



RETIREMENT INSIGHTS

Guide to RetirementSM

2019 Edition

J.P. Morgan



J.P.Morgan
Asset Management

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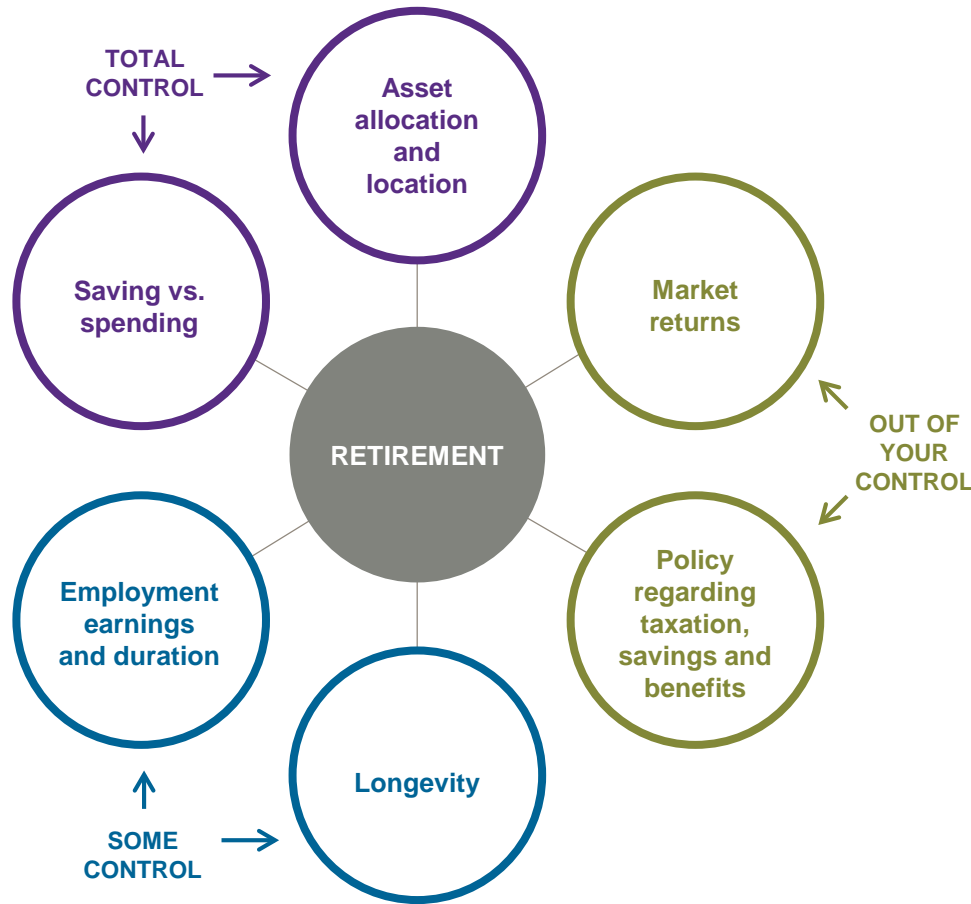
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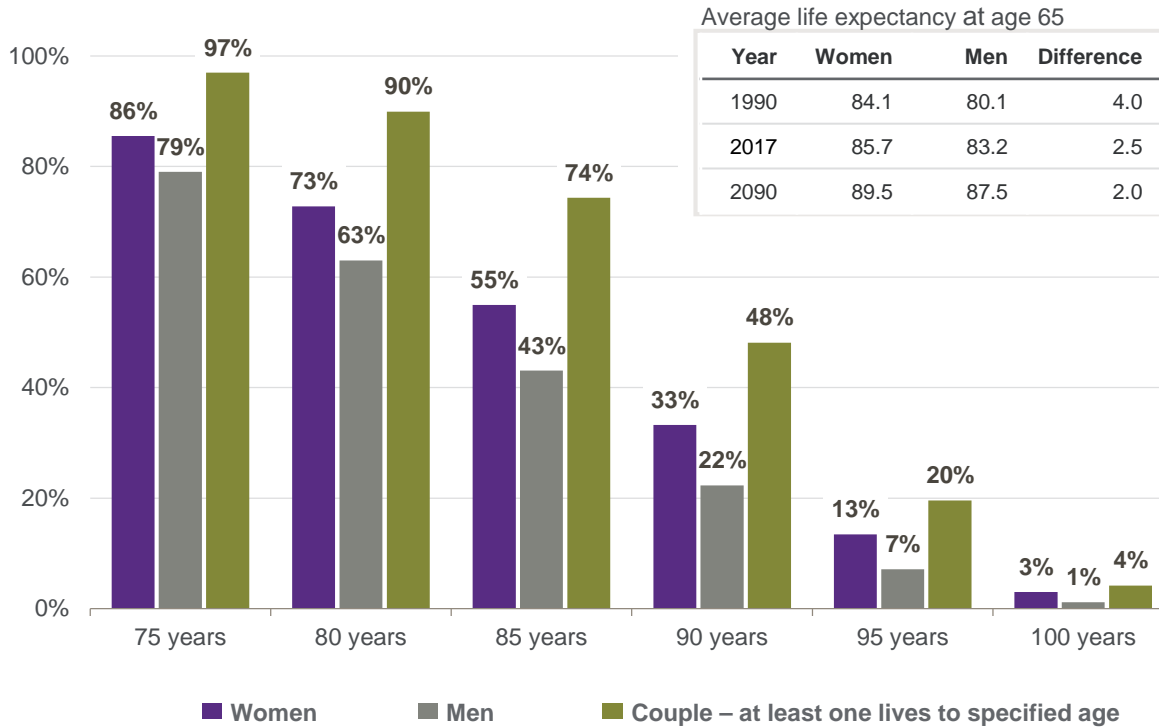
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A SOUND RETIREMENT PLAN

Make the most of the things that you can control but be sure to evaluate factors that are somewhat or completely out of your control within your comprehensive retirement plan.

If you're 65 today, the probability of living to a specific age or beyond



PLAN FOR LONGEVITY

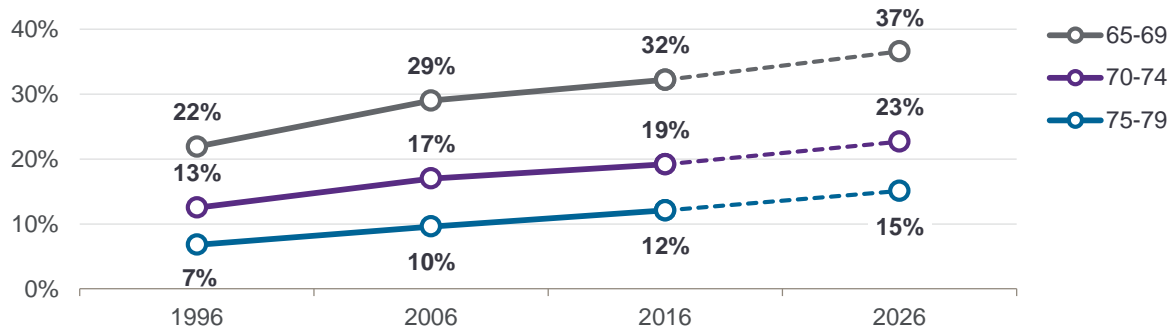
Average life expectancy continues to increase and is a mid-point not an end-point. You may need to plan on the probability of living much longer – perhaps 30+ years in retirement – and invest a portion of your portfolio for growth to maintain your purchasing power over time.

Chart: Social Security Administration, Period Life Table, 2015 (published in 2018), J.P. Morgan Asset Management.

Table: Social Security Administration 2018 OASDI Trustees Report.

Probability at least one member of a same-sex female couple lives to age 90 is 55% and a same-sex male couple is 40%.

Percent of people in the civilian labor force 1996-2026

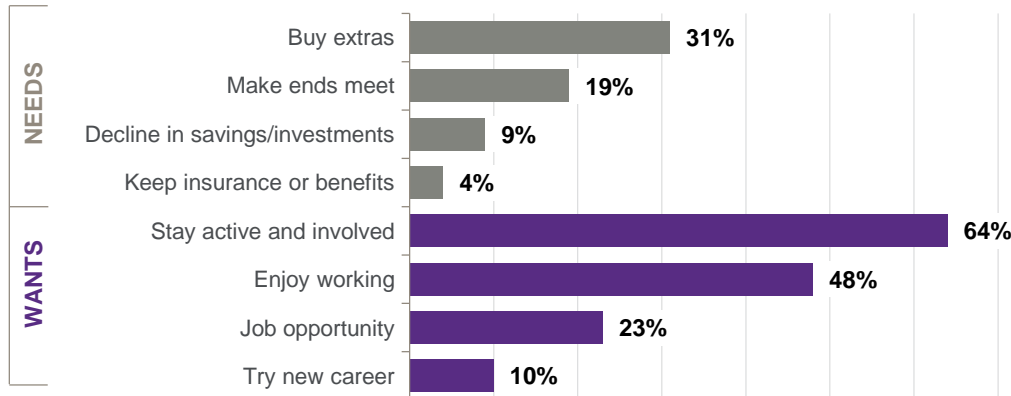


Total civilian population 65+	1996	2006	2016	2026
	32mm	36mm	48mm	67mm

IT'S STILL OFF TO WORK I GO

More people are working later in life, motivated by the desire to do so.

Major reasons people work in retirement

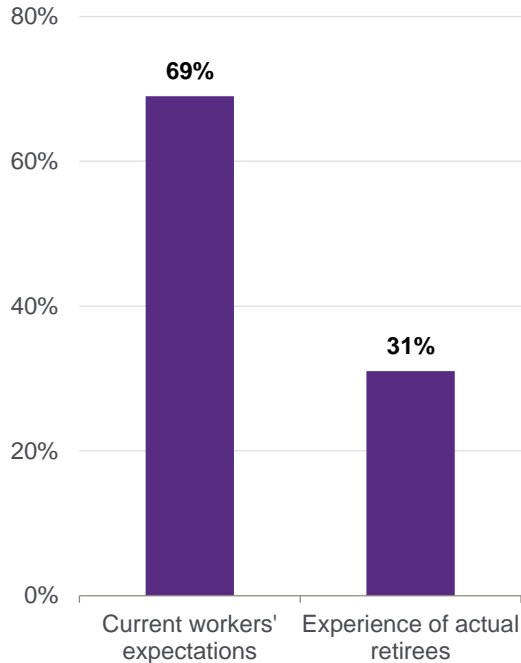


Source (top chart): Bureau of Labor Statistics, Employment Projections, Table 3.2 and Table 3.3. Actual data to 2016 and projection to 2026. Civilian population age 65+ is non-institutionalized population.

Source (bottom chart): Employee Benefit Research Institute, Mathew Greenwald & Associates, Inc., 2017 Retirement Confidence Survey. Data as of March 2017. Latest available data through December 31, 2018.

Expectations of workers vs. retirees

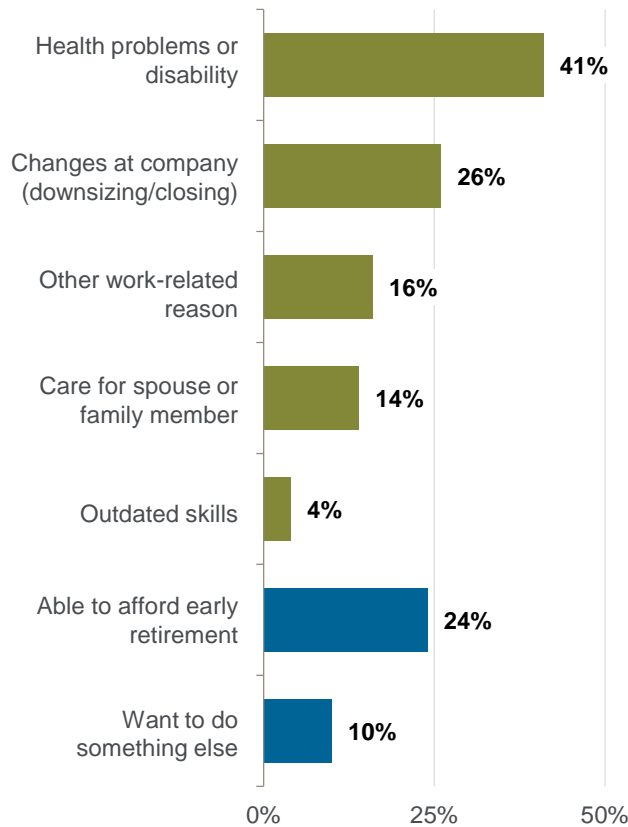
To retire at age 65 or older



Median retirement age

Expected:	65
Actual:	62

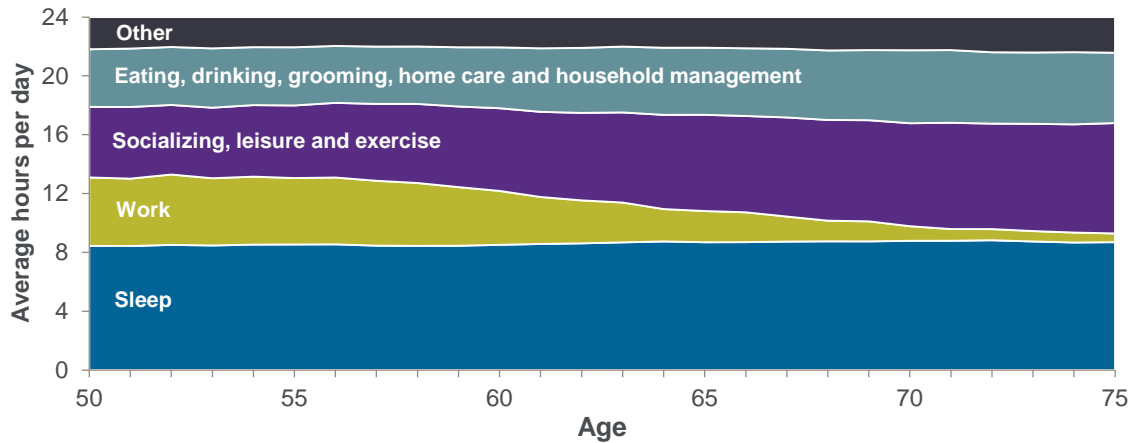
Reasons cited for retiring earlier than planned



EARLY RETIREMENT

You may not have complete control over when you retire, so you should consider having a back-up plan. You may have to draw income earlier and make your portfolio last longer than you anticipate.

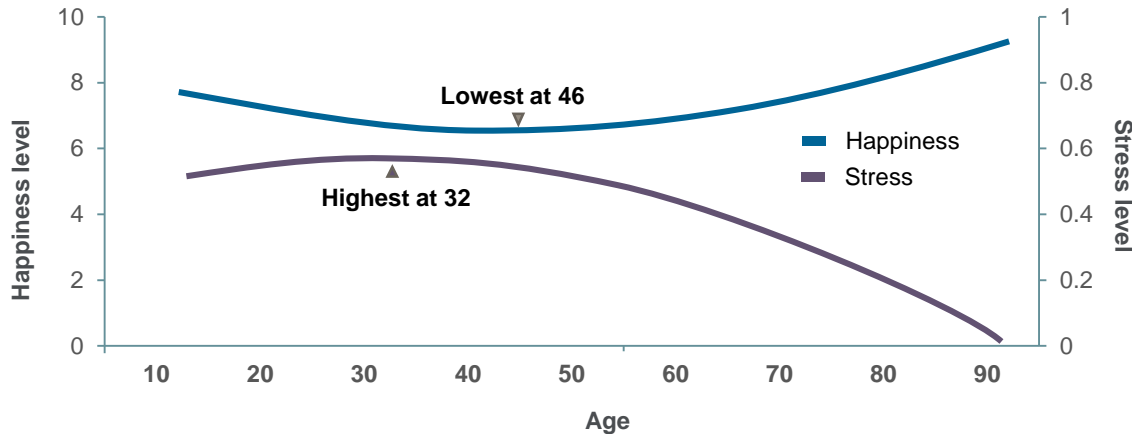
Amount of daily hours spent per activity by age



SPEND TIME PLANNING YOUR TIME

Retirement offers the gift of time to do the things that matter most to you. While our happiest years may be in retirement, the transition isn't always a walk on the beach. Knowing what activities and social connections are fulfilling prior to retiring can ease the stress often associated with this new life stage.

Levels of happiness and stress by age



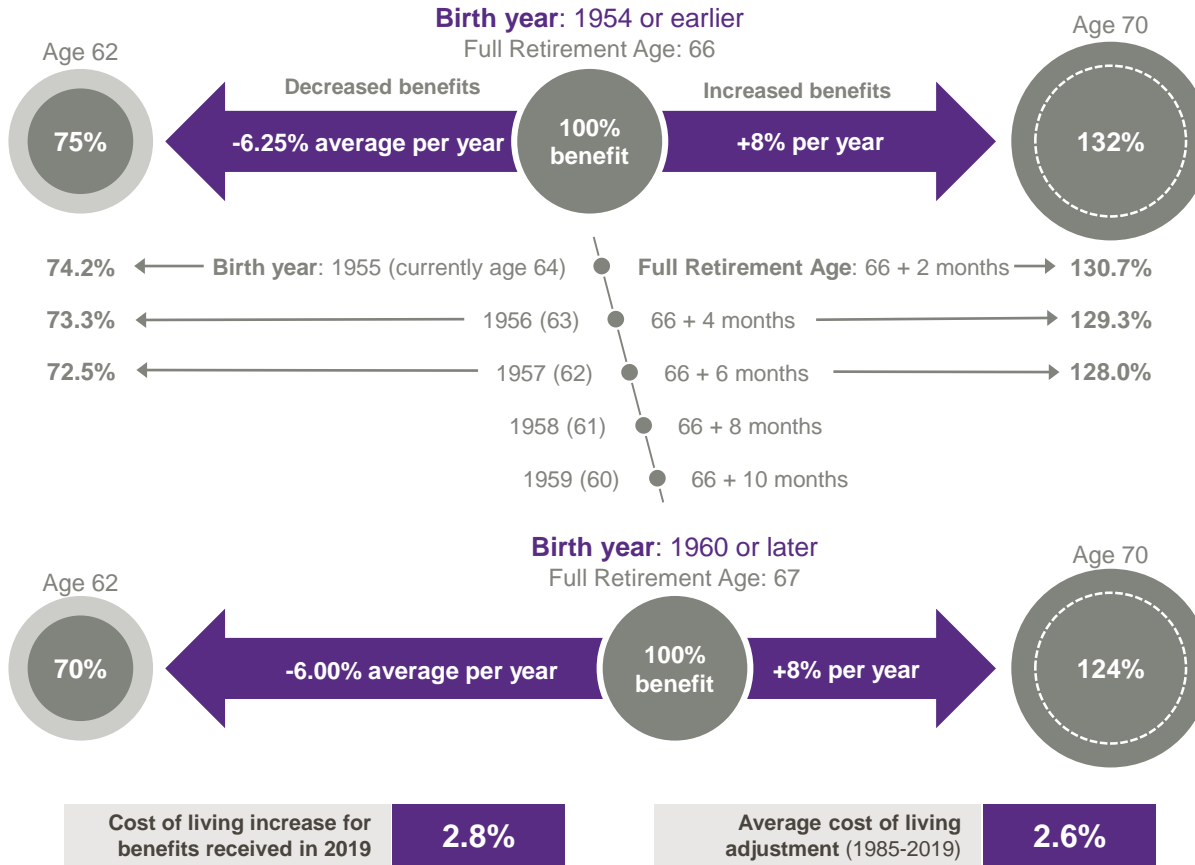
Values include people who do and do not participate in the activities. Values are weighted by the age and then averaged across rolling five-year age groups. Each category includes time spent traveling to and from the activity if applicable.

Source (top chart): Bureau of Labor Statistics American Time Use Survey 2016, J.P. Morgan Asset Management analysis.

Source (bottom chart): Carol Graham & Julia Ruiz Pozuelo, 2017. "Happiness, stress and age: how the U curve varies across people and places," Journal of Population Economics, 256. Values are for married Americans.

Benefits differ by birth year and claim age

Full Retirement Age = 100% benefit



UNDERSTAND THE TRADEOFFS

Deciding when to claim benefits will have a permanent impact on the benefit you receive. Claiming before your full retirement age can significantly reduce your benefit, while delaying increases it.

In 2017, full retirement age began transitioning from 66 to 67 by adding two months each year for six years. This makes claiming early even more of a benefit reduction.

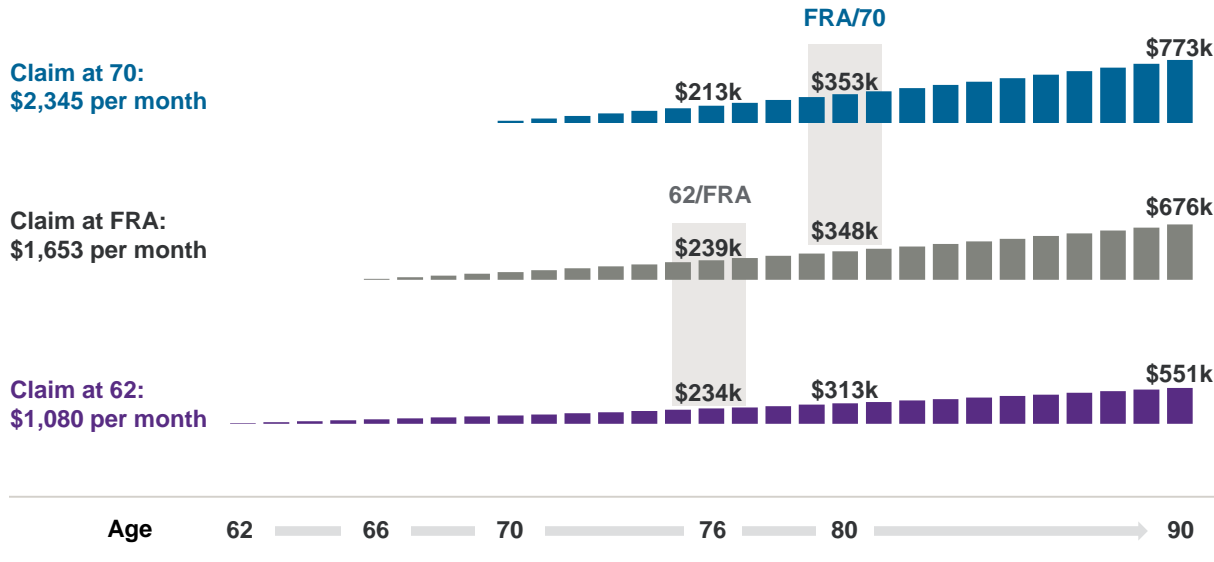
For illustrative purposes only. The Social Security Amendments Act of 1983 increased FRA from 65 to 67 over a 40-year period. The first phase of transition increased FRA from 65 to 66 for individuals turning 62 between 2000 and 2005. After an 11-year hiatus, the transition from 66 to 67 (2017-2022) will complete the move.

Source: Social Security Administration, J.P. Morgan Asset Management

Maximizing Social Security benefits – median earner

Cumulative individual median benefit by claim age

Full Retirement Age (FRA) = Age 66 & 6 months



Age	62	66	70	76	80	90
At age 62, probability of living to at least age:	100%	94%	87%	73%	60%	21%
Individual (Male)	100%	97%	92%	81%	71%	32%
Couple*	100%	99%	99%	95%	88%	47%

Source: Social Security Administration, Current Population Survey, J.P. Morgan Asset Management.

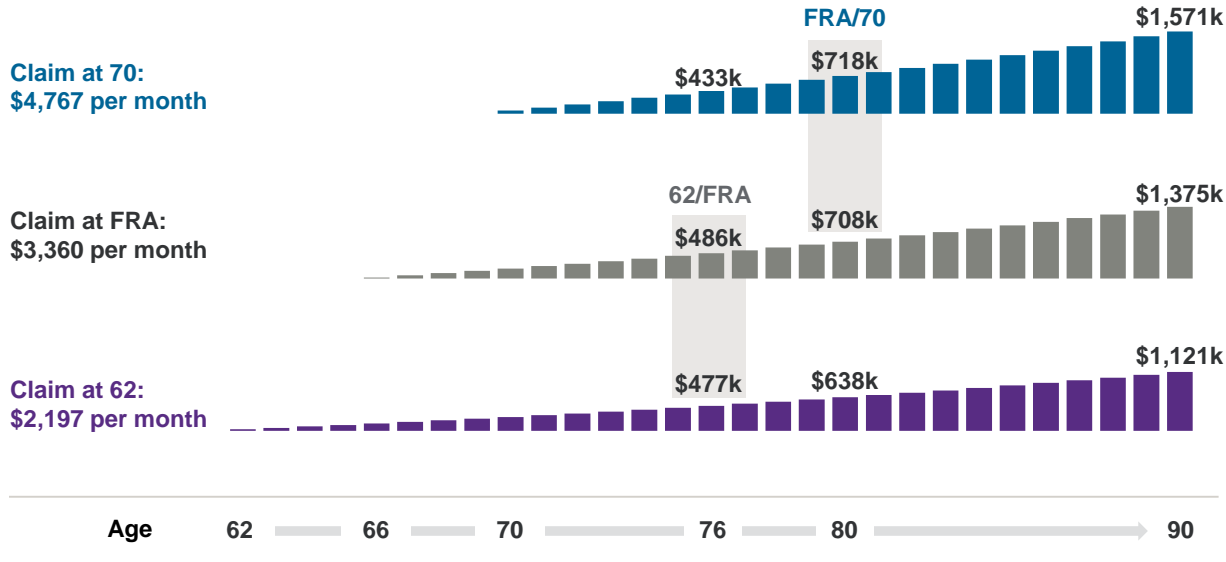
*Couple assumes at least one lives to the specified age or beyond. Breakeven assumes the same individual, born in 1957, earns the median individual income, retires at the end of age 61 and claims at 62 & 1 month, 66 & 6 months and 70, respectively. Benefits are assumed to increase each year based on the Social Security Administration 2018 Trustee's Report "intermediate" estimates (annual benefit increase of 2.7% in 2020 and 2.6% thereafter). Monthly amounts without the cost of living adjustments (not shown on the chart) are: \$1,080 at age 62; \$1,491 at FRA; and \$1,908 at age 70. Exact breakeven ages are 76 & 4 months and 80 & 5 months.

PLANNING OPPORTUNITY

Delaying benefits means increased Social Security income later in life, but your portfolio may need to bridge the gap and provide income until delayed benefits are received.

Cumulative individual maximum benefit by claim age

Full Retirement Age (FRA) = Age 66 & 6 months



Age	62	66	70	76	80	90
At age 62, probability of living to at least age:	100%	94%	87%	73%	60%	21%
Male (♂)	100%	97%	92%	81%	71%	32%
Female (♀)*	100%	99%	99%	95%	88%	47%

Source: Social Security Administration, J.P. Morgan Asset Management.

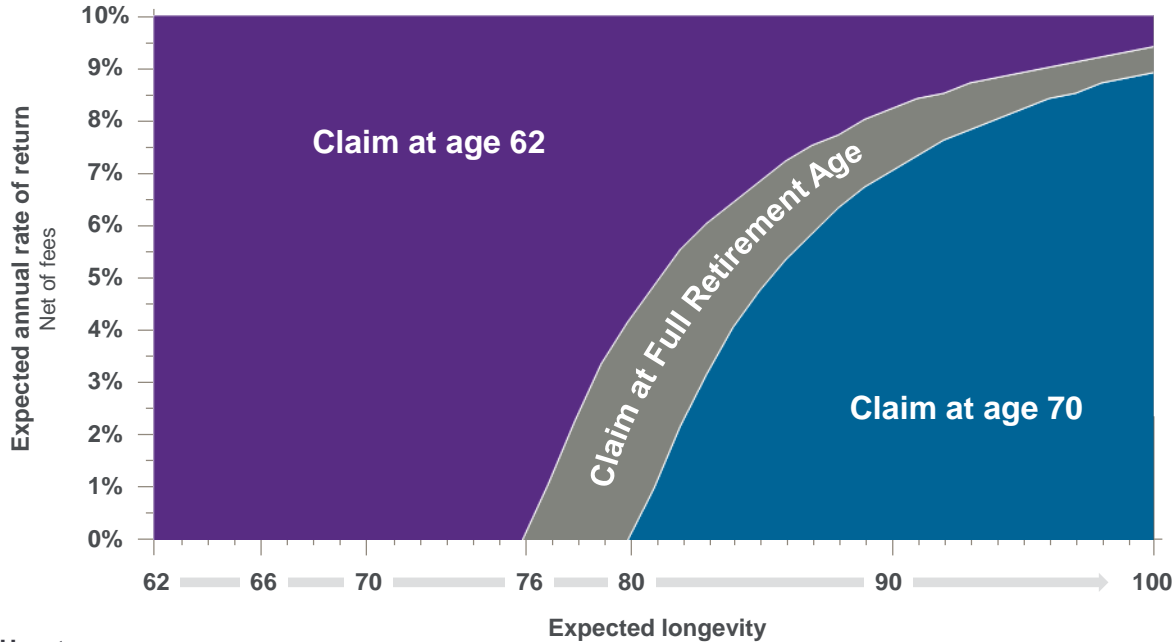
*Couple assumes at least one lives to the specified age or beyond. Breakeven assumes the same individual, born in 1957, earns the maximum wage base, retires at the end of age 61 and claims at 62 & 1 month, 66 & 6 months and 70, respectively. Benefits are assumed to increase each year based on the Social Security Administration 2018 Trustee's Report "intermediate" estimates (annual benefit increase of 2.7% in 2020 and 2.6% thereafter). Monthly amounts without the cost of living adjustments (not shown on the chart) are: \$2,197 at age 62; \$3,030 at FRA; and \$3,879 at age 70. Exact breakeven ages are 76 & 4 months and 80 & 5 months.

PLANNING OPPORTUNITY

Delaying benefits means increased Social Security income later in life, but your portfolio may need to bridge the gap and provide income until delayed benefits are received.

Comparison of claim age based on an individual's expected rate of return and longevity

Color represents the claim age with the highest expected lifetime benefits



How to use:

- Go to the intersection of your expected rate of return and your expected longevity.
- The color at this intersection represents the Social Security claim age that maximizes total Social Security benefits over the course of one's life – given the three options of age 62, Full Retirement Age (age 66 & 6 months) and age 70.
- Example: For an individual invested in a diversified portfolio invested in 40% equities and 60% bonds (expected rate of return of 5%) and average expected female longevity (age 86) = Claim at age 70.

Source (chart): Social Security Administration, J.P. Morgan Asset Management.

Source (longevity at age 62): Social Security Administration, Period Life Table, 2015 (published in 2018), J.P. Morgan Asset Management.

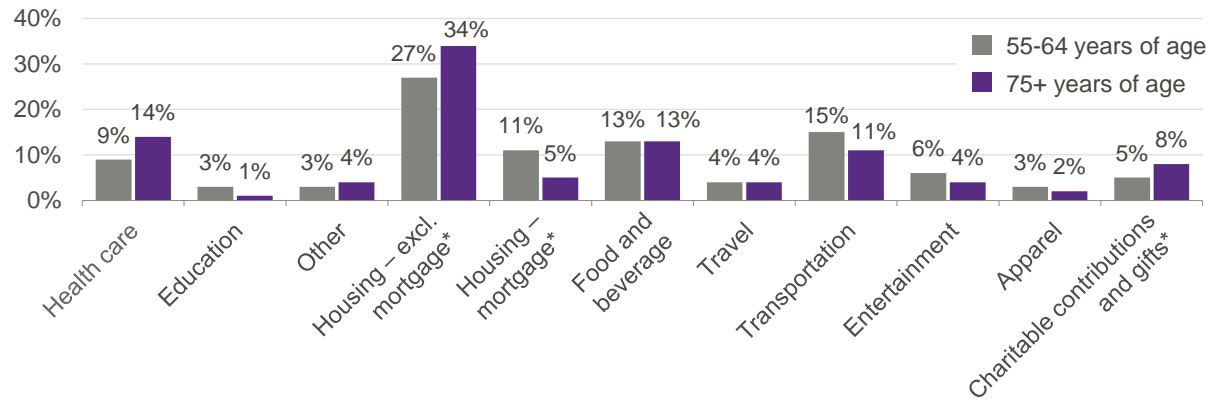
Source (expected returns): J.P. Morgan Asset Management Long-Term Capital Market Assumptions.

Assumes the same individual, born in 1957, retires at the end of age 61 and claims at 62 & 1 month, 66 & 6 months and 70, respectively. Benefits are assumed to increase each year based on the Social Security Administration 2018 Trustee's Report "intermediate" estimates (annual benefit increase of 2.7% in 2020 and 2.6% thereafter). Expected rate of return is deterministic, in nominal terms, and net of fees.

CONSIDER PORTFOLIO RETURNS AND YOUR LIFE EXPECTANCY

The lower your expected long-term investment return and the longer your life expectancy, the more it pays to wait to take your benefit.

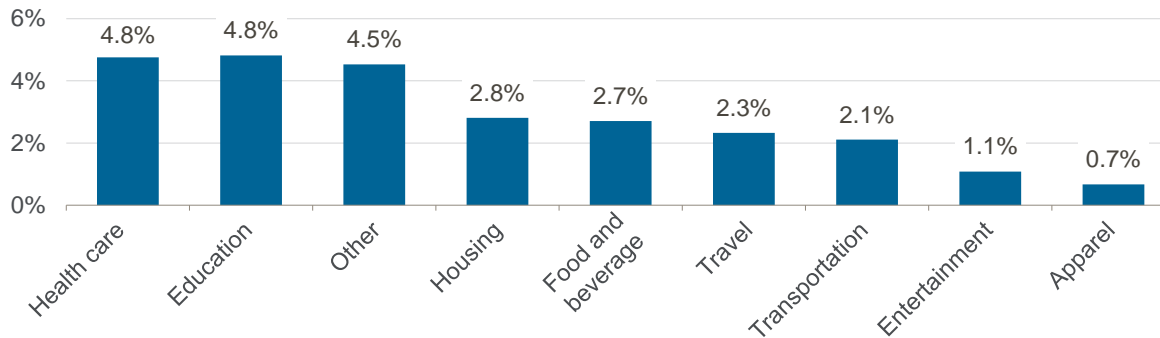
Spending by age and category



LOSING GROUND

Inflation can disproportionately affect older Americans due to differences in spending habits and price increases in those categories.

Average inflation by spending category 1982-2018



*There are no individual inflation measures for these specific subcategories.

Source (top chart): BLS, 2015-2017 average Consumer Expenditure Survey for households where at least one member has a bachelor's degree. Charitable contributions include gifts to religious, educational and political organizations, and other cash gifts. Spending percentages may not equal 100% due to rounding.

Source (bottom chart): BLS, Consumer Price Index, J.P. Morgan Asset Management. Data represent annual percentage increase from December 1981 through December 2018 with the exception of entertainment and education, which date back to 1993, and travel, which dates back to 2001. The inflation rate for the Other category is derived from personal care products and tobacco. Tobacco has experienced 7% inflation since 1986.

Retirement savings checkpoints

Household Income \leq \$90k
Annual Savings Rate: 5%

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Saving

	\$30,000	\$40,000	\$50,000	\$60,000	\$70,000	\$80,000	\$90,000
Current age	Checkpoint (x current household income)						
25	0.3	0.4	0.4	0.5	0.7	0.9	1.0
30	0.6	0.7	0.8	0.9	1.1	1.3	1.4
35	1.0	1.1	1.2	1.4	1.6	1.8	2.0
40	1.5	1.6	1.7	1.9	2.2	2.5	2.7
45	2.1	2.3	2.4	2.6	3.0	3.3	3.5
50	2.8	3.0	3.1	3.4	3.9	4.3	4.6
55	3.7	3.9	4.1	4.4	5.0	5.4	5.8
60	4.7	5.0	5.2	5.6	6.3	6.8	7.3
65	6.1	6.4	6.7	7.1	8.0	8.7	9.3

MODEL ASSUMPTIONS

Annual gross savings rate: **5%***

Pre-retirement investment return: **6.0%**

Post-retirement investment return: **5.0%**

Inflation rate: **2.0%**

Retirement age –
 • Primary earner: **65**
 • Spouse: **62**

Years in retirement: **30**

*5% is approximately the U.S. average annual savings rate

How to use:

- This analysis assumes you would like to maintain an equivalent lifestyle in retirement.
- Household income is assumed to be gross income (before tax and savings).
- Go to the intersection of your current age and your closest current household income.
- Multiply your salary by the checkpoint shown. This is the amount you should have saved today, assuming you continue contributions of 5% going forward.
- Example: For a 40-year-old with a household income of \$50,000: $\$50,000 \times 1.7 = \$85,000$

This chart is for illustrative purposes only and must not be relied upon to make investment decisions. J.P. Morgan's model is based on J.P. Morgan Asset Management's (JPMAM) proprietary long-term capital market assumptions (10-15 years) and an 80% confidence level. Household income replacement rates are derived from an inflation-adjusted analysis of: Consumer Expenditure Survey (BLS) data (2013-2016); Social Security benefits using modified scaled earnings in 2019 for a single wage earner at age 65 and a spousal benefit at age 62 reduced by Medicare Part B premiums. For more details, see slide 16.

Consult with a financial advisor for a more personalized assessment. Allocations, assumptions and expected returns are not meant to represent JPMAM performance. Given the complex risk/reward tradeoffs involved, we advise clients to rely on judgment as well as quantitative optimization approaches in setting strategic allocations. References to future returns for either asset allocation strategies or asset classes are not promises or even estimates of actual returns a client portfolio may achieve.

	\$100,000	\$125,000	\$150,000	\$175,000	\$200,000	\$250,000	\$300,000
Current age	Checkpoint (x current household income)						
25	0.1	0.2	0.4	0.6	0.7	0.9	1.0
30	0.6	0.8	1.0	1.2	1.4	1.6	1.8
35	1.3	1.5	1.8	2.0	2.2	2.5	2.7
40	2.1	2.3	2.7	3.0	3.2	3.6	3.8
45	3.0	3.3	3.8	4.2	4.4	4.9	5.1
50	4.2	4.6	5.1	5.6	5.9	6.4	6.8
55	5.6	6.1	6.7	7.3	7.7	8.3	8.7
60	7.3	7.9	8.7	9.4	9.8	10.6	11.1
65	9.6	10.3	11.3	12.1	12.7	13.7	14.3

MODEL ASSUMPTIONS

Annual gross savings rate: **10%***

Pre-retirement investment return: **6.0%**

Post-retirement investment return: **5.0%**

Inflation rate: **2.0%**

Retirement age –
 • Primary earner: **65**
 • Spouse: **62**

Years in retirement: **30**

*10% is approximately twice the U.S. average annual savings rate

How to use:

- This analysis assumes you would like to maintain an equivalent lifestyle in retirement.
- Household income is assumed to be gross income (before tax and savings).
- Go to the intersection of your current age and your closest current household income.
- Multiply your salary by the checkpoint shown. This is the amount you should have saved today, assuming you continue contributions of 10% going forward.
- Example: For a 40-year-old with a household income of \$100,000: $\$100,000 \times 2.1 = \$210,000$.

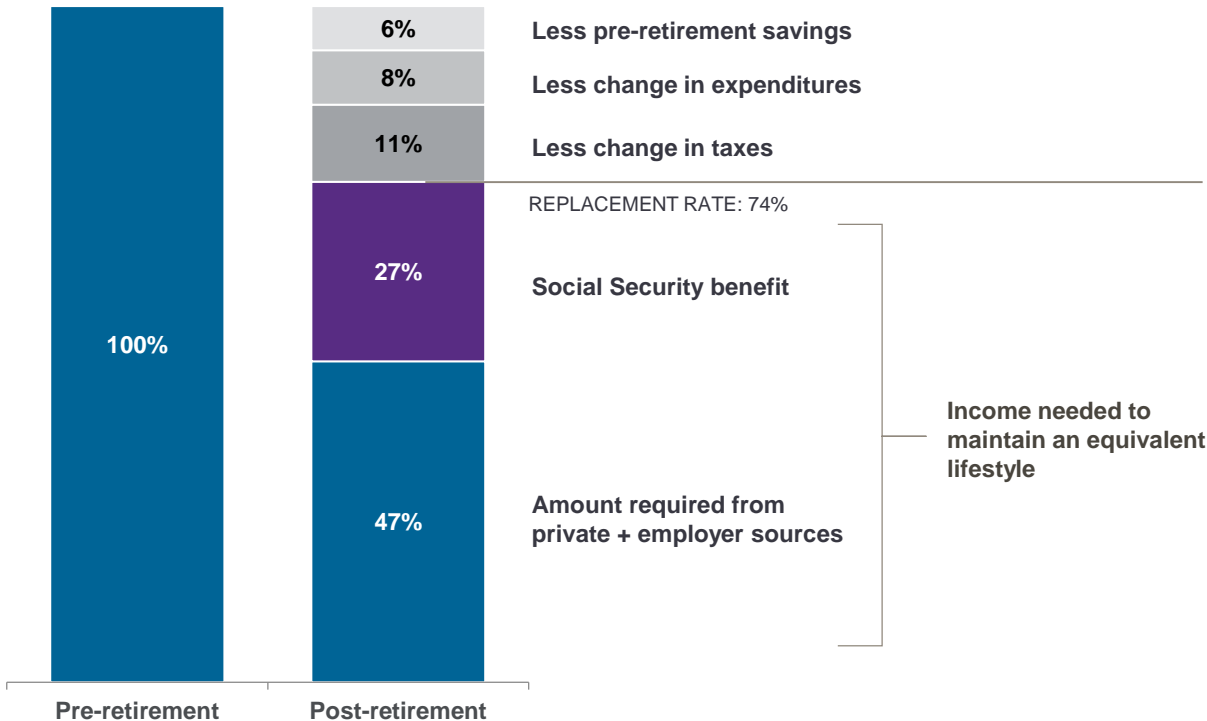
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Income replacement rate methodology

Hypothetical example based on gross annual household income of \$150,000

Saving

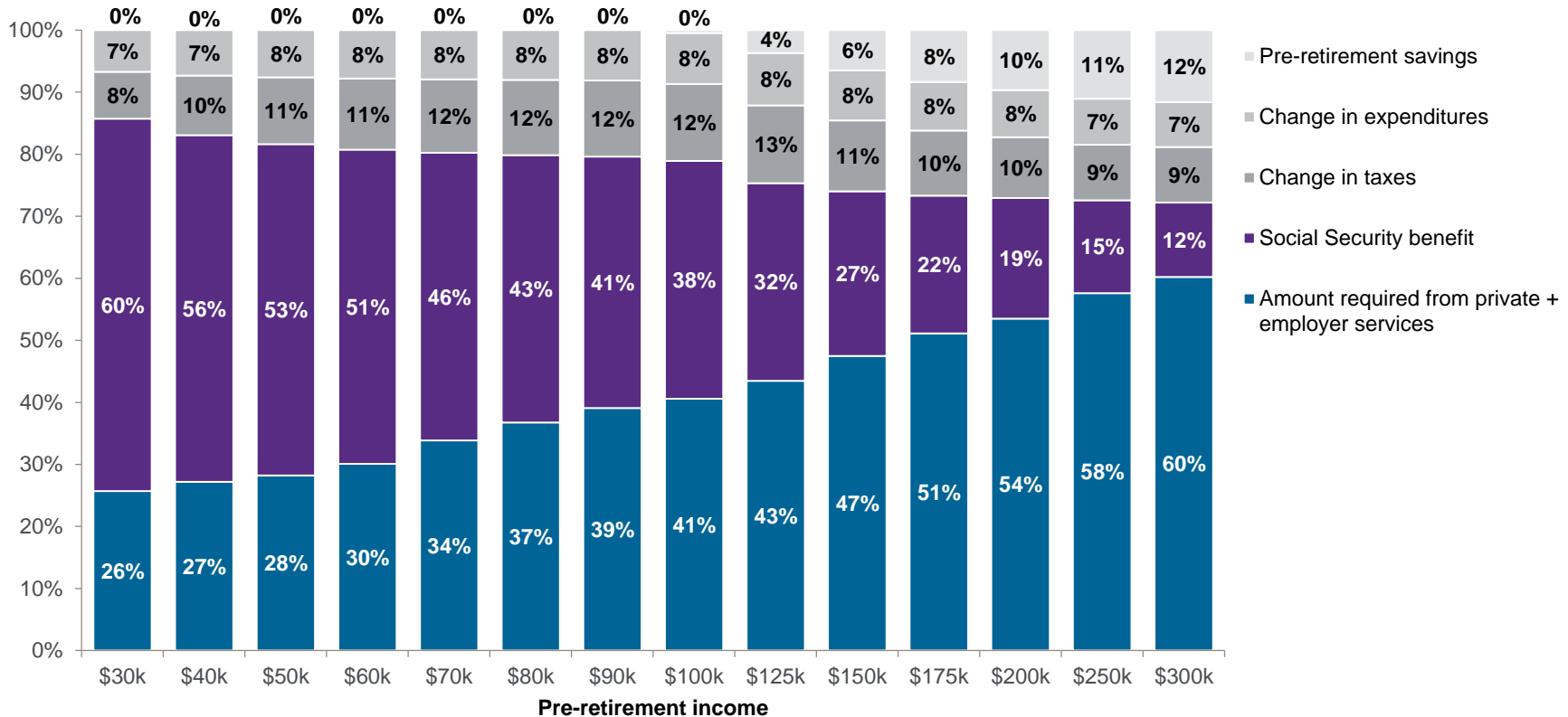


ESTIMATING RETIREMENT LIFESTYLE NEEDS

Less income may be needed in retirement to maintain an equivalent lifestyle due to no longer needing to save, lower spending in certain categories and lower income taxes.

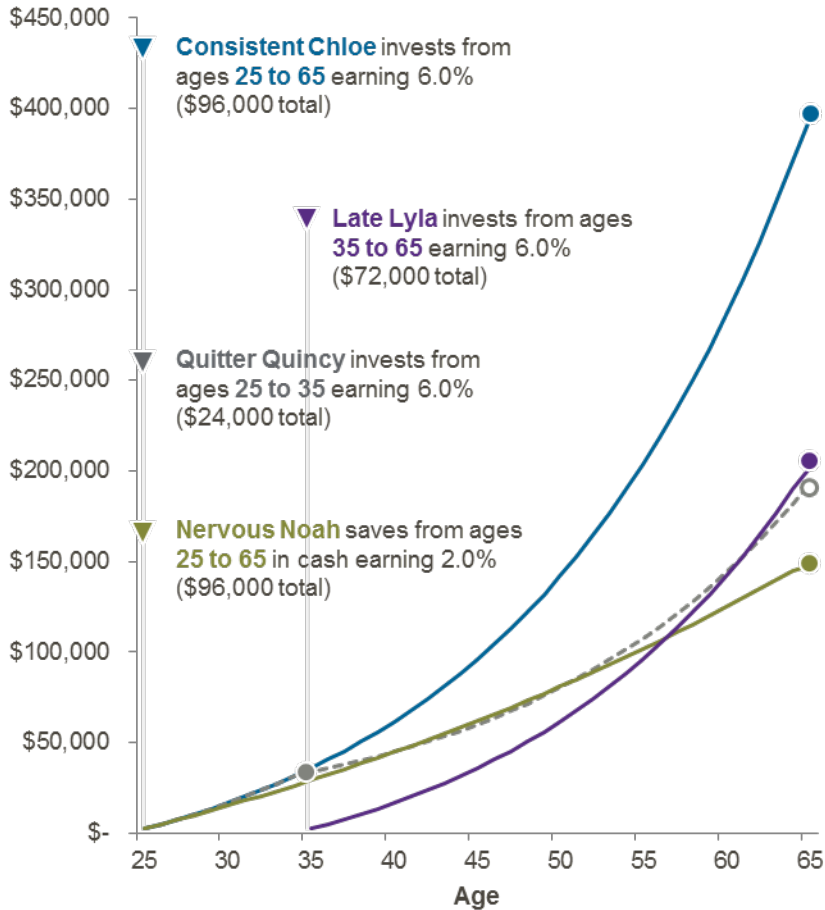
Source: J.P. Morgan Asset Management analysis, 2019. Household income replacement rates are derived from an inflation-adjusted analysis of: Consumer Expenditure Survey (BLS) data (2013-2016); Social Security benefits using modified scaled earnings in 2019 for a single wage earner at age 65 and a spousal benefit at age 62 reduced by Medicare Part B premiums. The income replacement needs may be lower for households in which both spouses are working and the second spouse's individual benefits are greater than their spousal benefit. Single household income replacement needs may vary as spending is typically less than a two-spouse household; however, the loss of the Social Security spousal benefit may offset the spending reduction. Percentages and values may not sum due to rounding.

Replacement rate detail by household income



Source: J.P. Morgan Asset Management analysis, 2019. Household income replacement rates are derived from an inflation-adjusted analysis of: Consumer Expenditure Survey (BLS) data (2013-2016); Social Security benefits using modified scaled earnings in 2019 for a single wage earner at age 65 and a spousal benefit at age 62 reduced by Medicare Part B premiums. The income replacement needs may be lower for households in which both spouses are working and the second spouse's individual benefits are greater than their spousal benefit. Single household income replacement needs may vary as spending is typically less than a two-spouse household; however, the loss of the Social Security spousal benefit may offset the spending reduction. Percentages and values may not sum due to rounding.

Account growth of \$200 invested/saved monthly



ENDING PORTFOLIO



■ Investment return
 ▨ Savings

SAVING FUNDAMENTALS

Saving early and often, and investing what you save, are some of the keys to a successful retirement due to the power of compounding over the long term.

The above example is for illustrative purposes only and not indicative of any investment. Account value in this example assumes a 6.0% annual return and cash assumes a 2.0% annual return. Source: J.P. Morgan Asset Management, Long-Term Capital Market Assumptions. Compounding is the increasing value of assets due to investment return earned on both principal and prior investment gains.

	\$30,000	\$40,000	\$50,000	\$60,000	\$70,000	\$80,000	\$90,000
Start saving age	Savings rate (x current household income)						
25	7%	7%	7%	8%	9%	9%	10%
30	8%	9%	9%	10%	11%	12%	13%
35	11%	12%	12%	13%	15%	16%	17%
40	15%	16%	16%	17%	19%	21%	22%
45	21%	22%	23%	24%	27%	30%	31%
50	31%	32%	34%	36%	40%	44%	47%

MODEL ASSUMPTIONS

Pre-retirement investment return: **6.0%**

Post-retirement investment return: **5.0%**

Inflation rate: **2.0%**

Retirement age –

- Primary earner: **65**
- Spouse: **62**

Years in retirement: **30**

How to use:

- Go to the intersection of your current age and your closest current household income.
- This is the percentage of your current household income you should contribute annually going forward if you have \$0 saved for retirement today.
- Example: A 40-year-old with household income of \$50,000 and \$0 saved for retirement today may need to save 16% every year until retirement.

Important things you need to know:

- Modest forward-looking returns may require higher savings going forward.
- Values assume you would like to maintain an equivalent lifestyle in retirement.
- Household income is assumed to be gross income (before tax and savings).

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	\$100,000	\$125,000	\$150,000	\$175,000	\$200,000	\$250,000	\$300,000
Start saving age	Savings rate (x current household income)						
25	10%	11%	12%	13%	14%	15%	15%
30	13%	14%	16%	17%	18%	19%	20%
35	17%	19%	20%	22%	23%	25%	26%
40	23%	25%	27%	29%	31%	33%	35%
45	33%	35%	38%	41%	43%	46%	48%
50	48%	52%	57%	61%	64%	69%	72%

How to use:

- Go to the intersection of your current age and your closest current household income.
- This is the percentage of your current household income you should contribute annually going forward if you have \$0 saved for retirement today.
- Example: A 40-year-old with household income of \$100,000 and \$0 saved for retirement today may need to save 23% every year until retirement.

Important things you need to know:

- Modest forward-looking returns may require higher savings going forward.
- Values assume you would like to maintain an equivalent lifestyle in retirement.
- Household income is assumed to be gross income (before tax and savings).

MODEL ASSUMPTIONS

Pre-retirement investment return: **6.0%**

Post-retirement investment return: **5.0%**

Inflation rate: **2.0%**

Retirement age –

- Primary earner: **65**
- Spouse: **62**

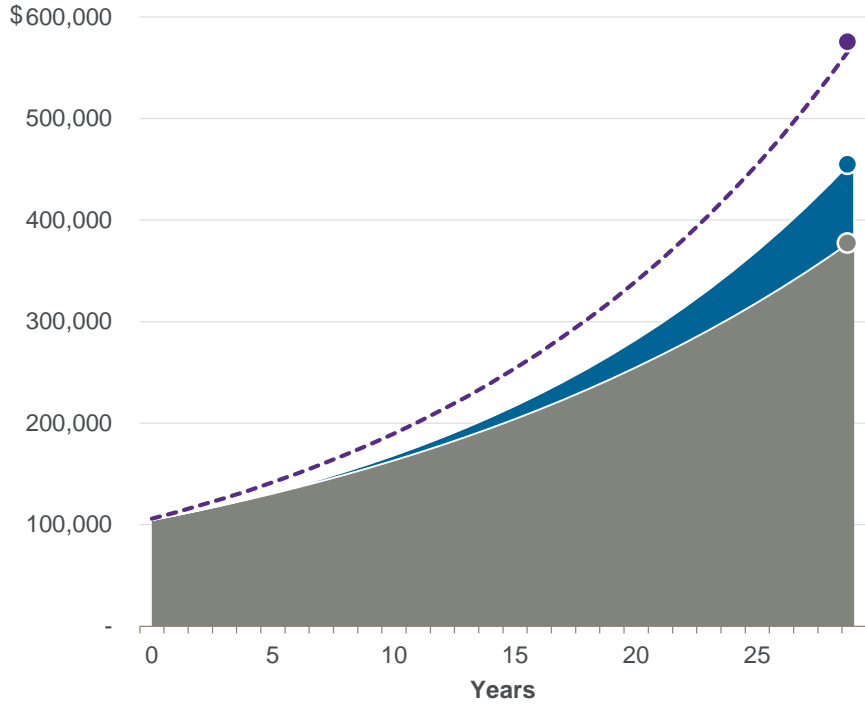
Years in retirement: **30**

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Taxable vs. tax-deferred investing over a 30-year timeframe

Growth of \$100,000 for a household in the 24% tax bracket



ENDING BALANCE

\$574,350 Tax-deferred account (before taxes)

\$460,510 Tax-deferred account (after taxes)

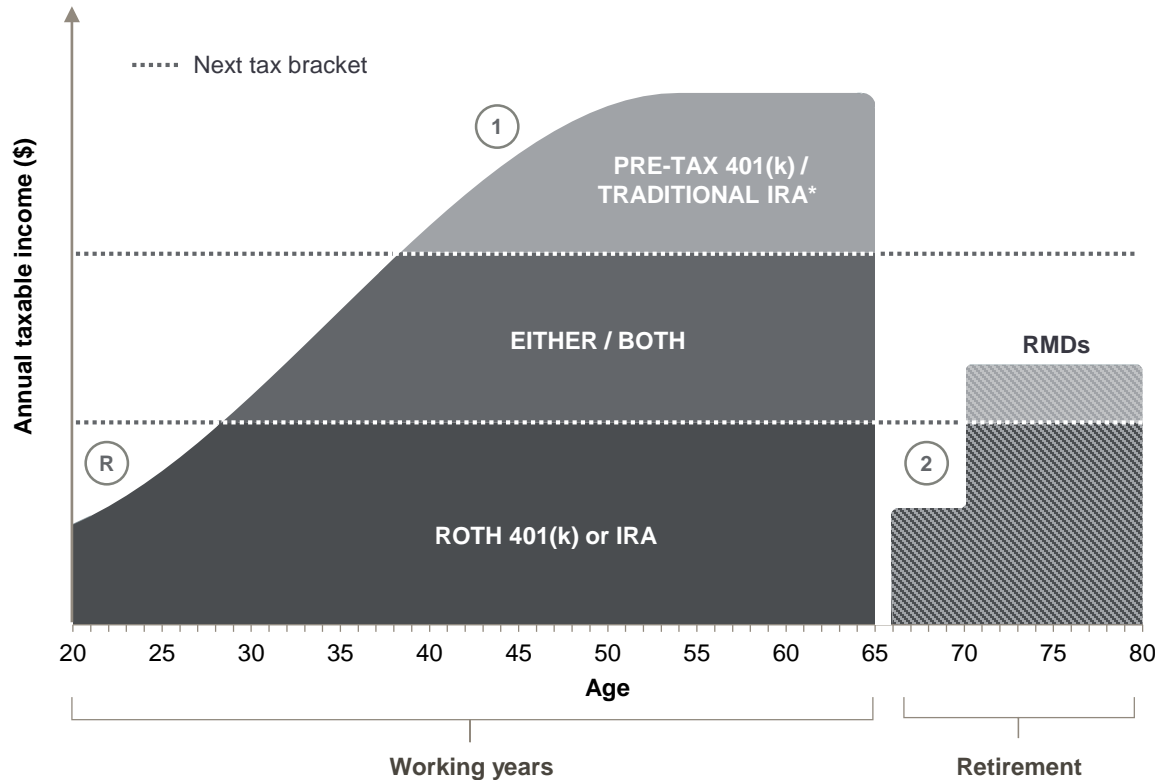
\$381,040 Taxable account (taxed annually)

TAXES CAN WAIT

Sheltering investment growth in tax-deferred accounts over the long term may result in more wealth for retirement. The value of tax deferral in this example is equivalent to a 0.7% higher annual return over the time period.

Source: J.P. Morgan Asset Management. Chart shows after-tax \$100,000 initial account value in the beginning of year one for a tax-deferred account and a taxable account. Assumes a 6.0% annual return for both accounts. Investment returns in taxable account are taxed annually at 24% (capital gains and qualified dividends are not considered in this analysis). Tax-deferred account balance is taken as a lump sum after year 30 and taxed at 24% federal tax rate. If tax-deferred account is taken as lump sum at other tax rates, after-tax balance would be \$517,430 (12%), \$469,990 (22%), \$422,560 (32%), \$408,330 (35%), \$398,840 (37%). This hypothetical illustration is not indicative of any specific investment and does not reflect the impact of fees or expenses. This chart is for illustrative purposes only. Past performance is no guarantee of future results.

Changes in lifetime taxable income Hypothetical wage curve



TAX DIVERSIFICATION

Managing taxes over a lifetime requires a balance of your current and future tax pictures. Make income tax diversification a priority to have more flexibility and control in retirement.

Rule: Contributing to a Roth early in your career and shifting as your income increases.

1. Roth 401(k) contributions in peak earning years if wealth is concentrated in tax-deferred accounts.

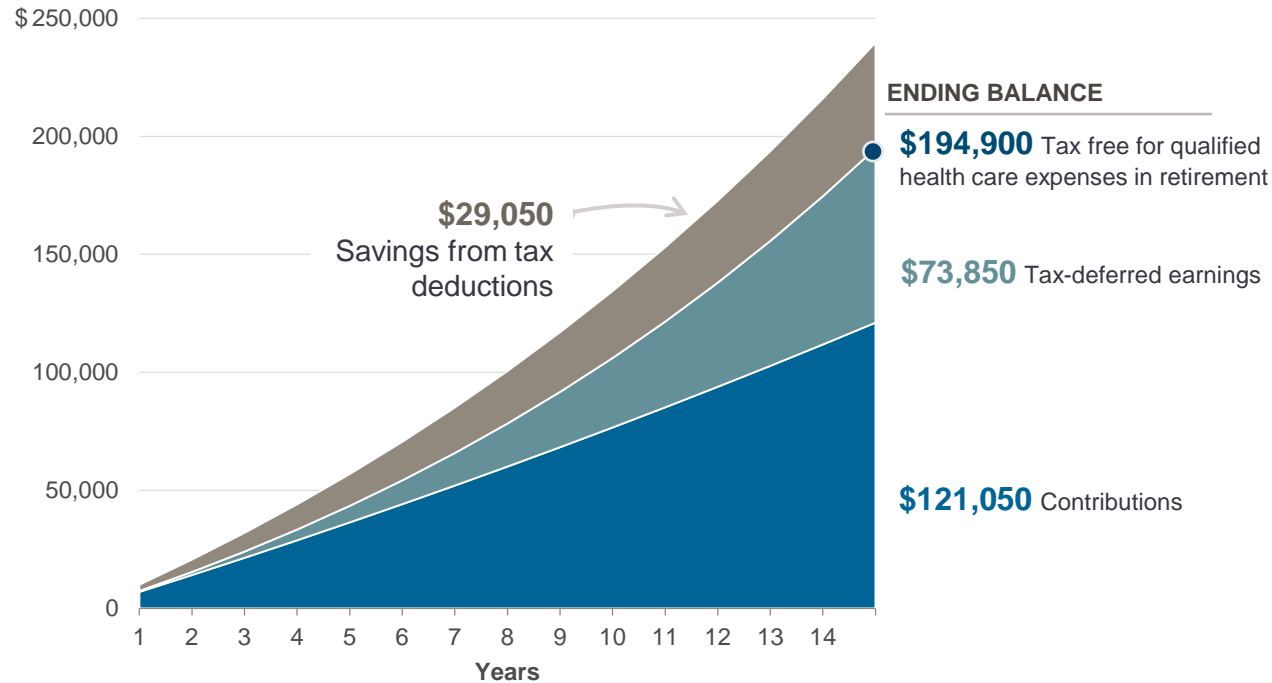
2. Proactive Roth conversions in lower income retirement years if RMDs are likely to push you into a higher bracket.

*If eligible to make a deductible contribution (based on your MAGI). The illustration reflects savings options into Traditional and Roth IRA accounts, as well as into pre-tax and Roth 401(k) accounts. RMD = Required Minimum Distributions, which are typically due no later than April 1 following the year the owner turns 70½ and are calculated every year based on the year-end retirement account value and the owner/plan participant's life expectancy using the IRS Uniform or Joint Life Expectancy Table. Employer contributions are typically pre-tax and are subject to tax upon distribution.

The above example is for illustrative purposes only. Source: J.P. Morgan Asset Management.

Health Savings Account (HSA) savings are triple tax advantaged¹

Maximum annual family contributions, 6% return and 24% marginal tax rate



MAKE THE MOST OF IT

If you are enrolled in a qualified high-deductible health plan and are eligible to contribute to a Health Savings Account, be sure to open and fund your HSA.

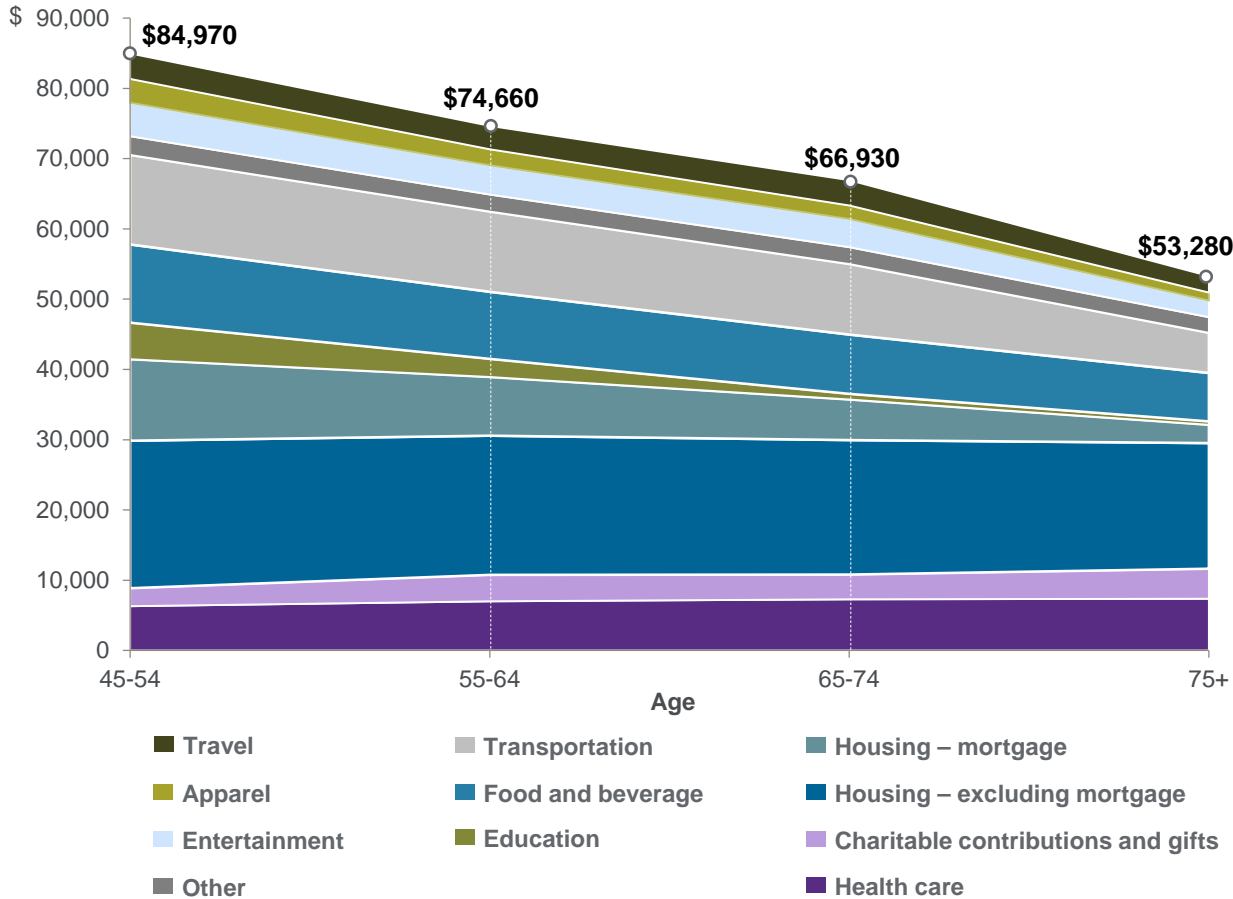
Investing your HSA contributions for the long term and paying for current health care expenses out of income or short-term savings can provide significant tax-free funds for health care expenses in retirement.

¹Must have a qualifying high-deductible health plan to make contributions. Funds in the HSA may be withdrawn tax free for qualified medical expenses unless a credit or deduction for medical expenses is claimed. After age 65 funds also may be withdrawn at ordinary income tax rates without penalty for any reason. Health insurance premiums are qualified medical expenses. This includes health insurance premiums prior to retirement, Medicare Part B and D premiums and qualified long-term care insurance premiums up to certain limits, but excludes Medigap / Medicare supplement policies and most long-term care policies that include annuity income or life insurance. See IRS Publication 502 for details. This is not intended to be individual tax advice; consult your tax advisor.

The above example is for illustrative purposes only and not indicative of any investment. Does not include account fees. Present value of illustrated HSA after 15 years is \$144,800. Estimated savings from tax deductions at a 37% marginal rate are \$44,790. Assumes cash or income used for health care expenses is not withdrawn from an account with a tax liability. The example assumes the HSA is fully invested; if \$2,000 was held in a cash account, the illustrated cumulative HSA account value would be \$190,110. 2019 family contribution limit is \$7,000 adjusted for inflation of 2.0% for 30 years. Individual 2019 contribution limit is \$3,500. \$194,900 is projected to be enough to fund about 13 years of projected average qualified Medicare-related health care expenses for a couple.

Average household spending patterns by various age groups

For those with a bachelor's degree or higher

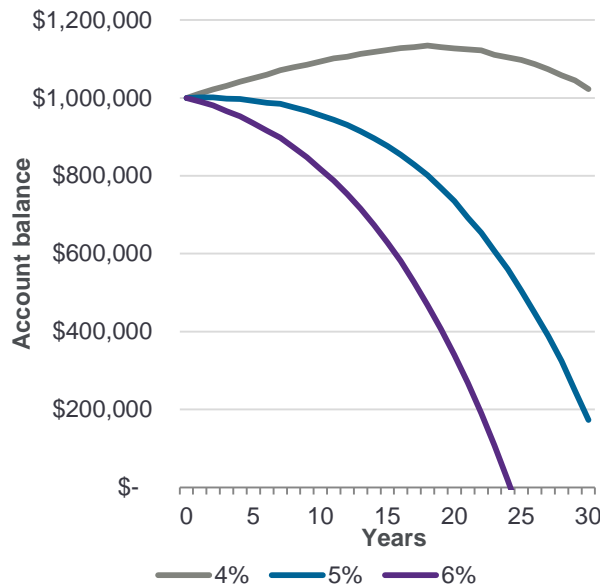


WHAT TO EXPECT

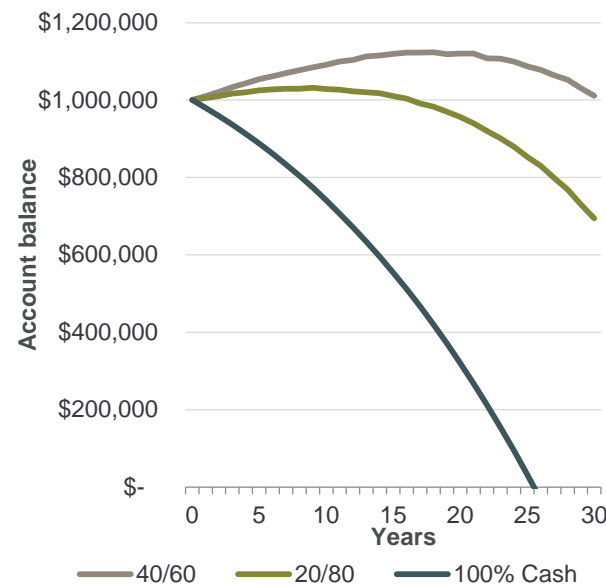
Household spending peaks at the age of 45, after which spending declines in all categories but health care and charitable contributions and gifts. Housing is the largest expense, even at older ages.

Source: J.P. Morgan Asset Management. Estimates based on average consumer expenditure from 2015 to 2017. Consumer Expenditure Surveys (BLS) for each age group excluding pension contributions. Population includes households where a bachelor's degree or higher is achieved by any member. Average household size for age 45-54 is 3.0, age 55-64 is 2.3, age 65-74 is 1.9 and age 75+ is 1.8.

40/60 portfolio at various initial withdrawal rates
Projected nominal outcomes, 50th percentile



Various portfolios at 4% initial withdrawal rate
Projected nominal outcomes, 50th percentile



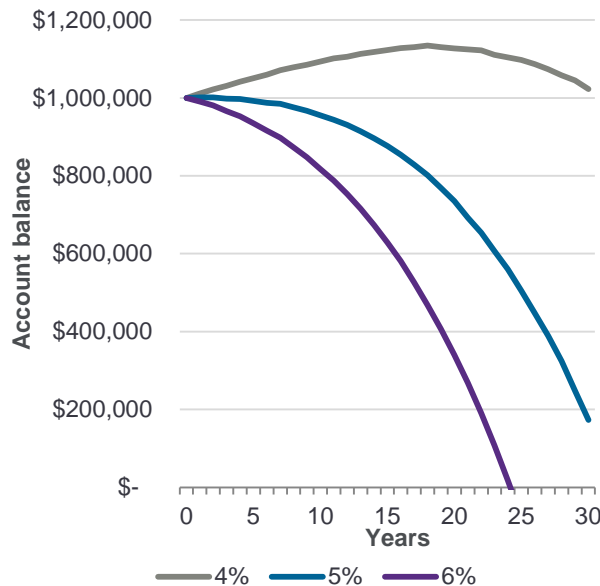
ONE SIZE DOES NOT FIT ALL

Higher initial withdrawal rates or overly conservative portfolios can put your retirement at risk. However, setting your spending at retirement too low and not adjusting along the way may require unnecessary lifestyle sacrifices in retirement. You may want to consider a dynamic approach that adjusts over time to more effectively use your retirement savings.

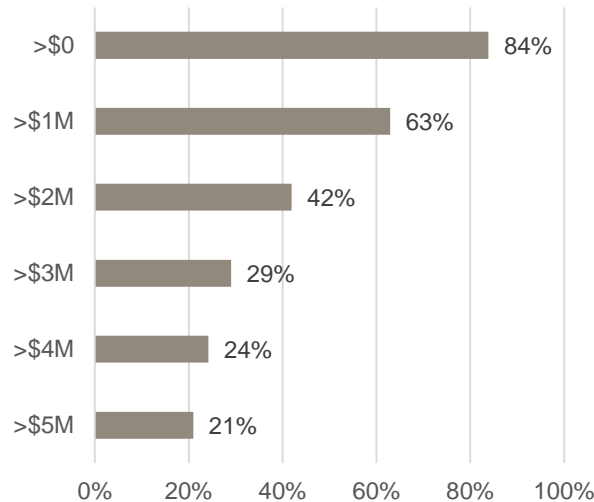
The 50th percentile may be considered the most likely due to the high percentage of outcomes that tend to be clustered near the median. Ending value of the 4% initial withdrawal rate and 40/60 portfolio value is \$1,011,237 (\$558,275 in today's dollars) and the 20/80 portfolio value is \$694,232 (\$383,265 in today's dollars).

These charts are for illustrative purposes only and must not be used, or relied upon, to make investment decisions. Portfolios are described using equity/bond denotation (e.g. a 40/60 portfolio is 40% equities and 60% bonds). Hypothetical portfolios are composed of All Country World Equity, US Aggregate Bonds and US Cash, with compound returns projected to be 6.0%, 4.0% and 2.0%, respectively. J.P. Morgan's model is based on J.P. Morgan Asset Management's (JPMAM) proprietary Long-Term Capital Market Assumptions (10-15 years). The resulting projections include only the benchmark return associated with the portfolio and does not include alpha from the underlying product strategies within each asset class. The yearly withdrawal amount is set as a fixed percentage of the initial amount of \$1,000,000 and is then inflation adjusted over the period (2.0%). Allocations, assumptions and expected returns are not meant to represent JPMAM performance. Given the complex risk/reward tradeoffs involved, we advise clients to rely on judgment as well as quantitative optimization approaches in setting strategic allocations. References to future returns for either asset allocation strategies or asset classes are not promises or even estimates of actual returns a client portfolio may achieve.

40/60 portfolio at various initial withdrawal rates
Projected nominal outcomes, 50th percentile



Historical ending wealth at 4% initial withdrawal rate
Rolling 30-year periods



**GOOD IN THEORY,
POOR IN PRACTICE**

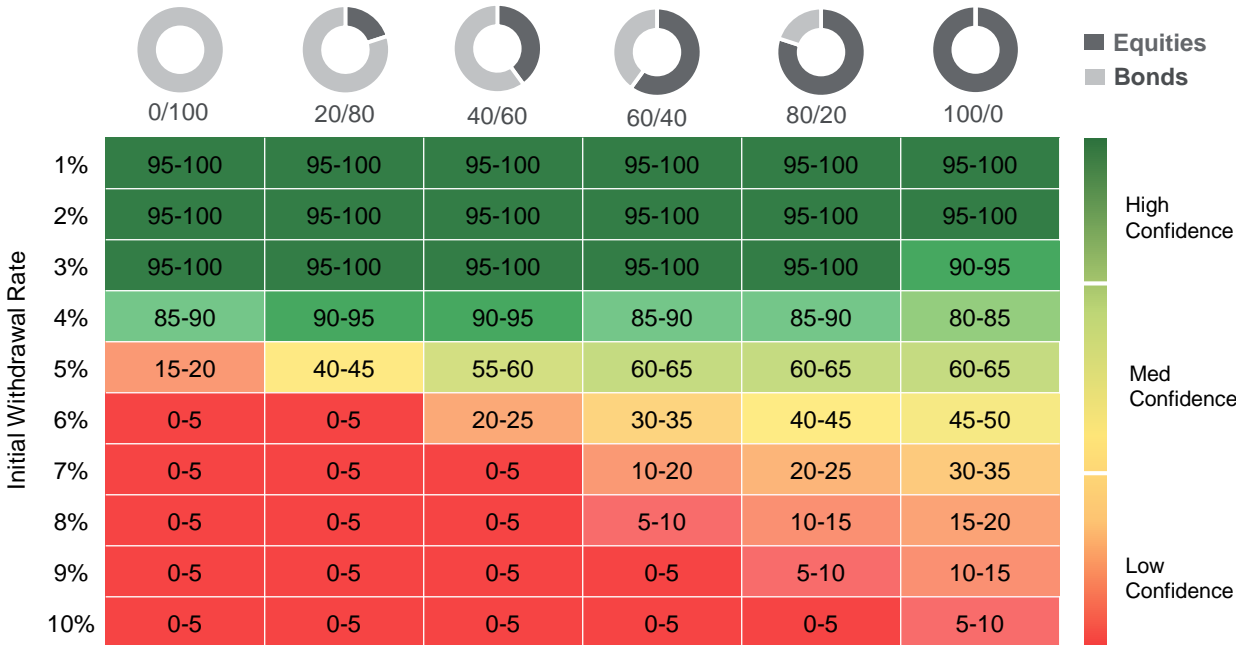
The 4% rule is the maximum initial withdrawal percentage that has a high likelihood of not running out of money after 30 years. It is not guidance on how to efficiently use your wealth to support your retirement lifestyle as illustrated by the range of outcomes observed in the past.

The 50th percentile may be considered the most likely due to the high percentage of outcomes that tend to be clustered near the median. Ending value of the 4% initial withdrawal rate and 40/60 portfolio value is \$1,011,237 (\$558,275 in today's dollars) and the 20/80 portfolio value is \$694,232 (\$383,265 in today's dollars).

These charts are for illustrative purposes only and must not be used, or relied upon, to make investment decisions. Portfolios are described using equity/bond denotation (e.g. a 40/60 portfolio is 40% equities and 60% bonds). Hypothetical portfolios are composed of All Country World Equity, US Aggregate Bonds and US Cash, with compound returns projected to be 6.0%, 4.0% and 2.0%, respectively. J.P. Morgan's model is based on J.P. Morgan Asset Management's (JPMAM) proprietary Long-Term Capital Market Assumptions (10–15 years). The resulting projections include only the benchmark return associated with the portfolio and does not include alpha from the underlying product strategies within each asset class. The yearly withdrawal amount is set as a fixed percentage of the initial amount of \$1,000,000 and is then inflation adjusted over the period (2.0%). Allocations, assumptions and expected returns are not meant to represent JPMAM performance. Given the complex risk/reward tradeoffs involved, we advise clients to rely on judgment as well as quantitative optimization approaches in setting strategic allocations. References to future returns for either asset allocation strategies or asset classes are not promises or even estimates of actual returns a client portfolio may achieve.

Likelihood of success after 30 years

Various initial withdrawal rates and asset allocations



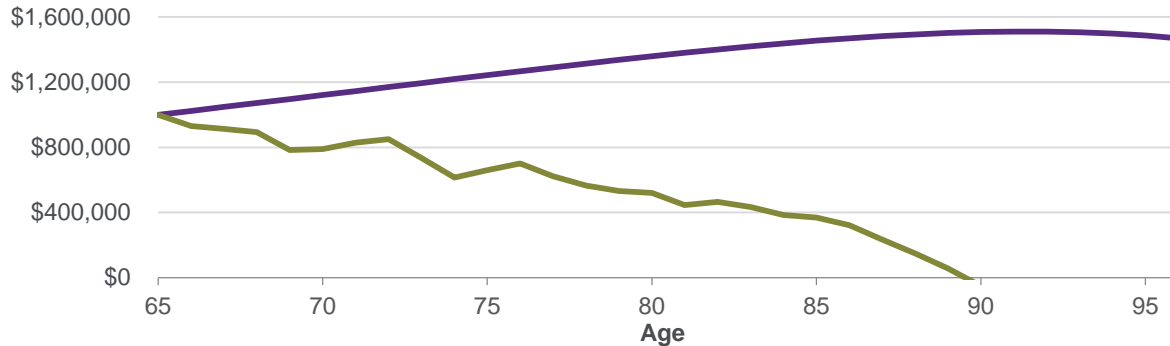
FIND YOUR BALANCE

At both the highest and the lowest confidence levels, you may want to consider adjusting your spending and/or asset allocation. An overly conservative withdrawal rate may require unnecessary lifestyle sacrifices, whereas an equity-heavy portfolio may lead to a lower likelihood of success. A well-diversified portfolio with a dynamic withdrawal strategy is typically optimal.

This chart is for illustrative purposes only and must not be used, or relied upon, to make investment decisions. Portfolios are described using equity/bond denotation (e.g. a 40/60 portfolio is 40% equities and 60% bonds). Hypothetical portfolios are composed of All Country World Equity and US Aggregate Bonds, with compound returns projected to be 6.0% and 4.0%, respectively. J.P. Morgan's model is based on J.P. Morgan Asset Management's (JPMAM) proprietary Long-Term Capital Market Assumptions (10–15 years). The resulting projections include only the benchmark return associated with the portfolio and does not include alpha from the underlying product strategies within each asset class. The yearly withdrawal amount (1% to 10%) is set as a fixed percentage of the initial amount of \$1,000,000 and is then inflation adjusted over the period (2.0%). The percentile outcomes represent the percentage of simulated results with an account balance greater than \$0 after 30 years (e.g. "95-100" means that 95-100% of simulations had account balances greater than \$0 after 30 years). Allocations, assumptions and expected returns are not meant to represent JPMAM performance. Given the complex risk/reward tradeoffs involved, we advise clients to rely on judgment as well as quantitative optimization approaches in setting strategic allocations. References to future returns for either asset allocation strategies or asset classes are not promises or even estimates of actual returns a client portfolio may achieve.

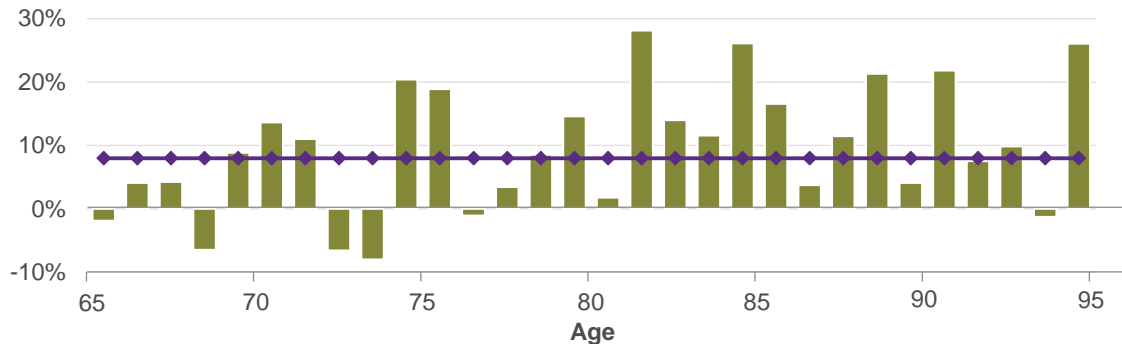
Portfolio value over time (1966-1995)
Assumes 5.2% initial withdrawal rate

— Assumed annual rate of return: 8%
— 40/60 portfolio: Actual average annual return: 9.1%



Rate of return: average vs. actual (1966-1995)

◆ Assumed annual rate of return: 8%
■ 40/60 portfolio: Actual average annual return: 9.1%



SEQUENCE OF RETURN RISK

Withdrawing assets in down markets early in retirement can ravage a portfolio. Consider investment solutions that incorporate downside protection such as:

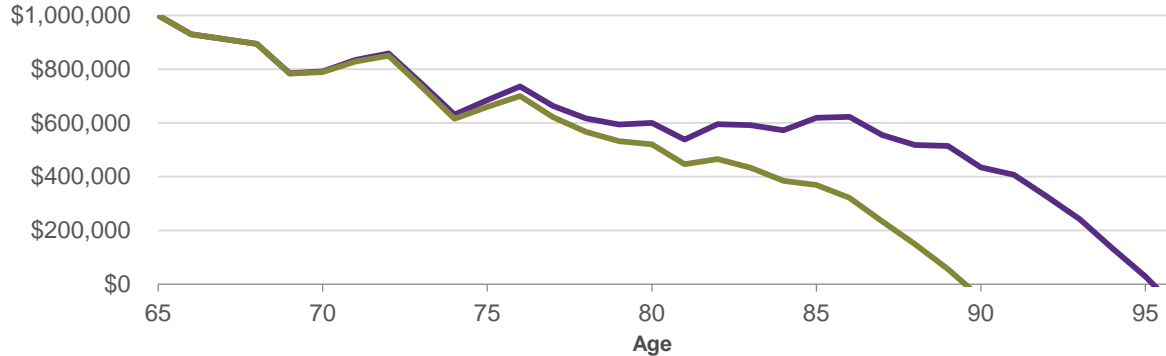
- Greater diversification among non-correlated asset classes
- Investments that use options strategies for defensive purposes
- Annuities with guarantees and/or protection features

Assumptions (top chart): Retire at age 65 with \$1,000,000 and withdraw 5.2% of the initial portfolio value (\$52,000). Increase dollar amount of withdrawal by 3.0% inflation each year (lower than the average inflation rate of the period between 1966-1995).

Source: J.P. Morgan Asset Management. Returns are based on a hypothetical portfolio, which is assumed to be invested 40% in the S&P 500 Total Return Index and 60% in the Barclays Capital U.S. Aggregate Index. The assumptions are presented for illustrative purposes only. They must not be used, or relied upon, to make investment decisions. There is no direct correlation between a hypothetical investment and the anticipated future return of an index. Past performance does not guarantee future results.

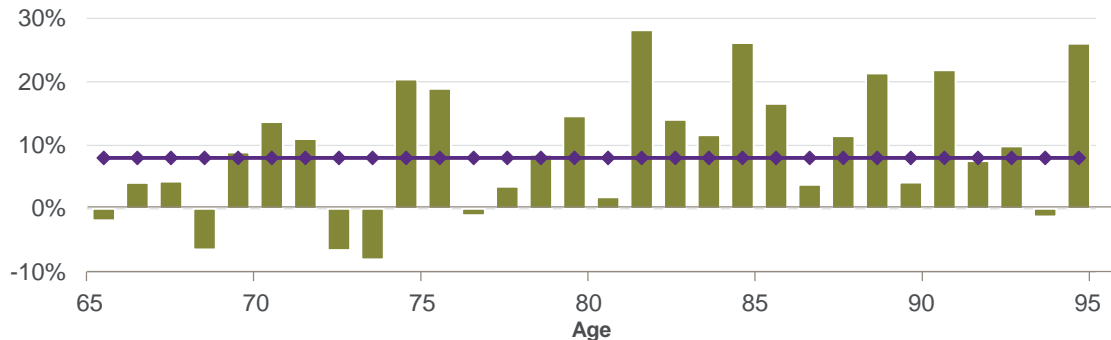
Portfolio value over time (1966-1995) Assumes 5.2% initial withdrawal rate

- Withdrawal dynamically adjusted based on performance
- Withdrawal annually increased by inflation



Rate of return: average vs. actual (1966-1995)

- Assumed annual rate of return: 8%
- 40/60 portfolio: Actual average annual return: 9.1%



Assumptions (top chart): Retire at age 65 with \$1,000,000 and withdraw 5.2% of the initial portfolio value (\$52,000). “Withdrawal annually increased each year by inflation” assumes 3% inflation rate. Dynamic withdrawal scenario assumes that if the annual rate of return on portfolio is: 1) less than 3%, withdrawal remains the same as the prior year. 2) between 3% and 15%, withdrawal is increased by inflation (3%). 3) greater than 15%, withdrawal is increased by 4%. While the dynamic withdrawal scenario during this historical period provided 14% more total spending in today’s dollars, it is for illustrative purposes only and may not be successful during other time periods.

Source: J.P. Morgan Asset Management. Returns are based on a hypothetical portfolio, which is assumed to be invested 40% in the S&P 500 Total Return Index and 60% in the Barclays Capital U.S. Aggregate Index. The assumptions are presented for illustrative purposes only. They must not be used, or relied upon, to make investment decisions. There is no direct correlation between a hypothetical investment and the anticipated future return of an index. Past performance does not guarantee future results.

BE FLEXIBLE

Spending the same amount in retirement grown by inflation regardless of how your portfolio is performing can result in an unsuccessful outcome. Consider adjusting your spending strategy based on market conditions to help make your money last and provide more total spending through your retirement years.

Medicare is a federal health care plan for individuals age 65 and older.

There are two plan choices - Traditional Medicare or Medicare Advantage

	Traditional Medicare 'A la Cart'	Medicare Advantage (‘All-in-One,’ usually limited to a network of providers)
Part A: inpatient hospital insurance		✓
Part B: doctors, tests and outpatient hospital insurance		✓
Medigap: standardized plans that cover Part A and Part B co-pays and deductibles	✓	Not available
Part D: prescription drug insurance	✓	✓ Most plans include Part D
Prescription drug co-pays and deductibles	Not covered	Not covered
Most vision, dental and hearing expenses	Not covered	✓ Coverage varies by plan
Long-term care*	Not covered	Not covered

MEDICARE DETAILS

Individuals who have paid Medicare taxes for 40 quarters (and their spouses) are eligible for Medicare at age 65.

Be sure to enroll during your Initial Enrollment Period, which is 3 months before and 3 months after your 65th birthday month, or face lifetime penalties.

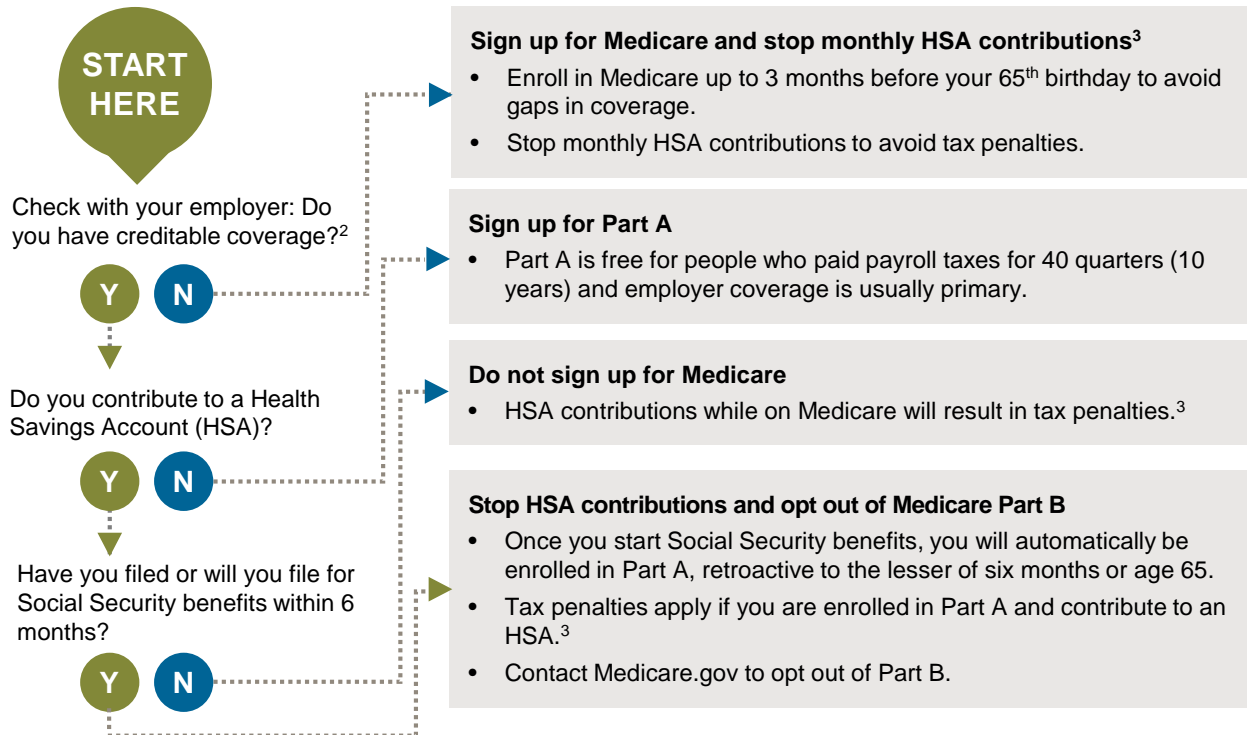
You should reevaluate your choice and provider(s) annually during Open Enrollment.

*Medicare does not cover most long-term care costs. Medicare does pay for medically necessary skilled nursing facility or home health care on a very limited basis. Custodial care is not covered.

Medicare Advantage plans are often referred to as ‘Part C.’ Individuals under age 65 may also be eligible if they are considered disabled by Social Security or the Railroad Retirement Board for more than 24 months. Disabled individuals may have different eligibility requirements. When switching to Traditional Medicare during Open Enrollment, Medigap plans may deny coverage or underwrite (in most states). For more information please consult the Medicare Rights Center in your state or the Medicare.gov website.

Source: Medicare.gov as of January 23, 2019.

Assumes adequate employer coverage and qualification for Medicare at age 65¹



AVOID COVERAGE GAPS AND PENALTIES

Creditable coverage is key: If you don't have it, sign up for Medicare.

COBRA coverage (a temporary extension of major medical employer coverage when work stops) is not creditable.⁴

Do not contribute to an HSA while enrolled (including Part A through Social Security receipt).

¹ Assumes Part A is no cost (generally for people who paid payroll taxes for 40+ quarters or are married to a beneficiary who did so). Some individuals may choose to sign up for Parts A and Part B earlier than shown if they want additional coverage.

² Ask your employer for documentation of creditable coverage. Employer coverage for <20 people is usually not creditable and will end at age 65 or become secondary after Medicare has paid. If you don't have creditable coverage, late penalties will apply if you don't sign up in your initial enrollment window and Medigap plans may deny coverage or underwrite after the initial enrollment period in most states.

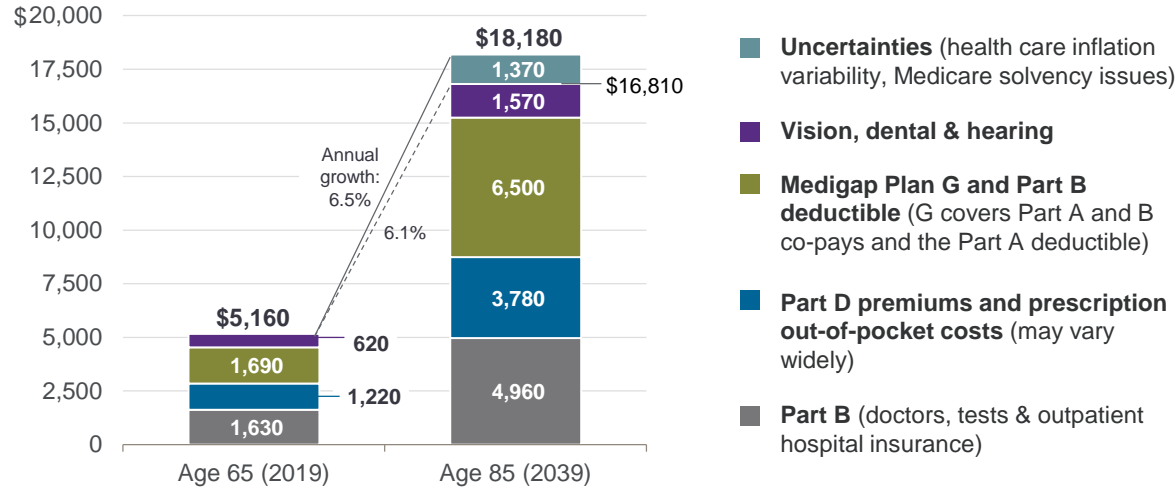
³ Total HSA contributions for the year in excess of the maximum contribution for the year / the number of months you are eligible to make contributions will result in tax penalties. This is not intended to be individual tax advice; consult IRS Publication 969 or your tax advisor.

⁴ Some extended prescription coverage may be creditable. Ask your benefits administrator.

For more information, see www.mymedicarematters.org/enrollment/am-i-eligible, sponsored by the National Council on Aging.

Source: IRS Publication 969, National Council on Aging and Medicare.gov websites as of January 23, 2019; JPM analysis.

Traditional Medicare estimated median health care costs per person



A GROWING CONCERN

Given variation in health care cost inflation from year to year, it may be prudent to assume an annual health care inflation rate of 6.5%, which may require growth as well as current income from your portfolio in retirement.

2019 additional premium per person for Modified Adjusted Gross Incomes (MAGI) of:

FILING SINGLE	MARRIED FILING JOINTLY	ADDITIONAL PREMIUM	TOTAL MEDIAN COSTS
\$85,001 – \$107,000	\$170,001 – \$214,000	\$798	\$5,958
107,001 – 133,500	214,001 – 267,000	2,008	7,168
133,501 – 160,000	267,001 – 320,000	3,217	8,377
160,001 – 499,999	320,001 – 749,999	4,426	9,586
>499,999	>749,999	4,829	9,989

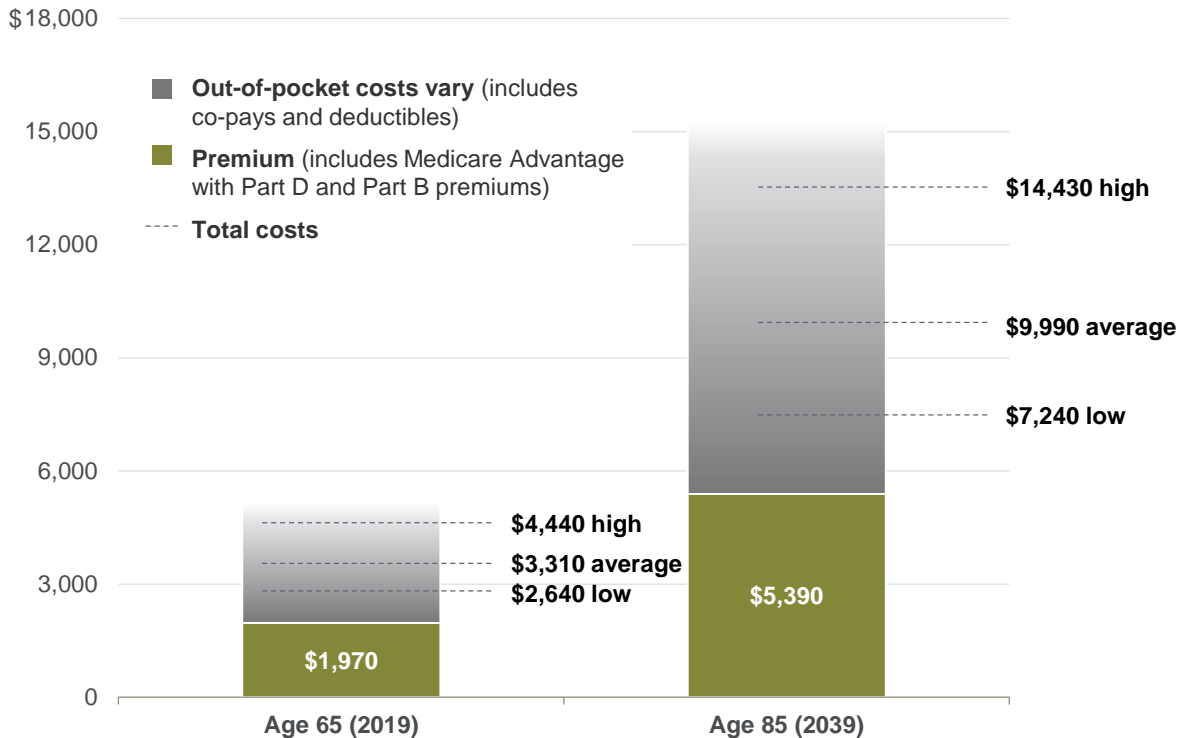
Notes: Age 85 estimated total median cost in 2019 is \$6,776. Medigap premiums usually increase due to age, in addition to annual inflation, except for most policies in the following states: AR, CT, MA, ME, MN, NY, VT WA, AZ, FL, ID and MO. If Plan G is not available, analysis includes the most comprehensive plan excluding Plan F.

Parts B and D additional premiums are calculated from federal tax returns two years prior; individuals may file for an exception on form SSA-44 if they reduce or stop work. For the definition of MAGI, please see slide 47.

Source: Employee Benefit Research Institute (EBRI) as of January 18, 2019; SelectQuote as of January 18, 2019; Milliman as of January 21, 2019; CMS website as of January 18, 2019; Consumer Expenditure Survey as of January 18, 2019; J.P. Morgan analysis.

Estimated Medicare Advantage with Part D and out-of-pocket expenses

Annual amount per person



DRAMATIC DIFFERENCES IN COSTS DEPENDING ON HEALTH

Be prepared to pay more for health care in the event you experience a health issue, which becomes more common as one ages.

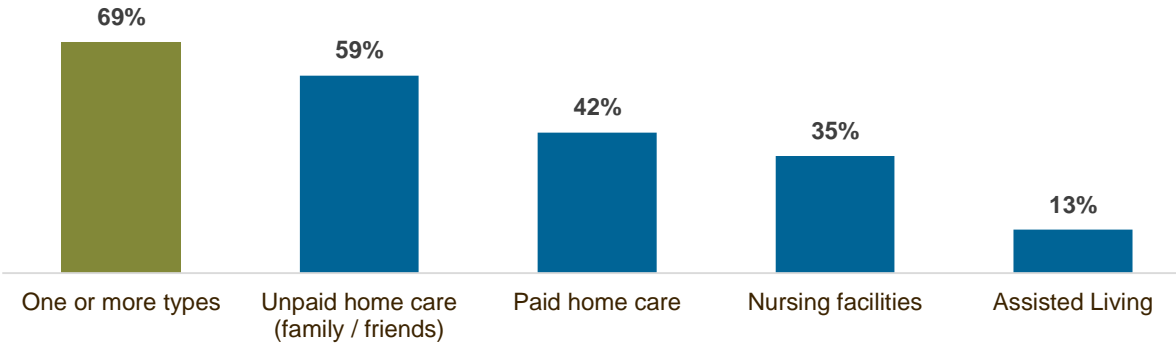
- Be aware: Although Medicare Advantage plans have out-of-pocket caps, those limits do not include prescriptions.
- Consider maintaining an emergency reserve fund for high out-of-pocket cost periods.

Total costs = annual premium + out-of-pocket costs for those with relatively low costs (average for those in the lowest third of the cost distribution), average costs and high costs (average for those in the highest third of the cost distribution).

Age 85 estimated average cost in 2019 is \$3,923. Cost estimates above show age 85 in 2039 adjusted for inflation and increased use of medical care at older ages. Since plans are sold by private companies, premiums will vary based on plan characteristics. Out-of-pocket expenses, including out-of-pocket prescription costs, will vary by plan and include co-pays and deductibles. Those with high incomes pay higher premiums (above \$85,000 single or \$170,000 Modified Adjusted Gross Income filing jointly).

Source: Employee Benefit Research Institute (EBRI) data as of December 18, 2019; SelectQuote data as of January 18, 2019; Milliman as of January 21, 2019; J.P. Morgan analysis.

Lifetime probability of needing long-term care (LTC) services by type

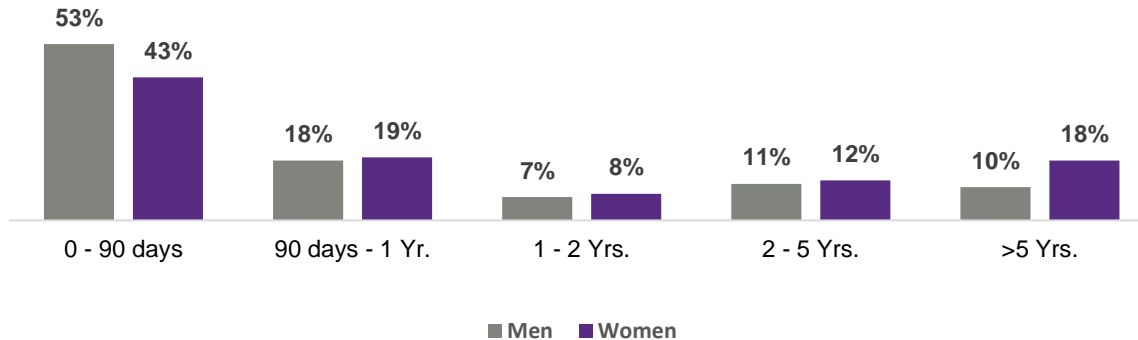


CONSIDER THE RANGE OF POSSIBLE CARE NEEDS

There is a high likelihood of needing care. This often starts at home before progressing to other settings.

While considering the range of possibilities, take into account that 1 in 10 men and nearly 2 in 10 women are projected to have a significant care need for more than 5 years.

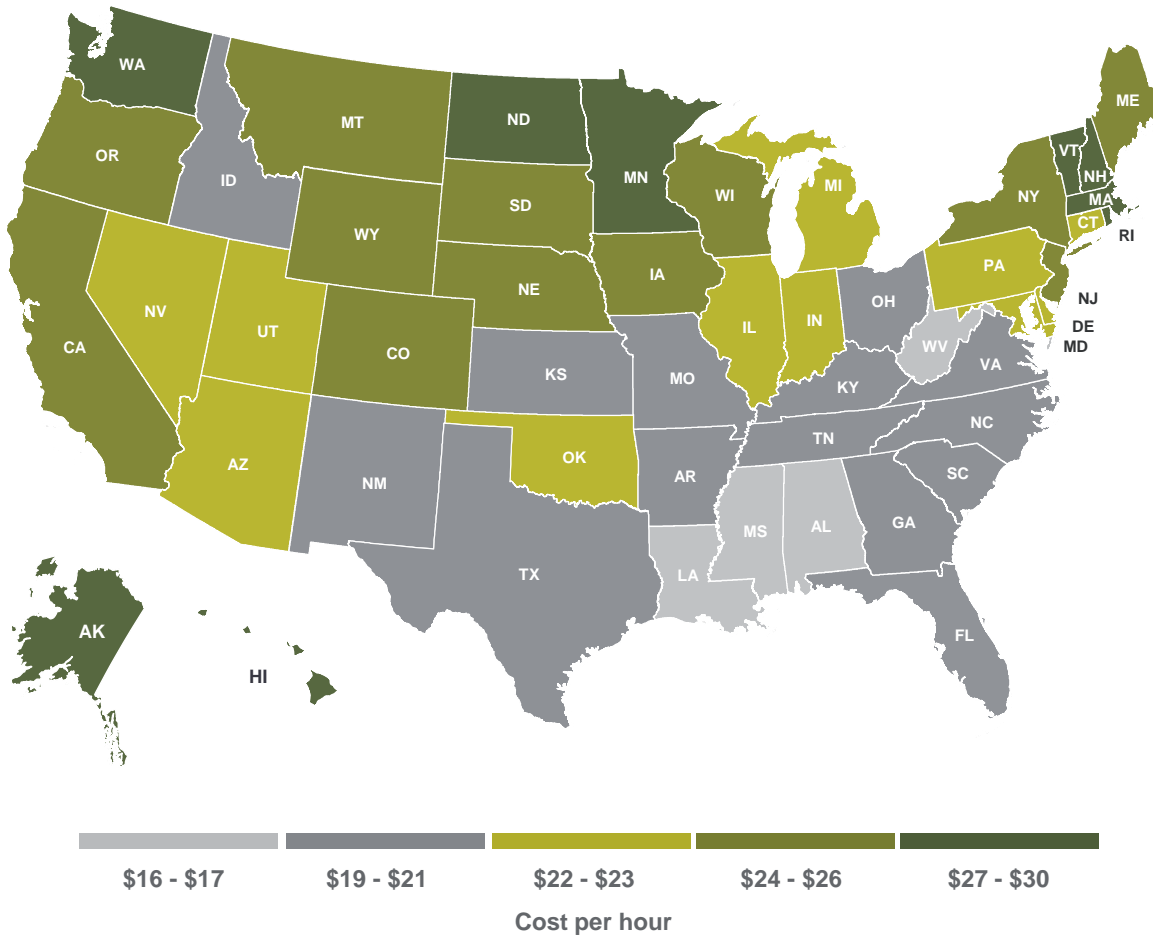
Lifetime distribution and duration of need for significant LTC at age 65



Top chart: Includes all types of care including managing finances, taking medications, shopping, using transportation and food preparation, as well as more significant care needs. Bottom chart: Significant care needs includes two or more activities of daily living such as eating, dressing, bathing, transferring and toileting or severe cognitive impairment. Those who meet the cognitive impairment criteria who require care for less than 90 days are included in the 90 days – 1 year category.

Source: Top chart: U.S. Department of Health and Human Services, ASPE Issue Brief, Revised February 2016, Table 1. Bottom chart: U.S. Department of Health and Human Services, Administration on Aging statistics last updated October 10, 2017. Most recent data available as of December 31, 2018.

Spending



THE COST OF CARE

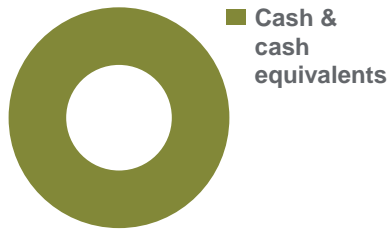
The median cost for a home health aide is \$22 an hour but can vary widely. While the most common starting point for care is at home, it may progress to other settings.

The national annual median cost for a private room in a nursing home is \$100,375. These costs are commonly between \$85,000 and \$120,000 but may be lower or higher. For costs specific to your area see: www.genworth.com/costofcare

Notes: Costs also vary within states by county and city. Median values are rounded to the nearest dollar. For more information on cost of care in your location see the Genworth website at: www.genworth.com/costofcare
 Source: Genworth Cost of Care Survey 2018, conducted by CareScout®, June 2018. © 2019 Genworth Financial, Inc. All rights reserved.
 Methodology document: <https://pro.genworth.com/riiproweb/productinfo/pdf/131168.pdf>

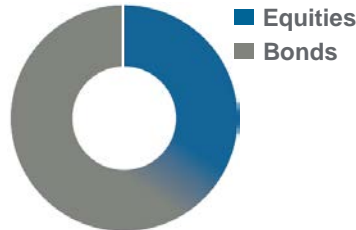
Short-term goals

Includes emergency reserve fund of total spending needs for 3-6 months



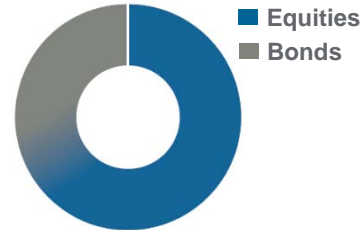
Medium-term goals

5-10 years, e.g. college, home



Long-term goals

15+ years, e.g. retirement

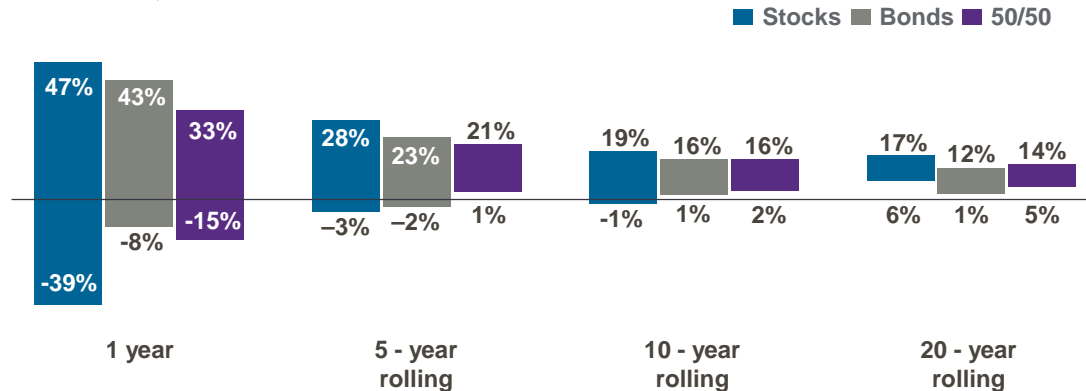


DIVIDE AND CONQUER

Aligning your investment strategy by goal can help you take different levels of risk based on varying time horizons and make sure you are saving enough to accomplish all of your goals – not just the ones that occur first.

Range of stock, bond and blended total returns

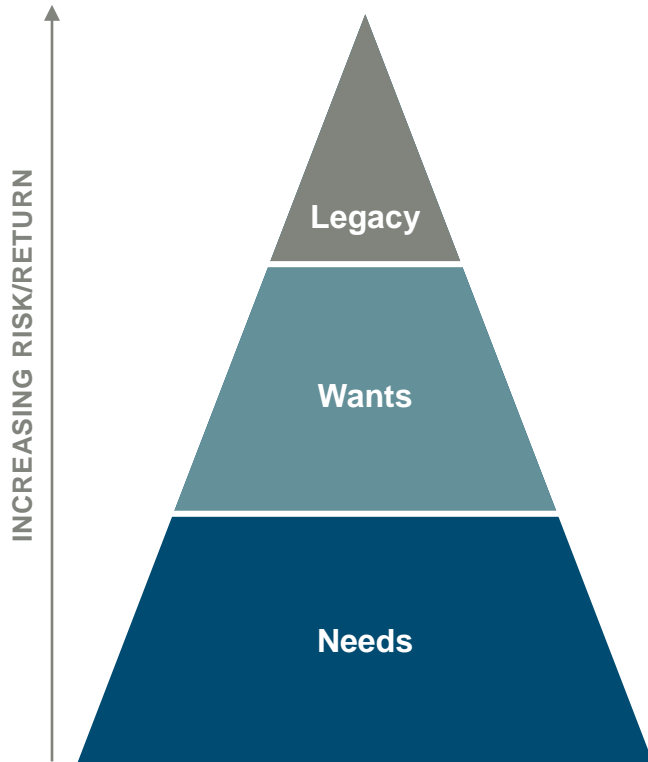
Annual total returns, 1950-2018



Source (top chart): J.P. Morgan Asset Management.

Source (bottom chart): Barclays, Bloomberg, FactSet, Federal Reserve, Robert Shiller, Strategas/Ibbotson, J.P. Morgan Asset Management. Returns shown are based on calendar year returns from 1950 to 2018. Stocks represent the S&P 500 Shiller Composite and Bonds represent Strategas/Ibbotson for periods from 1950 to 2010 and Bloomberg Barclays Aggregate thereafter. Growth of \$100,000 is based on annual average total returns from 1950 to 2018.

Note: Portfolio allocations are hypothetical and are for illustrative purposes only. They were created to illustrate different risk/return profiles and are not meant to represent actual asset allocation.



Considerations

What is the time horizon and appropriate planning vehicle for your heirs and your estate goals?

What are your desires/wants?

How much risk are you willing to take?

What are your basic needs?

What income sources do you have or will you need to create?

Potential solutions

- Equities
- Alternatives*

- Equities
- Extended sector bonds
- Multi-asset solutions

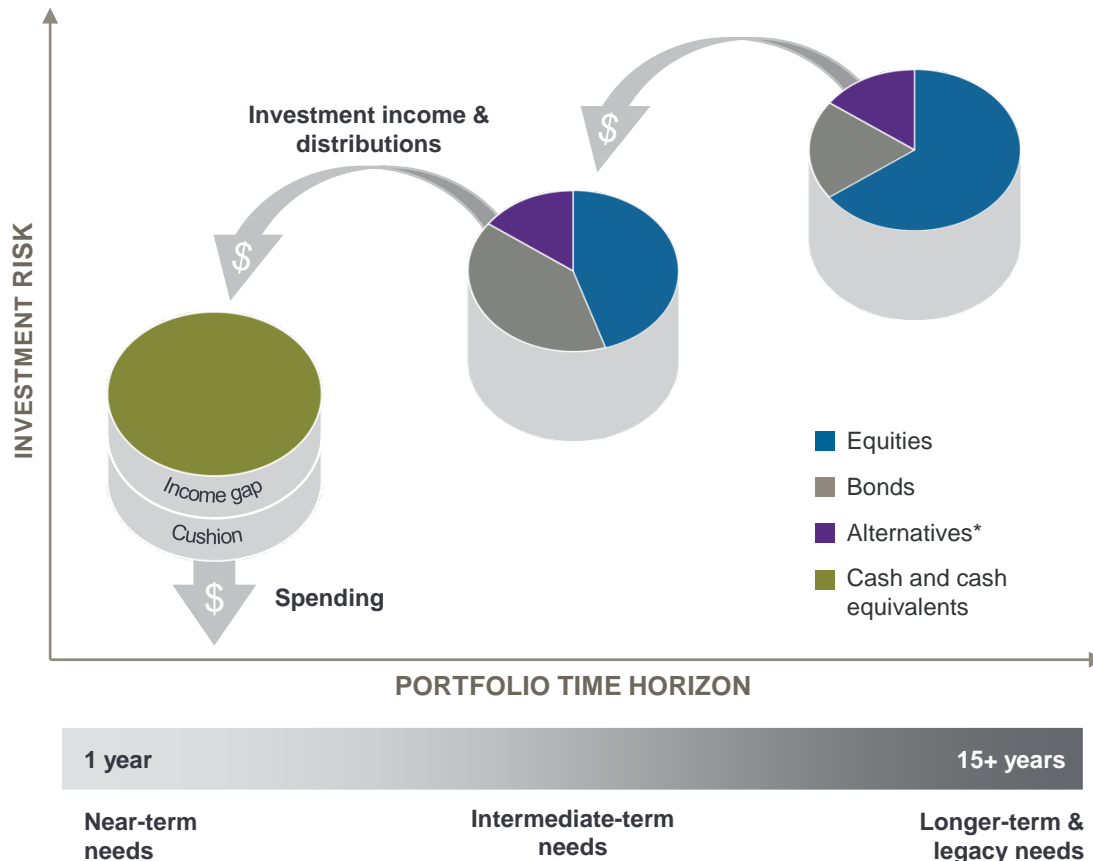
- Social Security
- Pension
- Protected income
- High-quality bonds
- Cash and cash alternatives

BUILDING YOUR PLAN

It may be useful to match dependable income sources with fixed retirement expenses, while coordinating other investments with more discretionary expenses.

For illustrative purposes only. Source: J.P. Morgan Asset Management. Bonds are subject to interest rate risks. Bond prices generally fall when interest rates rise. The price of equity securities may rise or fall because of changes in the broad market or changes in a company's financial condition, sometimes rapidly or unpredictably. Equity securities are subject to "stock market risk," meaning that stock prices in general may decline over short or extended periods of time. Investing in alternative assets involves higher risks than traditional investments and is suitable only for the long term. They are not tax efficient and have higher fees than traditional investments. They may also be highly leveraged and engage in speculative investment techniques, which can magnify the potential for investment loss or gain.

*Equity, fixed income and cash are considered "traditional" asset classes. The term "alternative" describes all non-traditional asset classes. They include private and public equity, venture capital, hedge funds, real estate, commodities, distressed debt and more.



TIME-BASED SEGMENTATION

Aligning your time horizon with an investment approach may help you be more comfortable with maintaining diversified portfolio allocations in retirement.

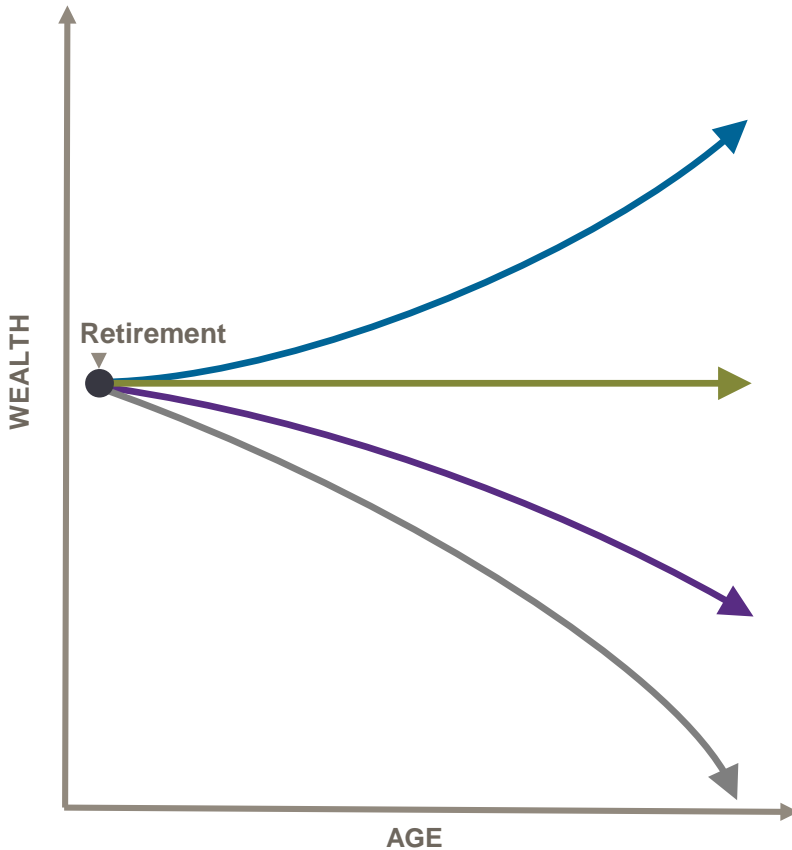
For the near-term portfolio, consider maintaining:

- Funds to cover 1-3 years worth of the gap between your income and spending needs
- A cushion for unexpected expenses

For illustrative purposes only. Source: J.P. Morgan Asset Management. Bonds are subject to interest rate risks. Bond prices generally fall when interest rates rise. The price of equity securities may rise or fall because of changes in the broad market or changes in a company's financial condition, sometimes rapidly or unpredictably. Equity securities are subject to "stock market risk," meaning that stock prices in general may decline over short or extended periods of time. Investing in alternative assets involves higher risks than traditional investments and is suitable only for the long term. They are not tax efficient and have higher fees than traditional investments. They may also be highly leveraged and engage in speculative investment techniques, which can magnify the potential for investment loss or gain.

*Equity, fixed income and cash are considered "traditional" asset classes. The term "alternative" describes all non-traditional asset classes. They include private and public equity, venture capital, hedge funds, real estate, commodities, distressed debt and more.

Retirement investable wealth profiles and diversified portfolio priorities



Increasing Wealth:
Investment return exceeds spending needs
Priority: Total return

Preserve Principal:
Spend investment return only (income and/or appreciation)
Priority: Current income

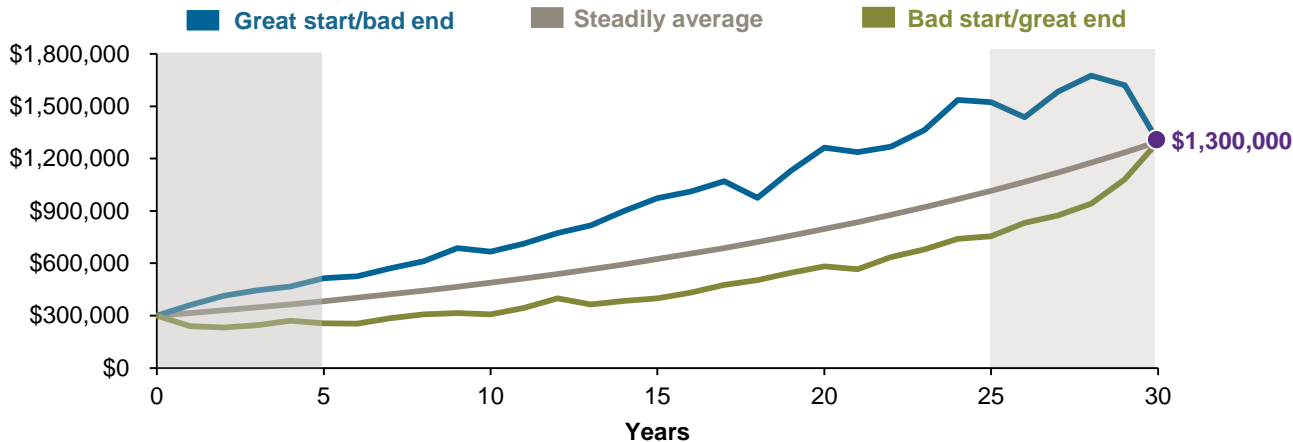
Partial drawdown:
Access both investment return and some principal
Priority: Dynamic withdrawal strategy

Total Drawdown:
Lifestyle consumes all wealth
Priority: Protected income

ALIGN YOUR OBJECTIVE WITH YOUR OUTCOME

Retirement can mean several goals for your portfolio – current income, growth, sustainable withdrawals and/or protected income. To find the right balance, your projected outcome from your retirement plan can help you identify which of these to consider making a priority for your diversified portfolio.

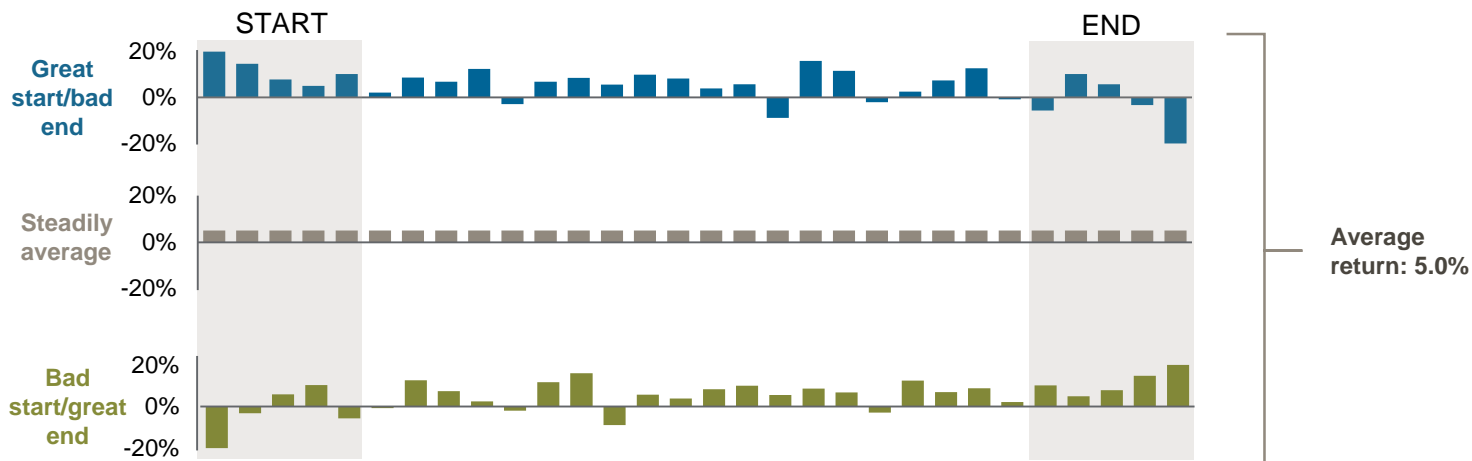
Value of three portfolios with the same average return
 \$300,000 lump sum investment with an average return of 5.0%



GET INVESTED AND STAY INVESTED

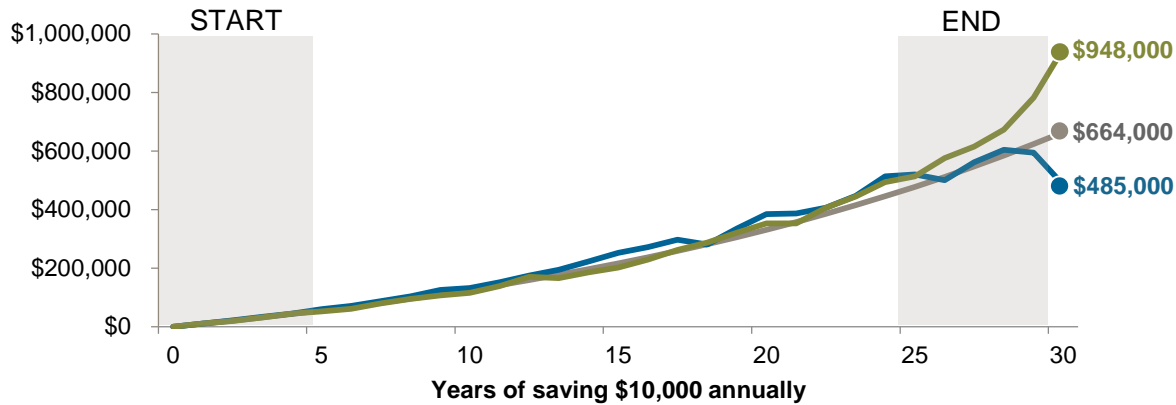
When making a one-time long-term investment, your average annual return will determine your outcome, regardless of the sequence in which the return is experienced.

Annual returns by scenario



Investing

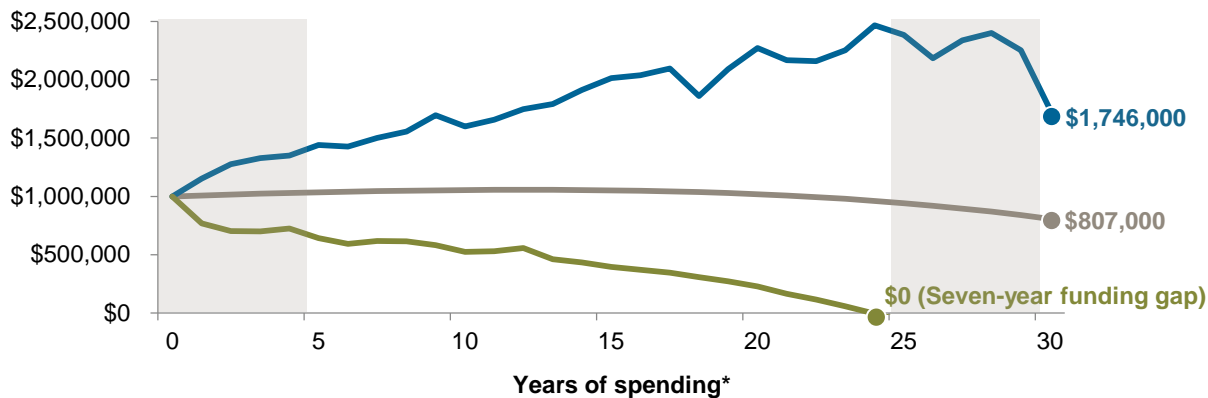
Portfolio values assuming various return sequence scenarios



■ Great start/bad end ■ Steadily average ■ Bad start/great end

THE GREATEST RISK IS WHEN WEALTH IS GREATEST

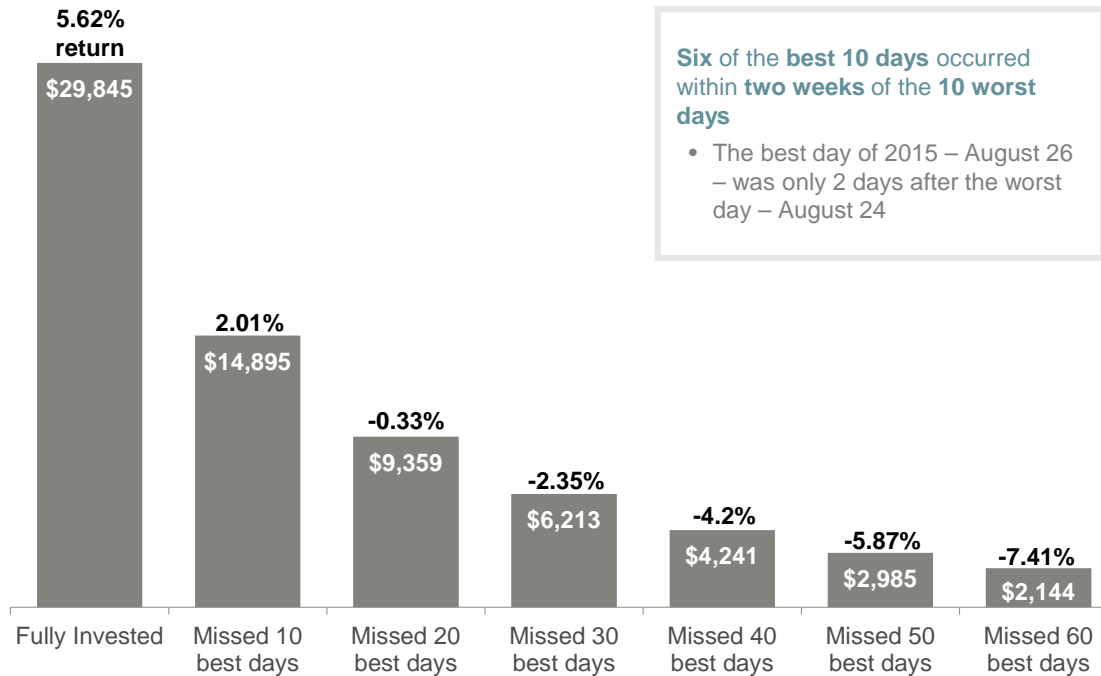
When saving for retirement, the return experienced in the early years has little affect compared to growth achieved through regular savings. However, the rates of return just before and after retirement – when wealth is greatest – can have a significant impact on retirement outcomes.



For return sequence scenarios, see page 39. Hypothetical return scenarios are for illustrative purposes only and are not meant to represent an actual asset allocation. *Spending in retirement chart assumes an initial \$1,000,000 and a 4% withdrawal adjusted annually for inflation of 2%.

Returns of the S&P 500

Performance of a \$10,000 investment between January 4, 1999 and December 31, 2018



Six of the best 10 days occurred within two weeks of the 10 worst days

- The best day of 2015 – August 26 – was only 2 days after the worst day – August 24

PLAN TO STAY INVESTED

Trying to time the market is extremely difficult to do. Market lows often result in emotional decision making. Investing for the long term while managing volatility can result in a better retirement outcome.

Source: J.P. Morgan Asset Management analysis using data from Bloomberg. Returns are based on the S&P 500 Total Return Index, an unmanaged, capitalization-weighted index that measures the performance of 500 large capitalization domestic stocks representing all major industries. Indices do not include fees or operating expenses and are not available for actual investment. The hypothetical performance calculations are shown for illustrative purposes only and are not meant to be representative of actual results while investing over the time periods shown. The hypothetical performance calculations for the respective strategies are shown gross of fees. If fees were included, returns would be lower. Hypothetical performance returns reflect the reinvestment of all dividends. The hypothetical performance results have certain inherent limitations. Unlike an actual performance record, they do not reflect actual trading, liquidity constraints, fees and other costs. Also, since the trades have not actually been executed, the results may have under- or overcompensated for the impact of certain market factors such as lack of liquidity. Simulated trading programs in general are also subject to the fact that they are designed with the benefit of hindsight. Returns will fluctuate and an investment upon redemption may be worth more or less than its original value. Past performance is not indicative of future returns. An individual cannot invest directly in an index. Data as of December 31, 2018.

	Tax-Deductible Contributions / Investments ¹	Tax-Deferred Account Growth	Tax-Free Withdrawals	
Pre-tax 401(k) / Traditional IRA	●	●	—	Taxable (ordinary income tax)
Roth 401(k) / IRA	—	●	●	For qualified withdrawals
After-tax 401(k) / Non-deductible Traditional IRA	—	●	—	Taxable investment returns (ordinary income tax)
<hr/>				
Health Savings Account (HSAs)	●	●	●	For qualified health care expenses

Retirement accounts: Taxes generally apply to contributions or withdrawals. Most withdrawals must be qualified to avoid tax penalties.²

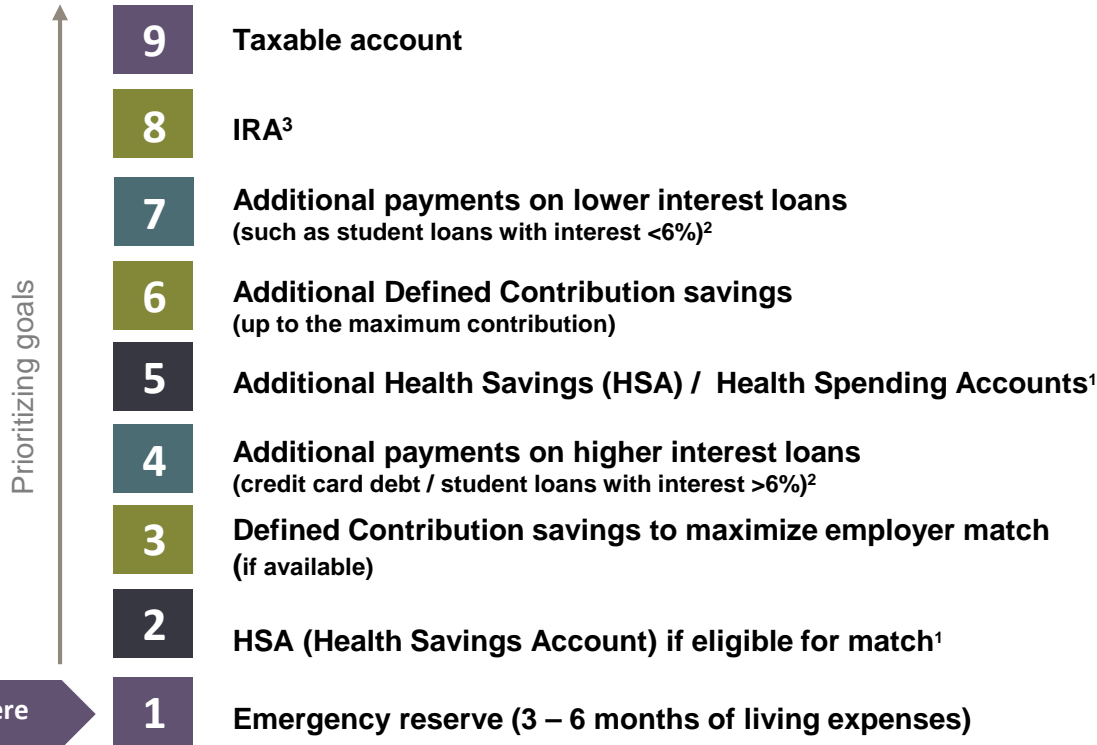
Qualified medical expenses are “triple tax free.”³

Federal taxes; states may differ. This is not intended to be individual tax advice. Consult your tax advisor.

¹ Income and other restrictions may apply to contributions. Not tax deductible may also be referred to as after-tax contributions. Tax penalties usually apply for early withdrawals. Qualified withdrawals are generally those taken over age 59½; qualification requirements for amounts converted to a Roth from a traditional account may differ; for some account types, such as Roth accounts, contributions that are withdrawn may be qualified. See IRS Publications 590 and 560 for more information.

² Withdrawals from after-tax 401(k) and non-deductible IRAs must be taken on a pro-rata basis including contributions and earnings growth. In the case of non-deductible IRAs, all IRAs must be aggregated when calculating the amount of pro-rata contributions and earnings growth.

³ There are eligibility requirements. Qualified medical expenses include items such as prescriptions, teeth cleaning and eyeglasses and contacts for a medical reason. Cosmetic procedures, such as teeth whitening, and general health improvement, such as gym memberships and vitamins, are not qualified expenses. A tax penalty applies on non-qualified distributions prior to age 65. After age 65, taxes must be paid on non-qualified distributions. See IRS Publication 502 for details.



GETTING STARTED

Start with emergency savings and make sure to take advantage of employer matching funds if they are available.

If long-term retirement savings are your objective, leave HSA funds in your account to grow while you fund current health care expenses from other accounts.

- Savings accounts and taxable brokerage accounts
- Tax-advantaged retirement savings accounts
- Additional loan payments / debt reduction
- Tax-advantaged savings for health care expenses

¹ Must have a high-deductible health insurance plan that is eligible to be paired with an HSA. Those taking Social Security benefits age 65 or older and those who are on Medicare are ineligible. Tax penalties apply for non-qualified distributions prior to age 65; consult IRS Publication 502 or your tax advisor.

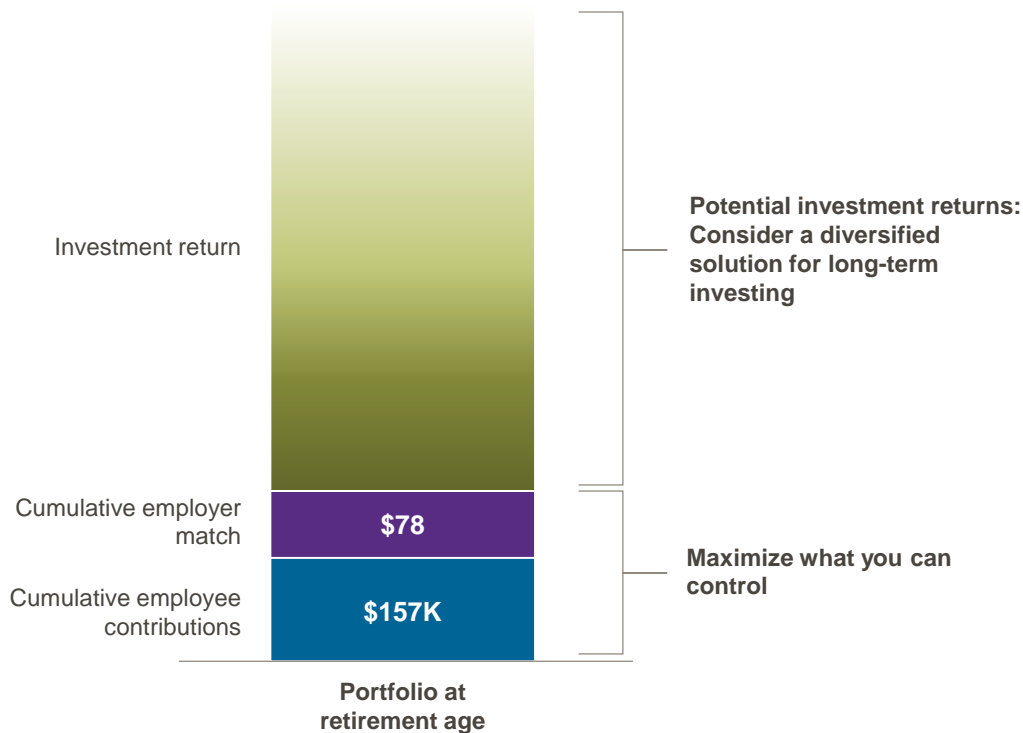
² This assumes savings in a diversified portfolio may earn 6% over the long term. Actual returns may be higher or lower. Generally, consider making additional payments on loans with a higher interest rate than your long-term expected investment return.

³ Income limits may apply for IRAs. If ineligible for these, consider a non-deductible IRA or an after-tax 401(k) contribution. Individual situations will vary; consult your tax advisor.

Source: J.P. Morgan analysis; not intended to be a personal financial plan.

Cumulative growth attributed to contributions, employer match and investment returns

Assumes a long-term, diversified investment portfolio



OPPORTUNITY IS KNOCKING

Open the door by taking advantage of your employer match if available, and consider contributing even more to build your portfolio.

MODEL ASSUMPTIONS

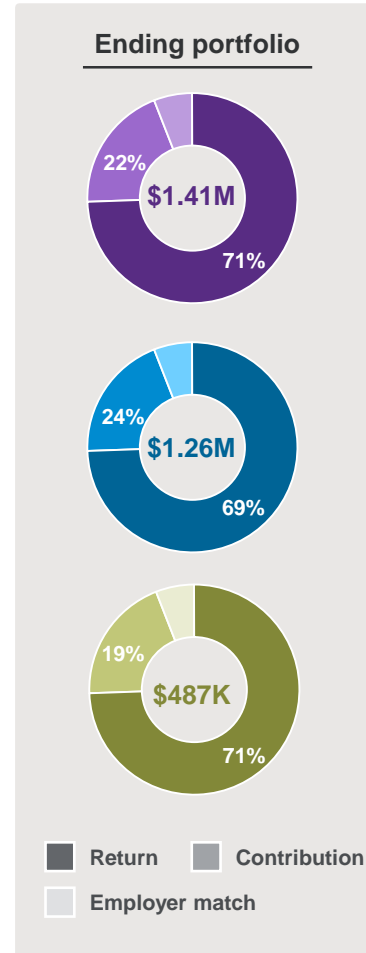
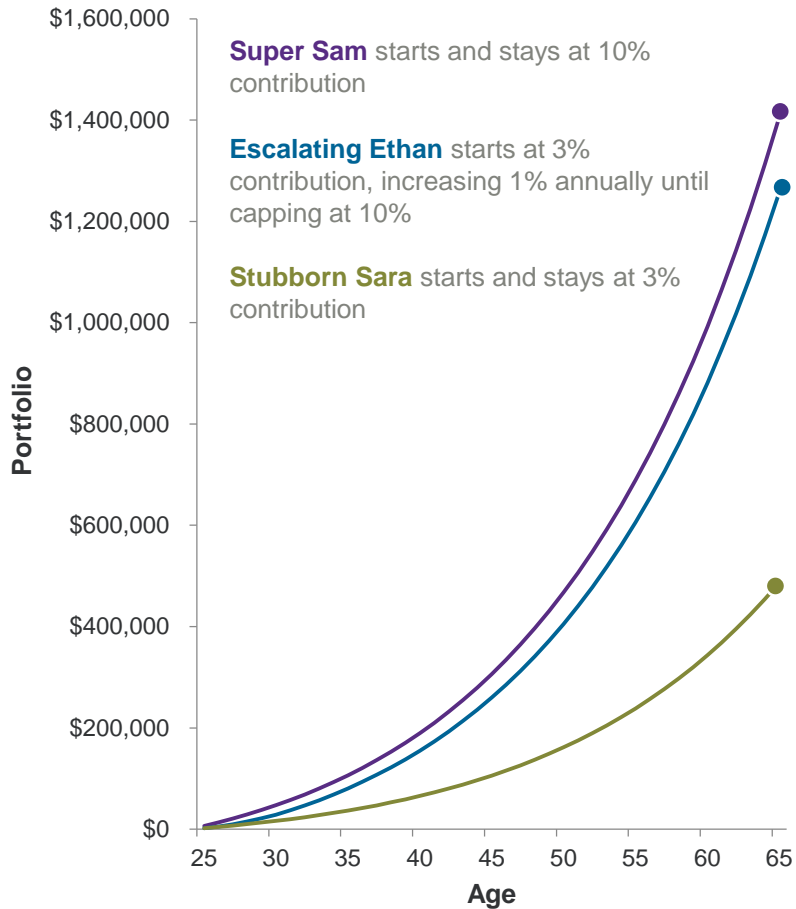
- Start age: 25
- Retirement age: 66
- Starting salary: \$50,000
- Employee contribution: 5.0%
- Employer match: 2.5%

First year employee contribution amount is \$2,500 with an employer match of \$1,250. Inflation and wage growth is 2.0%. Individual is assumed to retire at the end of age 65. Growth of portfolio is tax deferred. Investment return is based on 10,000 simulations of a hypothetical portfolio with an average 6% return over the 40-year time period.

The above example is for illustrative purposes only and not indicative of any investment. Source: J.P. Morgan Asset Management, Long-Term Capital Market Assumptions.

DC

Account growth of auto-escalate vs. a static contribution



MODEL ASSUMPTIONS

Start age: **25**

Retirement age: **66**

Starting wages: **\$50,000**

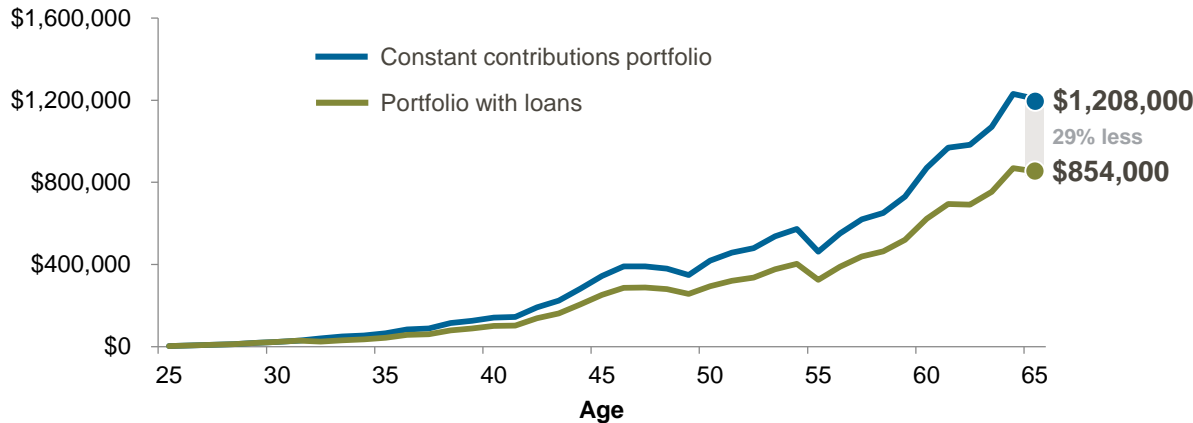
Wage growth: **2.0%**

Assumed annual employer match: **50% of contribution, capped at 3%**

Investment return: **6.0%**

Individual is assumed to retire at the end of age 65. Growth of portfolio is tax deferred; ending portfolio may be subject to tax. The above example is for illustrative purposes only and not indicative of any investment. Source: J.P. Morgan Asset Management, Long-Term Capital Market Assumptions.

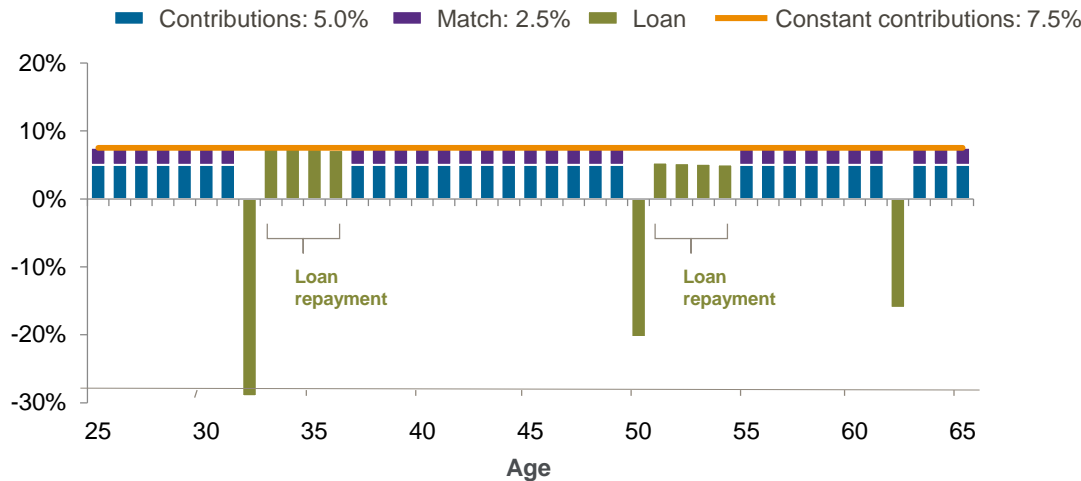
Growth of 401(k) investment



MITIGATE THE EFFECTS OF LOANS

If taking a loan from your 401(k) is unavoidable, try to mitigate the impact by continuing contributions while repaying the loan. It is especially important to ensure you continue to receive an employer match, if available.

Assumed 401(k) contributions



Source: J.P. Morgan Asset Management. For illustrative purposes only. Hypothetical portfolio is assumed to be invested 60% in the S&P 500 and 40% in the Barclays Capital U.S. Aggregate Index from 1978 to 2018. Starting salary of \$30,000 increasing by 2.0% each year.

DC

Federal income tax rates applicable to taxable income

Tax rate	Single filers	Married filing jointly	Capital gains & dividends	Medicare tax on earned income	Medicare tax on investment income	Limits to itemized deductions
10%	Up to \$9,700	Up to \$19,400	0% [up to \$39,375 (single) / \$78,750 (married)]	1.45% (employee portion, employers also pay 1.45%)	0%	-Medical expenses greater than 10% of AGI deductible -SALT (state and local taxes) deduction capped at \$10,000 -Mortgage interest deduction limited to primary/secondary homes with up to \$750,000 new debt. Deduction is allowed on new home equity debt that is used to repair, build or improve upon home.
12%	\$9,700-\$39,475	\$19,400-\$78,950	15% [up to \$434,550 (single) / \$488,850 (married)]			
22%	\$39,475-\$84,200	\$78,950-\$168,400				
24%	\$84,200-\$160,725	\$168,400-\$321,450		2.35% (includes 1.45% employee tax referenced above plus additional 0.90% tax for earned income above MAGI* \$200,000/\$250,000 threshold)	3.80% (additional tax will be levied on lesser of i) net investment income or ii) excess MAGI above \$200,000/\$250,000 thresholds)	--Cash charitable gifts deductible up to 60% of AGI
32%	\$160,725-\$204,100	\$321,450-\$408,200				
35%	\$204,100-\$510,300	\$408,200-\$612,350				
37%	\$510,300 or more	\$612,350 or more	20%			

The personal exemption has been repealed and individual tax rates and personal deductions sunset after 2025 as per the TCJA 2017.

*Modified adjusted gross income (MAGI) is AGI plus amount excluded from income as foreign earned income, tax-exempt interest and Social Security benefit.

Top/tax rates for ordinary income, capital gains and dividend income

Type of gain	Maximum rate	Alternative minimum tax (AMT) exemption**		
		Filing status	Exemption	Exemption phase-out range
Top rate for ordinary income & non-qualified dividends	37%/40.8%*			
Short-term capital gains (assets held 12 months or less)	37%/40.8%*	Single/Head of Household	\$71,700	\$510,300-\$797,100
Long-term capital gains (assets held more than 12 months) & qualified dividends	20%/23.8%*	Married filing jointly	\$111,700	\$1,020,600-\$1,467,400

*Includes top tax rate plus 3.8% Medicare tax on net investment income beyond MAGI threshold.

**The exemption amount is reduced .25 for every \$1 of AMTI (income) above the threshold amount for the taxpayer's filing status.

Federal estate, generation-skipping transfer (GST) tax & gift tax exemption

Top federal estate tax rate	40%
Federal estate, GST & gift tax exemption	\$11.4 million per individual/\$22.8 million per couple*
Annual gift tax exclusion	\$15,000 (\$30,000 per couple)

*Increased levels expire after 2025.

The presenter of this slide is not a tax or legal advisor. This slide is for informational purposes only and should not be relied on as tax or legal advice. Clients should consult their tax or legal advisor before making any tax- or legal-related investment decisions.

	Traditional IRA	Roth IRA	Roth IRA conversion
Maximum contribution 2019	<ul style="list-style-type: none"> \$6,000 (earned income) \$7,000 (age 50 and over)¹ Reduced by Roth IRA contributions 	<ul style="list-style-type: none"> \$6,000 (earned income) \$7,000 (age 50 and over)¹ Reduced by Traditional IRA contributions 	No limit on conversions of Traditional IRAs, SEP IRAs, SIMPLE IRAs (if open 2+ years)
Age limits to contribute	Under 70½ in the year of contribution	None	None
Income phase-out ranges for contribution deductibility	2018 Single: \$63,000-\$73,000 ² Married: \$101,00-\$121,000 ² 2019 Single: \$64,000-\$74,000 ² Married: \$103,000-\$123,000 ²	All contributions are non-deductible	N/A
Phase-out ranges for Roth contribution eligibility	N/A	2018 Single: \$120,000-\$135,000 Married: \$189,000-\$199,000 2019 Single: \$122,000-\$137,000 Married: \$193,000-\$203,000	N/A
Federal tax treatment	<ul style="list-style-type: none"> Investment growth is tax deferred and contributions may be tax deductible. Deductible contributions and investment gains are taxed as ordinary income upon withdrawal. If non-deductible contributions have been made, each withdrawal is taxed proportionately on a pro-rata basis, taking into consideration all contributions made to all Traditional IRAs owned. 	<ul style="list-style-type: none"> Taxes are due upon conversion of account balances not yet taxed. Qualified withdrawals of contributions at any time are tax free and IRS penalty free; converted amounts may be withdrawn tax free.³ Qualified withdrawals of earnings are tax free and IRS penalty free if taken after five years have passed since the account was initially funded and the account owner is age 59½ or older (other exceptions may be applicable). Multiple Roth IRAs are considered one Roth IRA for withdrawal purposes and distributions MUST be withdrawn in a specific order deemed by the IRS that applies regardless of which Roth IRA is used to take that distribution. 	
Early withdrawals	Early withdrawals before age 59½ are generally subject to a 10% IRS penalty unless certain exceptions apply.		
Mandatory withdrawals	Distributions must begin by April 1 of the calendar year following the year the account owner turns age 70½.	None for account owner	None for account owner
Deadline to contribute	2018: April 15, 2019 2019: April 15, 2020	2018: April 15, 2019 2019: April 15, 2020	N/A

¹ Must be age 50 or older by December 31 of the contribution year. IRS Publication 590.

² Assumes participation in an employer's retirement plan. No income limits apply when investors and spouses are not covered by a retirement plan at work. Income limits based on MAGI. For the definition of MAGI, please see slide 47.

³ Distributions from a conversion amount must satisfy a five-year investment period to avoid the 10% penalty. This pertains only to the conversion amount that was treated as income for tax purposes. The presenter of this slide is not a tax or legal advisor. Clients should consult a personal tax or legal advisor prior to making any tax- or legal-related investment decisions. IRS Publication 590.

Type of Retirement Account	Specifics	2018	2019
401(k), 403(b), 457(b)	401(k) elective deferral limit/catch-up contribution (age 50 and over)	\$18,500/\$24,500	\$19,000/\$25,000
	Annual defined contribution limit	\$55,000	\$56,000
	Annual compensation limit	\$275,000	\$280,000
	Highly compensated employees	\$120,000	\$125,000
	403(b)/457 elective deferrals/catch-up contribution (age 50 and over)	\$18,500/\$24,500	\$19,000/\$25,000
SIMPLE IRA	SIMPLE employee deferrals/catch-up deferral (age 50 and over) ¹	\$12,500/\$15,500	\$13,000/\$16,000
SEP IRA	Maximum contribution ²	\$55,000	\$56,000
	SEP minimum compensation	\$600	\$600
	SEP annual compensation limit	\$275,000	\$280,000
Health Savings Accounts (HSAs)	Maximum contribution amount/over age 55	Single: \$3,450/\$4,450 Family: \$6,900/\$7,900	Single: \$3,500/\$4,500 Family: \$7,000/\$8,000 ³
	Minimum deductible	Single: \$1,350 Family: \$2,700	Single: \$1,350 Family: \$2,700
	Maximum out-of-pocket expenses	Single: \$6,650 Family: \$13,300	Single: \$6,750 Family: \$13,500
Social Security	Wage base	\$128,400	\$132,900
	Maximum earnings test exempt amounts under FRA for entire calendar year/during year of FRA ⁴	\$17,040 /year \$45,360 /year	\$17,640 /year \$46,920 /year
	Maximum Social Security benefit at FRA	\$2,788 /month	\$2,861 /month
Defined benefit – Maximum annual benefit at retirement		\$220,000	\$225,000

¹ Employer may either match employee's salary reduction contributions dollar for dollar up to 3% of employee's compensation or make non-elective contributions equal to 2% of compensation up to \$280,000 (2019). IRS Pub. 560.

² Employer contributions may not exceed \$56,000 or 25% of compensation (2019). Other rules apply for self-employed individuals. IRS Pub. 560.

³ Internal Revenue Procedure 2018-27, April 26, 2018 and Internal Revenue Procedure 2018-30, May 10, 2018.

⁴ In calendar years before FRA, benefit reduced \$1 for every \$2 of earned income above the limit; during year of FRA, benefit reduced \$1 for every \$3 of earned income in months prior to FRA. SSA.gov as of 2/7/2019.

There are typically four options to consider when leaving an employer's retirement plan, each with its benefits and considerations. Converting a portion of tax-deferred assets to a Roth IRA may be a fifth option to consider in certain circumstances described below.

Options	Potential benefits	Considerations
Roll the retirement account into an IRA account (IRA rollover) (May also roll the Roth 401(k) portion of a retirement account into a Roth IRA)	<ul style="list-style-type: none"> No income taxes or penalties for a direct rollover¹ Assets maintain tax-deferred status Ability to make additional contributions subject to income limitations² Potential for a broader range of investment choices Opportunity to consolidate multiple retirement accounts If balance includes employer stock, may be eligible for preferable tax treatment (Net Unrealized Appreciation) if the stock is not rolled over³ 	<ul style="list-style-type: none"> Loans are not allowed Fees may vary, and may be higher than what is charged in an employer plan
Leave the money in former employer plan	<ul style="list-style-type: none"> Not a taxable event Assets maintain tax-deferred status If you are at least age 55 and are separated from service, you may be able to take withdrawals without penalties Fees may be lower depending on plan size 	<ul style="list-style-type: none"> Investment options vary according to the plan and may be more limited Ability to leave assets in the plan as well as ongoing plan options are subject to policies and contractual terms of the plan Some plans may not provide periodic payments to retirees
Move the assets into a new employer plan	<ul style="list-style-type: none"> No income taxes or penalties for a direct rollover¹ Assets maintain tax-deferred status New employer plan may allow loans Ability to make additional contributions potentially with a company match Fees may be low based on plan and size of employer (number of participants) 	<ul style="list-style-type: none"> Investment options vary according to the plan and may be more limited Assets are subject to policies or terms of new employer plan
Withdraw balance of assets or "cash out" of plan	<ul style="list-style-type: none"> Individual may use remaining funds (after taxes and potential penalties) for other purposes 	<ul style="list-style-type: none"> Upon withdrawal, account balance is subject to ordinary income tax on pre-tax contributions and investment earnings 20% automatically withheld for taxes upon distribution Additional 10% withdrawal penalty tax may apply for owners younger than age 59½ Additional federal, state or local income taxes may apply Loss of tax-deferred growth of assets
Convert all or part of retirement account into Roth IRA (Roth IRA conversion)	<ul style="list-style-type: none"> May provide income tax diversification in retirement After taxes are paid at conversion, future distributions are tax free⁴ Required minimum distributions do not apply at 70½ 	<ul style="list-style-type: none"> The pre-tax amount is included in gross income in the year of conversion (and is subject to the aggregation rule) Sufficient taxable assets to pay income taxes owed is strongly recommended

¹ In a direct rollover, qualified retirement assets are transferred directly from the former employer plan to the institution holding the new IRA or plan account, and no taxes or penalties will apply. If an owner chooses to receive the plan assets first, the distribution is subject to 20% mandatory withholding and the entire amount of the distribution must be deposited into a new plan or IRA account within 60 days of receipt to avoid further potential taxes and penalties.

² Subject to IRA contribution limits: \$6,000 in 2019 (\$7,000 if age 50 or older); single filers may make Roth contributions if MAGI is \$120,000 or below; married filing jointly if MAGI is \$189,000 or below; phase-outs on contributions thereafter.

³ With the Net Unrealized Appreciation (NUA) strategy, an employee may transfer the employer stock portion of a retirement account to a brokerage account. The employee pays ordinary income tax on the cost basis of the stock at the time of transfer, but will owe capital gains tax when he/she later sells the stock.

⁴ Subject to 5-year Roth account holding period and age requirements.

Understanding annuities: Which annuity may be right for you?

	RISK TOLERANCE	CONTRACT GROWTH AND PAYOUT	TYPE OF ANNUITY	CHARACTERISTICS
INCOME NOW	Low	Fixed rate of growth Fixed income payout	Single Premium Immediate Annuity (SPIA)	Single premium purchase payment
INCOME LATER⁴	Low	Fixed rate of growth Fixed income payout	Deferred Rate Annuity	Purchase payments grow at a fixed or market rate for a specified period of time
			Deferred Income Annuity (DIA)	Often purchased to provide income in late retirement years ¹
			Qualified Longevity Annuity Contract (QLAC)	May transfer the lesser of 25% or \$130,000 from retirement account to fund annuity; this amount exempt from RMDs at age 70½ Must begin distributions by age 85 or as specified by contract
	Low/ Moderate	Variable rate of growth Variable payout with fixed minimum	Fixed Indexed Annuity (FIA)	Account growth is tied to a particular index (i.e. S&P 500) with a cap on growth in exchange for downside protection ² Most contracts provide guaranteed minimum fixed growth
INCOME LATER OR NEVER⁴	Moderate	Variable rate of growth Variable income with no guaranteed minimum payout ³	Variable Annuity (VA)	Purchase payments are invested in subaccounts like mutual funds Guaranteed living benefits ("GLBs") ³ may be available for additional cost to provide minimum guaranteed account growth and/or minimum guaranteed retirement income
			Investment Only Variable Annuity (IOVA)	Purchase payments invested in a variety of subaccounts, including alternatives and hedge funds Used for tax deferral, estate planning and asset location
	Moderate/ High	Variable rate of growth Variable income with no guaranteed minimum payout ³		

¹ DIAs are also known as longevity annuities and purchased during healthy years to provide income in later years when illness, dementia or other disability may set in and hinder sound income planning decisions. ² Some contracts contain caps on growth and limit gains attributable to account based on participation rate or other factors. ³ Guaranteed living benefits and death benefits may be available with certain fixed and variable annuity products at additional cost. ⁴ While non-qualified annuities are not generally subject to RMDs, state laws requiring contract annuitization may apply.

All guarantees are based on the claims-paying ability of the issuing insurance company. When evaluating the purchase of a variable annuity, clients should be aware that variable annuities are long-term investment vehicles designed for retirement purposes and will fluctuate in value; annuities have limitation; and investing involves market risk, including the possible loss of principal.

Unless otherwise indicated, all illustrations are shown in U.S. dollars.

Past performance is no guarantee of comparable future results.

Diversification does not guarantee investment returns and does not eliminate the risk of loss.

Indexes are unmanaged and an individual cannot invest directly in an index. Index returns do not include fees or expenses.

The **S&P 500 Index** is widely regarded as the best single gauge of the U.S. equities market. This world-renowned index includes a representative sample of 500 leading companies in leading industries of the U.S. economy. Although the S&P 500 Index focuses on the large cap segment of the market, with approximately 75% coverage of U.S. equities, it is also an ideal proxy for the total market. An investor cannot invest directly in an index.

The **Barclays Capital U.S. Aggregate Index** represents securities that are SEC-registered, taxable and dollar denominated. The index covers the U.S. investment-grade fixed rate bond market, with index components for government and corporate securities, mortgage pass-through securities and asset-backed securities. These major sectors are subdivided into more specific indexes that are calculated and reported on a regular basis.

Bonds are subject to interest rate risks. Bond prices generally fall when interest rates rise.

The price of **equity** securities may rise or fall because of changes in the broad market or changes in a company's financial condition, sometimes rapidly or unpredictably. These price movements may result from factors affecting individual companies, sectors or industries, or the securities market as a whole, such as changes in economic or political conditions. Equity securities are subject to "stock market risk," meaning that stock prices in general may decline over short or extended periods of time.

Investing in **alternative assets** involves higher risks than traditional investments and is suitable only for sophisticated investors. Alternative investments involve greater risks than traditional investments and should not be deemed a complete investment program. They are not tax efficient and an investor should consult with his/her tax advisor prior to investing. Alternative investments have higher fees than traditional investments and they may also be highly leveraged and engage in speculative investment techniques, which can magnify the potential for investment loss or gain. The value of the investment may fall as well as rise and investors may get back less than they invested.

Opinions and estimates offered constitute our judgment and are subject to change without notice, as are statements of financial market trends, which are based on current market conditions. We believe the information provided here is reliable, but do not warrant its accuracy or completeness. References to future returns are not promises or even estimates of actual returns a client portfolio may achieve.

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