# An In-Depth Look At Optimal Rebalancing Strategies

12.3.2019 | NAPFA DC Study Group


## Michael E. Kitces

**MSFS, MTAX, CFP®, CLU, ChFC, RHU, REBC, CASL**

**Partner**. Director of Research, Pinnacle Advisory Group

**Publisher**. The Kitces Report, www.kitces.com

**Blogger**. Nerd's Eye View, www.kitces.com/blog

**Twitterer**. @MichaelKitces, www.twitter.com/MichaelKitces


KITCES.COM

Advancing Knowledge In Financial Planning . . .

Handouts/Additional Materials at: kitces.com/NAPFADC19

1

## Portfolio Rebalancing

- Conventional view on rebalancing:

Cliff Asness, AQR Investments

*Make sure you rebalance your portfolio.*

*Rebalancing is one of the few free lunches out there.*

*You're generally selling things that have gone up the most and buying things that have gone down the most.*

Asness, *Bursting the (Latest) Bubble*, WSJ, 1/14/2004

© 2013 Michael Kitces | kitces.com

Handouts/Materials: kitces.com/NAPFADC19

@michaelkitces

2

## Portfolio Rebalancing

- Concerns about rebalancing?

Jason Hsu, Research Affiliates

*When you buy risk assets during economic distress, there is a significant probability that, in the interim, your portfolio may suffer a greater decline than if you didn't rebalance.*

*In the short run, your probability of being fired as a fiduciary, of being blamed by clients you advise, and, most importantly, of marital strife, becomes moderately higher when you rebalance.*

Hsu, *Why We Don't Rebalance*, Research Affiliates, July 2012

© 2013 Michael Kitces | kitces.com

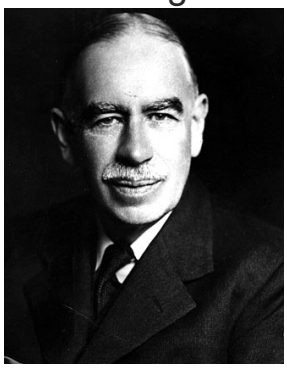
Handouts/Materials: kitces.com/NAPFADC19

@michaelkitces

3

## Portfolio Rebalancing

- The timing of rebalancing?



John Maynard Keynes

*"The market can remain irrational longer than you can remain solvent."*

*[Or employed]*

*[Or happily married]*

© 2013 Michael Kitces | kitces.com

Handouts/Materials: kitces.com/NAPFADC19

@michaelkitces

4

## Portfolio Rebalancing

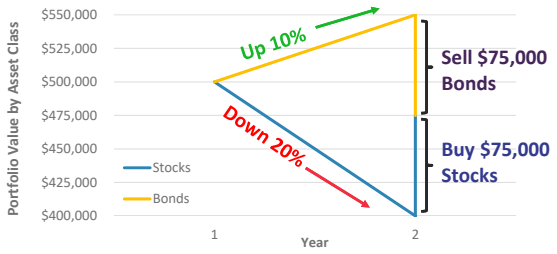
- An In-Depth Look At Rebalancing
  - What is rebalancing?
    - Does it enhance returns?
    - Does it increase risk? Does it reduce risk?
  - Does it matter what you rebalance between?
  - How often *should* you Rebalance?
    - What are the "best practices" for rebalancing?
  - What is rebalancing really worth at the end of the day?
    - What are the potential benefits?
    - What are the risks to consider?

© 2013 Michael Kitces | kitces.com
Handouts/Materials: kitces.com/NAPFADC19
@michaelkitces

5

## Portfolio Rebalancing

- What Is Rebalancing?
  - Setting the portfolio back to its original asset allocation, after market returns distort the original allocation



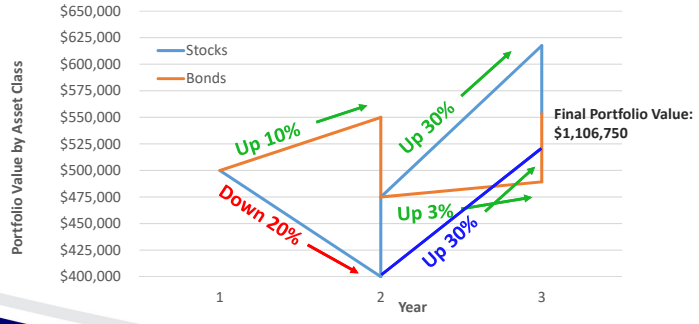

  - Otherwise your portfolio risk exposure changes!

© 2013 Michael Kitces | kitces.com
Handouts/Materials: kitces.com/NAPFADC19
@michaelkitces

6

# Portfolio Rebalancing

- What Is Rebalancing?
  - Returns may be enhanced by selling what was up, and buying what was down!

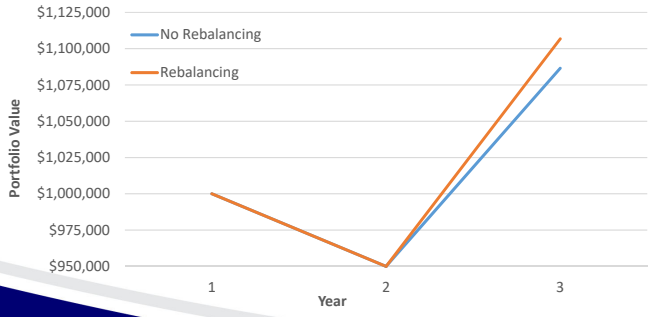



© 2013 Michael Kitces | kitces.com
Handouts/Materials: kitces.com/NAPFADC19
@michaelkitces

7

# Portfolio Rebalancing

- What Is Rebalancing?
  - Returns may be enhanced by selling what was up, and buying what was down!




© 2013 Michael Kitces | kitces.com
Handouts/Materials: kitces.com/NAPFADC19
@michaelkitces

8

## Portfolio Rebalancing

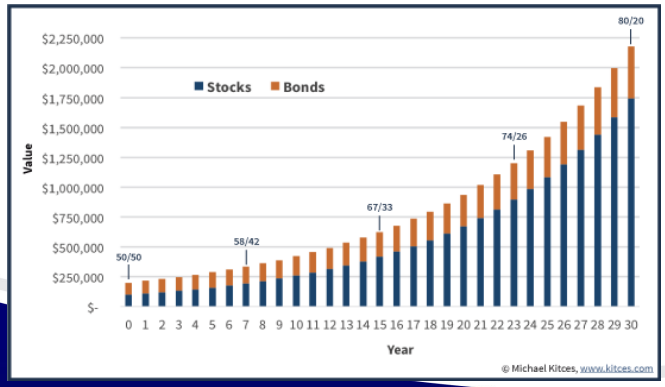
- Fundamental benefit of rebalancing
  - Create sell-high-buy-low opportunities (return enhancement)
    - Buy stocks when they're down, using bonds that were up

© 2013 Michael Kitces | kitces.com
Handouts/Materials: kitces.com/NAPFADC19
@michaelkitces

9

## Portfolio Rebalancing

- Why Stock/Bond Rebalancing matters
  - Stocks also have better returns in the long run…
    - Causes the portfolio to overweight stocks over time!

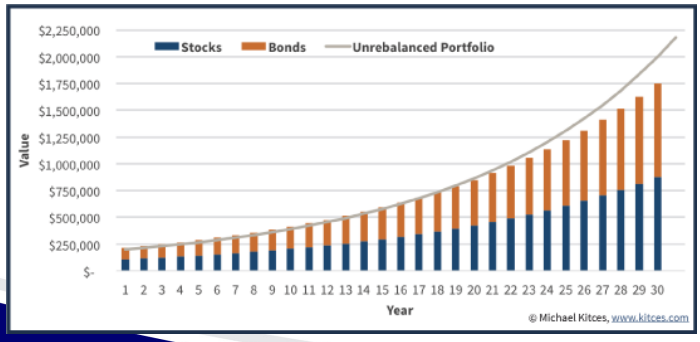



© 2013 Michael Kitces | kitces.com
Handouts/Materials: kitces.com/NAPFADC19
@michaelkitces

10

# Portfolio Rebalancing

- The "problem" with stock/bond rebalancing
  - Return drift causes stocks to become overweight…
    - But rebalancing just reduces exposure to the higher returns!

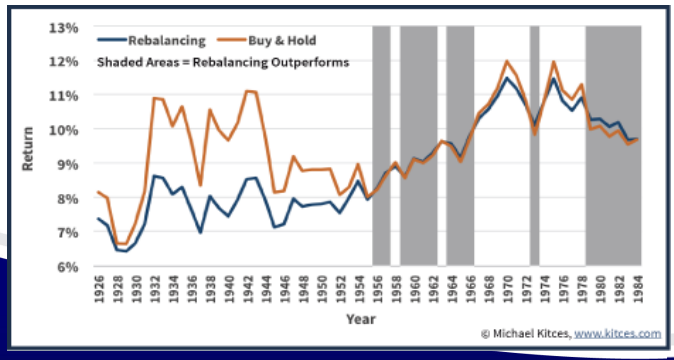



© 2013 Michael Kitces | kitces.com
Handouts/Materials: kitces.com/NAPFADC19
@michaelkitces

11

# Portfolio Rebalancing

- Real-world stock/bond rebalancing
  - In practice stocks don't always go straight up
    - They may temporarily decline and recover later
    - On average is it good more than it's bad? Rarely.



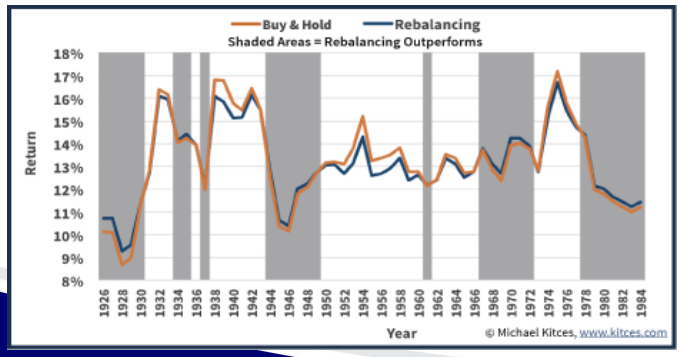

Note: Based on Rolling 30-Year Returns, with a 50/50 Stock/Bond Portfolio

© 2013 Michael Kitces | kitces.com
Handouts/Materials: kitces.com/NAPFADC19
@michaelkitces

12

# Portfolio Rebalancing

- Rebalancing between *similar-return asset classes*
  - Less return drag, and more opportunities for enhancement?
  - Still not necessarily much better, but at least 'less bad'!?




Note: Based on Rolling 30-Year Returns, 50/50 Large Cap/Small Cap.

© 2013 Michael Kitces | kitces.com

Handouts/Materials: kitces.com/NAPFADC19

@michaelkitces

13

# Portfolio Rebalancing

- Impact of Rebalancing:
  Depends on WHAT You're Rebalancing!?
  - Similar- or different-return asset classes?

| | IMPACT ON EXPECTED RETURNS | IMPACT ON RISK MANAGEMENT |
|---|---|---|
| Investments with Similar Returns | ↑ | → |
| Investments with Different Returns | ↓ | ↑ |

© 2013 Michael Kitces | kitces.com

Handouts/Materials: kitces.com/NAPFADC19

@michaelkitces

14

# Portfolio Rebalancing

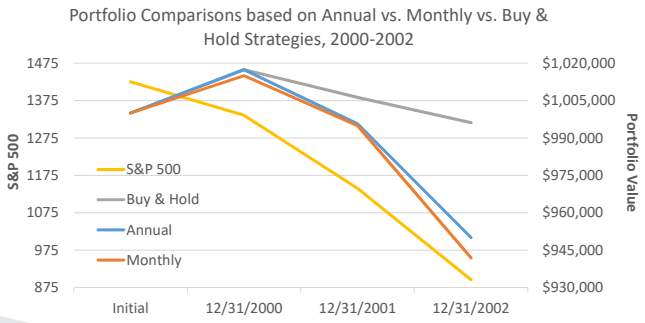
- Optimal Rebalancing Frequency
  - How often SHOULD you rebalance?
    - Often enough to capture buy-low sell-high opportunities
    - Often enough to limit becoming too overweight to equities
  - But you can rebalance *too* frequently…

© 2013 Michael Kitces | kitces.com
Handouts/Materials: kitces.com/NAPFADC19
@michaelkitces

15

# Portfolio Rebalancing

- Frequent Rebalancing And Momentum
  - Monthly vs Annual Rebalancing in a Bear Market

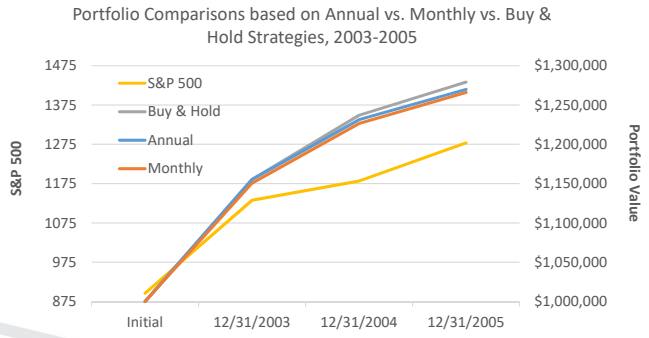



© 2013 Michael Kitces | kitces.com
Handouts/Materials: kitces.com/NAPFADC19
@michaelkitces

16

# Portfolio Rebalancing

- Frequent Rebalancing And Momentum
  - Monthly vs Annual Rebalancing in a Bull Market




© 2013 Michael Kitces | kitces.com
Handouts/Materials: kitces.com/NAPFADC19
@michaelkitces

17

# Portfolio Rebalancing

- Momentum and Optimal Rebalancing Frequency
  - And watch out for transaction costs, too!

| | Never | Annually | Quarterly | Monthly |
|---|---|---|---|---|
| **Avg. Equity Allocation** | 84.1% | 60.5% | 60.2% | 60.1% |
| **Annual Turnover** | 0% | 1.7% | 2.2% | 2.7% |
| **No. Rebalancing Events** | 0 | 83 | 335 | 1,008 |
| **Avg. Annualized Return** | 9.1% | 8.6% | 8.6% | 8.5% |
| **Volatility** | 14.4% | 11.9% | 12.2% | 12.1% |

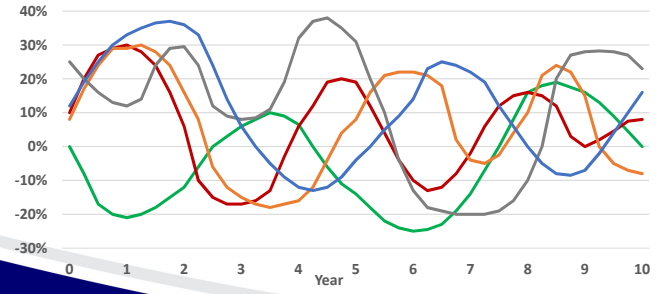
Source: Jaconetti, C. M., Kinniry Jr., F. M., & Zilbering, Y. (2010). *Best practices for portfolio rebalancing*. Vanguard. Figure 6: Comparing portfolio rebalancing results for 'time-only' strategy: Various frequencies, 1926 - 2009 (p. 8).

© 2013 Michael Kitces | kitces.com
Handouts/Materials: kitces.com/NAPFADC19
@michaelkitces

18

# Portfolio Rebalancing

- Momentum and Optimal Rebalancing Frequency
  - Often enough to capture the extremes
  - Not so often you cut off the momentum along the way
  - But is that even possible with multiple asset classes?

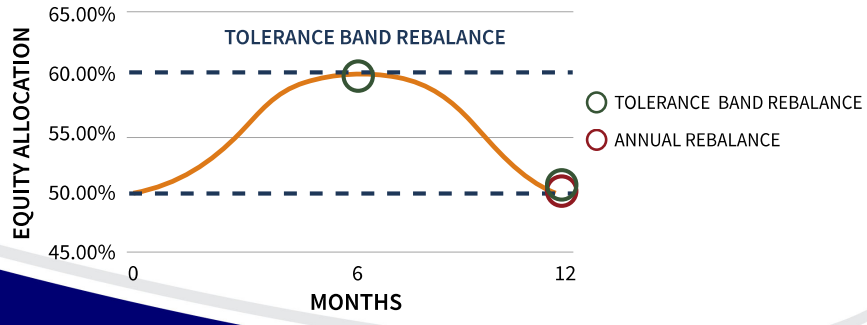



© 2013 Michael Kitces | kitces.com
Handouts/Materials: kitces.com/NAPFADC19
@michaelkitces

19

# Portfolio Rebalancing

- Tolerance Band Rebalancing
  - If we're trying to rebalance at the extremes, don't do it based on the times, do it based on the extremes

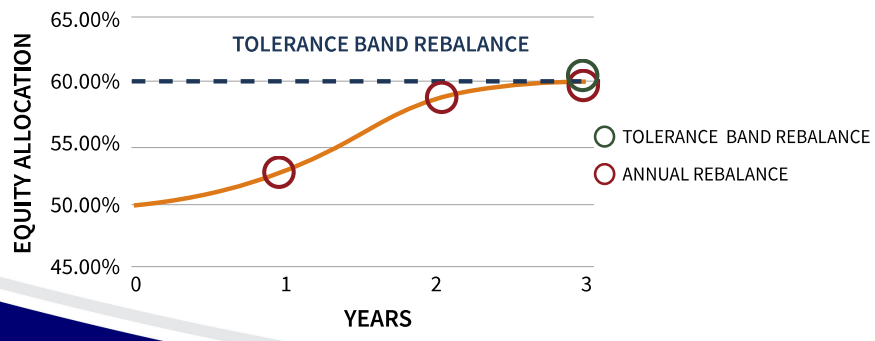



© 2013 Michael Kitces | kitces.com
Handouts/Materials: kitces.com/NAPFADC19
@michaelkitces

20

# Portfolio Rebalancing

- Tolerance Band Rebalancing
  - Can trigger rebalancing more *or less* frequently!

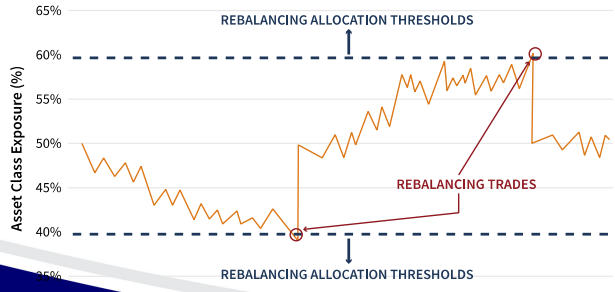



© 2013 Michael Kitces | kitces.com
Handouts/Materials: kitces.com/NAPFADC19
@michaelkitces

21

# Portfolio Rebalancing

- Tolerance Band Rebalancing
  - Presumes that asset classes will only outperform or underperform each other by "so much" before snapping back
  - Sample tolerance band could be +/- 20% of target weighting

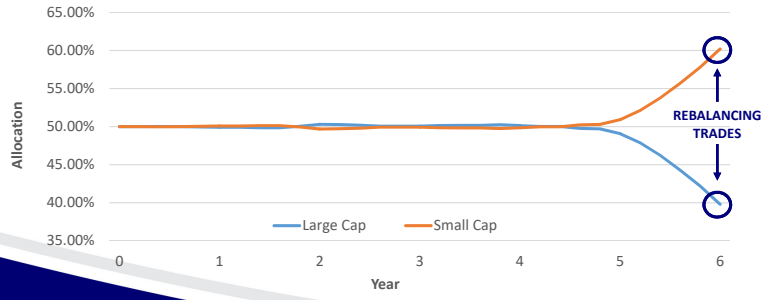



© 2013 Michael Kitces | kitces.com
Handouts/Materials: kitces.com/NAPFADC19
@michaelkitces

22

# Portfolio Rebalancing

- Tolerance Band Rebalancing
  - If investments trend together, rebalancing trade frequency (and transaction costs) are just reduced
    - So it's really all about *relative* returns

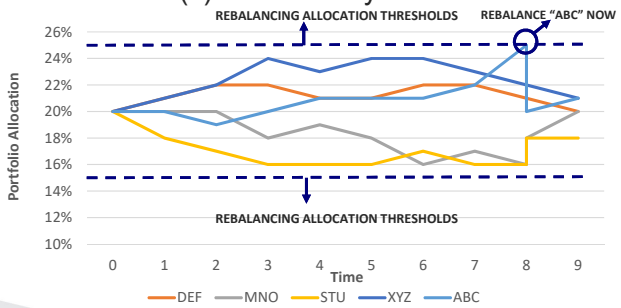



© 2013 Michael Kitces | kitces.com
Handouts/Materials: kitces.com/NAPFADC19
@michaelkitces

23

# Portfolio Rebalancing

- Tolerance Band Rebalancing
  - In a multi-asset-class portfolio, rebalancing only triggers for the investment(s) that actually cross the thresholds




© 2013 Michael Kitces | kitces.com
Handouts/Materials: kitces.com/NAPFADC19
@michaelkitces

24

## Portfolio Rebalancing

- Finding the Optimal Tolerance Bands
  - Absolute thresholds
    - Become impossible to trigger for small investments and with uneven weightings
    - If the portfolio is 90/10, then going +/- 10% will "never" trigger a bond trade, might have to be smaller
    - If the portfolio is 50/10/10/5/5/5/5 then a smaller threshold will trigger 'constant' rebalancing on the core!

© 2013 Michael Kitces | kitces.com
Handouts/Materials: kitces.com/NAPFADC19
@michaelkitces

25

## Portfolio Rebalancing

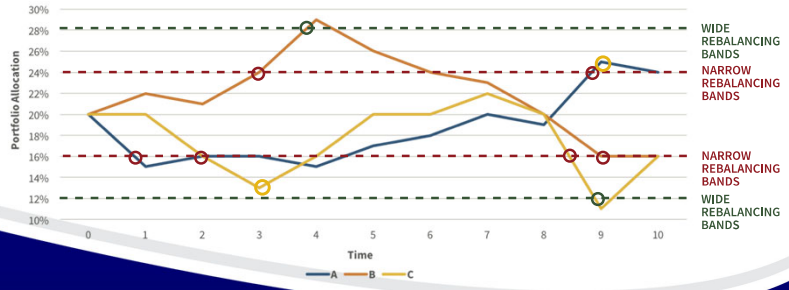
- Finding the Optimal Tolerance Bands
  - Relative thresholds becomes necessary
    - 20% *of* original target
      - 50% allocation is at +/- 10%
      - 5% allocation is at +/- 1%
      - Still has to beat *everything else by ~20%* to actually trigger this (even just for a 1% change)

© 2013 Michael Kitces | kitces.com
Handouts/Materials: kitces.com/NAPFADC19
@michaelkitces

26

# Portfolio Rebalancing

- Finding the Optimal (Relative) Tolerance Bands
  - Still has a similar challenge to manage momentum
    - Narrow tolerance bands trigger 'extra' trades and sell winners early or over-invest losers still falling
    - But wide tolerance bands never trigger at all!




© 2013 Michael Kitces | kitces.com

Handouts/Materials: kitces.com/NAPFADC19

@michaelkitces

27

# Portfolio Rebalancing

- Finding the Optimal Tolerance Bands
  - What appears to work in multi-asset-class portfolios?

| Averages of Rebalance Return Benefits; 15 Rolling Periods with 12 Monthly Starts | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Look Intervals in Market Days | | | | | | |
| Rebalance Bands | 250 | 125 | 60 | 20 | 10 | 5 | 1 |
| 0% | 0.13% | 0.07% | 0.08% | -0.02% | -0.16% | -0.40% | -2.44% |
| 5% | 0.13% | 0.09% | 0.11% | 0.10% | 0.10% | 0.11% | 0.09% |
| 10% | 0.15% | 0.13% | 0.18% | 0.16% | 0.19% | 0.18% | 0.16% |
| 15% | 0.15% | 0.19% | 0.30% | 0.26% | 0.25% | 0.23% | 0.22% |
| 20% | 0.16% | 0.22% | 0.25% | 0.33% | 0.38% | 0.39% | 0.38% |
| 25% | 0.14% | 0.21% | 0.21% | 0.22% | 0.27% | 0.30% | 0.35% |
| 100% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% | 0.00% |

Source: Daryanani, G. (2008). Opportunistic Rebalancing: A New Paradigm for Wealth Managers. Panel A of Table 3. *Journal of Financial Planning.*

© 2013 Michael Kitces | kitces.com

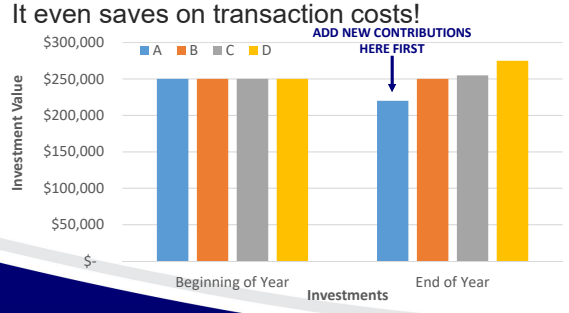
Handouts/Materials: kitces.com/NAPFADC19

@michaelkitces

28

# Portfolio Rebalancing

- Rebalancing Strategies For Savers
  - For savers, simply add to the investment that is performing the worst!
    - You're systematically buying low!
    - It even saves on transaction costs!

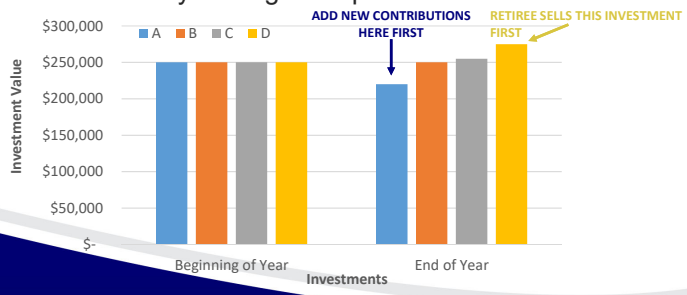



© 2013 Michael Kitces | kitces.com
Handouts/Materials: kitces.com/NAPFADC19
@michaelkitces

29

# Portfolio Rebalancing

- Rebalancing Strategies For Retirees
  - Works in reverse of savers – sell whatever is overweight
    - You're systematically selling high!
    - Again saves on transaction costs!
    - Also indirectly manages sequence risk!




© 2013 Michael Kitces | kitces.com
Handouts/Materials: kitces.com/NAPFADC19
@michaelkitces

30

## Portfolio Rebalancing

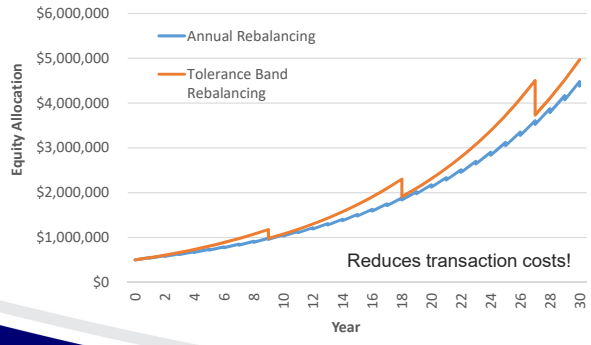
- Using Dividends & Interest For Rebalancing?
  - Better than just auto-reinvesting into the original?
    - But will depend on your transaction costs for reinvest (vs buying something new?)
    - May want to accumulate until cash is at a critical mass?
      - Large enough to manage transaction cost, low enough to avoid cash drag?
      - Unless you have NTF investment options?

© 2013 Michael Kitces | kitces.com
Handouts/Materials: kitces.com/NAPFADC19
@michaelkitces

31

## Portfolio Rebalancing

- Tolerance Vs Time Interval Rebalancing
  - More favorable when markets are up on average




© 2013 Michael Kitces | kitces.com
Handouts/Materials: kitces.com/NAPFADC19
@michaelkitces

32

# Portfolio Rebalancing

- Economic Benefits of Rebalancing
  - Returns generally 0.50% *lower* from time-based rebalancing
    - Though *risk-adjusted* returns were improved

| | Never | Annually | Quarterly | Monthly |
|---|---|---|---|---|
| Average Annualized Return | 9.1% | 8.6% | 8.6% | 8.5% |
| Volatility | 14.4% | 11.9% | 12.2% | 12.1% |

  - Daryanani found slight return enhancement from tolerance bands
    - Long-term value of ~0.40%/year
    - Greater value in times of volatility?

| Averages of Rebalance Return Benefits; 15 Rolling Periods with 12 Monthly Starts | | | | | | | |
|---|---|---|---|---|---|---|---|
| | Look Intervals in Market Days | | | | | | |
| Rebalance Bands | 250 | 125 | 60 | 20 | 10 | 5 | 1 |
| 0% | 0.13% | 0.07% | 0.08% | -0.02% | -0.16% | -0.40% | -2.44% |
| 10% | 0.15% | 0.13% | 0.18% | 0.16% | 0.19% | 0.18% | 0.16% |
| 20% | 0.16% | 0.22% | 0.25% | 0.33% | 0.38% | 0.39% | 0.38% |
| 25% | 0.14% | 0.21% | 0.21% | 0.22% | 0.27% | 0.30% | 0.35% |

© 2013 Michael Kitces | kitces.com
Handouts/Materials: kitces.com/NAPFADC19
@michaelkitces

33

# Portfolio Rebalancing

- Economic Benefits of Rebalancing
  - Value depends on what you rebalance amongst?

| | Expected Returns | Volatility | Correlations |
|---|---|---|---|
| Good for Rebalancing | Similar | High | Low |
| Bad for Rebalancing | Different | Low | High |

© 2013 Michael Kitces | kitces.com
Handouts/Materials: kitces.com/NAPFADC19
@michaelkitces

34

## Portfolio Rebalancing

- Psychological Benefits of Rebalancing
  - A systematic way of selling high and buying low?
    - May provide a unique 'discipline'?
  - Effective way for savers to add more to what's doing worst?
  - Comforting for retirees that they only ever sell what's up and take gains off the table?

© 2013 Michael Kitces | kitces.com
Handouts/Materials: kitces.com/NAPFADC19
@michaelkitces

35

## Portfolio Rebalancing

- Summary of Rebalancing
  - More about risk management than return enhancement
    - Across stocks/bonds, return improvement is *modest* at *best*
  - Time-based rebalancing is somewhat inefficient
    - Excess frequency and transaction costs in momentum markets
    - And can miss short-term opportunities in volatility
    - Improves risk-adjusted returns "in spite of" itself?
  - Tolerance-band strategies appear more favorable
    - Can target ~20% bands
    - Check often, trade when necessary
    - Target existing inflows/outflows to further minimize transaction costs

© 2013 Michael Kitces | kitces.com
Handouts/Materials: kitces.com/NAPFADC19
@michaelkitces

36

# QUESTIONS?

**Handouts & additional materials:**
**www.kitces.com/NAPFADC19**

Contact: questions@kitces.com

© 2013 Michael Kitces | kitces.com

@michaelkitces

37