Retirement Portfolio Analysis: A Multi-Decade Review

Craig Israelsen, Ph.D.

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Each "Retirement Window" is a 25-year period

Starting Age	72	72 is minumum age with RMD
Portfolio Balance at Age 72	$1,500,000	

Retirement Portfolio Asset Allocation (% per asset)	25 Retirement Years	
Large US stock	14.29%	
Small US stock	14.29%	
Non-US Stock	14.29%	
US Bonds	14.29%	
Cash	14.29%	
US Real Estate	14.29%	
Commodities	14.29%	
Total Allocation	100.00%	
Annualized Portfolio Return 1970-2019 after fees	8.65%	50 Year Period
MEDIAN 25-YEAR Portfolio Return after fees	10.10%	

Total Portfolio cost in bps (Negative) (Expense Ratio + Advisory Fee)	-100	
Annual Withdrawal Rate During Retirement Years* (OR "RMD" OR "0" for Fixed Amt)	RMD	Now Using RMD
**Percentage of portfolio balance withdrawn at the end of each year based on prior year ending balance*	-- OR --	
Fixed Annual Withdrawal ($ Amount)		

Historical Performance Adjuster (by user)	(NEGATIVE bps)	Ave Gross Return from 1970-2019
Large US Stock	0	10.60%
Small US Stock	0	10.88%
Non-US Stock	0	8.68%
US Bonds	0	7.40%
Cash	0	4.74%
US Real Estate	0	11.63%
Commodities	0	6.73%

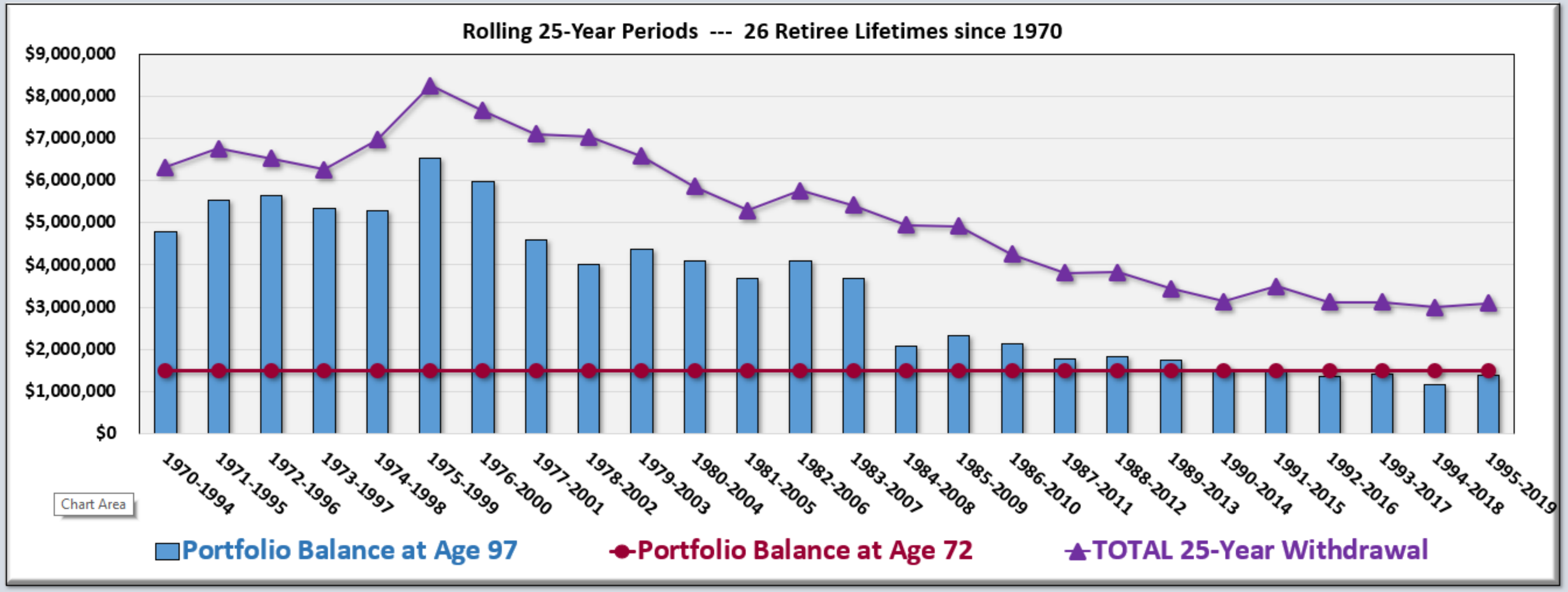
Data source:

Large US stock: S&P 500 Index 1970-2019

Retirement portfolio outcomes based on RMD annual withdrawals

7-Asset Portfolio	Large US stock	Small US stock	Non-US Stock	US Bonds	Cash	US Real Estate	Commodities	PORTFOLIO
Allocation to each asset	14.29%	14.29%	14.29%	14.29%	14.29%	14.29%	14.29%	100.00%

% of time the annual withdrawal during retirement increased the following year	Average decline in annual withdrawal IF it went down
80%	-$18,524



RMD annual withdrawal rates obtained from the Uniform Lifetime Table. This RMD analysis applies to all IRA account owners unless your spouse is the sole beneficiary of your IRA AND more than 10 years younger than you.

Portfolio Balance at Age 72	Average Annual Withdrawal		Total 25-Year Withdrawal (Average)		Average Portfolio Balance at Age 97	
$1,500,000	$209,255		$5,231,370		$3,378,779	
RMD begins at age 72	$330,557	Highest Average	$8,263,935	Highest	$6,541,531	Highest
starting in January 2020	$119,759	Lowest Average	$2,993,975	Lowest	$1,172,602	Lowest

Average Withdrawal in Each Year of the 25-Year Retirement Period

1970 - 2019 Rolling 25-Year Retirement Periods

35 Lifetimes 4-Assets 1926-2019 | 26 Retirement Periods 1970-2019 | Retirement Analyzer with COLA | RMD Table

80%

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starting in January 2020

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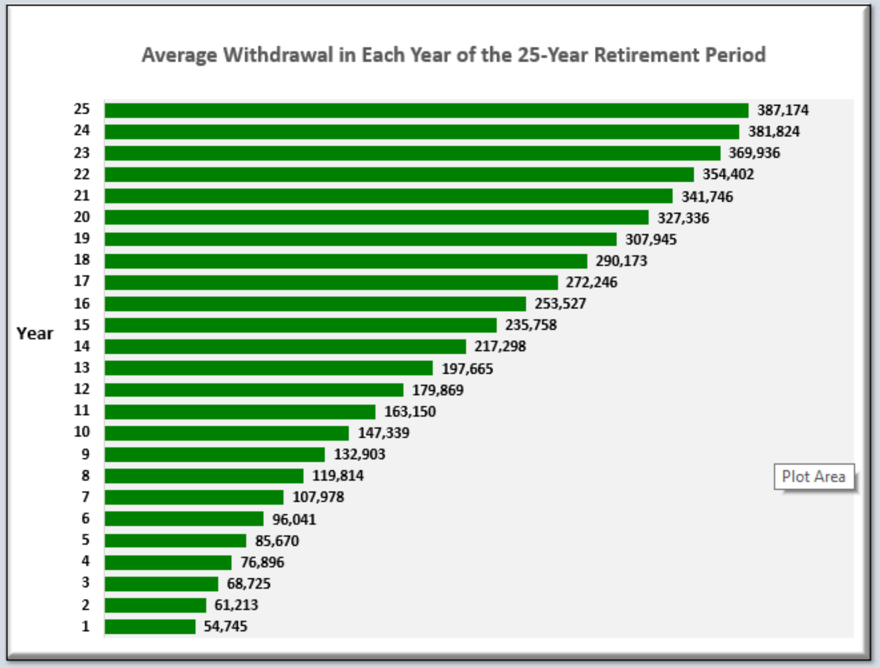
Highest	$330,557 (Highest Average)	$8,263,935	$6,541,531
Lowest	$119,759 (Lowest Average)	$2,993,975	$1,172,602

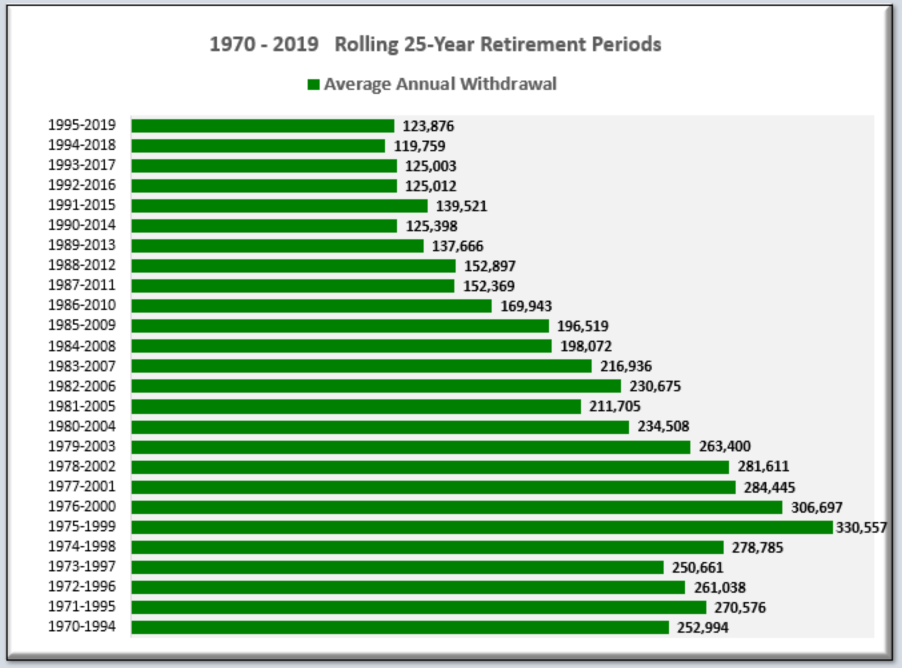
Data source:
Large US stock: S&P 500 Index 1970-2019
Small US stock: Ibbotson Small Stock Index 1970-1978, Russell 2000 Index 1979-2019
Non-US Stock: MSCI EAFE Index 1970-2019
US bonds: SBBI US Interm Govt Bond Index 1926-1975, Barclays Agg Bond Index 1976-2019
Cash: 90-day Treasury Bills 1926-2019
US Real Estate: Chan data 1970-71, NAREIT Equity REIT Index 1972-77, DJ US Select REIT Index 1978-2019
Commodities: S&P GSCI Index 1970-2019

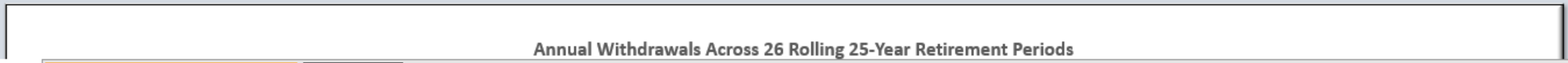
Past performance does not guarantee future performance.

Annual rebalancing in all portfolios assumed.

RMD divisors from the Uniform Lifetime Table
For use by all IRA account owners unless your sole beneficiary is your spouse who is also more than 10 years younger than you.







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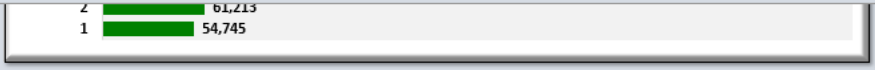

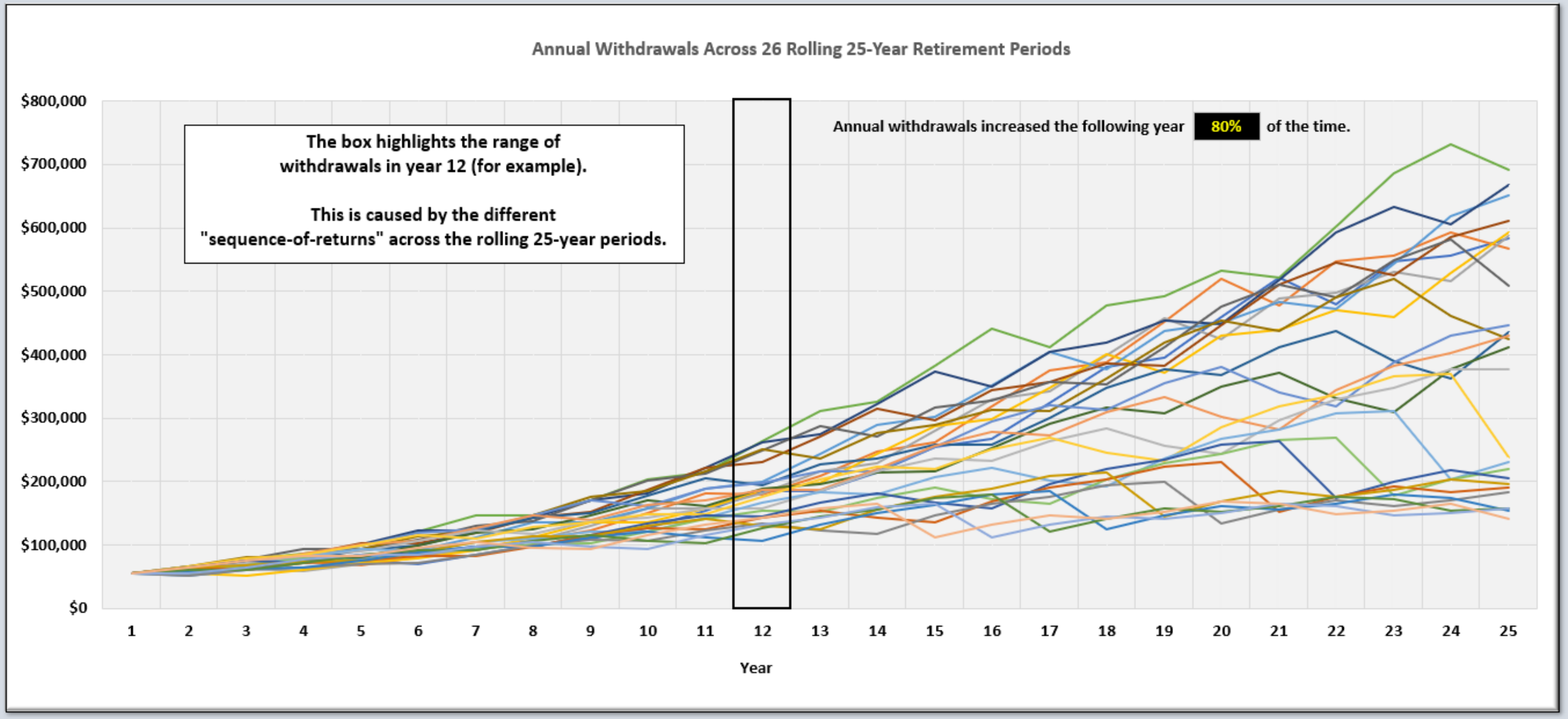

Rolling 25-Year Portfolio Returns between 1970 - 2019

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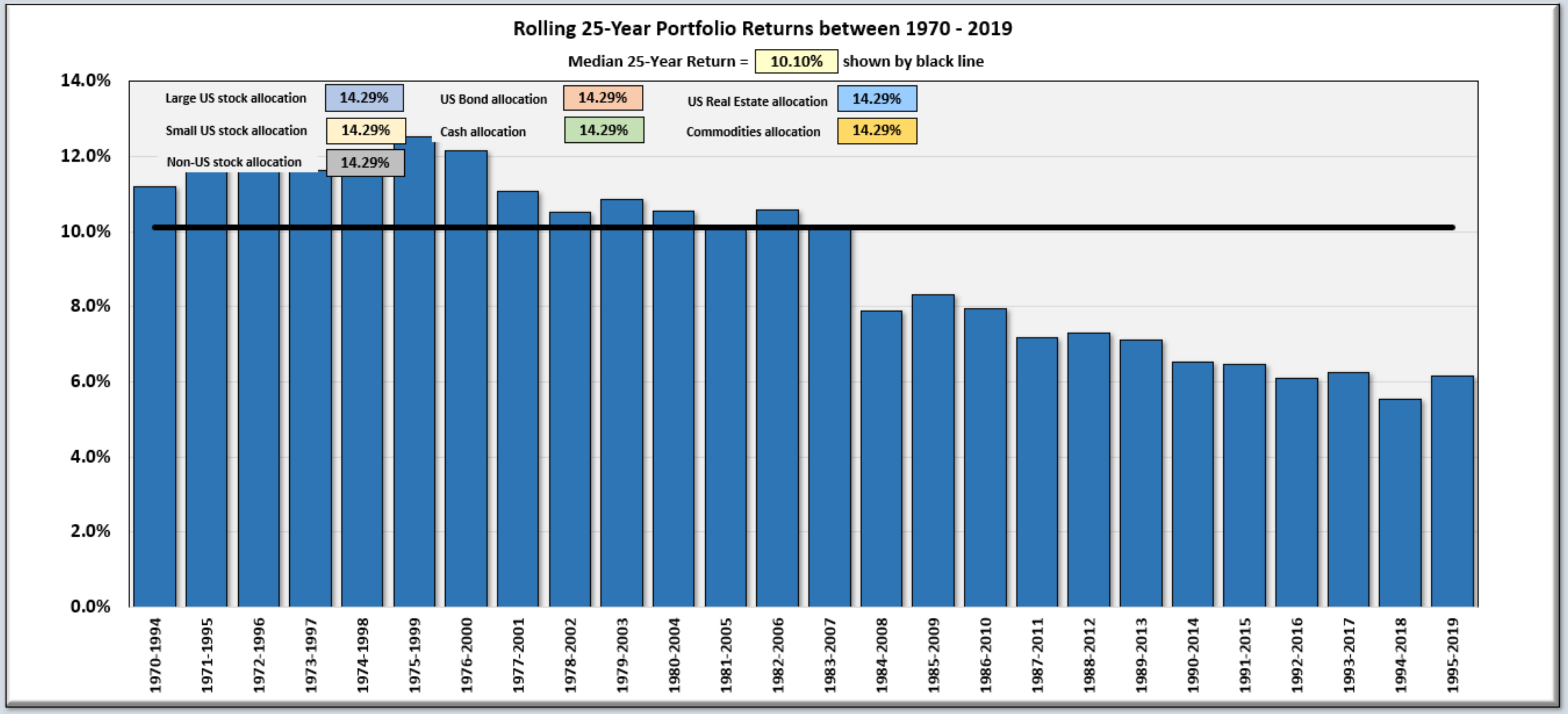

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Please contact me if you have questions about the spreadsheet

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