

Why is it getting harder to beat the market?

June 30, 2013

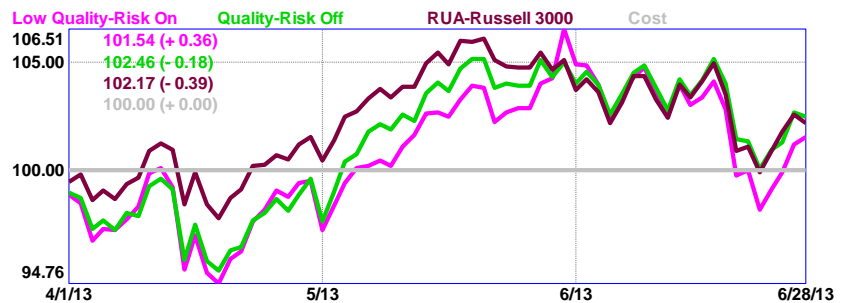
My expectation is that I should be able to consistently beat the market by at least two percentage points after fees. I'm not doing that.

What is going on?

The fact that so much is random from quarter to quarter and from portfolio to portfolio makes it easy to overlook, deny or excuse longer-term trends. And as for what we read in the press, the more we know the less credible it seems.

For example, I read in the *Economist* (June 15, p72, Buttonwood) about a move to quality defined as equities "that pass a series of financial tests known as the 'Piotroski F-Score.'" The article goes on to describe all the reasons for, and the implications of, this move to quality. Well it happens that I have created indexes using the Piotroski F-Score and daily monitor high quality against low quality stocks.

The chart to the right shows how high quality and low quality stocks compared to the Russell 3000 for the last quarter. As you can see both high and low quality trailed the market for most of the quarter. Then they caught up and matched for a while, and ended the race with low quality trailing slightly.



Historically, high quality does somewhat better, but not necessarily overall as low quality can really jump in bullish markets. The point is that it's not easy knowing what is going on. There are lots of opinions, and there are lots of numbers that statistically are noise rather than signal.

So how are we doing?

On January 1, 2002, I began managing money for other people in addition to my mother. Annual returns over the next 6.5 years were **12.5%** compared to **4.3%** for the market. Then came the severe decline of 2008, and sad to say the accounts I managed went down about 50% or the same as the market. Fortunately, we stayed in the market and returns from the March 9, 2009, bottom through 2010 were 41%, about the same as the market.

Since the start of 2011 our returns have trailed the market. Why? What is different? There are periods where the chart lines are parallel, and there are portfolios which occasionally beat the market handily, but the truth is that we haven't had portfolios that consistently beat the market by a wide margin. Efforts to become more diverse or more aggressive, such as in international ETFs, resource scarcity stocks, and very high dividend stocks, have so far made the problem worse rather than better.

Is it just me?

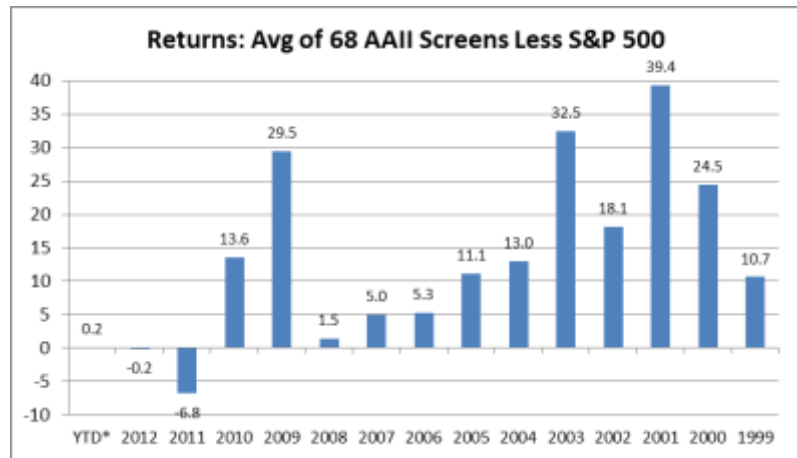
While it is easy to blame myself, I don't think the basic problem is in my skills, choices, knowledge or tools. When results are below expectations, it is easy to decide to change managers. But where does one go? One client left and then invested in five-year bonds at about 1%. I haven't had any that I know of that have gone to places where I would want to invest, or services that would fit in a business goal of consistently beating the market after fees by more than two percentage points.

From what I read, active managers are increasingly tracking their respective indexes or benchmarks, but not by enough to cover their fees. (Blanchett, "Are Active Mutual Funds Becoming Less Active?" in *Journal of Indexes*, March-April, 2013)

AII Screens Less Effective

The American Association of Individual Investors (AII) publishes 68 screens or sets of criteria for picking stocks in order to get exceptional returns. If you look at

a chart of performance relative to the S&P 500 since 1999, there has been a steep decline in market-beating performance. The years 2009 and 2010 were exceptions, but a deeper look at returns for those years finds results skewed by screens with only a handful of selections and inordinate gains. In 2010 there were outlier screens with 139% and 125% returns. In 2009 there were six outliers with returns over 100% (and an average loss of -47% in 2008). One had returns in 2009 of 340%, but a loss of -70% the year before and an average of three selections per month over the sixteen years. So if you ignore 2009 and 2010, a look at the chart reveals a pretty clear downward trend.



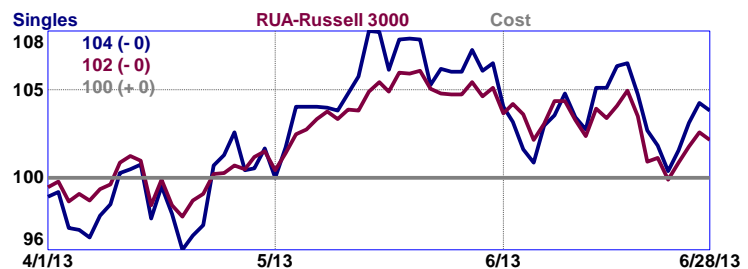
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Hulbert Financial Digest Newsletters Less Effective

Are the *Hulbert Financial Digest* newsletters able to beat the market? If we ignore the sub-portfolios and only look at each newsletter overall, of the 202 newsletters in the latest report 19% had 2012 returns in excess of the Wilshire 5000 benchmark. And this is without management fees. Eight percent of the newsletters beat the benchmark over both the last year and the last five years. Six percent of the newsletters beat the benchmark over the last year and since their inception. Those aren't very good odds. Why aren't half beating the market and half trailing?

Correlations have gone up.

I have five stocks in a Singles portfolio for one of my clients. The stocks are AIG, Amazon, Costco, Lennar Corp (a housing builder), and Stratasys (three-dimensional printers). These are only five companies, very different in very different industries. I think they are each above average companies with strong potential. Yet, look at how closely their prices tracked the market this past quarter. Does that look random to you?

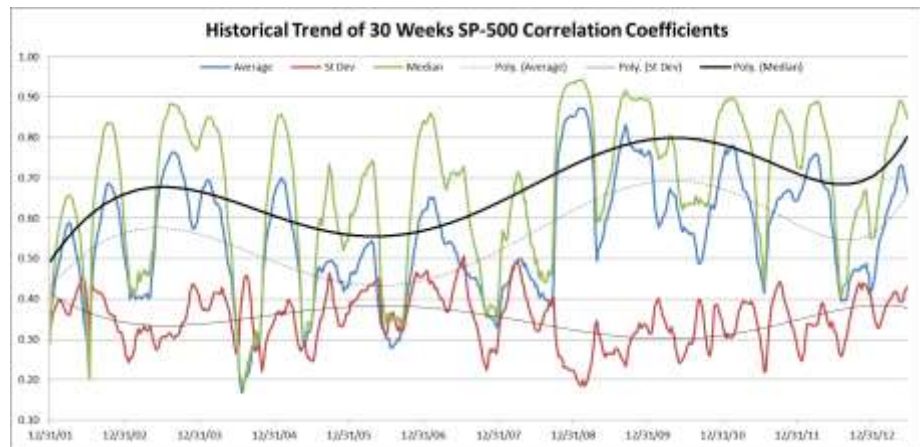


I have been doing research on the correlation between stock prices and market indexes. To give a sample, here is a chart going back to when I began this business. For each week I did a correlation over the previous 30 weeks (in this case) of each stock with the index (in this case the S&P-500). The chart shows the average, median and standard deviations of these correlations. The smoother lines even out the

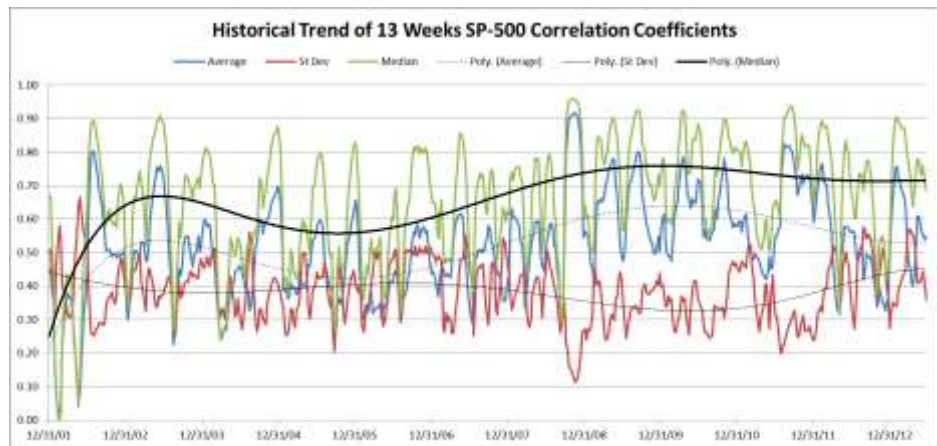
bumps (although it is amazing how even the bumps match for different indexes and correlations).

Correlations between stocks and between asset classes always go up when prices go down and panic sets in, so the rise in 2008 and 2009 is not a surprise.

But correlations are at that level and going up, and we are in a market that has been going up since 2009. For your reference, a correlation above .70 is statistically significant at the .05 level.

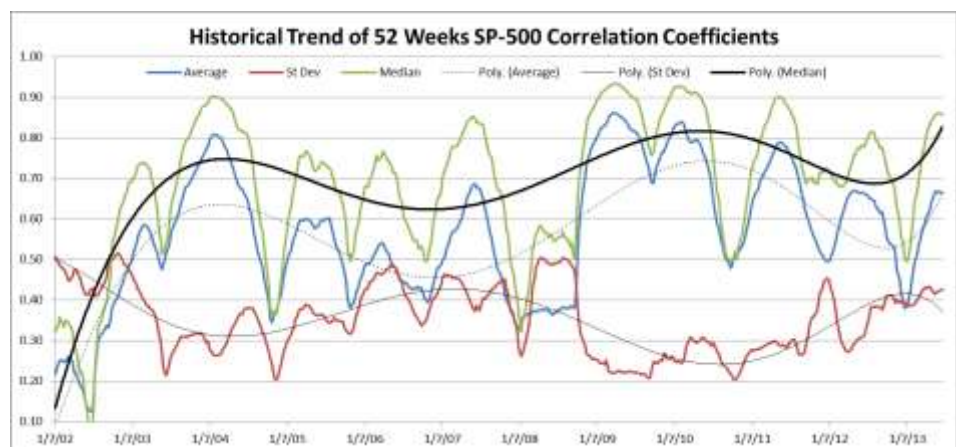


The second chart at a rolling 13 week correlation is notably different from the 30 week correlations. The correlations are much more up and down, although the trendlines are more consistent. For the last couple years, the average diverges more from the median, and the standard deviations are higher.



Is there more noise over the shorter correlation periods? However, both charts show a significant change in character post 2008 and prior to 2008. Both charts frequently have half of the SP-500 positions with correlations at .90.

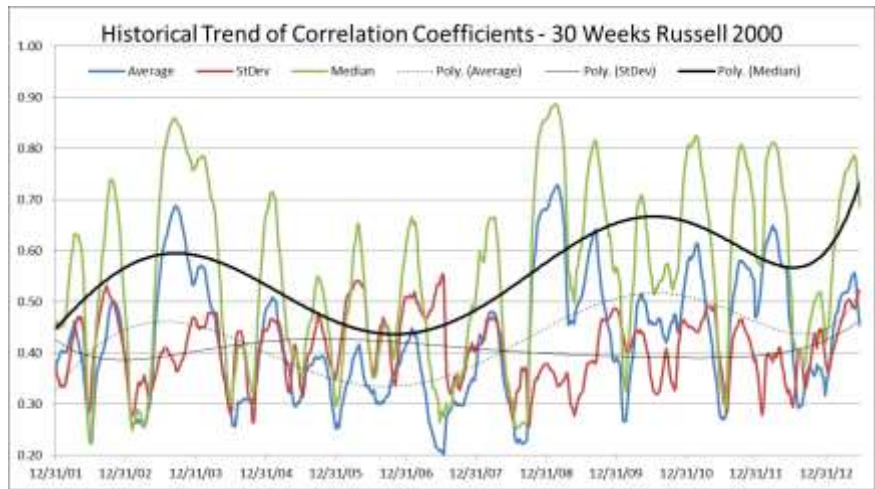
A third look at the same time period for the same index looks at rolling 52 week correlations. The impact of the 2008 market collapse is more evident in the increased correlations and decreased standard deviations. (Note that data for 1/7 2009, for example, is



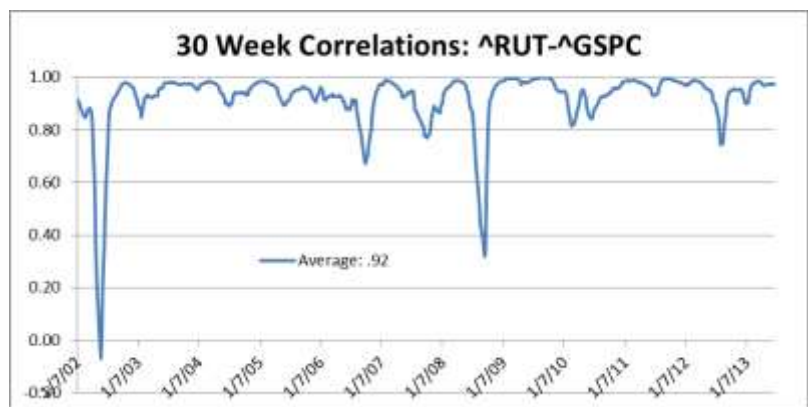
from the year preceding that date.) The increase in correlations is evident, even through a market period of rising prices.

I'm not sure what to make of the undulating nature of the correlations in all three charts. What causes the correlations to come and go?

For variety and contrast, I also show the same chart format for the Russell 2000 small-cap index. Historically the median correlation was lower than for the S&P-500, but is showing a more pronounced increase of late. The gap between the average and the median is of singular interest. Is it fair to conclude that a large number of stocks have very high correlations, while very low correlations of a few stocks bring down the average?



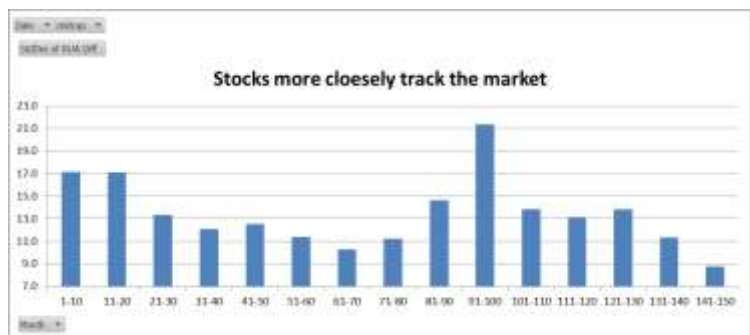
Naturally, the next question is the correlation between the large-cap stocks of the S&P 500 and the small cap stocks of the Russell 2000. Most of the time the correlation is extremely tight. What accounts for the occasional spikes where the correlation lapses? Based on this chart, diversification by market cap would appear to be a losing strategy.



Relative Strength

Correlations would not be a problem if while all stocks moved in sync with the market, one could pick stocks that went up more when the market went up and down less when the market went down. Indeed that is the dynamic for stock gains.

The issue may not be the correlation, but that the **amount** of movement up or down so closely follows that of the indexes. I analyzed this from many angles. The first chart shows standard deviations of how much stocks varied from the Russell 3000. The horizontal axis is the number of months since 2/28/2001. While stocks were more independent in pricing during the 2008 collapse, the present level is the lowest it has been in twelve years.



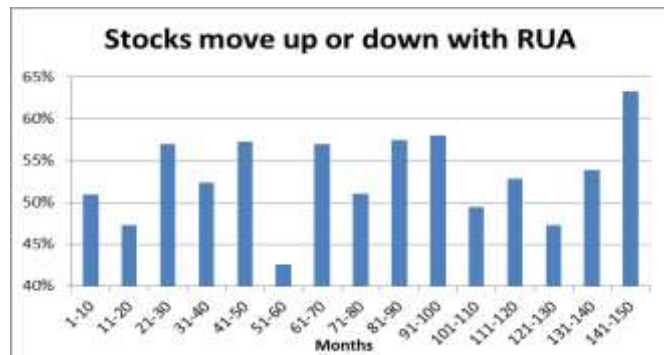
More and more, individual stock prices move with the market. The next chart shows percent of stocks going up or down ten percentage points more than the Russell 3000 each month. The blue bars are the percentage of stocks going up more than ten percentage points and the red bars are the percentage of stocks going down more than ten percentage points. Note that the last bars are an average rather than the most recent data. Also note the descending bars since months 91-100. It is interesting how similar are the variances above and below the index.



Is it just the extremes which are becoming less common? The next chart is the same except for stocks that are more or less than four percentage points above or below the Russell 3000. While this happens more frequently, the patterns are nearly the same.



A final perspective is to look at what percent of stocks went up or down in months that the market went up or down, in contrast to moving contrary to the market. The extent of this in-sync behavior is the highest it has been in ten years.



As it is easy to make spreadsheet errors, I would welcome others' research that would confirm or negate my findings. While there may be errors in the details, analyzing the data from multiple perspectives makes for a rather persuasive argument that stocks increasingly move together and by similar amounts.

The Literature

The same point of increasing convergence was found frequently in the literature. For example, Tyler Durden states that "Average correlations between the ten major sectors of the S&P 500 have reached 97.2%." <http://www.zerohedge.com/news/stock-correlations-soar-972-heres-why>

"In the entire history of the S&P 500, there has never been a day in which all 500 stocks in the index go up or all 500 go down. There have been 11 days in which 490+ stocks all move in the same direction on a given day. Of those 11 instances, 6 have occurred since July 2011."

Ritholtz.com

Jason Kephart writes about stock market correlations leading to closet indexing. “Maybe American Funds’ Growth Fund of America should be renamed American Funds Index Fund of America. That’s because the \$115 billion fund, the largest equity mutual fund in the world, is tracking its benchmark more closely than ever before. According to Morningstar Inc., the fund has the dubious distinction of having a three-year R-squared of 98 to the Russell 1000 Growth Index, up from 77 five years ago... To be sure, American Funds Growth Fund of America (AGTHX), which is run by Capital Group Cos. Inc., is not entirely to blame — and is not alone. That’s because the steady rise in correlations among stocks across the board is making it more difficult than ever for actively managed funds to differentiate themselves from their benchmarks.”

<http://www.investmentnews.com/article/20120930/REG/309309989#>

Correlations between domestic stocks are increasing. Correlations between sectors are increasing. And correlations between global equities have been trending higher.

Source: MSCI, Standard & Poor’s, FactSet, J.P. Morgan Asset Management.



One other interesting set of data relevant for our next section dealing with possible causality is a finding by Caitlyn Grudzinski. She reports that “Periods of increased correlation have been preceded by spikes in ETF trading volume, while periods of low trading volume lead to low correlation among stocks, according to data from Barron’s and the Chicago Board Options Exchange.”

www.thestreet.com/story/11644474/1/the-rise-of-etfs-and-stock-market-correlation.html

So what is causing the problem?

I attribute the problem to fundamental changes in the equities environment.

1. Individual investors have largely left the market.
2. Are High Frequency Traders (HFT) that are going broke in the nanosecond trading business applying their technology to longer-term trades? Why wouldn’t they? Ten years ago, my spending a month data-mining with 500,000 rows of data provided a competitive advantage. Today, I suspect the use of far larger databases with far more sophisticated analyses and consequent trades made automatically second by second. The average turnover of any given stock has gone way up to about five times a year.
3. The market is dominated by indexes.

The index effect

In analyzing who is bidding in this auction we call the market, the distinctions between these three categories become blurred. From what I add up, something over 70% of all market trades are by ETF or mutual fund indexes, or money managers closely aligned to track a specific benchmark index. John Bogle and Knight Kiplinger actively promote indexed investing, since it is so difficult to beat the market. Some congressmen have even proposed it as part of a required pension system.

Indeed, if we can't beat the market, why shouldn't you lower your risk and expenses and become a passive investor?

Think a minute about the iterative nature of this, the problem of the commons, and where this is taking us – if it hasn't taken us there already.

Let me explain the term "problem of the commons." While today the Boston Commons is a nice urban park for swans and strolls, at one time it was a cow pasture. Residents found that if they put more cows on the Commons they would get more milk. That worked until it didn't when the pasture became over-grazed. Many things that make sense at the individual level don't make sense at the macro level, which is why we have micro and macro-economics. Climate change is a problem of the commons writ large.

So if we all buy indexed ETFs, when that money comes into the market it buys up all the stocks in that particular index, usually based on the weight or capitalization (shares times price). So every stock of the same size gets the same buying (or selling) pressure. There is no discrimination between high quality or low quality stocks, or any other measure related to the individual stock. So all stocks within an index tend to track together. If the stock manages to get bigger, it gets even more buying (or selling) pressure. So we no longer have an auction based on the individual merit of a stock, but rather "socialized" buying and selling. The more indexes to which a stock belongs, the more pervasive the effect. In fact with some 900 ETFs now, it might be easier to buy a stock as a way to buy into multiple indexes rather than to buy an ETF as a way to buy into a basket of stocks. If we all buy an index, what is left to control the merits of individual stocks?

My argument that indexes have changed the market dynamics is supported by looking at the increase in institutional management of stock purchasing. "The average fraction of a firm's equity shares held by institutions has grown from 24 percent in 1980 to 44 percent in 2000, and reached over 70 percent in 2010." (*David Blanchett "Are Active Mutual Funds Becoming Less Active?", Journal of Indexes, March-April, 2013. p 43.*)

Equity investing has become a much more professional and sophisticated game, at least for the stocks with enough liquidity to be traded by institutions and listed in the major indexes. Thirty percent of central banks from around the world are investing in equities, including equities in the United States.

A dominant structure for how individuals' money does enter the equity markets, when indeed it does, is for an advisor, pension fund or endowment to select money managers or mutual funds according to an asset allocation scheme in which the equities portion is divided according to the Morningstar style boxes of large cap – small cap, value – growth or blends. This is done primarily for defensive purposes rather than to exceed market returns. Similar allocations are used in the selection of money managers or mutual funds for emerging markets, foreign developed markets, and domestic markets. Each money manager or fund is held accountable to match the prescribed categories, and increasingly they track that category in order to keep their business. Blanchett states that "98.2 percent of the return of a given active manager can be described entirely by the underlying benchmark index." (p45) In effect, active managers are becoming less active. To meet the benchmark, they are increasingly buying a broad representation of stocks within the benchmark category. Index investing has grown at twice the rate of active investing over the past two decades.

At some point, one wonders if anything about an individual stock will determine its value if no one is making decisions based on individual stocks. It is not clear what that point might be, but the relationship between stock prices and indexing is more likely to be fractal or variable in some way rather than to be linear. In other words, index buying going from say 60% to 70% of the market is not likely to impact the market by 10%.

The price of an index impacts whether investors will buy the index. In turn, buying the index will affect the price of the index and all the stocks in its composition. The price of these stocks in turn affects the price of the index in a vicious circular causation, described in a book by George Soros ([The Crash of 2008 and What it Means: The New Paradigm for Financial Markets](#)). It is not a linear relationship, unidirectional in cause.

Logical and statistical support for the argument that indexes are significantly impacting and undermining the auction dynamic of the markets is also spelled out in "The Economic Consequences of Index-Linked Investing" by Jeffrey Wurgler, *Journal of Indexes Europe*, April 26, 2012. www.IndexUniverse.eu

I don't know where indexed buying is going, but I don't see it turning around soon. I think a lot of people have their head in the sand. That includes the financial media.

So what is an equity investor to do?

Obviously, the first option is to forget about trying to beat the market, forget about paying active management fees, and join in by buying low-expense index funds.

Whether with indexed products or actively selected stocks, market timing is yet another alternative. Can one beat the market by being short during corrections and long during bull markets? Successfully implementing such a strategy is not as easy as it might appear. I wouldn't put much faith in traditional approaches based on moving averages. For me, the most credible resource for market timing is David Nichols and his fractal analyses combined with secular cycles.

This analysis has focused on equities and not bonds. Still within the equities sphere, one could buy high-dividend and preferred stocks. The prices of high-income stocks are often impacted by interest rates. I don't know whether one could get significantly better returns than the overall market by buying high-dividend stocks.

Another alternative is to try to avoid the impact of indexes by buying micro-cap stocks. The Russell 3000, which is the Russell 1000 and the Russell 2000, represents 98% of the money in the U.S. market. In general, stocks with a market-cap rank greater than 3000 don't do well in part because they don't have the market demand created by all the money coming from indexes. The number of stocks in the U.S. market ranked beyond 3000 has dropped dramatically. IPO's are down, some say because of Sarbanes-Oxley. Could we find the few that will become a Google, Netflix or Microsoft?

One could buy companies traded over the counter, which is something I generally avoid unless it is to access a larger stock also traded on a foreign exchange. One could buy into companies not publicly traded. This introduces new levels of risk, very low liquidity, and is not easily done with IRA money.

One can look for non-correlated assets. At this point the most obvious choice would be in precious metals.

And of course, just because it might be harder to beat the market, that is not to say it is impossible. One can continue to play the game. Year-to-date, my statistical strategy is up 23% compared to 16% for the Russell 3000. Will that persist or is it coincidental? I see the most promise in using a Fractal Dimension Indicator to warn of an impending end to an upward momentum stock (low coefficient of variation) or a reversal of a downward moving stock. This approach avoids stocks trading in a random fashion, which includes most stocks most of the time. Even if one is to continue playing the game, it is good to know the odds and how the playing field is rigged.