



INTRODUCING THE 'ASYMMETRY RATIO': BREAKTHROUGH METRIC IDENTIFYING REPEATABLE, LONG-TERM OUTPERFORMANCE

Measuring investment success through the Asymmetry Ratio recognizes managers who can adapt to evolving market cycles, as well as managers that can apply effective risk controls in bear markets.

The 1990's was a brilliant decade for equity managers, where the extended bull market generated years of strong absolute returns that made investing look easy. In contrast, the following decade, the so called "lost decade", caused managers to struggle to create value for investors. So why was the past decade so challenging for most investment managers, and why was it so hard for investors to identify the successful managers in advance?

Insight might come from exploring two conflicting investment themes that converged in dramatic fashion over the past decade, setting the context for investment managers during the 2000's and potentially years to come.

First, the decade saw the return of bear markets, and required investment managers to be able to respond and adapt to dynamic market conditions. Second, the decade saw the culmination of a long-term trend defining manager constraints. Managers are now subject to a level of investment constraint never seen before in the history of the industry. The vast majority of managers have become obligated to follow a benchmark-centric, buy-and-hold paradigm. Even "risk management" is now typically defined as the ability to closely follow a benchmark.

Obviously, these two facets of the current investment reality are at odds with one another. Markets that transition from one investment cycle to another suggest some degree of flexibility is required on the part of the manager in order to outperform. Constrictive guidelines, that are memorialized in mutual fund prospectuses and in published institutional investment processes, by definition limit that level of flexibility.

The solution put forward by the investment industry has been to define success as outperforming the strategy's benchmark. Benchmark-centric investing therefore translates to a "relative up, relative down" paradigm, and the manager's formal objective is to exceed the benchmark in up markets, sideways markets, and down markets. These managers are effectively exempted from having to anticipate and respond to changing market cycles.

The problem, however, is that losses matter to investors. Significant losses derail asset accumulation goals, are the single most damaging risk to systematic withdrawal programs (such as all institutional programs), and take a huge emotional toll on individual investors. Therefore, investors operate within a "relative up, absolute down" reality.

This mis-alignment between the mandate of the investment manager and the true needs of investors will be seen over any full market cycle. While getting a free pass from worrying about transitioning market dynamics might make the job of investment managers easier, when the markets transition from bull to bear or back again, this approach is unlikely to translate to repeatable *investor* success.

To highlight this fact, examine the results of all 472 large cap blend (LCB) mutual funds in existence over the three year period 2007 – 2009. This three year period provides a useful window into repeatability of performance since it covers the transition points into a bear market (10/07) and then back to a bull market (3/09). Surprisingly, less than 10% of the funds were able to beat the S&P 500 for each of the three calendar years 2007 – 2009. And only four funds (less than 1%) were able to do so by a mere 3% (300bp) each year.²

²Sources: Morningstar, F-Squared Investments

Adding insult to investors' injury, if one of the four "superior managers" from the above example beat the S&P 500 by *exactly* 300bp per year, in 2008 investors would have still lost more than one-third of their investment capital. For investors, that represents a significant failure.

Therefore, it can be argued that a benchmark-centric investment paradigm will be challenged to deliver repeatable investment success – of the type that matters to investors – across a full market cycle. Further, most of the traditional tools used by investors to screen managers are most effective within a single market cycle, but are challenged to "look around the corner" and select managers that will succeed over a future full market cycle.

Fortunately, there is a new performance metric that is straightforward, easy to understand, and provides powerful insight into repeatability of investment performance across full market cycles – the **Asymmetry Ratio**.

Understanding and Defining the Asymmetry Ratio

Asymmetry is defined as having unequal parts, or a lack of symmetry. In an investment context, it means to "participate up and protect down", or to have a superior ability to participate in bull markets, and/or a superior ability to protect in bear markets. Thus, asymmetry is a desired investment attribute. The greater the disparity between bull market success and bear market avoidance, the greater the asymmetry, which leads to better investment results, and larger Asymmetry Ratios.

Specifically, the calculation of the Asymmetry Ratio is the "Upside Capture Ratio in bull markets" less the "Downside Capture Ratio in bear markets". Morningstar defines "Upside Capture Ratio" (UCR) as the measure of the manager's performance in periods when the benchmark has positive returns. "Downside Capture Ratio" (DCR) is therefore defined as a measure of the manager's performance in periods when the benchmark has negative returns. Asymmetry Ratio can therefore be written in shorthand as: $AR = UCR(\text{bull}) - DCR(\text{bear})$.

UCR and DCR are calculated as percentages, with 100% representing a perfect tracking of the benchmark (such as from an index fund). UCR's are intended to be as high as possible; DCR's as low as possible. A positive spread between the two implies the creation of investment value-add.

One of the unique features of the Asymmetry Ratio is that it focuses on the UCR in bull markets and the DCR in bear markets. This is important because, in both cases, it targets investment performance where (and when) it matters most. Further, measuring investment success through the Asymmetry Ratio *recognizes managers who can adapt their investment portfolio and strategies to evolving market cycles, as well as managers that can apply effective risk controls in bear markets*.

The sidebar above and to the right provides some critical definitions around the differing approaches to risk management that a manager might take. Positive Asymmetry Ratios can be achieved through application of either risk management paradigm, but will be more effective in highlighting managers successfully employing an absolute risk management philosophy than traditional screening tools such as relative benchmark or peer group outperformance.

DEFINITIONS OF "RISK MANAGEMENT"

RELATIVE RISK MANAGEMENT. This definition applies to managers who are mandated to track a benchmark in all markets (targeting relative performance in both up and down markets). It implies that the application of risk controls is to ensure *accurate tracking of the benchmark*, regardless of the market cycle.

ABSOLUTE RISK MANAGEMENT. This definition applies to managers that use risk management techniques to reduce the likelihood of loss in bear markets, even if that requires temporary deviation from the benchmark. Since virtually all investors think risk controls, especially during bear markets, imply *avoidance or reduction of the potential to lose money*, this definition is typically better aligned with investors' expectations.

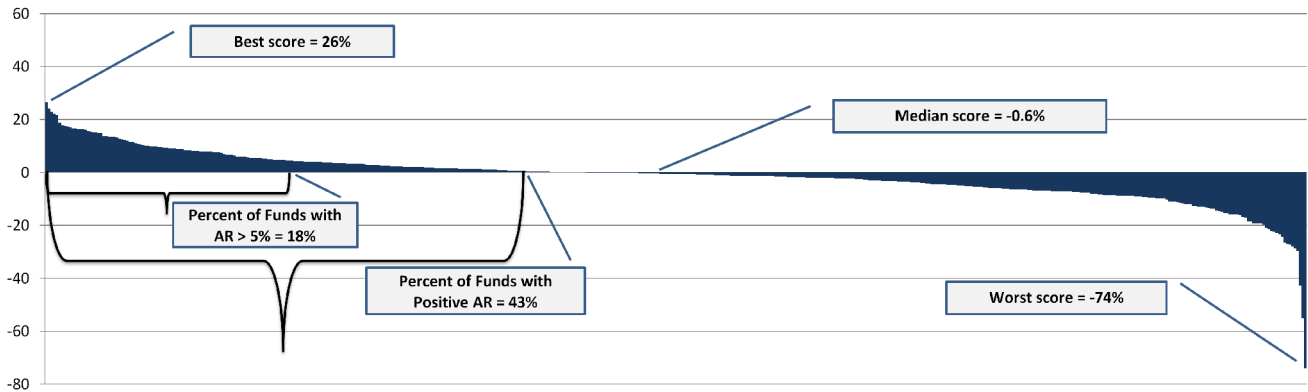
Validating the Asymmetry Ratio over a Full Market Cycle

A look at the Asymmetry Ratio over the most recent Full Market Cycle (FMC) is very telling. (In this paper, market cycles are defined by peaks and troughs of the S&P 500; FMC's include one bear and one bull market). In this case, it runs from 10/2007 to 6/2011, including the 10/2007 – 2/2009 bear market, and the 3/2009 – 6/2011 bull market.

To evaluate the Asymmetry Ratio, a peer group was built representing all Large Cap Blend (LCB) mutual funds with a track record that extends to at least the beginning of this investment period, or October 2007. There were 483 LCB mutual funds that met these screening criteria.

Overall, this peer group had an average UCR(bull) of 99.9% and an average DCR(bear) of 101.3%. This resulted in an average Asymmetry Ratio of -1.4%. Since Asymmetry Ratios should be positive to reflect creation of investment value, the negative Asymmetry Ratio explains why the peer group on average underperformed for this period, losing -1.73% per annum versus the S&P 500 loss of -1.65% per annum. For reference purposes, Figure 1 details the distribution of Asymmetry Ratios for the most recent full market cycle.

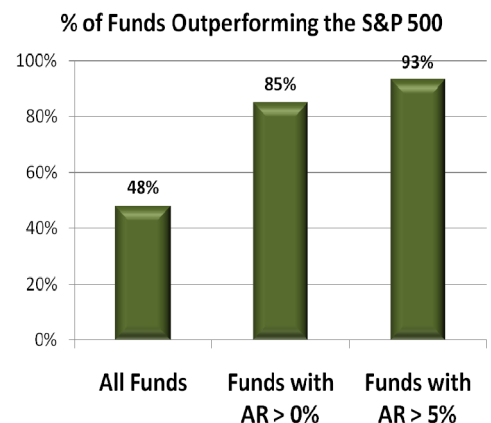
Figure 1^{1,2}



But the true value of Asymmetry Ratio in explaining performance can be seen in Figure 2 (at right), which details the relationship between Asymmetry Ratio and the likelihood of beating the S&P 500. As can be seen, only 48% of the 483 funds in the LCB peer group beat the S&P for the full market cycle. **However, of the 207 funds with a positive Asymmetry Ratio, 85% outperformed the S&P, and of the 87 funds with an Asymmetry Ratio greater than 5%, 93% beat the S&P.**

A critical message here is that a positive Asymmetry Ratio translates to success versus traditional investment measuring tools. The Asymmetry Ratio does not obligate the manager to adopt a benchmark-centric approach, nor be locked into a relative risk management paradigm. Rather, it simply allows the manager more flexibility in accomplishing that goal.

Figure 2^{1,2}

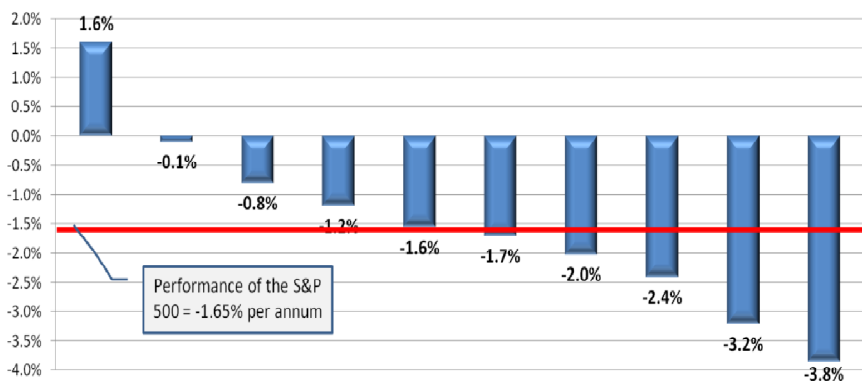


Another means of observing the power of the Asymmetry Ratio in explaining performance is to show fund returns when sorted by Asymmetry Ratio. For this analysis, the LCB peer group was ranked by Asymmetry Ratio, best to worst. The peer group was then broken into deciles, based on the Asymmetry Ratio. (Note: the Asymmetry Ratio of the best decile was 14.2%, and was -11.5% for the worst decile.)

¹Time period 10/07 – 6/11; ²Sources: Morningstar, F-Squared Investments

Figure 3 to the right shows the average annual return for the mutual funds in each decile. The funds in the top decile, as ranked by Asymmetry Ratio, had an average annual return of 1.6% for the period, while the funds in the bottom decile, as ranked by Asymmetry Ratio, had an average annual return of -3.8%. Thus the bottom decile of funds lagged the top decile by 520bp per annum for the most recent FMC.

Figure 3 – Average Annual Fund Return Sorted by Asymmetry Ratio^{1,2}



A few observations regarding the data in Figure 3:

1. There is a direct and meaningful correlation between the Asymmetry Ratio and total return over the full market cycle; the better the Asymmetry Ratio, the better the average fund performance;
2. Mutual funds in the top 5 deciles, as ranked by Asymmetry Ratio, on average beat the S&P 500;
3. Funds in the top decile had a positive return, in a period when only 17% of all LCB funds avoided a loss.

The powerful explanatory strength of the Asymmetry Ratio can be seen even more clearly when looking at the tails of the distributions; in this case the best quartile versus the worst quartile of funds, as ranked by Asymmetry Ratio. Figures 4 through 6 compare the performance of the top quartile of LCB funds ranked by Asymmetry Ratio, compared to the bottom quartile, across three of the most common performance screens.

Figure 4^{1,2}

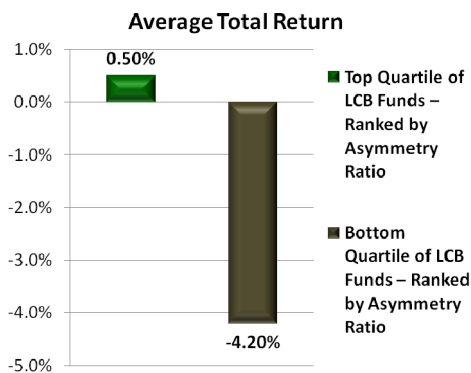


Figure 4 (at left) shows average annual total return, where the top Asymmetry Ratio funds outperformed the bottom quartile funds by 470bp per annum. This result has special significance to investors, in that the top quartile funds had a positive return for the FMC, whereas the bottom quartile funds delivered a meaningful loss for the same period.

The weakest Asymmetry Ratio have virtually no chance of achieving this success threshold.

Figure 5, below left, shows the probability of exceeding the funds' benchmark; Figure 6, below right, shows the probability of appearing in the top quartile of the peer group, based on total return. In both cases the top ranked Asymmetry Ratio funds have a significantly greater likelihood of achieving the respective investment objective, while the funds with the

Figure 5^{1,2}

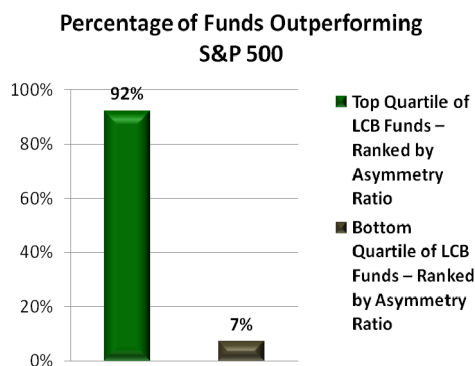
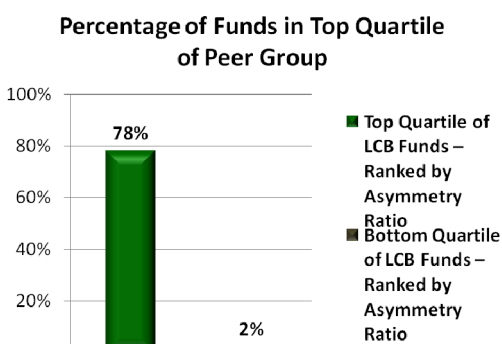


Figure 6^{1,2}



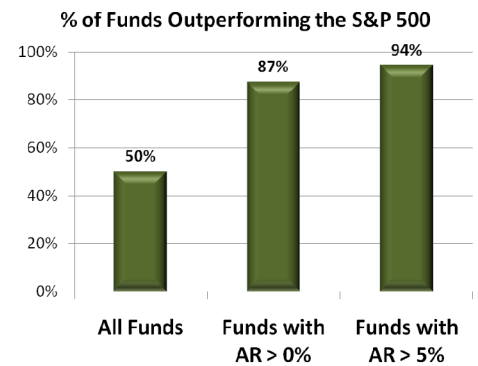
¹Time period 10/07 – 6/11; ²Sources: Morningstar, F-Squared Investments

Considering the predominant usage of asset allocation models to deliver investment solutions to investors, being able to identify funds which have a near certainty of exceeding the returns of a passive investment strategy over a full market cycle is a critical boon for both financial advisors, consultants, and ultimately investors.

The persistency of the Asymmetry Ratio in explaining performance success over full market cycles is not limited to the most recent cycle. Since 2000 there have been two full bull markets and two full bear markets. Therefore there are three FMCs over this time period (Bear-1 + Bull-1; Bull-1 + Bear-2; Bear-2 + Bull-2). To the right in Figure 7 is a powerful summary chart that restates Figure 2, but now with the average result for all three of the most recent FMC's.

The analysis included 315, 364, and 483 funds, respectively, for the three FMC's. On average, the full peer group had a 50% likelihood of beating the S&P 500 over a FMC (i.e., random). **For funds with a positive Asymmetry Ratio, the success rate equaled 87%, and for funds with an Asymmetry Ratio of at least 5% the success rate is a remarkable 94%.**

Figure 7^{2,3}



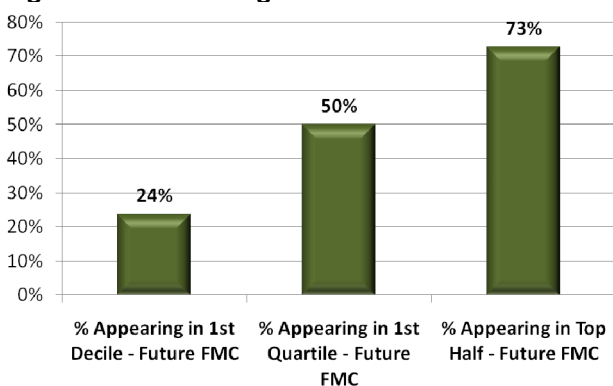
Using the Asymmetry Ratio as a Forecasting Tool for Outperformance over future Full Market Cycles

20-20 hindsight is valuable in some settings, but for investors attempting to identify today the investment managers and strategies that will be the winners tomorrow, hindsight is woefully inadequate. Therefore, this section will explore the repeatability of the Asymmetry Ratio and its ability to be used as a screening mechanism to identify high potential managers for upcoming investment cycles.

In order to identify funds with the best likelihood of future superior performance, two metrics were used in the screening process. These two metrics work together to identify funds with above average asymmetry, coupled with reasonable risk controls in the bear markets. The specific screening criteria used were:

- Asymmetry Ratio greater than 5% (for the most recent FMC, this included approximately 18% of the funds);
- DCR less than 90% (reducing the population down to the top 11% of funds).

Figure 8 – Forecasting Results^{2,3}



The analysis tracked these top performers from one FMC, and evaluated where they ranked among their peer group (based on total return) for a future FMC. To make the analysis as robust as possible, the results cover all three of the FMC's observed since 2000 (how Top Asymmetry Ratio Funds from FMC-1 performed in FMC-2 and FMC-3, and Top Asymmetry Ratio Funds from FMC-2 performed in FMC-3.)

Figure 8 (at left) shows the impressive results. Of the top Asymmetry Ratio funds, with an Asymmetry Ratio greater than 5% and a DCR(bear) of less than 90%:

- 24% appeared in the 1st decile of their peer group in a future FMC (random distribution would equal 10%);
- 50% earned a top quartile ranking (random distribution would equal 25%);
- 73% were above median in a future FMC (random distribution would equal 50%).

³Time periods include 7/00 – 9/07; 10/02 – 2/09; 10/07 – 6/11; ²Sources: Morningstar, F-Squared Investments

Conclusion

One of the interesting facets of the Asymmetry Ratio is that it measures output, or results, rather than inputs. Asymmetry Ratio is blind to the manner or methodology that a manager might employ to create the asymmetry – it simply recognizes that asymmetry exists.

Much of the categorization within the investment industry, however, is based on inputs. This might refer to the securities used within the portfolio (large cap equities or high yield bonds) or the investment process (deep value equities). The value of screening by inputs is that it facilitates the use of strategies within asset allocation models. The downside is that it provides absolutely no insight into investment excellence.

Hedge funds, or other “alternative” investments, have often built one of their investment justifications on the fact that they delivered asymmetry of returns and low correlations to traditional benchmarks. To fit within asset allocation portfolios, alternative investments have carved out their own allocation weighting and their own investment categorization.

While to date there are not any formal categorizations within most asset allocation models for “high Asymmetry Ratio strategies”, there is some surprising evidence that investors are seeking out managers that can deliver asymmetrical results, or more simply those that can “participate up, and protect down”. In fact, a screen of the top ten best selling LCB mutual funds in existence at the beginning of the most recent FMC provides strong endorsement of investors’ demand for asymmetry. Specifically, of the ten funds²:

- 90% had a positive Asymmetry Ratio (peer group norm in 43%);
- 70% had an Asymmetry Ratio of at least 5% (peer group norm of 18%);
- 50% had at least an Asymmetry Ratio of 10% (peer group norm of 8%).

Apparently, investment asymmetry matters. At least to investors.

If the future looks anything like the past decade, with the potential for bear markets a potential reality of the investing landscape, then tools like Asymmetry Ratio will be invaluable in identifying managers who can successfully navigate these more demanding market cycles.

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²Sources: Morningstar, F-Squared Investments