When Bad Years Arrive Early

Same returns. A very different retirement.

Two retirees start with $1,000,000 and receive the same 20 annual returns. Both withdraw $50,000 at the beginning of year 1 and increase that scheduled dollar amount by 2% each year. Only the order of returns changes.

Year-end portfolio balance, with scheduled withdrawals



ORDER MATTERS

Early losses: depleted in year 19. Late losses: $1,647,351 left.

A withdrawal during a downturn removes dollars that cannot participate in a later recovery. With no cash flows, rearranging these returns changes the path but not the ending balance. With withdrawals, the order can change whether the spending plan is funded.

Constructed scenario, not historical performance, a random simulation or a four-bucket backtest. Returns are deliberately selected and treated as total portfolio returns. No fees, taxes, contributions, annuity returns or separate dividends are included. Balances cannot fall below zero. Calculations retain full precision and round only for display.

Follow the dollars.

Years 1-10

Scheduled withdrawals and year-end balances, rounded to whole dollars. The full return set is the same; the three large losses move from years 1-3 to years 18-20.

Year	Scheduled draw	Early return	Early-loss balance	Late return	Late-loss balance
1	$50,000	-20%	$760,000	+12%	$1,064,000
2	$51,000	-15%	$602,650	+8%	$1,094,040
3	$52,020	-10%	$495,567	+15%	$1,198,323
4	$53,060	+12%	$495,607	+6%	$1,213,978
5	$54,122	+8%	$476,805	+18%	$1,368,631
6	$55,204	+15%	$484,841	+10%	$1,444,770
7	$56,308	+6%	$454,245	-4%	$1,332,923
8	$57,434	+18%	$468,236	+16%	$1,479,567
9	$58,583	+10%	$450,618	+9%	$1,548,873
10	$59,755	-4%	$375,229	+14%	$1,697,594

The other returns remain in the same relative order, including the -4% year. This is a rearrangement of one constructed return set, not two separate forecasts.

The gap keeps growing.

Years 11-20

Year	Scheduled draw	Early return	Early-loss balance	Late return	Late-loss balance
11	$60,950	+16%	$364,564	+7%	$1,751,210
12	$62,169	+9%	$329,611	+13%	$1,908,616
13	$63,412	+14%	$303,467	+5%	$1,937,465
14	$64,680	+7%	$255,502	+11%	$2,078,791
15	$65,974	+13%	$214,166	+28%	$2,576,405
16	$67,293	+5%	$154,217	+8%	$2,709,841
17	$68,639	+11%	$94,991	+12%	$2,958,146
18	$70,012	+28%	$31,973	-20%	$2,310,507
19	$71,412	+8%	$0	-15%	$1,903,230
20	$72,841	+12%	$0	-10%	$1,647,351

The early-loss account cannot fully fund year 19 and pays nothing in year 20. The late-loss account funds all 20 scheduled withdrawals. The last two early-loss returns cannot grow an empty account.

Make every step auditable.

1. Set the scheduled withdrawal

Year t scheduled draw = $50,000 x 1.02^(t - 1). The withdrawal happens before that year’s return, not after it.

2. Limit the payment to available money

Actual draw = the smaller of the scheduled draw and the beginning balance. Unmet draw = scheduled draw minus actual draw.

3. Apply the return to what remains

Ending balance = (beginning balance - actual draw) x (1 + annual return). The ending balance becomes next year’s beginning balance. Once depleted, the account stays at zero.

4. Check the first two years

Early losses: ($1,000,000 - $50,000) x 0.80 = $760,000. Then ($760,000 - $51,000) x 0.85 = $602,650. Late losses: ($1,000,000 - $50,000) x 1.12 = $1,064,000. Then ($1,064,000 - $51,000) x 1.08 = $1,094,040.

A shortfall is not a negative investment balance.

The early-loss path begins year 19 with $31,972.72. Against the scheduled $71,412.31 draw, it pays $31,972.72 and leaves $39,439.60 unmet. Year 20 pays $0 against $72,840.56 scheduled. Combined unmet withdrawals are $112,280.15, or $112,280 rounded once from full precision. Adding the separately rounded cents produces a one-cent rounding difference.

The table shows scheduled draws, not a claim that every draw was paid. The model does not assume borrowing or outside income to cover unmet spending.

Averages are not a paycheck.

Same averages. Different cash-flow outcomes.

Both return orders have a 7.15% arithmetic average: the 20 percentage returns sum to 143%, divided by 20. Their no-withdrawal compound annual return is 6.519206%, or 6.52%: multiply all 20 (1 + return) factors, take the twentieth root, then subtract 1. Starting with $1,000,000 and taking no withdrawals, both finish at $3,536,376. Neither average describes the return on a retirement spending plan.

What if the initial draw is $40,000?

Change only the initial scheduled draw to $40,000, still rising 2% annually and paid before returns. Neither path depletes within these 20 years: early losses leave $603,845 and late losses leave $2,025,156. That is a sensitivity test, not proof that a 4% starting draw is universally safe.



A lower withdrawal need improves both paths in this example.

Assumptions and boundaries

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The 2% annual increase is a spending assumption, not an inflation forecast. Ending balances are nominal dollars. The return order is deliberately chosen to isolate sequence risk; it says nothing about how likely either path is.

Plan for the order, too.

Know the spending gap

Separate essential expenses from flexible spending and subtract reliable income. The amount the portfolio must supply is a key part of sequence risk.

Discuss a reserve and a refill rule

A reserve may reduce the need to sell volatile assets after losses, but it has an opportunity cost. Decide what replenishes it and when. This illustration does not test a reserve strategy.

Test allocation and spending together

Lower volatility, lower withdrawals and flexible spending can change outcomes, with trade-offs. Bucket labels alone do not prevent depletion; holdings, fees and withdrawal rules do the work.

Source and reproducibility

Original scenario: How Smart Investors Prepare for the Storm, pages 10-11 (return paths and displayed table) and page 26 (calculation methods), reviewed November 10, 2026. All 40 annual return entries are preserved here. This standalone edition independently recalculates the results; the source is an illustration, not market evidence.

Conceptual background: Charles Schwab Center for Financial Research, Rob Williams, January 30, 2026, What Is Sequence-of-Returns Risk? The return paths here are independent constructed assumptions.

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