

SETTING A PROPER ASSET ALLOCATION GLIDEPATH IN RETIREMENT

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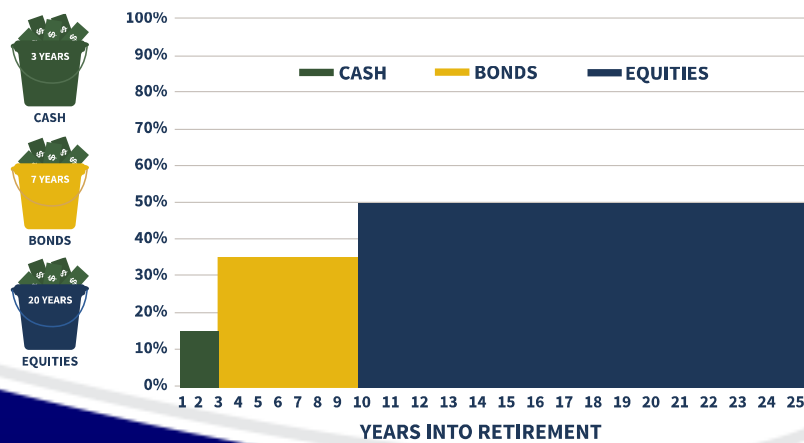
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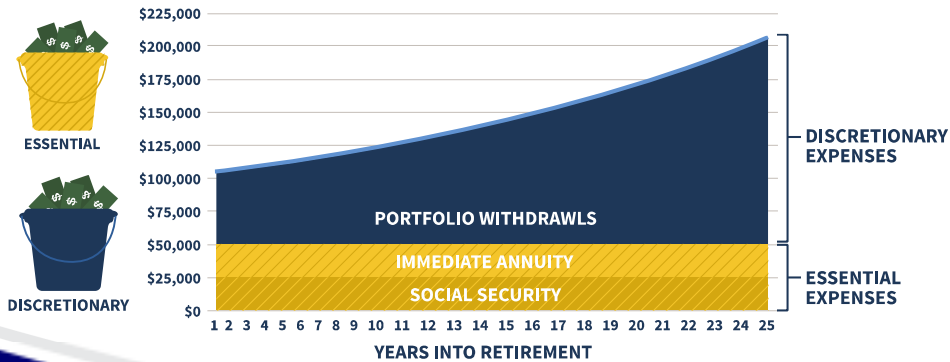
THE RETIREMENT BUCKET APPROACH

- Segment retirement spending needs into three buckets



THE ANNUITY BUCKET APPROACH

- Alternative to the “traditional” bucket strategy



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THE ANNUITY BUCKET APPROACH

- Helps to manage sequence of return risk
- Psychologically comforting in times of volatility?
- Shown to improve sustainable withdrawal rates
 - Ameriks, Veres, & Warshawsky (2001)
 - Even though the annuity “bucket” is not replenished

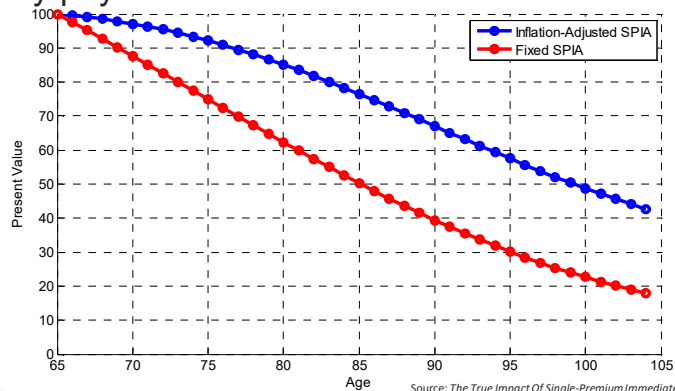
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THE ANNUITY BUCKET APPROACH – OVER TIME

- Annuity payments lead to asset allocation shift over time



Source: *The True Impact Of Single-Premium Immediate Annuities On Retirement Sustainability: A Total Wealth Perspective*
by Michael Kitces & Wade Pfau

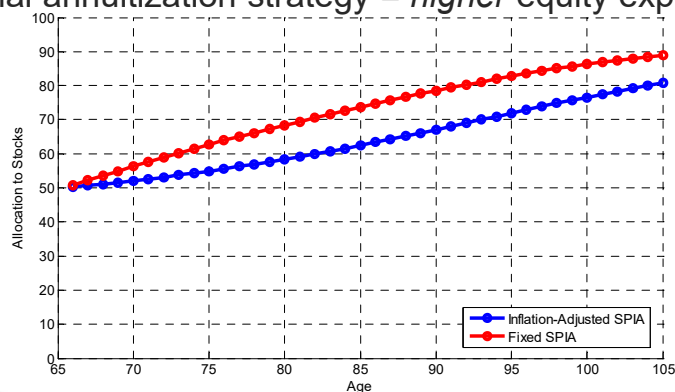
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THE ANNUITY BUCKET APPROACH – OVER TIME

- Partial annuitization strategy = *higher equity exposure!*



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THE ANNUITY BUCKET APPROACH

- Why does the annuity bucket approach led to superior retirement/safe withdrawal rate outcomes?
 - Benefit of mortality credits!
 - Managing sequence risk?
 - Benefit of rising equity exposure over time?

THE ANNUITY BUCKET APPROACH

- Evaluating & comparing three alternatives
 - 1) 50/50 stocks/bonds
 - 2) 50/50 stocks/SPIAs
 - 3) Start 50/50, then match stock/SPIA implied glidepath
 - #3 - #1 = benefit of glidepath
 - #2 - #3 = benefit of mortality credits

THE ANNUITY BUCKET APPROACH

- What if the portfolio matched the same glidepath as the annuitization strategy, without the annuity?

Retirement Period	Historical Averages			Real SPIA		Fixed SPIA			
	Failure Rates			Contributions		Failure Rates		Contributions	
	Fixed 50/50 Stocks/Bonds	50/50 Stocks/SPIA	Implied Glidepath	Glidepath	Mortality Credits	50/50 Stocks/SPIA	Implied Glidepath	Glidepath	Mortality Credits
15	0.1	2.3	0.0	1925%	-1825%	1.3	0.0	1042%	-942%
20	3.6	9.4	1.4	372%	-272%	7.2	1.6	281%	-181%
25	13.7	18.2	10.0	219%	-119%	16.4	10.2	178%	-78%
30	26.5	26.1	22.2	1054%	-954%	25.8	21.9	622%	-522%
35	37.9	32.7	33.1	92%	8%	34	32.6	137%	-37%
40	47.3	38.0	41.6	61%	39%	40.6	40.7	98%	2%

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THE ANNUITY BUCKET APPROACH

- True impact of annuitization is a blend
 - Mortality credits are a huge benefit in the later years...
 - But rising equity glidepath has material contribution as well!
 - So much, that retirees must materially outlive life expectancy before mortality credits are the primary factor!

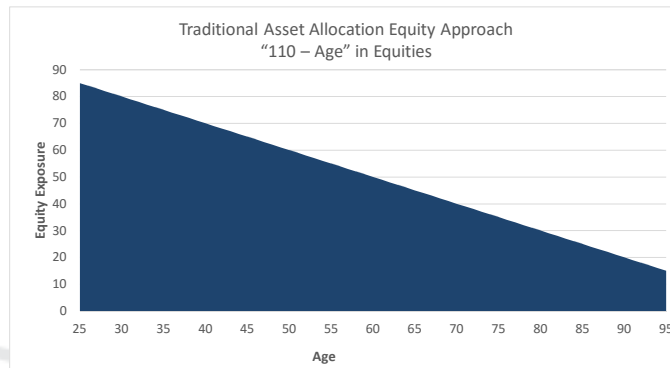
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ANALYZING THE OPTIMAL RETIREMENT GLIDEPATH

- Traditional approach – “Own Your Age In Bonds”



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ANALYZING THE OPTIMAL RETIREMENT GLIDEPATH

- Literature Review
 - **Bengen (1996)**: Declining equity *reduces* SAFEMAX
 - Impact fairly minor at -1% per year
 - May be a reasonable “compromise” to client comfort?
 - **Blanchett (2007)**: Tested numerous declining glidepaths
 - Static allocations fared equal/better than any declining glidepaths
 - Neither tested rising equity glidepaths

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ANALYZING THE OPTIMAL RETIREMENT GLIDEPATH

- Methodology
 - Tested 4% (and 5%) SWR for 30 (& 20 & 40) years
 - Measured outcomes:
 - Probability of failure/depletion
 - Magnitude of failure/depletion as remaining (negative) wealth at 5th percentile
 - Median terminal wealth in today's dollars
 - Maximum SWR at 10th percentile

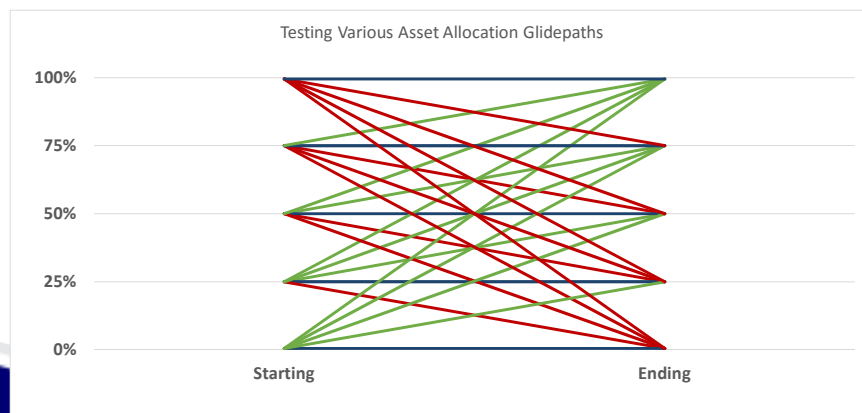
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ANALYZING THE OPTIMAL RETIREMENT GLIDEPATH

- Tested combinations of glidepath start/stop points



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ANALYZING THE OPTIMAL RETIREMENT GLIDEPATH

Scenario A: Modelled on Evensky Assumptions for MoneyGuidePro						
	Real Returns			Correlation Coefficients		
	Arithmetic	Geometric	StDev	Stocks	Bonds	Inflation
Stocks	5.50%	3.37%	20.7%	1	0.3	-0.2
Bonds	1.75%	1.54%	6.5%	0.3	1	-0.6
Inflation	3.00%	2.91%	4.2%	-0.2	-0.6	1
Equity Premium	3.75%					

Scenario B: Lower Future Returns						
	Real Returns			Correlation Coefficients		
	Arithmetic	Geometric	StDev	Stocks	Bonds	Inflation
Stocks	5.10%	3.10%	20.0%	1	0.1	-0.2
Bonds	0.30%	0.06%	7.0%	0.1	1	-0.6
Inflation	2.10%	2.01%	4.2%	-0.2	-0.6	1
Equity Premium	4.80%					

Scenario C: Historical Data - U.S. Real Returns Data, 1926 - 2011						
	Real Returns			Correlation Coefficients		
	Arithmetic	Geometric	StDev	Stocks	Bonds	Inflation
Stocks	8.59%	6.46%	20.7%	1	0.1	-0.2
Bonds	2.56%	2.35%	6.5%	0.1	1	-0.6
Inflation	3.07%	2.98%	4.2%	-0.2	-0.6	1
Equity Premium	6.03%					

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30-Year Retirements, Historical Average Capital Market Expectations

Success Rate for a 4% Withdrawal Rate

Starting Allocation	Ending Allocation										
	0	10	20	30	40	50	60	70	80	90	100
0	75	79	82	85	88	89	91	92	92	93	93
10	84	87	89	91	92	93	94	94	94	94	94
20	89	91	92	93	94	94	95	95	95	95	95
30	92	93	94	94	95	95	95	95	95	95	94
40	93	93	94	94	95	95	95	95	95	95	94
50	93	93	94	94	94	94	94	94	94	94	93
60	92	93	93	93	93	93	93	93	93	93	92
70	92	92	92	92	92	92	92	92	92	92	92
80	91	91	91	91	91	91	91	91	91	91	91
90	90	90	90	90	90	90	90	90	90	90	90
100	89	89	89	89	89	89	89	89	89	89	88

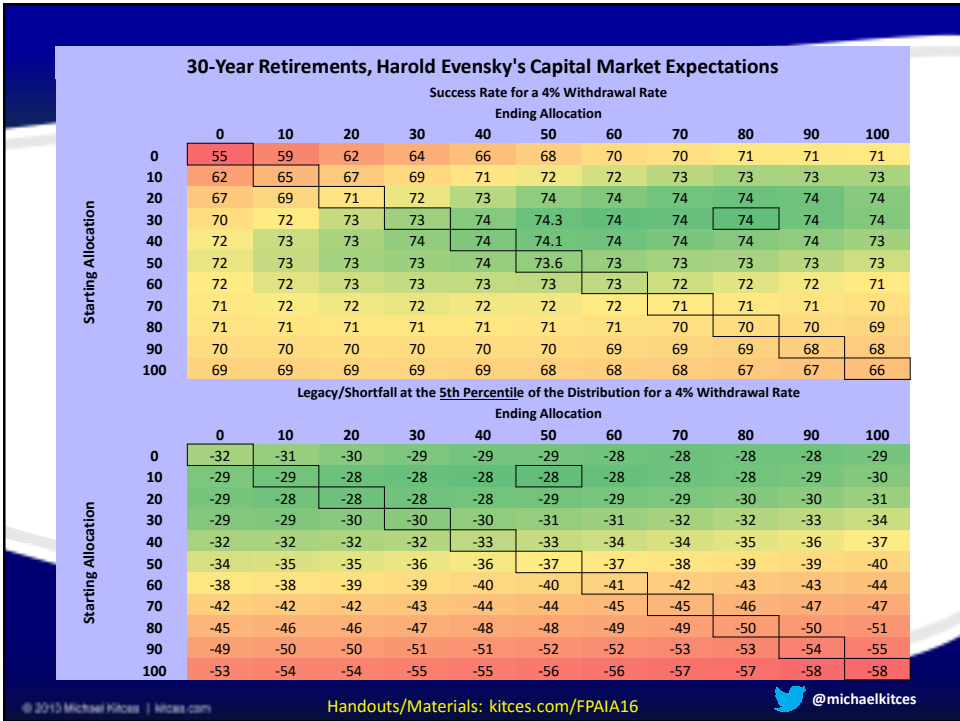
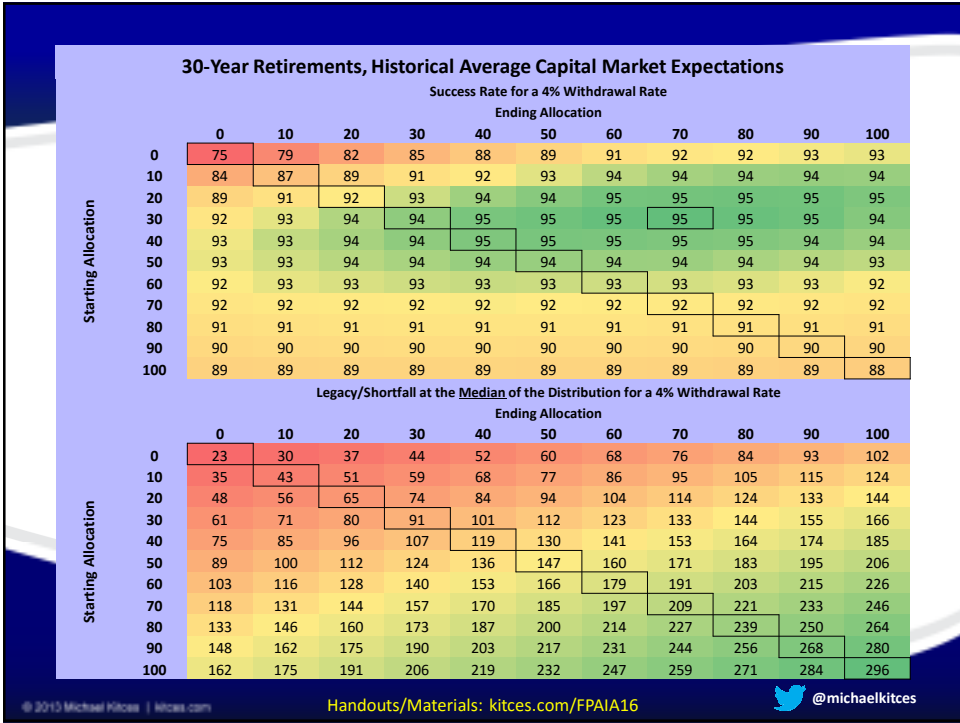
Legacy/Shortfall at the 5th Percentile of the Distribution for a 4% Withdrawal Rate

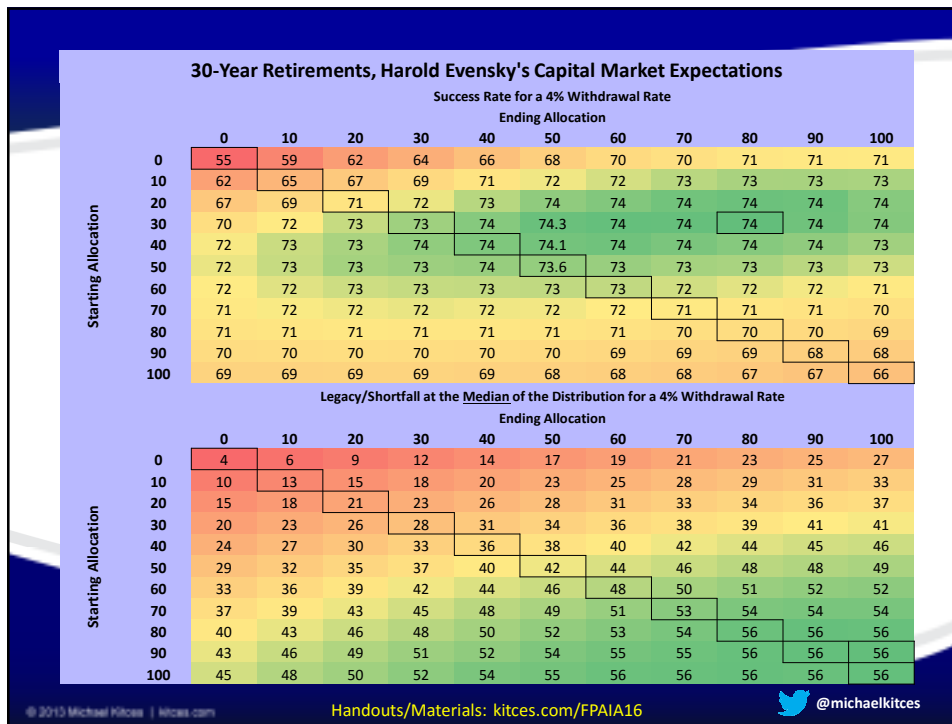
Starting Allocation	Ending Allocation										
	0	10	20	30	40	50	60	70	80	90	100
0	-24	-21	-19	-17	-14	-13	-11	-9	-8	-7	-6
10	-17	-14	-12	-10	-8	-6	-4	-3	-3	-3	-3
20	-11	-9	-6	-5	-3	-2	-1	-1	-1	-1	-1
30	-7	-5	-4	-3	-1	-1	0	0	0	-1	-2
40	-7	-5	-4	-3	-2	-1	-1	-2	-2	-3	-4
50	-7	-6	-5	-4	-5	-5	-5	-6	-7	-8	-8
60	-10	-10	-9	-9	-9	-9	-9	-10	-11	-13	-13
70	-14	-14	-14	-14	-14	-15	-15	-16	-17	-17	-19
80	-18	-18	-19	-19	-20	-20	-21	-22	-22	-24	-24
90	-23	-24	-24	-25	-25	-26	-27	-27	-29	-29	-30
100	-28	-29	-29	-30	-31	-31	-32	-33	-34	-35	-36

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ANALYZING THE OPTIMAL RETIREMENT GLIDEPATH

- Results
 - Rising equity glidepaths fared better than static, which performed better than declining glidepaths
 - Benefits generally held across time horizons
 - Some sensitivity to equity risk premium
 - Less relevant at higher withdrawal rates that need sheer total equity exposure (and some good luck!)

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ANALYZING THE OPTIMAL RETIREMENT GLIDEPATH

- Results
 - Optimal rising glidepaths often required no more maximum equity exposure than “typical” 60/40
 - Average equity exposure *diminished* across overall retirement time horizon!
 - Exposure *smallest* at most critical point (retirement transition, largest asset base)

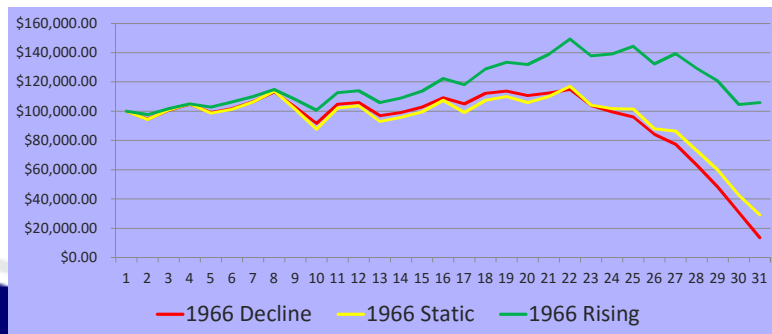
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ANALYZING THE OPTIMAL RETIREMENT GLIDEPATH

- Hedging Against Sequence Risk – A Tale Of Two Retirees
 - If equity returns are terrible in early years, rising equities dollar-cost-averages into cheaper & cheaper stocks



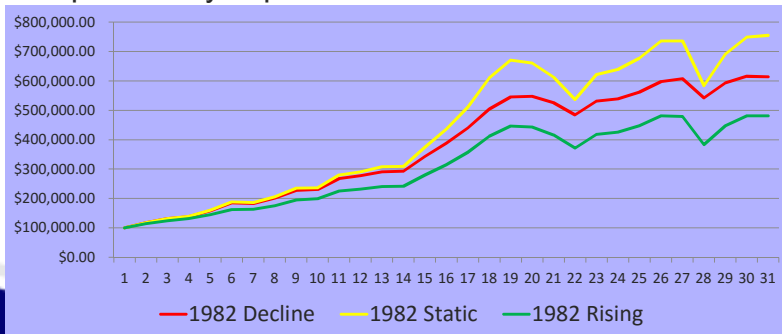
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ANALYZING THE OPTIMAL RETIREMENT GLIDEPATH

- Hedging Against Sequence Risk – A Tale Of Two Retirees
 - If equity returns are wonderful in early years, rising equities only impacts how much client “dies” with



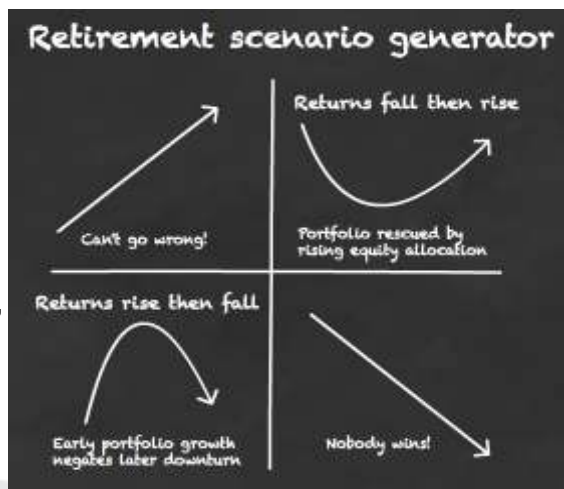
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ANALYZING THE OPTIMAL RETIREMENT GLIDEPATH

- Hedging Against Sequence Risk
 - A Tale Of (Four) Retirees
- Heads you win, tails you “don’t lose”



Source: Monevator blog - <http://monevator.com/buy-shares-in-retirement/>

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ANALYZING THE OPTIMAL RETIREMENT GLIDEPATH

- Implications/Complications
 - Will retirees really be willing to increase equity exposure throughout retirement?
 - We already rebalance!
 - Just rebalance to a changing (glidepath) exposure?
 - Clients already “do” this with bucketing!?
 - Psychology vs substance

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ANALYZING THE OPTIMAL RETIREMENT GLIDEPATH

- Implications/Complications
 - Buckets themselves may be a rebalancing mirage
 - Imagine markets crash 30%, bonds rally 10%, need cash:

	Equities	Bonds
Starting Balance	\$500,000	\$500,000
After Market Returns	\$350,000	\$550,000
Trades (Rebal & W/draw)	+\$80,000	-\$120,000
Final Balance	\$430,000	\$430,000

- It's about the glidepath, not the bucket!

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ANALYZING THE OPTIMAL RETIREMENT GLIDEPATH

- Implications/Complications
 - Will retirees really be willing to increase equity exposure throughout retirement?
 - Actually results in *less* equity exposure in retirement!
 - Significantly less equity exposure during critical (volatile) years!
 - If clients are willing to hold X% in retirement, it should be *better* to hold *less* equities for most of retirement!?
 - Can always deviate if times are good!

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ANALYZING THE OPTIMAL RETIREMENT GLIDEPATH

- Implications/Complications
 - What is the ultimate goal of retirement?
 - Maximizing wealth & inheritance?
 - Maximizing success?
 - Ensuring a minimum goal is achieved?
 - Purpose isn't buying equities when they're not needed... but a system to buy when they are!

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ANALYZING THE OPTIMAL RETIREMENT GLIDEPATH

- Implications/Complications
 - Today's retirees may not need to hold as much in equities as we've traditionally suggested
 - Only modest equity exposure needed for success
 - Greater equities only needed to make up for earlier results that were poor!
 - Especially given today's higher valuations?

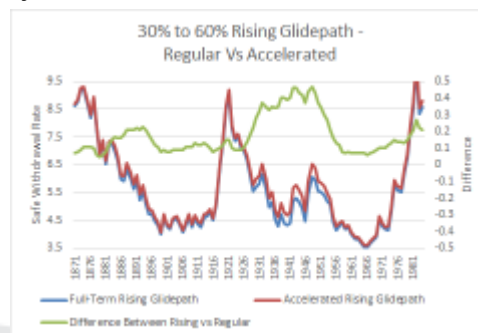
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ANALYZING THE OPTIMAL RETIREMENT GLIDEPATH

- Implications/Complications
 - If outcomes are driven by valuations, then valuation-based approaches may be even more effective?
 - Further testing for the optimal glidepath timing?



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SUMMARY

- Traditional retirement advice decreases equity exposure
 - Sometimes works but exacerbates bad sequences
- Rising equity glidepaths help defend sequence risk
 - Rules-based system to dollar-cost-average as needed...
 - Or simply implement as a bucket/liquidation strategy?
 - Can always deviate if unexpectedly successful!
 - Results in *less* equity exposure early & throughout!
 - Trades off wealth maximization for risk management!

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