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# SEQUENCE OF RETURNS:

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## How Can it Affect Your Retirement?

Timing is everything. In sports, certain timing can make the difference between winning a championship or being a runner-up. In comedy, it's essential to deliver a joke for maximum impact. And with life in general, timing creates countless effects, like nearly avoiding an accident or running into your to-be spouse at the park.

The point is, timing is critical in just about everything we do, and in retirement it's no different. In fact, the argument could be made that timing is even more important in retirement. It can either make or break the goals you've worked decades to achieve. So how can timing in the markets, or the "sequence of returns" on a portfolio, affect one's retirement? The answer may surprise you.

# WHAT IS SEQUENCE OF RETURNS?

Sequence of returns is the order of market returns a portfolio earns or loses year-over-year. Before retirement, your sequence of returns doesn't really matter as much. However, once you're in retirement, a negative sequence of returns early on in retirement can be one of the biggest risks your portfolio may face.

That's because when you start withdrawing money from your investment portfolio, negative returns early on can cause your portfolio to deplete much quicker than if those same negative returns happened later in your golden years.

Simply put, sequence of return risks can have a profound impact on how well you enjoy your retirement; because it's not how much your investments go up or down, it's when the ups and downs occur.

## HOW DOES SEQUENCE OF RETURNS WORK?

To understand how sequence of returns works in a retirement portfolio, you'll have to look at the market returns, the balance, and the income being withdrawn from the portfolio each year. Let's start with a simple and straightforward three-year example.

First, the market returns for this example are: **7%, -13%, and 27%**. If we add these up and divide by three, the arithmetic average is 7%. However, if we invested \$100,000, the numbers come out different.

YEAR 1	\$100,000	7%	\$107,000
YEAR 2	\$107,000	-13%	\$93,090
YEAR 3	\$93,090	27%	\$118,224

Not a huge return, right? That's partly because it's not the real number. To find the real number, you must calculate the geometric average:

$$((1+.07)(1-.13)(1+.27))^{1/3} - 1 = 5.74\%$$

So, a 5.74% return is the real geometric average because it accounts for compounding that occurs and is a more accurate measure of the returns.

# HYPOTHETICAL EXAMPLES

Now, let's look at two hypothetical financial situations. Each takes the numbers from the previous table and repeats the same market gains or losses every three years, for a total of nine years, with the numbers rounded.

## ASSUMPTIONS TO ACCOUNT FOR:

1. 5% income from the start with a 2% annual increase to account for inflation.
2. Income is taken at the end of each year.
3. Rates of return repeats every three years in this order: 7%, -13%, 27%.

	BALANCE	INCOME	RETURN	WITHOUT INCOME	WITH INCOME
YEAR 1	\$100,000	\$5,000	7%	\$107,000	\$102,000
YEAR 2	\$107,000	\$5,100	-13%	\$93,090	\$83,640
YEAR 3	\$93,090	\$5,202	27%	\$118,224	\$101,021
YEAR 4	\$118,224	\$5,306	7%	\$126,500	\$102,786
YEAR 5	\$126,500	\$5,412	-13%	\$110,055	\$84,012
YEAR 6	\$110,055	\$5,520	27%	\$139,770	\$101,175
YEAR 7	\$139,770	\$5,631	7%	\$149,554	\$102,626
YEAR 8	\$149,554	\$5,743	-13%	\$130,112	\$83,541
YEAR 9	\$130,112	\$5,858	27%	\$165,242	\$100,239

Now in the example below, all assumptions will stay the same except the sequence will change: -13%, 27%, 7%

	BALANCE	INCOME	RETURN	WITHOUT INCOME	WITH INCOME
YEAR 1	\$100,000	\$5,000	-13%	\$107,000	\$82,000
YEAR 2	\$87,000	\$5,100	27%	\$93,090	\$99,040
YEAR 3	\$110,490	\$5,202	7%	\$118,224	\$100,771
YEAR 4	\$118,224	\$5,306	-13%	\$126,500	\$82,365
YEAR 5	\$102,855	\$5,412	7%	\$110,055	\$82,718
YEAR 6	\$110,055	\$5,520	27%	\$139,770	\$99,531
YEAR 7	\$139,770	\$5,631	-13%	\$149,554	\$80,961
YEAR 8	\$121,600	\$5,743	27%	\$130,112	\$97,078
YEAR 9	\$154,432	\$5,858	7%	\$165,242	\$98,015

The highlighted ending values show that there's just about a \$2,000 difference, completely depending on the sequence of returns. The only problem is, in the real world, you won't ever know what your sequence of returns will be ahead of time—presenting a risk to you and your retirement portfolio.

# A MORE REALISTIC SEQUENCE OF RETURNS RISK

Now, because we know the market doesn't typically react in a cyclical way in terms of annual returns, let's take a more realistic approach that highlights the severe risk the sequence of returns can have on a retirement. The first table will show a "real" sequence of S&P 500 returns during a 15-year time period, and then the second table will reverse those returns, with all balances rounded. The results are profound.

## ASSUMPTIONS TO ACCOUNT FOR:

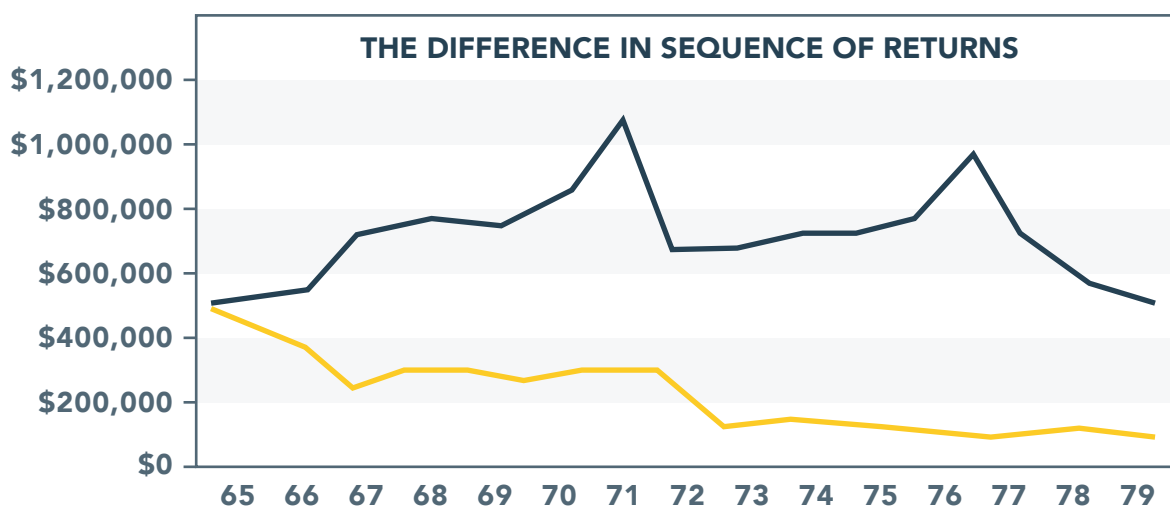
1. 5% income from the start with a 2% annual increase to account for inflation.
2. Income is taken at the end of each year.
3. Rates of return repeats every three years in this order: 7%, -13%, 27%.

## TABLE 1: SEQUENCE OF RETURNS

AGE	RETURN	START OF YEAR	INCOME	END OF YEAR
				\$500,000
65	-9.11%	\$500,000	\$25,000	\$429,450
66	-11.98%	\$429,450	\$25,000	\$352,502
67	-22.27	\$352,502	\$26,010	\$247,990
68	28.72%	\$247,990	\$26,530	\$292,682
69	10.82%	\$292,682	\$27,060	\$297,290
70	4.79%	\$297,290	\$27,602	\$283,928
71	15.74%	\$283,928	\$28,154	\$300,464
72	5.46%	\$300,464	\$28,717	\$288,152
73	-37.22%	\$288,152	\$29,291	\$151,610
74	27.11%	\$151,610	\$29,877	\$162,835
75	14.87%	\$162,835	\$30,475	\$156,573
76	2.07%	\$156,573	\$31,084	\$128,730
77	15.88%	\$128,730	\$31,706	\$117,466
78	32.43%	\$117,466	\$32,340	\$123,220
79	13.80%	\$123,220	\$32,987	\$107,238

## TABLE 2: REVERSED SEQUENCE OF RETURNS

AGE	RETURN	START OF YEAR	INCOME	END OF YEAR
				\$500,000
65	13.80%	\$500,000	\$25,000	\$544,000
66	32.43%	\$544,000	\$25,000	\$694,919
67	15.88%	\$694,919	\$26,010	\$779,262
68	2.07%	\$779,262	\$26,530	\$768,863
69	14.87%	\$768,863	\$27,060	\$856,132
70	27.11%	\$856,132	\$27,602	\$1,060,627
71	-37.22%	\$1,060,627	\$28,154	\$637,708
72	5.46%	\$637,708	\$28,717	\$643,810
73	15.74%	\$643,810	\$29,291	\$715,854
74	4.79%	\$715,854	\$29,877	\$720,266
75	10.82%	\$720,266	\$30,475	\$767,724
76	28.72%	\$767,724	\$31,084	\$957,129
77	-22.27%	\$957,129	\$31,706	\$712,271
78	-11.98%	\$712,271	\$32,340	\$594,601
79	-9.11%	\$594,601	\$32,987	\$507,445



Legend: **Real Sequence** | Reversed Sequence

Look at the difference the same returns in a different sequence altered the portfolio's value. Instead of a roughly \$2,000 difference in our first hypothetical scenario, this drawn-out scenario with historic S&P 500 returns shows a difference of over \$400,000. The only difference is where one person got on the "market roller coaster", and when one got off. Safe to say, a \$400,000 difference can make or break many retirement plans.



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# WE CAN HELP MITIGATE RISKS

There are a few methods that may help manage your sequence of returns risk in retirement like limiting your withdrawal amount, creating a "cash buckets" strategy, or using home equity. But there's no perfect method. Different strategies can address income needs and limit risks, but each one comes with risks of their own.

The bottom line is this: retirement income planning needs to be done with your goals and risk tolerances in mind. Planning for retirement can become overwhelming and complex, so it helps to have experts you can count on. As a trusted financial professional, we're on your side and can help you create an actionable retirement income plan to help you create a safe and prosperous retirement.

## SOURCES

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