

# Rebalancing: A Good Idea

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# Overview

- Review/update of prior talks
  - Dow Turnarounds
  - Market Timing
- Portfolio rebalancing
  - Benefits
  - Examples
  - Research Results

• NO RECOMMENDATIONS HERE

# Dow Turnarounds (January)

- Buy & sell stocks in the Dow
  - First buy on “fresh” 52-week low
  - Buy more lots on 8-12% drops
  - Sell when 45% above average purchase price
  - Sell if gets 25% above average and then falls by 20%
  - Sell may factor in taxes, market conditions, available buy candidates
- Some option strategies can be used

# Stocks in Buying Range on 1/4/03

Stock	1/6/2003 Close	6/27/2003 Close	Percent Change	Sell Target
Home Depot	21.82	32.47	48.8%	35.00
McDonalds	16.65	22.37	34.4%	29.50
SBC*	31.19	25.44	-18.4%	43.00

\*Note: SBC made fresh lows in March, shown on next slide. Sell target for newer purchase is lower

Since 1/6/03:

Dow	2.5%
S&P 500	5.1%
Nasdaq	14.4%

# New Buys in 2003

Company	Purchase information			Sale/recent price information			Dow since 1st buy
	Date(s)	Avg. Price	# of Buys	Date	Price	Avg. %	
Boeing	2/20/03 - 3/6/03	27.32	2	6/27/2003	34.22	25.3%	13.6%
DuPont	3/5/2003	35.01	1	6/27/2003	41.83	19.5%	15.6%
General Motors	3/7/2003	30.79	1	6/27/2003	36.11	17.3%	16.1%
SBC Communications	3/10/2003	19.56	1	6/27/2003	25.44	30.1%	18.8%
AT&T	3/10/03 - 4/10/03	15.37	3	6/27/2003	19.37	26.0%	18.8%
Altria (Phillip Morris)	3/12/03 - 3/31/03	32.38	3	6/27/2003	45.10	39.3%	19.0%

## Dow stocks in buying range

Stock	Ticker	6/27/03 Close	Buy Below	Sell Target
EASTMAN KODAK	EK	27.52	30.75	46.00
MICROSOFT CP	MSFT	25.63	30.85	44.00
<u>Within 10% of buy level</u>				
EXXON MOBIL	XOM	36.37	33.53	48.00
MCDONALDS CORP	MCD	22.37	20.66	29.50

Note: I have long stock or short put positions in Kodak and McDonalds

## November - April Timing Model

- Be in market for those months
  - 10/31/02 - 4/30/03: S&P 500 +3.5%
  - Since 4/30/03: +6.5%
- Keep in mind that primary purpose of market timing is risk reduction.
  - Timing will be important if we are in a long sideways channel like 1966-82.

# Triple 40 Timing Model (1)

- Weekly (Friday data) calculations:
  - 40 week moving average of S&P 500
  - 40 week MA of 90-day T-Bill rate
  - 40 week MA of 10-year T-Bond rate
- Model signals (comparisons to MAs):
  - Buy if S&P is above its MA and at least one T-rate is below its MA
  - Sell if S&P is below its MA or both T-rates are above their MAs



## Triple 40 Timing Model (2)

- Sell signal on 4/5/02
- Buy 3/21/03, sell 3/28/03
  - S&P 500 -3.6% (Friday to Friday)
  - “whipsaws” are fairly unusual
  - S&P fell 20.2% during sell signal
- Buy signal on 4/17/03, still current
  - S&P +9.2% since then

## “RutVol” Timing Model

- Did not show during March talk
  - Too complicated
  - Tests out better
  - Limited “out-of-sample” experience
- Sell signal on 12/10/02, buy signal on 3/31/03 (still current)
  - S&P -6.2% during sell signal (-11.5% at low point)
  - S&P +15.1% since 3/31

# Some Alternatives to Timing

- **Buy and Hold**
  - Works (in theory)
  - Very hard for most to do in reality
    - can't resist panic selling in a bear market
    - normally buy back in at higher prices if at all due to being scared of stocks
- **Rebalance periodically**
  - Increases returns and reduces risk
  - Requires discipline; can be hard to do
  - Can use with timing, other methods

# Simple Rebalance Example

Stocks: Vanguard Index 500 Fund

Bonds: Vanguard Long-Term Corporate Bond Fund

Target Allocation: 65% Stocks, 35% Bonds

Rebalance Quarterly if Stocks are more than 5% over/under

	<u>Returns</u>		<u>Reblance?</u>		Difference	Number Trans.
	Stocks	Bonds	No	Yes		
1993	9.9%	14.5%	11.5%	11.5%	0.0%	0
1994	1.2%	-5.3%	-1.1%	-1.1%	0.0%	0
1995	37.5%	26.4%	33.6%	33.6%	0.0%	0
1996	22.9%	1.2%	15.8%	15.5%	-0.3%	1
1997	33.2%	13.8%	27.7%	26.6%	-1.0%	0
1998	28.6%	9.2%	23.7%	22.3%	-1.4%	1
1999	21.1%	-6.2%	15.0%	11.8%	-3.2%	0
2000	-9.1%	11.8%	-5.3%	-1.8%	3.5%	1
2001	-12.0%	9.6%	-7.4%	-3.9%	3.5%	1
2002	-22.2%	13.2%	-13.1%	-9.9%	3.2%	2
Annualized:	9.3%	8.4%	9.0%	9.6%	0.6%	

# Rebalancing

- Long-term approach, likely to underperform in strong bull markets
- Evaluate over representative periods (1993-2002 is good)
- Risk measures
  - Drawdown
  - Negative semi-deviation
  - Calculated on a monthly basis here

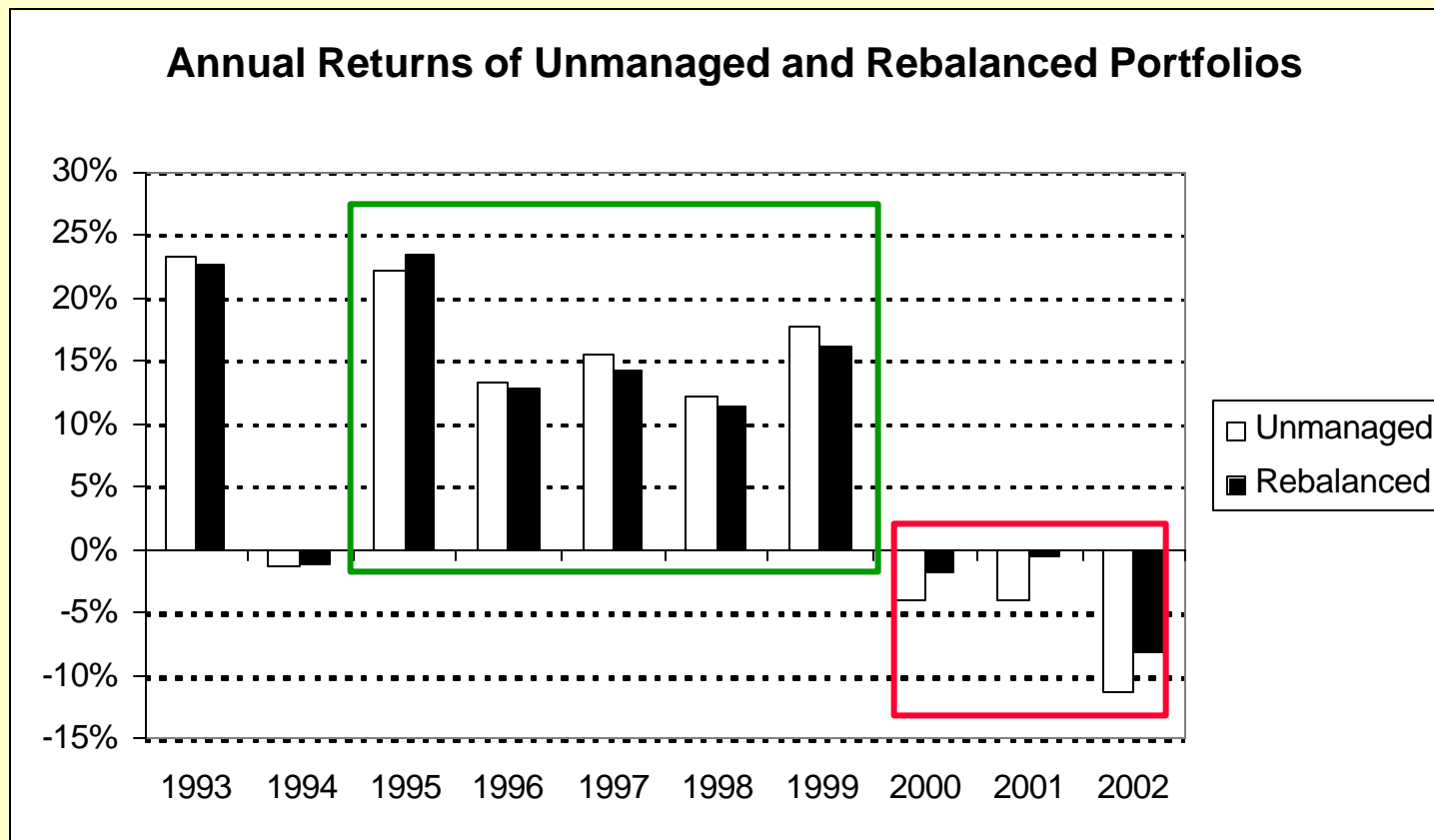
# Rebalancing: Example Portfolios

- Reasonable at start of 1993
  - Conservative/retirement
  - Moderately aggressive
  - Aggressive
  - Worldwide
- Typical target percentages
- Rebalance quarterly if any fund more than 2% away from target
- Different rebalancing period (yearly, semi-annual, monthly): little change

# Moderately Aggressive Portfolio

Vanguard fund	Target	1993-2002 Annualized	Maximum Drawdown	Negative Deviation
Index 500	24%	9.3%	-44.8%	-13.2%
Small Cap Index	24%	8.0%	-34.0%	-11.6%
Precious Metals	7%	6.5%	-63.9%	-33.0%
International Growth	15%	6.1%	-46.8%	-15.4%
Long-term Corporate Bond	15%	8.1%	-8.8%	-3.7%
Short-term Corporate Bond	15%	6.2%	-2.2%	-0.4%
Unmanaged		7.7%	-25.5%	-2.3%
Rebalanced Quarterly		8.5%	-17.8%	-2.0%
difference		0.7%	7.7%	0.3%
percent improvement		10%	30%	11%

# Moderately Aggressive Portfolio

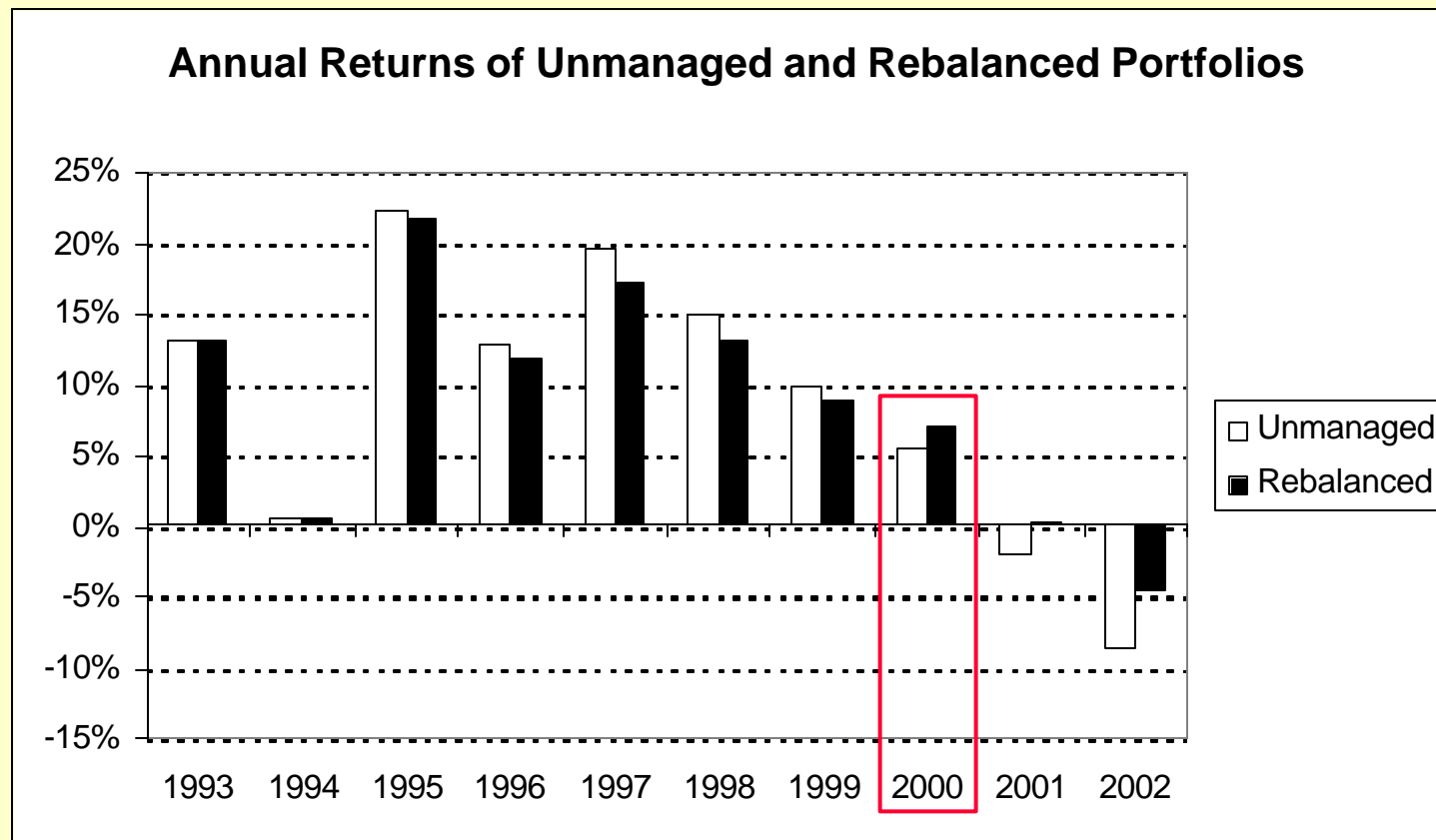




# Conservative/Retirement Portfolio

Fidelity fund	Target	1993-2002 Annualized	Maximum Drawdown	Negative Deviation
Equity Income	20%	10.0%	-29.7%	-7.1%
Growth & Income	20%	10.2%	-34.1%	-9.4%
Convertible Securities	10%	10.9%	-28.2%	-9.0%
Government Income	15%	7.0%	-7.3%	-2.4%
Mortgage Securities	15%	7.4%	-2.1%	-0.5%
Cash Reserves	20%	4.5%	0.0%	0.0%
Unmanaged		8.4%	-15.3%	-1.5%
Rebalanced Quarterly		8.6%	-9.3%	-1.1%
difference		0.2%	6.0%	0.4%
percent improvement		3%	39%	24%

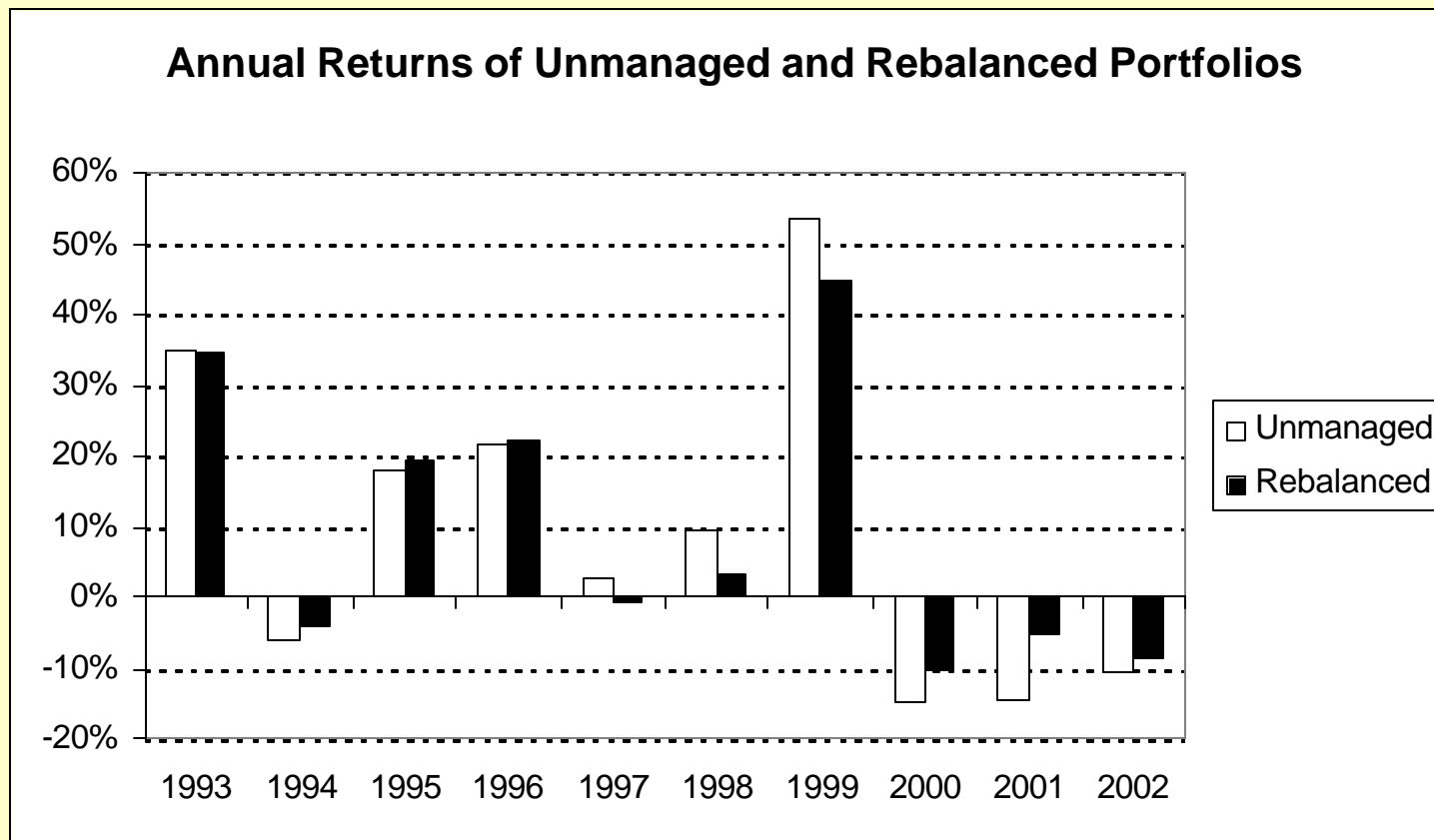
# Conservative/Retirement Portfolio



# Aggressive Portfolio

Fidelity fund	Target	1993-2002 Annualized	Maximum Drawdown	Negative Deviation
Real Estate Investments	20%	10.0%	-23.8%	-8.6%
Emerging Markets	20%	-3.3%	-69.6%	-40.7%
Gold	10%	7.5%	-69.8%	-37.8%
Aggressive Growth	20%	4.0%	-84.0%	-32.2%
Low Priced Stock	15%	14.2%	-21.8%	-5.9%
OTC Portfolio	15%	7.4%	-66.4%	-25.8%
Unmanaged		7.4%	-45.5%	-3.8%
Rebalanced Quarterly		8.1%	-33.0%	-3.5%
difference		0.7%	12.4%	0.3%
percent improvement		10%	27%	8%

# Aggressive Portfolio

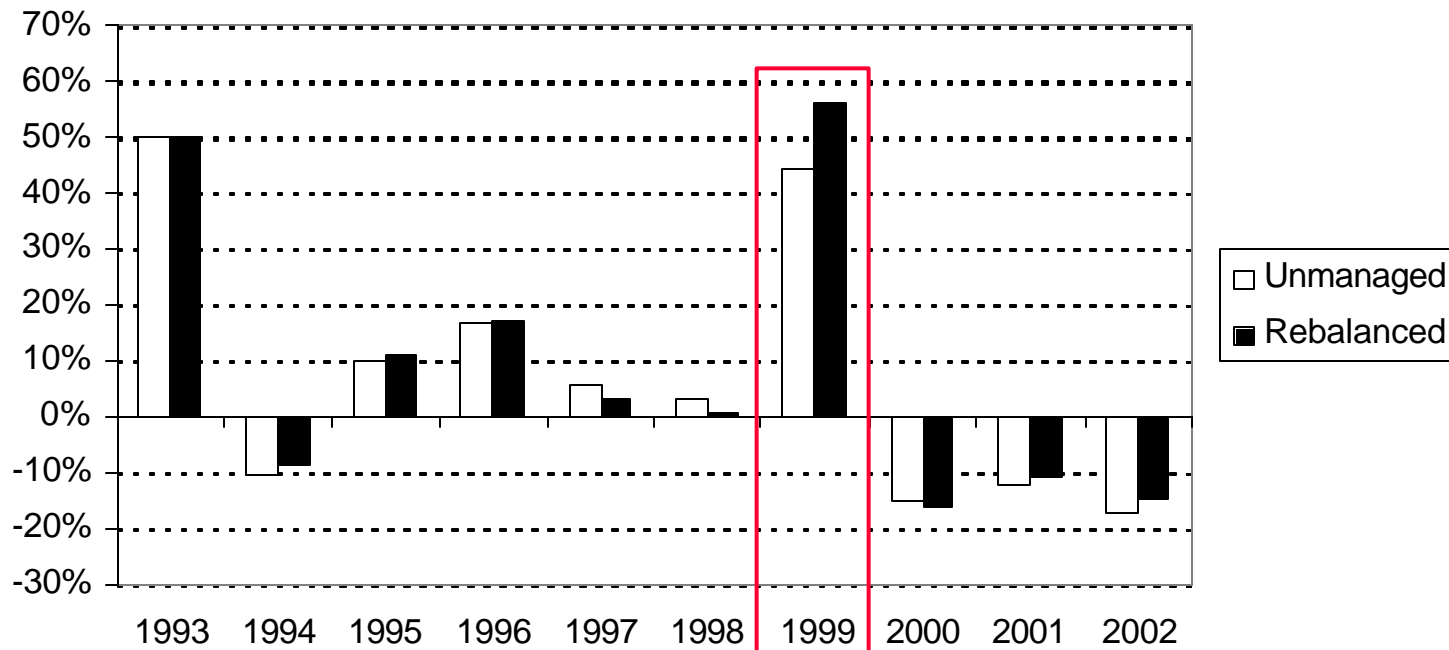


# Worldwide Portfolio

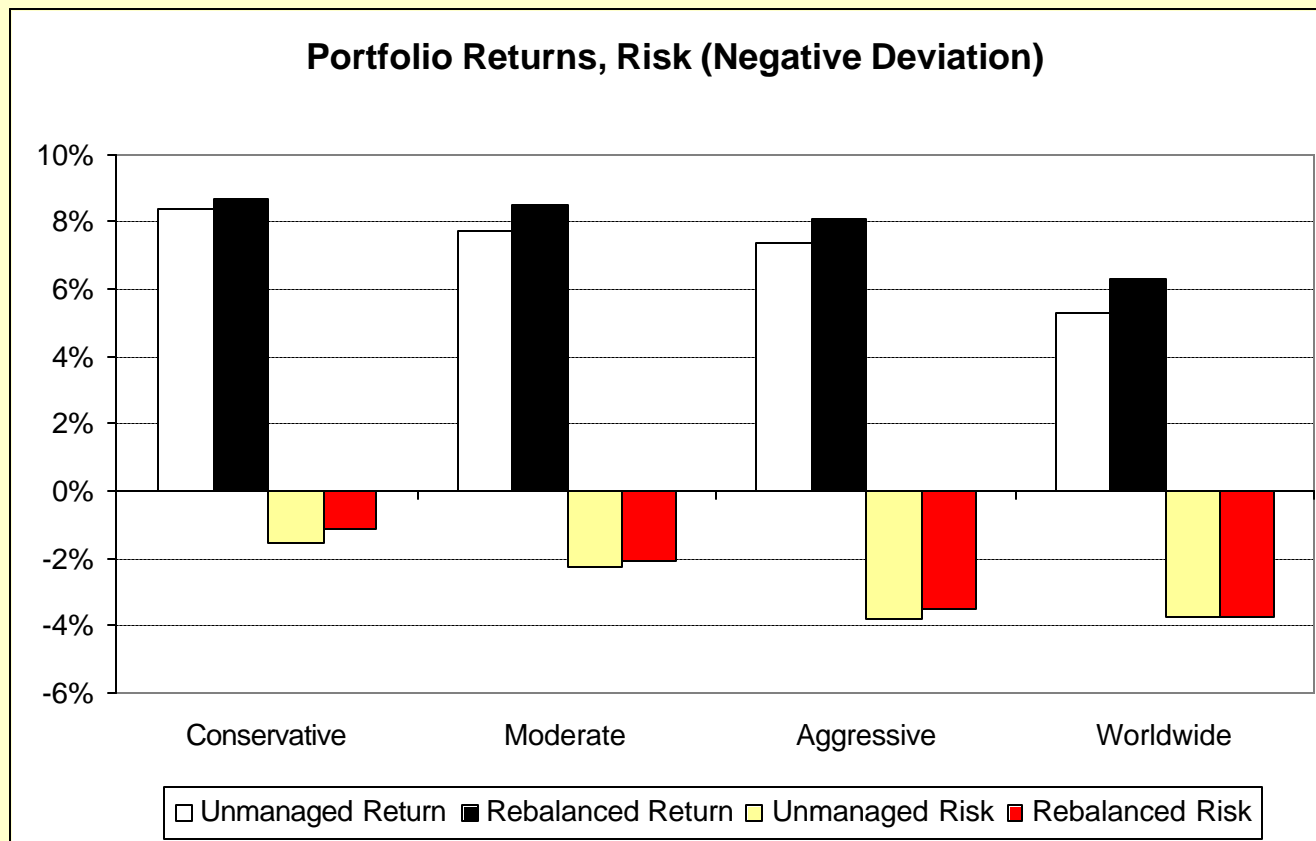
Fidelity fund	Target	1993-2002 Annualized	Maximum Drawdown	Negative Deviation
Canada	15%	6.5%	-34.4%	-14.4%
Europe	20%	7.3%	-53.4%	-16.2%
Latin America*	15%	1.5%	-56.3%	-29.8%
Pacific Basin	15%	3.4%	-52.9%	-25.5%
SE Asia*	20%	1.9%	-60.6%	-28.0%
S&P 500 Index	15%	9.1%	-44.9%	-13.2%
* Fund started in 4/93; Emerging Markets used for Jan. - June, 1993				
Unmanaged		5.3%	-45.2%	-3.7%
Rebalanced Quarterly		6.3%	-43.9%	-3.8%
difference		1.0%	1.3%	0.0%
percent improvement		19%	3%	-1%

# Worldwide Portfolio

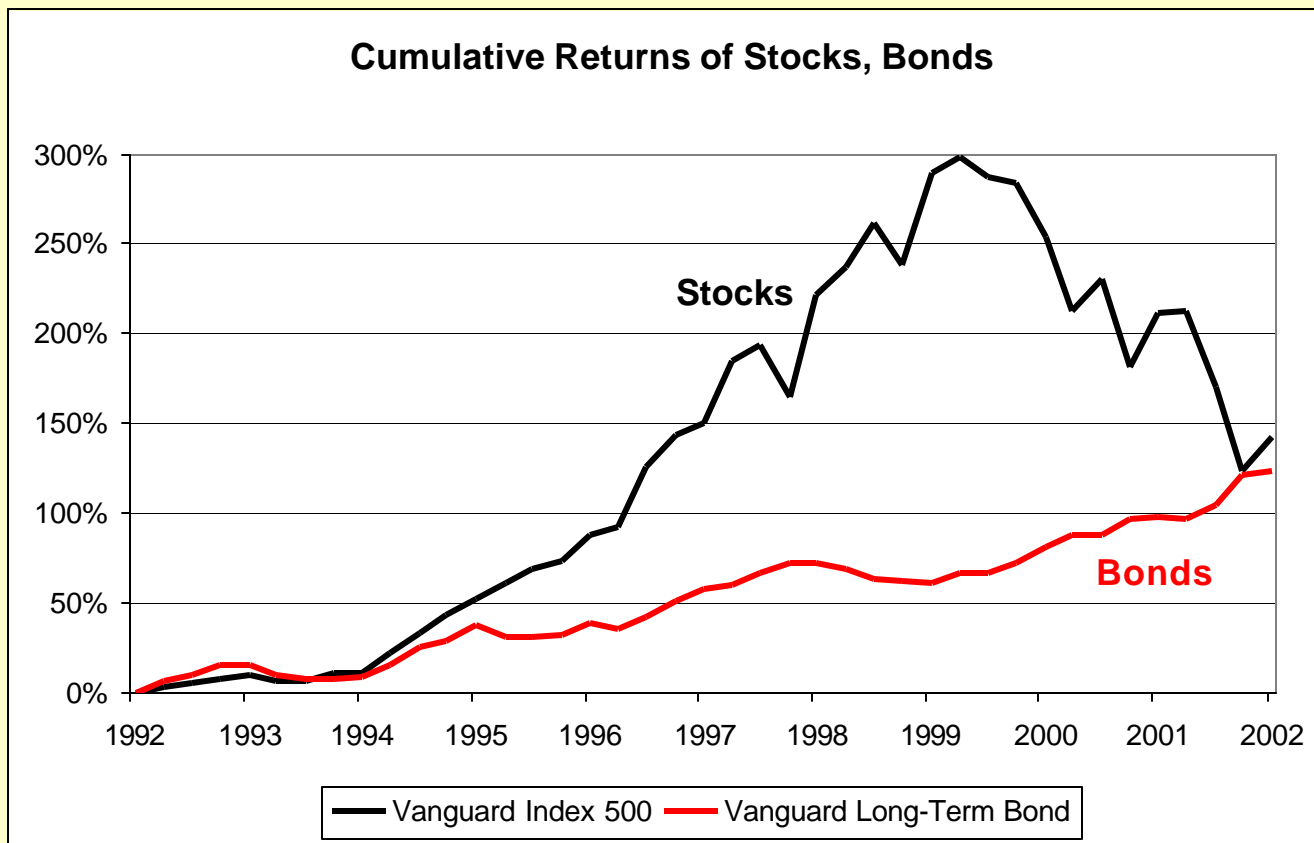
Annual Returns of Unmanaged and Rebalanced Portfolios



# Portfolio Comparison



# 1993-2002 Market Trends





## 93-02 Trends Affect Rebalancing?

- Do rebalancing results depend on trends of past ten years?
  - Stocks: way up 95-99, down 00-02
  - Bonds: steady & strongly up 01-02
- Randomly rearrange the 40 quarters
- Calculate rebalancing return using new sequence for Moderately Aggressive (unmanaged is same)
- Repeat many (100) times

# Order of quarters not critical

- Moderately Aggressive
  - Unmanaged return: 7.71%
  - Rebalanced: 8.46%, 16 rebalancings (actual sequence)
- Rebalancing using 100 random sequences of 40 quarters:
  - Average return: 8.47%, 8.24 - 8.75%
  - Average rebalances: 13, 9-16
- Real sequence return right in middle, number of rebalances is high (5/100)

# Rebalancing Works

- Takes advantage of natural ebb and flow of different asset class returns
  - Less correlated is better
  - Unlike individual holdings when better to sell losers and keep winners
- Forces selling higher, buying lower
  - Far from optimal timing
  - May not be the case if all classes move in same direction
- Effects are modest, easy to obtain

# Using Rebalancing

- Formulate overall portfolio
  - Current total financial position
    - include anticipated working income
    - pension plans/retirement accounts
  - Goals, uses of money, when needed
  - Can go well beyond mutual funds
  - Adapt to your capabilities, tolerances
  - Consider taxes, transaction costs
- Plan to rebalance 2 - 4 times a year
  - Precise dates & amounts not critical
  - STICK TO IT!

# Mark Pankin

- RIA since October 1994
- Managed account expertise/services
  - Market timing
  - Dow Jones Industrial stocks
  - Sector fund trading (Fidelity, Rydex)
  - Portfolio design, rebalancing
- Much more at [www.pankin.com](http://www.pankin.com)
  - Click on Investments, then Managed Accounts, follow links
  - Info about Mark and his interests