Sequence of returns:

Don’t roll the dice with retirement.

Investments and insurance products are:

Not FDIC/NCUA Insured	Not Insured by Any Federal Government Agency
Not a Deposit or Other Obligation of, or Guarantee by, the Bank or Any of Its Affiliates	May Lose Value

NEW YORK LIFE

Executive summary.

Retirees who saved a good portion of their earnings during their working years, accumulated a sizeable nest egg, and allocated their assets in a way that matched their risk profile and supported their future spending needs should feel confident about their ability to enjoy a long, happy retirement… Or should they?

Market volatility early in retirement can be frightening for new retirees, particularly since significant losses early on have the potential to derail a recently constructed plan for retirement. This is known as sequence of returns risk. Our analysis of this important risk faced by retirees uncovered the following key takeaways:

1. The order in which returns occur is very important, because withdrawing from a portfolio after poor market returns results in any possible future gains accruing off a smaller base. The transition from being a net saver during one's working years to a net spender in retirement exacerbates this risk.

2. Simply investing in traditional assets and ignoring sequence of returns risk results in luck playing a large role in retirement outcomes.

3. Reducing equity allocations in retirement portfolios does not necessarily decrease the risk of running out of money in retirement, and can lead to early portfolio depletion.

4. Income annuities help mitigate sequence of returns risk because they are uncorrelated with capital markets and help reduce the withdrawal strain on retirement portfolios.

5. Our findings show that allocating 20% of a retirement portfolio to an income annuity improves portfolio longevity in many cases, based on historical results.

The order of returns matters in retirement.

The average annualized equity market returns earned during retirement are critical to the overall success of a retirement plan. However, our research shows that the order in which these returns occur is also important. Generally speaking, strong equity market returns in the first decade of retirement (a good sequence of returns) tend to increase overall portfolio longevity, while poor returns in the beginning of retirement (a bad sequence of returns) can often lead to early depletion, even with the same average returns across the entire retirement period.

Sequence of returns risk is most pronounced at the onset of retirement, which is when individuals typically begin drawing down their assets to support spending needs. Figure 1 illustrates how important the sequence of returns becomes when spending is brought into the picture. While ending portfolio balances are unchanged in the scenario with no spending, spending from a portfolio with a poor sequence of returns resulted in a 13% lower ending portfolio balance versus a portfolio with a good sequence of returns and the same spending in this simplified example.

The order of returns matters in retirement (continued).

This shows how withdrawing from a portfolio after poor market returns will most likely result in future gains accruing off a smaller base, thus limiting the impact that good returns could eventually have on the portfolio. Sequence of returns risk is less of an issue during one's working years because income earned typically meets or exceeds one's expenses and pre-retirees have the ability to save more or work longer in order to accumulate more assets. In retirement, the opposite is true—expenses typically exceed income, and many retirees have limited options for increasing their nest egg if market losses occur. While returns may average out in the long run (e.g., over a 30-year retirement period), poor returns early in retirement may deplete a retirement portfolio before the positive returns occur.

FIGURE 1: Withdrawing from a portfolio to fund retirement expenses increases sequence of returns risk.

		Without spending			
		Beginning balance	Spending	Returns	Ending balance
Good sequence of returns	Year 1	100	0	20%	120
	Year 2	120	0	20%	144
	Year 3	144	0	20%	173
	Year 4	173	0	0	173
	Year 5	173	0	0	173
	Average returns			12%	

		With spending			
		Beginning balance	Spending	Returns	Ending balance
Good sequence of returns	Year 1	100	10	20%	108
	Year 2	108	10	20%	118
	Year 3	118	10	20%	129
	Year 4	129	10	0	119
	Year 5	119	10	0	109
	Average returns			12%	

		Beginning balance	Spending	Returns	Ending balance
Poor sequence of returns	Year 1	100	0	0	100
	Year 2	100	0	0	100
	Year 3	100	0	20%	120
	Year 4	120	0	20%	144
	Year 5	144	0	20%	173
	Average returns			12%	
	Change in Ending Balance w/ poor sequence of returns				0%

		Beginning balance	Spending	Returns	Ending balance
Poor sequence of returns	Year 1	100	10	0	90
	Year 2	90	10	0	80
	Year 3	80	10	20%	84
	Year 4	84	10	20%	89
	Year 5	89	10	20%	95
	Average returns			12%	
	Change in Ending Balance w/ poor sequence of returns				-13%

Real life example: What a difference a year makes.

Individuals may have some control over when they retire; however, no one can control market volatility. **Approaching retirement without a well-defined plan for mitigating sequence of returns risk is a case of hoping for the best and preparing for the best.** The purpose of planning is to eliminate the need for luck and increase the odds of enjoying a long and happy retirement.

To illustrate the importance of the sequence of returns in retirement and the effect luck can have on outcomes, let's look at a hypothetical example of a 60-year-old pre-retiree, Michael, with a $1 million portfolio in the year 1970. He does not know exactly when he wants to retire, but he knows it will be in the next four or five years. While deciding whether to retire at age 64 or 65 may seem like a relatively insignificant decision in the greater scheme of things, history shows that one year can make a big difference, particularly when retiring during a period of market volatility.

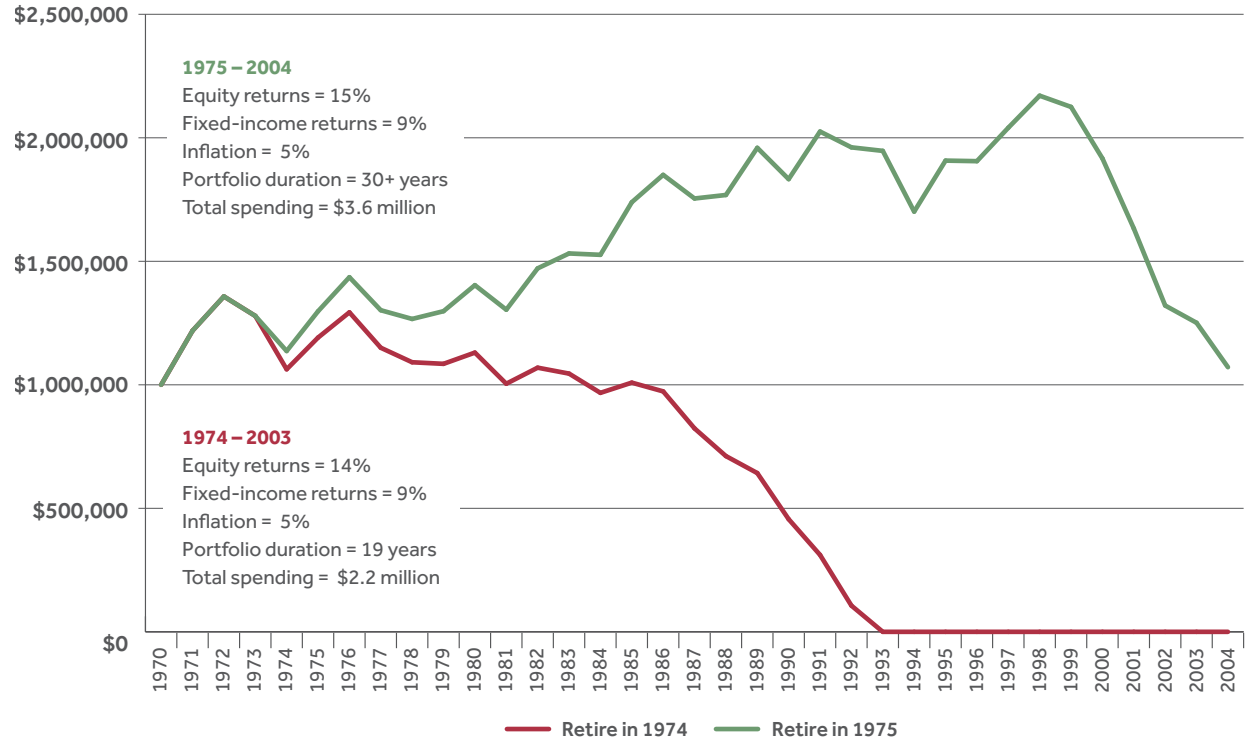
Real life example: What a difference a year makes (continued).

Figure 2 shows that if Michael were to retire at the beginning of 1974, he would have a portfolio balance of $1.3 million at retirement.[1] Assuming a 50/50 equity and fixed-income allocation, which is rebalanced each year, and an initial 4% withdrawal rate, the portfolio would be depleted after 19 years and would support $2.2 million of total spending. If he waited one additional year and retired in 1975, the starting portfolio balance at retirement would fall to $1.1 million, due to a drop in the equity market in 1974. But the portfolio would last the full 30-year retirement period and support $3.6 million of total spending. This example shows that by delaying retirement just one year, his portfolio lasted more than a decade longer and supported 62% higher total retirement spending. In addition, retiring in 1975 would have allowed him to leave more than $1 million, or 94% of his beginning portfolio balance, to his heirs. **This shows the role luck can play in retirement, since two time periods with nearly identical average annual returns and inflation can have very different outcomes based on the order in which the returns occur.**

There are two primary reasons for the early portfolio depletion in the 1974 retirement scenario: (1) the equity market declined more than 26% in 1974, the first year of retirement; and (2) market losses occurred three times in the first eight years of retirement (1974, 1977, and 1981). The combination of a big loss in Year 1 coupled with a volatile first decade of retirement is a one-two punch that is difficult for retirees invested solely in traditional assets to overcome without a significant reduction in spending.

The equity market decline experienced in 1974 had minimal impact on the 1975 retirement scenario because delaying retirement one year allowed Michael to avoid withdrawing from his portfolio at the bottom of the market. In fact, rebalancing would have actually led to him buying more equities at the bottom of the market, plus he had one more year's worth of income and savings to help offset the unrealized portfolio losses from 1974.

FIGURE 2: Annual portfolio balance by retirement year.



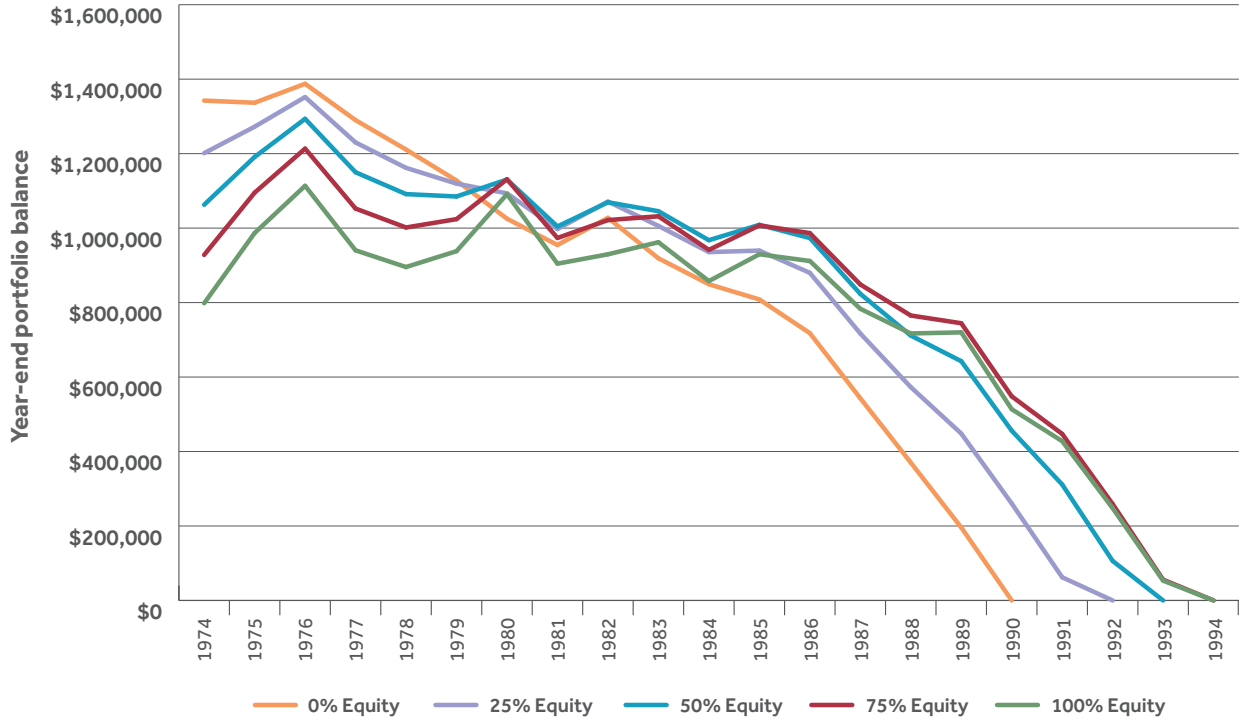
Lower equity exposure increases the risk of early portfolio depletion

To many individuals at or near retirement, the simple solution to mitigating sequence of returns risk would appear to be to reduce, or even eliminate, equity holdings in portfolios. However, doing so compromises the upside potential that equities can provide and may lead to quicker depletion of the portfolios. Figure 3 provides an example of how various equity allocations can affect portfolio longevity in various scenarios. To illustrate this, we used our earlier example of Michael retiring in 1974 with a 50/50 equity and fixed-income allocation. Results showed that he was negatively impacted by a poor sequence of returns and subsequently depleted his portfolio after 19 years.

Our findings show that increasing the fixed-income allocation would have actually shortened portfolio longevity even further, while increasing equity exposure would have improved the longevity of the portfolio. Allocating 100% of a portfolio to fixed-income assets would have led to portfolio depletion after only 16 years, while a 100% allocation to equities would have lasted 20 years, a 25% improvement. The primary issue with being heavily allocated to fixed-income investments is that retirees are forced to spend at a rate that is lower than the yield they receive from their fixed-income portfolios, or they run the risk of depleting their assets prematurely. This is particularly relevant given the current interest rate environment, where yields on fixed-income investments are low. Portfolios with higher allocations to equities have typically outperformed, because downside volatility in the U.S. equity markets has historically been relatively short-lived.

This certainly does not mean that all investors should assume additional investment risk when approaching retirement or that higher equity allocations always translate to successful outcomes. Nor can we guarantee that equity markets will perform in the future as they have in the past. **However, the example shows that simply adjusting the traditional asset allocation of one's portfolio and rebalancing each year may not be enough to fully offset sequence of returns risk and ensure that one's portfolio has the potential to sufficiently fund all retirement expenses.** An alternative approach is to include both traditional and insured assets in retirement portfolios. Doing so increases guaranteed retirement income, which can help to reduce overall volatility. It also decreases net withdrawals from the portfolio and helps mitigate sequence of returns risk.

FIGURE 3: Portfolio longevity at various equity allocations.



* This analysis assumed retirement started at the beginning of 1974. The non-equity allocations in each scenario consist of intermediate-term government bonds.

Income annuities effectively reduce sequence of returns risk.

There are two characteristics of income annuities that make them a valuable hedge against sequence of returns risk: (1) they provide a guaranteed source of lifetime income that is uncorrelated with the capital markets, meaning equity market volatility or interest rate movements will not affect the amount of income received in any given year after the policy is issued; and (2) annuity income, which is typically higher than other fixed-income assets of similar credit quality, lowers the net withdrawals that need to be taken from a portfolio to fund retirement expenses. This is particularly helpful in scenarios where the market performs poorly early in retirement, as it reduces, or eliminates, "selling at the bottom."

To assess the impact that owning an income annuity can have on retirement outcomes, New York Life's internal study analyzed every rolling 30-year time period since 1871, a total of 115 periods. This analysis used historical returns experienced during each period and tested several different combinations of asset allocations (equity and traditional fixed-income assets), withdrawal rates, and inflation levels to identify the periods in which retirees would have run out of money before the 30-year period ended.[2] We then took the scenarios that failed (i.e., the portfolio depleted in 29 years or fewer) and reran the analysis to include various allocations to both traditional assets and an income annuity (5% to 25% of the portfolio) to determine the optimal asset allocation for each period. The annuity used in this analysis was based on payouts from New York Life's Guaranteed Lifetime Income Annuity II (GLIA), [3] which is a single-premium immediate annuity. It is worth mentioning that we may be understating the value of GLIA in this analysis given that we are using historical capital market returns and inflation (which were from periods of higher interest rates) and current annuity payouts, which are lower than historical averages due to the low interest rate environment we are in.

In our base example, we used a 40/60 equity and fixed-income allocation, a 4% withdrawal rate, 1% inflation and 1% investment management fees.[4] Of the 115 time periods tested, portfolio depletion occurred prior to the end of the 30-year period 28 times (a 24% failure rate). After then testing multiple allocations to both traditional assets and GLIA, we found that allocating anywhere from 5% to 25% of a starting portfolio to an income annuity would have reduced the number of failures to eight (a 7% failure rate). In addition, the severity of the eight remaining failures would have dropped from an average shortfall of seven years with only traditional assets to four years with a GLIA, a 40% reduction. Finally, we found that allocations to a GLIA extended the portfolio longevity by at least one year for all 28 failed periods in this scenario, with an average increase of eight years, not to mention that the annuity continued to provide income after the rest of the portfolio was depleted.

Our findings show that the optimal asset allocation across all scenarios in this situation was generally 60% equity, 20% fixed income, and 20% GLIA. Figure 4 shows that our findings hold true across various asset allocations, withdrawal rates, and inflation levels. In our view, a key takeaway here is that, holding all else equal, retirees can improve outcomes by modestly increasing allocations to income annuities and equities, while reducing allocations to traditional fixed-income assets.

FIGURE 3: Adding an income annuity to retirement portfolios improves retirement outcomes across various scenarios.

	Scenario 1	Scenario 2	Scenario 3
	40/60 Allocation/ 4.0% SWP*/ 1% Inflation	50/50 Allocation/ 3.5% SWP*/ 2% Inflation	60/40 Allocation/ 3.0% SWP*/ 3% Inflation
Total rolling 30-year periods	115	115	115
Total failures without GLIA	28	22	24
Failure rate without GLIA	24%	19%	21%
Total failures with GLIA (5% to 25% allocation)	8	6	7
Failure rate with GLIA	7%	5%	6%
Average increase in portfolio longevity with GLIA	8 years	6 years	4 years

* SWP stands for systematic withdrawal plan and represents the percentage of the initial portfolio balance that will be withdrawn to fund retirement spending needs. For this analysis, we adjusted annual spending up or down based on actual inflation.

Conclusion.

Without proper planning, the sequence of returns early in retirement can have a significant impact on retirement outcomes. While average annual returns earned over one's entire retirement period are critical to successful outcomes, our findings show that returns early in retirement can be just as important. Simply reducing equity exposure is an insufficient strategy, because doing so reduces the upside potential of a portfolio, and fixed-income-heavy portfolios typically support lower spending levels and have a higher probability of depleting prematurely.

Adding income annuities to a retirement portfolio is an efficient way to hedge sequence of returns risk because income annuities are uncorrelated with capital markets and reduce the net withdrawals from a portfolio. This helps lessen the likelihood of "selling at the bottom" and allows retirees to keep some of their money invested in the market and take advantage of any possible future gains. Having additional sources of guaranteed lifetime income also reduces the role luck plays in retirement outcomes. New York Life's analysis of every rolling 30-year time period since 1871 shows that allocating roughly 20% of a retirement portfolio to an income annuity improves retirement outcomes and increases portfolio longevity in many scenarios. Of course, we can't guarantee that equity markets will behave in the future as they have in the past.

Disclosures.

[1] To compare the hypothetical outcomes for this individual if he were to retire in 1974 vs. 1975, we included the actual equity and fixed-income returns experienced prior to retirement (1970–1975), as well as actual returns in the rolling 30-year time periods of 1974–2003 and 1975–2004 (our defined retirement periods). Our analysis assumed $10,000 of annual pre-retirement savings. We also included annual investment management fees of 1.5% and taxed all portfolio withdrawals at a 28% marginal tax rate. The initial withdrawal amount was adjusted each year based on actual inflation during that year.

[2] Historical returns were obtained from economist Robert Shiller's online data set of S&P 500 returns (www.econ.yale.edu/~shiller.data.htm).

[3] New York Life's Guaranteed Lifetime Income Annuity II (GLIA) is a single-premium immediate annuity. Life Only payouts were used for this analysis with payout rates as of 3/23/17. Future payout rates may be different, and the rate difference can affect the analysis.

[4] New York Life's analysis also considered taxes. Portfolio withdrawals were taxed at a 28% marginal rate in all scenarios.

This material is general in nature and is being provided for informational purposes only. It was not prepared, and is not intended, to address the needs, circumstances, and/or objectives of any specific individual or group of individuals.

All examples shown regarding the likelihood of various equity portfolios and fixed-annuities projections and possible outcomes, are hypothetical and are not intended to represent the actual performance of any specific investment product or strategy. There is no assurance that any specific investment, annuity product, or strategy will be successful. New York Life and its affiliates are not making a recommendation to purchase any specific products. For advice regarding your personal circumstances, you should consult with your own independent financial and tax advisors.

Annuity products are issued by New York Life Insurance and Annuity Corporation, a wholly owned subsidiary of New York Life Insurance Company, 51 Madison Avenue, New York, NY 10010. All guarantees are dependent on the claims-paying ability of New York Life Insurance and Annuity Corporation (NYLIAC). Available in jurisdictions where approved.

The policy form number for New York Life's Guaranteed Lifetime Income Annuity II is ICC11-P103 (it may be 211-P103). State variations may apply.

New York Life Insurance Company
51 Madison Avenue
New York, NY 10010
www.newyorklifeannuities.com
AR09194B.072017 SMRU1738465 (Exp.07.11.2019)