



Research Report:
Testing Results of the
“Model-of-Models”
Active Management System
For the U.S. Stock Market

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Research Update: The Bottom Line

Results Summary of the “Live Test” Period of the Active Management System for the U.S. Stock Market

Below are the updated results of the “live test” research project we continue to conduct for the development of an Active Management System for the U.S. Stock Market for the period 7/15/2009 – 2/29/2012. The details of the project are described in this report. The start date was chosen because this was first trade at the beginning of the “live test” period. The end date was chosen as the last date this report was updated.

Please note that this section is intended for “quick reference” and should not be considered a substitute for the research report itself. For details on the assumptions made and how the test was conducted see the section of the report entitled “Step 2: Implementing the Approach in a “Live Testing” Environment.”

“Live Test” Performance Results (Returns as of 2/29/2012)

Period	Main Model	Hybrid Model	S&P 500
2009 (from 7/15)	20.89%	49.59%	21.33%
2010	20.58%	33.43%	12.78%
2011	-4.58%	-8.04%	0.00%
2012 (ytd)	9.18%	6.74%	8.59%
Cumulative	51.86%	95.93%	48.59%

Please see important performance disclosures at the end of the report. The return calculations presented above are based on historical testing of the system. Test results do NOT represent actual trading, do NOT take into account either the payment of commissions or reinvestment of dividends, have inherent limitations, and are for informational purposes only. Past performance is not a guarantee of future results.

Developing a “Model-of-Models” System to Actively Manage Risk in the U.S. Stock Market

Heritage Capital Management has always focused on managing the risks of the stock market. While there is no guarantee that we will accomplish our objectives, we strive to keep exposure to market risk in harmony with the overall risk/reward environment at all times. This means we attempt to maintain a lower exposure to the stock market during severe market declines.

In general, this approach has helped the majority of our programs “lose less” (defined as our programs experiencing losses that are smaller than the losses of the S&P 500) during severe market declines. However, this “risk managed” approach also has pitfalls, which we hoped to improve upon via the development of a “model-of-models” active risk management system.

One key problem we have identified over the 22+ years of our company’s existence is that during bear market declines (generally defined as a decline of -20% or more in the major market indices), longer-term oriented risk-managed strategies will, by definition; hold less exposure to market risk as the decline matures. As such, when the bear period ultimately ends and the rebound begins, the returns of a risk-managed strategy tend to lag.

Because of this shortcoming, we implemented a research project in an effort to improve upon our approach to managing risk. The goal was to seek out and test a trading system that is:

- (a) Able to adapt to changing market environments
- (b) Shorter-term in nature
- (c) Capable of producing positive returns in most all market conditions over a reasonable period of time (generally defined at 1-3 years).

The “Model-of-Models” Approach

As we detailed in our in-depth research paper “Developing an Active Management System for the U.S. Stock Market” we developed a “model-of-models” approach to manage the market. Instead of using a single indicator or model, this approach combines a series of market indicators and/or market models in order to create of model made up of many other models.

The key to the model-of-models approach is that each category of market analysis itself contains multiple models or indicators. These indicators are then summed to create a “weight of the evidence” signal for the category.

The model-of-models system we researched and tested contained ten categories of analysis:

- ✓ Market Breadth
- ✓ Liquidity
- ✓ Seasonality
- ✓ Sentiment
- ✓ Trend
- ✓ Volatility
- ✓ Volume
- ✓ Economic
- ✓ Fundamental
- ✓ Individual Equity Ratings

Each of the ten categories is itself made up of between two and five separate, individual indicators or models that have been tested and proven successful in their own rights.

Step 1: Backtesting the Model-of-Models Approach

Before we ever consider going live with an investment strategy, we insist that the management system be thoroughly backtested – preferably in good markets, bad markets and everything in between. Therefore, we asked Ned Davis Research, one of the largest institutional research firms in the country, to conduct an independent test of the system on a calendar-year basis. In short, we were looking for an indication of how the system might perform in different years and varying conditions.

We should make it clear that all backtests are inherently flawed and should not be used to determine how a system might perform going forward. Rather, a backtest merely gives us a general indication of what we might be able to reasonably expect in different environments.

Below is a summary of the hypothetical computer backtest of the 10-model-of-models system. The overall model included a market breadth model (comprised of 3 individual indicators), a market liquidity model (made up of 2 individual indicators), a seasonality model (2 individual indicators), a sentiment model (containing a total of 5 different indicators), a trend model (5 indicators), a volatility model (2 individual indicators), a volume model (5 separate indicators), an economic model (comprised of 2 indicators and 3 models), a fundamental model (1 model and 1 indicator), and an individual stock rating diffusion model (made up of 2 different stock diffusion models).

Each of the 10 models was scored as -1, 0, or +1. A score of -1 is negative, 0 is neutral, and +1 is positive. On a weekly basis, the models were then summed in order to come up with a composite score in the range of -10 to +10. For the backtest, scores in excess of +1.5 generated buy signals. Scores between +1.5 and -1.5 generated a neutral signal. And scores below -1.5 generated a sell signal.

The model tested provided a weekly signal. Thus, when the model gave a buy signal, the backtest assumed that the test portfolio went long the S&P 500 at the close of business on the first trading day following the signal (usually a Monday). The test then assumed a long position was held until either a neutral signal or a sell signal was given.

When a neutral signal was given, the backtest assumed that the model sold the S&P 500 at the close on the next trading day and was then invested in a T-Bill proxy.

And when a sell signal was given, the test went short the S&P 500 index at the close of the next business day.

It is important to note that the results of our backtest do NOT represent and are NOT intended to represent, actual trading. As we've mentioned, the backtest was done in order to provide us with an indication of what we might be able to expect in varying market environments such as up markets, down markets, and the "in between" type of environments.

Additional assumptions made in our backtest include the following: A price-only S&P 500 index was utilized, meaning that dividends were not considered. No commission charges were assessed for any signals. There were no management fees withdrawn. And there was no trade slippage assumed since end-of-day pricing was used.

Below is a table summarizing the results of this hypothetical backtest:

Historical Backtest of 10-Model-of-models Trading System

10-Model-of-models Decision System Historical Test Results Using Long/Short/Neutral Strategy				
Year	Weekly L/S/N Test		S&P 500	
1987	22.60%	\$ 10,000.00	5.69%	\$ 10,000.00
1988	28.80%	\$ 12,260.00	16.64%	\$ 10,569.00
1989	43.10%	\$ 15,790.88	32.00%	\$ 12,327.68
1990	24.60%	\$ 22,596.75	-3.42%	\$ 16,272.54
1991	16.40%	\$ 28,155.55	30.95%	\$ 15,716.02
1992	6.00%	\$ 32,773.06	7.60%	\$ 20,580.13
1993	7.20%	\$ 34,739.44	10.17%	\$ 22,144.22
1994	24.30%	\$ 37,240.68	1.19%	\$ 24,396.28
1995	21.80%	\$ 46,290.17	38.02%	\$ 24,686.60
1996	19.30%	\$ 56,381.43	23.06%	\$ 34,072.44
1997	19.00%	\$ 67,263.04	33.67%	\$ 41,929.55
1998	39.50%	\$ 80,043.02	28.73%	\$ 56,047.23
1999	57.70%	\$ 111,660.01	21.11%	\$ 72,149.60
2000	39.40%	\$ 176,087.84	-9.11%	\$ 87,380.38
2001	35.20%	\$ 245,466.45	-11.98%	\$ 79,420.02
2002	31.00%	\$ 331,870.64	-22.27%	\$ 69,905.51
2003	0.30%	\$ 434,750.53	28.72%	\$ 54,337.55
2004	24.30%	\$ 436,054.79	10.82%	\$ 69,943.29
2005	14.60%	\$ 542,016.10	4.79%	\$ 77,511.16
2006	10.20%	\$ 621,150.45	15.74%	\$ 81,223.94
2007	24.40%	\$ 684,507.79	5.46%	\$ 94,008.59
2008	42.60%	\$ 851,527.70	-37.22%	\$ 99,141.46
2009	77.70%	\$ 1,214,278.50	27.11%	\$ 62,241.01
Cumulative	21,477.73%		691.15%	

Please see important disclosures at the end of the research report regarding the inherent limitations of hypothetical backtested results.

In reviewing the hypothetical backtest results, the first thing that jumped out at us was the fact that there were no negative returns for any calendar year. While there were several years in which the system underperformed the market – sometimes by a large degree such as in 1995, 1997, and 2003 – we viewed the fact that there were no losing years as a positive.

The next point we considered important was that the test was done over a period of 23 years. This period included many and differing market cycles, including both a secular bull and secular bear market cycle as well as several cyclical bull and cyclical bear markets within the context of each secular cycle.

Step 2: Implementing the Approach in a “Live Testing” Environment

Since backtested results have significant limitations (see the important disclosures at the end of this report), we decided to take a new and unique step in order to further test the system. Our goal was to test the trading strategies in a more stringent “live” environment, but avoid putting client assets at risk during the test.

We implemented this test by publishing our buy and sell signals in real-time via an internet website. Whenever a signal was given, the website would send an email alert including the exact instruction of the move to those individuals subscribed to the service. While this is definitely NOT the same as actual trading, this “live testing environment” with subscribers who were paying for the signals, provided a more real-world test of the system than does a computer generated backtest.

During our “live test” period, we added another component to the 10-model-of-models system. Since the 10-model-of-models system is calculated weekly, we wanted to create a shorter-term model in order to keep the portfolio in line with the trend in between weekly signals. Dubbed the “Daily Timing Model,” this model is comprised of the following models/indicators:

Daily Timing Model-of-Model Components:

- Short-Term Trend Model (2 indicators)
- Intermediate-Term Trend (2 indicators)
- Trend and Breadth Confirm Models (2 models)
- Momentum Models (3 models)
- Overbought/Sold Models (3 indicators)
- Sentiment Models (2 models)

On July 15, 2009, we initiated the “live test” period with the combination of the 10-Model-of-models system and the Daily Timing Model on an independent website. When either model gave a signal, a trade alert was issued during trading hours via email to those individuals who had subscribed to receive the signals. The “trade” was then “implemented” in the hypothetical model portfolio within an hour of the trade alert email and the price was posted on the website.

We ran three different model portfolios during the testing period: a Main Model, an Aggressive Model, and a Hybrid Model.

The Main Model employed a long/short/neutral strategy using the S&P 500 as the market index with manager discretion as to which mode (short or cash) to use on sell signals.

The Aggressive Model employed a long/short strategy using leveraged ETFs with the manager having discretion over which ETF to utilize on each trade.

The Hybrid Model utilized a leveraged long/short/neutral approach with manager discretion as to which mode to use during sell signals (short or cash) and which ETF’s to employ on each trade.

During the 2009 testing period, the Main Model went long the S&P 500 index when on buy signals, either short the S&P 500 index or to cash proxy on sell signals, and moved to a cash position during neutral signals. In 2010, the Main Model utilized the SPDR Trust S&P 500 ETF (SPY) on buy signals, either the ProShares Short S&P 500 ETF (SH) or a cash proxy on sell signals, and a cash proxy during neutral signals.

The Aggressive and Hybrid Models utilized leveraged and non-leveraged ETF positions (specific positions were detailed in each trade alert). The Aggressive model moved to a short position on sell signals. The Hybrid Model moved to a cash position during neutral signals and to either a short or neutral position on sell signals.

Given that we believed the market was in a “cyclical bull” phase during the test, we did not use a short position in the main and hybrid models during this period.

Note that in the “live testing environment” the cash proxy earned no interest, no commissions or management fees were considered to have been paid for any of the hypothetical trades.

An Alternative Use: Employing the ‘Models-of-Models’ System as a Hedge

Another use of the system we explored was to combine the model-of-models system with other long-oriented programs as a method to hedge potential downside risk during severe market declines.

Although all of the programs we offer strive to “manage risk” during severe market declines, as mentioned early in this report, many of the programs utilize a longer-term approach to risk management. As such, coupling the model-of-models system with programs that employ longer-term risk management approaches could potentially manage downside risk “faster.”

Conclusion – The Model-of-Models System Has Potential

In our opinion, that conditions warrant a shift to a **more actively managed approach** to the U.S. stock market.

Our research shows a model-of-models approach to be superior to trend-following or single rule-based indicator systems as changing market environments can negatively impact these approaches.

Our computer-based research showed that a model-of-models system would have provided superior performance over a long period of time and over multiple market cycles.

In order to seek a management strategy that would function in differing environments and not fall prey to the problems found in trend-following and single-model approaches, we first backtested a weekly “model of models” system. We then supplemented the weekly model system with a daily model to deal with shorter-term movements that can take place intraweek.

Next, we created a “live test” environment for the combination of models via an internet website. During the “live test,” signals were sent to subscribers via email alerts and implemented in a model portfolio.

After 31.5 months of testing, the combination of the weekly and daily model-of-models has shown positive results. Thus, we will conclude that the approach is worthy of further consideration.

Important Disclosures Relating to Backtesting:

The test results provided herein are HYPOTHETICAL. The test of the trading system displayed is for information purposes only and should not be used or construed as an indicator of future performance, an offer to sell, a solicitation of an offer to buy, or a recommendation for any security or investment program.

The return calculations presented are based on historical system testing. It should be noted that test results **do NOT represent actual trading, do NOT take into account either the payment of commissions or reinvestment of dividends, have inherent limitations, and are for informational purposes only.**

All returns illustrated in this research report are before commissions, management fees, and slippage. As such, returns illustrated cannot be expected to be achieved. There can be no guarantee, that profits will be made, or even that losses will be avoided. Some of the risks these strategies can be exposed to include: strategy and timing decisions may not always be correct and may adversely affect account performance. The implementation of timing signals may not be done in a timely fashion. The use of leverage may magnify risk. Leverage and ETF's employing derivatives carry other risks that may result in losses, including the effects of unexpected market shifts, default and/or the potential illiquidity of certain derivatives.

The performance results depicted have been produced by application of selected trading signal criteria to historical stock index price data. It is assumed that when on a "buy" signal, the hypothetical test account owns the S&P 500 stock index or the ETF specified in the trade alert. When on a "sell" signal, it is assumed that the hypothetical test account is short the S&P 500 stock index or the ETF specified in the trade alert. When on a neutral signal, it is assumed that the hypothetical test account is invested in T-Bill index. Annual returns are compounded on a trade by trade basis.

The attached hypothetical system test research report is NOT represented as actual trading or client experience, nor does it reflect the impact on decision making of economic or market factors experienced during actual management of funds. Performance between selected dates may be misleading as indicative of overall performance of a strategy, since they may have been selected to present optimum performance.

Actual results may differ from results reported for the model portfolio for many reasons, including, without limitation: (i) performance results for the model portfolio do not reflect management fees or trading commissions that you may or may not incur; (ii) performance results for the model portfolio do not account for the impact, if any, of certain market factors, such as lack of liquidity, that may affect your results; (iii) the securities chosen for the model portfolio may be volatile, and although the "purchase" or "sale" of a security in the model portfolio will not be made in the model portfolio until confirmation that the email alert has been sent to all subscribers, delivery delays and other factors may cause the price you obtain to differ substantially from the price at the time the alert was sent; and (iv) the prices of securities in the model portfolio at the point in time you begin subscribing to our service may be higher than such prices at the time such stocks or options were chosen for inclusion in the model portfolio.

Index returns are price only and do not include the reinvestment of dividends. The S&P 500 is a stock market index containing the stocks of 500 large-cap corporations, most of which are US companies. The index is the most notable of the many indices owned and maintained by Standard & Poor's, a division of McGraw-Hill. S&P 500 is used in reference not only to the index but also to the 500 companies that have their common stock included in the index.

Past performance is not a guarantee of future results.