Maximizing the Value of Portfolio Rebalancing

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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

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

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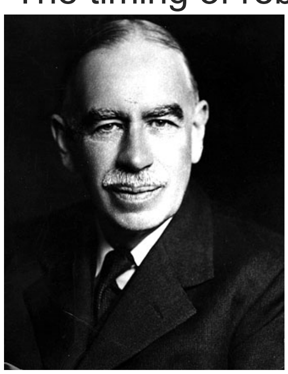
Portfolio Rebalancing

- The timing of rebalancing?



John Maynard Keynes

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

[Or employed]

[Or happily married]

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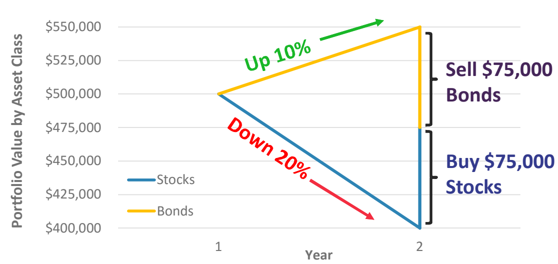
Portfolio Rebalancing

- 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?

Portfolio Rebalancing

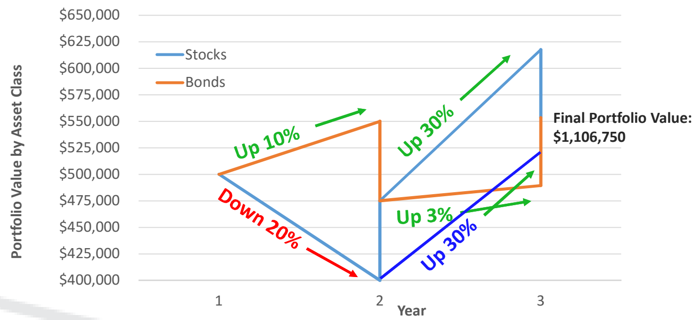
- What Is Rebalancing?
  - Setting the portfolio back to its original asset allocation, after market returns distort the original allocation



- Otherwise your portfolio risk exposure changes!

Portfolio Rebalancing

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



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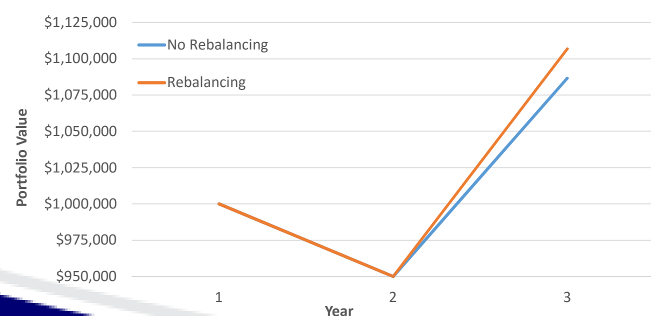
Portfolio Rebalancing

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



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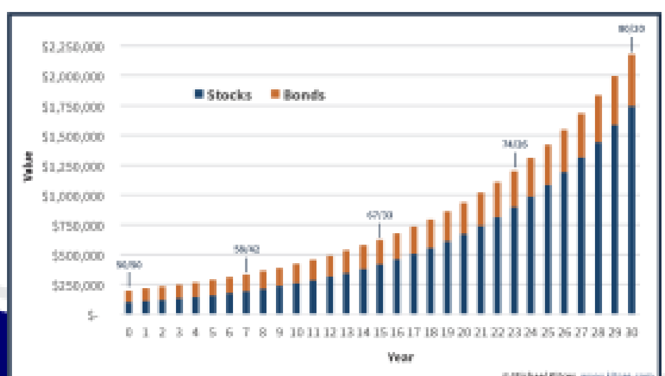
Portfolio Rebalancing

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

Portfolio Rebalancing

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

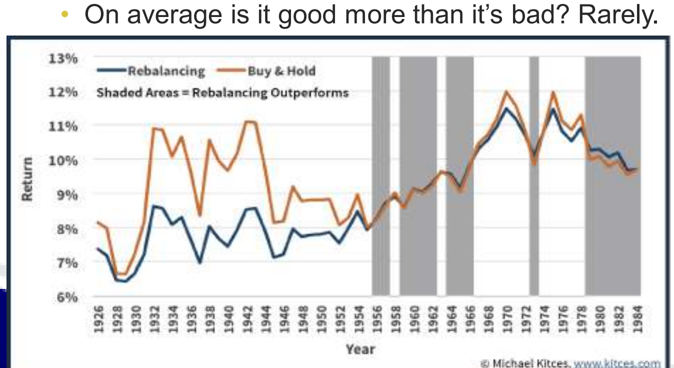


Portfolio Rebalancing

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

Portfolio Rebalancing

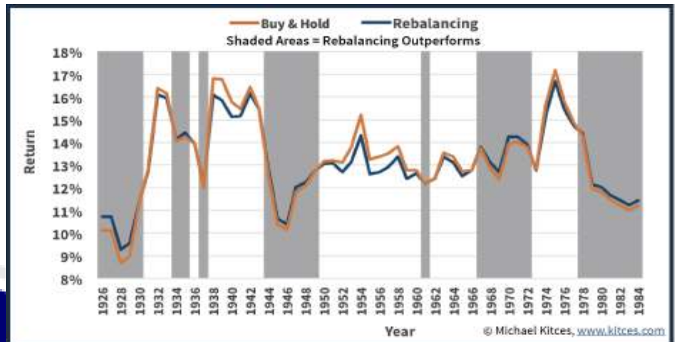
- Real-world stock/bond rebalancing
  - In practice stocks don't always go straight up
    - They may temporarily decline and recover later
    - On average is it good more than it's bad? Rarely.



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

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.

Portfolio Rebalancing

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

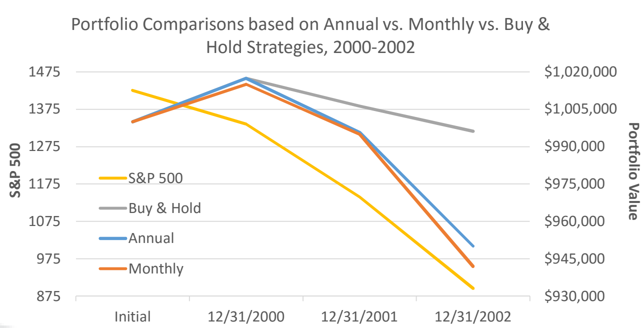
	IMPACT ON EXPECTED RETURNS	IMPACT ON RISK MANAGEMENT
Investments with Similar Returns	↑	→
Investments with Different Returns	↓	↑

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…

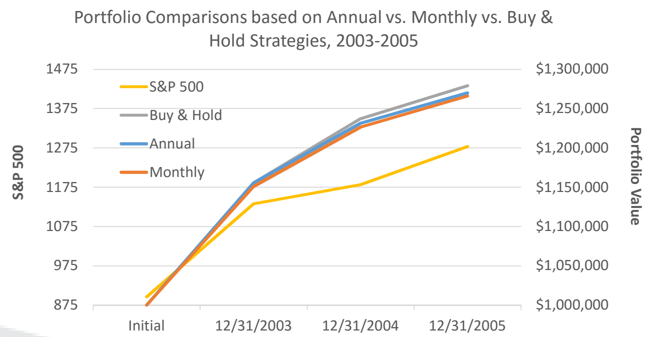
Portfolio Rebalancing

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



Portfolio Rebalancing

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



Portfolio Rebalancing

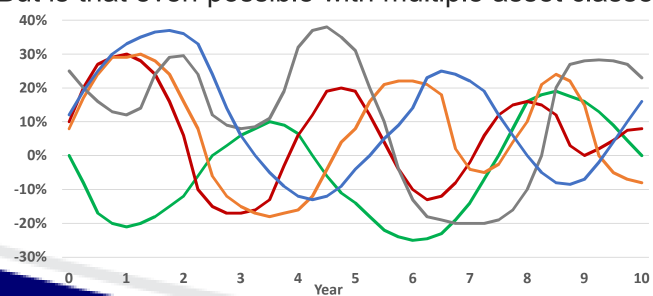
- Momentum and Optimal Rebalancing Frequency
  - And watch out for transaction costs, too!

	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).

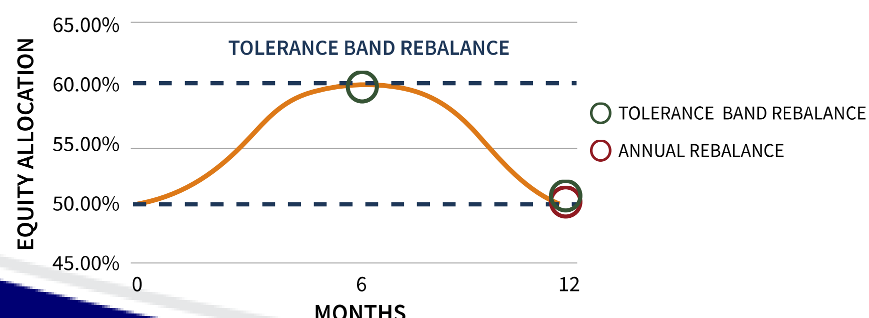
Portfolio Rebalancing

- 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?



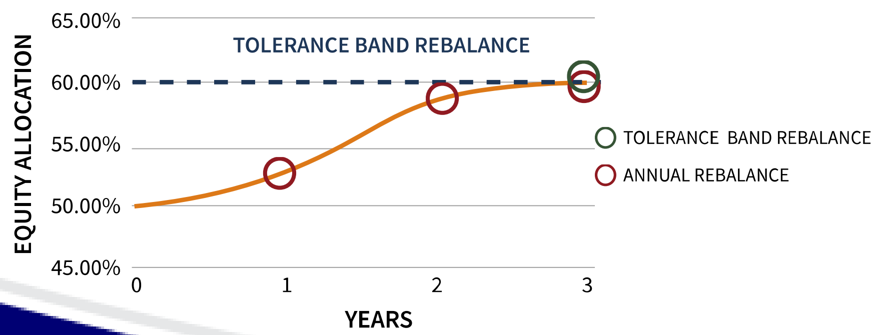
Portfolio Rebalancing

- 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



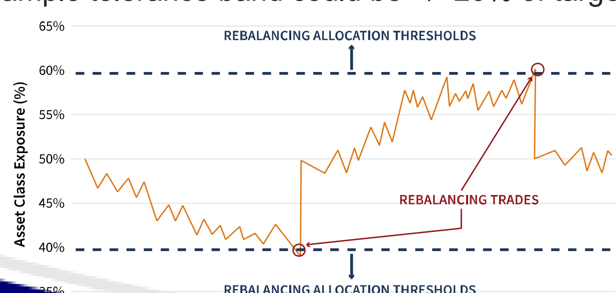
Portfolio Rebalancing

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



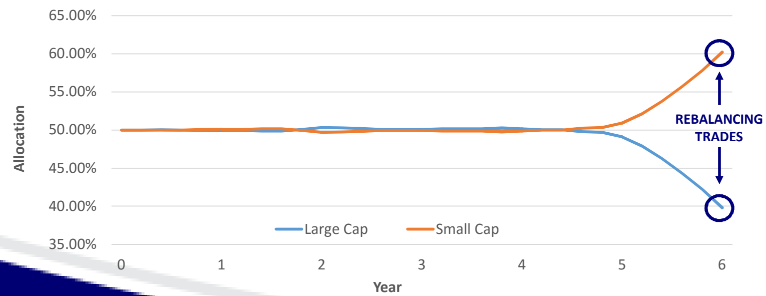
Portfolio Rebalancing

- 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



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



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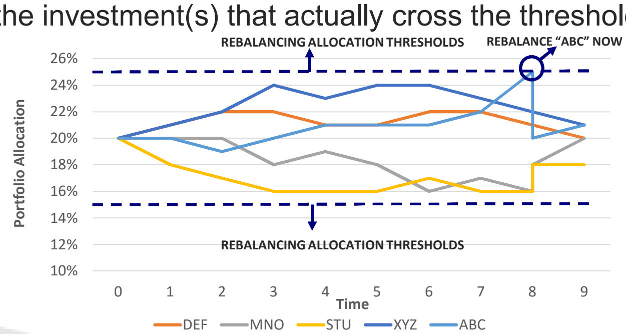
Portfolio Rebalancing

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



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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!

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)

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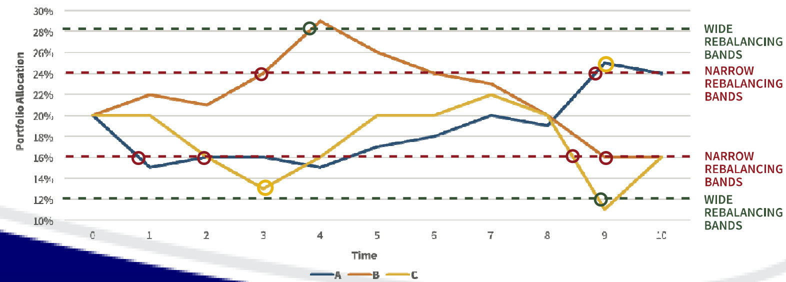
Portfolio Rebalancing

- 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!



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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.*

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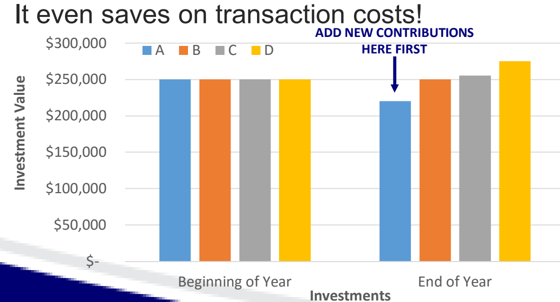
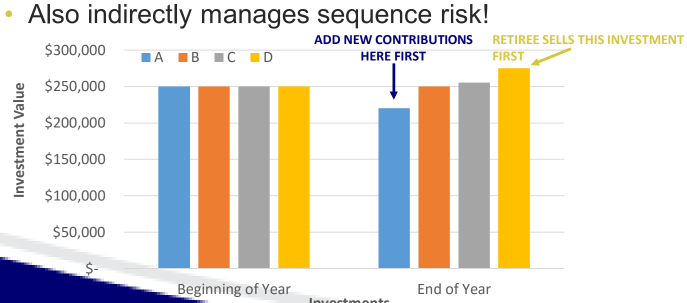
Portfolio Rebalancing

- 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!



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!

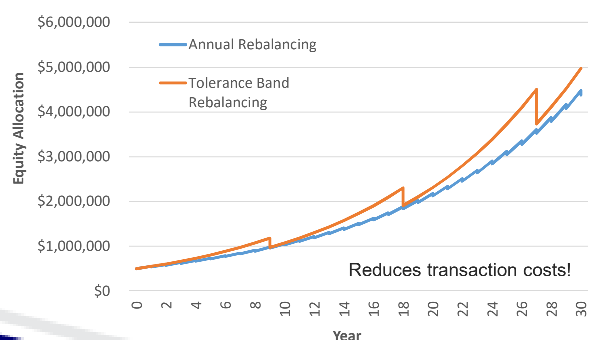


Portfolio Rebalancing

- 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?

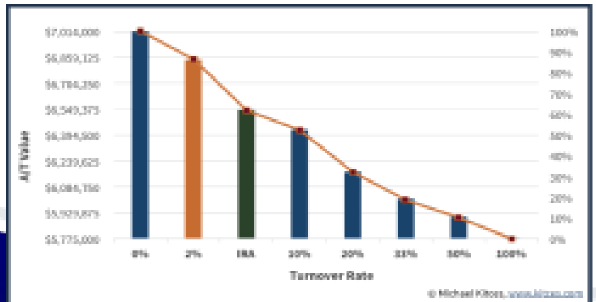
Portfolio Rebalancing

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



Portfolio Rebalancing

- Tolerance Vs Time Interval Rebalancing
  - Also spaces out the frequency of turnover for tax drag
    - Though the "tax deferral" is minimal w/ ~2% turnover
  - If anticipating higher turnover (or short-term) could asset locate into an IRA though (or a Roth!)



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%
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25%	0.14%	0.21%	0.21%	0.22%	0.27%	0.30%	0.35%

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

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?

Portfolio Rebalancing

- “Cutting Edge” Rebalancing Theory
  - Different tolerance bands for different investments?
  - Asymmetric tolerance bands?
    - Since markets rise up longer/further than they decline…
  - Ideal frequency to “check” rebalancing opportunities?
    - Check monthly? Weekly? Daily?
    - Software to automate checking?

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

Questions?

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