## $\therefore$ MassMutual



## Hatfields and McCoys

Rethinking retirement

## The luck of the draw

By retirement at age 65, both the Hatfields and McCoys have worked hard enough to put away $\$ 500,000$ for their future. As they settle into their new life after work, they leave their retirement funds in the stock market. Both couples are prudent. Factoring for inflation using a $2.4 \%$ rise in their annual income to accommodate it, they take only $4 \%$ of their stock market portfolio out every year.

The chart on the next page represents hypothetical market returns over a period of 30 years. For this example the McCoys experience S\&P 500® returns from 1978 to 2008, while the Hatfields experience these same returns - in the opposite chronological order. Both families experience a $9 \%$ average annual return over these 30 year periods, but the Hatfields' early negative returns had a profound effect on their retirement nest egg.

## Sequence of returns matters

The order in which you experience losses and gains can be more important than the losses and gains themselves. With the S\&P $500{ }^{\circledR}$ near historic highs, sequence of returns may be more important than ever.

## The Hatfields

Significant market setbacks
in the first year
of retirement
Receive \$682,328 over 24 years
\$0 Ran out of
retirement income at 90

## The McCoys

No significant market setback until 21 years into retirement

Receive \$864,197 over 30 years
over at age 95

## \$500,000

Hatfields and McCoy's
retirement savings at age 65

Average annual net return 9\%
This is a hypothetical example used for illustrative purposes only, assuming an initial portfolio value of $\$ 500,000$. Chart assumes a $4 \%$ rate of withdrawal beginning in year 1 , with a $2.4 \%$ annual increase of the net withdrawal amount to account for inflation. This is based off of Social Security Cost of Living Adjustments' average increase from 1991 to 2020. Cost-of-Living Adjustment (COLA) Information, https://www.ssa.gov/cola/. Actual S\&P 500® historical data from 12/29/1978 to 12/31/2008 has been used in this graph. The hypothetical illustration does not consider the impact of taxes, which would reduce all values. Time period selected because of the extreme volatility during the 2000 s , to better illustrate the impact of significant losses early in retirement. Using the current time period would demonstrate less dramatic results. Returns are based upon the Standard \& Poor's ${ }^{\circledR} 500$ Index (S\&P 500® Index) historical data from 1978 to 2008. S\&P 500® Index returns for the Hatfields are in reverse chronological order. The S\&P $500^{\circledR}$ Index is an unmanaged group of large company stocks. It is not possible to invest directly in an index. Past performance does not guarantee future results.

The chart below demonstrates how, in spite of an average 9\% net rate of return for the period, the Hatfield's early negative returns profoundly impacted their retirement nest egg.

THE HATFIELDS (EARLY LOSS)

| Hypothetical Net Return | Withdrawal | Balance | Age | Hypothetical Net Return | Withdrawal | Balance |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | 500,000 | 65 |  |  | 500,000 |
| -38.49\% | 20,000 | 287,550) | (66) | 12.31\% | 20,000 | 541,550 |
| 3.53\% | 20,480 | 277,221 | 67 | 25.77\% | 20,480 | 660,627 |
| 13.62\% | 20,972 | 294,006 | (68) | -9.73\% | 20,972 | 575,377 |
| 3.00\% | 21,475 | 281,352 | 69 | 14.76\% | 21,475 | 638,828 |
| 8.99\% | 21,990 | 284,655 | 70 | 17.27\% | 21,990 | 727,163 |
| 26.38\% | 22,518 | 337,229 | 71 | 1.40\% | 22,518 | 714,825 |
| -23.37\% | 23,058 | 235,360) | (72) | 26.33\% | 23,058 | 879,980 |
| -13.04\% | 23,612 | 181,057 | (73) | 14.62\% | 23,612 | 985,022 |
| -10.14\% | 24,179 | 138,520 | (74) | 2.03\% | 24,179 | 980,839 |
| 19.53\% | 24,759 | 140,814 | 75 | 12.40\% | 24,759 | 1,077,704 |
| 26.67\% | 25,353 | 153,016 | 76 | 27.25\% | 25,353 | 1,346,026 |
| 31.01\% | 25,961 | 174,505 | (77) | -6.56\% | 25,961 | 1,231,765 |
| 20.26\% | 26,585 | 183,275 | 78 | 26.31\% | 26,585 | 1,529,258 |
| 34.11\% | 27,223 | 218,567 | 79 | 4.46\% | 27,223 | 1,570,240 |
| -1.54\% | 27,876 | 187,325 | (80) | 7.06\% | 27,876 | 1,653,223 |
| 7.06\% | 28,545 | 172,005 | (81) | -1.54\% | 28,545 | 1,599,218 |
| 4.46\% | 29,230 | 150,447 | 82 | 34.11\% | 29,230 | 2,115,482 |
| 26.31\% | 29,932 | 160,098 | 83 | 20.26\% | 29,932 | 2,514,147 |
| -6.56\% | 30,650 | 118,945 | (84) | 31.01\% | 30,650 | 3,263,134 |
| 27.25\% | 31,386 | 119,972 | 85 | 26.67\% | 31,386 | 4,102,026 |
| 12.40\% | 32,139 | 102,710 | 86 | 19.53\% | 32,139 | 4,871,013 |
| 2.03\% | 32,910 | 71,885 | (87) | -10.14\% | 32,910 | 4,344,182 |
| 14.62\% | 33,700 | 48,695 | (88) | -13.04\% | 33,700 | 3,744,001 |
| 26.33\% | 34,509 | 27,007 | 89 | -23.37\% | 34,509 | 2,834,519 |
| 1.40\% |  |  | 90 | 26.38\% | 35,337 | 3,546,928 |
| 17.27\% |  |  | 91 | 8.99\% | 36,185 | 3,829,612 |
| 14.76\% |  |  | 92 | 3.00\% | 37,053 | 3,907,447 |
| -9.73\% |  |  | 93 | 13.62\% | 37,943 | 4,401,699 |
| 25.77\% |  |  | 94 | 3.53\% | 38,853 | 4,518,225 |
| 12.31\% |  |  | 95 | -38.49\% | 39,786 | 2,739,374 |
| Average annual net return 9\% |  |  |  |  |  |  |

This is a hypothetical example used for illustrative purposes only, assuming an initial premium of $\$ 500,000$. The hypothetical illustration does not consider the impact of taxes, which would reduce all values. Table assumes a $4 \%$ rate of withdrawal beginning in year 1 , with a $2.4 \%$ annual increase of the net withdrawal amount to account for inflation. This is based off of Social Security Cost of Living Adjustments' average increase from 1991 to 2020. Cost-of-Living Adjustment (COLA) Information, https:// www.ssa.gov/cola/. Actual S\&P 500® historical data from 12/29/1978 to 12/31/2008 has been used in this graph.
O (Circled) years in this table indicate years of negative returns.

## Facing the Facts

The largest annual stock market decline was in 1931, when the S\&P $500^{\circledR}$ fell by $43.84 \%{ }^{1}$

Depending on when you start your retirement, market returns could have a significant negative impact on your savings.

The families depicted herein are fictitious. No association with any real family is intended or should be inferred.
${ }^{1}$ Stock market decline is based on the S\&P 500® Index. NYU Stern School of Business, Annual Returns on Stock, T. Bonds and T. Bills: 1928 - Current http://bit.ly/1rr5h3v (Feb. 2015)
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