

Market Timing: Why and How

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Overview

- Why do it?
 - Common nonsense about it
 - What else can you do
 - Real purpose
 - Not for everybody
- Judging timing systems
- Simple timing models

What else -- should be something of interest to everyone at the talk

Not for everybody -- nothing is! Important to find out what is right and works for you.

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".

3) Talk was given March 8, 2003 at the main branch of the Arlington, Va. Public library as part of its weekly "Stock Talk" presentation.

What is “Market Timing”

- “Classic” timing methods
 - Be invested or in cash
 - Usually 0-4 buy/sells a year
 - May use to decide when to apply other techniques (ex: buy Dow stocks)
- Will consider “mechanical” models
 - Can be tested, evaluated using historical data
 - Chart reading is a valid method, but can’t be tested scientifically

Timing covers many investing approaches, and there have been several books written on the topic, which can be called trading systems in some cases

Need to narrow the scope for this (one hour) talk

Except for very long term (since 1870?!, since 1982?) and maybe very short term, charts show stocks are clearly trending down now

Common Timing Argument

- Missing the 10 best days ...
- BUT what about about missing the 10 worst days ...
- What about missing both the 10 best and worst days?

Could be a number other than 10 and/or weeks, or possibly months. Could be over some period or per year

Obviously, missing the best hurts returns, usually by quite a bit

Just as obviously, missing the worst improves returns, usually by a lot

Missing both improves returns somewhat because stocks tend to fall faster than they rise

No numbers provided because ... next slide

It's all a bunch of #!*&%\$

- Unrealistic: no trader or system will be able to miss just these days
- Makes timing seem like a game rather than an investment technique
- Obscures the primary purpose of market timing

Supply your favorite expletive or term for nonsense or gibberish

Not unusual for some of the best percentage gain days to follow some of the worst. Would have to be psychic to get out and in that precisely every time.

Will get to the “real reasons” in a few slides, but first ...

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**
 - Good Approach
 - Requires discipline
 - Hard for some to do

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 in the current bear market (as of 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

If you can't stick to buy and hold and behave as above, aren't you really doing an emotional form of market timing?

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

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

	Returns		Rebalance?		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%	

Bond fund returns are interest received plus price changes

First three rebalances were stocks to bonds (2000 was at start of year)

Last three have been bonds to stocks

Nothing magic about 65%/35% and 5% rebalance trigger; just a reasonable example for illustrative purposes

In practice, would have more asset classes:

Stocks might have “four corners” of style box: large cap growth&value, small cap growth/value and possibly some international/emerging markets or gold stock funds

Bonds might vary by maturity length and/or government, corporate, high yield (junk). May also want to have some money market/cash in mix

Semi-annual or annual rebalancing should be OK also.

Market Timing: Why Do It

- Better returns: maybe
- Reduced risk: definitely
- Enables sticking to investment plans
- Sticking to your plans is key to achieving investing objectives

May be possible to increase investment returns over the long term (short-term quite possible, but not really relevant), but one should not count on it

Reduced risk, due to less exposure to the market, presumably missing enough bad periods

Reduced risk leads to the last two points, which are critical.

Point out:

* Money that will be needed in less than 5 years (longer for more conservative investors) should not be in stocks

* Important to have a plan with specified financial objectives and time periods

Judging Timing Models

- **Simpler is better**
 - Easier to Understand
 - More likely to continue to work
 - Able to see if no longer valid
- **Must have rational foundation**
- **How much of performance is fit to history, how much “out of sample”?**
- **Rates of return should be compared to an appropriate benchmark**

Einstein: should be a simple as possible, but not simpler!

Simple models are not built on special cases, which are not likely to occur again in the same way, like a complex one may be

Non-rational examples: Super Bowl indicator; be short on October 19 of every year (10/19/87 was “Black Monday”); possibly use of astrology that some actually do (I wouldn’t follow such a model because I could not accept its underlying premises)

Usually possible to develop models that fit history quite well. True test is how well they work after development or better yet with real money in real time (tells whether model is practical and suitable for user)

Will use S&P 500 as benchmark in this talk and apply the models to it. It is a good, but not perfect, measure of the broad market. Also it can be bought and sold (mutual funds, Spiders)

Judging Models: Risk Measures

- Standard deviation of returns
 - Most commonly seen measure
 - Useful, but has weaknesses
- Maximum drawdown
 - Drop from high point to later low
 - Worst case: buy at high, sell at low
 - Excellent, but only part of story
- Others
 - Ulcer Index, Ulcer Performance Index
 - Sharpe Ratio
 - Return/Drawdown

Standard deviation measures inconsistency of returns. On the upside, that is not a problem, and consistent losses are not good. However, in reality, it is a decent measure of risk.

Will focus on drawdown because it is easy to understand and presents a worst case evaluation. Drawdown also has some problems because it does not consider the frequency or duration of the losing periods or anything except the worst case. Ulcer index does that, but is too complex to discuss here.

November - April Timing Model

- Be in market for those months
 - Buy at end of October
 - Sell at end of April
 - Model has been around over 10 years
 - Not timing in the usual sense
- In graphs that follow
 - S&P returns do not include dividends
 - T-Bill rates for model returns when out of market

Almost too simple to be considered a timing model

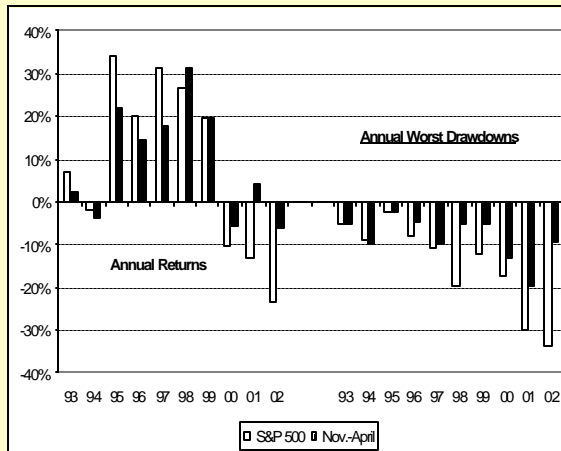
Somewhat unsatisfying since it does not take market movements into account. May be almost as hard as buy and hold to stick with.

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

Dividends not included because of computational and data complexities. Means S&P returns are low (compare to Vanguard fund shown earlier) and so are models by the extent they are in the market. Need a money market estimate (using 90-day T-Bills) to account for models that have different market exposures.

S&P 500, November - April Model



	S&P	Timing
Returns		
93-02:	7.3%	8.9%
95-99:	26.2%	20.9%
00-02:	-15.7%	-2.7%
Maximum Drawdown		
Amount:	-49.1%	-29.4%
Date:	10/9/02	12/6/74
Trades/Year:		1
Percent time in market	100%	50%

This slide is similar to ones that follow, so take time to explain it

Focus on the last ten years to keep slide from being too busy

Left bars show annual returns (S&P white, model black), right bars show worst drawdown each year (no carryover from prior year)

Note: S&P compounded 10-year return 2% under Vanguard fund, essentially the effect of dividends (less fund expenses). Since model is in market half the year, its return would be about 1% higher, so it is still better than the index

95-99 strong bull years, models generally do worse than index

00-02 strong bear years, models generally do better than index

Max DD for model was before the 10-year period, in 74. S&P drawdown then was -48.2%, almost as bad as current. Model's worst drawdown in 93-02 has been -24.4% on 4/1/01 (My analysis starts in 1961)

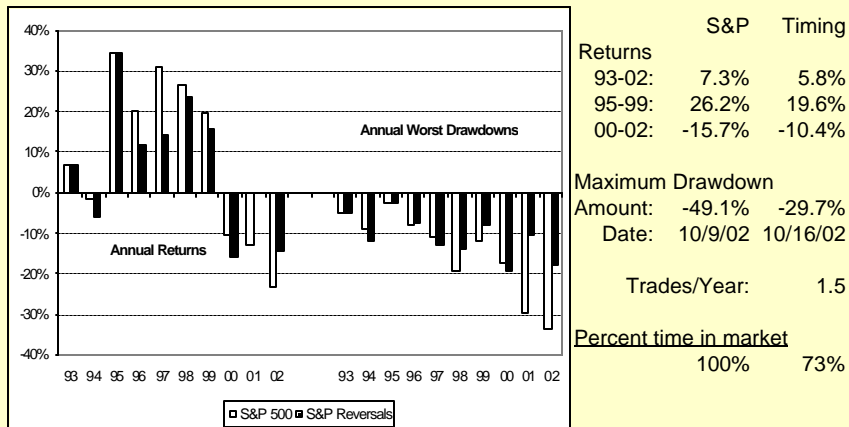
Large reduction in drawdown (risk)

S&P Reversals Timing Model

- Buy if S&P 500 moves up 8.4% from a recent low
- Sell if it drops 7.2% from recent high
- Model due to Ned Davis Research
- Real-time (no changes in parameters) since October 1991

Simple model designed to be with major trends, so good logic. Problem with the model is that trends can reverse too soon. For example, if S&P moves up 10% from low since last sale and then reverses and drops at least 7.2% from the high after buying, would have a loss in the order of 1.6% - 7.2%, which is 5.6%.

S&P 500, S&P Reversals Model

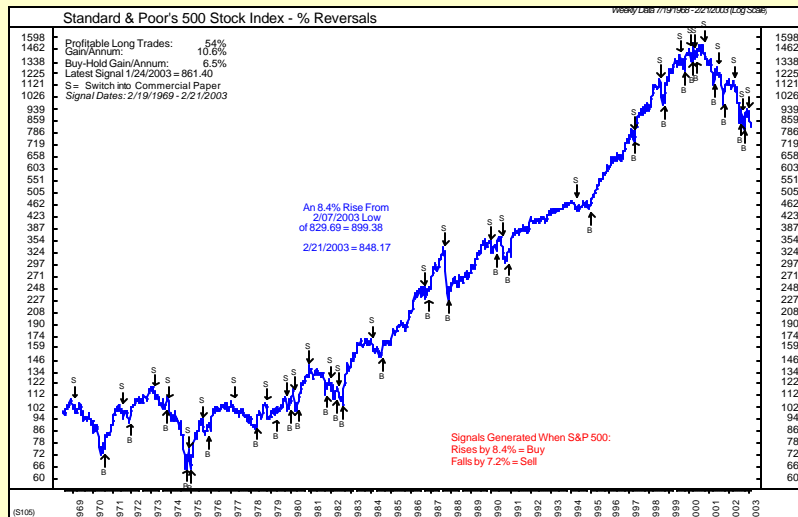


Drawdown not as low as Nov.-April model, and this one underperforms the index by 1.5% compounded annually. Since its market exposure is 73%, it is not doing that great a job of reducing risk.

Since this model is not so good in the 1993-2002, why show it? The reason is the following graph.

See graph that comes next; it shows that a graph can be deceptive. I don't like ones with arrows showing the signals like this because it is hard to tell exactly where the buys and sells are, and that can make a large difference in some cases.

S&P 500, S&P Reversals Model



Does it look like this model loss 10% a year in 2000-2002?

Due to the busy nature and lengthy period of the chart, which I took from the Ned Davis web site, it may not be readable when reduced in size (hard to read in full size) for pages like this one. Sorry. Take my word for it, that the up and down arrows showing buys and sells can be misleading. Downloading the slides only version of talk may enable you to see the details on the graph.

Last trade shown (buy 10/15/02, sell 1/24/03) looks like a winner on the graph, but trading on those dates, it would have lost 2.3%, and trading on the following market days, it would have lost 1.5%.

XAU/S&P Timing Model

- XAU = Gold & Silver Index
- Calculations:
 - Daily ratio XAU/S&P
 - 50 day moving average of ratio
- Signals based ratio vs. 50-day MA:
 - Buy if ratio moves above MA and stays there the next day
 - Sell if it moves below MA for >1 day
- *Futures* magazine (1/03) based on data through 11/02; no out-of-sample

XAU is traded on Philadelphia exchange is widely followed.

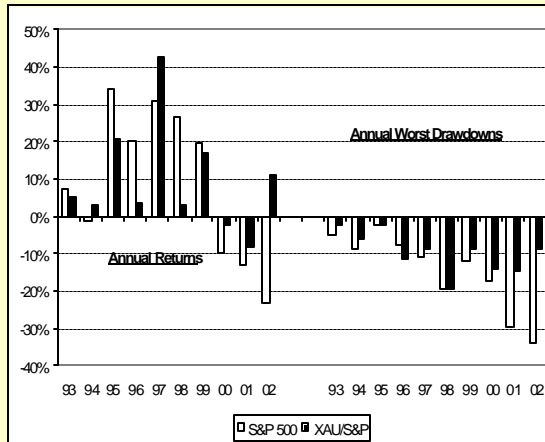
Now we move up a bit in model complexity, but still simple

Explain briefly how a moving average is calculated. Point out that it serves to smooth the price data

Logic: Best I can figure is that since gold and stocks often move in opposite direction, the method tries to pick times to buy when stocks are oversold because gold is showing a lot of strength relative to stocks; and vice-versa for sells

Since virtually no out-of-sample, I would not trade this model, but it may be worth watching to see how it does since its results are fairly good and it is a fairly simple model

S&P 500, XAU/S&P Model



	S&P	Timing
Returns		
93-02:	7.3%	8.7%
95-99:	26.2%	16.5%
00-02:	-15.7%	-0.2%
Maximum Drawdown		
Amount:	-49.1%	-25.7%
Date:	10/9/02	8/5/02
Trades/Year:		5.75
Percent time in market	100%	58%

Almost as good as the Nov. - April model returns with comparable drawdown.

Almost break-even in 2000-02, but this may be the result of model development (in-sample period)

Number of trades per year is some what higher than the “classic” timing model standard I presented earlier

Triple 40 Timing Model

- 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
- Due to Mark Boucher; don't know data period used to develop it

Somewhat more complex model, at the limit for this presentation.

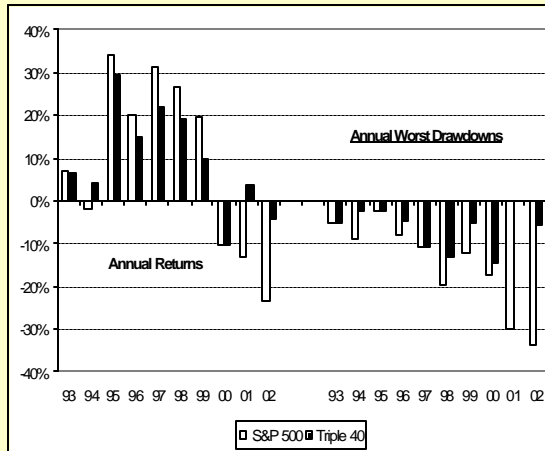
Don't know the out-of-sample period, but according to Nelson Freeburg, the publisher of *Formula Research* where I read about it, the model is based on ideas he has written about for over ten years. Also the 40 weeks has not been "fit" to data. Seems reasonable to assume results not biased by fitting to data.

Model calls for "long bonds". Freeburg used combination of 30 and 20-year bond yields, but using 10-years for convenience not likely to be significant

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

S&P 500, Triple 40 Model



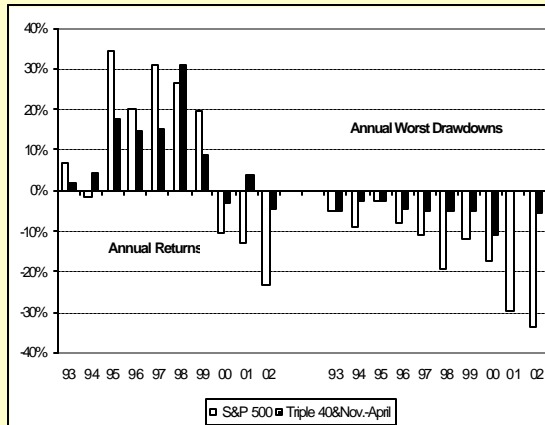
	S&P	Timing
Returns		
93-02:	7.3%	8.9%
95-99:	26.2%	18.9%
00-02:	-15.7%	-3.9%
Maximum Drawdown		
Amount:	-49.1%	14.5%
Date:	10/9/02	4/5/02
Trades/Year:		2.05
Percent time in market		
	100%	51%

Model was out of market in 2001, so no drawdown for that year.

Return and exposure essentially the same as Nov.-April model, but drawdown is much lower

This is the model I like best of the ones shown in this presentation

S&P 500, Triple 40 & Nov.-April



	S&P	Timing
Returns		
93-02:	7.3%	8.4%
95-99:	26.2%	17.2%
00-02:	-15.7%	-1.5%
Maximum Drawdown		
Amount:	-49.1%	-10.7%
Date:	10/9/02	4/24/00
Trades/Year:		1.65
Percent time in market		
	100%	27%

Sometimes, combining two models is a good idea, but they should have different characteristics. While not shown, the XAU/S&P combined with Nov.-April is good, but this is better.

Here we follow Triple 40 only during the Nov.-April period and stay in cash for the other six months of the year.

Drawdowns are even lower since market exposure is a bit over one quarter of the time.

Can also make a good case for this model.

“Lazy” Way to Time Market

- John Hussman (free) web site
 - www.hussman.net
 - Click on Research & Insight
 - Select Weekly Market Comment
 - Also articles about his methods
- Hussman Strategic Growth Fund
 - May hedge using timing methods
 - Started in 2000, no long-term record
 - 2001: +14.7%, 2002: +14.0%
 - Have some in personal accounts
 - No affiliation with Hussman or fund

Lazy in that all you have to do is visit his web site once a week (on Monday morning), but quite possibly smart.

He would deny that he is market timing, but if it quacks like a duck ...

Takes a bit of getting used to since he is and writes like a Ph.D. economist. There is a lot to read on the site, and doing so lets one see how he thinks.

Currently fully hedged. Fund should be a low risk way to be in the stock market. Max DD has been about 6.5%. Fund has not performed as well starting mid-2002, but is still about even since then in a down market.

*** Should not be considered as a recommendation to buy this fund. I don't know enough about your financial situation, objectives, and time frame to make any recommendations.

*** Fund has 1.5% charge if sold within six months of purchase. Although no-load, there may be commissions if owned in a brokerage account (true for Fidelity).

Current Status of Timing Models

- S&P Reversals: Sell (1/24/03)
- XAU/S&P: Buy (2/24/03)
- Triple 40: Sell (4/5/02)
- Hussman: Unfavorable valuation and trend uniformity--his most negative status (since last summer, was only partially hedged for a few weeks then)

Update before talk if any changes (same as above as of Mon. 3/3 data). The above were correct of March 7, 2003.

Final Thoughts

- Do I use any of these models?
 - No, the one I currently like is too complex to present here
 - 93-02: +13.6%, 00-02: +5.5%
 - Maximum DD: -10.9% (in 1992)
 - But only 2 years out-of-sample
 - Currently: Sell (12/11/02)
- Many good sources for ideas
 - *Formula Research* (800-720-1080)
 - Interest groups (some on web)
 - e-mail me (mark@pankin.com)

Except for Nov.-April model, I did not know about any of these before a couple of months ago when I started looking for simple models to present

RutVol (model I like) max. DD in 1993-2002 was 9.3% on 2/25/00

Similar chart as backup at the end

FastTrack users are a good source of (too) many timing models, and are available on the net.

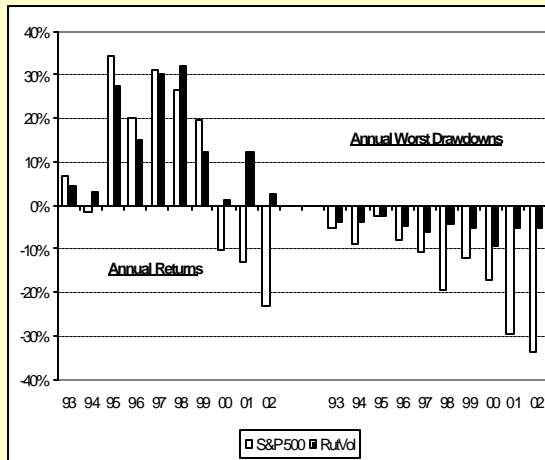
I will provide more info about other sources if asked

Formula Research is a great source of sophisticated timing models and trading techniques, not always about stocks. Comes out when Nelson Freeburg has something to write.

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
 - Click on Investments, then Managed Accounts, follow links
 - Info about Mark and his interests

S&P 500, RutVol Model



	S&P	Timing
>Returns		
93-02:	7.3%	13.6%
95-99:	26.2%	23.2%
00-02:	-15.7%	5.5%
Maximum Drawdown		
Amount:	-49.1%	-10.9%
Date:	10/9/02	10/9/92
Trades/Year:		3.25
<u>Percent time in market</u>		
	100%	58%

This model has much higher return and lower drawdown than the others. But it has a relatively short out-of-sample period (formulated some time in 2001 as best I can tell). Has done well in it and showed a small profit for 2002

Model is based on prices of Russell 2000 (ticker RUT in some systems) small cap index (small caps are supposed to lag larger stocks, so useful for acting after trends have reversed) and up and down volume of NASDAQ Composite index.

Model was developed (by others) to trade high tech issues such as NASDAQ and NASDAQ 100, but it works well on the S&P

Builds on earlier model that used only the Russell 2000 to generate signals and stopped working in 2001 due primarily to late sell signals. As such, it is fairly complex, so worry is that it is fit too much. Will need a fair amount of out-of-sample performance to build a lot of confidence. I am always suspicious of models that need to add something to take care of recent failures. However, this one seems sensible, so worth paying attention to. If Triple 40 tests well on NASDAQ 100 (not done yet), I may use it instead.

This page was not shown during presentation. It is supplemental material.