Do Financial Plans Underestimate Inflation Risk?

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TWO IMPORTANT RISKS IN RETIREMENT

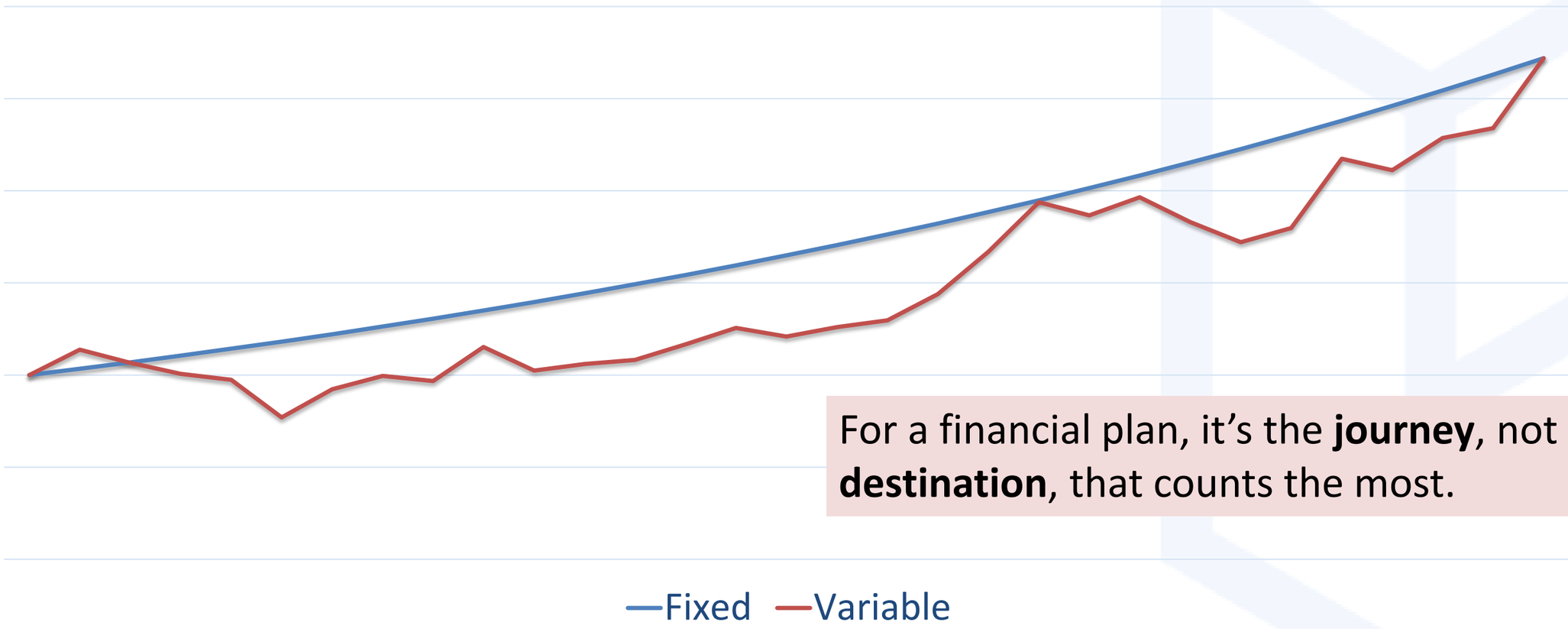
Market Risk

- Returns are variable and uncertain
- Return sequences can be better or worse than expected
- Failing to account for market risk can lead to underestimating risk/overestimating how much someone can spend

Inflation Risk

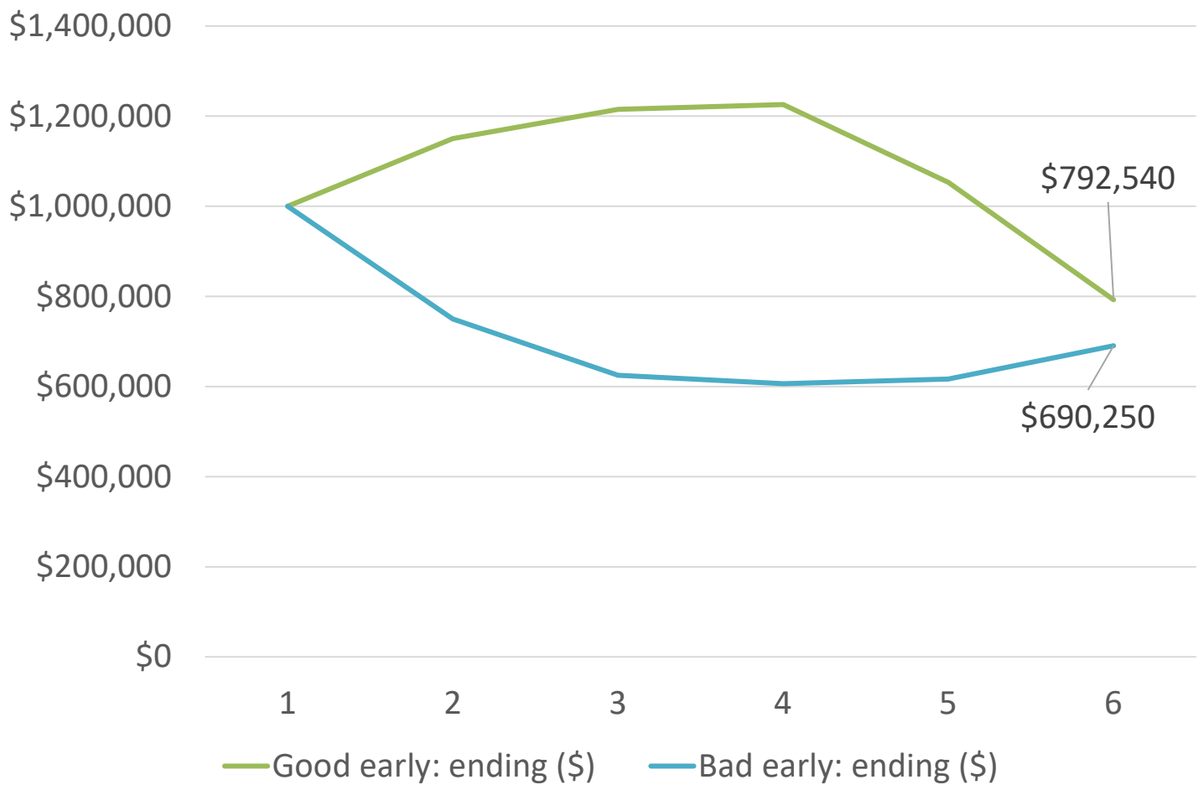
- Inflation is variable and uncertain
- Inflation sequences can be better or worse than expected
- Failing to account for inflation risk can lead to underestimating risk/overestimating how much someone can spend

FIXED VS VARIABLE



For a financial plan, it's the **journey**, not the **destination**, that counts the most.

SEQUENCE-OF-RETURNS RISK



Good Early	Bad Early
20%	-20%
10%	-10%
5%	5%
-10%	10%
-20%	20%

Both scenarios begin with $1 million and take out $50k/year.

After 5 years the gap is >$100k

HOW DOES PLANNING SOFTWARE HANDLE INVESTMENT RETURNS?

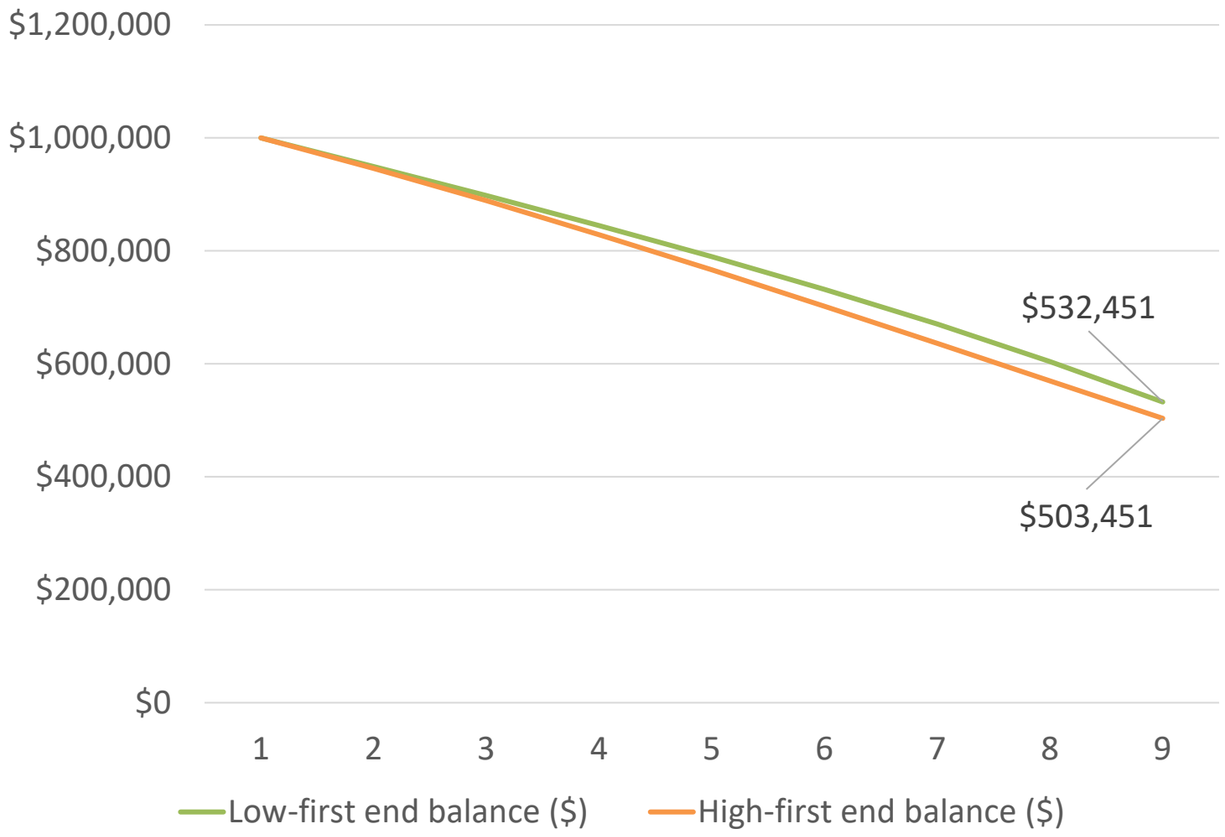
Constant Average

- Treat returns as constant
- Known / no risk
- Time value of money calculations (PMT, FV)
- Often used in “spreadsheet”/table views

Variable

- Treat returns as variable and uncertain
- Risk is included and accounted for
- Historical and Monte Carlo simulations
- Used in more sophisticated analyses

SEQUENCE-OF-INFLATION RISK



Good Early	Bad Early
0%	8%
1%	8%
2%	6%
3%	5%
4%	4%
5%	3%
6%	2%
8%	1%
8%	0%

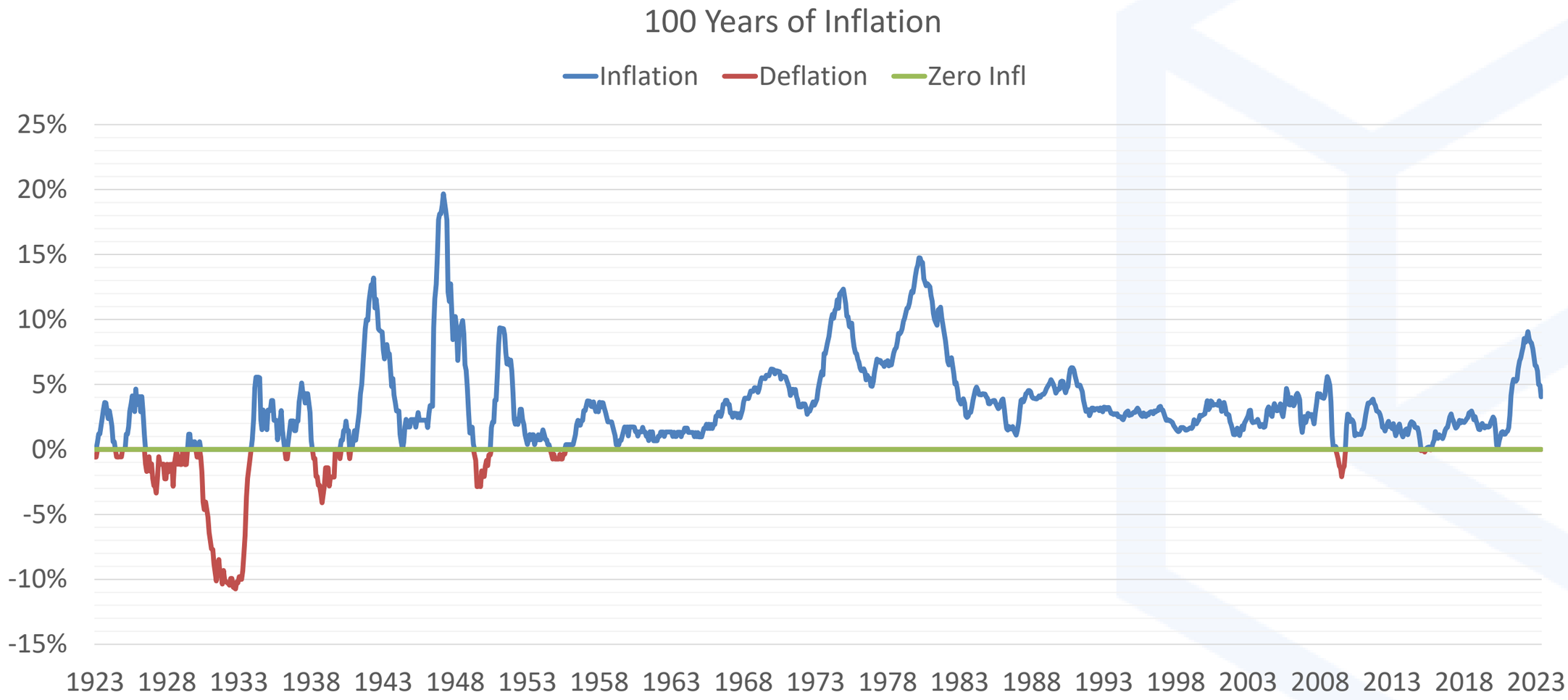
- Both scenarios begin with $1 million and take out $50k/year, adjusted for inflation.
- Returns are 0%
- After 5 years the gap is $30k

HOW DOES PLANNING SOFTWARE HANDLE INFLATION?

Constant Average

- Treat INFLATION as constant
- Known / no risk
- Time value of money calculations (PMT, FV)

INFLATION IS VARIABLE AND UNCERTAIN



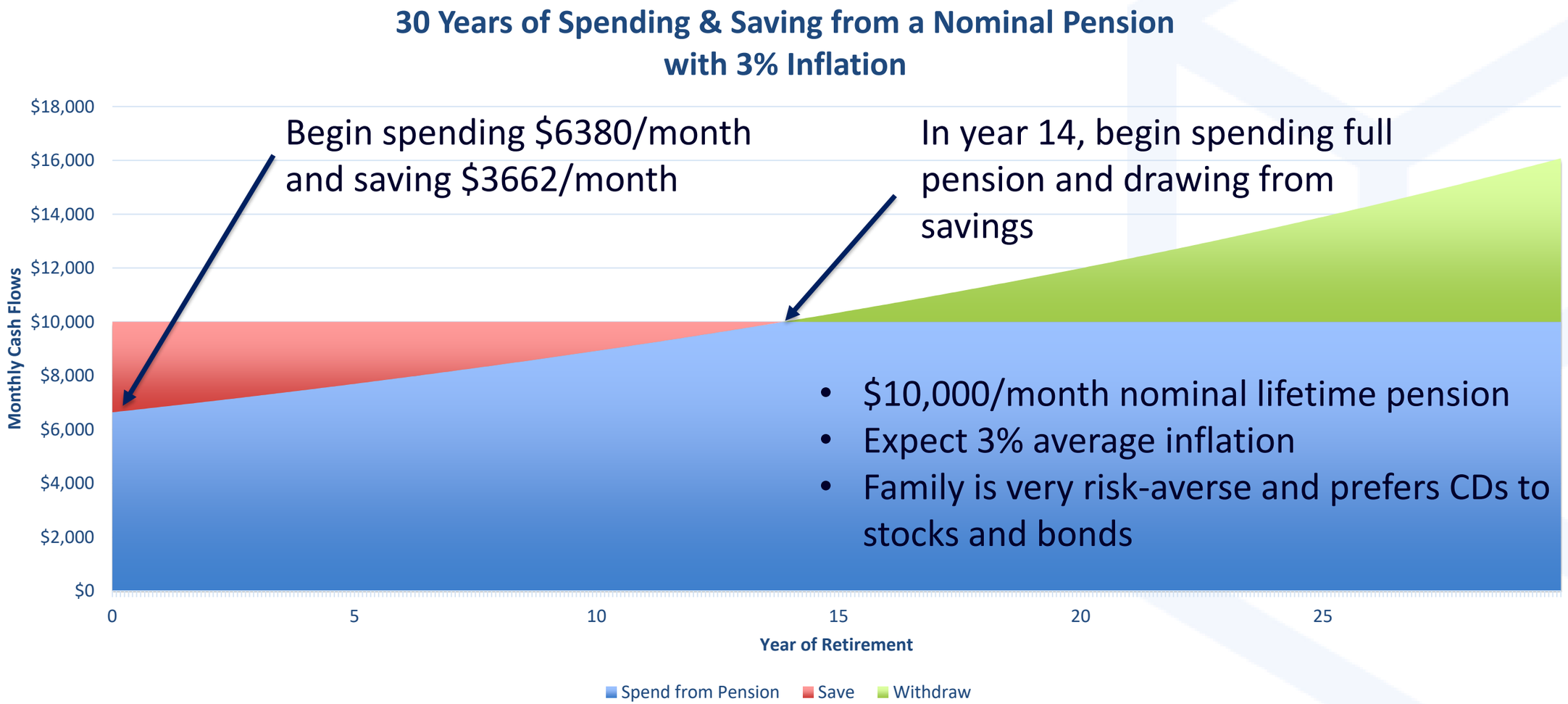
INFLATION IS VARIABLE AND UNCERTAIN

	1923-2023
Average	3.0%
Standard Deviation	3.9%
Most recent peak	9.1% (Jun 2022)
Most recent deflation	-0.2% (Apr 2015)
Most recent significant deflation	-2.1% (Jul 2009)

CASE STUDY: HOW TO DEAL WITH A PENSION?

- $10,000/month nominal lifetime pension
- Expect 3% average inflation
- Family is very risk-averse and prefers CDs to stocks and bonds

INFLATION AS FIXED AND KNOWN



DOES VARIABLE AND UNCERTAIN INFLATION MATTER?

Historical Success Rate	Sustainable Real Spending	Retirement Date	Average Inflation (30 years)
50%	**$6,380/month**	**May 1937**	**2.9%**
60%	$6,160	Sep 1945	3.7%
70%	$5,800	Feb 1940	3.4%
80%	$5,080	Nov 1964	5.4%
90%	$4,650	Nov 1967	5.4%
100%	$4,350	Apr 1973	5.0%

The spending level produced assuming inflation will be a fixed 3% had a 50% success rate historically.

CAN WE JUST INCREASE OUR FIXED INFLATION ASSUMPTION?

Historical Success Rate	Sustainable Real Spending	Fixed Inflation Assumption Needed to Produce Spending	Actual Avg Infl (30 years)
50%	$6,380/month	3.3%	2.9%
60%	$6,160	3.6%	3.7%
70%	$5,800	4.1%	3.4%
80%	$5,080	5.3%	5.4%
90%	$4,650	6.2%	5.4%
100%	$4,350	6.9%	5.0%

Problems with Using Fixed Assumptions

- Rates would be very HIGH
- Not intuitive or easy to communicate
- Still produce only one answer – not modeling risk

CAN WE JUST DECREASE OUR RETURN ASSUMPTION TO HANDLE MARKET RISK?

Example:

- 5% average real return
- 10% standard deviation
- $1 million portfolio
- 80% probability of success

$46,700/year withdrawal

2.3% fixed real return
(time value of money calc)

Problems with Using Fixed Assumptions

- Rates would be very LOW
- Not intuitive or easy to communicate
- Still produce only one answer – not modeling risk

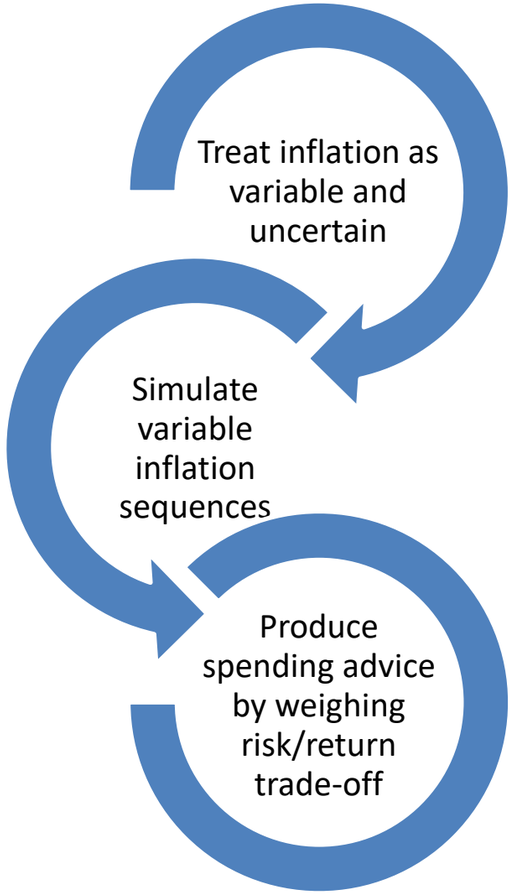
SEQUENCE-OF-INFLATION RISK

Historical Success Rate	Sustainable Real Spending	Fixed Inflation Assumption Needed to Produce Spending	Actual Avg Infl (30 years)
50%	$6,380/month	3.3%	2.9%
60%	$6,160	3.6%	3.7%
70%	$5,800	4.1%	3.4%
80%	$5,080	5.3%	5.4%
90%	$4,650	6.2%	5.4%
100%	$4,350	6.9%	5.0%

Inflation risk is tied to sequence of inflation, not average inflation:

- Higher inflation early in retirement is worse
- Lower inflation early in retirement is better

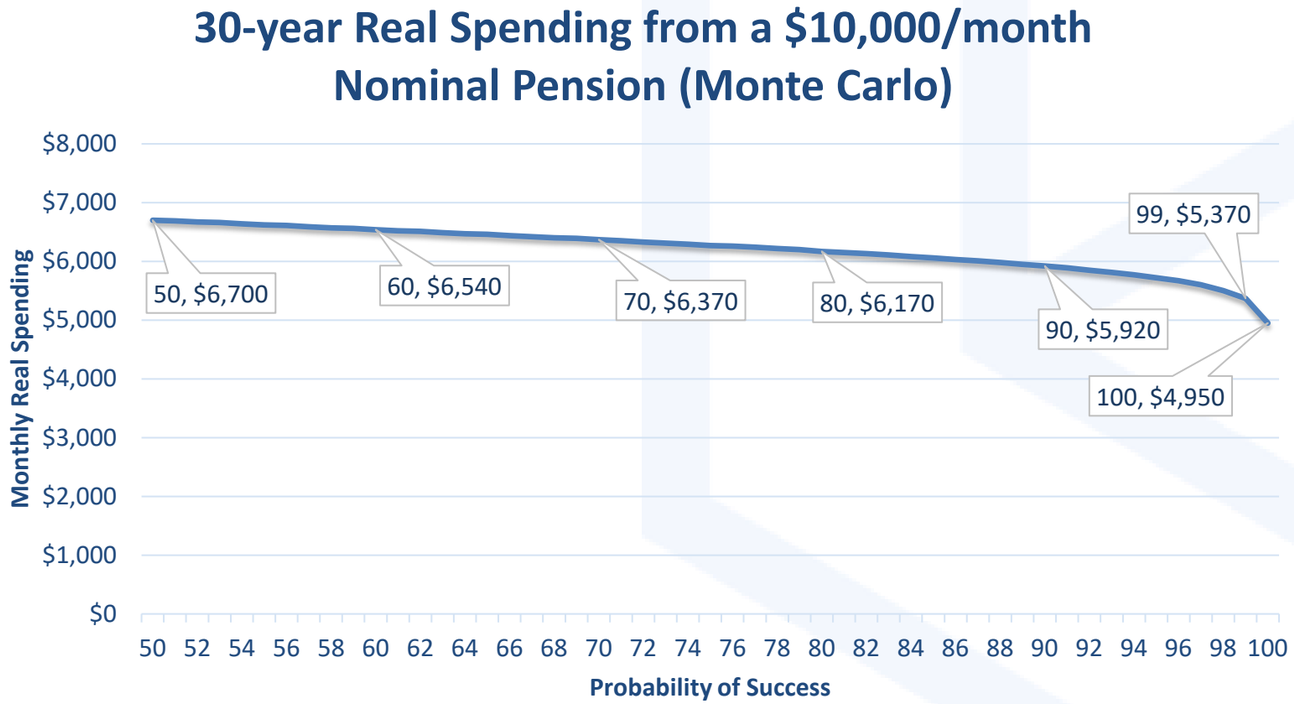
HOW TO HANDLE SEQUENCE-OF-INFLATION RISK



Options:

- Historical simulation
- Monte Carlo simulation:

  Does your software include assumption(s) for <u>standard deviation of inflation</u>?

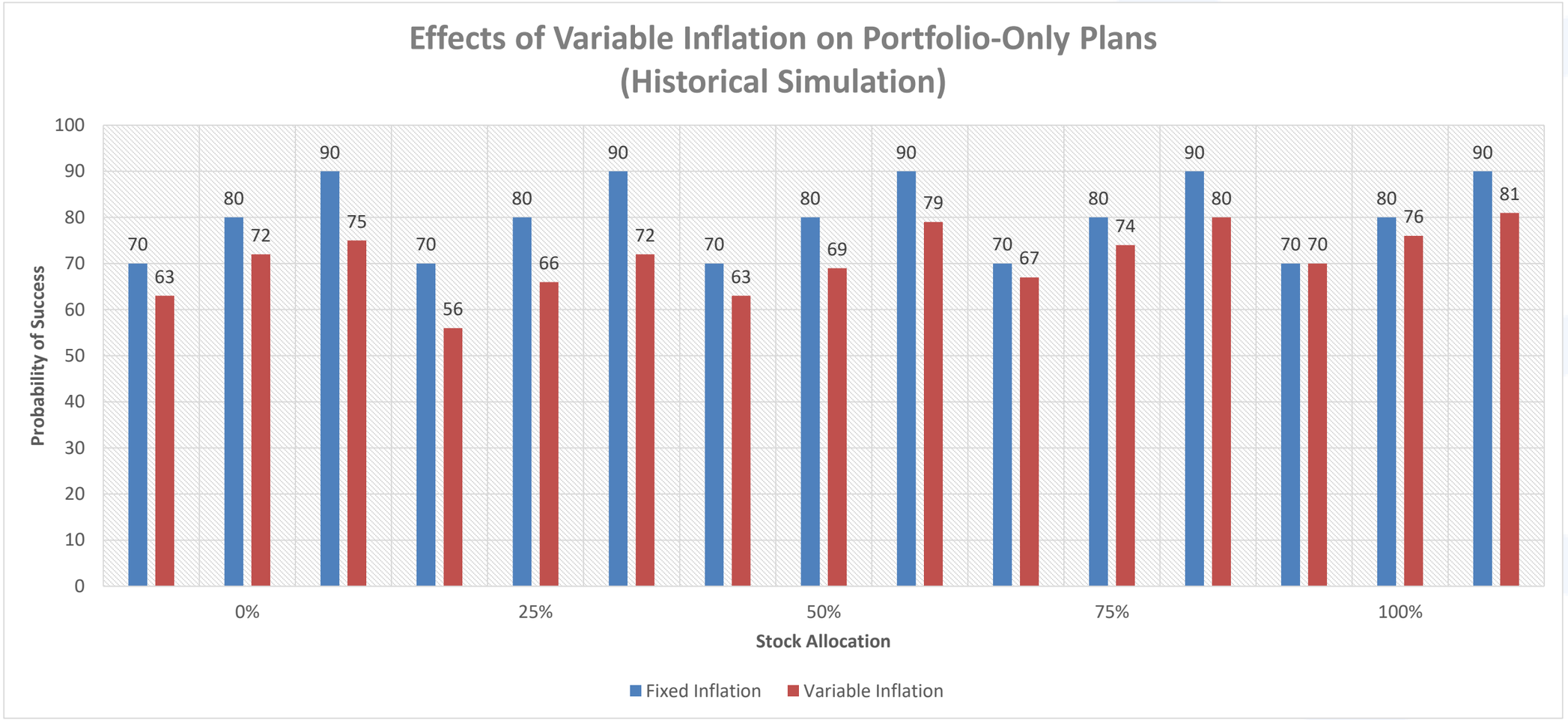


HOW DOES MODELING INFLATION CORRECTLY AFFECT ADVICE?

Historical Success Rate	Fixed Inflation	Variable Inflation
50%	$60,600	$60,000
60%	$56,700	$54,100
70%	$52,300	$49,900
80%	$50,200	$46,400
90%	$46,700	$42,900
100%	$37,500	$36,500

Withdrawal rates are lower at every “success rate” when inflation is treated as variable

VARIABLE INFLATION INCREASES RISK



VARIABLE INFLATION INCREASES RISK

Stock Allocation	Annual Withdrawal	Success Rate with Fixed Inflation	Success Rate with Variable Inflation
25%	$42,300	90%	72%
50%	$46,700	90%	79%
75%	$50,100	90%	80%

WHERE DOES INFLATION ADD THE MOST RISK?

- Higher bond allocations / Lower expected returns
- Lower risk spending levels / Higher probabilities of success
- More not-adjusted-for-inflation non-portfolio income in the plan
- Higher expected inflation or inflation variance

HOW DOES INCOME LAB HANDLE INFLATION?

Inflation has its own standard deviation assumptions in Traditional and Regime-Based Monte Carlo.

Historical Analysis uses actual historical sequences of inflation (and actual sequences of real returns).

Retirement Paycheck (“*How much can I spend?*”) is automatically lower if a plan has higher sequence-of-inflation risk.

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Evaluating Software:

What is required of a CFP®

Professional?

CFP BOARD REQUIREMENTS

A. Duties owed to clients

14. Duties When Selecting, Using, and Recommending Technology

a. A CFP® professional must exercise reasonable care and judgment when selecting, using, or recommending any software, digital advice tool, or other technology while providing Professional Services to a Client.

b. A CFP® professional must have a reasonable level of understanding of the assumptions and outcomes of the technology employed.

c. A CFP® professional must have a reasonable basis for believing that the technology produces reliable, objective, and appropriate outcomes.

CFP BOARD REQUIREMENTS

- Advisors should evaluate gaps in their technology that could interfere with acting in clients' best interests.
- Advisors should understand embedded assumptions and review whether the resulting analyses are accurate and appropriate.
- Page 9 of the *Guide* specifically mentions inflation rates as assumptions that should be reviewed and considered.



My Take:

This does not require that you use software that properly handles inflation risk. But it does suggest that the issues should be known, understood, and handled.



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