. Douglas Bernheim and Antonio Rangel, "Behavioral Public Economics: Welfare and Policy Analysis with Non-Standard Decision Makers," NBER Working Paper No. w11518 (Cambridge, MA: Natural Bureau of Economic Research, 2005).
20. Olivia S. Mitchell, Gary R. Mottola, Stephen P. Utkus, and Takeshi Yamaguchi, "The Inattentive Participant: Portfolio Trading Behavior in 401(k) Plans," Working Paper No. wp115 (Ann Arbor, MI: University of Michigan, Michigan Retirement Research Center, 2006).
21. For summary discussions of the wealth effect, see Congressional Budget Office, "Housing Wealth and Consumer Spending" (Washington, DC: CBO, 2007); James M. Poterba, "Stock Market Wealth and Consumption," *The Journal of Economic Perspectives* 14, no. 2 (2000), 99–118.
22. The logic is the reverse for a stock market bust. Households will need to sell bonds and buy stocks as stock prices are falling and investment opportunities proliferate.
23. For additional details on trends and group differences in financial market risk exposure, see Christian Weller, "Making Sure Money Is Available When We Need It" (Washington, DC: Center for American Progress, March 2013); and Christian Weller and Sara Bernardo, "Aging with Risk: Has Financial Risk Exposure Grown Faster for Older Households since the 1990s?" (forthcoming).
24. For a discussion of alternative explanations, see Weller, "Making Sure Money Is Available When We Need It," and Weller and Bernardo, "Aging with Risk."
25. Alberto Manconi, Massimo Massa, and Ayako Yasuda, "The Role of Institutional Investors in Propagating the Crisis of 2007–2008," *Journal of Financial Economics* 104, no. 3 (June 2012), 491–518.
26. Eugene F. Fama and Kenneth R. French, "Permanent and Temporary Components of Stock Prices," *Journal of Political Economy* 96, no. 2 (1988), 246–273; James M. Poterba and Lawrence H. Summers, "Mean Reversion in Stock Prices: Evidence and Implications," *Journal of Financial Economics* 22, no. 1 (1988), 27–59, doi:10.1016/0304–405X(88)90021–9; Baker et al., "Asset Returns and Economic Growth."
27. Olivia S. Mitchell, Gary R. Mottola, Stephen P. Utkus, and Takeshi Yamaguchi, "The Inattentive Participant: Portfolio Trading Behavior in 401(k) Plans," Working Paper 2006–115 (Ann Arbor, MI: University of Michigan Retirement Research Center, 2006).
28. Weller and Bernardo, "Aging with Risk."
29. Guy Debelle, "Macroeconomic Implications of Rising Household Debt," BIS Working Paper No. 153 (Basel, Switzerland: Bank for International Settlements, 2004), 1–41.

30. Karl E. Case and John M. Quigley, "How Housing Booms Unwind: Income Effects, Wealth Effects, and Feedbacks through Financial Markets," *European Journal of Housing Policy* 8, no. 2 (2008), 161–180; Case et al., "Home-buyers, Housing and the Macroeconomy"; Weller and Bernardo, "Aging with Risk."
31. Rothstein, "Unemployment Insurance and Job Search in the Great Recession"; Bureau of Labor Statistics, US Department of Labor, "Duration of Unemployment, 1994–2010," *The Economics Daily*, updated June 2, 2011, http://www.bls.gov/opub/ted/2011/ted_20110602.htm; Mary C. Daly, Bart Hobijn, Ayşcegül Şahin, and Robert G. Valletta, "A Search and Matching Approach to Labor Markets: Did the Natural Rate of Unemployment Rise?" *The Journal of Economic Perspectives* 26, no. 2 (Summer 2012), 3–26.
32. The calculations do not differ much when I separate earnings into thirds rather than fifths.
33. Jacob S. Hacker, *The Great Risk Shift*; Karen Dynan, Douglas Elmendorf, and Daniel Sichel, "The Evolution of Household Income Volatility"; Elise Gould, "2014 Continues a 35-Year Trend of Broad-Based Wage Stagnation," EPI Issue Brief No. 393 (Washington, DC: Economic Policy Institute, 2015); Craig Copeland, "Employment-Based Retirement Plan Participation: Geographic Differences and Trends, 2013," EBRI Issue Brief No. 405 (Washington, DC: Employee Benefits Research Institute, 2014); Melissa Majerol, Vann Newkirk, and Rachel Garfield, "The Uninsured: A Primer—Key Facts about Health Insurance and the Uninsured in America" (Washington, DC: Kaiser Family Foundation, January 2015); Carmen DeNavas-Walt and Bernadette D. Proctor, "Income and Poverty in the United States: 2013," *Current Population Reports* (Washington, DC: US Census Bureau, September2 014).
34. Diane Oakley and Kelly Kenneally, "Retirement Security 2015: Roadmap for Policy Makers" (Washington, DC: National Institute on Retirement Security, March 2015).

3 More Risk, Greater Wealth Inequality

1. All quotes taken from *Retirement Security 2015: Roadmap for Policy Makers: Americans' Views of the Retirement Crisis*, a biennial public opinion research conducted by the National Institute on Retirement Security and Greenwald & Associates, March 2015.
2. I present average wealth instead of median wealth to allow for a meaningful comparison between high-income and low-income families. The median wealth for households in the bottom fifth tends to be very low and highly volatile, creating large and volatile ratios in comparison with the wealth of households in the top fifth. The median wealth gap for households in the top fifth and the middle fifth of income distribution has also grown from a little over 3.1 in 1989 to more than 4.1 in 2013. The slower widening of the wealth gap at the median than in the average suggests that wealth inequality, especially within the top fifth of the income distribution, has also sharply increased. For more details on increasing wealth inequality, see Edward Wolff, "Recent Trends in Household Wealth in the United States: Rising Debt and the Middle-Class Squeeze—an Update to 2007," Working Paper Series No. 159 (Washington, DC: Levy Economics Institute, 2010).
3. I use the *SCF* for my calculations. The *SCF* allows for more detailed analyses of household wealth than is the case for many other data sources, in large part since the *SCF* is the only governmental data set specifically designed to generate a nationally representative survey of household wealth. But, the *SCF* is a cross-sectional data source, which makes it impossible to compare wealth for the same households over time. I hence compare the average wealth for the same group of households, defined by time-invariant characteristics such as birth date, race and ethnicity, and education.

4. See chapter 2 for a detailed discussion of the potentially adverse consequences of wealth volatility.
5. This is the broadest possible definition of emergency savings. Using narrower definitions such as liquid nonretirement financial assets does not change the conclusions of my discussion in this chapter. I use a broader definition since money is somewhat fungible and since a broader definition generates sufficiently large sample sizes to make meaningful comparisons between household groups.
6. For a summary of the basic portfolio theoretical arguments and some evidence, see Luigi Guiso, Tullio Jappelli, and Daniele Terlizzese, "Income Risk, Borrowing Constraints, and Portfolio Choice," *The American Economic Review* 86, no. 1 (1996), 158–172; Jason S. Seligman and Jeffrey B. Wenger, "Asynchronous Risk: Retirement Savings, Equity Markets, and Unemployment," *Journal of Pension Economics and Finance* 5, no. 3 (2006), 237–255, doi: 10.1017/S1474747206002630; Giuseppe Grande and Luigi Ventura, "Labor Income and Risky Assets under Market Incompleteness: Evidence from Italian Data," *Journal of Banking and Finance* 26, no. 2 (2002), 597–620, doi:10.1016/S0378–4266(01)00236–9; Miles S. Kimball, "Standard Risk Aversion," *Econometrica: Journal of the Econometric Society* 61, no. 3 (1993): 589–611. Also models of precautionary savings suggest that higher levels of labor market income uncertainty lead to increased savings (Jim Malley and Thomas Moutos, "Unemployment and Consumption," *Oxford Economic Papers* 48, no. 4 [1996], 584–600; Martha Starr-McCluer, "Health Insurance and Precautionary Savings," *The American Economic Review* 86, no. 1 [1996], 285–295). Models consider income uncertainty generated from both unemployment risk (Eric M. Engen and Jonathan Gruber, "Unemployment Insurance and Precautionary Saving," *Journal of Monetary Economics* 47, no. 3 [2001], 545–579) and earnings volatility (Christopher D. Carroll, Karen E. Dynan, and Spencer D. Krane, "Unemployment Risk and Precautionary Wealth: Evidence from Households' Balance Sheets," *Review of Economics and Statistics* 85, no. 3 [2003], 586–604, doi:10.1162/003465303322369740) and find that households build up a buffer of savings to minimize consumption disruptions during unemployment.
7. See Shlomo Bernartzi and Richard Thaler, "Heuristics and Biases in Retirement Savings Behavior," *Journal of Economic Perspectives* 21, no. 3 (Summer 2007), 81–104 on the heuristics households use to make financial decisions in complex retirement savings.
8. I combine data for all years since the conclusions below are not influenced by any particular year and since there are no discernible trends in the gaps between high and low labor market risk over time.
9. I calculate unemployment rates and relative standard errors—standard error divided by the average—for groups of households. Groups of households for the unemployment risk calculations are circumscribed by time-invariant characteristics, specifically birth date, survey year, race, and education. I add earnings quintiles to these calculations for the earnings risk to control for the level of hourly earnings. To keep the number of observations in each group large enough for robust calculations, I use a white/nonwhite and Hispanic separation for race and ethnicity and at least a college degree/no college degree separation for education.
10. This conclusion does not change when I consider a correlation over time using a synthetic cohort analysis. That is, there is no clear consistent relationship over time from higher labor market risk exposure in the present to lower financial market risk exposure in the future.
11. I define very high financial market risk exposure as having a risky asset concentration greater than 75 percent and a debt to asset ratio of 25 percent. This indicator allows me to combine the two distinct financial market risk measures in a meaningful way.
12. Richard T. Campbell and Cathie Mayes Hudson, "Synthetic Cohorts from Panel Surveys: An Approach to Studying Rare Events," *Research on Aging* 7, no. 1 (March 1985), 81–93.
13. For a review of the relevant literature, see Stefano DellaVigna, "Psychology and Economics: Evidence from the Field," *Journal of Economic Literature* 47, no. 2 (2009), 315–372, doi:

10.1257/jel.47.2.315. For the implications for household savings of systematic behavioral errors, see Bernartzi and Thaler, "Heuristics and Biases in Retirement Savings Behavior."

14. Remember that the underlying argument is that lower liquidity constraints theoretically should have made it easier for households to reallocate their risky and illiquid housing assets. Instead, households increasingly borrowed to finance consumption. Atif R. Mian and Amir Sufi, "House Prices, Home Equity-Based Borrowing, and the U.S. Household Leverage Crisis," *American Economic Review* 101, no. 5 (2011), 2132–2156; David B. Gross and Nicholas S. Souleles, "Do Liquidity Constraints and Interest Rates Matter for Consumer Behavior? Evidence from Credit Card Data," *The Quarterly Journal of Economics* 117, no. 1 (2002), 149–185, doi: 10.1162/003355302753399472.
15. Christian Weller and Derek Douglas, "One Nation Under Debt," *Challenge* 50, no. 1 (February 2007), 54–74; Christian Weller, "Need or Want: What Explains the Run-up in Consumer Debt?" *Journal of Economic Issues* 41, no. 2 (June 2007), 583–591.
16. Households could have theoretically experienced high labor market risk a maximum of eight times since the data are collected every three years, although no group of households had more than five such cumulative episodes of high labor market risk exposure.

4 The Looming Retirement Shipwreck

1. All quotes taken from *Retirement Security 2015: Roadmap for Policy Makers: Americans' Views of the Retirement Crisis*, a biennial public opinion research conducted by the National Institute on Retirement Security and Greenwald & Associates, March 2015.
2. There is no one-size-fits-all transition for American workers into retirement. Rather, people transition in many different ways, depending on their abilities, desires, and socio-economic backgrounds. See Fengyan Tang and Jeffrey A. Burr, "Revisiting the Pathways to Retirement: A Latent Structure Model of the Dynamics of Late-Life Labor Force Behavior," *Ageing and Society* (forthcoming), doi 10.1017/S0144686X14000634.
3. See Ruth Helman, Nevin Adams, and Jack VanDerhei, "The 2014 Retirement Confidence Survey: Confidence Rebounds—for Those with Retirement Plans," EBRI Issue Brief No. 397 (Washington, DC: Employee Benefits Research Institute, 2014), http://www.ebri.org/pdf/briefspdf/EBRI_IB_397_Mar14.RCS.pdf; Mathew Greenwald & Associates, Inc., "2013 Risks and Process of Retirement Survey Report of Findings" (Society of Actuaries, 2013), https://www.soa.org/retirementneedsandrisks; and for data on retirement expectations, see the summary of 2006 survey findings in "The Ariel/Schwab Black Investor Survey: Saving and Investing among Higher Income African-American and White Americans" (Chicago, IL: Ariel Investments, 2008).
4. Christian Weller and David Madland, "Keep Calm and Muddle Through" (Washington, DC: Center for American Progress, 2014).
5. For a recent example, see Charles Ellis, Alicia Munnell, and Andrew Eschtruth, *Falling Short: The Coming Retirement Crisis and What to Do about It* (New York, NY: Oxford University Press, 2014).
6. I explain factors that lead researchers to come to differing conclusions on the level of retirement income adequacy in the appendix to this chapter.
7. The relevant literature comprising both approaches includes John Ameriks and Stephen P. Utkus, "Vanguard Retirement Outlook 2006" (Malvern, PA: Vanguard Center for Retirement Research, 2006); Barbara Butrica, Daniel Murphy, and Sheila Zedlewski, "How Many Struggle to Get by in Retirement?" *The Gerontologist* 50, no. 4 (2010), 482–494, doi: 10.1093/geront/gnp158; Center for Retirement Research at Boston College, "Retirements at Risk: A New National Retirement Risk Index" (Boston:

Center for Retirement Research at Boston College, 2006); Robert Haveman, Karen Holden, Barbara Wolfe, and Andrei Romanov, "Assessing the Maintenance of Savings Sufficiency over the First Decade of Retirement," Working Paper No. 1567 (Munich, Germany: CESIfo, 2005); David Love, Paul Smith, and Lucy McNair, "A New Look at the Wealth Adequacy of Older U.S. Households," *Review of Income and Wealth* 54, no. 4 (2008), 616–642; Annamaria Lusardi and Olivia S. Mitchell, "Financial Literacy and Planning: Implications for Retirement Wellbeing" (Hanover, NH: Dartmouth College, 2006), http://www.dartmouth.edu/~alusardi/Papers/FinancialLiteracy.pdf; John Karl Scholz, Ananth Seshadri, and Surachai Khitatakrun, "Are Americans Saving 'Optimally' for Retirement?" *Journal of Political Economy* 114, no. 4 (2006), 607–643; Mark Warshawsky and John Ameriks, "How Prepared Are Americans for Retirement?" in Olivia S. Mitchell, P. Brett Hammond, and Anna M. Rappaport, eds., *Forecasting Retirement Needs and Retirement Wealth* (Philadelphia, PA: University of Pennsylvania Press, 2000), 33–67; Christian Weller and Edward Wolff, *Retirement Security: The Particular Role of Social Security* (Washington, DC: Economic Policy Institute, 2005).

For a discussion of what it means for households, government, and the economy when a large share of households fall short of meeting their needs in retirement, see Weller and Madland, "Keep Calm and Muddle Through."

8. See, for instance, Butrica et al., "How Many Struggle to Get by in Retirement?"; Center for Retirement Research at Boston College, "Retirements at Risk;" Haveman et al., "Assessing the Maintenance of Savings Sufficiency over the First Decade of Retirement"; Love et al., "A New Look at the Wealth Adequacy of Older U.S. Households"; Weller and Wolff, *Retirement Security: The Particular Role of Social Security.*
9. While commonly used, it is disputed as to how effective the poverty line is as a proxy for the minimum income needed to avoid material hardship in retirement. For an alternative measure of the income needed to meet basic needs in retirement, see Laura H. Russell, Ellen A. Bruce, and Judith Conahan, "A Methodology to Determine Economic Security for Elders" (Boston, MA: Gerontology Institute, University of Massachusetts Boston, and Washington, DC: Wider Opportunities for Women, 2006).
10. Wolff, "Household Wealth Inequality, Retirement Income Security, and Financial Market Swings 1983 to 2010."
11. This approach is anchored in a neoclassical economic theory known as life cycle hypothesis, whereby people smooth their consumption over their life cycle. That implies that they maintain their preretirement consumption in retirement and that their total lifetime consumption relates to their total lifetime income. Recent applications of the life cycle hypothesis to the question of retirement income adequacy include Eric M. Engen, William G. Gale, and Cori E. Uccello, "The Adequacy of Household Saving," *Brookings Papers on Economic Activity* 1999, no. 2 (1999), 65–165, and John Karl Scholz, Ananth Seshadri, and Surachai Khitatakrun, "Are Americans Saving 'Optimally' for Retirement?" *Journal of Political Economy* 114, no. 4 (2006), 607–643.
12. See, for instance, Ameriks and Utkus, "Vanguard Retirement Outlook 2006"; B. Douglas Bernheim, "The Adequacy of Personal Retirement Saving" in David A. Wise, ed., *Facing the Age Wave* (Stanford, CA: Hoover Institute Press, 1997); Ellis et al., *Falling Short*; 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, no. 1 (1999), 271–324; Peter Henle, "Recent Trends in Retirement Benefits Related to Earnings," *Monthly Labor Review* 95, no. 6 (1972), 12–20; Engen et al., "The Adequacy of Household Saving"; Lusardi and Mitchell, "Financial Literacy and Planning"; 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, PA: University of Pennsylvania Press,

2000); Alicia H. Munnell, Francesca Golub-Sass, and Anthony Webb, "What Moves the National Retirement Risk Index? A Look Back and an Update," Issue Brief No. 7–1 (Boston, MA: Center for Retirement Research at Boston College, 2007); RETIRE Project, "2001 RETIRE Project Report" (Atlanta, GA: Georgia State University, 2001); Nari Rhee, "The Retirement Savings Crisis: Is It Worse than We Think?" (Washington, DC: National Institute on Retirement Security, 2013); Warshawsky and Ameriks, "How Prepared Are Americans for Retirement?"; Jack VanDerhei, "Retirement Savings Shortfalls: Evidence from EBRI's Retirement Security Projection Model," EBRI Issue Brief No. 410 (Washington, DC: Employee Benefits Research Institute, 2015); Weller and Wolff, *Retirement Security: The Particular Role of Social Security*." The replacement—retirement income to preretirement income—is less than 100 percent since the income needs of retirees are likely to be lower than those of workers since they no longer need to save for retirement, pay fewer taxes, have no work-related expenses, have smaller families, and do not have a mortgage.

13. For a discussion of a sample of the most influential studies in this debate, see also Keith Miller, David Madland, and Christian Weller, "The Reality of the Retirement Crisis," CAP Issue Brief (Washington, DC: Center for American Progress, 2015).
14. For a summary of the basic theoretical literature on consumption and saving, see Martin Browning and Annamaria Lusardi, "Household Saving: Micro Theories and Macro Facts," *Journal of Economic Literature* 34, no. 4 (1996), 1797–1855.
15. Using wealth to estimate households' future retirement income and thus their retirement income security also has a methodological advantage over using some income statistics to measure how much income retirees have. Income statistics for older households often rely on the Bureau of Labor Statistics' Current Population Survey (CPS)—for instance, the Social Security Administration's Income of the Population 55 and Older. The CPS is nationally representative and has a long track record, so that researchers can compare trends over time. It suffers from some necessary methodological shortcomings, which tend to understate retirement income. The CPS does not count withdrawals from IRAs and 401(k) as income, but it counts regular benefits from DB pensions as income. So, as households increasingly pay for their retirement with withdrawals from their individual accounts and have fewer DB pension benefits than in the past, the CPS tends to miss a growing share of many retirees' income. Wealth measures used in retirement income adequacy studies, however, capture all forms of future income from Social Security, DB pensions, and private savings in housing, DC accounts, and other individual forms of savings. For a discussion of the importance of IRA withdrawals, see Billie Jean Miller and Sylvester J. Schieber, "Employer Plans, IRAs and Retirement Income Provision: Making a Molehill out of a Mountain," *TowersWatson Insider* (New York, NY: Towers Watson, 2013).
16. See our detailed discussion in the appendix on calculating future retirement income.
17. The appendix discusses in great detail my reasons for selecting this particular measure over others in the literature. I should note, though, that all measures find substantial shares of households with insufficient savings and a trend toward worsening retirement income insecurity, where such trend data exist.
18. See Weller and Madland, "Keep Calm and Muddle Through."
19. Rhee, "The Retirement Savings Crisis: Is It Worse than We Think?"
20. Alicia H. Munnell, Anthony Webb, and Francesca Golub-Sass, "The National Retirement Risk Index: An Update," Issue Brief No. 12–20 (Boston, MA: Center for Retirement Research at Boston College, 2012).
21. John Karl Scholz, Ananth Seshadri, and Surachai Khitatakrun, "Are Americans Saving 'Optimally' for Retirement?" *Journal of Political Economy* 114, no. 4 (2006), 607–643.
22. William G. Gale, John Karl Scholz, and Ananth Seshadri, "Are All Americans Saving 'Optimally' for Retirement?" Working Paper (Washington, DC: The Brookings Institution, and Madison, WI: University of Wisconsin-Madison, 2009).

23. Munnell et al., "The National Retirement Risk Index: An Update"; Rhee, "The Retirement Savings Crisis: Is It Worse than We Think?"; Gale et al., "Are All Americans Saving 'Optimally' for Retirement?"; Scholz et al., "Are Americans Saving 'Optimally' for Retirement?"; Barbara A. Butrica, Karen E. Smith, and Howard M. Iams, "This Is Not Your Parents' Retirement: Comparing Retirement Income across Generations," *Social Security Bulletin* 72, no. 1 (2012); VanDerhei, "Retirement Savings Shortfalls." The research by EBRI, another widely cited and somewhat optimistic assessment, specifically finds that the share of GenXers—defined as households between the ages of 40 and 49 in 2014—was comparable to those of Late Boomers—defined as households between the ages of 50 and 59 in 2014, but that the savings shortfalls tend to be larger for younger cohorts, in large part because of higher future health-care costs. See also Jack Vanderhei, "What Causes EBRI Retirement Readiness Ratings™ to Vary: Results from the 2014 Retirement Security Projection Model," EBRI Issue Brief No. 396 (Washington, DC: Employee Benefits Research Institute, 2014).
24. Professor Wolff's research relies on the same data as the CRR, but there are some key methodological differences as we discuss in the appendix.
25. This share is comparable to the 53 percent of households shown as being at risk of not being able to maintain their standard of living in retirement in the NRRI. And both the NRRI and Professor Wolff's research rely on the *SCF*.
26. All data in this paragraph taken from Wolff, "Household Wealth Inequality, Retirement Income Security, and Financial Market Swings 1983 to 2010."
27. See Christian Weller, "How Well Were Retirees Prepared for Retirement before the Great Recession?" *Journal of Aging & Social Policy* 22, no. 2 (2010), 95–98, doi: 10.1080/08959421003621986 for one example of risk-adjusted retirement income calculations for retirees.
28. See, for example, Gale et al., "Are All Americans Saving 'Optimally' for Retirement?" and Scholz et al., "Are Americans Saving 'Optimally' for Retirement?"
29. There is a discussion among researchers on whether to use replacement rates or whether to develop microsimulation models that model future consumption instead of future income. Modeling future consumption has a few practical and policy-relevant disadvantages over modeling future retirement income. First, researchers know too little about consumption in retirement to robustly model households' consumption needs. Second, consumption data are often of lower quality than wealth and income data. And third, researchers forecasting future consumption make strong assumptions about households' ability to access public benefits such as food stamps and housing subsidies. My discussion here focuses on the more established approach of forecasting income rather than consumption. For a good example of the theory behind forecasting future consumption and a thorough application, see Gale et al., "Are All Americans Saving 'Optimally' for Retirement?". And for a critique of forecasting future consumption, see Alicia H. Munnell, Wenliang Hou, and Anthony Webb, "NRRI Update Shows Half Still Falling Short," Issue Brief No. 14–20 (Boston, MA: Center for Retirement Research at Boston College, 2014).
30. The replacement—retirement income to preretirement income—is less than 100 percent since the income needs of retirees are likely to be lower than those of workers. See Miller et al., "The Reality of the Retirement Crisis," for a sample of high, medium, and low replacement rates used in recent studies.
31. Rhee, "The Retirement Savings Crisis: Is It Worse than We Think?"
32. Center for Retirement Research at Boston College, "Retirements at Risk."
33. Butrica et al., "This Is Not Your Parents' Retirement."
34. VanDerhei, "Retirement Savings Shortfalls." Scholz, Gale, and Seshadri similarly calculate individual retirement needs separately for each household, based on their expected expenditures in retirement. Gale et al., "Are All Americans Saving 'Optimally' for Retirement?"

35. For a study that assumes substantial and systematic consumption cuts, see Scholz et al., "Are Americans Saving 'Optimally' for Retirement?" Also Jonathan Skinner, "Are You Sure You're Saving Enough for Retirement?" *The Journal of Economic Perspectives* 21, no. 3 (2007), 59–80, provides a discussion of the factors that determine differences in retirement income adequacy findings, including consumption cuts.
36. For a few additional details, see Miller et al., "The Reality of the Retirement Crisis," and for a summary of the existing evidence on spending behavior in retirement, see Alicia H. Munnell, Matthew S. Rutledge, and Anthony Webb, "Are Retirees Falling Short? Reconciling the Conflicting Evidence," CRR Working Paper 2014–16 (Boston, MA: Center for Retirement Research at Boston College, 2014). See also Ellis et al., *Falling Short*.
37. See, for instance, Center for Retirement Research at Boston College, "Retirements at Risk" and Weller and Wolff, *Retirement Security: The Particular Role of Social Security* for two examples of calculating age–earnings profiles that underlie the calculations of projected future Social Security benefits.
38. Only the *SCF* regularly asks households for the relevant details, while other household surveys such as the University of Michigan's Health and Retirement Survey only ask whether a household is covered under a DB pension. These are household surveys where workers and not employers describe DB pension benefit calculations. This description can be fraught with some error since households may fail to disclose critical details of this calculation or simply do not understand how their DB pension benefits will be calculated in the future. But researchers have shown that people do not make systematic mistakes when describing their pension benefits, that is, for every household that overestimates their DB pension, another one underestimates their future DB pension. Average and median retirement income calculations of future DB pension benefits for the entire population or even subpopulations should consequently not suffer from a bias toward understatement or overstatement of future retirement income. Researchers then typically take the information provided in surveys or from employers on people's DB pensions to calculate expected future pension benefits based on each household's estimated preretirement earnings. See, for instance, Gustman and Steinmeier, "Effects of Pensions on Savings." And for a discussion of the errors associated with self-reported DB pension benefits, see Richard Johnson, Usha Sambamoorthi, and Stephen Crystal, "Pension Wealth at Midlife: Comparing Self-reports with Provider Data," *Review of Income and Wealth* 46, no. 1 (2000), 59–83, doi: 10.1111/j.1475–4991.2000.tb00391.x. Moreover, Scholz et al., "Are Americans Saving 'Optimally" for Retirement?," use a different approach to calculating DB pensions, by extrapolating the probability of having a DB pension and the level of future DB pensions for each household based on current DB pension recipients.

    There is some difference in the way CRR and Edward Wolff calculate DB pension benefits. CRR, for instance, uses some approximation of future DB pension benefit coverage and benefit levels even for a small share of households that do not yet have DB pension coverage. Professor Wolff, on the other hand, only calculates the value of future DB pensions only for households that already have a DB pension. This difference stems from the fact that CRR considers younger households as well as older households, so that things can change during their careers and people can still gain a DB pension during their careers, while Edward Wolff includes only older households where career-related changes in benefits are much less likely than among younger households. That is, the methodological difference will have no real effect on retirement income adequacy calculations for the respective populations that are being studied since the same share of households should enter retirement with a DB pension in each calculation.
39. See, for instance, Center for Retirement Research at Boston College, "Retirements at Risk"; Alan Gustman and Thomas Steinmeier, "Effects of Pensions on Savings: Analysis

with Data from the Health and Retirement Study," *Carnegie-Rochester Conference Series on Public Policy* 50, no. 99 (1999), 271–324.

40. Scholz et al., "Are Americans Saving 'Optimally' for Retirement?"
41. See, for instance, Wolff, "Household Wealth Inequality, Retirement Income Security, and Financial Market Swings 1983 to 2010."
42. See, for example, Vanderhei, "What Causes EBRI Retirement Readiness Ratings™ to Vary: Results from the 2014 Retirement Security Projection Model," for a discussion of the effect of excluding future savings in retirement income calculations.
43. See, for example, Center for Retirement Research at Boston College, "Retirements at Risk," for details of their projection of account balances.
44. Ibid.
45. Ibid.
46. See, for example, Wolff, "Household Wealth Inequality, Retirement Income Security, and Financial Market Swings 1983 to 2010."
47. For a discussion of the costs of longevity risk, see Beth Almeida and William B. Fornia, "A Better Bang for the Buck: The Economic Efficiencies of Defined Benefit Pension Plans" (Washington, DC: National Institute on Retirement Security, 2008).
48. Center for Retirement Research at Boston College, "Retirements at Risk"; Wolff, "Household Wealth Inequality, Retirement Income Security, and Financial Market Swings 1983 to 2010."
49. The Center for Retirement Research, for instance, slightly broadens preretirement income beyond just wage and salary earnings to include an assumed rate of return on capital, as long as people have any capital, whereas Edward Wolff, as another example, uses estimated family income near the time of retirement, which excludes capital income in 401(k) plans and IRAs. See Center for Retirement Research at Boston College, "Retirements at Risk," and Wolff, "Household Wealth Inequality, Retirement Income Security, and Financial Market Swings 1983 to 2010."
50. Scholz et al., "Are Americans Saving 'Optimally' for Retirement?"
51. Wage-adjusting preretirement income also means that incomes in different years are truly comparable to each other. The Social Security Administration typically uses wage-adjusted or wage-indexed preretirement income in its replacement rate calculation. For an explanation and some robustness tests—the results do not change much with slightly different indexation methods—see Stephen C. Goss, "Strengthening Social Security to Meet the Needs of Tomorrow's Retirees," testimony before the Subcommittee on Social Security, Pensions, and Family Policy of the Senate Committee on Finance, May 21, 2014.
52. See, for instance, Center for Retirement Research at Boston College, "Retirements at Risk," and Wolff, "Household Wealth Inequality, Retirement Income Security, and Financial Market Swings 1983 to 2010."

5 Social Security: The Leaky *Lifeboat*

1. All quotes taken from *Retirement Security 2015: Roadmap for Policy Makers: Americans' Views of the Retirement Crisis*," a biennial public opinion research conducted by the National Institute on Retirement Security and Greenwald & Associates, March 2015.
2. Social Security Administration, "Program Explainers: Special Minimum Benefit" (Washington, DC: SSA, May 2014).
3. Social Security Administration, "Retirement Benefits," SSA Publication No. 05–10035 (Washington, DC: SSA, January 2015), 6, http://www.ssa.gov/pubs/EN-05-10035.pdf; Social Security Amendments of 1983, H.R. 1900/P.L. 98–21, 98th Congress (1983).

4. Barry Bosworth and Kathleen Burke find that the number of years that women can expect to receive Social Security benefits has in fact fallen in the bottom 40 percent of the earnings distribution from the 1920 to the 1940 birth cohorts. See "Differential Mortality and Retirement Benefits in The Health And Retirement Study" (Washington, DC: Brookings Institution, 2013). And Hilary Waldron concludes that life expectancy for workers born in 1941 in the top half of the earnings distribution increased only by 5.8 more years than for those in the bottom half of the earnings distribution in "Trends in Mortality Differentials and Life Expectancy for Male Social Security–Covered Workers, by Socioeconomic Status," *Social Security Bulletin* 67, no. 3 (2007), 1–28.
5. But the chapter does not address other possible Social Security policy changes that may be necessitated by demographic changes. A number of states, for instance, permit same-sex marriages, but married same-sex partners cannot always receive the same Social Security benefits as heterosexual spouses. It is beyond the scope of this book to address this issue and others that could be addressed in a major Social Security reform. The chapter will hence focus only on the link between Social Security and rising risk exposure.
6. Alicia Munnell and Mauricio Soto, "State and Local Pensions Are Different from Private Plans," State and Local Pension Plans No. 1 (Boston, MA: Center for Retirement Research at Boston College, November 2007). For more details on the basics of public sector benefits, see US Government Accountability Office, "State and Local Government Retiree Benefits: Current Status of Benefit Structures, Protections, and Fiscal Outlook for Funding Future Costs," GAO-07–1156 (Washington, DC: GAO, 2007).
7. Social Security Administration, "Annual Statistical Supplement 2013" (Washington, DC: SSA, 2013). Workers have to work fewer years to qualify for survivorship and disability benefits than to qualify for retirement benefits. Workers who qualify for retirement benefits hence also qualify for survivorship and disability benefits.
8. Social Security Administration, "Monthly Statistical Snapshot—August 2014" (Washington, DC: SSA, 2014).
9. The discussion of spousal benefits also applies to same-sex married couples as long as the couple resides in a state that recognizes same-sex marriage when they receive benefits.
10. Social Security calculates the AIME for a disabled beneficiary or a deceased beneficiary, which is first used as a means to convert lifetime payments into the PIA amount for the beneficiary and the survivors. The main difference is that workers need to have paid into Social Security for shorter periods to qualify for disability and survivorship benefits than is necessary for retirement benefits. The only difference for the AIME calculation in the case of disability or survivorship benefits, compared to retirement benefits, is that the worker's earnings are not averaged over 35 years, as is the case with retirement benefits, but only over the actual number of years up to disability or death. These averaging periods mean that no years with zero earnings are entered into the calculation and the AIME and PIA are consequently much higher than they would have been. The beneficiary receives the PIA if she is disabled, while other beneficiaries receive an additional fraction of the PIA if they are eligible. Spouses, for instance, receive 50 percent of the beneficiary's PIA and each minor child receives 25 percent of the PIA. Survivors receive similar shares of the PIA for as long as they are eligible for benefits.
11. Social Security Administration, "Survivors Benefits," SSA Publication no. 05–10084 (Washington, DC: SSA, July 2013).
12. Social Security Administration, "Early or Late Retirement," *Social Security Online*, accessed September 16, 2014, http://www.socialsecurity.gov/OACT/quickcalc/early_late.html Social Security's specific calculation follows a formula that shows the permanent reduction in retirement benefits for any month that a worker retires before the full-benefit retirement age. Specifically, Social Security reduces the PIA by five-ninth of one percent for each month before the full-benefit retirement age, up to 36 months. The benefit is

further reduced five-twelfth of one percent per month if the number of months exceeds 36, which was not possible when the full-benefit age was 65 years and the earliest retirement age was 65. The benefit is reduced by 30 percent, for instance, if a worker retires at age 62 and the full-benefit age is equal to 67 years. This maximum reduction comes about as 36 months times five-ninth of one percent plus 24 months times five-twelfth of one percent. Similarly, retiring at age 62 when the full-benefit age was 65 reduces benefits by 20 percent, which is just the product of 36 months times five-ninth of one percent.

13. Some employees such as many state and local government employees in 14 states are not covered by Social Security.
14. The self-employed pay both employee and employer share of the payroll tax.
15. Social Security Administration, "Benefit Planner: Maximum Table Earnings, 1937 to 2015," *Social Security Online,* accessed May 18, 2015, http://www.socialsecurity.gov/planners/maxtax.html
16. It is important to note that the shortfall in payroll tax revenue in the years after the Great Recession ended in 2009 through 2012 was in part a result of temporary cuts to the payroll tax, intended to stimulate economic growth. Source for historical trust funds data is Social Security Administration, "The 2014 Annual Report of the Board of Trustees of the Federal Old-Age and Survivors Insurance and Federal Disability Insurance Trust Funds," House Document 113–139, 113th Congress, Second Session (2014).
17. Ibid.
18. Ibid.
19. Ibid.
20. Ibid.
21. Ibid.
22. Social Security Administration, "The 2013 Annual Report of the Board of Trustees, Supplemental Single Years Tables," accessed October 6, 2014, http://www.ssa.gov/oact/tr/2013/lrIndex.html. The exact replacement rate—the ratio of annual Social Security benefits to average lifetime earnings—depends on somebody's age and can vary somewhat. Average earnings are expected to be $46,832 in 2014 and low earnings are equal to 41 percent of average earnings, or $21,074 in Social Security's hypothetical examples.
23. John Schmitt, "Low-Wage Lessons" (Washington, DC: Center for Economic and Policy Research, January, 2012).
24. Social Security Administration, "Annual Statistical Supplement to the Social Security Bulletin, 2013, Tables 4-B1 and 4-B4," SSA 13–11700 (Washington, DC: SSA, February 2014).
25. Rebecca Vallas, Christian Weller, Rachel West, and Jackie Odum, "The Effect of Rising Inequality on Social Security," CAP Issue Brief (Washington, DC: Center for American Progress, February 2015), https://www.americanprogress.org/issues/economy/report/2015/02/10/106373/the-effect-of-rising-inequality-on-social-security/
26. Social Security Administration, "Program Explainers: Special Minimum Benefit" (Washington, DC: SSA May 2014).
27. Craig Feinstein, "Diminishing Effect of the Special Minimum PIA," Actuarial Note No. 154 (Baltimore, MD: Social Security Administration, November 2013).
28. Privatization would also worsen Social Security's financial shortfall. The federal government would incur additional debt under privatization because Social Security would no longer receive all of the funds it currently uses to pay for benefits. The Social Security Administration would have to borrow money immediately or within several years (depending on the privatization plan) from private financial markets or from the US Treasury to cover this additional shortfall. All of the privatization proposals in 2005 would have increased the federal government's debt, although the size of the additional debt created by such proposals varied. Under President Bush's proposal, for instance, the government

would have incurred $17.7 trillion in additional new debt by 2050 in 2005 dollars The proposal introduced by then Sen. John Sununu (R-NH) and Rep. Paul Ryan (R-WI) at the time would have been even worse, increasing the government's debt by $85.8 trillion in 2005 dollars in 2050, because they wanted to divert larger amounts into private accounts in addition to minimum benefit guarantees. Rep. Ryan introduced another version of his privatization proposal in 2010 as part of his "Roadmap for America's Future Act of 2007." This privatization proposal adds to Social Security's long-term deficits but covers those deficits with transfers from general revenue totaling more than $1 trillion. Then there was the proposal made by Sen. Jim DeMint (R-SC), which would have only allowed for the diversion of funds into private accounts as long as Social Security had a cash surplus. This would have increased the federal debt by $3.5 trillion in 2005 dollars in 2050, based on the expectation at the time that the Social Security fund would slip from black to red in 2017. See Jason Furman, "How Would the President's New Social Security Proposal Affect Middle-Class Workers and Social Security Solvency" (Washington, DC: Center for Budget and Policy Priorities, 2005); James Horney and Richard Kogan, "Private Accounts Would Substantially Increase Federal Debt and Interest Payments" (Washington, DC: Center for Budget and Policy Priorities, 2005). All of the estimates are based on calculations made by the Social Security actuaries; and Social Security Administration, "Estimated Financial Effects of Title IV of The Roadmap for America's Future Act of 2010" (Washington, DC: SSA, 2010). See legislation introduced as Title IV of H.R. 4529 (111th Congress) on January 27, 2010, by Rep. Paul Ryan (R-WI) for details on these estimates.

29. Gary Burtless, "Social Security Privatization and Financial Market Risk" (Washington, DC: Center on Social and Economic Dynamics, February 2000), quoted in Christian Weller, *Review of Policy Research* 23, no. 2 (2006), 531–548, doi: 10.1111/j.1541–1338.2006.00214.x
30. This discussion uses a few high-quality and well-respected public opinion polls to illustrate the main arguments, although other polls not cited here support these arguments. Several polls cited in this discussion have been repeated over time with little variation in the findings, unless otherwise stated. The stability of poll findings also suggests that relying on polls from different years should not materially impact the conclusions.
31. Employee Benefit Research Institute (EBRI), "Retirement Confidence Survey" (Washington, DC: EBRI, various years), accessed April 30, 2014, http://www.ebri.org/surveys/rcs/
32. Ibid.
33. Gallup, "Social Security" (Washington, DC: Gallup, Inc., 2014), accessed September 22, 2014, http://www.gallup.com/poll/1693/social-security.aspx. Poll conducted each year since 2001 in the first half of April.
34. Ibid.
35. Ibid.
36. *The Washington Post*, "Results," Washington Post-ABC News Poll (February 23, 2009).
37. Polls find substantial support for leaving survivorship benefits unchanged or for improving them, but there is little evidence on support or opposition to changing survivorship benefits in a specific way.
38. National Academy of Social Insurance (NASI), "Americans Make Hard Choices: A Survey with Trade-off Analysis" (Washington, DC: NASI, 2014), http://www.nasi.org/sites/default/files/research/Americans_Make_Hard_Choices_on_Social_Security.pdf
39. Democracy Corps and Campaign for America's Future and Greenberg Quinlan Rosner, "Polling Results" (Democracy Corps and Campaign for America's Future and Greenberg Quinlan Rosner, 2008).
40. NASI, "Americans Make Hard Choices."
41. Gallup," SocialS ecurity."

42. *Washington Post*, Henry J. Kaiser Family Foundation, and Harvard University, "Social Security Knowledge Poll I" (February 9, 2005).
43. *New York Times* and CBS News, "The New York Times—CBS News Poll" (June 17–19, 2005).
44. American Associations of Retired Persons (AARP), "Retirement Security Survey Report" (Washington, DC: AARP, 2007).
45. Polling Report, Inc., "Social Security," *PollingReport.com* (2014), accessed September 22, 2014, http://www.pollingreport.com/social.htm
46. Jasmine Tucker, Virginia Reno, and Thomas Bethell, "Strengthening Social Security: What Do Americans Want?" (Washington, DC: National Academy of Social Insurance, January, 2013). Greenwald and Associates conducted this poll. It is one of the few polls that specifically asks about the minimum benefit.
47. Gallup," SocialS ecurity."
48. AARP, "Retirement Security Survey Report."
49. *Washington Post*, Henry J. Kaiser Family Foundation, and Harvard University, "Social Security Knowledge Poll I."
50. *New York Times* and CBS News, "The New York Times—CBS News Poll."
51. Tucker et al., "Strengthening Social Security: What Do Americans Want?"
52. Gallup," SocialS ecurity."

6 Sink-or-Swim Retirement Plans

1. All quotes taken from *Retirement Security 2015: Roadmap for Policy Makers: Americans' Views of the Retirement Crisis*, a biennial public opinion research conducted by the National Institute on Retirement Security and Greenwald & Associates, March 2015.
2. Other assets such as bonds and certificates of deposits (CDs) are not completely risk-free. Bond prices can vary before a bond matures and CDs can become worthless if a bank fails. Economists do not consider these assets risky assets since these risks are small compared to the risks associated with investments in stocks and housing. And households have comparatively easy ways to protect themselves from these risks. They can hold bonds to maturity and they can invest money with banks where deposits are backed by federal deposit insurance. Such relatively easy risk protections do not exist with stocks and housing.
3. Christian Weller and Sara Bernardo, "Putting Retirement at Risk: Has Financial Risk Exposure Grown More Quickly for Older Households than Younger Ones?" Paper 102 (Boston, MA: Gerontology Institute, 2014), http://scholarworks.umb.edu/gerontologyinstitute_pubs/102/. Economists consider housing equity a risky asset, akin in many ways to stocks. While owner-occupied housing is technically a nonfinancial asset, economists "treat houses like a standard financial asset"—quoted from Todd Sinai and Nicholas S. Souleles. "Owner-Occupied Housing as a Hedge against Rent Risk," *The Quarterly Journal of Economics* 120, no. 2 (May 2005), 763–789.
4. For a summary of the related literature, see Martin Browning and Annamaria Lusardi, "Household Saving: Micro Theories and Micro Facts," *Journal of Economic Literature* 34, no. 4 (December 1996), 1797–1855.
5. For a review of the relevant literature, see Stefano DellaVigna, "Psychology and Economics: Evidence from the Field," *Journal of Economic Literature* 47, no. 2 (June 2009), 315–372; Shlomo Benartzi and Richard H. Thaler, "Heuristics and Biases in Retirement Savings Behavior," *Journal of Economic Perspectives* 21, no. 3 (2007), 81–104.
6. See, for instance, Christian Weller, "Did Retirees Save Enough to Compensate for the Increase in Individual Risk Exposure?" *Journal of Aging and Social Policy* 22, no. 2 (2010), 152–171.

7. See also Jacob S. Hacker, *The Great Risk Shift: The New Economic Insecurity and the Decline of the American Dream* (New York, NY: Oxford University Press, 2008).
8. See Browning and Lusardi, "Household Saving: Micro Theories and Micro Facts" for a discussion of the evidence on the savings decline in the 1980s.
9. Social Security Administration, "Retirement Benefits," SSA Publication No. 05–10035 (Washington, DC: SSA, January, 2015), 6, http://www.ssa.gov/pubs/EN-05-10035.pdf; Social Security Amendments of 1983, H.R. 1900/P.L. 98–21, 98th Congress (1983).
10. For a discussion of the evidence on the timing and size for a decrease of the personal saving rate in the 1980s, see Browning and Lusardi, "Household Saving: Micro Theories and MicroF acts."
11. There is a less direct connection to changes in labor policy, too. Union members are more likely to have DB pensions than nonunion members as unions negotiate for benefits as well as wages. Some forms of DB pension plans—so-called Taft-Hartley multiemployer DB pension plans—generally can only exist within the context of a collective bargaining agreement. The decline in DB pension coverage has also followed the decline of unionization rates. Labor law changes especially interpretations of existing law through the National Labor Relations Board have made it more difficult for workers to join unions.
12. Other policy changes, particularly new accounting standards, started to introduce similar changes prior to 2006. For a detailed discussion on policies that introduced volatility to DB pension plan funding, see Ilana Boivie, "Who Killed the Private Sector DB Plan?" Issue Brief (Washington, DC: National Institute on Retirement Security, March 2011).
13. Pension funding depends on the employers' assumptions of future interest rates they can earn on their DB pension plans. These interest rates are regulated by PPA. Interest rates tend to fall and thus pension contributions tend to rise during recessions, when companies can least afford the added costs. For a discussion of the link between macroeconomic cycles and interest rates, see Christian Weller and Dean Baker, "Smoothing the Waves of Pension Funding: Could Changes in Funding Rules Help Avoid Cyclical Under-funding?" *The Journal of Policy Reform* 8, no. 2 (June 2005), 131–151.
14. Sarah Holden, Peter Brady, and Michael Hadley, "401(k) Plans: A 25-Year Retrospective," *Investment Company Institute Research Perspective* 12, no. 2 (November 2006), http://www.ici.org/pdf/per12-02.pdf.
15. Ibid.
16. A summary of the many ways by which Fannie Mae and Freddie Mac can offer lower cost mortgages can be found in James H. Carr and Karen Annacker, "The Past and Current Politics of Housing Finance and the Future of Fannie Mae, Freddie Mac, and Homeownership in the United States," *Banking and Financial Services Report* 33, no. 7 (2012), 1–10, https://www.scribd.com/doc/235461123/The-Past-and-Future-of-Fannie-Mae-and-Freddie-Mac-and-Future-of-Homeownerhip.
17. A cursory history of financial innovation from Fannie Mae and Freddie Mac is included in Kelsie Brandlee, "Promoting Homeownership in the United States: The Rise and Fall of Fannie Mae and Freddie Mac" (Iowa City, IA: Center for International Finance and Development, University of Iowa, April 2011), http://www.freerepublic.com/focus/f-news/2915644/posts.
18. See, for example, Robert M. Dunsky and James R. Follain, "Tax-Induced Portfolio Reshuffling: The Case of the Mortgage Interest Deduction," *Real Estate Economics* 28, no. 4 (2000), 683–718; Victor Stango, "The Tax Reform Act of 1986 and the Composition of Consumer Debt," *National Tax Journal* 52, no. 4 (December 1999), 717–739.
19. All private sector DB pension plans are required to give beneficiaries the option of receiving an annuity. Over time, so-called cash balance DB pension plans have become increasingly popular in the private sector. Cash balance DB pension plans tend to offer beneficiaries a choice between taking a lump-sum payment and receiving an annuity. For

details on cash balance DB pension plans, see Christian Weller, "Ensuring Retirement Income Security with Cash Balance Plans" (Washington, DC: Center for American Progress, September 2005).

20. John Y. Campbell and Robert J. Shiller, "Valuation Ratios and the Long-Run Stock Market Outlook," *The Journal of Portfolio Management* 24, no. 2 (Winter 1998), 11–26; John Y. Campbell and Louis M. Viceira, "Long-Horizon Mean-Variance Analysis: A User Guide" (manuscript, Cambridge, MA: Harvard University, 2004).
21. Any form of annuitization will reduce longevity risk. A small longevity risk still remains even with self-annuitization and annuitization through a life insurance company. The employer that sponsors a DB pension plan may go out of business as may the life insurance company, and those business failures could lead to cuts in monthly benefit payments from the DB pension plan or the life insurance company.
22. Jules Lichtenstein and John Turner, "Cash Balance Pension Plans and Older Workers" (Washington, DC: AARP Public Policy Institute, October 2005), http://assets.aarp.org/rgcenter/econ/ib78_pension.pdf; Weller, "Ensuring Retirement Income Security with Cash Balance Plans."
23. Christian Weller and Sam Ungar, "Overhauling Federal Savings Incentives," *Tax Notes Today: Special Report* 42, no. 10 (March 2014). See for a discussion of the evidence on the link between savings plan design complexity and suboptimal savings.
24. Olivia S. Mitchell, Gary R. Mottola, Stephen P. Utkus, and Takeshi Yamaguchi, "The Inattentive Participant: Portfolio Trading Behavior in 401 (k) Plans" (Ann Arbor, MI: Michigan Retirement Research Center, 2006); Christian Weller, "Making Sure the Money Is There When We Need It" (Washington, DC: Center for American Progress, March 2013). For microeconomic evidence on households' failure to reallocate their assets during stock and housing price swings, see Weller and Bernardo, "Putting Retirement at Risk."
25. Hewitt Associates, "Research Highlights: Trends and Experience in 401(k) Plans" (Chicago, IL: Hewitt Associates, Llc, 2009), http://www.aon.com/attachments/thought-leadership/Hewitt_Research_Trends_in_401k_Highlights.pdf
26. US Department of Labor (DOL), Employee Benefits Security Administration (EBSA), "Regulation Relating to Qualified Default Investment Alternatives in Participant-Directed Account Plans" (Washington, DC: DOL, EBSA, April 2008), http://www.dol.gov/ebsa/pdf/fsQDIA.pdf; DOL, EBSA, "Field Assistance Bulletin No. 2008–03" (Washington, DC: DOL, EBSA, April 2008), http://www.dol.gov/ebsa/pdf/fab2008-3.pdf. Due to legal changes enacted with the Pension Protection Act of 2006, DC plans that offer automatic enrollment and meet criteria for a "qualified default investment alternative" ("QDIA") receive "safe harbor" status from the US Department of Labor and are provided with fiduciary relief. QDIA alternatives are mixed investments with both fixed income exposure and equity exposure, such as balanced funds and life cycle funds.
27. VanDerhei et al., "401(k) Plan Asset Allocation, Account Balances, and Loan Activity in 2012." Model portfolios are also referred to as life cycle funds or target date funds. At the end of 2012, 15 percent of assets were invested in this type of fund.
28. Robert J. Shiller, "Historic Turning Points in Real Estate," *Eastern Economic Journal* 34, no 1 (Winter 2008), 1–13. Housing market swings tend to be a little shorter, typically taking about a decade to go through a boom and bust cycle.
29. Regina T. Jefferson, "Rethinking the Risk of Defined Contribution Plans," *Florida Tax Review* 4, no. 9 (2000), 607–683; Marie-Eve Lachance, Olivia S. Mitchell, and Kent Smetters, "Guaranteeing Defined Contribution Pensions: The Option to Buy Back a Defined Benefit Promise," *Journal of Risk and Insurance* 40, no. 1 (2003), 1–16, doi: 10.1111/1539–6975.00044.
30. Shlomo Benartzi, Alessandro Previtero, and Richard H. Thaler, "Annuitization Puzzles," *The Journal of Economic Perspectives* 25, no. 4 (Fall 2011), 149–164; US Government Accountability Office (GAO), "Retirement Income, Ensuring Income throughout

Retirement Requires Difficult Choices," GAO-11–400 (Washington, DC: GAO, June 2011), 7.

31. Leslie Scism, "Insurance Fees, Revealed," *The Wall Street Journal*, updated March 30, 2012, http://online.wsj.com
32. Jeffrey R. Brown, "Rational and Behavioral Perspectives on the Role of Annuities in Retirement Planning," Working Paper No. w13536 (Cambridge, MA: National Bureau of Economic Research, 2007), http://www.nber.org/papers/w13537.pdf
33. Rachel Drew and Christian Weller, "A Safe Investment? Assessing Economic Explanations for the Perceived Risk-Return Trade-off of Owner-Occupied Housing in the United States," paper presented at the Eastern Economic Association Annual Conference, Boston, MA, March 8, 2014.
34. See, for instance, Weller, "Making Sure Money Is Available When We Need It"; Weller and Bernardo, "Putting Retirement at Risk."
35. Christian Weller and Derek Douglas, "One Nation under Debt," *Challenge* 50, no 1 (2007), 54–75.
36. Donald L. Redfoot, Ken Scholen, and S. Kathi Brown, "Reverse Mortgages: Niche Product or Mainstream Solution? Report on the 2006 AARP National Survey of Reverse Mortgage Shoppers" (Washington, DC: AARP Public Policy Institute, 2007), 5–6, http://assets.aarp.org/rgcenter/consume/2007_22_revmortgage.pdf.

7 A Perfect Storm: Labor and Financial Market Risks Feed on Each Other

1. All quotes taken from *Retirement Security 2015: Roadmap for Policy Makers: Americans' Views of the Retirement Crisis*, a biennial public opinion research conducted by the National Institute on Retirement Security and Greenwald & Associates, March 2015.
2. For a discussion of the relevant theoretical and empirical literature that shows the regular co-movements between labor and financial markets over the course of the business cycle, see Christian E. Weller and Jeffrey B. Wenger, "What Happens to Defined Contribution Accounts When Labor Markets and Financial Markets Move Together?" *Journal of Aging & Social Policy* 21, no. 3 (2009), 256–276, doi: 10.1080/08959420902733298.
3. Dean Baker, "The Run-up in Home Prices: A Bubble," *Challenge* 45, no. 6 (2002): 293–319.
4. Dale L. Domian and David A. Louton, "Business Cycle Asymmetry and the Stock Market," *The Quarterly Review of Economics and Finance* 35, no. 4 (Winter 1995): 451–466; Edward E. Leamer, "Housing Is the Business Cycle," NBER Working Paper No. w13428 (Cambridge, MA: National Bureau of Economic Research, September 2007), doi: 10.3386/w13428.
5. Stanley Fischer and Robert C. Merton, "Macroeconomics and Finance: The Role of the Stock Market," Carnegie-Rochester Conference Series on Public Policy 21, North Holland, 1984; Atruro Estrella and Frederic S. Mishkin, "Predicting U.S. Recessions: Financial Variables as Leading Indicators," NBER Working Paper No. 5378 (Cambridge, MA: National Bureau of Economic Research, 1995).
6. Peter Brady and Michael Bogdan, "Who Gets Retirement Plans and Why, 2013," *Investment Company Institute Research Perspective* 20, no. 6 (October 2014), http://www.ici.org/pdf/per20-06.pdf.
7. William M. Rohe and Mark Lindblad, "Reexamining the Social Benefits of Homeownership after the Housing Crisis," Working Paper HBTL-04 (Cambridge, MA: Joint Center for Housing Studies, Harvard University, 2013); Joseph Gyourko and Joseph

Tracy, "Reconciling Theory and Empirics on the Role of Unemployment in Mortgage Default," *Journal of Urban Economics* 80 (March 2014), 87–96.

8. Rajashri Chakrabarti, Donghoon Lee, Wilbert van der Klaauw, and Basit Zafar, "Household Debt and Saving during the 2007 Recession," Staff Reports no. 482 (New York, NY: Federal Reserve Bank of New York, January 2011), http://www.newyorkfed.org/research/staff_reports/sr482.pdf.
9. It may also be possible that employers may cut on their contributions to their employee retirement savings plans when the economy enters a recession. For instance, the following finds that employer contributions fell during the 2001 recession. Alicia Munnell and Annika Sunden, *Coming Up Short: The Challenges of 401(k) Plans* (Washington, DC: Brookings Institution Press, 2004).
10. Josh Bivens and Christian Weller, "The 'Job Loss' Recovery: Not New, Just Worse," *Journal of Economic Issues* 40, no. 3 (2006), 603–628. For example, this report shows that profits recovered substantially faster after the 2001 recession than during previous years.
11. All numbers from David Copeland, "Employment-Based Plan Participation: Geographic Differences and Trends, 2012," EBRI Issue Brief No. 392 (Washington, DC: Employee Benefits Research Institute, 2013), http://www.ebri.org/publications/ib/index.cfm?fa=ibDisp&content_id=5292
12. Contributions to retirement plans tend to decline when workers experience adverse earnings shocks. Those workers who changed jobs and had lower earnings afterwards, for instance, on average contributed 58 percent less after their job change between 2005 and 2007—before the Great Recession. See Irena Dushi and Howard Iams, "The Impact of Employment and Earnings Shocks on Contribution Behavior in Defined Contribution Plans: 2005–2009," *Journal of Retirement* 4, no. 2 (2015), 86–104.
13. For a discussion of the limits of the Saver's Credit for lower income earners and of the benefits of progressive savings matches, see Joe Valenti and Christian Weller, "Creating Economic Security: Using Progressive Savings Matches to Counter Upside-Down Tax Incentives," CAP Issue Brief (Washington, DC: Center for American Progress, 2013).
14. Barbara A. Butrica, Sheila R. Zedlewski, and Philip Issa, "Understanding Early Withdrawals from Retirement Accounts," Discussion Paper 10–02 (Washington, DC: The Urban Institute, May 2010), http://www.urban.org/uploadedpdf/412107-early-withdrawals.pdf
15. Catherine Collinson, "The Retirement Readiness of Three Unique Generations: Baby Boomers, Generation X, and Millennials," TCRS 1171–0514 (Transamerica Center for Retirement Studies, April, 2014), http://www.transamericacenter.org/docs/default-source/resources/center-research/tcrs2014_sr_three_unique_generations.pdf
16. Gary R. Mattola, "Softening the Blow: Income Shocks, Mortgage Payments and Emergency Savings," *Insights: American Financial Capability* (Washington, DC: FIRNA Investor Education Foundation, March 2013); US Department of Housing and Urban Development (HUD), Office of Policy Development and Research, "Report to Congress on the Root Causes of the Foreclosure Crisis" (Washington, DC: HUD, January 2010), http://www.huduser.org/portal/publications/Foreclosure_09.pdf. Slowing mortgage payments also lowers the value of households' home equity below what it otherwise would have been. In extreme cases, households will lose all of their home equity in foreclosures.
17. See Christian E. Weller and Jeffrey B. Wenger, "What Happens to Defined Contribution Accounts When Labor Markets and Financial Markets Move Together?" *Journal of Aging & Social Policy* 21, no. 3 (2009), 256–276, doi: 10.1080/08959420902733298 for a review of some of the key labor market evidence; and Christian Weller and Jaryn Fields, "The Black and White Labor Gap in America," CAP Issue Brief (Washington, DC: Center for American Progress, July 2011) for a summary of some key data.
18. Weller and Wenger, "What Happens to Defined Contribution Accounts When Labor Markets and Financial Markets Move Together?"

19. Ibid.
20. Weller and Fields, "The Black and White Labor Gap in America."
21. Ibid.; Christian Weller and Farah Z. Ahmad, "The State of Communities of Color in the U.S. Economy: Still Feeling the Pain 4 Years into the Recovery" (Washington, DC: Center for American Progress, 2013).
22. For a discussion of the available labor market data on subpopulations of the Asian American community, see Farah Ahmad and Christian Weller, "Reading between the Data: The Incomplete Story of Asian Americans, Native Hawaiians, and Pacific Islanders" (Washington, DC: Center for American Progress, 2014).
23. Debbie Gruenstein Bocian, Wei Li, and Keith S. Ernst, "Foreclosures by Race and Ethnicity: The Demographics of a Crisis," CRL Research Report (Washington, DC: Center for Responsible Lending, June 2010); Rakesh Kochhar, Ana Gonzalez-Barrera, and Daniel Dockterman, "Through the Boom and Bust: Minorities, Immigrants, and Homeownership" (Washington, DC: Pew Hispanic Center, May 2009), http://www.pewhispanic.org/files/reports/109.pdf
24. For similar simulations, see Jason Seligman and Jeffrey B. Wenger, "Asynchronous Risk: Retirement Savings, Equity Markets, and Unemployment," *Journal of Pension Economics and Finance* 5, no. 3 (2006). doi:10.1017/S1474747206002630
25. Theoretically savings and consumption differ from earnings, such that people save more as they get older through their mid-career and they then save less as they near retirement. But empirically consumption and by definition, savings tend to follow earnings more closely than theory predicts. For an in-depth discussion of the data and theory, see Martin Browning and Thomas F. Crossley, "The Life-Cycle Model of Consumption and Saving," *Journal of Economic Perspectives* 15, no. 3 (2001), 3–22, doi:10.1257/jep.15.3.3
26. US Census Bureau, "Income Data, Historical Tables, People, Table P-8, Age—People, All Races, by Median Income and Sex: 1947 to 2013" (Washington, DC: US Census Bureau, 2014). The hypothetical earnings start with $15,000 (in 2013 dollars) at age 30, grow at an annual rate of 2.5 percent in real terms, moderated by a rate of 0.75 percent times the squared difference between the workers age minus 30. The starting salary is close to the median real earnings (in 2013 dollars) recorded for male workers between the ages of 25 and 34, which amounted to $14,672 in 1979.
27. All rates of return are in real terms. The rate of return on stocks is the stock price appreciation plus the dividend yield. Stock prices, dividend yield, long-term government bond rates and consumer price index (CPI-U) are all taken from Robert Shiller, "Irrational Exuberance—IrrationalExuberance.com" (New Haven, CT: Yale University, 2014), accessed November 13, 2014, http://www.irrationalexuberance.com. Corporate bond interest rates are taken from the Board of Governors (BOG), Federal Reserve System, "Release H.15 Selected Interest Rates, Historical Data" (Washington, DC: BOG, 2014), accessed November 10, 2014, http://www.federalreserve.gov/releases/h15/data.htm
28. The alternative scenarios are likely understatements of the actual effects since typical spells of unemployment for those impacted by disproportionately long unemployment spells can be much longer than an extra six months. And it can take years before workers recover to their original savings rate, often for instance, because it takes time before workers reinstate their original matching and nonelective contributions to retirement savings accounts. And finally, a nontrivial share of people with retirement accounts and with home equity will liquidate their savings by borrowing against their assets, thus reducing instead of increasing their assets during a recession.
29. Jack VanDerhei, Sarah Holden, Luis Alonso, and Steven Bass, "401(k) Plan Asset Allocation, Account Balances, and Loan Activity in 2012," EBRI Issue Brief No. 394 (Washington, DC: Employee Benefit Research Institute, 2013), and *Investment Company Institute Research Perspective* 19, no. 12 (December 2013), 1, 14. In 2008, after the Great Recession started,

401(k) loans as a percentage of account balances increased four percentage points over the previous year. In 2009, the share of eligible 401(k) participants with outstanding 401(k) loans increased three percentage points over the previous three years and remained steady at this higher rate following the recession's end. See also Christian E. Weller and Jeffrey Wenger, "Easy Money or Hard Times? Health and 401(k) Loans," *Contemporary Economic Policy* 30, no 1 (January 2012), 29–42, doi:10.1111/j.1465–7287.2011.00251.x for a discussion of pension loan reasons.

30. Barbara A. Butrica, Sheila R. Zedlewski, and Philip Issa, "Understanding Early Withdrawals from Retirement Accounts," Discussion Paper 10–02 (Washington, DC: The Urban Institute, May 2010), http://www.urban.org/uploadedpdf/412107-early-withdrawals.pdf
31. The time adjustment is done by assuming a constant discount rate of three percent in real terms.

8 The Pitfalls of Employer-Sponsored Retirement

1. All quotes taken from *Retirement Security 2015: Roadmap for Policy Makers: Americans' Views of the Retirement Crisis*," a biennial public opinion research conducted by the National Institute on Retirement Security and Greenwald & Associates, March 2015.
2. For a discussion of the US retirement system compared to other countries, see Christian Weller, "The Future of Public Pensions," *Cambridge Journal of Economics* 28, no. 4 (July 2004), 489–504.
3. Organisation for Economic Cooperation and Development (OECD), "Social Expenditure Update—Social Spending Is Falling in Some Countries, but in Many Others It Remains at Historically High Levels" (Paris, France: OECD, November 2014), 8. In 2014, the OECD ranked the United States second for net total social expenditure, which includes direct taxes and social contributions, indirect taxes and net tax breaks for social purposes. It also includes tax incentives for retirement savings. See also Len Burman and Joel Slemrod, "The Hidden Welfare State," in *Taxes in America: What Everyone Needs to Know* (New York, NY: Oxford University Press, 2013) for a description of personal tax expenditures.
4. Some state and local governments as employers are in a somewhat different situation and have to offer retirement benefits that are not part of Social Security to their employees. A number of states including California decided not to participate in Social Security in 1983 during the last major Social Security reform. States that do not participate in Social Security, though, have to offer retirement benefits to their employees that are substantially equivalent to Social Security benefits. That is, some retirement benefits in the public sector are akin to Social Security, while they are comparable to private sector additional savings in states that participate in Social Security, such as Pennsylvania. Alicia Munnell and Mauricio Soto, "State and Local Pensions Are Different from Private Plans," State and Local Pension Plans 1 (Boston, MA: Center for Retirement Research, November 2007); Christian Weller and Ilana Boivie, "The Fiscal Crisis, Public Pensions, and Implications for Labor and Employment Relations," in Daniel Mitchell, ed., *Impact of the Great Recession on Public Sector Employment, Labor and Employment Relations Research* (Ithaca, NY: Cornell University Press, 2011); Internal Revenue Service (IRS), "Government Retirement Plans Toolkit" (Washington, DC: IRS, 2014), accessed January 30, 2014, http://www.irs.gov/Government-Entities/Federal,-State-&-Local-Governments/Government-Retirement-Plans-Toolkit
5. FINRA Investor Education Foundation, "Financial Capability in the United States, Report of Findings from the 2012 National Financial Capability Study" (Washington,

DC: FIRNA Investor Education Foundation, May 2013); Michal Grinstein-Weiss, Michael Sherraden, William Rohe, William Gale, Mark Schreiner, and Clinton Key, "Long-Term Follow-up of Individual Development Accounts: Evidence from the ADD Experiment," CSD Report 12–43 (St. Louis, MO: Center for Social Development, Washington University, 2012).

6. Stefano DellaVigna, "Psychology and Economics: Evidence from the Field," *Journal of Economic Literature* 47, no. 2 (2009), 315–372, doi: 10.1257/jel.47.2.315
7. These are technically tax deferrals. People first get tax breaks while they save for retirement, but then have to pay taxes when they receive income from their retirement savings. Savers still receive a net tax benefit during their lifetime, largely because of tax-free capital income during their savings years and because future tax rates tend to be lower due to lower incomes and greater tax breaks in retirement than during working years.
8. Some DC retirement savings plans, so-called Roth plans, receive contributions after federal income taxes have been paid, but the money withdrawn from these plans are not subject to federal income taxation. But Roth-type plans are not the norm for employer-sponsored retirement plans.
9. My discussion here focuses exclusively on traditional 401(k) plans. So-called Roth 401(k)s also offer tax advantages, but contributions to such retirement savings plans come after federal income taxes have been paid.
10. The dollar limit only applies if it is smaller than 100 percent of an employee's compensation. See Internal Revenue Service (IRS), "COLA Increases for Dollar Limitations on Benefits and Contributions" (Washington, DC: IRS, 2014), accessed December 29, 2014, http://www.irs.gov/Retirement-Plans/COLA-Increases-for-Dollar-Limitations-on-Benefits-and-Contributions; and Internal Revenue Service (IRS), "Retirement Topics—401(k) and Profit-Sharing Plan Contribution Limits" (Washington, DC: IRS, 2014), accessed December 29, 2014, http://www.irs.gov/Retirement-Plans/Plan-Participant,-Employee/Retirement-Topics-401k-and-Profit-Sharing-Plan-Contribution-Limits
11. The dollar limit only applies if it is smaller than 100 percent of an employee's compensation. See IRS, "COLA Increases for Dollar Limitations on Benefits and Contributions" and "Retirement Topics—401(k) and Profit-Sharing Plan Contribution Limits."
12. Janette Kawachi, Karen E. Smith, and Eric J. Toder, "Making Maximum Use of Tax-Deferred Retirement Accounts" (Washington, DC: The Urban Institute, 2005).
13. Employers do not have to pay their share of payroll taxes for Social Security and Medicare for their contributions to a DC retirement account, while employees are typically still responsible for their share of the payroll tax on the contributions they make to a DC account. See Internal Revenue Service (IRS), "Employer 'Pick-Up' Contributions to Benefit Plans," *IRS.gov*, last modified April 1, 2014, http://www.irs.gov/Government-Entities/Federal,-State-&-Local-Governments/Employer-Pick-Up-Contributions-to-Benefit-Plans

    Determining the maximum that an employer can contribute on behalf of an employee is a somewhat complicated calculation. The total amount of tax-deferred contributions to DC accounts for 2014, for instance, was $52,000 without catch-up contributions for older employees. Assume that one employee works only for one employer who offered a 401(k) plan in 2014 and contributed the maximum amount for employees—$17,500. The employer could then contribute another $34,500—or almost twice as much—to the employee's account. The employer's contribution limit is smaller if the employee contributes to another employment-based retirement account such as a Self-Employed Plan (SEP). On the other hand, the employer's contribution limit can increase for older employees who are allowed to make additional contributions and if the employee does not make the maximum allowed employee contribution. See IRS, "Retirement Topics—401(k) and Profit-Sharing Plan Contribution Limits."

14. The nondiscrimination test is formula-based. Whether a company is in compliance depends on its share of highly compensated employees. For a discussion, see, for instance, 401(k) Help Center, "Highly Compensated Employee Rules Aim to Make 401k's Fair," *401kHelpCenter.com*, accessed December 30, 2014, http://www.401khelpcenter.com/mpower/feature_030702.html#.VKKqn2cBg. For income limits, see IRS, "COLA Increases for Dollar Limitations on Benefits and Contributions."
15. See IRS, "401(k) Resource Guide—Plan Sponsors—401(k) Plan Overview" (Washington, DC: IRS, 2014), accessed December 30, 2014, http://www.irs.gov/Retirement-Plans/Plan-Sponsor/401k-Resource-Guide-Plan-Sponsors-401k-Plan-Overview. 401(k) Help Center, "Highly Compensated Employee Rules Aim to Make 401k's Fair."
16. See, for example, MBM Advisors, Inc., "FAQ: Automatic Enrollment Safe Harbor 401(k)" (Houston, TX: MBM Advisors, 2014), accessed December 30, 2014, http://www.mbm-inc.com/pdfs/2013%20FAQ%20Automatic%20Enrollment%20Safe%20Harbor%20401%28k%29.pdf
17. The particular data source on which these summary statistics rely does not distinguish between DB pensions and DC plans. Combining both types of employment-based retirement plans into one statistic also has the advantage of creating consistent trends over time.
18. The figure starts in 1975, although data for prior years are available. Data before 1975 are generally not comparable to the data in later years due to the changing requirements for employer contributions that were enacted with the Employee Retirement Income Security Act of 1974.
19. Based on Bureau of Economic Analysis (BEA), "National Income and Product Accounts" (Washington, DC: BEA, 2014).
20. I discuss fees associated with retirement savings in more detail in other chapters. Also see Jennifer Erickson and David Madland, "Fixing the Drain on Retirement Savings: How Retirement Fees Are Straining the Middle Class and What We Can Do about Them" (Washington, DC: Center for American Progress, April, 2014) and Christian Weller and Shana Jenkins, "Building 401(k) Wealth One Percent at a Time: Fees Chip Away at People's Retirement Nest Eggs" (Washington, DC: Center for American Progress, March 2007).
21. All numbers refer to private sector wage and salary workers between the ages of 21 and 64 years. Based on Craig Copeland, "Employment-Based Retirement Plan Participation: Geographic Differences and Trends, 2013," EBRI Issue Brief No. 405 (Washington, DC: Employee Benefits Research Institute, 2014) and Craig Copeland, "Employment-Based Retirement Plan Participation: Geographic Differences and Trends, 2012," EBRI Issue Brief No. 392 (Washington, DC: Employee Benefits Research Institute, 2013).
22. PBGC insurance covers benefits up to a maximum and some benefits are not or only partially covered. The insurance coverage for benefit improvements is phased in over five years.
23. For an easily accessible summary of the relevant literature, see Cass Sunstein and Richard Thaler, *Nudge: Improving Decisions about Health, Wealth, and Happiness* (London, UK: Penguin Books, 2009), 120–133. For a discussion of the rules of thumb that households use in making investment decisions in 401(k) type accounts, see also Shlomo Bernartzi and Richard Thaler, "Heuristics and Biases in Retirement Savings Behavior," *Journal of Economic Perspectives* 21, no. 3 (Summer 2007), 81–104.
24. Christian Weller, "Making Sure Money Is Available When We Need It" (Washington, DC: Center for American Progress, March 2013); Christian Weller, "Protecting Retirement Wealth," *Challenge* 56, no. 4 (2013), 51–88, doi:10.2753/0577–5132560405; Christian Weller and Sara Bernardo, "Putting Retirement at Risk: Has Financial Risk Exposure Grown Faster for Older Households than Younger Ones?" Working Paper (Boston, MA: Gerontology Institute, UMass Boston, 2014).

25. The trends do not change with different thresholds.
26. IDAs can be used to save for a number of different purposes, including retirement. See Michal Grinstein-Weiss, Michael Sherraden, William Gale, William M. Rohe, and Mark Schreiner, "Effects of an Individual Development Account Program on Retirement Saving: Follow-up Evidence from a Randomized Experiment," CSD Working Papers No. 12–54 (St. Louis, MO: Washington University, Center for Social Development, 2012).
27. US Department of the Treasury, "About myRA: Fact Sheet" (Washington, DC: US Department of Treasury, 2014), accessed March 1, 2015, https://myra.treasury.gov/resources/myRA_About.pdf
28. Pension Rights Center, "State-Based Retirement Plans for the Private Sector" (Washington, DC: Pension Rights Center, 2014), accessed January 24, 2014, http://www.pensionrights.org/issues/legislation/state-based-retirement-plans-private-sector; Aleta Sprague, "The California Secure Choice Retirement Savings Program" (Washington, DC: New America Foundation, 2013).
29. American Savings Promotion Act, H.R. 3374/P.L. 113–251, 113th Congress (2014).
30. J. Mark Iwry and David C. John, "Pursuing Universal Retirement Security through Automatic IRAs" (Washington, DC: The Retirement Security Project, 2009); USA Retirement Funds Act, S. 1979, 113th Congress (2013–2014).
31. For a proposal with an explicit government guarantee, see Teresa Ghilarducci, *When I'm Sixty-Four: The Plot against Pensions and the Plan to Save Them* (Princeton, NJ: Princeton University Press, 2008); Teresa Ghilarducci, Robert Hiltonsmith, and Lauren Schmitz, "State Guaranteed Retirement Accounts" Working Paper (New York, NY: Demos, Schwartz Center for Economic Policy Analysis, The New School, 2012). For a proposal with low-risk investment options, see Alicia Munnell, Andrew Eschtruth, and Charles Ellis, *Falling Short: The Coming Retirement Crisis and What to Do about It* (New York, NY: Oxford University Press, 2014), 118–120.
32. For a discussion of savings simplification across a number of nonhousing savings incentives, see Weller and Ungar, "Overhauling Federal Savings Incentives." For a detailed simplification proposal, see The President's Advisory Panel on Federal Tax Reform, *Simple, Fair, and Pro-Growth: Proposals to Fix America's Tax System* (November 2005).

9 Upside-Down Tax Incentives

1. All quotes taken from *Retirement Security 2015: Roadmap for Policy Makers: Americans' Views of the Retirement Crisis*," a biennial public opinion research conducted by the National Institute on Retirement Security and Greenwald & Associates, March 2015.
2. Roth IRAs and Roth 401(k)s receive a different tax advantage. Contributions to these types of retirement savings plans occur after a tax payer has paid income taxes, but investment gains and withdrawals from these savings accounts are tax-free.
3. Pamela Perun and C. Eugene Steuerle, "Reality Testing for Pension Reform" (Philadelphia, PA: Pension Research Council, 2004).
4. Shlomo Bernartzi and Richard Thaler, "Heuristics and Biases in Retirement Savings Behavior," *Journal of Economic Perspectives* 21, no. 3 (Summer 2007), 81–104.
5. Gary R. Mottola and Stephen P. Utkus, "Can There Be Too Much Choice in a Retirement Savings Plan?" (Valley Forge, PA: Vanguard Center for Retirement Research, 2006).
6. Sheena Sethi-Iyengar and others, "How Much Choice Is Too Much? Contributions to 401(k) Retirement Plans," in Olivia S. Mitchell and Stephen P. Utkus, eds., *Pension Design and Structure: New Lessons from Behavioral Finance* (New York, NY: Oxford University Press, 2004).

7. See Internal Revenue Service (IRS), "Topic 558—Additional Tax on Early Distributions from Retirement Plans Other than IRAs," *IRS.gov,* last modified January 29, 2015, http://www.irs.gov/taxtopics/tc558.html for details on potential exceptions to this excise tax.
8. Internal Revenue Service, "Retirement Plans FAQs Regarding Hardship Distributions," *IRS.gov*, last modified March 2, 2015, http://www.irs.gov/Retirement-Plans/Retirement-Plans-FAQs-regarding-Hardship-Distributions#7
9. Internal Revenue Service, "Retirement Plans FAQs Regarding Hardship Distributions."
10. On pension loans, see Christian E. Weller and Jeffrey Wenger, "Easy Money or Hard Times? Health and 401(k) Loans," *Contemporary Economic Policy* 30, no 1 (January 2012), 29–42, doi: 10.1111/j.1465–7287.2011.00251.x. On withdrawals, see Robert Argento, Victoria Bryant, and John Sabelhaus, "Early Withdrawals from Retirement Accounts during the Great Recession," Finance and Economics Discussion Series Working Paper 2013–2 (Washington, DC: Divisions of Research and Statistics and Monetary Affairs, Federal Reserve Board, 2013).
11. See, for instance, Christian E. Weller and Jeffrey Wenger, "Easy Money or Hard Times? Health and 401(k) Loans," *Contemporary Economic Policy* 30, no 1 (January 2012), 29–42, doi: 10.1111/j.1465–7287.2011.00251.x.
12. Joint Center for Housing Studies of Harvard University (JCHS), "The State of the Nation's Housing, 2014" (Cambridge, MA: JCHS, 2014), http://www.jchs.harvard.edu/sites/jchs.harvard.edu/files/sonhr14-color-full.pdf
13. Joe Valenti and Christian E. Weller, "Creating Economic Security: Using Progressive Savings Matches to Counter Upside-Down Tax Incentives" (Washington, DC: Center for American Progress, November, 2013); J. Michael Collins and Leah Gjertson, "Emergency Savings for Low-Income Consumers," Focus 30.1 (Madison, WI: University of Wisconsin–Madison, Institute for Research on Poverty, n.d.), 12–17, http://www.irp.wisc.edu/publications/focus/pdfs/foc301c.pdf
14. Jennifer Brooks, Kasey Wiedrich, Lebaron Sims Jr., and Solana Rice, "Excluded from the Financial Mainstream: How the Economic Recovery Is Bypassing Millions of Americans" (Washington, DC: Corporation for Enterprise Development, 2015).
15. Corporation for Enterprise Development, "Liquid Asset Poverty Rate," *Assets & Opportunity Scorecard*, accessed March 11, 2015, http://scorecard.assetsandopportunity.org/latest/measure/liquid-asset-poverty-rate
16. See also Teresa Ghilarducci, *When I'm Sixty-Four: The Plot against Pensions and the Plan to Save Them* (Princeton, NJ: Princeton University Press, 2008).
17. Internal Revenue Service (IRS), "1040 Tax Tables 2014" (Washington, DC: IRS, 2014), accessed March 11, 2015, http://www.irs.gov/pub/irs-pdf/i1040tt.pdf
18. See Congressional Budget Office (CBO), "The Distribution of Major Tax Expenditures in the Individual Tax System" (Washington, DC: CBO, 2013), http://www.cbo.gov/sites/default/files/43768_DistributionTaxExpenditures.pdf; see also supplemental data for this report (Figure 2), available at http://www.cbo.gov/publication/43768
19. For some illustrative examples and a review of relevant other research, see, for instance, Peter Brady, "The Tax Benefits and Revenue Costs of Tax Deferral" (Washington, DC: Investment Company Institute, September 2012).
20. Peter Brady, "The Tax Benefits and Revenue Costs of Tax Deferral" (Washington, DC: Investment Company Institute, September, 2012).
21. My discussion includes only some of the most important complications, but leaves out additional ones such as the interaction between federal and state income taxes, differential taxes on varying forms of withdrawals such as annuities and self-managed withdrawals, and the potential for differing rates of return by income since higher income earners presumably have more assets and hence often pay lower fees on their investments than is the case for higher income earners.

22. Data from US Bureau of Labor Statistics, *National Compensation Survey* (Washington, DC: US Department of Labor, 2013).
23. Internal Revenue Service (IRS), "Exemptions, Standard Deduction, and Filing Information," Publication 501 (Washington, DC: IRS, 2014), accessed March 12, 2015, http://www.irs.gov/publications/p501/. Those aged 65 or older are able to take a higher standard deduction, specifically $1,550 more individually and up to $2,400 more jointly.
24. Gary R. Mottola, "The Financial Capability of Young Adults—a Generational View" (Washington, DC: FIRNA Investor Education Foundation, March 2014), http://www.usfinancialcapability.org/downloads/FinancialCapabilityofYoungAdults.pdf; Karen Smith, Mauricio Soto, and Rudolph G. Penner, "How Seniors Change Their Asset Holdings during Retirement" (Washington, DC: The Urban Institute, August 10, 2009), http://www.nber.org/2009rrc/3.1%20Smith,%20Soto,%20Penner.pdf; James M. Poterba, Steven F. Venti, and David A. Wise, "401(k) Plans and Future Patterns of Retirement Saving," *The American Economic Review* 88, no. 2, papers and proceedings of the Hundred and Tenth Annual Meeting of the American Economic Association (May 1998), 179–184.
25. Stewart E. Sterk and Melanie B. Leslie, "Accidental Inheritance: Retirement Accounts and the Hidden Law of Succession," *New York University Law Review* 89 (2014), 165–237. The tax code tries to counter this possibility by requiring that households withdraw a minimum share of their savings in IRAs, for instance, no later than the year after they turn seventy-and-a-half years. See Internal Revenue Service (IRS), "Retirement Topic—Required Minimum Distributions," *IRS.gov*, last modified January 26, 2015, http://www.irs.gov/Retirement-Plans/Plan-Participant,-Employee/Retirement-Topics-Required-Minimum-Distributions-%28RMDs%29
26. Higher income households tend to have more assets held in retirement accounts than lower income households and experience a lower rate of decumulation from these accounts, starting at a later age. See, for example, Smith et al., "How Seniors Change Their Asset Holdings during Retirement." See also Congressional Budget Office (CBO), "Will the Demand for Assets Fall When Baby Boomers Retire?" CBO Pub. No. 2843 (Washington, DC: CBO, September 2009), http://www.cbo.gov/sites/default/files/09-08_baby-boomers.pdf
27. The value of these savings incentives as share of after-tax income drops for the top one percent to 2.6 percent. This relative decline at the very top of the income distribution reflects very high incomes and some limits on savings incentives. Counting all itemized deductions, the top earners still receive a larger share of income than lower income earners. See, for instance, Tax Policy Center (TPC), "2013 Table T13–0099 Tax Benefit of All Itemized Deductions; Distribution of Federal Tax Change by Cash Income Percentile" (Washington, DC: TPC, 2015).
28. Eric M. Engen and William G. Gale, "The Effects of 401(k) Plans on Household Wealth" (Washington, DC: National Bureau of Economic Research, 2000); Daniel J. Benjamin, "Does 401(k) Eligibility Increase Saving?" *Journal of Public Economics* 87, no. 5 (2003), 1259–1290.
29. From supplemental data for Congressional Budget Office (CBO), "The Distribution of Major Tax Expenditures in the Individual Income Tax System." The CBO found that the difference in revenues collected from the top quintile of tax payers between the current tax system and a system in which contributions to retirement accounts were taxed as ordinary income and in which investment earnings in retirement accounts were taxed as ordinary investment income was $92 billion.
30. All numbers refer to provisions in the US tax code.
31. The exact length of investment—or tax deferral—does not materially impact the conclusions of my discussion.

32. There is a substantial debate in the literature over the exact discount rate to use for retirement calculations. For a discussion of discount rates for DB pension plans, see Christian Weller and Dean Baker, "Smoothing the Waves of Pension Funding: Could Changes in Funding Rules Help Avoid Cyclical Under-funding," *The Journal of Policy Reform 8*, no. 2 (June 2005), 131–151. I choose six percent here as the discount rate to make my results comparable to others, specifically those generated by the ICI's Peter Brady.
33. The contribution limits are greater than this since the independent contractor can make employer contributions to a SEP IRA, which have higher limits than employee contributions. The employer limit for 2015 is $53,000. See Internal Revenue Service, "SEP Plan FAQs—Contributions," *IRS.gov,* last modified February 23, 2015, http://www.irs.gov/Retirement-Plans/Retirement-Plans-FAQs-regarding-SEPs-Contributions
34. Annamaria Lusardi and Olivia Mitchell, "Financial Literacy and Retirement Preparedness: Evidence and Implications for Financial Education Programs," CFS Working Paper No. 2007/15 (Frankfurt, Germany: Center for Financial Studies, Goethe University Frankfurt, 2007), http://www.econstor.eu/bitstream/10419/25516/1/527633305.pdf
35. Brady, "The Tax Benefits and Revenue Costs of Tax Deferral"; David Love, "What Can the Life Cycle Model Tell Us about 401(k) Contributions and Participation" (Williamstown, MA: Williams College, 2006), http://projects.vassar.edu/lamacro/web/Love.pdf; Geng Li and Paul Smith, "Borrowing From Yourself: 401(k) Loans and Household Balance Sheets," Finance and Economics Discussion Series Working Paper 2008–42 (Washington, DC: Divisions of Research and Statistics and Monetary Affairs, Federal Reserve Board, 2008).

10 Sidelined: The Millions Who Are Left Out

1. All quotes taken from *Retirement Security 2015: Roadmap for Policy Makers: Americans' Views of the Retirement Crisis*, a biennial public opinion research conducted by the National Institute on Retirement Security and Greenwald & Associates, March 2015.
2. Peter Brady, "Who Gets Retirement Plans and Why: An Update," *Investment Company Institute Research Perspective* 17, no. 3 (March 2011).
3. I focus here solely on tax incentives that are intended to get people to save more than they otherwise would, although these incentives are often very inefficient as I argue in chapter 9. The tax code further offers incentives to get people to invest their savings in particular assets such as stocks and municipal bonds, but their primary purpose is not to get people to save more money in the first place.
4. Based on Board of Governors (BOG), Federal Reserve System, *Survey of Consumer Finances—2013.*
5. Calculations of the shares of households self-identifying as nonsavers in the *SCF* in fact show a trend parallel to that of households without any tax-advantaged savings. The share of households identifying as nonsavers, though, is much greater with 52.7 percent in 2013, than the 25.1 percent share of households without any tax-advantaged savings that same year. The difference is in large measure explained by households not being aware that their owner-occupied housing and their DB pensions are in fact ways to save. Calculations based on Board of Governors of the Federal Reserve System, *Survey of Consumer Finances—2013.*
6. Pension loans tend to be a double-edged sword. Some households tend to save more because they have access to their savings through pension loans as would be the case without such loans. But that only holds for households who are otherwise financially savvy. Households that are prone to making financial mistakes because of a desire for instant gratification also do not tend to save more because of access to pension loans. And households often borrow

from their 401(k) loans because they have health problems and need to pay their health-care bills. That is, pension loans likely reduce retirement savings for households that need help in saving for their future the most. See Christian E. Weller and Jeffrey Wenger, "Easy Money or Hard Times? Health and 401(k) Loans," *Contemporary Economic Policy* 30, no 1 (January 2012), 29–42, doi:10.1111/j.1465–7287.2011.00251.x and Christian E. Weller and Jeffrey Wenger, "Boon or Bane: 401(k) Loans and Employee Contributions," *Research on Aging* 36, no 5 (July 2014), 527–556.

7. It is possible that this gap could be explained by the change from DB pensions to 401(k) plans. Assets in 401(k) plans are counted as marketable wealth, while assets in DB pensions are not. That is, household wealth should increase as more households have 401(k) plans and fewer households had DB pensions. And 401(k) plans may have risen faster among households with three or four tax-advantaged savings than among households with one or two tax-advantaged savings. But the data show that the share of households with 401(k) plans has grown faster from 15.9 percent in 1989 to 36.8 percent in 2013 among households with one or two tax-advantaged savings than among households with three or four tax-advantaged savings, who saw an increase in the share with 401(k) plans from 69.2 percent to 82.3 percent during the time period. The relative and absolute change is faster among households with just a few tax-advantaged savings than among those with three or four such assets. Calculations based on Board of Governors of the Federal Reserve System, *Survey of Consumer Finances* (Washington, DC: BOG, various years).
8. The demographic composition of households in each group is very close in the early years, from 1989 to 1998, and in the later years, from 2001 to 2013. Summary data are available from author upon request.

11 Charting a New Course

1. All quotes taken from *Retirement Security 2015: Roadmap for Policy Makers: Americans' Views of the Retirement Crisis*, a biennial public opinion research conducted by the National Institute on Retirement Security and Greenwald & Associates, March 2015.
2. Rebecca Vallas, Christian E. Weller, Rachel West, Jackie Odum, "The Effect of Rising Inequality on Social Security," CAP Issue Brief (Washington, DC: Center for American Progress, February 2015) similarly show that rising inequality has hurt Social Security's finances because increasing earnings inequality has translated into faster benefit growth relative to payroll tax revenue in a progressive benefit structure.
3. This were to be true, too, if part of Social Security's trust funds were invested in the stock market for a long period of time. There is no direct link between the financial performance of the trust funds and benefits that are being paid out. Benefits, for instance, do not go up just because the interest earned on trust funds is greater than expected. This would not change with stock investments in the trust funds. There may be other considerations such as growing uncertainty over the exact trust fund exhaustion date that could prevent such stock market investments, but the relevant bottom line for this chapter is that households are not subject to financial market risk exposure under Social Security, even with the existence of the trust funds. See also Christian E. Weller, "Risky Business? Evaluating Market Risk of Equity Investment Proposals to Reform Social Security," *Journal of Policy Analysis and Management* 19, no. 2 (2000), 263–273, doi: 10.1002/(SICI)1520–6688(200021)19:2<263::AID-PAM5>3.0.CO;2-H
4. Additional examples, not discussed here, include updating divorce benefits, letting college-age children of survivors and disabled workers receive benefits longer. Retirement and Income Security Enhancement (RAISE) Act, S. 2455, 113th Congress (2013–2014).

Another example includes adding a family care-giving benefit, such as the Family Act. Family and Medical Insurance Leave Act of 2013, HR 3712, 113th Cong. (2013–2014); Jane Farrell and Sarah Jane Glynn, "The FAMILY Act: Facts and Frequently Asked Questions" (Washington, DC: Center for American Progress, 2013).

5. Social Security Administration, "Actuarial Publications, Provisions Affecting Level of Monthly Benefits, B5.2," *Social Security Online*, accessed May 5, 2015, http://www.ssa.gov/OACT/solvency/provisions/benefitlevel.html
6. Social Security Administration, "Actuarial Publications, Provisions Affecting Level of Monthly Benefits, B6.2," *Social Security Online*, accessed May 5, 2015, http://www.ssa.gov/OACT/solvency/provisions/benefitlevel.html
7. Social Security Administration, "Actuarial Publications, Provisions Affecting Family Member Benefits, D4," *Social Security Online*, accessed May 5, 2015, http://www.ssa.gov/oact/solvency/provisions/familyMembers.html
8. There is a separate argument in favor of updating survivorship benefits. Currently, a higher income couple with only one earner could also receive $30,000 as a benefit, too. But this benefit would be the combination of an annual benefit of $20,000 for the worker and a spousal benefit of $10,000—the equivalent of 50 percent of the worker's benefit. When one spouse dies, the other one in this example will receive $20,000 in annual benefits or the equivalent of 66 percent of the combined benefit. This unevenness in the treatment of dual-earner couples and single-earner couples is another reason for updating the survivorship benefit. For examples of policy proposals that include this benefit update, see Peter A. Diamond and Peter R. Orszag, *Saving Social Security: A Balanced Approach* (Washington, DC: Brookings Institution Press, 2005) and Christian Weller, "Building it Up, Not Tearing it Down" (Washington, DC: Center for American Progress, 2010).
9. Updating Social Security benefits in such targeted ways also means that these improvements are comparatively easy to pay for. The Social Security actuary estimates that the three provisions discussed here would worsen Social Security's long-term shortfall by 0.42 percent of payroll (Social Security Administration, "Actuarial Publications, Provisions Affecting Level of Monthly Benefits, B5.2 and B6.2"; "Actuarial Publications, Provisions Affecting Family Member Benefits, D4"). That is, an immediate and permanent increase in the payroll tax from 12.4 to 12.82 percent would cover the expected costs for all three updates. Alternatively, applying a two percent tax on earnings above the current cap, above which earnings are not subject to payroll taxes, which was $118,500 in 2015, for the years from 2017 to 2064, followed by a tax of three percent in the subsequent years would generate the revenue necessary to pay for all three updates. Social Security Administration, "Actuarial Publications, Provisions Affecting Payroll Taxes, E2.8," *Social Security Online*, accessed May 5, 2015, http://www.ssa.gov/oact/solvency/provisions/payrolltax.html; Social Security Administration, "Benefits Planner: Maximum Taxable Earnings (1937–2015)," *Social Security Online,* accessed May 5, 2015, www.ssa.gov/planners/maxtax.html
10. For an example of a specific proposal, see Christian E. Weller, "PURE: A Proposal for More Retirement Income Security," *Journal of Aging and Social Policy* 19, no. 1 (2007), 21–38, doi: 10.1300/J031v19n01_02. For a summary of potential state initiatives grouped by household risk exposure, see Christian Weller and Amy Helburn, "States to the Rescue: Policy Options for State Government to Promote Private Sector Retirement Savings," *Journal of Pension Benefits* (2010). See also David E. Morse, "State Initiatives to Expand the Availability and Effectiveness of Private Sector Retirement Plans" (Washington, DC: Center for Retirement Initiatives, Georgetown University, 2014) for a discussion of the legal issues involved in developing state-sponsored savings options. And the Georgetown University Center for Retirement Initiatives also presents a map with summaries of current state-sponsored initiatives. Georgetown University Center for Retirement Initiatives, "Look to the States for Innovation," accessed May 6, 2015, http://cri.georgetown.edu/

states/. Finally, the AARP Public Policy Institute has established a states resource page that highlights state initiatives and discusses some of the policy and legal issues involved in establishing state-sponsored retirement savings options. AARP Public Policy Institute, "State Retirement Savings Resource Center," accessed May 5, 2015, http://www.aarp.org/ppi/state-retirement-plans/

11. Morse, "State Initiatives to Expand the Availability and Effectiveness of Private Sector Retirement Plans"; Robert J. Toth Jr., "Retirement Saving Policy: The Impact of ERISA on State-Sponsored Plan Designs" (Washington, DC: AARP Public Policy Institute, 2014).
12. An Act to Provide Retirement Savings Options for Nonprofit Organizations, H. 3754, 187th General Court of Massachusetts (2011–2012); Pension Rights Center, "State-Based Retirement Plans for the Private Sector," Fact Sheet (Washington, DC: Pension Rights Center,2 014).
13. Weller, "PURE: A Proposal for More Retirement Income Security." The following proposal envisions a five percent contribution, split between employees and employers (2.5 percent each): Teresa Ghilarducci, "Guaranteed Retirement Accounts: Toward Retirement Income Security," EPI Briefing Paper No. 204 (Washington, DC: Economic Policy Institute, 2007) and Teresa Ghilarducci, *When I'm Sixty-Four: The Plot against Pensions and the Plan to Save Them* (Princeton, NJ: Princeton University Press, 2008). For a proposal that envisions starting at a three percent contribution and escalating to around 12 percent, see Rowland Davis and David Madland, "American Retirement Savings Could Be Much Better" (Washington, DC: Center for American Progress, 2013).
14. States would establish a new pooled investment fund administered and managed by public employee pension system, rather than mixing new savings from private sector workers with the funds managed on behalf of public employees such as teachers, firefighters, and police officers.
15. States could, for example, stipulate that money saved through a state-sponsored retirement plan could only be invested in a specific range of low-cost, low-risk mutual funds.
16. For a more detailed discussion of investment options and households' risk exposure with each investment option, see Weller and Helburn, "States to the Rescue: Policy Options for State Government to Promote Private Sector Retirement Savings."
17. Ghilarducci in "Guaranteed Retirement Accounts: Toward Retirement Income Security," for instance, would create a public reserve fund or "balancing fund" that could cover any potential shortfalls between the promised benefits and the actual income to the state-sponsored pooled investment; and Davis and Madland, in "American Retirement Savings Could Be Much Better," would gradually adjust benefits for all current workers and retirees to cover such potential shortfalls, although the risk of shortfalls happening in such pooled investments is minimal and the expected shortfalls, if they happened, are small.
18. For detailed background on turning deductions into one credit, see Christian Weller and Sam Ungar, "The Universal Savings Credit" (Washington, DC: Center for American Progress, 2013). And Christian Weller and Sam Ungar, "Overhauling Federal Savings Incentives. Tax Notes Special Report," *Tax Notes* 142, no. 9 (2014), 1–9, offer a detailed discussion of this proposal and address potential criticisms of it.
19. William Gale, in writing for the Tax Policy Center, argues that an 18 percent matching tax credit is the equivalent of a 15 percent retirement savings deduction. "A Proposal to Restructure Retirement Saving Incentives in a Weak Economy with Long-Term Deficits" (Washington, DC: Urban-Brookings Tax Policy Center, 2011), http://www.brookings.edu/~/media/research/files/papers/2011/9/08%20retirement%20incentives%20gale/0908_retirement_incentives_gale.pdf
20. The exact credit rate depends on a number of factors such as how much revenue policymakers are willing to forego to incentivize savings, the subsequent maximum contribution

amount that could qualify for the credit, as well as on the tax treatment of capital income—interest, dividends, and capital gains in savings accounts. For a detailed discussion of these issues, see Weller and Ungar, "Overhauling Federal Savings Incentives."

21. Roger Altman and others, "Reforming Our Tax System, Reducing Our Deficit" (Washington, DC: Center for American Progress, 2012); National Commission on Fiscal Responsibility and Reform, "The Moment of Truth" (2010); Pete Domenici and Alice Rivlin, "Restoring America's Future: Reviving the Economy, Cutting Spending and Debt, and Creating a Simple, Pro-Growth Tax System" (Washington, DC: Bipartisan Policy Center, 2010); Daniel Baneman and others, "Options to Reform the Deduction for Home Mortgage Interest" (Washington, DC: Urban-Brookings Tax Policy Center, 2011).
22. The streamlining of savings incentives discussed in this chapter could also occur without changing the tax treatment of tax-advantaged savings accounts, although some complexity may remain. The conversion of all deductions into one single credit, on the other hand, already necessitates simplification, and I hence combine tax simplification with other simplification aspects in this chapter.
23. Regulation needs to pay even closer attention to the costs and risks associated with tax-advantaged savings than is currently the case. The Consumer Financial Protection Bureau will play a crucial role in ensuring that savers will save and invest their money in appropriate vehicles, regardless of whether the existing system of tax deductions stays in play or whether a newly created tax credit replaces it.
24. These withdrawal reasons are default reasons—that is, savers can withdraw money for these reasons—unless they contractually agree to a smaller set of withdrawal reasons. Savers could, for instance, agree to invest their money in life insurance annuities that pay a lifetime income upon retirement in exchange for giving up the opportunity to use their savings for medical expenses, education, and other specified reasons. These choices also include the choice to restrict one's options if savers value the associated benefits of the restrictions more than the restrictions.
25. Evidence from rules guiding 401(k) loans—an example of giving savers access to their money before retirement with some restrictions—suggests that some savers value having access to their savings before retirement and thus save more than they otherwise would have. But the evidence also indicates that policymakers may want to put in place some restrictions on such withdrawals to prevent financially less sophisticated households from saving too little. See Jeffrey Wenger and Christian Weller, "Boon or Bane: Loans and Employee Contributions," *Research on Aging* 36, no. 5 (July, 2014), 527–556.
26. Christian Weller, "Fun with Numbers: Disclosing Risk to Individual Investors," *Journal of Pension Benefits*(Spring2 011).
27. Ibid.
28. US Department of Labor, Employee Benefits Security Administration (EBSA), "Regulation Relating to Qualified Default Investment Alternatives in Participant-Directed Account Plans" (Washington, DC: EBSA, April 2008), http://www.dol.gov/ebsa/pdf/fsQDIA.pdf; US Department of Labor, Employee Benefits Security Administration (EBSA), "Field Assistance Bulletin No. 2008–03" (Washington, DC: EBSA, April 2008), http://www.dol.gov/ebsa/pdf/fab2008-3.pdf
29. For some discussion on default annuities in 401(k) plans, see William G. Gale, J. Mark Iwry, David C. John, and Lina Walker, "Increasing Annuitization in 401(k) Plans with Automatic Trial Income," RSP Paper No. 2008–2 (Washington, DC: The Retirement Security Project, 2008); J. Mark Iwry and John A. Turner, "Automatic Annuitization: New Behavioral Strategies for Expanding Lifetime Incomes in 401(k)s," RSP Paper No. 2009–2 (Washington, DC: The Retirement Security Project, 2009). For a discussion of the cognitive limitations individuals face when valuing annuities, which points to the role policy can play in encouraging annuitization, see Jeffrey R. Brown, Arie Kapteyn,

Erzo F. P. Luttmer, and Olivia S. Mitchell, "Are Cognitive Constraints a Barrier to Annuitization," Issue Brief No. 15–6 (Boston, MA: Center for Retirement Research at Boston College, 2015).

30. Christian E. Weller, "Making Sure Money Is Available When We Need It" (Washington, DC: Center for American Progress, 2013); Christian 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, no. 3 (2008), 607–632; Christian Weller and Sara Bernardo, "Aging with Risk: Has Financial Risk Exposure Grown Faster for Older Households Since the 1990s?" *Journal of Aging and Social Policy* (forthcoming).
31. Weller, "Making Sure Money Is Available When We Need It"; Weller and Sabatini, "From Boom to Bust"; Weller and Bernardo, "Aging with Risk."
32. See Will Fischer and Chye-Ching Huang, "Mortgage Interest Deduction Is Ripe for Reform: Conversion to Tax Credit Could Raise Revenue and Make Subsidy More Effective and Fairer" (Washington, DC: Center on Budget and Policy Priorities, 2013), http://www.cbpp.org/cms/?fa=view&id=3948; Altman et al., "Reforming Our Tax System, Reducing OurD eficit."
33. The exact credit rates would again depend on maximum credit amounts and whether the new system of credits for homeowners is supposed to be revenue-neutral relative to the current system of mortgage interest deductions.
34. Considering what we know about heuristics in financial decisions, most households will choose to make the minimum amount to get the higher credit, so that the minimum share of the credit that goes into a savings account has to be reasonably large to build substantial savings over time. For a discussion of heuristics in financial decisions, see Shlomo Bernartzi and Richard Thaler, "Heuristics and Biases in Retirement Savings Behavior," *Journal of Economic Perspectives* 21, no. 3 (Summer 2007), 81–104. For a summary of the evidence on so-called anchoring of complex financial decisions that inform some of the relevant heuristics, see Cass Sunstein and Richard Thaler, *Nudge: Improving Decisions about Health, Wealth, and Happiness* (London, UK: Penguin Books, 2009), 120–133.

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