

# Market Timing Is ...

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Ask audience for reactions to mutual fund “scandals”; feel threatened or cheated, taken money out of “tainted” funds?

To complete the title, ask if they think timing is illegal, immoral, a bad thing. Then say timing is a very useful risk reduction, portfolio management technique and has been “certified” profitable by the government! My type of timing is NOT the rapid-fire trading being objected to; will likely have to use a different term due to all the negative publicity.

## Overview

- Review/update of prior talks
  - Dow Turnarounds (January)
  - Stock Market Timing (March)
  - Rebalancing (June)
- Bond Fund Timing
- Putting it all together
  - Timing + rebalancing
  - Long-term examples
- **NO RECOMMENDATIONS HERE**

Notes on the notes:

1) They were intended to provide reminders for the speaker and not designed to be a complete version of the talk. Between the notes and the slides, you should be able to get a pretty good idea about what was presented.

2) The slides should be readable in this version, but the charts may not be. You can download the slides only file, which should show up much larger on your screen or print at full page size. Download that file at my web site “[www.pankin.com](http://www.pankin.com)”.

3) Talk was given Nov. 15, 2003 at the main branch of the Arlington, Va. Public library as part of its weekly “Stock Talk” presentation.

Since individual circumstances are different, **NOTHING SHOWN HERE SHOULD BE CONSIDERED AS ANY TYPE OF RECOMMENDATION!**

## Dow Turnarounds

- 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

Gave talk on 1/4/03

Sell rule is simple, “average” version of the more complex rule I actually use. Also, deciding whether and when to sell can be complicated by what would be done with the sale proceeds. In strong markets when no new Dow stocks are buying candidate may want to hold and use some other method (e.g. chart reading) to decide when and at what level to sell.

Options strategies that are appropriate include selling puts instead of buying the stock and using a collar when the stock is near the selling target.

## Stocks in Buying Range on 1/4/03

Stock	1/6/2003 Close	11/14/2003 Close	Percent Change	Sell Target
Home Depot	21.82	36.19	65.9%	35.00
McDonalds	16.65	25.68	54.2%	29.50
SBC*	31.19	23.61	-24.3%	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	11.3%
S&P 500	13.1%
Nasdaq	35.8%

These were shown in my talk. Ten months is not enough time to judge the effectiveness of this method, but the results so far are interesting. I plan to update them at future talks.

If Home Depot sold at target of 35, which was reached on 10/9/03, its percent gain is 60.4%.

Objective is outperforming the Dow. Average gain of the three is over 30% (counting HD as sold @ 35), so objective is being met so far.

I and client accounts currently own McDonalds

## New Buys in 2003

Company	Purchase information			Sale/recent price information			Dow since 1st buy
	Date(s)	Avg. Price	# of Buys	Date	Price	Avg. %	
<i>Boeing</i>	2/20/03 - 3/6/03	27.32	2	11/13/2003	40.00	46.4%	24.3%
DuPont	3/5/2003	35.01	1	11/14/2003	40.19	14.8%	25.6%
General Motors	3/7/2003	30.79	1	11/14/2003	42.27	37.3%	26.2%
<i>SBC Communications</i>	3/10/2003	19.56	1	9/24/2003	21.88	11.9%	24.5%
AT&T	3/10/03 - 4/10/03	15.37	3	7/28/2003	22.00	43.1%	22.4%
<i>Altria (Phillip Morris)</i>	3/12/03 - 3/31/03	32.38	3	7/8/2003	47.00	45.1%	22.1%
Eastman Kodak	7/21/03 - 9/26/03	23.41	3	11/14/2003	24.64	5.3%	7.4%
Johnson & Johnson	8/22/2003	49.09	1	11/14/2003	52.12	6.2%	4.5%
Merck	10/20/03-10/24/03	46.51	2	11/14/2003	46.58	0.1%	1.8%

Page is part of information on my web site, which has similar data for all potential buys starting in 2000.

This table is included in the handout, so can refer audience to it and don't have to dwell on it.

Dow performance is good benchmark for stocks only bought once, but would need to use an average (not shown) for stocks with more than one lot bought.

Stocks shown in *italics* have been sold according the rules shown previously, but with my more complex target sale prices in some cases

So far (as of 11/13/03), for the most part stocks have done better than the Dow over the same period.

I or clients have current positions (own stocks or option positions) in Kodak, J&J, and Merck.

## November - April Timing Model

- Be in market for those months
  - 10/31/02 - 4/30/03: S&P 500 +3.5%
  - 4/30/03 - 10/31/03: +14.6%
  - Since 10/31/03: -0.03% (11/14)
- 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.

Almost too simple to be considered a timing model

Somewhat unsatisfying since it does not take market movements into account.  
May be almost as hard as buy and hold to stick with.

Hard to see the logic behind it, but there may be some:

- many bad Octobers
- year end positive cash flows for several reasons
- early year funding of prior year IRAs
- selling to pay taxes in April?
- most likely developed by noticing October crashes (1929, 1987), and examining historical monthly average performances

## 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

Logic: want to be in market when stocks are trending higher and interest rates are at least somewhat favorable (trending lower).

Note sell signal is logical inverse of buy signal

Model developed by Mark Boucher and discussed in Nelson Freeburg's *Formula Research* issue of 12/17/02. Freeburg does not know when the models were developed by said they had been around for several years. Not clear when out of sample period begins, but model is simple, so likely to be fairly robust.

## 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 +17.5% since then (as of 11/14)

Roughly one whipsaw every two or three years. Moving average models are subject to whipsaws, and the cures for that problem often are worse than the problem itself. In a simple model like this, it is better to live with the fairly rare whipsaws.

As of 11/7/03, model is not close to a sell. S&P is about 100 points (almost 10%) above its MA and Bills rate is 0.93 vs. MA of 1.00. Unless the Fed indicates it is about to raise rates fairly soon, which is the opposite of the current policy, Bills should stay below the MA. Bonds are a bit above their MA, however.



## 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

Saying buy and hold works might be considered heresy from someone who is considered to be a timer.

Those who pay attention to the markets will find it almost impossible not to try to do something and resist selling when the S&P is in the process of losing almost half of its value as it has done since the 2000 peak (low on 10/9/02) and in 73-74. Retired broker once told me he would have made more money if he went to Tahiti for most of the year.

Dalbar studies show typical mutual fund investor behavior is like that described

Rebalancing is a much better approach. Can be hard because it calls for selling what has gone up and buying what has gone down to take advantage of natural ebb and flow of markets. That is OK for asset classes, but contrary to good advice for individual issues: cut losses and let profits run.

## Bond Fund Timing: 3 Simple Models

- **Purchasing Managers Index (PMI)**
  - Monthly, released at end of month
  - Sell if above 50, buy if 50 or below
  - Works best on short-term bond funds
- **Merriman web site (fundadvice.com)**
  - Free
  - E-mail notice of signals
  - Also has stock timing models, articles
  - Bond model is a “black box”

Will talk about three simple models for timing bond mutual funds. Rules are shown in the handout.

PMI show percent intending to increasing buying in the near future. Above 50% indicates economy is growing, which usually means short-term interest rates are likely to rise soon. Opposite is true for readings below 50%

Merriman site has many interesting articles. Stock timing models on the site are disclosed, but not the one for bonds. Signals for the bond model are shown back to 1978 (when developed?), so not suitable for longer term analysis in addition to the black box drawback

## Bond Fund Timing: 3 Simple Models

- Bills, Bonds, Utilities (BBU)
- Weekly (Friday data) calculations:
  - 38 week MA of 90-day T-Bill rate
  - 10 week MA of 10-year T-Bond rate
  - 10 week MA of Dow Jones Utilities
- Model signals (comparisons to MAs):
  - Buy if Bond rate is below its MA and either Bills below or Utilities above MA
  - Sell if Bond rate is above its MA and either Bills above or Utilities below MA

Also due to Mark Boucher in the 12/02 *Formula Research*. Note that two of the inputs (the rates) are the same as in the Triple-40 model, but the MA lengths are different.

\*\*\* Buy and sell rules are NOT complete logical opposites. It is possible that neither is true on a given week (but both can't be true at the same time). In such cases, use most recent signal. In other words, signal holds until model generates the opposite one.

Since I have input data for this model (and Triple-40) starting in 1962, it will be the one I use in the longer-term analysis. Also, PMI is not as effective on longer term bond holdings.

## Bond Fund Timing: 2003 Signals

- Merriman: Buy 11/8/02, Sell 7/22/03, Buy 11/3/03
- PMI (end of month): Sell Nov. 2002, Buy March 2003, Sell July 2003
- BBU: Buy 11/8/02, Sell 7/11/03, Buy 9/19/03, Sell 11/7/03

All three models do not generate “rapid fire” trading signals, which is the type of trading causing the recent problems and investigations. It is interesting that BBU and Merriman had a similar signal starting on 11/8/02, but quite different since then. Those Nov. 2002 to July 2003 buys were decently profitable. The bond funds have been fairly flat overall since the sell signals, so none of the Merriman and BBU signals later in 2003 have had much change.

The PMI signals have been out of synch with the bond markets, most likely due to the Fed policy of keeping short-term rates steady.

## Bond Funds, Models: 1989 - 10/03

	Annualized Return	Worst Years Drawdown	Years Down	Worst Year Return	Worst Year Year
<b>Fidelity Investment Grade Bond Fund</b>					
Buy & Hold	12.0%	-8.0%	2	-5.4%	1994
PMI	10.4%	-4.5%	0	1.0%	1992
Merriman	11.3%	-3.2%	0	1.5%	1999
BBU	11.1%	-3.0%	0	0.6%	1996
<b>Vanguard Total Bond Market Index Fund</b>					
Buy & Hold	11.8%	-6.5%	2	-2.7%	1994
PMI	10.4%	-4.5%	0	0.9%	1992
Merriman	10.8%	-3.5%	0	1.5%	1999
BBU	10.9%	-3.5%	0	0.8%	1996
<b>Vanguard Short-term Corporate Bond Fund</b>					
Buy & Hold	10.5%	-3.1%	1	-0.1%	1994
PMI	10.5%	-1.9%	0	2.2%	1992
Merriman	9.8%	-2.2%	0	2.2%	2002
BBU	10.0%	-2.1%	0	3.0%	2002

This table likely will be in the handout, although some time explaining and discussing it is warranted.

Nothing special about starting in 1989. That was driven by having FastTrack data, which provides the need total return series, that starts in 9/88.

Three fairly popular bond funds shown. Similar results on other Fidelity, Vanguard and some other funds. Note that timing eliminates the down years, although the short-term fund hardly had any.

## Bond Fund Timing Models

- Do not return more than buy & hold
- Reduce risks substantially
- Hypothetical 10-year T-Bond fund
  - 1963 - 10/2003
  - BBU timing model
  - Returns: 7.6% B&H, 9.3% timed
  - Max DD: -24.9% (1980), -7.7% (2002)
  - Down Years: 10 B&H, 2 (77,96) timed
  - Worst year: -8.3% (99), -1.7% (96)

Last bullet needs some discussion:

Do not have bond fund data back that far, which is both a data issue and the funds were not around in the 1960s. Constructed hypothetical fund using market value rate of 10-year constant maturity T-Bond. Data downloaded from St. Louis Fed web site. Did not include management fee because Vanguard or ETFs are fairly small.

I think the hypothetical fund has a bit higher returns and greater volatility than a real government (intermediate to long-term) bond fund. However, it is a good data series to use for analysis of the effects of timing and rebalancing in portfolio management.

Data on slide show the benefits of timing. A lot of that may be due to the (unknown) in-sample period used for model development. While not shown, there were similar improvements over the 89-03 period.

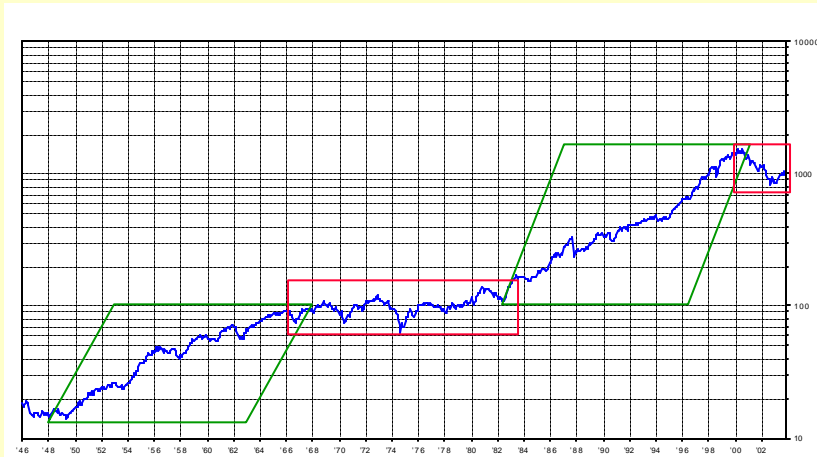
## Portfolio Management

- Stock & bond timing, rebalancing
- Long historical period to incorporate different market environments
- Very basic holdings: stocks, bonds, and/or money market
  - Stocks: S&P 500 total return
  - Bonds: Hypothetical T-Bond fund
  - Money market: T-Bills - 0.25%

Simple, basic portfolio with these three asset classes is all that is really **needed**, but most investors will **want** more asset classes. (Refer to Tobias book *The Only Investment Guide You Will Ever Need*, in which he says you may want other books since his covers the basics and not a whole lot more.

Total return S&P is essentially Vanguard Index 500 fund or ETF Spiders without the very small management fee deducted.

## S&P 500: 1946 - 2003 (log scale)

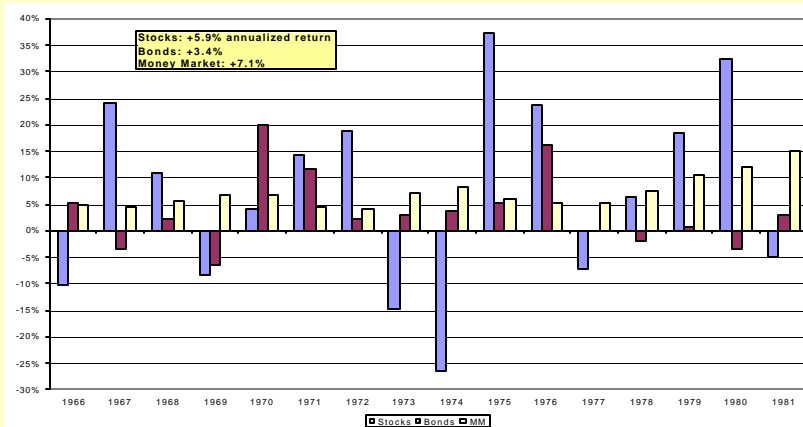


Green boxes are “secular (long-term) bull markets” in 49-65, 82-99. Red box for 66-81 marks the last “secular bear market,” but a new one may well have started in 2000 (red box at right side of chart). Bear in this sense really means essentially sideways with large swings over many years

It is important to distinguish between these types of periods when analyzing investment techniques. Historically, these long-term bull and bear markets repeat, typically lasting 15-20 years. If so, next decade or so will see little upward stock market movement, but some wide fluctuations such as the 2000-2002 drop, along the way. In such markets, market timing is quite valuable as we will see.

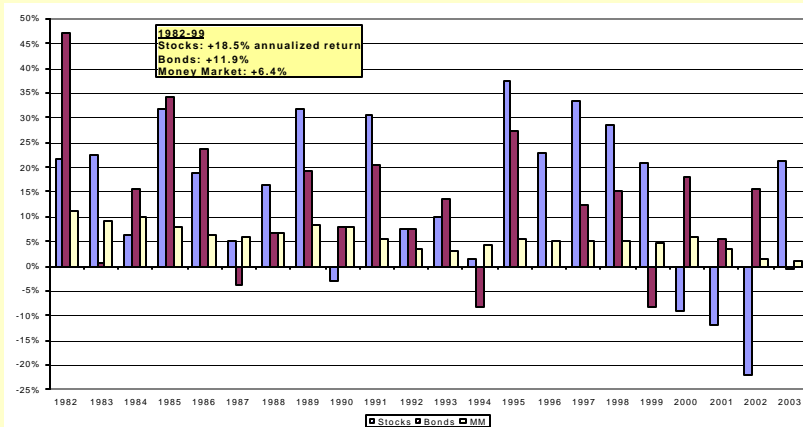


## Stocks, Bonds, MM: 1966-81



Performance of the three asset classes during the last secular bear. Note that there were more up years than down years, but two very bad down years in a row (73-74).

## Stocks, Bonds, MM: 1982-Oct. 2003



Secular bull (82-99) and years after. Note only one down year for stocks (1990) and it was not down very much in what was an incredible bull market. In retrospect, even the scary 1987 “crash” was only a temporary pullback.

Note large bond gains in 82, 84, 85 as interest rates fell from record high levels.

## 1963 - 2003 Evaluations

- **Stocks/Bonds/MM allocations:**
  - 75/25/0% (younger, risk tolerant)
  - 50/40/10% (middle)
  - 35/35/30% (conservative, retirement)
  - Rebalance quarterly if off by  $\geq 3\%$  &
    - no timing (rebalance only)
    - Triple-40 model for stocks, BBU for bonds
    - alternative timing when 1 sell, 1 buy
- **Risk measures**
  - Drawdown
  - Negative semi-deviation calculated using monthly returns

Nothing special about these representative allocations and the rebalance trigger. Did not vary or try to optimize.

Conservative might use a bond/CD ladder instead of some or all of money market.

Basic timing trades between stocks or bonds and money market. Alternative timing trades bonds if on a buy signal during stock sell signals and vice-versa.

There are nine combinations (3 allocations, 3 timing or not choices). Will see the same set of three slides repeated three times next

Daily maximum drawdown is a worst case risk measure, which is useful to know, but ignores all the other down periods.

Standard deviation is most common risk measure, but volatility on the upside is not really risk. However, higher standard deviations almost always indicate greater risk.

Negative semi-deviation counts all months without losses as 0% and almost repeats the standard deviation calculation except for correcting for the mean.

(Square all the adjusted monthly changes, find the average including the 0 months, and take the square root.) Greater (absolute) values indicate higher risks. This eliminates the distortion caused by volatile upside performance.

## 75/25/0 Portfolio: 1963 - 2003

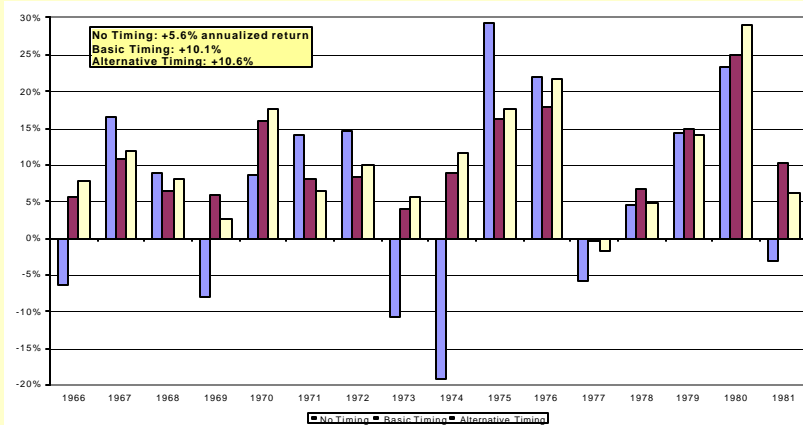
<b>No timing, just rebalancing</b>	<b>Timing &amp; rebalancing</b>	<b>Alternative Timing</b>
Annualized Return: 10.3%	10.9%	12.0%
Max Drawdown: -35.4%	-14.3%	-14.7%
Date: 10/3/74	9/2/98	9/2/98
Negative Deviation: 2.04%	0.99%	1.20%
Down months: 182	92	123
% down months: 37.1%	18.8%	25.1%
Down years: 11	4	2
% down years: 26.8%	9.8%	4.9%
Worst year: -19.0%	-6.3%	-3.6%

Walk through this one, row by row, to show how the timing improves returns a bit (large dollar amounts over 40+ years), but greatly reduces risk measures. Alternative timing is a bit more aggressive, and has higher risk measures than basic timing, but still well below no timing. Interestingly, it has fewer down years than basic timing.

Will see similar patterns with smaller magnitudes for less aggressive allocations.

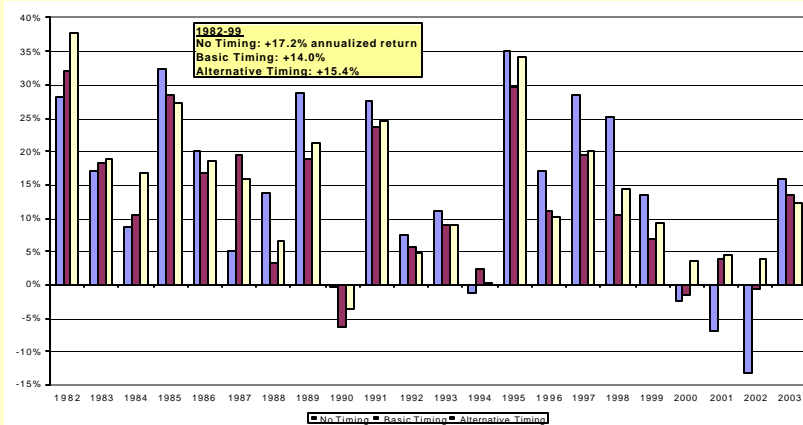
A younger person with a long investment horizon might be able to take a 35% drawdown without much pain, but many won't. Under 15% should not be a problem at all for such investors.

## 75/25/0 Portfolio: 1966 - 1981



Timing underperformed in several of the up years, which is typical. Note that in 73, 74, the big down years, timing actually made money! Also true in 66, 69, 81. Timing returns almost double in this bear period although untimed still made money. Risk reduction is really more important because it enables investors to stick with their plans.

## 75/25/0 Portfolio: 1982 - 2003



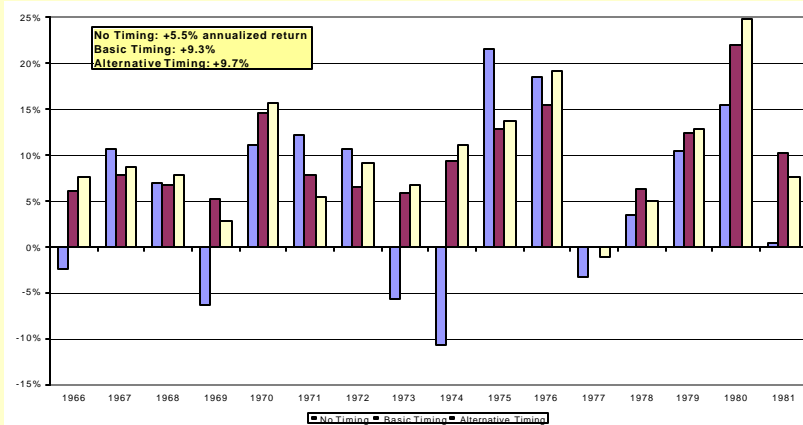
In the strong bull market (82-99), no timing does better, which is typical. However, with the poor markets of 2000-02, the value of timing becomes apparent again.

## 50/40/10 Portfolio: 1963 - 2003

<b>No timing, just rebalancing</b>	<b>Timing &amp; rebalancing</b>	<b>Alternative Timing</b>
Annualized Return: 9.5%	10.2%	11.1%
Max Drawdown: -23.2%	-8.3%	-9.9%
Date: 10/3/74	9/2/98	5/14/02
Negative Deviation: 1.41%	0.69%	0.97%
Down months: 180	91	115
% down months: 36.7%	18.6%	23.5%
Down years: 8	1	2
% down years: 19.5%	2.4%	4.9%
Worst year: -10.6%	-1.6%	-1.0%

Similar patterns, lower magnitudes in comparison to previous case.

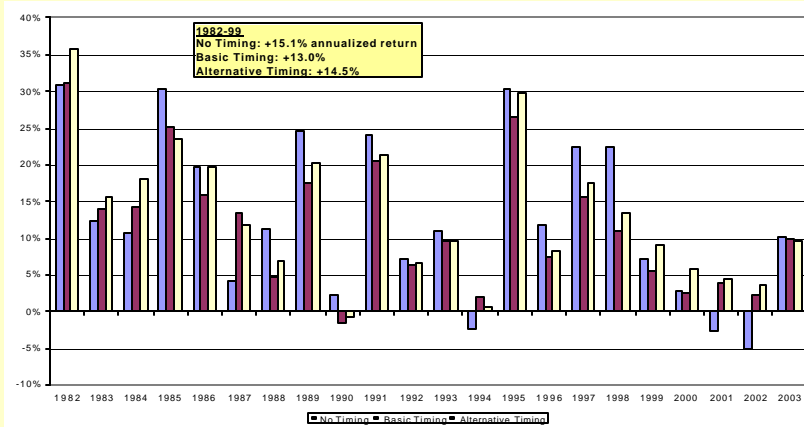
## 50/40/10 Portfolio: 1966 - 1981



Untimed almost the same (5.5% vs. 5.6%) as 75/25/0 allocation.



# 50/40/10 Portfolio: 1982 - 2003

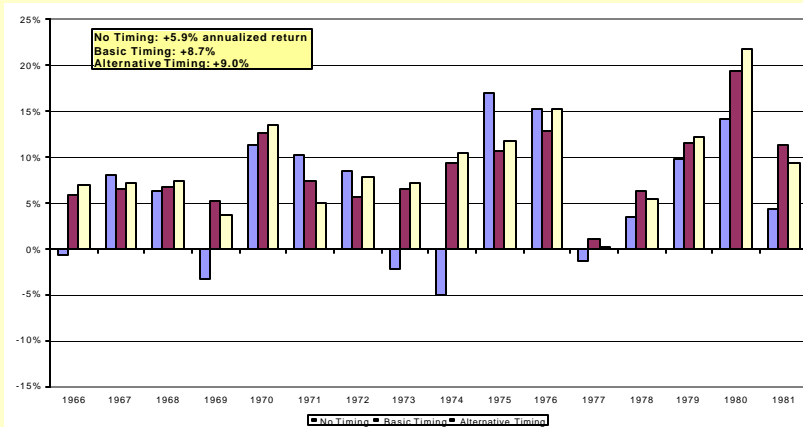


## 35/35/30 Portfolio: 1963 - 2003

<b>No timing, just rebalancing</b>	<b>Timing &amp; rebalancing</b>	<b>Alternative Timing</b>
Annualized Return: 8.7%	9.2%	10.0%
Max Drawdown: -15.0%	-5.6%	-7.7%
Date: 10/19/87	9/2/98	5/14/02
Negative Deviation: 0.98%	0.49%	0.71%
Down months: 166	81	100
% down months: 33.9%	16.5%	20.4%
Down years: 8	0	0
% down years: 19.5%	0.0%	0.0%
Worst year: -5.0%	1.1%	0.4%

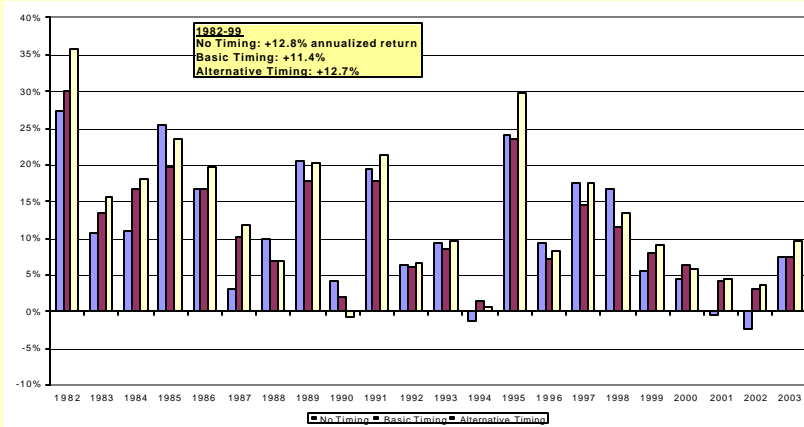
Conservative allocation leads to low risk measures and no down years with timing. Negative deviation of no timing here is about the same as that of basic timing in the 75/25/0 case. Note no losing years with timing.

## 35/35/30 Portfolio: 1966 - 1981



No timing return is slightly higher than two previous cases since more in money market, which was best performer on the average over this period.

# 35/35/30 Portfolio: 1982 - 2003



## Timing Plus Rebalancing Works

- Modest increases in returns over a long period of time
  - Likely to underperform in bull markets
  - Much better returns in bear markets
- Substantial risk reduction
  - But allocation is more important
  - May enable sticking with investment plans -- an important advantage
- Timing greatly reduces frequency of rebalancing

No surprise, but most effective risk reduction technique is reducing exposure to markets. Diversification also helps (not shown here), which was shown in my talk on rebalancing.

With timing, rebalancing is typically once every 3-4 years, while without timing is more like once a year. That means the risk reduction is due much more to the timing than the rebalancing, which has been shown to have modest risk reduction effects.

## Mark Pankin

- RIA since October 1994
- Managed account expertise/services
  - Market timing: tactical asset allocation
  - 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

Offer to e-mail simple spreadsheet with a couple of years of data and the formulas for the Triple-40 and BBU models. That will let them run the models themselves. Than can e-mail me at “[mark@pankin.com](mailto:mark@pankin.com)” or use a link from my web site.