

Do Index ETFs Make It A Small World After All?

If Roy Disney and Stanley Gold really wanted to turn up the heat on Michael Eisner, they should forget enlisting the aid of shareholder advocacy groups and go straight to the macabre punishment of strapping the embattled corporate potentate into an endless ride featuring "It's A Small World After All." Yes, this would be wrong and quite possibly a violation of the Eighth Amendment, but that is why we have jurors and their associated hand signals.

A small world is of no concern to investors unless it increases correlation of returns and reduces the potential for the diversification so central to modern portfolio theory. This has been happening in recent years to the extent where we can say that the shorter the timeframe of comparison, the greater the correlation of returns between markets. Global investors can still rest comfortably in the knowledge that diversification can be achieved still over longer time periods, and that international investing does provide, for better or worse, a de facto currency trade.

Index ETFs: Market Timing In Another Form

International managers, like their domestic brethren, are slaves to indexation, and like domestic markets, there is no shortage of index benchmarks from which to choose. The two on which we will focus, are the Morgan Stanley Capital International EAFE (Europe, Australasia, Far East) and Emerging Markets Free index, which underlie two ETFs that trade during U.S. hours, the EFA and EEM, respectively. The EFA was launched in August 2001, and the EEM in April 2003. These ETFs reflect the action in markets whose trading hours on any given day precede, follow and overlap American trading hours.

This odd combination of trading hour overlaps gives American investors the opportunity to react to developments that preceded the U.S. opening and to trade in anticipation of any overseas actions that in turn are reactions to developments in American markets that day. As these ETFs trade continuously throughout the American day, their pricing is nowhere near as stale as that of those open-end mutual funds whose shares were being timed by various operators; more important, traders are assuming the full risk that their anticipatory actions will be wrong.

These timing options render the standard measure of diversification, correlation of returns, incomplete. As we shall see below, the intraday structures of the American market and those of the index ETFs, the information you need to react to during a trading day, are quite different. They contain useful information above and beyond simple correlation of returns.

Just for the record, the daily correlation of returns between the Standard & Poor's Depository Receipt and the EFA since August 2001 has been .791. For the SPDR and the EEM since April 2003, the correlation of returns has been .648, and for the EFA and EEM it has been .708.

Related, But Not Closely Correlated



Beyond Correlation

Nearly a decade ago I set out on a massive data mining study designed to extend Japanese candlestick analysis. The final products of this study were incorporated into daily quantitative futures market newsletters published in a previous life.

As useful as candlesticks are, they are not a mutually exclusive and collectively exhaustive classification system, one capable of providing a unique label for all days. The key to developing such a classifier is normalization of the key identifiers of a day's structure – its open, high, low, close, and midpoint – by locating them on a stochastic distribution of the day's range, a variation of the Steidlmyer distribution familiar to aficionados of Market Profile™ analysis.

As no specific notation for this concept exists, a standard relational notation will be used. For example, if the range between a day's open and close – corresponding to the body on a candlestick – exceeds the mode of the day's stochastic distribution, it will be designated as "O>=C." In the table below, the first classification would be for a day where the open/close range, the open/midpoint range, and the midpoint/close range all exceeded the stochastic criterion.

<u>O >= C</u>		<u>O < C</u>	
<u>O >= M</u>	<u>O < M</u>	<u>O > M</u>	<u>O <= M</u>
(1) M >= C	(3) M < C	(5) M > C	(7) M <= C
(2) M < C	(4) M >= C	(6) M <= C	(8) M > C

A Time of Brief History

While this classification scheme can produce detailed forecasts of various kinds given enough data, the short histories of the EFA and especially of the EEM preclude a complete and statistically significant data mining approach. Instead, we can ask some simple questions for starters, with others to follow at a later date:

1. Does a white candle (close greater than open) with a positive interday change in the SPDR lead to higher values the next day in the EFA and EEM?
2. Conversely, does a black candle (open greater than close) with a negative interday change in the SPDR lead to lower values the next day in the EFA and EEM?
3. Do white candles in the EFA and EEM lead to higher values the next day in the SPDR?
4. Finally, do black candles in the EFA and EEM lead to lower values the next day in the SPDR?

The results of these four questions are summarized in the table below:

SPDR White Candle + Positive Change

Question 1	Total Conditions Met	Next Day Up	Correct
EFA	297	157	52.9%
EEM	126	82	65.1%

SPDR Black Candle + Negative Change

Question 2	Total Conditions Met	Next Day Down	Correct
EFA	277	134	48.4%
EEM	93	44	47.3%

ETF White Candles + Positive SPDR Change

Question 3	Total Conditions Met	Next Day Up	Correct
EFA	326	158	48.5%
EEM	128	74	57.8%

ETF Black Candles + Negative SPDR Change

Question 4	Total Conditions Met	Next Day Down	Correct
EFA	332	152	45.8%
EEM	122	51	41.8%

The predictive power of the SPDRs to the next-day changes of the ETFs, and vice-versa, is both non-existent and far lower than suggested by either the simple correlation of returns or popular imagination. Some statistically significant predictive relationships may exist elsewhere in the data and will be reported if found.

The duplicitous mutual fund managers and conniving hedge fund traders who engaged in the market timing trades uncovered last year found the one relationship that worked, a simultaneous correlation as opposed to a predictive one. Honest investors should ignore the short-term fluctuations of markets produced by the earth's rotation and focus instead on longer term diversification.