ALPHADROID STRATEGIES

An Introduction to
Temporal Portfolio Theory ™

By Scott Juds, October 2015

Note: This is a temporary placeholder until completion of the formal paper.

Modern Portfolio Theory is 65 Years Old

MPT was developed long before computers were available for analyzing time domain data on a daily basis. Thus MPT's development was inherently limited to long-term statistical analysis of portfolios and market data. With no temporal analysis functionality there could be no trend/momentum information; limiting MPT to buy-and-hold diversification models. Today, however, even the originator of the EMH (Efficient Market Hypothesis), Nobel laureate Eugene Fama, acknowledges returns associated with momentum are pervasive. It's time to extend MPT's framework.

Temporal Portfolio Theory Introduction

Temporal Portfolio Theory extends MPT by integrating the cross-disciplinary sciences of Matched Filter Theory, Differential Signal Processing, Fuzzy Logic, and Holistic Risk Management within a layered Portfolio-of-Strategies framework to measurably improve investment performance. Its four operational components are detailed below and in the white paper: "**Temporal Portfolio Theory**."

Automated Polymorphic Momentum ™

Both Information and Detection Theory dictate that the probability of making an excellent investment decision is directly proportional to the signal-to-noise ratio of the employed momentum indicator signal. While Matched Filter Theory actually specifies the momentum filter shape and duration for optimum signal-to-noise ratio, Differential Signal Processing further eliminates common mode noise from the decision process. The term Polymorphic indicates that the momentum filter is both adaptive in shape and duration to accommodate (a) the diverse character of various equity classes (i.e. bonds, market indexes, sectors, REITS, and commodities), (b) the evolving character of the market, and (c) the evolving character of Strategies as funds with shorter histories begin to participate. See our **NAAIM Wagner Award** technical paper: "**Automated Polymorphic Momentum**."

Risk-On Risk-Off Triple Assessment

Risk-On Risk-Off investment decisions are made by market direction indicators, such as the well-known Death Cross and Golden Cross, which typically incorporate moving averages of

the S&P500 or the daily advances/declines. They react slowly enough to eliminate short-term whipsaw losses, but fast enough to respond to a true bear market. Unfortunately, they are still vulnerable to medium-term market declines, which recently resulted in a few painful whipsaws. Improved performance requires adding new information. **StormGuard-Armor** ***achieves its remarkable performance by incorporating data with three distinct views of the market:*** price-trend, volume-momentum, and value-sentiment. Twelve analog and logical tests of these measures are combined to produce the final StormGuard-Armor indication utilizing Fuzzy-Logic.

Integrated Bear Market Strategies

When a market direction indicator (such as StormGuard-Armor) signals that conditions have become bearish, a Bear Market Strategy automatically takes charge and selects from a list of trusted safe harbor investments, such as money market funds, bond funds, gold bullion, or US treasuries. While money market funds are intrinsically safe, they offer virtually no growth opportunity during a bear market. Conversely, bonds, gold and treasuries offer growth opportunity, but are not reliably negatively correlated with the market. Integrated **Bear Market Strategies** provide a means to automatically select the current best performing safe harbor investment candidate.

Multi-Dimensional Risk Abatement

Risk is not a one-dimensional problem cured by a single act of diversification. It's a multi-dimensional problem, and diversification is just the start. There are numerous sources of risk to face that relate to companies, funds, strategies, markets, political events, natural disasters, and personal behaviour. Temporal Portfolio Theory embraces Holistic Risk Management to abate risk on many levels, as described in our white paper: "**Conquering the Seven Faces of Risk**".