TACTICAL STRATEGIES TO REDUCE VOLATILITY AND DRAWDOWN

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Peter is licensed as a planning professional by the Certified Financial Planner Board of Standards and as a tax professional by the U.S. Department of the Treasury.

Peter has been analyzing tax and investment strategies for twenty-five years.

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It's Worth Repeating …

- "Trust, but verify!"
  Expanded version of this talk is available at www.lingane.com/qi.
- Examples are not recommendations.
- Backtesting provides no guarantees; one can't invest in the past.

Disclosure. Peter invests in the SIMPLE RM and 27Fidos strategies.

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Agenda

Strategies which provide an adequate cash flow and a low risk of running out of money before death, ideally without large declines in value during market corrections. "Beat the market."

Life annuities are an option, but not for the DIYer.

Tactical strategies change portfolio composition in response to market conditions. Tactical strategies have the potential to adapt to a different future.

- Part 1 describes how Tactical strategies work.
- Part 2 compares the Dividend and Tactical strategies and provides examples.
- Taxes are not considered.

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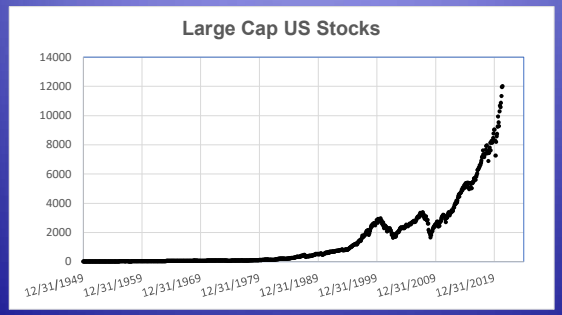
An Equity Curve – Nominal Portfolio Value over Time



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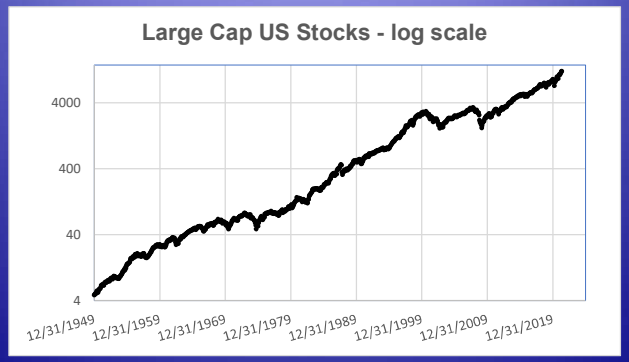
A Logarithmic Value Scale Better Represents Drawdowns

CAGR = (Ending Value / Starting Value)^(12/#Months) - 1



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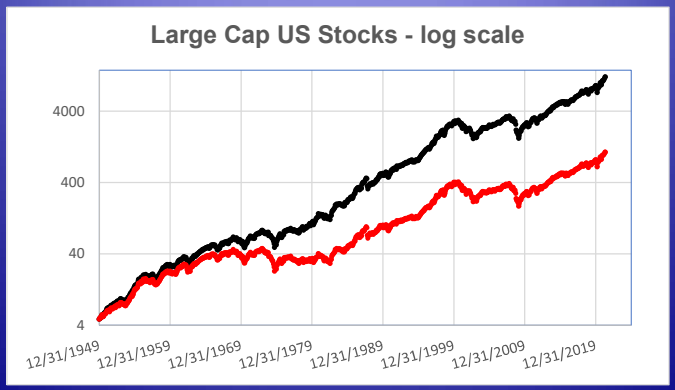
Inflation Matters!
Note the 1965 – 1980 interval.



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Portfolio Visualizer requires the strategy's inflation-adjusted annualized mean and standard deviation

- If R is the monthly return and CPI-U is the monthly return of inflation,

  R-adjusted = (1 + R) / (1 + CPI-U) – 1

- If m is the average monthly return,

  Average annual return = (1 + m)^12 – 1

- If mSD is the monthly standard deviation, the standard deviation of the annual returns is the square root of

  (mSD^2 + (1 + m)^2)^12) - (1 + m)^24

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Volatility reflects the fluctuations in the equity curve.

Volatility is measured as the standard deviation of the monthly returns.

The historical volatility of Large Cap US stocks is 4.2% per month.

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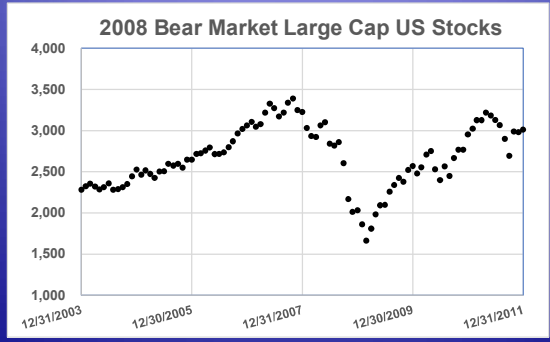
Measure "Drawdowns" Peak to Trough

Sep 1974, 43% (52% real)
Sep 2002, 45% (47% real)
Maximum DD occurred in Feb 2009, 51% (54% real)



Source: LrgCapUS Strategies from 1950.xlsx.

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"Longevity" measures the likelihood of a portfolio not running out of money

- Depends on the return and volatility, on the spending rate and on the time horizon.

  Improving portfolio longevity requires a compromise between return and volatility.
- Longevity is estimated using Monte Carlo.

  A large number of equity curves are synthesized, using a different return sequence for each equity curve.

  Each return sequence is a plausible view of the future.

  Results are uncertain since the future is uncertain and practitioners differ in how they choose return sequences.

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Monte Carlo Provides a Range of Forecasts

- Longevity is a ratio. Divide the number of simulated equity curves which sustain the specified spending over the specified interval by the total number of simulated equity curves.
- Longevity is about 75% for large cap US stocks assuming a 6% spending rate adjusted for inflation and a 35-year time horizon.
- Portfolio Visualizer Implementation

  Tools: Portfolio Analysis – Monte Carlo Simulation
  Inflation Adjusted: No
  Withdrawal Frequency: Monthly
  Simulation Period: 35 years
  Simulation Model: Parameterized Returns
  Normal Distribution: annualized parameters, adjusted for inflation

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Techniques to Mitigate Drawdown and Volatility, Improve Portfolio Longevity

- Maintain a significant allocation to fixed income, rebalancing periodically.
- Control drawdowns using a market timer to decrease the equity allocation in times of market stress.
- Control portfolio volatility at a specified values by adjusting the bond allocation.
- Allocate to equities or fixed income depending of which has the higher "relative momentum."

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A fixed allocation to bonds reduces Volatility and Drawdown (good), while decreasing Longevity (bad).

1951 – May 2021	Large Cap US	60% Large Cap US 40% Intermediate Government Bonds
Max DD, nominal	51%	30%
Volatility, per month	4.2%	2.6%
Portfolio Longevity 6% spend, 35 yrs. Inflation-adjusted Mean Inflation-adjusted Std. Dev.	75±% 0.0876 0.1580	60±% 0.0612 0.0965

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Market Timing Improves Volatility, Drawdown and Longevity.

1951 – May 2021	Large Cap US	60:40	Nicholas Timing
Max DD, nominal	51%	30%	23%
Volatility, per month	4.2%	2.6%	3.4%
Portfolio Longevity 6% spend, 35 yrs. Inflation-adjusted Mean Inflation-adjusted Std. Dev.	75±% 0.0876 0.1580	60±% 0.0612 0.0965	90±% 0.0948 0.1281

Nicholas timing allocates to equities when sum of the 1-, 3-, 6- and 12-month total returns of large cap US stocks is positive; 100% intermediate government bonds otherwise.

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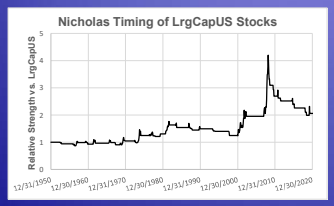
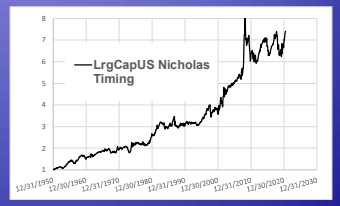
"Market Timing Doesn't Work"

- There are poor timers and good timers.
  Jeremy Siegel (200dSMA of DJIA) vs Mebane Faber (10mSMA of SP500)
- Timing should be evaluated over a full market cycle and depends on the reference portfolio.





- Timing is psychologically hard.

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Volatility Control Strategies

- Allocations are adjusted monthly such that the recent return of the portfolio is maximized and the recent volatility equals the target value.
- Approximate solution for binary strategies
  Equity allocation = target SD / equity SD
- Portfolio Visualizer supports binary strategies.

Choose Market Timing Models from the Tools menu
Choose Timing Model: Target Volatility
Choose Month-to-Month time period
Cash Flows: None
Accept the default target volatility, 9% annually. Test other targets.
Out-of-Market: Select. Use IEI or VFISX
Choose "5 month" Volatility Period
Portfolio Assets. 100% allocation to VOO or to another equity portfolio

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Volatility Control Improves Volatility and Drawdown, producing a balanced portfolio with less drawdown.

1951 – May 2021	Large Cap US	60:40	Nicholas Timing	Volatility Control 0.5%/day
Max DD, nominal	51%	30%	23%	24%
Volatility, mSD per month	4.2%	2.6%	3.4%	2.6%
Portfolio Longevity 6% spend, 35 yrs. Inflation-adjusted Mean Inflation-adjusted Std. Dev.	75±% 0.0876 0.1580	60±% 0.0612 0.0965	90±% 0.0948 0.1281	63±% 0.0627 0.0967

Volatility control is implemented here as equity allocation = target / SD. SD is the standard deviation of SPX (no dividends) over the trailing 105 days.

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Momentum Control

- Momentum is the return over a look-back interval. There are many methods.
- Each month, the portfolio is invested in the securities with the highest momentum.
- Portfolio Visualizer

Timing Model: Relative Strength
Time period: Month-to-Month
Tickers: VOO and IEI
Performance periods: Multiple Periods
Assets to Hold: 1 (VOO or IEI)
Time Period #1: 1 months, 25% weight
Time Period #2: 3 months, 25% weight
Time Period #3: 6 months, 25% weight
Time Period #4: 12 months, 25% weight

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Momentum Improves Volatility, Drawdown and Longevity

1951 – May 2021	Large Cap US	60:40	Nicholas Timing	Volatility Control 0.5%/day	FundX Momentum
Max DD, nominal	51%	30%	23%	24%	23%
Volatility, per month	4.2%	2.6%	3.4%	2.6%	3.2%
Portfolio Longevity 6%, 35-years Inflation-adjusted Mean Inflation-adjusted Std. Dev.	75±% 0.0876 0.1580	60±% 0.0612 0.0965	90±% 0.0948 0.1281	63±% 0.0627 0.0967	84±% 0.0838 0.1182
Equity Allocation	100%	60%	79%	66%	69%

FundX Momentum: allocate 100% to Large Cap US stocks or 100% to intermediate government bonds, whichever has the higher FundX momentum.

Tactical Strategies provide a higher average equity allocation than the 60:40 portfolio, which increases Longevity, while reducing Volatility and Drawdown.

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Pause for Questions, Comments

Still to come

- Comparison of tactical and dividend investing
- Dividend investing using funds and ETFs
- Two tactical strategies with attractive performance over the past 31 years

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Dividend Investing

- It is realistic for a self-directed investor to implement … .
  As should tactical investing!
- It provides sufficient and reliable cash flow from dividends.
  Tactical investing provides a sufficient and reliable cash flow.
  Is it wise to specify the source of the cash flow?
- The cash flow grows steadily, at a rate that beats inflation … .
  Cash flow is inflation-adjusted!
- The operation provides peace of mind and psychological relief from market volatility.
  Tactical investing seeks to provide actual relief from market volatility!

- Dave Van Knapp, *DGI Lesson 12. Run Your Investing Like a Business.*

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Initial Spend is 3 - 4% of Initial Portfolio Value

	TTM Cash Flow	Cash Flow Growth Rate
VDIGX 2003-2020 Net of 0.3% expenses	2.3 – 3.2%	8%
DGRO 2015-2020 Net of 0.08% expenses SeekingAlpha.com	2.0 – 2.5%	
DVY 2004 – 2020 Net of 0.4% expenses	3.0 – 3.8%	4%
NOBL 2014 – 2020 Net of 0.35% expenses SeekingAlpha.com	1.6 – 2.4%	
PEY 2010-2020 Net of 0.52 expenses SeelingAlpha.com	3.1 – 4.3%	
SCHD 2012 – 2020 Net of 0.06% expenses SeekinggAlpha.com	2.9 – 3.5%	11%
VIG 2007 – 2020 Net of 0.06% expenses SeekingAlpha.com	1.6 – 2.8%	7%
VYM 2007 – 2020 Net of 0.06% expenses SeekingAlpha.com	2.8 – 3.4%	6%
Van Knapp Public Portfolio 2009-2020. No expenses April 1, 2021 blog	3.3 – 4.2%	11%

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Dividend strategies and large cap US stocks have exhibited similar volatilities and drawdowns.

Mar 2007 – Feb 2021	Volatility mSD, %	Maximum Drawdown, %
60 SPY, 40 VFISX	2.6	30
SPY (US Large Cap)	4.5	51
Dividend Strategies Avg	4.4	50
DLN	4.3	53
DVY ("Contender")	4.6	57
NOBL (Dividend Aristocrats Index before 2014)	4.2	44
PEY	5.6	67
PRDGX	4.1	45
VDIGX	3.8	38
VIG ("Challenger")	3.9	41
VYM ("Challenger")	4.3	52

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AAII's Dividend Investing Has Higher Volatility, Larger Drawdown, Higher Longevity Risk.

Volatility, Drawdown and Longevity of VFINX are 3.8%, 20% and 99%.

2012-6/2020 *No bear market*	Dividend Yield, net of expenses, %	Volatility mSD, %	Drawdown	Longevity 6% spend, 35 years	Monte Carlo Parameters
AAII Dividend Investing	2.6 - 3.6	4.4	0.31	94%	0.1231 0.1707
PEY SeekingAlpha.com	3.1 - 4.3	4.1	0.31	95%	0.1209 0.1595
DVY "Contender" SeekingAlpha.com	3.0 - 3.7	3.9	0.30	94%	0.1116 0.1497
SCHD SeekingAlpha.com	2.5 - 3.2	3.8	0.22	99%	0.1393 0.1476
DLN SeekingAlpha.com	2.3 - 3.0	3.8	0.23	97±%	0.1160 0.1390
Dividend Aristocrats	1.6 – 2.4	3.6	0.23	99%	0.1346 0.1418
VYM "Challenger" SeekingAlpha.com	2.8 - 3.4	3.6	0.24	96±%	0.1140 0.1388
VIG "Challenger" SeekingAlpha.com	1.6 - 2.4	3.4	0.17	99%	0.1246 0.1317
VDIGX	2.4 – 3.1	3.3	0.18	99%	0.1260 0.1282

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Comparing Dividend and Tactical Strategies

	Dividend	Tactical
Safe, Reliable Cash Flow	~ 4%	~ 6%
Portfolio Longevity	Naturally High	> 90%
Volatility	Similar to SPY	< SPY
Drawdown	Similar to SPY	<< SPY
Legacy – having enough to fund personal and charitable aspirations	Modest	Potential for large legacies

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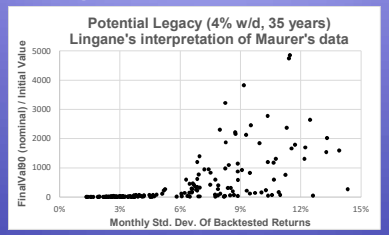
Tactical strategies tend to reduce volatilities **or** increase legacies



- Maurer emphasized strategies that provide large legacies for your heirs or charities.
- This presentation focuses on strategies which offer a reduction in volatility and which are easily implemented without sophisticated computer skills.

Source: Volatility vs Legacy.xlsx. Legacy potential for the purposes of this chart has been limited to 5000x.

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SIMPLE RM

- Apply the FundX algorithm to US and foreign stocks, REITs, short and intermediate bonds.
- Invest the portfolio each month in the two securities with the highest momentum.
- No market timing since bonds are among the investment options.
- Portfolio Visualizer setup

Timing Model: Relative Strength
Time period: Month-to-Month
Tickers: VOO, VEU, VNQ, IEI and VFISX
Performance periods: Multiple Periods
Assets to Hold: 2
Time Period #1: 1 months, 25% weight
Time Period #2: 3 months, 25% weight
Time Period #3: 6 months, 25% weight
Time Period #4: 12 months, 25% weight

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1. Short backtests tend to understate risk.

	VDIGX	VDIGX	Dividend Aristocrats	Dividend Aristocrats
Backtest Interval	2012– 4/2021	2003 - 4/2021	2012– 4/2021	2/1990 - 4/2021
Monthly Volatility	3.4%	3.5%	3.6%	4.0%
Maximum Drawdown	18%	42%	23%	44%
Portfolio Longevity Value90 (real) 6% spend, 35 years	>99% 7x	92% 0.3x	>99% 9x	91% 0.2x
Inflation-adj. Mean	0.1294	0.0994	0.1384	0.1067
Inflation-adj. Std. Dev.	0.1299	0.1331	0.1424	0.1516

2. There was a sharp and widespread surge in dividend distributions following the 2003 tax cut.
- Pinar Cebi Wilber citing Matray and Boissel, WSJ, June 17, 2011

What might happen if taxes were to increase?

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Low Volatility Tactical Strategies

Market timing a dividend strategy interrupts the dividend payments

Feb 1990 – June 2021	60:40	*Pro Forma* Dividend Strategy	Dividend Strategy + Market Timing	SIMPLE RM Top2
Strategy	Fixed Allocation	Buy & Hold	Market Timing	FundX Momentum
Market Timing	None	None	Armor (Short Bond)	None
Max DD	30%	44%	22%	15%
Monthly Volatility	2.5%	4.0%	2.9%	2.9%
Portfolio Longevity Value90 (real) 6% spend, 35 years	71±%	90%	>99% 6 x	97% 2 x
Inflation-adj. Mean	0.0665	0.1056	0.1206	0.1010
Inflation-adj. Std. Dev.	0.0931	0.1514	0.1120	0.1191
Implementation	Easy	SCHD, VDIGX	SCHD, VDIGX & SumGrowth signals	Portfolio Visualizer

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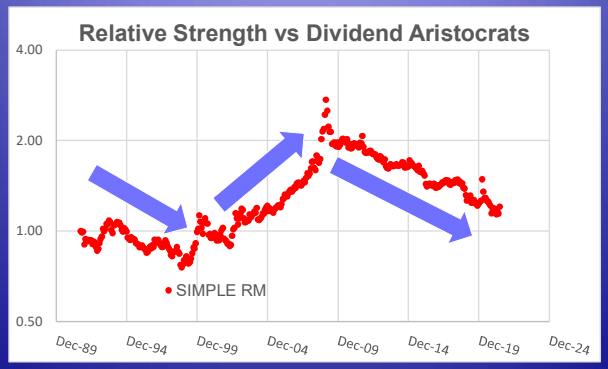
Relative strength shows extended intervals of underperformance for SIMPLE RM.

Relative strength is better vs. 60:40 portfolio.



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Combination Strategy Creates Synergy

Combination strategy equally weights SIMPLE RM & 27Fidos strategies

Feb 1990 – June 2021	*Pro Forma* Dividend Strategy	Dividend Strategy + Market Timing	SIMPLE RM Top2	27Fidos Top3	Combination
Strategy	Buy & Hold	Market Timing	FundX Momentum	FundX Momentum (not optimum)	
Market Timing	None	Armor (Short Bond)	None	Armor (Short Bond)	
Max DD	44%	22%	15%	31%	13%
Monthly Volatility	4.0%	2.9%	2.9%	4.9%	3.4%
Portfolio Longevity Value90 (real) 6% spend, 35 years	90%	>99% 6 x	97% 2 x	99.9% 60 x	99.9% 20 x
Inflation-adj. Mean	0.1056	0.1206	0.1010	0.2064	0.1526
Inflation-adj. Std. Dev.	0.1514	0.1120	0.1191	0.2050	0.1336
Implementation	SCHD, VDIGX	SCHD, VDIGX & SumGrowth signals	Portfolio Visualizer	Portfolio Visualizer & SumGrowth signals	Portfolio Visualizer & SumGrowth signals
CAGR	0.122	0.142	0.122	0.219	0.173
Sharpe	0.73	1.14	0.97	1.10	1.22
UPI	1.06	2.86	2.11	2.35	3.60

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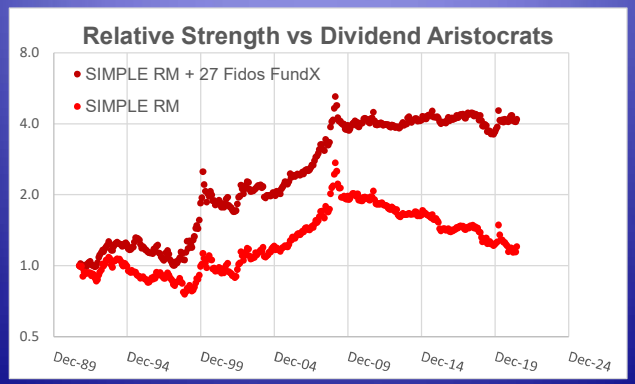
Combination Strategies Improve Relative Strength



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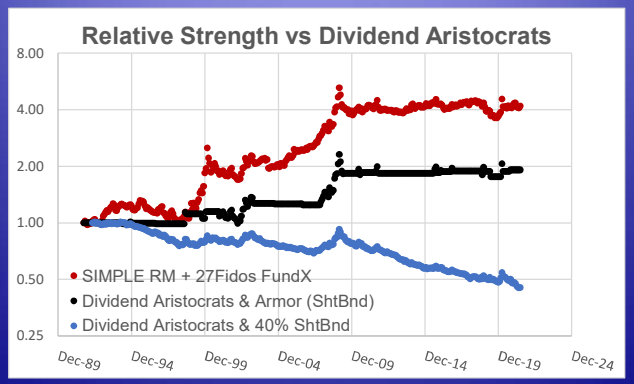
Different Mitigation Strategies, Comparable Volatilities, Different Results after 31 years



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Conclusions

- Strategies should be backtested over an extended interval and evaluated in terms of Volatility, Drawdown, Longevity, Relative Strength and Legacy.
- AAII's dividend strategy exhibits relatively high volatility and drawdown as compared to dividend-oriented funds like SCHD and VDIGX.
- Tactical strategies can increase the initial spend and ultimate legacy as compared to dividend strategies. They can be less volatile and suffer smaller drawdowns.
- Market timing a dividend strategy with StormGuard® Armor dramatically improves volatility, drawdown and legacy potential. Timing signals are published daily.

  Armor is highly fit and may disappoint in the future.

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Conclusions II

- SIMPLE RM underperforms for decade long intervals while the 27Fidos strategy may be too volatile for some investors. Combining the two strategies is synergistic, reducing volatility and improving relative strength.
- Tactical strategies which use long bonds should be viewed with caution.
- Tactical strategies are best owned inside tax-advantaged accounts.
- Dividend investors need to consider that performance in the post 2003 interval could be anomalous and that tax changes could degrade future after-tax performance.

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Questions?

Available at www.lingane.com/qi.

- "What Tactical Strategies Offer Dividend Investors," 2021.
- Curated Data, 2020.
- "Description of Timing and Allocation Algorithms," 2019.
- "SectorSurfer Forward Walk Progressive Tuning," 2015.

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