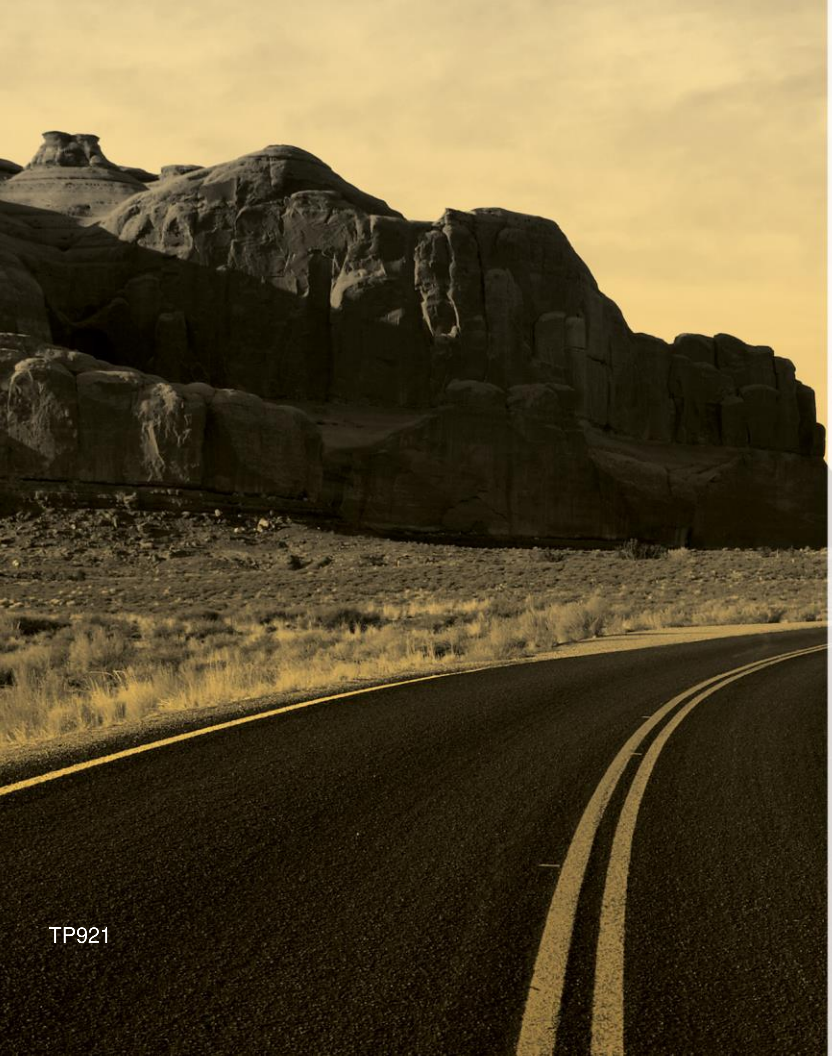

Road of Retirement

THE PROCESS OF MANAGING RETIREMENT INCOME

Thornburg
INVESTMENT MANAGEMENT

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Sequence of Returns

S&P 500 Index

Year	1989–2008 Sequence	2008–1989 Sequence
1	31.69	-37.00
2	-3.11	5.49
3	30.47	15.84
4	7.62	4.91
5	10.08	10.88
6	1.32	28.68
7	37.58	-22.10
8	22.96	-11.88
9	33.36	-9.11
10	28.58	21.04
11	21.04	28.58
12	-9.11	33.36
13	-11.88	22.96
14	-22.10	37.58
15	28.68	1.32
16	10.88	10.08
17	4.91	7.62
18	15.84	30.47
19	5.49	-3.11
20	-37.00	31.69
Average Annual Total Return	**8.43%**	**8.43%**

Average market returns over longer timeframes do not tell the whole story, sequence of returns matters.

An investor who retires during a period of low inflation and increasing stock prices may find that their portfolio lasts 30 years. Another investor who retires with the same investment portfolio during a period of increasing inflation and declining stock prices could fall short of their goal for a 30-year retirement.

Past performance does not guarantee future results.

Source: Standard & Poor's
Annual returns for the period 1989–2008

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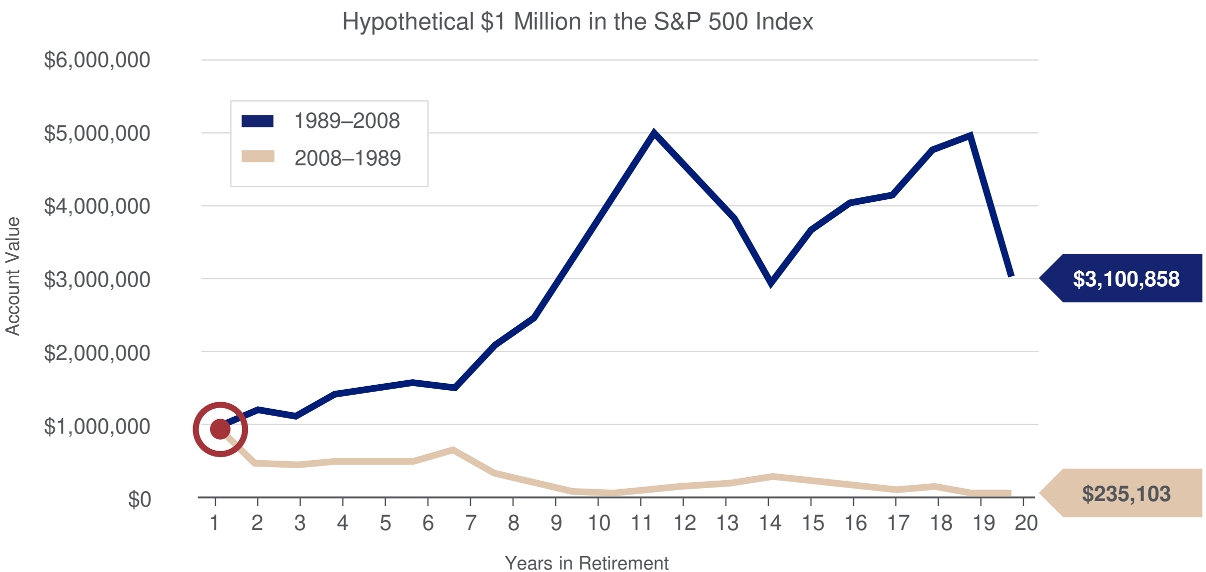
Sequence of Returns

Effect on Portfolios Undergoing 5% Annual Withdrawals Adjusted for Inflation



Retiring without a distribution plan leaves your future to chance.

Making withdrawals from an investment portfolio during a declining market leaves less money invested to increase in value during a rising market.

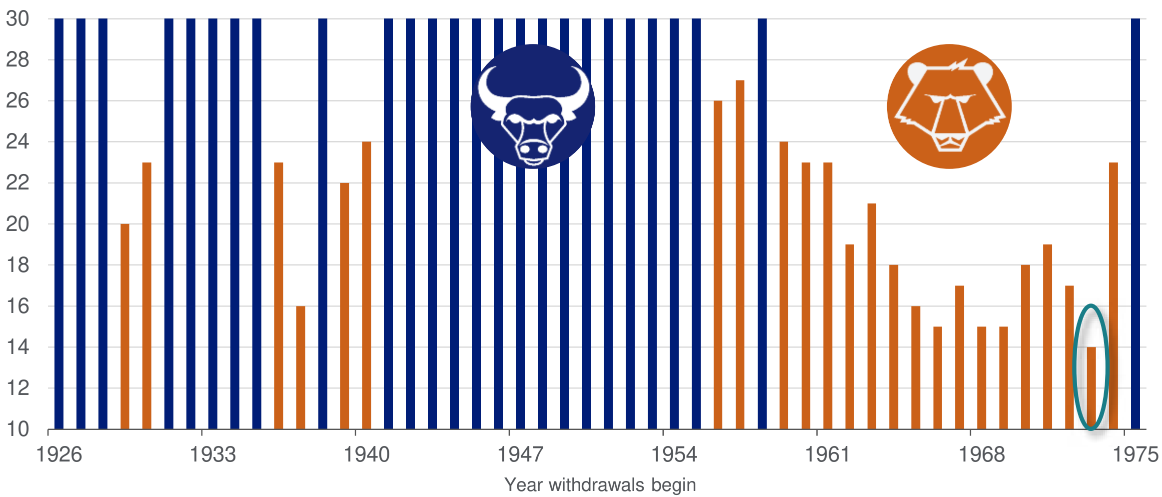
Past performance does not guarantee future results.

Sources: Standard and Poor's and Bureau of Labor Statistics; calculated by Thornburg Investment Management.
$50,000 was withdrawn in year one; withdrawal amount was increased by the change in the Consumer Price Index (CPI-U) each year (3.05% average for the period).

Portfolio Longevity

6% Initial Withdrawal Rate Increased by the Actual Inflation Rate

Hypothetical portfolio of 63% large-cap stocks & 37% intermediate-term government bonds, 1926 to 1975 (rebalanced annually)



A retiree's investment experience is greatly affected by the market.

Since the mid-1950s, using these assumptions, it has been particularly difficult for the retiree's investment portfolio to last for 30 years.

Past performance does not guarantee future results.

Source: William P. Bengen, *Conserving Client Portfolios During Retirement*
Large Cap Stocks: represented by the S&P 500 Index.
Intermediate Government Bonds: represented by Bloomberg Barclays Intermediate Government Bond Index.

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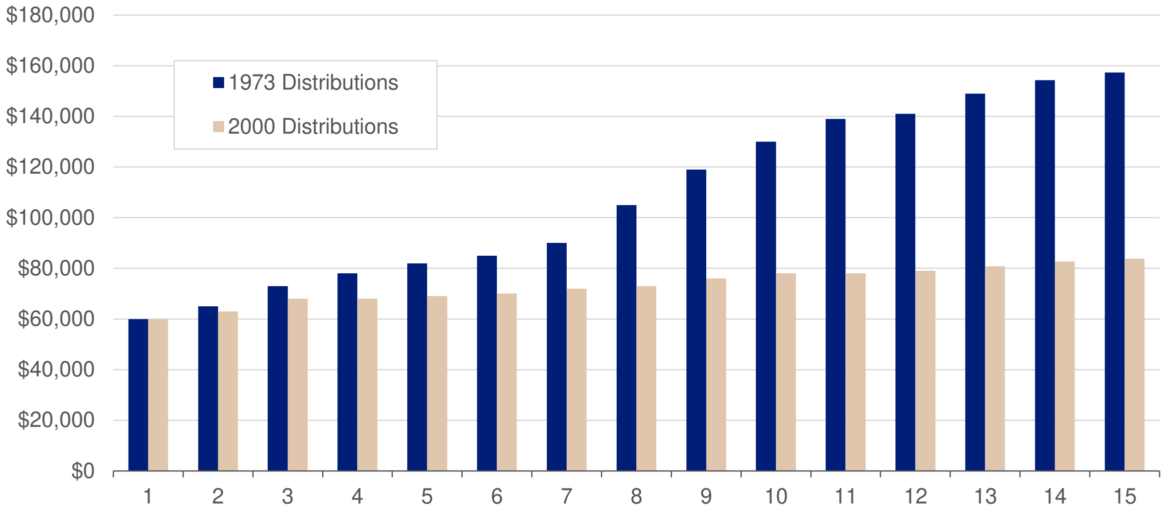
Lifestyle Spending Policy

Annual Spending Amounts Increased by the Actual Inflation Rate (Hypothetical)



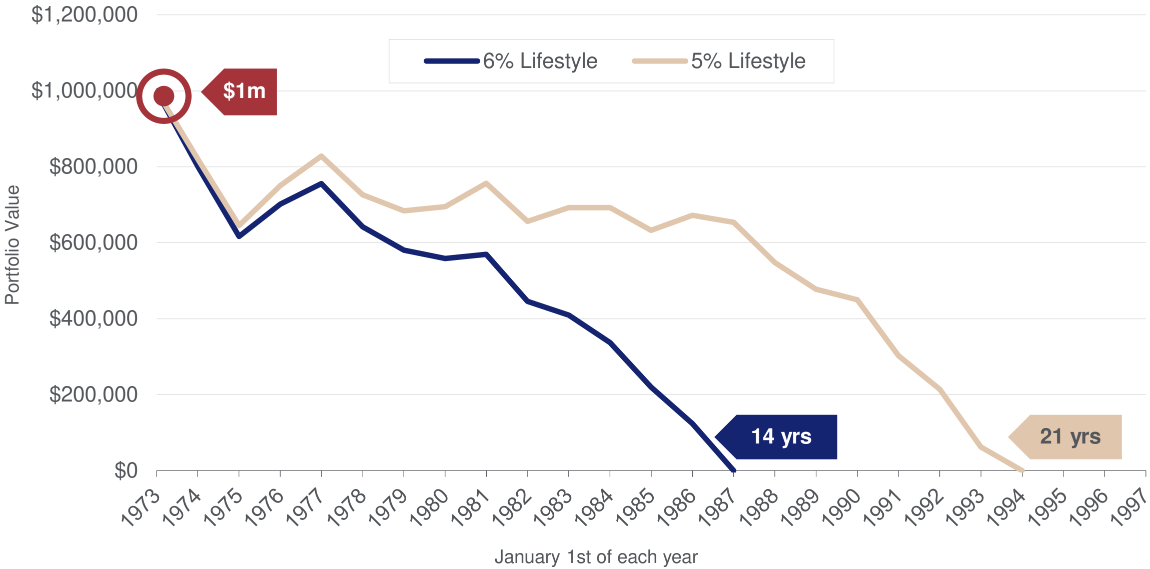
Using a Lifestyle Spending Policy, portfolio values suffer dramatically during periods of increasing inflation (1973) and declining markets (2000).

Failing to make annual spending adjustments that reflect changes in the portfolio value may negatively affect portfolio longevity.

Source: Thornburg Investment Management.
Assumes $1 million investment; 60% S&P 500 Index, 40% Bloomberg Barclays Intermediate Government Bond Index. 6% initial distribution rate increased by actual CPI-U for period, rebalanced annually.

Lifestyle Spending Policy: Comparing Spending Rates for a 1973 Retiree

Effect on Portfolio of Decreasing the Spending Rate from 6% to 5%



A Lifestyle Spending Policy falls short even when the spending rate is lowered.

Changing the spending rate does not change the result for the retiree who is hoping their money outlasts them.

Past performance does not guarantee future results.

Source: Thornburg Investment Management
Assumes a $1 million hypothetical investment made on 1 January 1973. Per Bengen's model; 63% S&P 500 Index, 37% Bloomberg Barclays Intermediate Government Bond Index increased by Actual Inflation (CPI-U).

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Endowment Spending Policy: A Strategic Approach to Determining Portfolio Withdrawals

Concept	A long-term spending policy that combines a spending rate with an annual smoothing rule that adjusts spending amount to gradually reflect changes in portfolio market value
Example	5% spending rate with 90/10 smoothing rule 90% of prior year's spending amount plus 10% of the current value of the portfolio multiplied by a 5% spending rate plus an annual cost of living adjustment
Strength	Gradually adjusts spending levels to reflect underlying portfolio performance. Requires belt-tightening during down markets. The spending changes have a smoothing effect.
Weakness	More complicated than lifestyle, but still easy to implement. Requires belt-tightening during down markets

Source: Thornburg Investment Management

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Endowment Spending Policy Illustrated

1973–1976

	1973	1974	1975	1976
Beginning portfolio value (PV)–Hypothetical	$1,000,000	$869,752	$699,568	$788,898
Spending amount	$50,000	$52,409	$56,239	$59,524
Current spending rate (amount/PV)	5.0%	6.0%	8.0%	7.5%
Spending amount calculation:				
90% of prior year's spending		$45,000	$47,168	$50,615
10% of PV x 5% spending rate		4,349	3,498	3,944
Subtotal before **Cost of Living Adjustment (COLA)**		$49,349	$50,666	$54,559
COLA (Prior year CPI-U increase)		6.2%	11.0%	9.1%
Annual **COLA**		$3,060	$5,573	$4,965
Spending amount		$52,409	$ 56,239	$ 59,524
Increase / (decrease) from prior year		4.8%	7.3%	5.8%

Annual calculations reflect changing markets, inflation rates, and may improve portfolio longevity.

While spending increases year-over-year using this approach, spending does not increase as quickly as it would have if a Lifestyle Spending Policy had been chosen.

Source: Thornburg Investment Management

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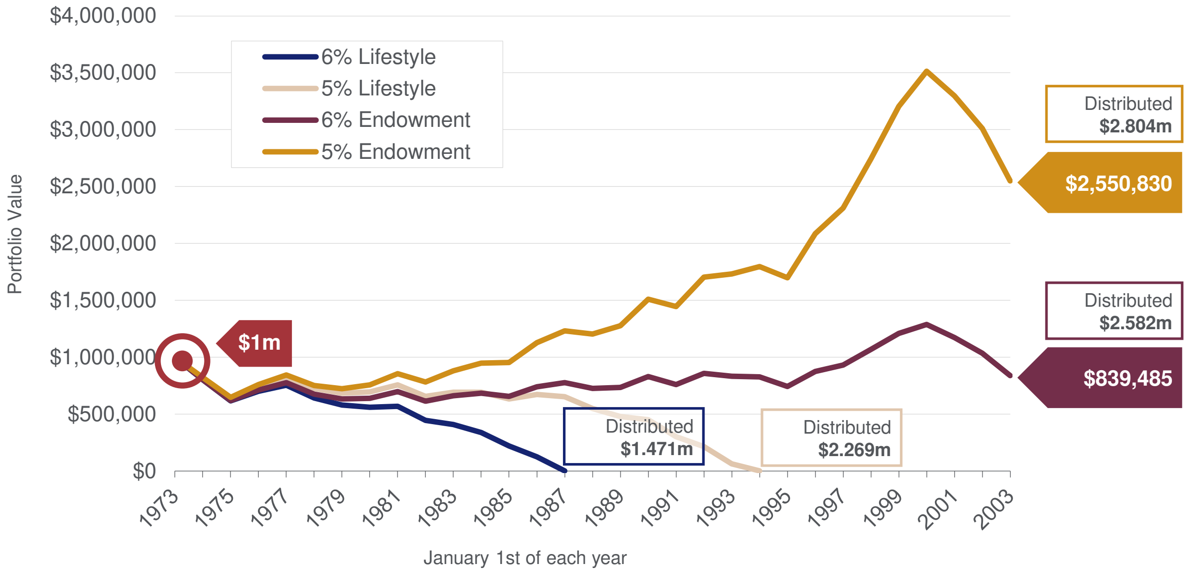
Spending Policies & Rates Compared: A 30-Year Retirement

Lifestyle vs. Endowment Spending Policies



The Lifestyle Spending Policy disappoints; the Endowment Spending Policy delivers.

During this 30-year period, the portfolios using an Endowment Spending Policy to calculate distributions outperformed the portfolios that chose the Lifestyle Spending Policy even when the spending rate decreases.

Past performance does not guarantee future results.

Source: Thornburg Investment Management
Assumes an initial hypothetical $1 million. Per Bengen's model; 63% S&P 500 Index, 37% Bloomberg Barclays Intermediate Government Bond Index, Actual Inflation (CPI-U)

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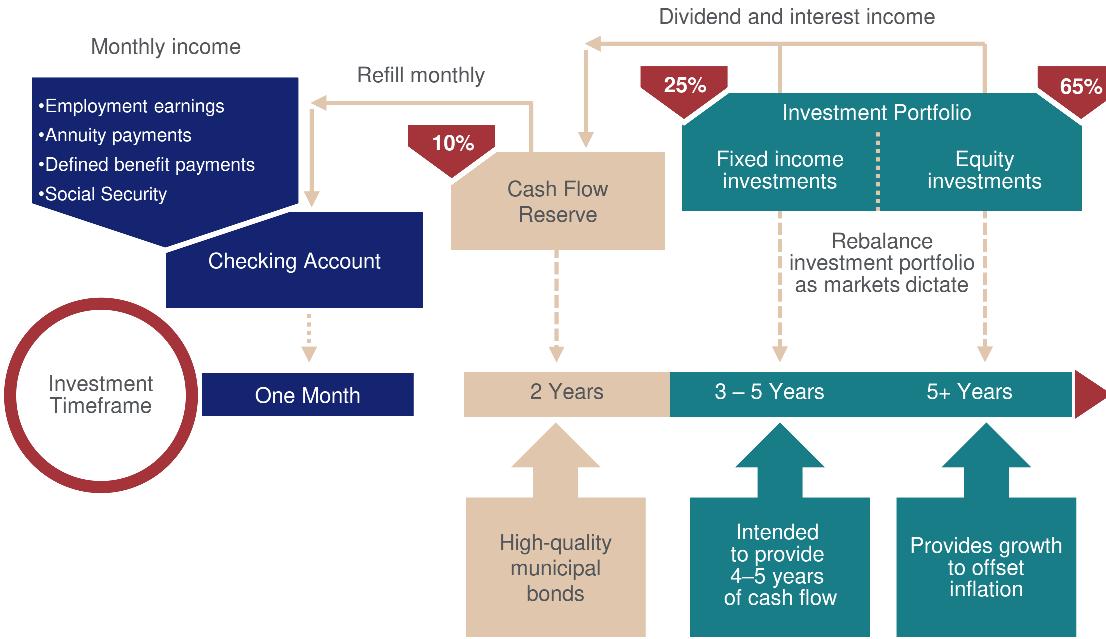
Hypothetical Cash Flow Reserve Ladder



A well thought out investment portfolio structure effectively manages investor behavior and positively influences their investment outcomes.

Following these strategies does not assure or guarantee sustainability of a retirement portfolio or better performance, nor does it protect against investment losses.

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Cash Flow Reserve Strategy Illustration

2000–2019

	Checking Account	CFR	Investment Portfolio Market Value	Total	Cumulative Spent Since Retirement	Current Year Spending Policy
2000	$4,167	$95,833	$900,000	$1,000,000		5.0%
2008	$5,383	$77,230	$905,832	$988,445	$502,247	6.5%
2009	$5,362	$128,436	$987,682	$1,121,480	$566,844	5.7%
2010	$5,447	$131,580	$1,078,999	$1,216,026	$631,183	5.4%
2011	$5,622	$138,118	$1,145,756	$1,289,495	$696,551	5.2%
2012	$5,740	$141,530	$1,241,466	$1,388,736	$764,011	5.0%
2013	$5,826	$143,077	$1,476,518	$1,625,421	$832,888	4.3%
2014	$5,919	$146,455	$1,608,587	$1,760,961	$902,798	4.0%
2015	$5,925	$148,376	$1,565,362	$1,719,663	$973,827	4.1%
2016	$6,002	$148,949	$1,621,895	$1,776,846	$1,044,926	4.1%
2017	$6,128	$152,901	$1,825,537	$1,984,566	$1,116,950	3.7%
2018	$6,275	$156,227	$1,720,947	$1,883,449	$1,190,486	4.0%
2019	$6,388	$162,382	$2,022,749	$2,191,520	$1,265,787	3.5%

A 2000 retiree uses the Cash Flow Reserve Portfolio structure and chooses an Endowment Spending Policy to successfully navigate challenging investment periods.

Past performance does not guarantee future results.

Source: Thornburg Investment Management
Assumes a $1 million investment; 65% S&P Dividend Aristocrats Index, 25% Bloomberg Barclays 10-year Municipal Index, 5% Bloomberg Barclays 5-year Municipal Index and 5% Morningstar Municipal Money Market category with an endowment spending policy with 5% initial spending rate increased by actual inflation per CPI-U. Following this strategy does not assure or guarantee sustainability of a retirement portfolio or better performance, nor does it protect against investment losses.

S&P 500 Index Dividend Growth

1970–2019

Decade	Dividends per Share	Yield on Cost
1970	$3.14	3.41%
1980	$6.20	6.73%
1990	$12.04	13.08%
2000	$15.80	17.16%
2010	$23.59	25.62%
2019	$58.69	63.75%

Stock dividends have increased over time.

The yield on the S&P 500 declined from 3.41% in 1970 to 1.82% in 2019. Over the same timeframe, the S&P 500's actual annual dividend per share has grown by nearly 19 times.

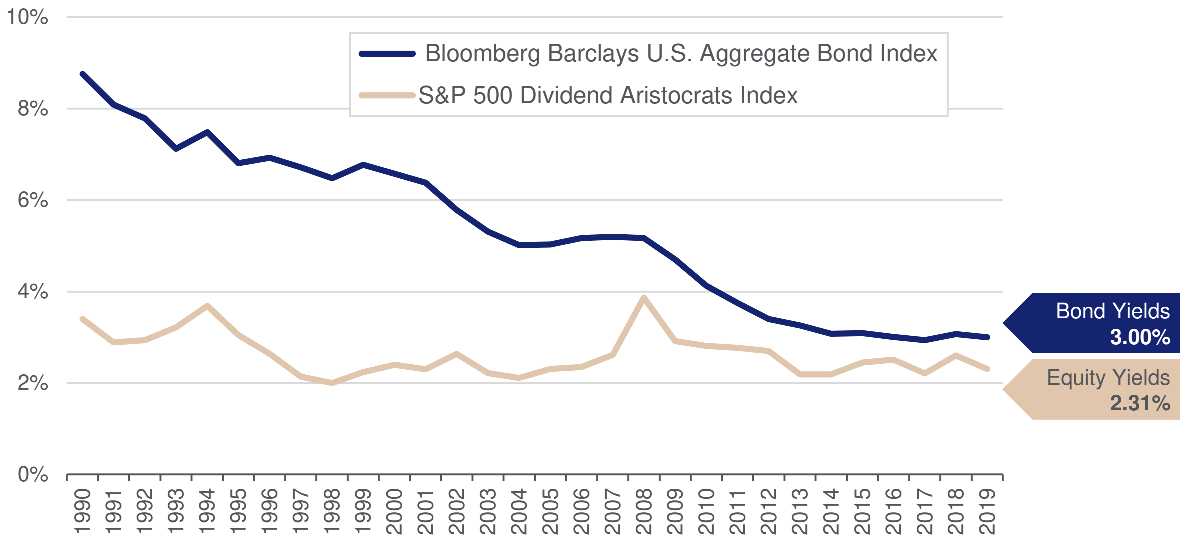
Past performance does not guarantee future results.

Source: Bloomberg
The data above is based on initial cost in 1970.

Yields

Bond Yields vs. Equity Yields (Dividends Not Reinvested)

1990–2019



Focusing on yields tells the wrong story.

Investors who focus on buying the highest yielding investment in the past have always been drawn to bonds, but since 1990, bond yields have dramatically declined.

Past performance does not guarantee future results.

Source: Standard & Poor's and Bloomberg Barclays
Dividend and interest income are not guaranteed.

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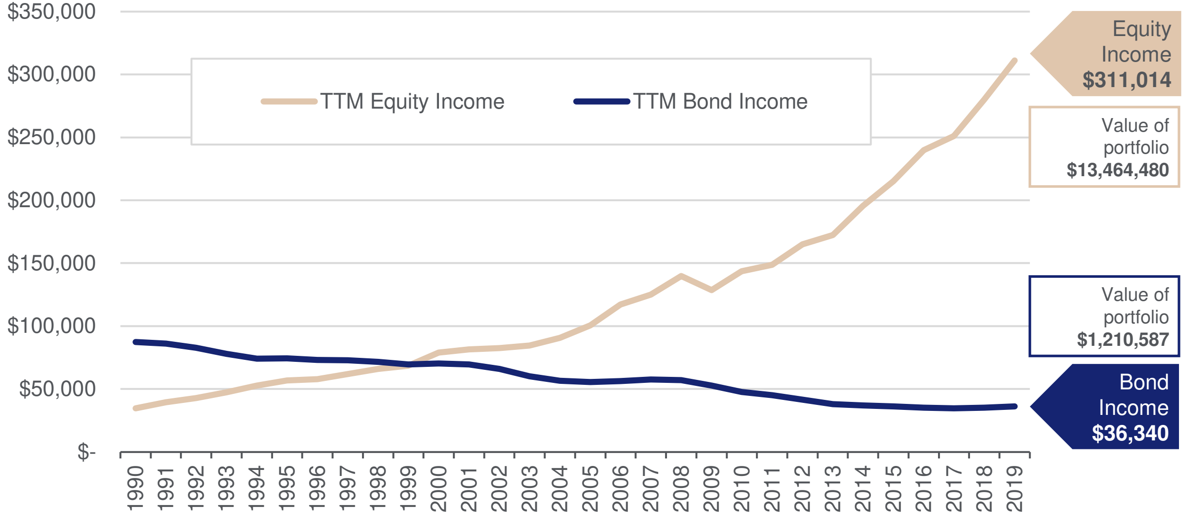
Value of Dividends in Retirement

Annual Bond Income vs. Annual Equity Income (Dividends Not Reinvested)

1990–2019



Focusing on the actual income generated by bonds and stocks tells another story.

Between 1990–2019, the value of the equity portfolio which began at $1,000,000 grew to $13,464,480 and generated $311,014 while the value of the bond portfolio grew to $1,210,587 and generated only $36,340.

Past performance does not guarantee future results.

Source: Standard & Poor's and Bloomberg Barclays
Dividend and interest income are not guaranteed. Assumes an initial hypothetical $1 million investment.
Bonds are represented by the Bloomberg Barclays U.S. Aggregate Bond Index and stocks are represented by the S&P Dividend Aristocrats Index, an index of S&P 500 constituents that have increased their dividend payouts for 25 consecutive years or more.
TTM – Trailing Twelve Month

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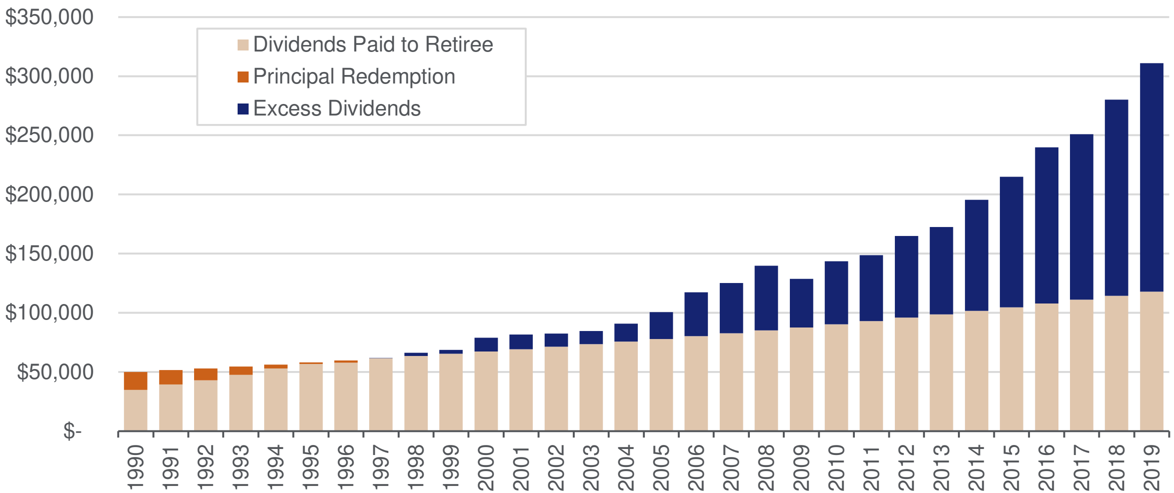
Value of Dividends in Retirement

A $1 Million Investment in the S&P 500 Dividend Aristocrats Index

1990–2019



In the early years the dividends aren't sufficient to generate the entire $50,000, some principal covered the shortfall.

Over time, the value of the portfolio and its dividends have increased so dramatically that excess dividends have been reinvested into the portfolio.

Invested	Dividends Received	Spent	Reinvested	Account Value
$1,000,000	$3,680,454	$2,378,771	$1,301,683	$14,468,224

Past performance does not guarantee future results.

Source: Calculated by Thornburg Investment Management
Investors cannot invest directly in an index.
This hypothetical illustration assumes the investor chose a Lifestyle Spending Policy with an initial spending rate of 5%. The spending rate was increased by 3% annually.

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The cash flow reserve structure is based upon the work done by Harold Evensky and Deena Katz of Evensky and Katz in Coral Gables, FL.

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