

**Safe Withdrawal Rates:
Linking Assets and Income**

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Safe Withdrawal Rates

■ **Outline:**

- Linear projections and safe spending
- The important of return sequence
- Volatility and average rates of return
- Current research on safe withdrawal rates
- Uses/applications of safe withdrawal rates
- Caveats to beware of

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Safe Withdrawal Rates
Linear Projections & Safe Spending

■ **Fundamental client questions:**

- How much can I safely spend from this portfolio without needing to worry about the markets?
- If I want to spend \$XXX, how much money do I need in the account to safely retire?

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Safe Withdrawal Rates

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
- Question: How much can be safely spent?

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Safe Withdrawal Rates

Linear Projections & Safe Spending

- Question: How much can be safely spent?
 - 60% stocks, 40% bonds (rebalanced annually)
 - Average portfolio return: 8.0%
- Answer...
 - Reduces account balance to \$0 at end of 30 year time horizon

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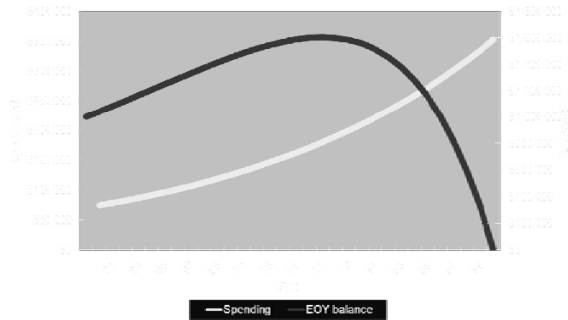


Safe Withdrawal Rates Return Sequencing

- 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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Safe Withdrawal Rates Linear Projections & Safe Spending

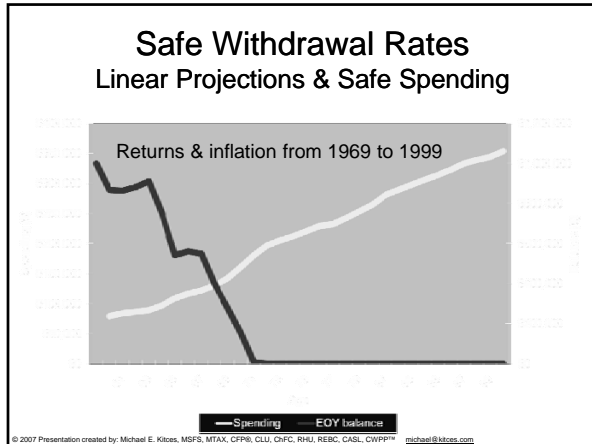


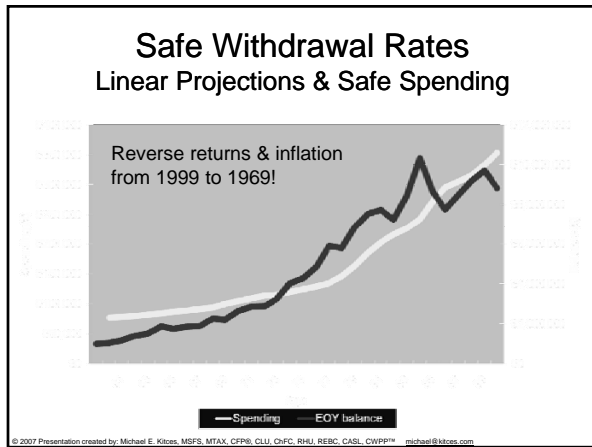
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Safe Withdrawal Rates Linear Projections & Safe Spending

- 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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Safe Withdrawal Rates 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!

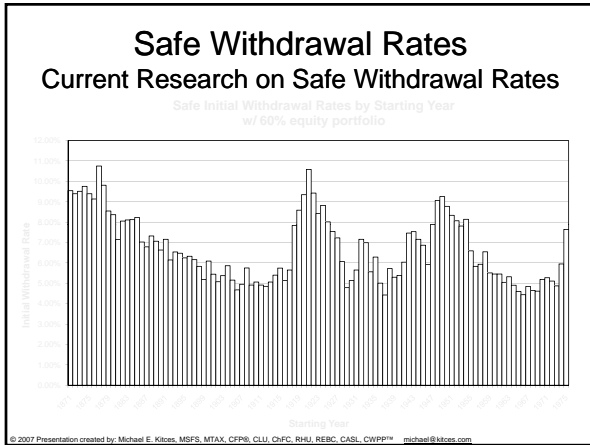
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Safe Withdrawal Rates

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?
 - Given the historical returns of the markets, 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

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Safe Withdrawal Rates

Current Research on Safe Withdrawal Rates

- Initial work by Bengen (1994) suggested that a safe withdrawal rate for a 30-year retirement period is around 4.1% with a balanced portfolio
 - Lower equity exposures can only sustain significantly lower withdrawals
 - Higher equity exposures are produce slightly less sustainable spending, albeit with higher final average balances
- Also supported by Cooley, Hubbard, & Walz (1998), although they suggest that 4% is still highly conservative and suggest rates as high as 5%-6% depending on assumptions
- Similar supporting information from Ameriks, Veres, & Warshawsky showing modest failure rates at 4.5% withdrawal rates

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Safe Withdrawal Rates
Current Research on Safe Withdrawal Rates

- Greater diversification suggests the possibility of higher withdrawal rates
 - Bengen (2006 book) suggests withdrawal rates can increase 0.3% - 0.5% with addition of small cap portfolios
 - Cassaday (2006) suggests withdrawal rates as much as 3% higher using broadly diversified portfolios (including real estate and commodities)
 - Ervin et. al. (2005) suggest that international diversification can also boost safe withdrawal rates

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Safe Withdrawal Rates
Current Research on Safe Withdrawal Rates

- Guyton & Klinger (2006)
 - Journal of Financial Planning, March 2006
- Rules-based simulations
 - Portfolio management rule
 - Liquidate from excess equities, then excess fixed, then cash, etc.
 - No equity withdrawals following negative years
 - Freeze rule – no increase when portfolio return was negative if new withdrawal rate would be higher than initial rate
 - Capital preservation rule – withdrawal is reduced by 10% if the current year's withdrawal rate has risen 20%
 - Prosperity rule – withdrawal is increased by 10% if the current year's withdrawal rate has fallen 20%

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Safe Withdrawal Rates
Current Research on Safe Withdrawal Rates

- Guyton & Klinger (2006) – 30-year horizon

Portfolio	W/D rate @ 99%	Cuts/Freezes /Raises	W/D rate @ 95%	Cuts/Freezes /Raises
50/40/10	4.6%	2/6/5	4.9%	2/6/5
65/25/10	5.2%	2/6/7	5.9%	3/7/6
80/10/10	4.7%	2/6/9	5.7%	3/6/8
50/40/10M	4.6%	1/4/4	4.9%	1/4/4
65/25/10M	5.4%	1/5/5	5.7%	2/5/4
80/10/10M	5.4%	2/5/7	6.2%	2/5/6

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Safe Withdrawal Rates

Current Research on Safe Withdrawal Rates

- Current research summary for 30-year periods:
 - Basic safe withdrawal rate: 4.1%
 - Safe withdrawal rate with increased diversification: 4.5% - 5.0% (or higher?)
 - Safe withdrawal rate with rules-based potential future reductions: 5.2% - 5.4% (or higher?)
 - All approaches above inherently allow for spending increases at some point, whether via rules-based approach or by subjective ongoing adjustment.

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Safe Withdrawal Rates

Uses/Applications of Safe Withdrawal Rates

- Answering client questions:
 - How much can I safely spend from this portfolio without needing to worry about the markets?
 - If I want to spend \$XXX, how much money do I need in the account to safely retire?
 - If I'm willing to cut my spending in the future with bad markets, how much more can I spend?
- Inherent conservatism – in all but the actual worst scenario, an account balance will remain for longer lifetimes

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Safe Withdrawal Rates

Uses/Applications of Safe Withdrawal Rates

- How much can I safely spend from this portfolio without needing to worry about the markets?
 - Safe withdrawal rate: 4.5%
 - Account balance: \$1,000,000
 - Safe spending = \$1,000,000 x 4.5% =

\$45,000/year

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Safe Withdrawal Rates
Uses/Applications of Safe Withdrawal Rates

- If I want to spend \$48,000, how much money do I need in the account to safely retire?
 - Safe withdrawal rate: 4.5%
 - Target spending: \$48,000
 - Required account balance = $\$48,000 / 4.5\% =$

\$1,066,667 account balance

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Safe Withdrawal Rates
Uses/Applications of Safe Withdrawal Rates

- If I'm willing to cut my spending in the future with bad markets, how much more can I spend?
 - Safe withdrawal rate: 5.2%
 - Account balance: \$1,000,000
 - Safe retirement spending = $\$1,000,000 \times 5.2\% =$

\$52,000/year

- Be prepared to monitor and make adjustments if necessary! And be certain client can manage spending cuts!

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Safe Withdrawal Rates
Uses/Applications of Safe Withdrawal Rates

- Integrating with other income components
 - Safe withdrawal rates are based on cash flows from a portfolio
 - Can be additive to other retirement income sources
 - Social Security
 - Pensions
 - Total income picture may be a combination, but the safe withdrawal rate approach still fills in the income needs gap

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Safe Withdrawal Rates

Uses/Applications of Safe Withdrawal Rates

- Prospective planning
 - Identify the retirement income goal
 - Adjust the spending amount for future (inflated) dollars
 - Determine the lump sum necessary to support the cash flow
 - Calculate the savings plan needed to accumulate the target goal

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Safe Withdrawal Rates

Uses/Applications of Safe Withdrawal Rates

- Prospective planning
 - Retirement goal of \$3,000/month in 20 years
 - Social Security will cover \$1,500/month of it
 - Annual withdrawal needs of \$18,000/year
 - Inflated at 3% → ~\$32,500
 - Requisite retirement savings @ 4.5% safe withdrawal rate → ~\$720,000
 - Current savings: \$120,000
 - Necessary annual savings assuming 8% growth rate: ~\$3,600/year (\$300/month)

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Safe Withdrawal Rates

Caveats to Beware Of

- Research is only as good as the assumptions it uses
 - Standard of living and withdrawal needs assumed to remain level, and adjust for (and *only for*) annual inflation
 - Historical market research assumes the past is prologue
 - Other inflows or outflows can present additional challenges for assumption framework

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Safe Withdrawal Rates Caveats to Beware Of

- The Timing Paradox – Sensitivity to Initial Conditions
 - Client A and Client B both have \$1,000,000
 - Client A decides to retire this year
 - “Safe” spending is stated to be \$40,000
 - Client B continues to work
 - The market declines by 20%
 - Client B (account balance now down to \$800,000) retires at the start of year 2
 - “Safe” spending is stated to be \$32,000
 - But Client A’s safe spending is up to \$41,200!
- Resolving the paradox – incorporate valuation into safe withdrawal rates!

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Safe Withdrawal Rates Summary

- Linear projections inherently tend to understate risk
- Return sequencing matters
- Volatility can have a significant drag on compounding returns
- Current research suggests safe withdrawal rates in the 4%-5% range, or higher if spending cuts are anticipated
- Effective provides quick answers to many basic client questions
- Lots of important caveats to bear in mind!

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Safe Withdrawal Rates

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Questions???

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