# Adaptive Alpha Fund

## Diversified and Flexible Alpha Capture using a Portfolio of Options Strategies

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# Completeness Portfolio of Options

Creates “true alpha” exposure using a tactical set of options strategies that act as a diversifier for the asset allocation portfolio (client portfolio)

Enables the client reduce the risks of the overall portfolio arising from extreme events of the exogenous and endogenous kind

Opportunistically neutralizes unwanted and unnecessary risk exposures in a cost-efficient way by utilizing the “Multidimensional Volatility Structure”

A combination of event driven and relative value strategies that acts as an overlay portfolio using robust and proven statistical and technical analyses

Options Strategies come in all shapes and sizes and are ideally suited for a wide variety of volatility environments.

Having defined risk will cause profits to suffer slightly over time but will guarantee solvency.

# True Alpha

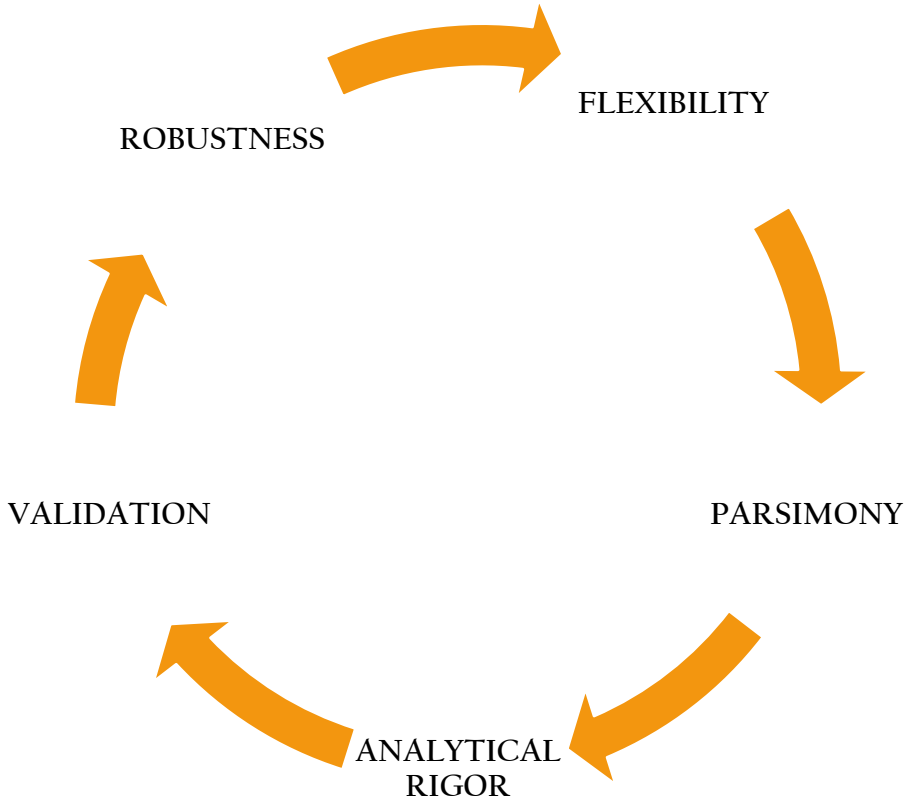
Benefiting from widely publicized and imitated trades as hedge funds once did (such as with convertible arbitrage strategies) is too public to qualify as "true alpha." Such opportunities disappear once money piles into those trades.

When and if the investment tactic does become known, then it no longer is alpha. It is instead one of the many components of beta.

**True Alpha is the result of decisions that cannot be captured by any factor model, no matter how intricate the model, because the insight that underlies those decisions has not yet become public knowledge.**

**(John Rekenthaler, Morningstar, September 1, 2022)**

# Success Factors



# Volatility Alpha

The way volatility is evaluated and used in trading options is one of the key distinctions between trading in options and trading in stocks.

With a conventional stock, high volatility means that not only can you profit big, but you can also lose big!

When you own options, it's either going to be exercised or it's not. If things go badly and the numbers move against your option, the result is that the option will expire without ever being exercised.

**Therefore, the ability of volatility to hurt is limited whereas its ability to help you is unlimited.**

# Volatility Alpha

Historical volatility refers to the observed behavior of a given financial instrument in terms of price fluctuation in the past.

Implied volatility (IV), by contrast, is an assessment of the asset's potential for future volatility and considered by some to be the quintessential metric determining an option's chance of becoming profitable.

Michael Sincere in Understanding Options offers a psychologically-focused explanation of IV: **"It's the urgency, or expectation, that the stock price might undergo a big change that drives traders to bid up the options, forcing both the premium and IV higher."**

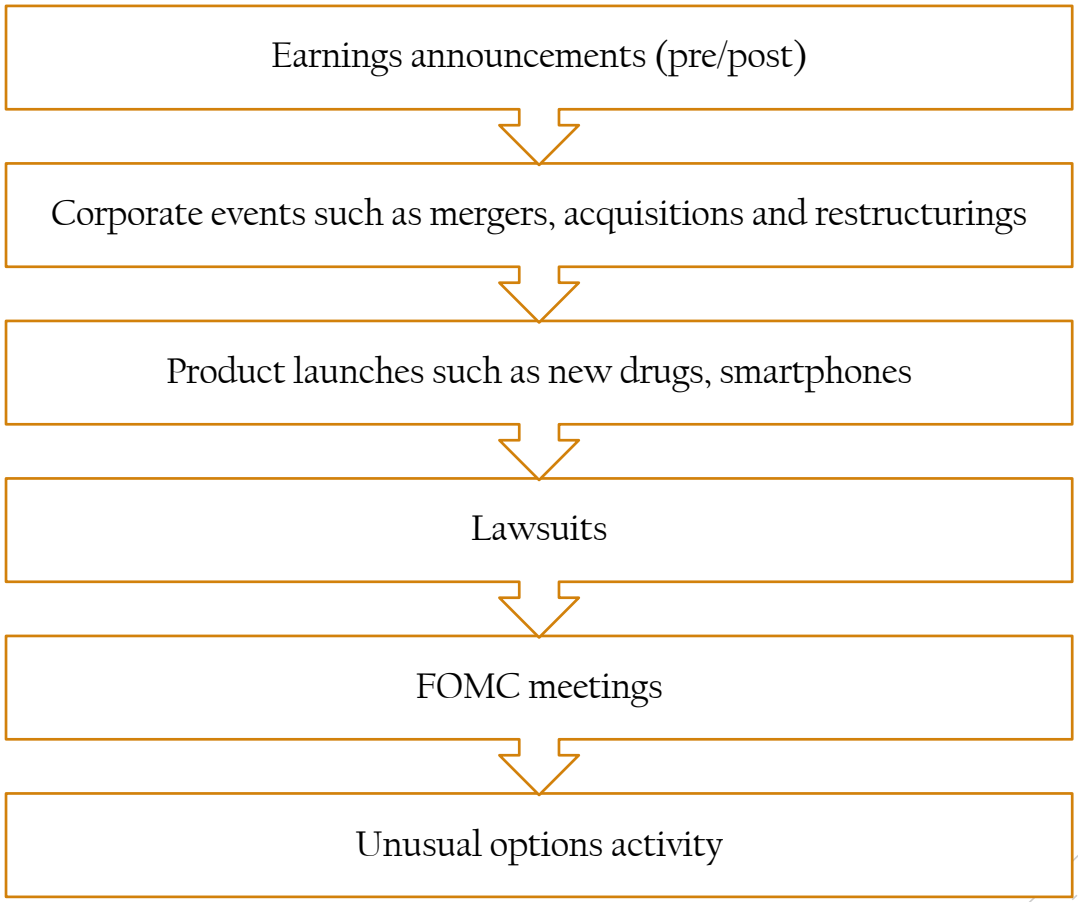
# Volatility Alpha

Options traders largely rely on the strategy of searching for discrepancies. One discrepancy that's rather easy to screen for is the difference between a stock's historical volatility and its implied volatility.

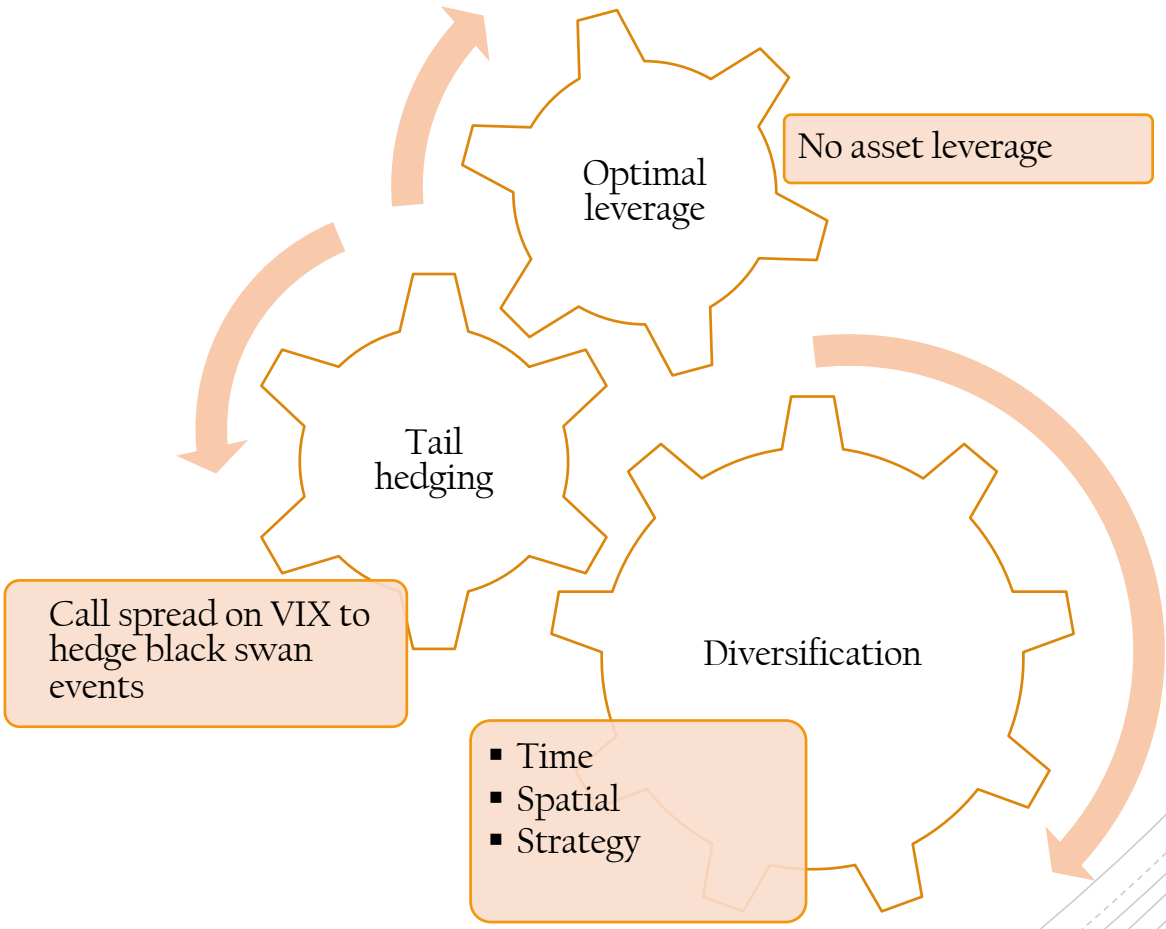
If an options trader can spot an option with an IV that's too low given its historical volatility, then that option is said to be cheap and may prove to be a good deal.

If the historical volatility indicates that an option's IV is too high, then the option is thought to be expensive and should be sold if possible.

# Event Driven Strategy



# Backbones of the Strategy



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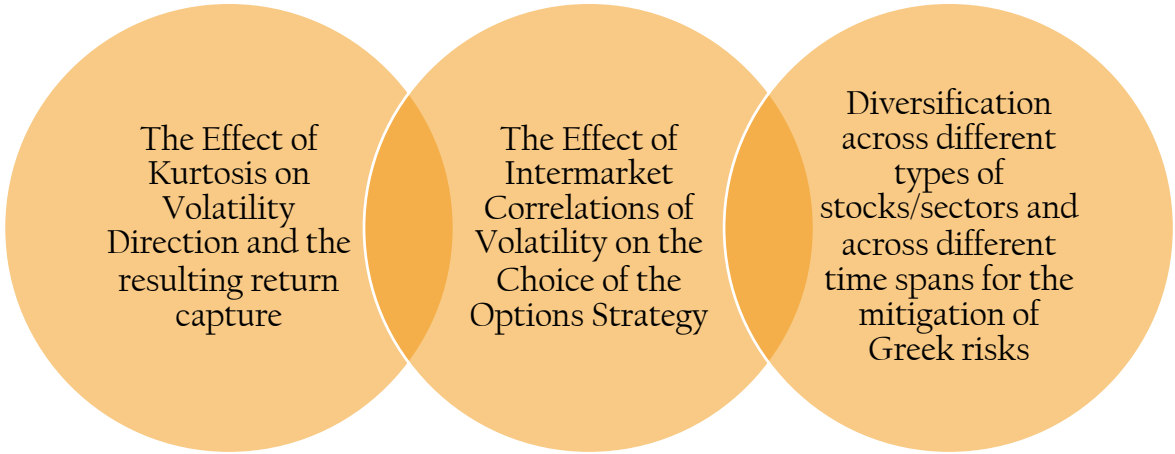


# Trading Philosophy

In the case of ITM Butterflies/Condors

The goal is to always start with a setup that collects decay and has high probability of success. In other words, selling the unexpected at a good risk/reward.

In the case of shorter-term structures

The goal is to take advantage of obvious support and resistance, and to play for the midpoint, which is the most probable place for stock to average over time.

In the case of a Short Volatility Strategy

The goal is to look for situations where fundamental and technical indicators create a push/pull situation that makes a big move unlikely.

Examples: 1. Good fundamentals but high valuation and recent range-bound price action 2. Good earnings report but bad stock reaction

# Trading Philosophy

What is a reasonable amount of money to allocate to each trade?

Bayesian updating of probabilities to mitigate the risks of wrong entry and exit points and for maximum flexibility

What is the maximum risk to assume?

Always make decisions within the context of overall fund portfolio as it pertains to total risks and rewards.

# Trading Philosophy

**Be Disciplined**: Keep abreast of the items in your portfolio and follow YOUR rules for each trade you've made.

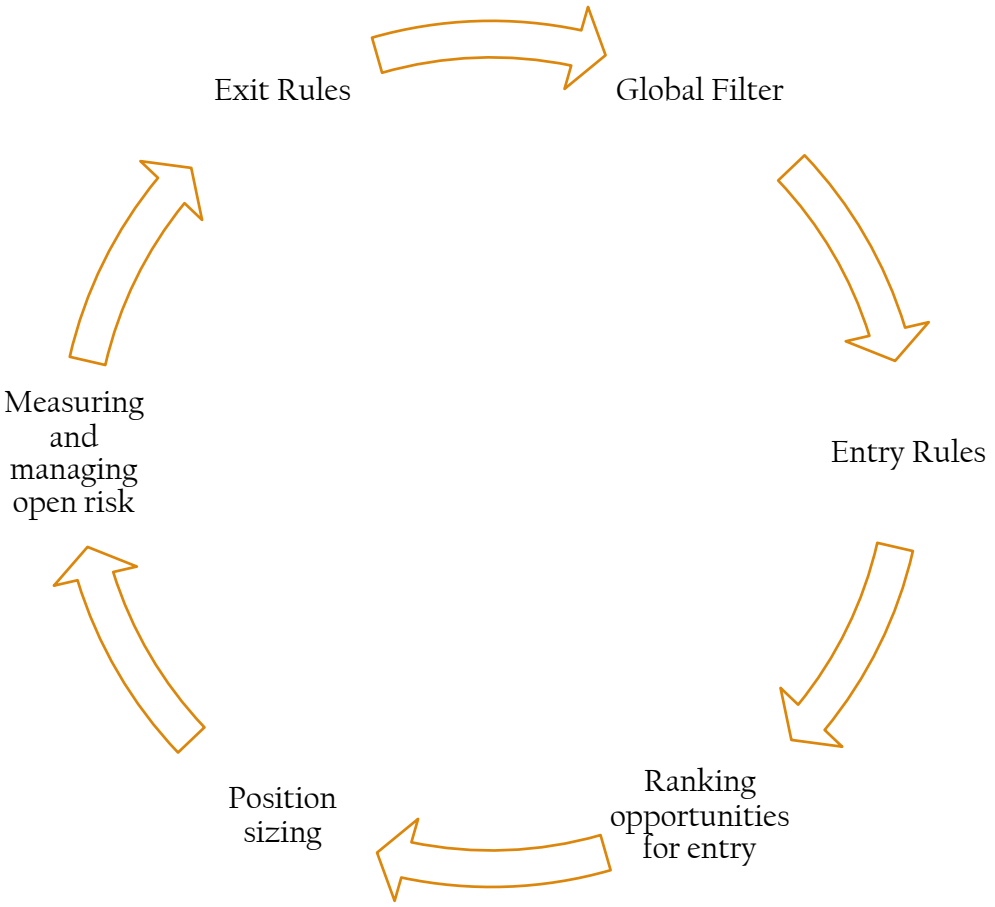
**Keep Track of the Expiration Dates**: Essential to managing the position of an option is knowing the expiration date.

**Diversification across time** is one of the most useful aspects of options trading and necessary to mitigate the time decay (theta risk) of the overall portfolio of options.

**Minimize the effect of emotional and behavioral issues** especially as they relate to the Exit Strategy. Rules based methodologies are critical for success and sustainable profits.

Deep out-of-the-money options are cheap, but it takes a long time for these options to become profitable. We use them sparingly and opportunistically!

# System Development



# Methodology

A favorite way to play earnings is buying a strangle a few days before earnings announcement and selling it just before earnings are announced.

The idea is to take advantage of the rising Implied Volatility (IV) of the options before earnings announcements.

We look for companies having a history of big post earnings price moves. Those moves will cause the IV to spike before earnings.

If it is beneficial for the fund, we can instead buy out-of-the-money (OTM) strangle and sell a further OTM strangle, creating a Reverse Iron Condor.

# Methodology

In some instances, we are not looking for home runs although it's possible when IV spikes.

Instead, we are aiming consistent 15-20% gains with relatively low risk.

The main idea behind these types of trades is "renting the strangle/straddle" (or the Reverse Iron Condor) before earnings announcements.

An increase in IV should help to neutralize the negative theta (time decay) and keep the floor under the strangle price.

As we all know earnings are 50/50. This is a trade for those who don't want to bet on the direction of the stock and don't want to hold through the earnings.

# Methodology

The main and only risk of these trades is the negative theta. Some of the trades are using options that expire in just a few days so the theta is fairly large.

The expectation is that an increase in IV will offset the negative theta but it doesn't always happen. If the stock moves, it will help.

In any case, you can control your loss since theta damage is gradual. It is very unusual to lose more than 10% on these types of trades due to our stringent risk management protocols.

# Methodology

If you don't want to place the Reverse Iron Condor, you can put on the trade with the strangle or straddle.

The trade will be more expensive and the negative theta much higher, so we recommend to be in the trade no more than 3 to 5 days.

Choice of strikes depends on your risk tolerance. Risk and reward are always closely related.

Going far out of the money will gain more if the stock has a decent move.

Going near the money will gain less with less risk.

We usually like strikes with deltas in the 25 to 30 range, which is a good compromise.

# Methodology

Instead of weeklies, one can choose a more distant expiration to reduce the effect of negative theta.

However, the IV increase for the distant expiration will be less as well.

The IV is the most inflated for the options with closest expiration.

# Driving Forces

### Fundamental Drivers

The macroeconomic environment in a long-term valuation principle

### Dynamics Drivers

The market studied from dynamics angle: earnings, price and risk appetite premium

### Reversal Drivers

Composed of several qualitative indicators to determine if the prevailing trend is about to change/reverse

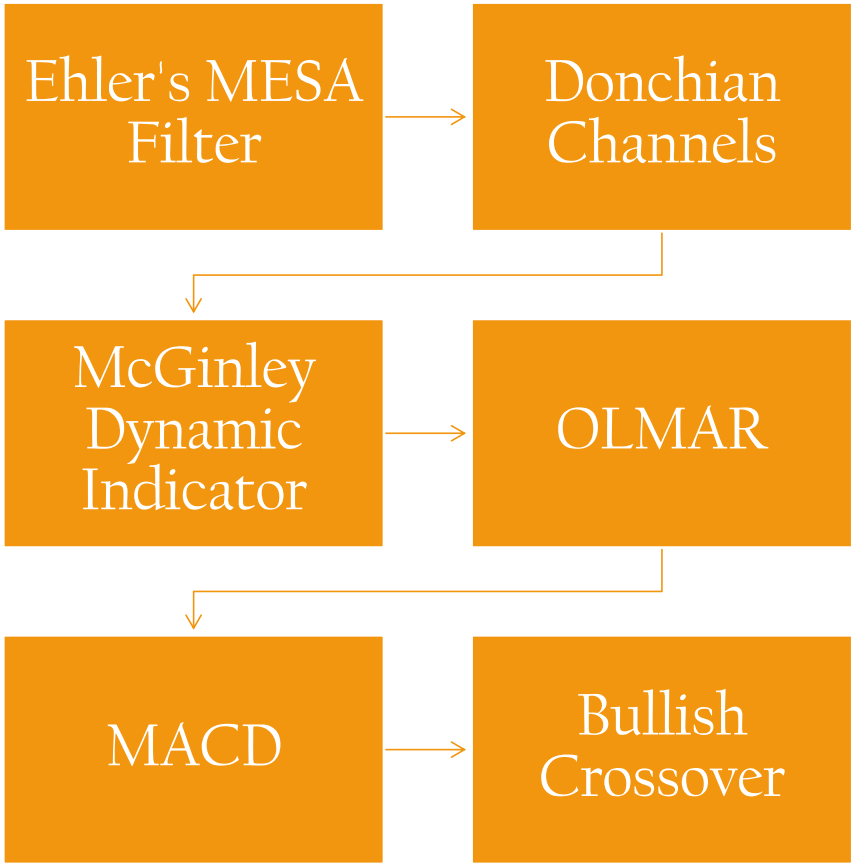
# Critical Questions

Where are the markets and our choice of industries going?

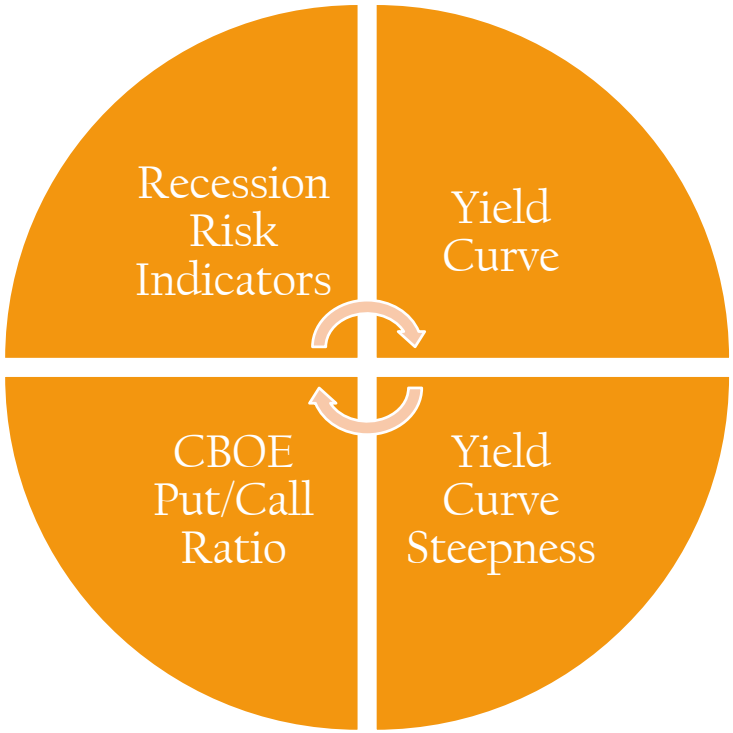
How should we position for any macroeconomic and company specific scenario?

What could go wrong?

# Technical Signals



# Economic and Behavioral Signals



# Multidimensional Volatility Structure

# Satellite Strategy

**In the case of a bearish sentiment on a stock or ETF**

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If the IV percentile is under 20% → long put vertical that has a positive vega.

If the IV percentile is near 50%, sell an out-of-the money (OTM) call vertical when we are feeling less confident about our opinion on direction or buy an at-the-money (ATM) put vertical if we are feeling more confident.

If the IV percentile is over 80% → bearish short call vertical that has a negative vega

# Appendix

- Endogenous Risk
- Swingtum Theory
- Bayesian Inference
- HAR-RV

# Endogenous Risk

Underlying fundamentals deteriorating is a form of risk (working against your bet) but being uncertain about which fundamentals truly matter is of the endogenous kind.

**"Real trouble arises when we model uncertain systems using the mathematical tools of risk." Michael Mauboussin**

Bak et al. demonstrates numerically that dynamical systems with extended spatial degrees of freedom in two or three dimensions naturally evolve into self-organized critical states (without detailed specification of initial conditions).

Self-organized criticality is robust with respect to variations of parameters, and the presence of quenched randomness.

On the other hand, sensitive dependence on initial conditions is the definition of chaos, which is deterministic.

# Swingtum Theory

The stock market is in a constant flux of motion, which is made up of three types of fluctuations or regimes:

| 1. Dynamic Swings | 2. Physical Cycles | 3. Abrupt Momentums |
| --- | --- | --- |

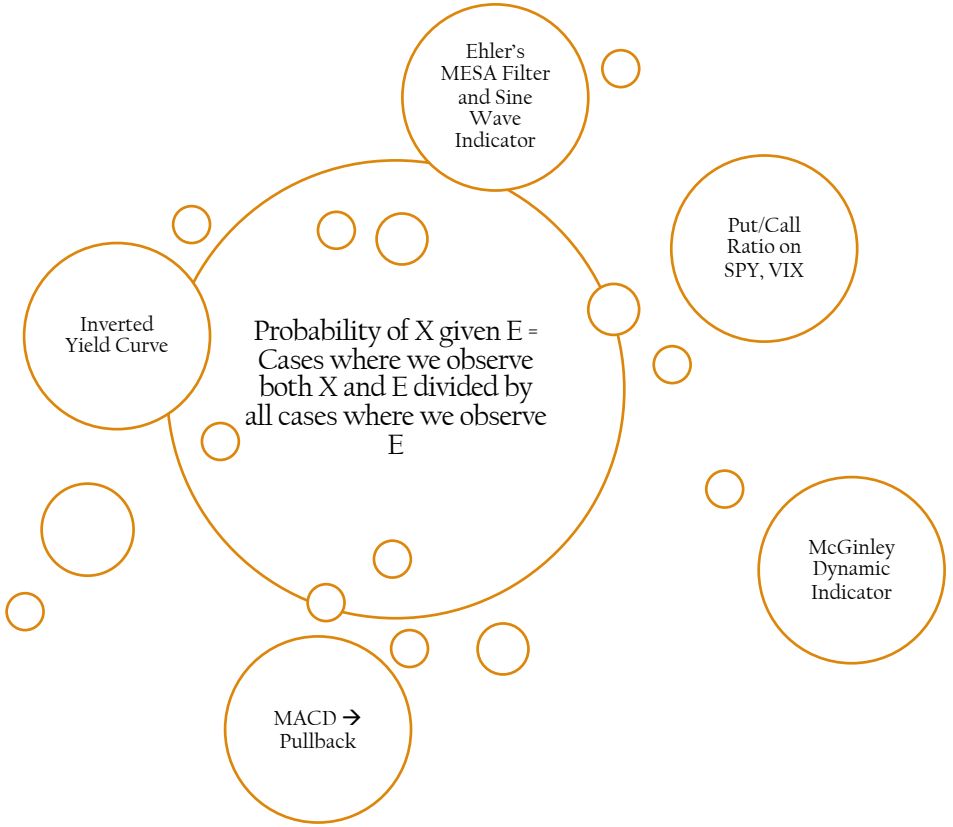
# Swingtum Theory

**1. Dynamic Swings** include business cycles ranging between 3-5 years and multilevel trends or Elliot waves of different time spans. They have a fractal nature and do not have a constant periodicity. They can be modeled as mathematical fractals by the power laws and log periodicity.

**2. Physical Cycles** include anniversary days – yearly, monthly and weekly cycles. Each cycles has a relatively constant periodicity. They can be modeled as adaptive sine waves.

**3. Abrupt Momentums** may be caused by endogenous forces such as the critical points or more often by exogenous forces such as news impact. They can be modeled in chaotic patterns.

# Regime Probability Estimation using Bayesian Theory



# Regime Probability Estimation using Bayesian Theory

When stocks were about to enter a bear market, what is the probability of observing conditions similar to the present?

Define X as the unobservable thing whether or not the market will enter a bear market over the next y periods.

E … the observable evidence

Method: We can go back historically and count when X was true (in hindsight), how often we observed E.

We can also count when X was not true how often we observed E.

# HAR-RV

Heterogenous auto-regressive realized volatility proved to tbe capable of capturing the long memory in volatility by mixing the different realized volatility frequencies: Daily: 1; Weekly: 5; Monthly: 22

Construct a long (short) straddle h days prior to the final settlement day if the direction of the predicted range in future volatility is upward (downward) compared with historical volatility calculated based on last h-day index return, and then holding the option until the cash settlement.

Investigate whether forecasting and trading performance can be improved if the information content of the sentiment is taken into consideration in the decision-making process.