

UNDERSTANDING SAFE WITHDRAWAL RATES

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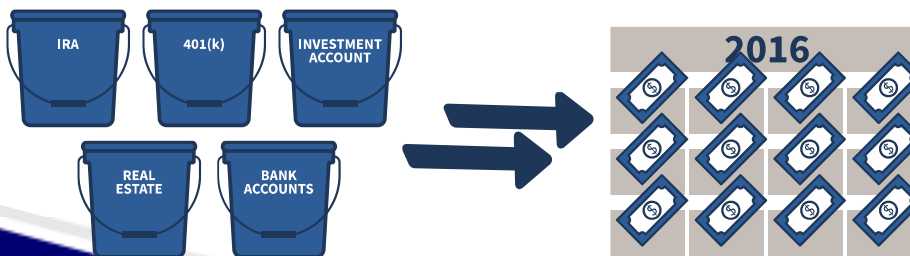
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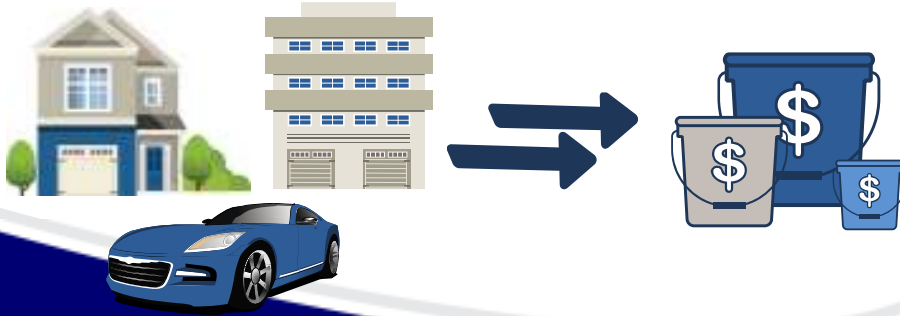
BASICS OF SAFE WITHDRAWAL RATES

- Fundamental client questions:
 - How much can I safely spend from this portfolio without needing to worry about the markets?



BASICS OF SAFE WITHDRAWAL RATES

- Fundamental client questions:
 - If I want to spend \$XXX, how much money do I need in the account to safely retire?

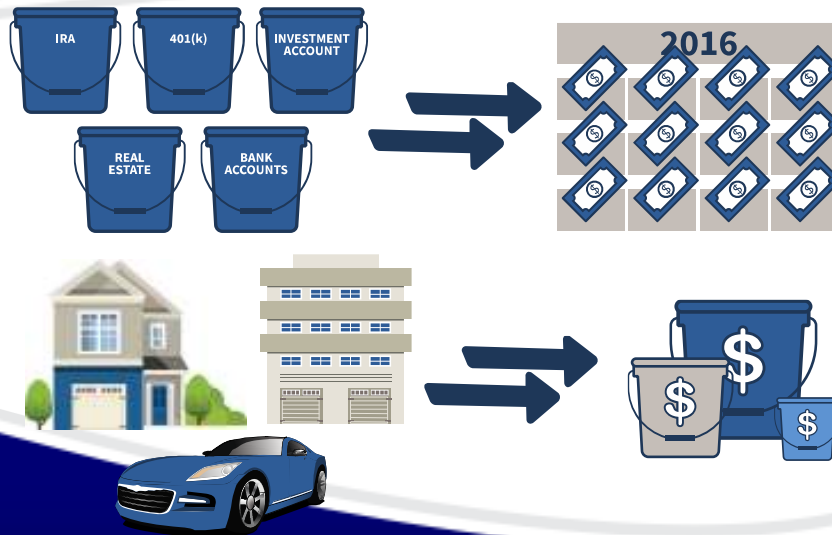


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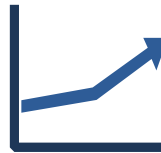
BASICS OF SAFE WITHDRAWAL RATES



BOND COUPONS



DIVIDENDS



CAPITAL GAIN



PRINCIPAL

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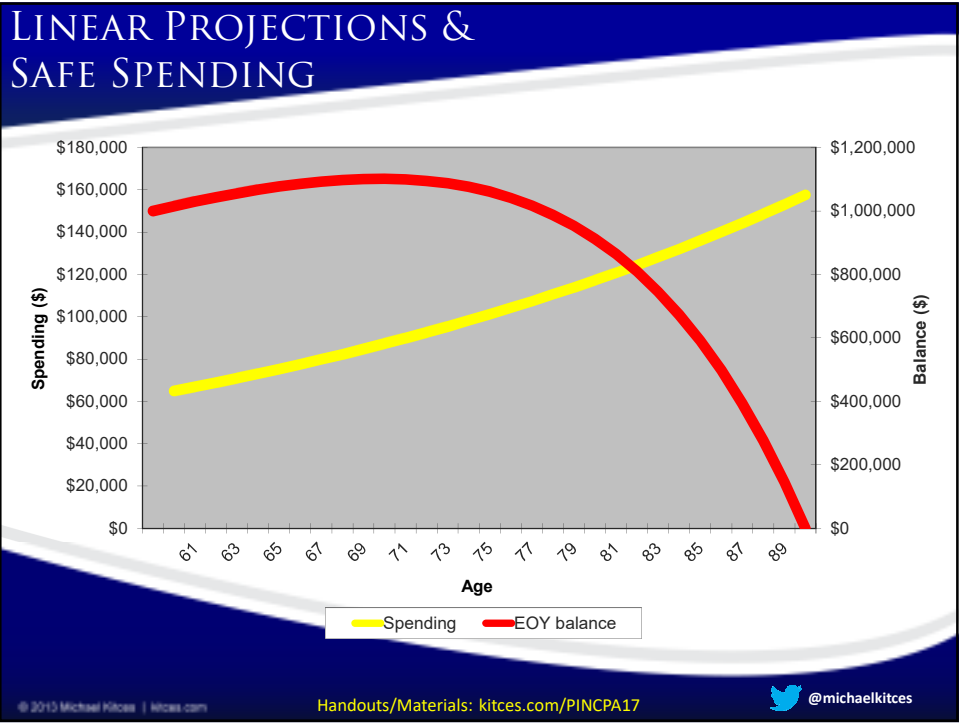
LINEAR PROJECTIONS & SAFE SPENDING

- Case example:
 - 60-year-old retiree for 30-year retirement
 - Inflation assumed to be 3%
 - 60% stocks, 40% bonds (rebalanced annually)
 - Stocks assumed to earn 10% (real 7%)
 - Bonds assumed to earn 5% (real 2%)
 - Average portfolio return 8% (real 5%)
 - Initial portfolio of \$1,000,000

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LINEAR PROJECTIONS & SAFE SPENDING

Year	Initial Balance	Portfolio Growth	Portfolio Withdrawal	End of Year Balance
1	\$1,000,000	\$80,000	(\$65,895)	\$1,014,105
2	\$1,014,105	\$81,128	(\$67,872)	\$1,027,362
3	\$1,027,362	\$82,189	(\$69,908)	\$1,039,643
4	\$1,039,643	\$83,171	(\$72,005)	\$1,050,810
5	\$1,050,810	\$84,065	(\$74,165)	\$1,060,709
6	\$1,060,709	\$84,857	(\$76,390)	\$1,069,176
7	\$1,069,176	\$85,534	(\$78,682)	\$1,076,028
8	\$1,076,028	\$86,082	(\$81,042)	\$1,081,068
9	\$1,081,068	\$86,485	(\$83,474)	\$1,084,080
10	\$1,084,080	\$86,726	(\$85,978)	\$1,084,828
11	\$1,084,828	\$86,786	(\$88,557)	\$1,083,057
12	\$1,083,057	\$86,645	(\$91,214)	\$1,078,488
13	\$1,078,488	\$86,279	(\$93,950)	\$1,070,817
14	\$1,070,817	\$85,665	(\$96,769)	\$1,059,714
15	\$1,059,714	\$84,777	(\$99,672)	\$1,044,819
16	\$1,044,819	\$83,586	(\$102,662)	\$1,025,742
17	\$1,025,742	\$82,059	(\$105,742)	\$1,002,060
18	\$1,002,060	\$80,165	(\$108,914)	\$973,311
19	\$973,311	\$77,865	(\$112,181)	\$938,994
20	\$938,994	\$75,120	(\$115,547)	\$898,567
21	\$898,567	\$71,885	(\$119,013)	\$851,439
22	\$851,439	\$68,115	(\$122,584)	\$796,970
23	\$796,970	\$63,758	(\$126,261)	\$734,466
24	\$734,466	\$58,757	(\$130,049)	\$663,175
25	\$663,175	\$53,054	(\$133,951)	\$582,278
26	\$582,278	\$46,582	(\$137,969)	\$490,891
27	\$490,891	\$39,271	(\$142,108)	\$388,054
28	\$388,054	\$31,044	(\$146,371)	\$272,727
29	\$272,727	\$21,818	(\$150,763)	\$143,783
30	\$143,783	\$11,503	(\$155,285)	\$0

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LINEAR PROJECTIONS & SAFE SPENDING

- Question: How much can be safely spent?
- Answer: \$65,895, or about 6.6%

- Is 6.6% the “safe withdrawal rate”?
 - Safe withdrawal rate versus Initial withdrawal rate

- Primary Challenge:
 - Assumes returns are the same each and every year

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RETURN SEQUENCING

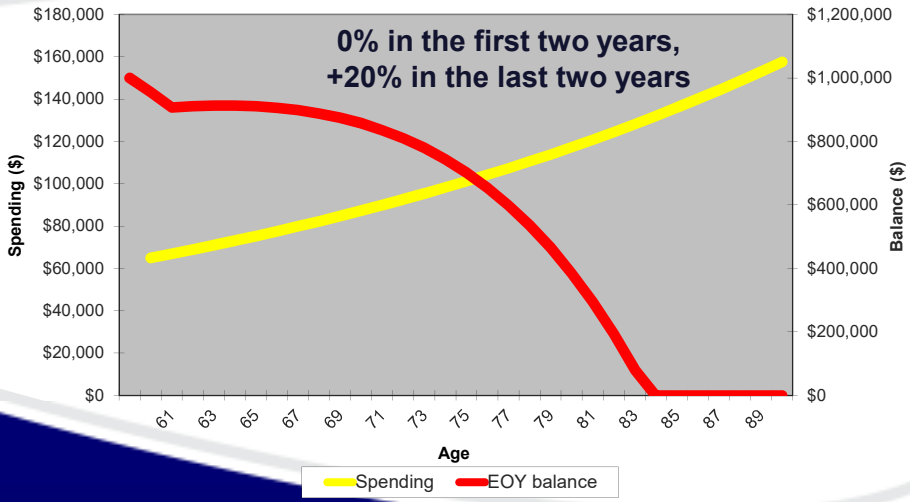
- Consequences of return sequencing:
 - What happens if the *average* return of stocks is 10%, but the returns vary from year to year?
 - What if the first two years are 0%, and the last two are 20%?
 - What if the first two years are 20%, and the last two are 0%?

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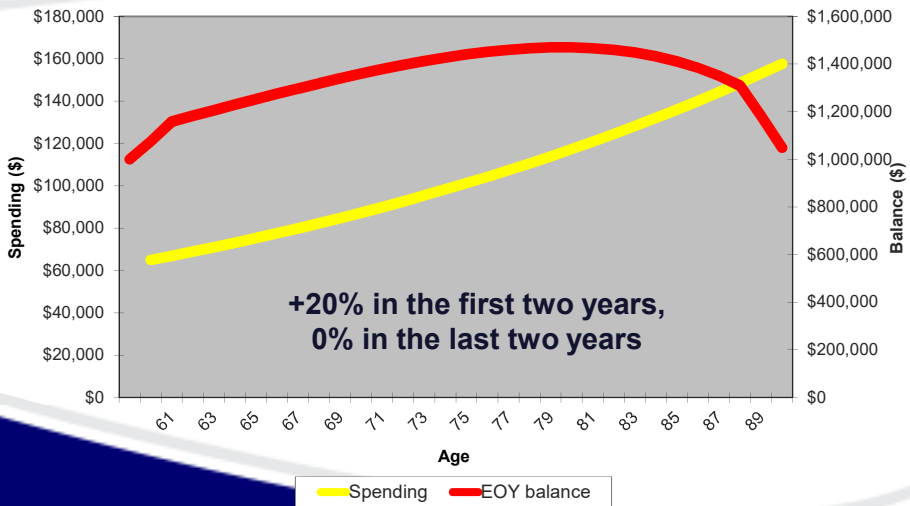


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LINEAR PROJECTIONS & SAFE SPENDING



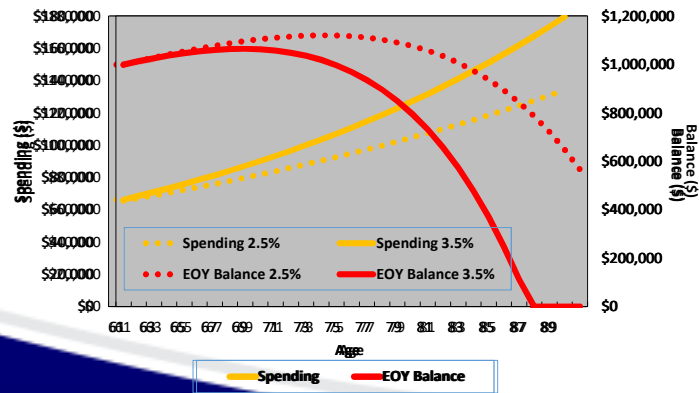
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RETURN SEQUENCING

- Consequences of return sequencing:
 - What happens if inflation varies as well?



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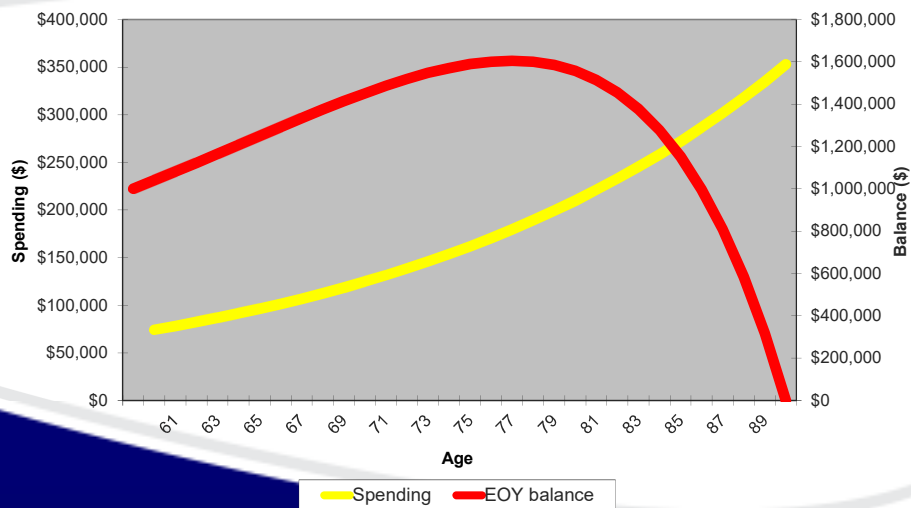
- Retiree environment from 1969 to 1999
 - Inflation: 5.33%
 - Equities (S&P 500): 13.39% (8.06% real)
 - Bonds (5-year Treas.): 8.62% (3.29% real)
- What is the (linear) safe withdrawal rate?
 - 60% equities, 40% fixed portfolio
 - Average portfolio return: 11.48%

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LINEAR PROJECTIONS & SAFE SPENDING



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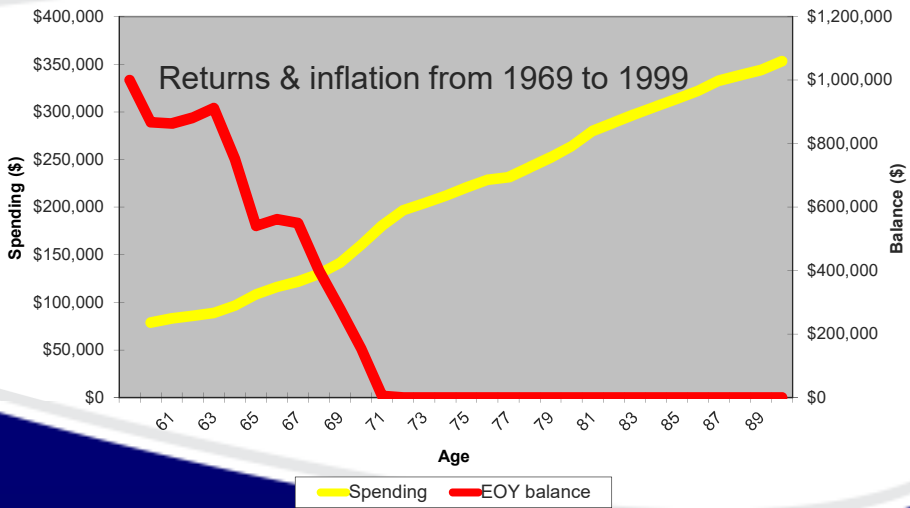
- Question: How much can be safely spent with 1969-1999 returns?
- Answer: \$74,308, or about 7.4%!
- What happens when we take into account the order of returns and inflation?

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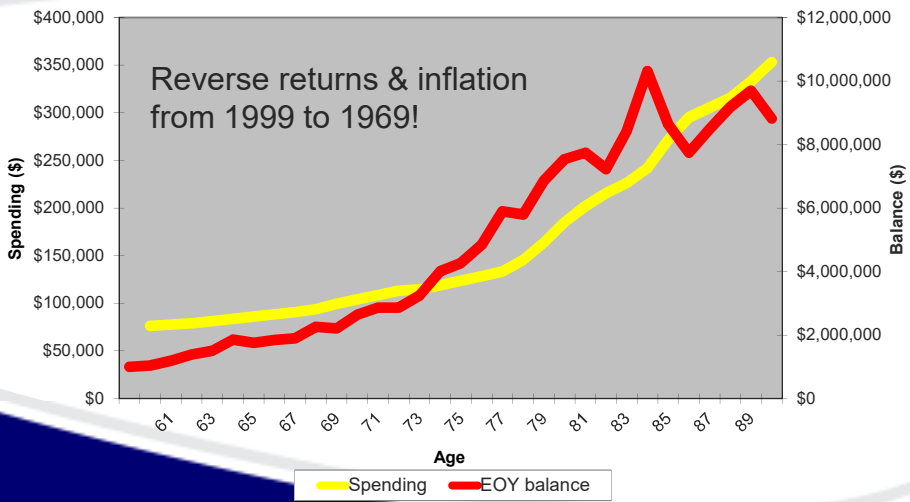


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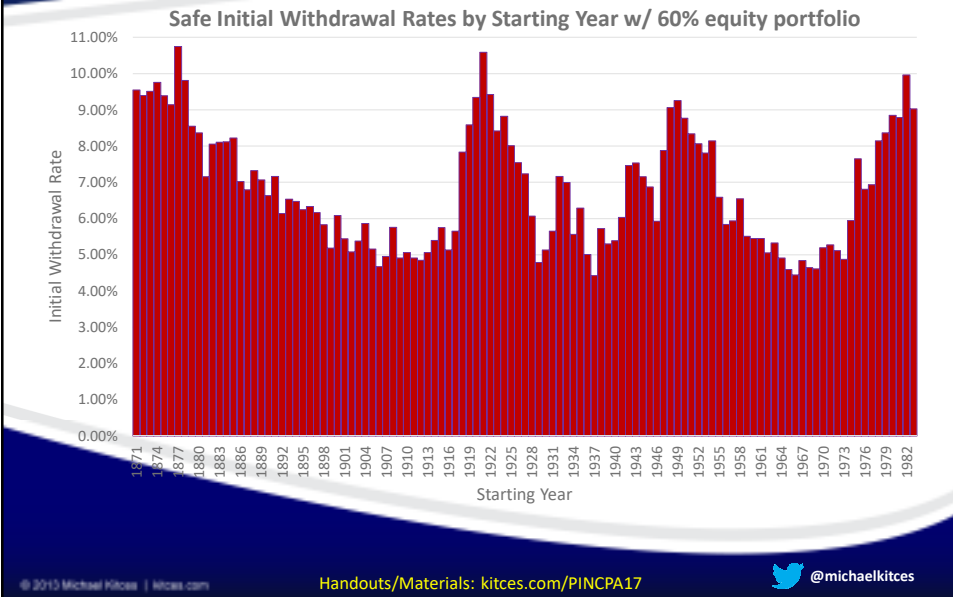
RETURN SEQUENCING

- The sequences of returns matter, a lot!
- Disparities in the early years have a magnified effect over time!
- The extent of volatility matters too!

CURRENT RESEARCH ON SAFE WITHDRAWAL RATES

- The challenge of safe withdrawal rates:
 - Given the impact of volatility, how much of a “safety margin” is necessary?
 - Given historical market returns, how high of a withdrawal rate would have survived any historical market scenario?
 - What is the optimal portfolio allocation to survive the volatility?
- Research:
 - Determine which portfolio mixes sustained what maximum withdrawal rates over rolling historical time periods or using Monte Carlo analysis

CURRENT RESEARCH ON SAFE WITHDRAWAL RATES



CURRENT RESEARCH ON SAFE WITHDRAWAL RATES

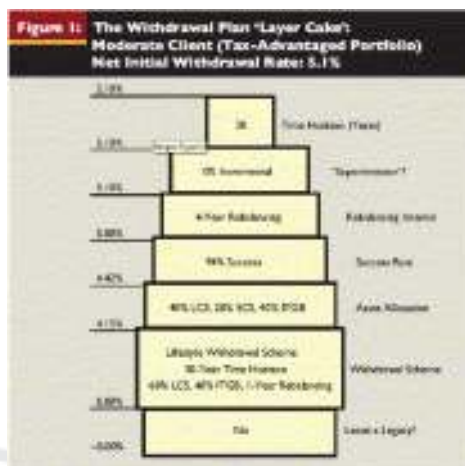
- The challenge of safe withdrawal rates:
 - Given the impact of volatility, how much of a “safety margin” is necessary?
 - ~2% less than the historical average
 - Given the historical returns of the markets, how high of a withdrawal rate would have survived any historical market scenario?
 - ~4% - 4.5% of the initial account balance
 - What is the optimal portfolio allocation to survive the volatility?
 - ~60% in equities (varying from 40%-70% in some studies)

SAFE WITHDRAWAL RATES

- Adjustments to Safe Withdrawal Rates
 - Fees / Alpha
 - Taxes
 - Time Horizon
 - Diversification
 - Spending Flexibility
 - Risk Tolerance
 - Valuation & Tactical Shifts
 - Legacy/Longevity Hedging

SAFE WITHDRAWAL RATES

- Baking the SWR “layer cake”
 - Bengen (2006):
Withdrawal rate factors can be stacked to adjust overall SWR
 - May be positive or negative adjustments



SAFE WITHDRAWAL RATES

- Current research summary:

Base Withdrawal Rate	4.0% - 4.5%
Adjustments	
Fees/Alpha	-1% to 1%
Taxes	-0.25% to -0.75%
Legacy/Longevity Hedge	0% to -0.4%
Time Horizon	-0.5% to 1%
Diversification	0.5% to 1%
Spending Flexibility	0% to 1%
Risk Tolerance	0% to 1%
Valuation Environment	0% to 1%
Tactical Asset Allocation	0% to 0.2%
Final Withdrawal Rate	Sum Total of Adjustments

SAFE WITHDRAWAL RATES

- Sample scenario:
 - Conservative client couple
 - Pays fees of 1.2%
 - Assuming no alpha creation
 - Moderate tax rate of 15% on capital gains and 25% on ordinary income; all taxable accounts
 - Couple is already late 60s; planning 25-year time horizon
 - Extensive diversification across asset classes

SAFE WITHDRAWAL RATES

- Sample scenario (con't):
 - Couple has some spending flexibility in discretionary expenses if market declines
 - But doesn't want to increase likelihood of spending adjustments even further
 - Valuation environment and interest rates are moderate relative to historical standards
 - Couple is willing to make tactical adjustments to protect against high-risk environments
 - Couple would like to leave at least full principal as legacy (and to serve as safety margin)

SAFE WITHDRAWAL RATES

- Sample client couple scenario:

Base Withdrawal Rate	4.0%
Negative Adjustments	
1.2% fees	-0.4%
Moderate Taxes	-0.5%
Legacy/Longevity Hedge	-0.25%
Positive Adjustments	
25-year Time Horizon	0.5%
Significant Diversification	0.75%
Some Spending Flexibility	0.5%
Moderate Valuation/Rates	0.5%
Tactical Asset Allocation	0.2%
Final Withdrawal Rate	5.3%

SAFE WITHDRAWAL RATES

- Important Caveats
 - Unclear whether all factors are additive
 - May be some interaction effects?
 - Not all factors have been fully tested
 - The future can always be different?
 - Some clients have materially uneven spending
 - E.g., onset of Social Security for an age-55 retiree?
 - Monte Carlo ultimately necessary for such scenarios

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SAFE WITHDRAWAL RATES

- Summary
 - Safe withdrawal rate research has been expanded significantly over the past 20 years
 - Adjusting factors based on client-specific circumstances can greatly refine recommendations
 - Can be an effective anchor for setting reasonable client expectations
 - Monte Carlo analysis and other tools may still be necessary for further refinement for unusual situations
 - In many situations, though, safe withdrawal rates with adjustments may be more than accurate enough!

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