



## What Happens If You Outlive Your Safe Withdrawal Rate Time Horizon?

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Although the research on safe withdrawal rates (SWRs) has been replicated many times by various researchers to substantiate a reliable, sustainable spending level that can withstand at least anything that history has thrown at a retiree, one significant challenge has always lingered: A SWR recommendation is only as good as its associated time horizon. In other words, while the research may support a 4.5% SWR, it's predicated on a 30-year time horizon. If the client planned to retire over a 35- or 40-year time horizon, the SWR would be different. Unfortunately, though, the client may not know that a 35-year time horizon is needed until it's year 31 and there are still a few years left to go!

So what's the outlook for a SWR approach if the client outlives the original time horizon?

The inspiration for this article came from recent conversations I've been having with researcher [Wade Pfau](#) at the National Graduate Institute for Policy Studies in Tokyo, Japan (it's a pain trying to schedule our calls!), about SWRs, and in particular about something that SWR pioneer [Bill Bengen](#) mentioned in [a recent Forbes article about his work](#), which in turn is being [discussed/debated on the Bogleheads forums](#). Specifically, Bengen said that even if someone starts at a 4.5% withdrawal rate and lives for 30 years, there is still a 96% chance (based on historical analysis) that the client will still have 100% of his or her original principal remaining to fund the extra years.

Wait, what? The SWR, which we've been taught is how low spending has to be to sustain in bad economic environments, also still leaves over more than the original principal a whopping 96% of the time? Shocking, but true. In fact, Wade verified it (not that we doubted Bengen's word). The results are at the end of this article.

Assuming starting wealth of \$100, final wealth was still over \$100 in about 96% of the scenarios; in only three instances was wealth lower than the \$100 starting amount, including 1937, 1968, and 1969 (the latter being the scenario when the account winds down to \$0 by the end, and is thus why approximately 4.5% is the "safe" limit). On the other hand, as mentioned earlier, in almost 96% of the remaining cases, final wealth was at least \$100. In fact, the median wealth after 30 years is a whopping \$460! That's right, 50% of the time you do your lifetime spending at a 4.5% withdrawal rate, and more than quadruple your account balance on top of it!



On the other hand, these are nominal dollars, not real dollars. While it's nice to more-than-quadruple final wealth, spending has also risen dramatically over this time period due to inflation. Accordingly, the results below also show final wealth on an inflation-adjusted basis; nonetheless, median final wealth is still about \$161 (after starting at \$100), and in 69% of the scenarios the final wealth is still more than the starting amount in inflation-adjusted dollars too! That's quite a "cushion" for extra longevity! These projections assume withdrawals at end-of-year; if the withdrawals are beginning-of-year instead, starting principal is preserved 89% of the time based on nominal wealth, and 55% of the time in real wealth.

The bottom line is that while SWRs ratchet spending down to the point where a retiree can survive a terrible sequence of returns (and/or a substandard period of total return), in the overwhelming majority of cases, the outcome is not nearly so dire. In point of fact, *most* of the time the SWR approach is a path to significant wealth accumulation, and/or an adjustment period several years into retirement where spending can be *increased* to account for rising wealth. Nonetheless, for retirees who do not want to ever face the risk of *cutting* their spending, SWRs provide a rising-floor approach that allows for spending or wealth to rise, without anticipating cuts. But while it's the conservative measure needed to protect in bad markets, be cognizant that in "merely average" - not to mention, good - markets, your client's greatest problem may be what to do with all the extra money.

Year	Final Nominal Wealth	Final Real Wealth
1926	456.04	304.47
1927	427.14	273.11
1928	264.89	160.98
1929	158.79	93.91
1930	289.77	169.18
1931	451.36	244.03
1932	987.94	480.07
1933	937.35	403.68
1934	499.35	212.62
1935	530.35	227.66
1936	306.54	132.96
1937	95.67	40.64
1938	558.57	237.39
1939	350.31	138.22
1940	341.19	126.27
1941	476.46	168.77



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1942	800.57	301.01
1943	776.34	308.49
1944	474.14	178.7
1945	308	105.65
1946	186.54	61.14
1947	470.45	173.8
1948	548.02	206.71
1949	618.29	219.68
1950	595.95	183.5
1951	561.04	162.59
1952	533.47	150.24
1953	604.74	165.43
1954	779.9	206.84
1955	442.45	112.32
1956	376.21	92.36
1957	476.52	118.98
1958	638.48	157.29
1959	372.96	89.55
1960	404.22	94.15
1961	395.47	88.1
1962	268.44	58.41
1963	445.95	95.45
1964	325.98	69.03
1965	185.22	38.66
1966	104.83	21.75
1967	349.12	72.46
1968	43.38	9.12
1969	0	0
1970	460.07	103.04
1971	520.46	118.94
1972	392.33	91.25
1973	287.83	67.62
1974	898.37	225.34
1975	1744.98	475.63
1976	1275.97	359.89
1977	969.95	279.64
1978	1200.15	354.95
1979	1050.57	338.43



1980	1091.23	386.76
# of 30-year periods	55	55
# of successful periods	52	38
Probability of Success	0.945454545	0.690909091
Median Final Wealth	460.07	160.98

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