

# ***Why Is Market Timing So Difficult?***

***by F. Louis Floyd***

## **Abstract**

Market timing efforts involve attempts to *predict* both future price behavior and trend changes, using some form of modeling to create the forecast. Past efforts have had limited success for a number of reasons:

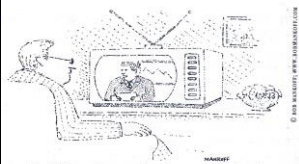
- At best, forecasts actually produce *lagging* results, because they cannot detect future *trend changes*. In effect, one ends up chasing rather than anticipating trend changes.
- The data employed in modeling efforts contain considerable noise which conceals the underlying signals of interest. Since noise never repeats itself, failure to first filter that noise results in predictions with little validity.
- Noise levels decline with increasing aggregation of components, and with increasing time intervals of both measurement and observation. Time intervals commonly employed are far too short to contain adequate replication of the *features* (trend changes) of interest.
- Modeling inevitably requires a number of simplifying steps, which are commonly linear in nature, while real world data mimic other geometric shapes. The implications of *bell-shapes*, *S-shapes*, *bathtubs*, and *exponential curves* will be discussed.
- Even validation efforts through back-testing have their own set of problems. For example, historical analysis is strongly susceptible to survivorship bias, which can materially distort the relative success of alternative strategies.

So what *can* one realistically expect from the wild and woolly world of market timing? In the speaker's view, the best alternative is to switch from trying to *predict* the future to *early detection* of what is actually happening, coupled with fast following decision strategies. Appropriate noise filtering is essential to this effort. As with conventional timing efforts, the goal is to *minimize* the impact of major bear markets, which have the single greatest adverse impact on one's financial health. Technical analysis can be a useful means of graphically illustrating both events and their context, which helps in implementing any timing strategy.

# Illustrations

These are a few slides that illustrate some of the issues to be covered:

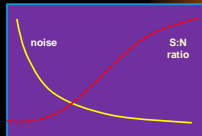
**Assigning daily causes is an exercise in futility**



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**Noise is both inversely and exponentially related to aggregation and time interval**



Relative Noise Level

noise

S-N ratio

Signal-to-noise ratio

Degree of Aggregation

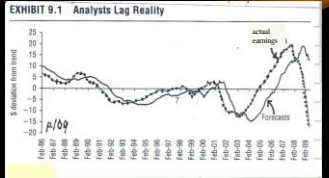
Length of time interval of observation

Length of measurement time interval

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**Even companies' internal forecasts are lagging indicators**

EXHIBIT 9.1 Analysts Lag Reality



Source: James Montoye, *The Little Book of Behavioral Investing*, John Wiley, 2010

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**Fat tails more accurately estimate actual risk**

Normal - Gaussian - skinny tails  
Cauchy - fat tails

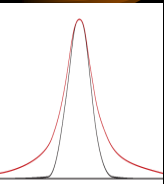


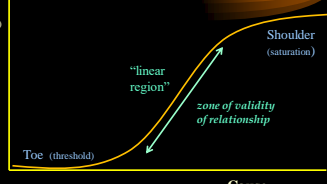
TABLE 1.1  
The probabilities of 3-, 10-, 20-, and 30-sigma events from a normal distribution and a Cauchy distribution

	NORMAL	CAUCHY
A 3-sigma event has probability	1 in 3.5 million	1 in 16
A 10-sigma event has probability	1 in $3.5 \times 10^{23}$	1 in 52
A 20-sigma event has probability	1 in $3.5 \times 10^{47}$	1 in 63
A 30-sigma event has probability	1 in $3.5 \times 10^{71}$	1 in 94

The Improbability Principle, by David J. Hand, ©2014, Scientific American, Future Science and Fantasy, NY

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**The S-Shaped Curve**  
All dose-effect relationships are only valid over a narrow middle range of their component values



Effect (response)

Toe (threshold)

linear region


zone of validity of relationship

Shoulder (saturation)

Cause (dose)

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**Miner's Plot: Different Stages in Product Lifetime**



Hazard Rate

Infant Mortality

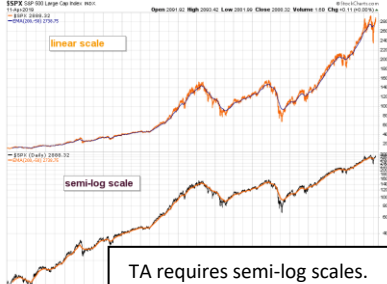
Wearing-out process

Random unrelated accidents (background)

Time

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ESPX 500 Large Cap Index



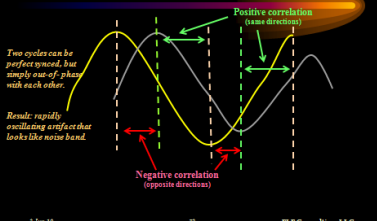
linear scale

semi-log scale

TA requires semi-log scales.

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**Caveat: correlation function doesn't work well with cyclic data**



Positive correlation (same direction)

Negative correlation (opposite direction)

Results: rapidly oscillating surface that looks like noise band.

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# References

These are the most directly useful reference books for this talk:

