

401(k) Loan Defaults: How Big Is the Leakage and What Can Policymakers Do to Preserve Americans' Nest Eggs?

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Abstract

During times of economic stress, Americans increasingly borrow against their 401(k) accounts to smooth consumption and to extinguish other debts. This pattern has been clearly in evidence during and since the Great Recession of 2008-09. According to the Investment Company Institute, the percentage of active plan participants with a 401(k) loan increased from 15.0 percent in 2006 to 18.5 percent in 2011. If a participant loses her job, becomes disabled or dies with a 401(k) loan outstanding, then the loan generally goes into default, and her retirement account is debited the loan amount plus applicable taxes and penalties. New data on 401(k) accounts suggest that this "leakage" from Americans' retirement savings on an involuntary basis was in excess of \$9 billion in 2009. Because this estimate is largely driven by default rates on 401(k) loans from mid-2005 to mid-2008, including default due to job loss, the amount of leakage is much greater to the extent that 401(k) loan defaults increased with the onset of the recession in late 2008.

In this policy brief, we estimate the size of the leakage in light of more realistic estimates of 401(k) loan defaults; the leakage could be as high as \$37 billion per year depending on the source of the data on loans outstanding and the assumed default rate. We also highlight the disparate impact of a participant's borrowing against 401(k) balances across racial lines. Our findings raise serious policy implications. We largely embrace policies that reduce the likelihood of 401(k) loan default, but we suggest an additional remedy that would insulate borrowers from losses upon default: that the default rule or "base setting" in a sponsor's plan provide insurance via auto-enrollment with an opt out to participants who borrow against a 401(k) account, which is analogous to standards requiring mortgagors posting smaller down payments to purchase private mortgage insurance. Unlike mortgage insurance, in the case of 401(k) loans, the borrower is also the lender, which means that costs relating to information asymmetries are mitigated. We demonstrate that the social benefits of steering (but not compelling) plan participants towards insurance when they borrow are likely positive and economically significant.

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Introduction

U.S. households are facing tough financial times. According to the Federal Reserve's 2010 *Survey of Consumer Finances*, the median net worth of U.S. families decreased by 39 percent in just three years, from \$126,400 in 2007 to \$77,300 in 2010.² Although credit card debt declined since 2007, educational loans increased by enough to keep household debt relative to household income at a precarious level for many. The Fed explained that families make debt decisions based on projections of future income, but if "misjudgments [of that future income] are sufficiently large and prevalent, a broad pattern of default" can ensue.³ Although more than one third of all U.S. families in 2010 had a retirement account plan from a past or current job intended to serve as a nest egg,⁴ the Fed observed that "a need for liquidity might drive a family to liquidate or borrow against a tax-deferred retirement asset, even if it will be assessed a penalty for doing so."⁵

As it turns out, many participants have the option of borrowing against their 401(k) accounts, and many of those are availing themselves of that option.⁶ As of 2009, between 89 and 95 percent of 401(k) participants belonged to a plan offering loans.⁷ Of loan-eligible participants (as opposed to all participants),⁸ between 20 and 28 percent had a loan outstanding at a particular point in time.⁹ According to data from The Profit Sharing/401(k) Council of America, 401(k) loans constituted 2.5 percent of total plan assets among plans with a loan option in 2010.¹⁰ The primary reasons that participants gave for borrowing against 401(k) accounts were "to deal with an emergency, to pay off debt, or to simply use for day-to-day expenses."¹¹ Borrowing against a 401(k) is typically the last resort of short-term funding for families; many 401(k) borrowers have been

2. Changes in U.S. Family Finances from 2007 to 2010: Evidence from the Survey of Consumer Finances, June 2012, at 1, *available at* <http://www.federalreserve.gov/pubs/bulletin/2012/PDF/scf12.pdf>.

3. *Id.* at 71.

4. *Id.* at 36.

5. *Id.* at 37.

6. Throughout this report, we use the phrase "401(k) loans" as a proxy for loans made against all defined contribution plans.

7. John Beshears, James J. Choi, David Laibson & Brigitte C. Madrian, The Availability and Utilization of 401(K) Loans, NBER Working Paper 17118 (2011), at 6, *available at* <http://www.nber.org/papers/w17118> [hereafter *Availability and Utilization*]; Aon Hewitt, Leakage of Participants' DC Assets: How Loans, Withdrawals, and Cashouts Are Eroding Retirement Income 2011.

8. According to the Investment Company Institute, 18.5 percent of *all* participants (including those who are not loan-eligible) are estimated to have a loan outstanding. See Investment Company Institute, Defined Contribution Plan Participants' Activities 2011, April 2012.

9. Financial Literacy Center, 401(k) Loan Defaults: Who Is at Risk and Why? Dec. 2011 (estimating the rate at 20 percent); Aon Hewitt, Leakage of Participants' DC Assets: How Loans, Withdrawals, and Cashouts Are Eroding Retirement Income 2011 (2012) (estimating the rate at 28 percent).

10. Profit Sharing/401(k) Council of America, Annual Survey of Profit Sharing and 401(k) Plans, Profit Sharing/401(k) Council of America, 2010.

11. Ariel/Aon Hewitt, 401(k) Plans in Living Color: A Study of 401(k) Savings Disparities Across Racial and Ethnic Groups (2012) [hereafter *Plans in Living Color*].

previously turned down for other traditional forms of credit.¹² Table 1 summarizes plan participants' financial activities from 2006 through 2011.

TABLE 1: DEFINED CONTRIBUTION PLAN PARTICIPANTS' ACTIVITIES (2006-11)

	2006	2007	2008	2009	2010	2011
% of Active Participants with a Loan	15.0%	16.0%	15.3%	16.5%	18.2%	18.5%
U.S. Retirement Assets in 401(k) (\$ trillion)	\$2.80	\$3.00	\$2.20	\$2.70	\$3.00	\$3.10
U.S. Retirement Assets in Other DC Plans (\$ trillion)	\$1.30	\$1.40	\$1.20	\$1.30	\$1.50	\$1.50
U.S. Assets in Defined Contribution Plans (\$trillion)	\$4.10	\$4.40	\$3.40	\$4.00	\$4.50	\$4.60
Total U.S. Retirement Assets (\$ trillion)	\$16.60	\$17.80	\$14.10	\$16.20	\$17.80	\$17.90
% U.S. Retirement Assets in DC Plans	24.7%	24.7%	24.1%	24.7%	25.3%	25.7%

Source: Investment Company Institute, Defined Contribution Plan Participants' Activities 2011, April 2012, available at http://www.ici.org/pdf/ppr_12_rec_survey-q4.pdf.

Individuals with 401(k) plans borrow from them as a last resort because the loans are meant for retirement, not ongoing living expenses. Nonetheless, when times are tough—as they have been since the beginning of the Great Recession—many more people with 401(k) plans have no other choice but to borrow from their accounts to maintain even a reduced standard of living. This is very much in evidence in Table 1, which demonstrates, that the percentage of active participants with a 401(k) loan increased from 15.0 percent in 2006 to 18.5 percent in 2011.

Using the Investment Company Institute data above (showing 18.5 percent of all participants with a loan), and Aon Hewitt data on average outstanding loan balance (\$7,860),¹³ along with an estimate of the number of active participants in a defined contribution plan in the United States (72.0 million at the end of 2009),¹⁴ we estimate that the outstanding defined-contribution loan balance in 2009 for the U.S. as a whole was \$104.7 billion (equal to 0.185 x 72.0 million x \$7,860).¹⁵

When a loan is made to a 401(k) participant, the plan liquidates some of its assets to make the loan disbursement. Loan payments are made by participants with after-tax dollars, and interest payments are not tax deductible. Although there are no regulatory restrictions on how the proceeds from a 401(k) loan may be used, there are restrictions on the maximum size of 401(k) loans: The total outstanding principal of all unpaid loans can be no larger than the minimum of 50 percent of a participant's vested account balance and

12. John J. Topoleski, Congressional Research Services, *An Analysis of Borrowing From Defined Contribution Retirement Plans*, Sept. 22, 2009, at 11 [hereafter *An Analysis of Borrowing*].

13. Aon Hewitt, *Leakage of Participants' DC Assets: How Loans, Withdrawals, and Cashouts Are Eroding Retirement Income 2011*; Aon Hewitt, *2010 Employer Perspectives on Defined Contribution Plan Leakage Survey*.

14. U.S. Department of Labor Employee Benefits Security Administration, *Pension Plan Bulletin Historical Tables and Graphs*, at 9, available at www.dol.gov/ebsa/pdf/historicaltables.pdf.

15. This estimate is close to the \$108 billion of loans outstanding implied by the Plan Sponsor Council of America. See Plan Sponsor Council of America, *PSCA's 54th Annual Survey of Profit Sharing and 401(k) Plans, 2011* (estimating that loans were 2.4 percent of plan assets of the survey respondents in 2010).

\$50,000. Many companies use automatic payroll deduction for loan repayments. Although most loans must be repaid within five years, loans for the purchase (not refinance) of a principal residence may be repaid over a longer period (for example, 15 years).¹⁶ The weighted average duration of the 401(k) repayment schedule in a recent NBER survey was 3.4 years.¹⁷ Most plans that allow loans tie their interest rate to the prime rate.¹⁸

There are generally no tax implications to a participant's accessing the funds inside her 401(k) account so long as she repays the loan according to the payment schedule. The problems arise when payments go off track, which typically are driven by a job termination or a job change. Terminated participants have 60 days to repay a loan before it becomes a taxable distribution. Because loans cannot transfer from one plan to another, the balance of the loan is due shortly after job termination—a highly inopportune time for financial liquidity.

As a consequence of “defaulting” on a 401(k) loan, a participant will (1) lose the portion of her retirement savings associated with the loan, (2) pay income taxes on the loan amount as if it were a voluntary distribution, and (3) pay other penalties depending on her eligibility for a distribution (such as 10 percent of the loan amount for defaults due to job termination). Borrowers often default on a 401(k) loan involuntarily for reasons relating to death of the participant, total and permanent disability of the participant, or job loss. According to a study conducted by the Financial Literacy Center, almost 10 percent of all 401(k) participants with loans from 2005-08 defaulted on their loans for reasons relating to job separation.¹⁹

In this policy brief, we present new data on 401(k) defaults, suggesting the amount of the leakage from retirement savings on an involuntary basis was at least \$9.3 billion in 2009 alone. Because this estimate is largely driven by default rates due to job loss, to the extent that those defaults increased from mid-2005 to mid-2008 (the sample period for historical defaults by the Financial Literacy Center) to mid-2008 to 2009 on account of the recession, this estimate is likely too conservative. Using the implied default rate on loans due to job loss during the recession, as well as private-sector data on loans outstanding, *we estimate that the amount of the annual leakage from mid-2008 through mid-2012 could be as high as \$37 billion.*

Regardless of the precise size of the leakage, these findings raise important policy issues, including whether 401(k) savings should be locked up until retirement or whether it is permissible for the balances to serve as an implicit safety net. Allowing plan loans

16. Geng Li & Paul A. Smith, *New Evidence on 401(k) Borrowing and Household Balance Sheets*, Finance and Economics Discussion Series Divisions of Research & Statistics and Monetary Affairs Federal Reserve Board, Washington, D.C., Working Paper 2009-19 (2009), at 1 [hereafter *New Evidence*].

17. *Availability and Utilization*, *supra*, at 17.

18. For more on the mechanics of how a 401(k) loan works, see *Availability and Utilization*.

19. Timothy Lu, Olivia S. Mitchell, & Stephen P. Utkus, *An Empirical Analysis of 401(k) Loan Defaults* (Oct. 2010) (based on a dataset from Vanguard) [hereafter *Empirical Analysis*].

stimulates employee participation and contribution rates,²⁰ because liquidity is an attractive property of any investment. According to the Congressional Research Service (CRS), workers are less likely to put money into a retirement account if they believe that the money will be inaccessible in the event of emergency.²¹ Indeed, 34 percent of African-Americans and 29 percent of Hispanics, compared to 17 percent of Asian-Americans and 13 percent of whites, say that the ability to take a loan from their plans if they need the money is a “strong influence” in their decision to invest in a defined contribution plan.²² A similar phenomenon occurred with the advent of secondary markets for life insurance policies, which allowed insureds to cash out a policy before death, and thereby stimulated demand for life insurance products.²³ Another key advantage of a 401(k) loan is that it reduces the need for paying interest to outside lenders, even though the borrower forgoes the interest on the assets that are borrowed and pays an interest rate close to the prime rate. Li and Smith (2009) estimate that 401(k)-loan-eligible households could have saved \$5 billion in the aggregate in 2007 (or \$275 per household) by shifting expensive debt (such as credit card debt) to a 401(k) loan.

When a participant defaults on her 401(k) loan, however, she only hurts herself. Because she fully internalizes the cost of the default, it makes sense to allow the participant to use the funds in an emergency. Of course, participants are not deliberately defaulting; they only do so when they have no other option.

To discourage unnecessary 401(k) borrowing while preserving the option to borrow, some have advocated limiting borrowers to one loan at a time, and limiting the size and scope of loans (for example, to 25 percent of their account balances from the current 50 percent). Another policy lever involves easing the repayment terms to reduce the number of 401(k) defaults. Some have argued that the government could ease loan repayment by extending the time a terminating employee has to pay back a loan (from 60 days to twelve months); by allowing a grace period for loan repayments while an individual is collecting unemployment benefits; and by making loans portable from one employer to the next.

While each of these policies makes sense, none addresses the welfare of the borrower upon default. A method of abating this welfare loss should exist—namely, 401(k)

20. U.S. General Accounting Office, 401(k) Pension Plans: Loan Provisions Enhance Participation but May Affect Income Security For Some (October 1997) (finding that participants who could borrow from their accounts contributed about three percent of their salaries more than participants without a loan option). Others have estimated smaller effects. *See, e.g.,* Mitchell, O. S., S. P. Utkus, and T. Yang, *Turning Workers into Savers? Incentives, Liquidity, and Choice in 401(k) Plan Design*, 60 NATIONAL TAX JOURNAL 469–489 (2007) (estimating an increase of just 0.6 percent).

21. Congressional Research Services, 401(k) Plans and Retirement Savings: Issues for Congress, July 14, 2009, at 21, available at <http://americanshareholders.org/userfiles/CRS%20401k%20Report%20July%202009.pdf>.

22. *Plans in Living Color*, *supra*, at 12.

23. Neil A. Doherty & Hal J. Singer, *Benefits of a Secondary Market for Life Insurance*, 38 REAL PROPERTY, PROBATE AND TRUST JOURNAL 449 (2003).

loan insurance.²⁴ Unfortunately, the market for 401(k) loan insurance is stymied by the current default rule or “base setting” of 401(k) plan administrators. The base setting for borrowers is presently set to “no insurance.” Plan sponsors and administrators are naturally reluctant to tinker with their plans, and have no incentive to make it either easier for a participant to take out a 401(k) loan or increase the value of such a loan to the average participant: Imposing costs on departing employees likely decreases turnover for plan sponsors, and the compensation of plan administrators is positively linked to the account balances. Furthermore, plan participants cannot be counted on to seek out these solutions under the current regime. After all, when a participant borrows against her 401(k), the last thing on her mind is losing her job.

Fortunately, policymakers could fix the law governing these plans to allow plan sponsors to embrace private-sector solutions. *In particular, the law should be amended so that plans may choose to allow 401(k) borrowers to be automatically enrolled into insurance coverage unless they opt to decline such protection.*

There is a growing literature on the “nudge” value of default rules.²⁵ It has been shown, for example, that individuals are more likely to contribute to their own 401(k) in the first instance if the default rule is automatic contribution with an opt out rather than the previous opt in system. We are suggesting the same switch in default rules for 401(k) borrowing so that they are better protected against financial adversity if, through of a change in economic circumstance, they are effectively compelled to borrow but then later find they are unable to repay.

II. Who Borrows Against Their 401(k) and What Causes Those Borrowers to Default?

Economists have examined the characteristics of 401(k) borrowers and the causes of defaults on 401(k) loans. Lu and Mitchell (2010) demonstrate that 401(k) borrowers are more likely to be liquidity-constrained than non-borrowers; they have lower incomes, smaller 401(k) balances, and less non-retirement financial wealth.²⁶ 401(k) borrowers also have been found to maintain a precautionary buffer against their borrowings.²⁷ Utkus and Young (2012) demonstrate that 401(k) plan borrowing has also been linked to less

24. We have explained this position in prior writings. See Robert E. Litan and Hal J. Singer, *The Black Hole In America's Retirement Savings*, FORBES, Dec. 21, 2010, available at <http://www.forbes.com/2010/12/20/retirement-401k-economy-opinions-contributors-robert-litan-hal-singer.html>. For a consistent view, see Elaine Chao, *All Americans Need 401(k) Loan Insurance*, ROLL CALL, June 7, 2011, available at http://www.rollcall.com/issues/56_134/americans_need_401k_loan_insurance-206203-1.html.

25. For a concise summary, see RICHARD H. THALER & CASS R. SUNSTEIN, *NUDGE: IMPROVING DECISIONS ABOUT HEALTH, WEALTH, AND HAPPINESS* (Caravan 2008).

26. Timothy Lu, Olivia Mitchell, *Borrowing from Yourself: The Determinants of 401(k) Loan Patterns*, Pension Research Council Working Paper (2010).

27. *Id.*

financial literacy,²⁸ suggesting that one simple fix is greater participant education. The opt out is the gentle nudge that promotes more informed decision-making. Such borrowers contribute at lower rates to their retirement plans, and they are less likely to pay off credit card debt each month.²⁹

Using data from the Survey of Consumer Finance of 2007, Li and Smith (2009) found that the best predictors of 401(k) borrowing are the presence of liquidity or borrowing constraints and the size of 401(k) balances relative to income.³⁰ Because these factors move in opposite directions during a recession, it is not clear which dominated during the most recent downturn. Li and Smith also found that many loan-eligible households carry relatively expensive consumer debt (such as credit card debt) that could be more economically financed via 401(k) borrowing.³¹ Keeping a 401(k) balance to accommodate emergency borrowing makes little sense, as a household could pay off its credit card balance with a 401(k) loan, and then use the credit card for any emergency borrowing. As a potential explanation to this financial puzzle, they posit that households might utilize 401(k) loans less than expected due to risk-aversion, self-control problems, and confusion about the potential gains.³²

The Congressional Research Service (2009) found that households that had been denied credit in the prior five years were more likely to have outstanding defined-contribution-plans loans,³³ indicating that 401(k) loans might be the last source of credit for many borrowers. Higher retirement savings and higher household debt-to-financial-asset ratios were associated with *higher* probabilities of having outstanding loans; households where the head of the household was under 30 years old, who finished college or had graduate school educations, and had a savings horizon longer than ten years had a *lower* probability of having an outstanding loans.³⁴

Using data from the Employee Benefit Research Institute and the Investment Company Institute (among other sources), Beshears, Choi, Laibson and Madrian (2011) estimated that the likelihood of using a 401(k) loan increases with tenure and decreases with compensation.³⁵ Conversely, participants are less likely to use loans in plans that charge a higher interest rate.³⁶ Conditional on taking a 401(k) loan, loan sizes are larger when multiple loans are allowed to be outstanding simultaneously and the maximum loan duration allowed is long.³⁷

28. Stephen Utkus & Jean Young, *Financial Literacy and 401(k) Loans*, in *Financial Literacy: Implications for Retirement Security and the Financial Marketplace* (Pension Research Council 2012).

29. *New Evidence*, *supra*, at 13.

30. *Id.* at 13-14.

31. *Id.* at 19.

32. *Id.* at 4.

33. *An Analysis of Borrowing*, *supra*, at 11.

34. *Id.* at 11-13.

35. *Availability and Utilization*, *supra*, at 14-15.

36. *Id.* at 15.

37. *Id.*

To identify the factors that cause borrowers to default on 401(k) loans, Lu, Mitchell, and Utkus (2010) examined a dataset from Vanguard covering over 103,991 401(k) plan participants who terminated employment during the three-year period from July 2005 through June 2008. They found that about 12 percent of borrowers terminated their employment with a loan, and that roughly 81 percent of those who terminated with a loan—roughly 9.7 percent of all plan participants—subsequently defaulted.³⁸ The authors showed that individuals with smaller 401(k) balances, lower incomes, and little non retirement wealth were more likely to default.³⁹ They also found that participants with multiple loans defaulted at higher rates than those with a single loan, controlling for the size of the loan outstanding.⁴⁰ Finally, and contrary to prior research on default⁴¹ and common sense, the authors found that higher unemployment correlates with slightly less 401(k) loan defaults, although they concede that this result was not economically significant.⁴² The authors acknowledge that their study period (mid-2005 to mid-2008) did not encompass the mid-2008 to 2009 recession,⁴³ and thus did not capture much variation in unemployment, thwarting the ability to infer a relationship between unemployment and 401(k) default rates. Another possible explanation for their counterintuitive result is that other variables not controlled for in their regression are correlated with unemployment, implying that the unemployment coefficient is biased. For example, if unemployment trends up at the same time that some excluded variable such as stock market returns (associated with lower default rates⁴⁴) is trending upward, then the regression will mistakenly attribute this effect to unemployment. Finally, the unemployment coefficient seems to contradict the mean default rate of their sample by year, which fell from 9.9 to 9.4 percent as the economy expanded in the middle of their sample period, but increased from 9.4 to 9.7 percent as the economy weakened in the end of their sample period.⁴⁵

III. Estimating the Size of Leakage from 401(k) Accounts

The U.S. Department of Labor estimated that “deemed distributions” due to loan defaults amounted to \$665 million in 2007, representing only 0.2 percent of the \$3.4

38. *Empirical Analysis, supra*, at 10.

39. *Id.*

40. *Id.*

41. Dietske Simons & Ferdinand Rolwes, *Macroeconomic Default Modeling and Stress Testing*, 5(3) INTERNATIONAL JOURNAL OF CENTRAL BANKING 177-204, 178 (September 2009) (“Macroeconomic-based models are motivated by the observation that default rates in the financial, corporate, and household sectors increase during recessions.”).

42. *Empirical Analysis, supra*, at 3.

43. *Id.* at 10.

44. *See, e.g.*, Fabien Couderc & Olivier Renault, *Times-to-Default: Life Cycles, Global and Industry Cycle Impact*, FAME Research Paper Series, No. 142 (2005), at 18 (“On the contrary stock market information brings significant explanatory power. In a Merton-like intensity model with additional stochastic liabilities, it could be interpreted as evidence of the level and higher variability of assets being the main determinants of the default probability changes.”).

45. *Empirical Analysis, supra*, at 17 (Table 2).

trillion in assets held in defined-contribution plans at that time.⁴⁶ As explained below, deemed distributions are only a small fraction of loan defaults, and focusing on that segment greatly understates the size of the problem: The annual leakage from 401(k) accounts may have been as high as \$37 billion during the 2009-11 period.

A. How Big Are 401(k) Defaults?

The sum total of 401(k) defaults ought to be an easily accessible statistic, but it is not because of data issues with the forms that employee benefit plans use to satisfy annual reporting requirements.⁴⁷ To understand the government's data on loan defaults, one must understand the difference between an "actual distribution" and a "deemed distribution." Borrowers are free to tap their 401(k) savings without taxes or penalties so long as certain criteria of IRS Section 72(p) are met—for example, so long as the loan has level payments and so long as the payment schedule is followed. If any of the rules are violated, however, then the borrower incurs a taxable event. If the participant is eligible to take a distribution due to her separation from the plan sponsor or permanent disability when one of the rules is violated, a loan offset will occur—that is, the loan proceeds will be considered to be an actual distribution. If the participant is not eligible to take a distribution when one of the rules is violated, then the loan is recognized as a deemed distribution.⁴⁸

The data on loan defaults are derived from a report that employers must file with the Labor Department, Form 5500. According to a recent study by Smart (2012), although Form 5500 reflects actual *distributions*, there is no way to determine the amount of actual *defaults* from this reporting because "these actual defaults (loan offsets) are bundled with all other distributions on the reporting form."⁴⁹ With respect to deemed distributions, Smart explains that the form does not capture the amount of loans that actually default in this category.⁵⁰ Smart concludes that involuntary loan defaults are not determinable from Form 5500's reporting structure.⁵¹

Smart calculates that in 2009, nearly \$10 billion of retirement assets leaked from defined-contribution retirement accounts.⁵² To arrive at his estimate, Smart scales up the participant loans outstanding reported in Form 5500 by the 401(k) default rate to calculate the sum of loans and actual defaults. Smart applies two estimates for default rates—the default rate due to job termination and the default rate due to death and disability. Specifically, the default rate for job termination (9.7 percent) is obtained from a Financial Literacy Center survey of 2005-08, whereas the default rate due to death and disability is

46. U.S. Department of Labor, Private Pension Plan Bulletin: Abstract of 2007 Form 5500 Annual Report, at 8, 9, available at <http://www.dol.gov/ebsa/PDF/2007pensionplanbulletin.PDF>.

47. These are Form Series 5500, which were jointly developed by the Department of Labor, Internal Revenue Service, and the Pension Benefit Guaranty Corporation.

48. ILENE H. FERENCZY, THE ASPPA DEFINED CONTRIBUTION PLAN SERIES VOLUME 2: 401(K) PLANS AND INTERMEDIATE ADMINISTRATIVE TOPICS (ASPPA 4th ed. 2011).

49. Kevin Smart, The Hidden Problem of Defined Contribution Loan Defaults, May 2012, at 5.

50. *Id.* at 6.

51. *Id.* at 7.

52. *Id.* at 8.

from CreditRe (and then adjusted by Smart). Smart subtracts net participant loans of \$51.7 billion from loans including actual defaults of \$57.9 billion, yielding \$6.2 billion in loan defaults during 2009. Applying representative federal, state, and local tax rates, as well as penalty rates to the loan defaults results in an additional \$2.4 billion in annual leakage from retirement accounts.⁵³ Finally, an additional \$0.7 billion is added to reflect the taxes and penalties from funds that must be withdrawn early to meet the original obligation. As demonstrated below, applying the same default rates to the higher base of loan amounts from the private-sector survey would double the estimated leakage.

The U.S. economy clearly worsened since the Financial Literacy Center's sampling period for 401(k) loan defaults (mid-2005 to mid-2008), suggesting that the true leakage from retirement plans likely exceeds Smart's \$10 billion estimate. Recall that the default rate for job termination was estimated when the U.S. unemployment rate ranged between 4.5 and 5.0 percent. By contrast, the unemployment rate ranged between 7.6 and 9.7 percent from mid-2008 to mid-2012. Using a simple model, we predict loan default rates for job termination during 2009-11 as a function of the U.S. unemployment rate. Table 2 summarizes the results.

TABLE 2: IMPLIED DEFAULT RATES FROM MID-2008 TO MID-2012

Period	Default Rate as % Loans Outstanding	U.S. National Unemployment Rate	Historical Ratio
	(A)	(B)	(A) / (B)
July 05-June 06	9.9	4.8	2.1
July 06-June 07	9.4	4.5	2.1
July 07-June 08	9.7	5.0	2.0
July 08-June 09	15.4	7.6	
July 09-June 10	19.8	9.7	
July 10-June 11	18.9	9.3	
July 11-May 12	17.4	8.6	
Average			2.0

Notes: Predicted values in bold.

Sources: Timothy (Jun) Lu, Olivia S. Mitchell, Stephen P. Utkus, An Empirical Analysis of 401(k) Loan Defaults, Oct. 2010, Table 2, available at http://www.rand.org/content/dam/rand/pubs/working_papers/2010/RAND_WR799.pdf. Unemployment data available from Bureau of Labor Statistics.

As Table 2 shows, the observed default rate for mid-2005 to mid-2008 appears to move in tandem with the U.S. unemployment rate; when the unemployment rate *decreased* from 4.8 to 4.5 percent during July 2006 to June 2007, loan defaults declined from 9.9 to 9.4 percent. Similarly, when the unemployment rate *increased* from 4.5 to 5.0 percent during July 2007 to June 2008, loan defaults rose from 9.4 to 9.7 percent. The average ratio of default rate to unemployment rate during 2005-08 is 2.0—that is, default rates are roughly twice the unemployment rate at any point in time.

53. *Id.* at 14.

Imposing that same ratio in subsequent years, one can predict the default rate based on observed unemployment data. According to this simple prediction, default rates ranged from 15.4 percent in 2008-09 to 19.8 percent at the peak of the recession in 2009-10. Even if default rates on 401(k) loans were 150 percent of unemployment rates in this range (7.6 to 9.7), the implied default rate would be substantially greater than 9.7 percent.

We believe our loan default prediction is bolstered by the significant spike in default rates in other types of consumer loans around the same time period. For example, the default rate on student loans increased by 40 percent (from 7.0 to 9.8 percent) from 2008 to 2009.⁵⁴ Moreover, the share of prime mortgage loans that were “seriously delinquent” (90 days or more past due or in the process of foreclosure) more than doubled between the first quarter of 2008 to the fourth quarter 2009 (from 4.0 to 9.7 percent).⁵⁵ Accordingly, it is reasonable to believe that default rates on 401(k) loans increased considerably from mid-2008 to mid-2012.

Using Smart’s methodology, it is possible using our default estimates to re-estimate the amount of retirement assets that leaked from defined contribution retirement accounts in 2008-12. In particular, we replace the average default rate caused by job separation for July 2005-June 2008 with the implied average of 17.9 percent for July 2008-May 2012. Table 3 summarizes the results.

TABLE 3: ESTIMATED ANNUAL LEAKAGE FROM RETIREMENT PLANS 2008-12 (BILLIONS)

	Job Separation	Death and Disability	Total
<i>Loan defaults</i>	\$11.5	\$0.6	\$12.1
<i>10% Early Withdrawal</i>	\$1.2	NA	\$1.1
<i>25% Marginal Fed. Tax Rate</i>	\$2.9	\$0.2	\$3.0
<i>5% Marginal State Tax Rate</i>	\$0.6	\$0.03	\$0.6
<i>Subtotal</i>	\$4.6	\$0.2	\$4.8
<i>Gross up on Taxes and Penalty</i>	\$1.4	\$0.06	\$1.4
<i>Total Penalty and Tax Liability</i>	\$6.0	\$0.3	\$6.3
<i>Total Plan Leakage</i>	\$17.5	\$0.9	\$18.4

Compared to Smart’s estimates, loan defaults from job separation increase from \$5.6 billion to \$11.5 billion annually during the 2008-12 period. Total plan leakage during this period

54. Default Rates Rise for Federal Student Loans, Sept. 12, 2011, available at <http://www.ed.gov/news/press-releases/default-rates-rise-federal-student-loans> (“The U.S. Department of Education today released the official FY 2009 national student loan cohort default rate, which has risen to 8.8 percent, up from 7.0 percent in FY 2008.”).

55. Mortgage Bankers Association’s National Delinquency Survey, available at <http://www.mortgagebankers.org/NewsandMedia/PressCenter/>.

increased from \$9.3 billion to \$18.4 billion—a near doubling based solely on the increase in default rates from job separation.

Furthermore, were one to base the analysis on recently reported industry reports rather than the outdated Form 5500 data—which we believe to be more appropriate—the estimated leakage would be even greater. According to the Plan Sponsor Council of America annual survey of plans, participant loans were 2.4 percent of plan assets of the survey respondents in 2010.⁵⁶ The survey reported on 2010 plan-year experience of 820 plans with \$691 billion in plan assets. Based on an estimated \$4.5 trillion of U.S. retirement assets in defined contribution plans,⁵⁷ the survey implies \$108 billion in loans outstanding—nearly twice the amount of participant loans reported on Form 5500 for 2009. Consistent with this figure, we estimate loans outstanding to be \$104.7 billion (see introduction for derivation). Beginning with that higher base of loans, and using the 17.9 percent default rate for job separation, the estimated annual leakage increases to approximately \$37 billion from mid-2008 through mid-2012.

B. Disparate Impact

Plan participants can deplete their retirement savings accounts before retirement in one of three ways: (1) taking hardship withdrawals; (2) taking out loans; and (3) cashing out accounts upon terminating a job. Based on a survey of 19,000 employees, Ariel/Aon Hewitt found that minorities demonstrate a greater propensity than do whites to tap their retirement plans in all three ways. For example, African-Americans were more than four times as likely as whites to take a hardship withdrawal in 2010; controlling for factors such as salary and age, African-Americans are 276 percent and Hispanics are 47 percent more likely to take hardship withdrawals than whites.⁵⁸

49 percent of all African-Americans and 40 percent of Hispanics, compared to 26 percent of whites, carried a loan balance against their defined contribution plan in 2010; the analogous figures in 2007 were 39 percent (Asian-Americans), 29 percent (Hispanic), and 21 percent (whites). These data indicate that the propensity to borrow against these plans increased during the recession for both minorities and for whites, but it also indicates that the borrowing propensity increased more for minorities. Ariel/Aon Hewitt conclude that these findings demonstrate “the tendency for a sizeable portion of African-Americans and Hispanics to view retirement accounts as a convenient cash reserve rather than a long-term savings vehicle.”⁵⁹

Conditional on a participant leaving the organization due to layoffs or other reasons, the vast majority of employees (80 percent of African-Americans, 76 percent of Hispanics, 71 percent of whites, and 67 percent of Asian-Americans) who have outstanding loans

56. Plan Sponsor Council of America, PSCA’s 54th Annual Survey of Profit Sharing and 401(k) Plans, 2011

57. Investment Company Institute, Defined Contribution Plan Participants’ Activities 2011, April 2012.

58. *Plans in Living Color*, *supra*, at 12.

59. *Id.* at 13.

subsequently default on those loans.⁶⁰ With respect to cashing out, 63 percent of African-Americans and 34 percent of Hispanics who left their employer in 2010 chose to cash out their plan balances rather than leave them where they were or roll them over, compared with 39 percent of whites.⁶¹

IV. Policy Implications

We are not the first to recognize the problem of 401(k) loan defaults and to recommend solutions. For example, Ariel/Aon Hewitt advocate policies to reduce the withdrawal of funds prior to retirement.⁶² They offer a number of ways in which the government could ease loan repayment, including extending the time a terminating employee has to pay back a loan (from 60 days to twelve months); allowing a grace period for loan repayments while an individual is collecting unemployment benefits; and making loans portable from one employer to the next.⁶³ Although granting these new rights to borrowers might result in a slightly higher interest rate on 401(k) loans, we generally embrace most of these solutions as the incremental cost (if any) would be likely offset by the benefits of reducing defaults. To discourage early withdrawals, Ariel/Aon Hewitt suggest increasing penalties to 15 percent for non-hardship early withdrawals.⁶⁴ Although unnecessary 401(k) loans should be discouraged, the problem with increasing the penalty is that borrowers incur the penalty only after a default, which is likely discounted as a low-probability event by borrowers when they receive a 401(k) loan. (To discourage borrowing against a 401(k), one would need to raise the direct borrowing costs of a 401(k) loan relative to other forms of debt, which we do not advocate.) Thus, although the increase in penalties may have no material effect on a borrower's propensity to borrow, it does increase the borrower's cost of a default. Because we are generally concerned with reducing the expected costs of default, we view this prescription as a potential step in the wrong direction.

Lu, Mitchell, and Utkus (2010) offer several policy prescriptions aimed at reducing the number of defaults, including limiting borrowers to one loan at a time; allowing participants to repay 401(k) loans even after a job change; and limiting the size and scope of loans (to 25 percent of their account balances from the current 50 percent).⁶⁵ They recognize that the second option (repaying after a job change) would benefit only employees who immediately move to a new employer and are financially able to make loan repayments. Li and Smith (2009) suggest better financial education that clarifies the conditions under which 401(k) borrowing is advantageous to encourage substitution away from relatively expensive consumer debt.⁶⁶ Allowing households to repay 401(k) loans gradually even after leaving their jobs could make households better off by significantly

60. *Id.* at 14.

61. *Id.* at 14.

62. *Id.* at 2.

63. *Id.* at 17.

64. *Id.* at 17.

65. *Empirical Analysis, supra*, at 12.

66. *New Evidence, supra*, at 4.

reducing the risks of 401(k) borrowing. In addition to making loans portable across jobs, Li and Smith suggest that former employers be required to continue servicing loans of unemployed workers after involuntary separation. This would allow separated employees with no current employer the chance to continue repaying their loans over time (e.g., by sending monthly checks or ACH), rather than in a single lump sum within 60 days. We generally agree with these prescriptions, but note that limiting the percentage of the balance available for loans makes the underlying investment less liquid, which might reduce participation and contributions in 401(k) plans.

Although we largely agree with the various proposals that have so far been advanced to address the loan default problem, none addresses the welfare of borrowers who *default on their 401(k) loans*. Reducing the probability of defaulting on a 401(k) loan is clearly a step in the right direction, but lessening the financial blow from an actual default could be even more beneficial to borrowers. We advocate that the default rule or “base setting” in a sponsor’s plan provide insurance via auto-enrollment with an opt out to participants who borrow against a 401(k). Under the current regime, the base setting is “no insurance.” Participants would be free not to purchase the insurance, but would have to affirmatively choose to do so. The insurance would be triggered in the event of job termination or death or disability. In any of these contingencies, the insurance would replenish the account balance,⁶⁷ making the participant’s account whole, and would also cover the tax obligation and early-withdrawal penalty. Such insurance or similar protection would provide the borrower with security of her entire retirement savings balance for a reasonable monthly premium, the cost of which could be largely offset by a reduction in the interest rate charged on the loan. We note that for the vast majority of plan participants who never borrow against their 401(k) accounts (70 to 80 percent), the change in the default setting would have no practical effect, as they would not feel the added cost of insurance unless they apply for a 401(k) loan. For the 20 to 30 percent of plan participants who borrow against their 401(k) accounts, there would be an added cost of insurance (assuming they do not opt out), but as we demonstrate below, the benefits of the loan insurance (assuming it was competitively priced) would likely exceed the costs.

Our policy solution is directly analogous to mortgage insurance, which is the base setting for borrowers when acquiring a home. Mortgage insurance is an insurance policy that compensates lenders for losses due to the default of a mortgage loan. Lenders often require mortgage insurance for mortgage loans that exceed 80 percent of the property’s sale price. Borrowers can avoid the insurance requirement by taking out a second loan, but for some borrowers, the second loan is not feasible. If the borrower defaults and the property is sold at a loss, the insurer will provide the insurance coverage to the lender, typically 20 to 50 percent of the loan amount. To obtain public mortgage insurance from the Federal Housing Administration (FHA), the borrower must pay an upfront mortgage insurance premium equal to 1.75 percent of the loan amount at closing. Depending on the loan’s characteristics, the premium rates on private-mortgage insurance range from 0.5 to

67. The concept would be identical for insurance that covered a portion of the loan amount, as does mortgage insurance.

6.0 percent of the principal of the loan per year.⁶⁸ Unlike mortgage insurance, in the case of 401(k) loans, the borrower is also the lender, which means that costs relating to information asymmetries are mitigated.

Under the current default setting of “no insurance,” borrowers are generally not insuring their 401(k) loans. Because the scope of the problem is not fully understood, and because plan sponsors and administrators are reluctant to take on additional administrative activities, plan participants are not being made aware of the existence of this insurance. And with the participants most likely to want a 401(k) loan being less financially literate than others, a light form of intervention or “nudge” is necessary to foster the market for such insurance. Moreover, because the average balance on a 401(k) loan (\$7,860)⁶⁹ is less than the smallest life insurance policy, it is doubtful that any participant could obtain a loan from an insurance company on her own, and if so at a significantly increased cost. Were the base setting to encourage enrollment into insurance (with permission to opt out), however, there likely would be sufficient demand to warrant policies being written for such small amounts.

The rationale for a change in the base settings can be expressed more formally. Under the current 401(k) plan base setting, which promotes no insurance coverage, borrowers who default incur a loss, L , equal to the size of the loan plus taxes and penalties, which offsets their asset base A . Borrowers who do not default incur no loss under the current regime. Given a probability of loan default of π ($0 < \pi < 1$), and given a borrower utility function $U[\cdot]$, assumed concave due to risk aversion, a borrower’s expected utility without insurance is

$$U_1 = \pi U[A - L] + (1 - \pi)U[A]$$

Under the proposed regime, in which 401(k) loan insurance is available, plans and borrowers are steered (but not required) to take out insurance at a cost, C , equal to the product of the insurance premium (less any reduction in interest rates that the lender may offer) and the outstanding balance of the loan. In the event of a default, the borrower is paid L by the insurer, which means her net payoff is $A - L - C + L = A - C$. In the event of no default with insurance, the borrower’s net payoff is also $A - C$. Thus, the borrower’s expected utility with insurance is

$$U_2 = \pi U[A - C] + (1 - \pi)U[A - C] = U[A - C]$$

With actuarially fair insurance, the cost of insurance is the probability-weighted loss—that is, $C = \pi L$, which means the borrower’s expected utility with insurance is $U[A - \pi L]$. Because $U[\cdot]$ is concave, we have:

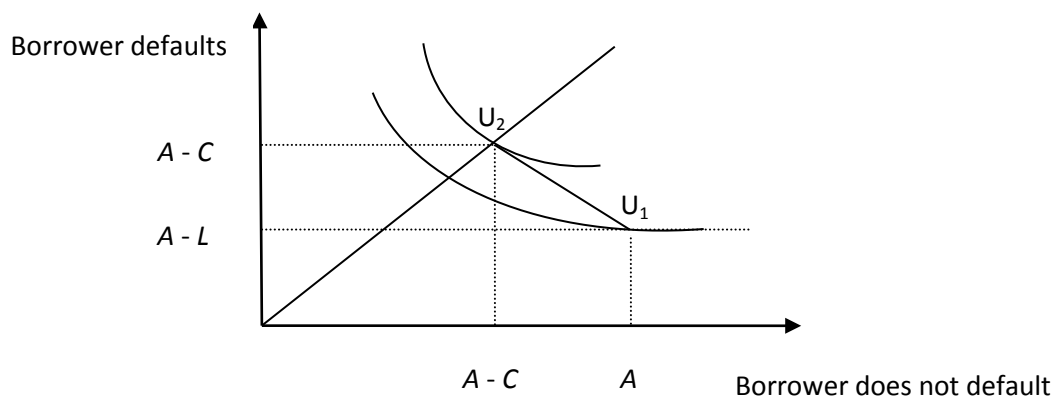
$$U[A - \pi L] > \pi U[A - L] + (1 - \pi)U[A]$$

68. Texas Department of Insurance, Private Mortgage Insurance (PMI), available at <http://www.tdi.texas.gov/commercial/pcpmi.html>.

69. Aon Hewitt, Leakage of Participants' DC Assets: How Loans, Withdrawals, and Cashouts Are Eroding Retirement Income (2011).

Thus, the borrower's expected utility is higher with insurance than without ($U_2 > U_1$). A risk-averse buyer would, by definition, prefer to be assured of the certainty of receiving $A - \pi L$ in both states of the world, rather than facing uncertain payoffs with the same expected value. It is a basic tenet of expected utility theory that a risk-averse borrower will prefer to insure herself completely in these circumstances.⁷⁰ Applied here, that means insuring against 100 percent of her potential losses. Figure 1 shows this result diagrammatically.

FIGURE 1: BENEFITS TO RISK-AVERSE BORROWERS FROM ACTUARIALLY FAIR INSURANCE



Given the borrower's risk aversion, she enjoys greater expected utility, U_2 , along the 45-degree line with insurance (that is, equal payoffs with and without default) than she does without insurance, U_1 . To be sure, the presence of transactions costs and the potential lack of perfect competition in the nascent market for 401(k) loan insurance could lead to an insurance premium that is greater than the actuarially fair price. Although imperfect competition leads to less-than-complete insurance, the expected utility associated with *some* less-than-fair insurance will often exceed the expected utility associated with no insurance.

Using some plausible figures, it is possible to show how participants benefit concretely from having the default insurance. Using the summary data from Lu, Mitchell, and Utkus (2010), the average loan balance of defaulting loans at the time of termination was \$6,542. Thus, the average avoided loss from having insurance, L , would be \$9,934 (including the loan amount, 30 percent combined taxes, 10 percent penalties, and gross up). The average loan balance of all participants with loans outstanding was \$8,713. Thus, the annual premium payments, C , associated with insuring that balance (at least in the first year of the loan) would range from \$43 to \$522 given a 0.5-to-6.0 percent premium (in line with premium from private mortgage insurance). According to the calculus derived above, assuming a ten percent default rate ($\pi = 0.1$),⁷¹ borrowers would prefer to be completely insured so long as the annual insurance premium was less than \$993 (equal to 10 percent of the loss due to default). Assuming a 18 percent default rate ($\pi = 0.18$), which is closer to

70. JEAN-JAQUES LAFFONT, *THE ECONOMICS OF UNCERTAINTY AND INFORMATION* 125 (MIT Press 1995).

71. *Empirical Analysis*, *supra*, at 10.

our predicted level of default in light of higher unemployment rates from mid-2008 through mid-2012, borrowers would prefer to be completely insured so long as the annual insurance premium was less than \$1,788 (equal to 18 percent of the loss due to default). Because the likely range of insurance premium (\$43 to \$522) is less than the range at which borrowers would completely insure (\$993 to \$1,788), it is reasonable to conclude that borrowers would strictly prefer insurance than no insurance under these circumstances.

Finally, our calculations conservatively ignore the fact that borrowers will have a higher marginal value of money during unemployment than during employment. Stated differently, a dollar loss in wealth during unemployment is more painful to the borrower than a dollar loss in wealth during employment. This implies that the increase in borrower utility for would-be defaulters from the avoidance of a one-dollar loss around the time of unemployment swamps the decrease in utility for non-defaulters of a one-dollar gain. Accordingly, when borrower utilities are “state-dependent,” the net benefit of insurance is even greater. For these reasons, we conclude that borrowers would almost surely be better off with a 401(k) loan insurance product.

Conclusion

Based on the most recent data, the annual leakage from 401(k) plans due to loan defaults could be as much as \$37 billion. To an economist, however, the precise size of the leakage is secondary to knowing that the problem is economically significant, and that the problem is most acute for economically disadvantaged groups. A policy response is warranted so long as the benefits of the response, as measured by the avoidance of losses to participants who borrow against their 401(k) accounts, exceed the costs. As demonstrated here, there are several policy prescriptions that would reduce the likelihood of loan defaults, discourage unnecessary loans against one’s nest egg, and cushion the blow from a default when it occurs.

We believe policymakers should pay special attention to fixing the last problem. In particular, the law should be amended to allow borrowers to be automatically enrolled into insurance coverage unless they opt to decline protection. Congress created the ability to save for tax-deferred retirement along with the ability to borrow against these savings. It is time to correct this regulatory distortion that prevents a vibrant insurance market in 401(k) loans, and to allow American workers the ability to access protection of their hard-earned retirement savings. Our recommendation minimizes the impact on the industry, maintains the current structure of borrowing, and gives borrowers a layer of protection that provides liquidity.