

Quantifying the Impact of 401(k) Plan “Leakage” on Retirement Deficits

There are three major ways that assets “leak” out of 401(k) plans: loan defaults, hardship withdrawals, and cashouts. How much does this leakage impact retirement income adequacy? Analysis by the Employee Benefit Research Institute’s (EBRI) Retirement Security Projection Model® (RSPM) shows that, of the three types of retirement plan leakage, cashouts have by far the most detrimental impact on retirement income adequacy, followed by hardship withdrawals. Loan defaults, while having a negative impact, are the least harmful of the three leakage types.

Using RSPM®, EBRI compared projected retirement deficits of U.S. households under various sets of assumptions. For the purpose of this analysis, we focused on the middle, or intermediate, set of assumptions, which assume 15 percent unemployment in 2020 and a linear decline in unemployment to 5 percent in 2026.¹

As background, RSPM® analyzes retirement income adequacy for various cohorts by simulating households through retirement age, taking into account:²

- Social Security.
- Defined contribution (DC) balances.
- Individual retirement account (IRA) balances from rollovers of DC plans.
- IRA balances from contributions to Traditional and Roth IRAs.
- Defined benefit (DB) annuities and/or lump-sum distributions.
- Net housing equity.

For 2019, RSPM® found that 40.6 percent of all U.S. households where the head of the household was between 35 and 64, inclusive, were projected to run short of money in retirement and that the aggregate retirement deficit for this population was \$3.83 trillion.³ Under the intermediate assumptions used in this study, EBRI estimates that the average retirement deficit was \$33,127.05 per individual for U.S. households headed by those between the ages of 35 and 64.

While the three forms of leakage mentioned above are existing components of the aggregate retirement deficit numbers previously published, this study focuses on the impact of each of these leakages on the retirement deficits and shows the difference between a single event and repeated activity.

¹ Only the intermediate results are presented in this publication, but both pessimistic and optimistic assumptions were included for sensitivity analysis. The results were very robust to changes in these assumptions. See the appendix for more detail.

² For more detail on the model, see the appendix of Jack VanDerhei and Craig Copeland, “The EBRI Retirement Readiness Rating:™ Retirement Income Preparation and Future Prospects,” *EBRI Issue Brief*, no. 344 (July 2010).

³ The retirement deficit is measured as the present value of the simulated retirement deficits at retirement age (in 2019 dollars).

Changes in Retirement Deficits Due to Leakage

Table 1 shows the increase in retirement deficits as a result of various leakage scenarios for the intermediate assumptions. These “adjusted” retirement deficits control for the fact that individuals with little or no years of eligibility for 401(k) plans would obviously have a smaller (or zero) probability of experiencing leakages from a 401(k) plan.

About the Adjusted Retirement Deficit

EBRI has demonstrated that the average retirement deficits are much larger for those with little or no years of eligibility for 401(k) plans.⁴ In an attempt to control for this potential confounding bias, we constructed 36 cells based on age and years of future eligibility in 401(k) plans and computed the average retirement deficits for both the treatment and control groups. We then computed a weighted average of the differences based on the number of individuals in each cell to compute the dollar-value increase in the average retirement deficit for various leakage scenarios.

In Table 1 we find that:

- Individuals with at least one loan default within their 401(k) plan have an increase in “adjusted” retirement deficits of \$2,522 or about 8 percent of the estimated \$33,127 average retirement deficit under the intermediate assumptions.
- Individuals with at least one hardship withdrawal have an increase of \$11,857 (36 percent).
- Individuals with at least one cashout have an increase of \$17,537 (53 percent).
- Individuals with each of the three leakages at least once during their working lives are simulated to have an increase of \$24,848, or 75 percent of the average retirement deficit.

When the adjusted retirement deficits were broken out into five-year age cohorts, the results were relatively age-invariant for both hardship withdrawals and cashouts: None of the dollar values deviated from the overall average by more than 10 percent. However, the adjusted retirement deficits for loan defaults exhibited a “U” shape with larger values for both the youngest and oldest cohorts as well as a reduced value for middle-age cohorts.

Table 1: Increase In "Adjusted" Retirement Deficits as a Result of Type of Leakage for the Intermediate Assumptions		
Type of Leakage	Dollar-Value Increase	Percentage Increase Relative to Current Average Retirement Deficit
At Least One Loan Default	\$ 2,522	8%
At Least One Hardship Withdrawal	\$ 11,857	36%
At Least One Cashout	\$ 17,537	53%
All Three Sources of Leakage at Least Once	\$ 24,848	75%

Source: Employee Benefit Research Institute Retirement Security Projection Model[®] Version 3623.

Table 2 provides more details with respect to repeated leakages. We simulate the same leakage scenarios as in Table 1 but this time bifurcate the results into those with a single leakage event vs. those that happen

⁴ See Table 6 of Jack VanDerhei, “Retirement Savings Shortfalls: Evidence from EBRI’s 2019 Retirement Security Projection Model[®]” *EBRI Issue Brief*, no. 475 (March 7, 2019).

two or more times. We see that, whereas a single loan default increases “adjusted” retirement deficits by 7.2 percent, those with two or more loan defaults have an average increase of 9.8 percent. When hardships are broken out in the same manner, we see that those with a single hardship withdrawal have a 33.1 percent increase, while those with two or more average a 43.2 percent increase. In the case of cashouts, those with only a single event average only a 37.8 percent increase, but those with two or more cashouts almost double the average increase (94.5 percent).

Number of Loan Defaults	Percentage Increase	Number of Hardships	Percentage Increase	Number of Cashouts	Percentage Increase
1	7.2%	1	33.1%	1	37.8%
2 or more	9.8%	2 or more	43.2%	2 or more	94.5%

Source: Employee Benefit Research Institute Retirement Security Projection Model® Version 3623

Probability of Running Short of Money

Table 3 focuses on the probability of running short of money in retirement as opposed to the amount of the retirement deficits, which was analyzed earlier. Similar to Tables 1 and 2, we adjust the probabilities to control for the number of future years of 401(k) plan eligibility on an age-specific basis. Again, in our base case, 40.6 percent of all U.S. households were expected to run short of money in retirement. However, since we are limiting our sample population to those with *future years of 401(k) eligibility*, we would expect that the overall probability of running short of money in this analysis would be much smaller. And indeed, in this sample we have an average of 19 percent of U.S. households estimated to run short.

We see that:

- A single loan default increases the “adjusted” probability of a shortfall by 2.4 percentage points. In other words, in this scenario, 21.4 percent of the sample are estimated to run short of money in retirement. Having two or more loan defaults increases the probability by 3.1 percentage points, or in other words, 22.1 percent are now estimated to run short.
- When hardships are broken out in the same manner, having a single hardship withdrawal increases the probability of running short by 9.9 percentage points, to 28.9 percent of the sample running short. Two or more hardships increase the probability by 13.7 percentage points, resulting in 32.7 percent estimated to run short.
- In the case of cashouts, a single cashout increases the percentage of those likely to run short by an average of 11.4 percentage points, to 30.4 percent; two or more cashouts increase the percentage of those likely to run short by 27.4 percentage points, which means 46.4 percent are now estimated to run short of money in retirement under this scenario.

Table 3: Increase in “Adjusted” Probability of Shortfalls for the Intermediate Assumptions

Number of Loan Defaults	Probability (Percentage Point Increase)	Number of Hardships	Probability (Percentage Point Increase)	Number of Cashouts	Probability (Percentage Point Increase)
1	21.4% (2.4%)	1	28.9% (9.9%)	1	30.4% (11.4%)
2 or more	22.1% (3.1%)	2 or more	32.7% (13.7%)	2 or more	46.4% (27.4%)

Source: Employee Benefit Research Institute Retirement Security Projection Model® Version 3623

Conclusion

In ranking the most detrimental forms of leakage when it comes to retirement income adequacy, this analysis shows that cashouts — especially multiple cashouts over a career — have the most negative impact, more than doubling the estimated proportion of those likely to run short of money in retirement. Hardship withdrawals rank second, with those having at least one hardship withdrawal seeing an increase in their retirement deficit of a third. When more than one hardship is taken, the proportion of those expected to run short of money increases by nearly three-quarters. Loan defaults increase the estimated amount and probability of shortfalls as well but by a significantly lesser amount than the other two leakage types.

By quantifying the impact of leakages on retirement income adequacy, EBRI allows plan sponsors, providers, and policymakers to better understand their ramifications. This, in turn, can lead to better decision-making that affects the lives of millions of American workers.

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Appendix

Assumptions for Unemployment and Participant Behavior

Variable	Optimistic	Intermediate	Pessimistic
Unemployment	11.4% Unemployment in 2020, With Linear Decline to 5% in 2024	15% Unemployment in 2020, With Linear Decline to 5% in 2026	20% Unemployment in 2020, With Linear Decline to 5% in 2031
Cashouts:			
• 2020	3.8%	4.3%	5.0%
• 2025	2.9%	3.1%	4.0%
• 2030	2.9%	2.9%	3.1%
• 2035	2.9%	2.9%	2.9%
Hardship Withdrawals:			
• 2020	2.3%	2.4%	2.6%
• 2025	2.0%	2.1%	2.3%
• 2030	2.0%	2.0%	2.1%
• 2035	2.0%	2.0%	2.0%

Capital Market Assumptions (real terms, net of fees)

	Expected Value (Arithmetic Average)	Volatility
Cash	1.10%	
Bonds	2.94%	7.53%
Equity	6.80%	17.96%
Inflation	1.93%	3.00%
Correlation (Bonds, Equity):	37.89%	

Sensitivity Analysis

Under the intermediate assumptions used in this study, EBRI estimates that the average retirement deficit is \$33,127.05 per individual for U.S. households headed by those between the ages of 35 and 64. This value decreases to \$32,731.58 under the optimistic assumptions and increases to \$34,010.61 for the pessimistic assumptions. The percentage increase relative to the average retirement deficit for the intermediate assumptions exhibited in Table 1 are quite robust to changes in the assumptions (since both the numerators and the denominators are modified). All the percentage point increases are within 7 percent of the values simulated under the intermediate assumptions, with the exception of the hardship withdrawals under the pessimistic assumptions (the percentage increase relative to average retirement deficit decreases by 13 percent relative to the intermediate assumptions in this case).