

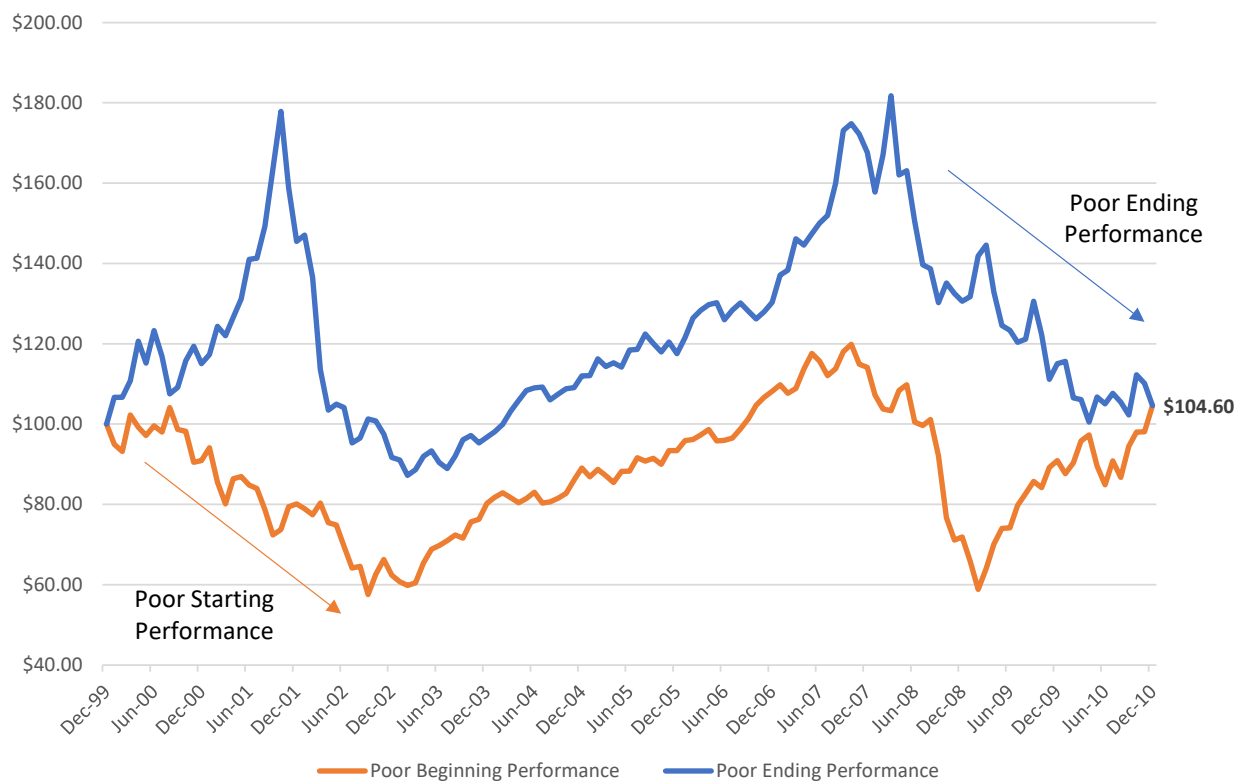
Schultz Collins Sequence of Returns Risk Commentary

It's common for advisors to emphasize that a successful investing strategy involves focusing on returns over the "long-term", and somewhat ignoring short-term performance. In this context, many advisors consider long term to be 10, 20, or 30 plus year periods, versus 1, 3 or 5 years. However, even if markets produce positive long-term returns, for investors initiating a withdrawal program, short-term market performance can have a major impact on long term portfolio values.

As Chart 1 illustrates, investors not making any contributions or withdrawals, will earn the same average return, regardless of poor performance at the beginning or end of the period.

Chart 1¹

The Order of Returns Does Not Effect Ending Values
If There Are NO Cash Flows



However, when it comes time to begin a withdrawal strategy, the timing of bad returns becomes more troublesome. Remember, during periods of negative market performance, withdrawal strategies exacerbate poor portfolio performance. In order to return to the original value, the portfolio must work

¹ Data provided by Dimensional Fund Advisors Returns Web App. For illustrative purposes only.

harder to make up for the withdrawals; thus, the order of negative and positive returns can affect the ending value of a portfolio.

Let's look at a simple example to illustrate the point. We will examine a hypothetical 3-year period of portfolio returns. The annual returns are -7%, 1% and 20%. The average rate of return is 4.67% and the compound rate of return is 4.07%. Assume we have an investor with a portfolio value of \$100 and needs to withdraw \$4 at the end of each year, or 4% of the initial value. In our example in Table 1, we see 3 scenarios for a portfolio. Each scenario has the same return series, but in a different order. For example, Scenario A realized the worst return, -7%, in year 1. Scenario B realized the worst return in year 2. Scenario C realized the worst return in year 3.

Table 1²

\$4 Withdrawn Each Year	Scenario A	Scenario B	Scenario C
Starting Portfolio Value	\$100.00	\$100.00	\$100.00
Year 1 Return	-7%	1%	20%
Ending Balance	93.00	101.00	120.00
Withdrawal	-4.00	-4.00	-4.00
Ending Balance-Post Withdrawal	89.00	97.00	116.00
Year 2 Return	1%	-7%	1%
Ending Balance	89.89	90.21	117.16
Withdrawal	-4.00	-4.00	-4.00
Ending Balance-Post Withdrawal	85.89	86.21	113.16
Year 3 Returns	20%	20%	-7%
Ending Balance	103.07	103.45	105.24
Withdrawal	-4.00	-4.00	-4.00
Ending Balance-Post Withdrawal	\$99.07	\$99.45	\$101.24

After 3 years, Scenario A has the lowest ending portfolio value. The second lowest value was Scenario B and the best was Scenario C, which realized the poorest annual performance in year 3. Interesting to note that Scenario C is the only portfolio to realize growth over the 3-year period. The other 2 portfolios ended with less than \$100.

In the real world, we cannot control when negative markets occur; therefore, the options available are to control the portfolio's risk and return characteristics.

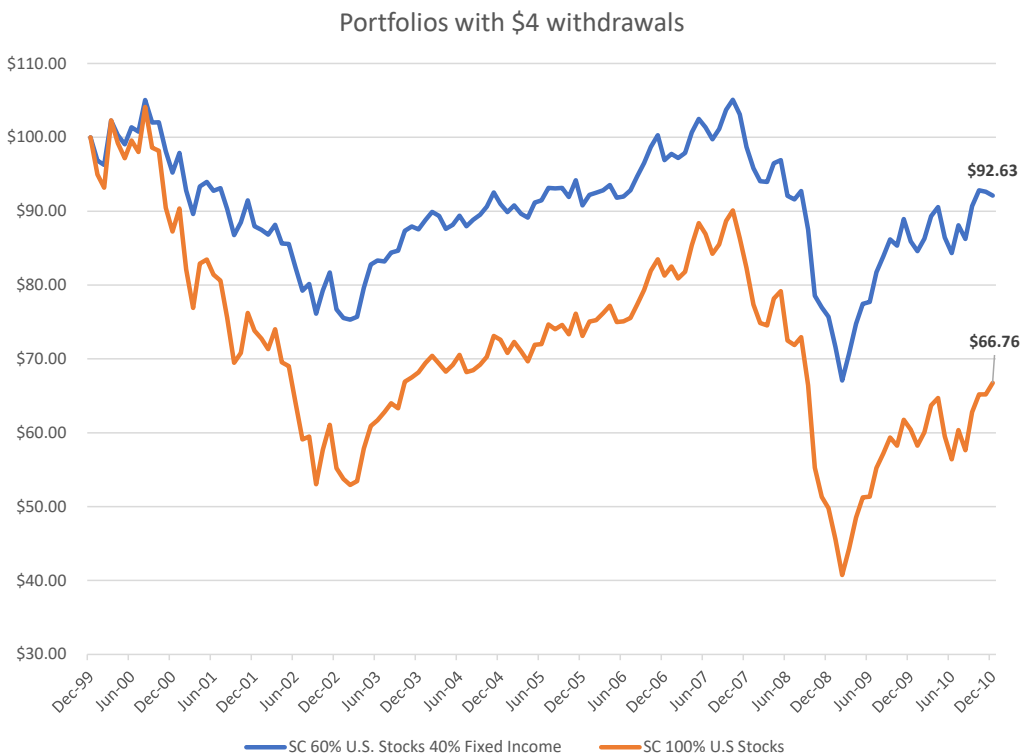
There are different strategies investors may adopt to control risk and return. Two of those choices are: defer the start of a withdrawal program, but most investors are not willing to do so. Another option is to

² Data provided in the example are hypothetical. For illustrative purposes only.

consider increasing the portfolio’s diversification. A common solution is to add bonds to a portfolio of stocks.

The historic and expected range of returns of bonds are smaller than stocks; therefore, the addition of bonds to a stock portfolio may reduce swings in its value. Chart 2 shows a simple historical example from the period of 2000 to 2010. Investors may recall this period began with steep negative returns. Here, we are looking at the growth of \$100 in the S&P 500 and a portfolio of 60% S&P 500 and 40% U.S. aggregate bond market. We assume \$4 are withdrawn every year. The 60/40 portfolio is rebalanced annually. As you can see, the two portfolios realized dramatically different ending values at the end of the decade. The better portfolio performance was the one with 40% fixed income.

Chart 2³



Conclusion: We have not covered every means of reducing sequence of returns risk, nor is one method applicable to every investor. This commentary is only an *introduction* to the sequence of returns risk. We are happy to discuss this subject with you in greater detail. For an advanced examination of this subject, we can refer you to the *Sequence of Returns Risk Revisited* article, published in the Retirement Management Journal and co-authored by Patrick Collins, Schultz Collins Principal Emeritas.

As always, if you have questions about this information or any other subjects, please feel free to contact us at 415-291-3000.

³ Data provided by Dimensional Fund Advisors Returns Web App. For illustrative purposes only.

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