MERGER ARBITRAGE REPLICATION:

HOW EFFECTIVE ARE RULES BASED INDICES?

As institutional investors search for ways to reduce fees in hedge fund portfolios, attention has turned to the relative merits of investing directly in hedge funds vs. seeking to replicate the performance of a given strategy by investing directly in the underlying market exposures, or risk premia. The idea has intrinsic appeal: why pay hedge funds 2/20 if returns can be delivered cheaply and efficiently by investing directly in the underlying exposures?

Factor-based replication is highly effective at delivering the results of most hedge fund strategies – especially equity long/short and more directional strategies – but is arguably less effective with strategies with low exposure to traditional asset classes. For merger arbitrage specifically, it may make more sense to try to replicate the underlying trading strategy itself: that is, by acquiring a representative sample of corporate acquisition targets and, for stock-based deals, shorting the acquirer. In theory, this should enable a sophisticated investor to derive similar returns but with greater liquidity and transparency, lower fees and other benefits.

In this note, we examine three indices that have been constructed to deliver a liquid, investable alternative to investing in merger arbitrage hedge funds. We compare the returns of the live results against the performance of actual merger arbitrage hedge funds and conclude that the approach indeed can be effective at delivering comparable returns, with a few important caveats:

- First, index design is extremely important – one of the three indices clearly fails at its stated objective and it's not clear how to anticipate which index will perform well going forward.
- Second, the indices do not appear to improve returns – that is, eliminating the 2/20 does not result in higher returns.
- Third, and surprisingly, the ability to short appears to have very little impact on returns.

For comparative purposes, we also explore two alternatives to rules-based trading: an established merger focused mutual fund and factor based replication.

MERGER ARBITRAGE INDEX CONSTRUCTION AND RESULTS

The S&P Long Only Merger Arbitrage (SPARBM) and the IndexIQ Merger Arbitrage (IQMNAT) indices were launched prior to the financial crisis, while the Credit Suisse Liquid Alternative Beta (CSLABMN) index was launched in January 2010. Each index seeks to provide a broad representation of the merger arbitrage space by investing in companies that are subject to takeover offers. A review of the index construction methodology of each index provides a window into the complexity of designing a set of coherent and consistent "rules":

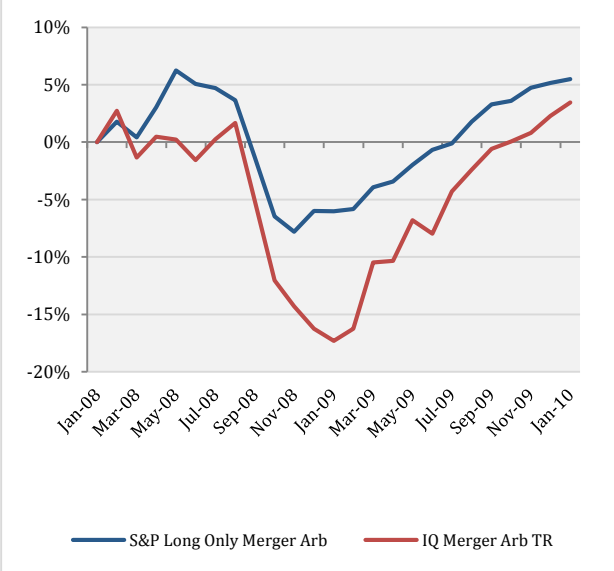
- which markets to include, especially whether to include emerging market targets;
- minimum transaction or target size;
- when to initiate the position, how to size it and when/how to rebalance;
- which types of transactions to exclude, such as CVRs or non-control tenders;
- whether/when to short and which instruments to use;
- whether the target needs to be at a discount to the announced price or not; and
- how to treat new offers or stale deals.

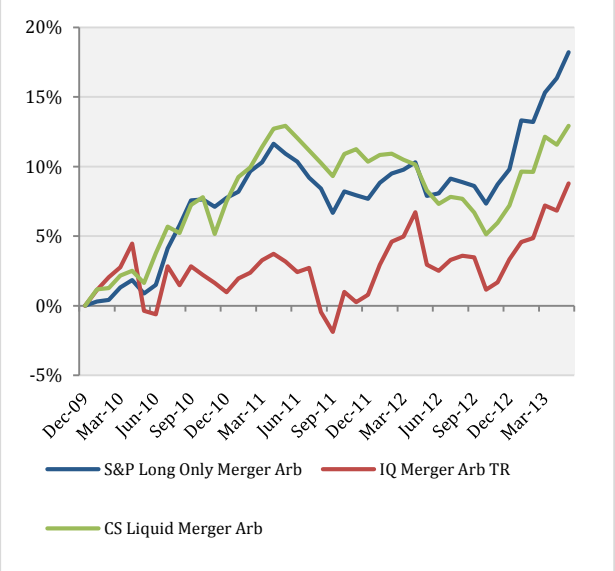
The following chart provides a comparison of key parameters and recent top five holdings:

	SPARBM	CSLABMN	IQMNAT
Targets	N. America, W. Europe and a few Asian markets	North America & Western Europe	N. America, W. Europe and a few Asian markets
Minimum Transaction	$500 mm	$500 mm	N.A.
Stock Transactions	Long positions in the target companies	Short acquiree when "easy to borrow"	Buy Short and Ultra Short ETFs
Position Sizing	New positions are initially sized at 2.5%	Asset weighted	Trading volume weighted
Number of Targets	40	25	31
Top Five Positions	Cymer Inc (3.41%) NYSE Euronext (2.83%) Coventry Health (2.76%) Energysolutions (2.63%) Compuware Corp (2.63%)	Dell (7.7%) HJ Heinz (7.4%) Coventry Health Care (6.2%) Clearwire Corp (5.4%) Hudson City Bancorp (5.3%)	NYSE Euronext (8.1%) Plains Exploration (7.9%) Virgin Media (7.6%) Dell (6.9%) HJ Heinz (6.8%)

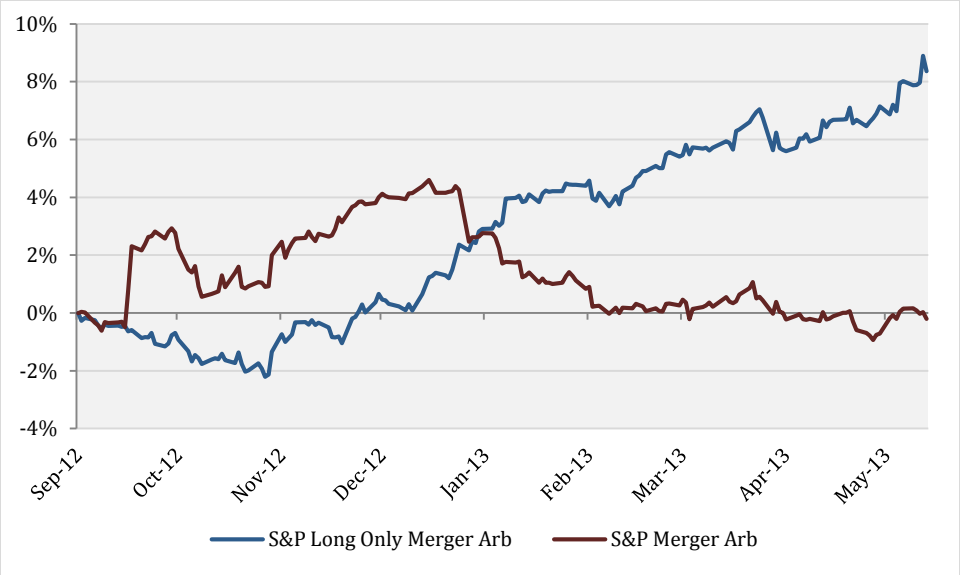
Given similar objectives, it's a bit surprising that no top five position is shared by all three indices. In fact, two of the top five CSLABMN positions do not appear at all in the IQMNAT holdings (unfortunately, the full CSLABMN position list is unavailable, so it's impossible to undertake a full portfolio comparison). The S&P index appears to have more of a midcap bias, with a median daily trading volume of roughly one fourth those of the other two indices.

The differences in construction can have a material impact on returns. (*Note: Since we are skeptical of back-filled index data, we use only the results from when the sponsor began to publish live results. Consequently, we examine the two former indices from the beginning of 2008, and include all three after January 2010.*) Surprisingly, IndexIQ's long/short product had materially greater drawdowns during the crisis relative to the (long only) S&P index and has performed relatively poorly since. By contrast, CS's product performed similarly to the S&P index until 2012, when it underperformed by approximately 600 bps.





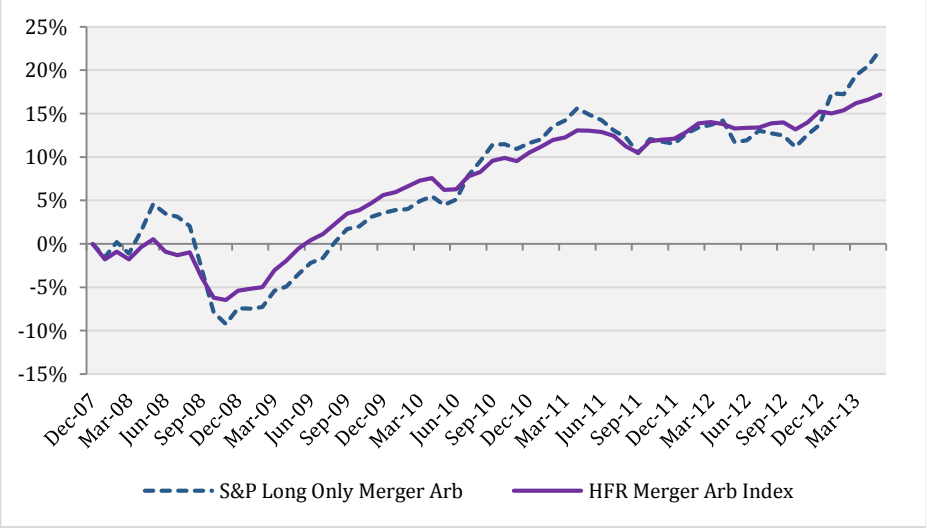
As noted, the S&P index above is a long only index. In late 2012, S&P introduced a long/short version of the index, which has had very erratic performance since inception. The following chart shows the performance of both the long only and long/short indices since September 2012:



The variability in returns between the different indices (IndexIQ vs the others) and even among providers (S&P Long Only vs S&P Long/Short) highlights the fact that the specification of rules for an "alternative beta" strategy like merger arbitrage is far more complicated than that for traditional indices.

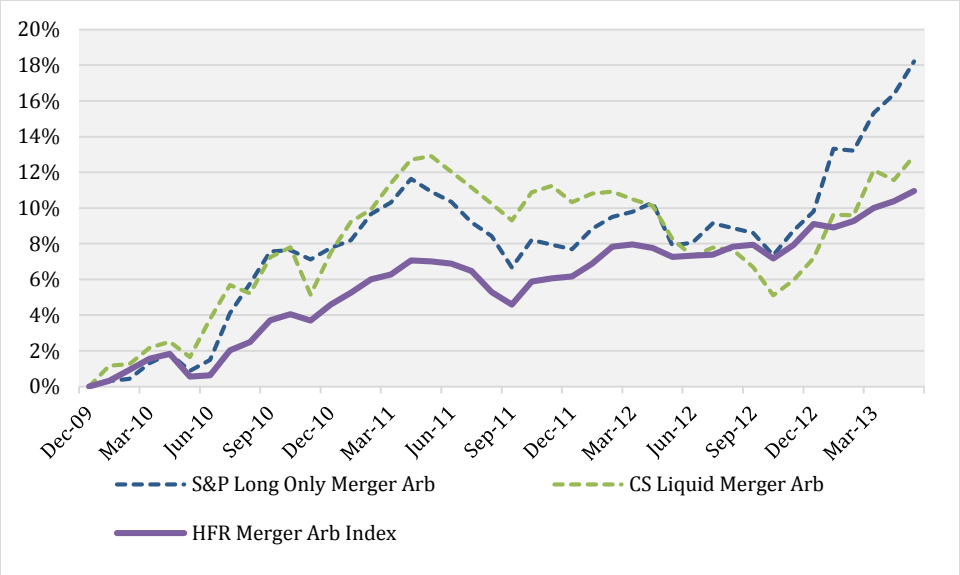
INDEX PERFORMANCE VS. HEDGE FUND PERFORMANCE

Due to the relatively erratic performance of the IndexIQ index and the recent (and very poor) performance of the S&P Long/Short index, we have excluded them from the following analysis under the assumption that few investors would opt to use them as merger arbitrage proxies at this point. Instead, for simplicity and clarity, we compare the results of just the S&P (the live period) over the past five years to the performance of the HFRI Event-Driven: Merger Arbitrage index[1]:



[1] We also compared the results to the Dow Jones Credit Suisse Risk Arbitrage hedge fund index. The results are very similar to those of the HFRI Merger Arbitrage index; therefore, for ease of comparison we have limited the analysis in this note to the latter.

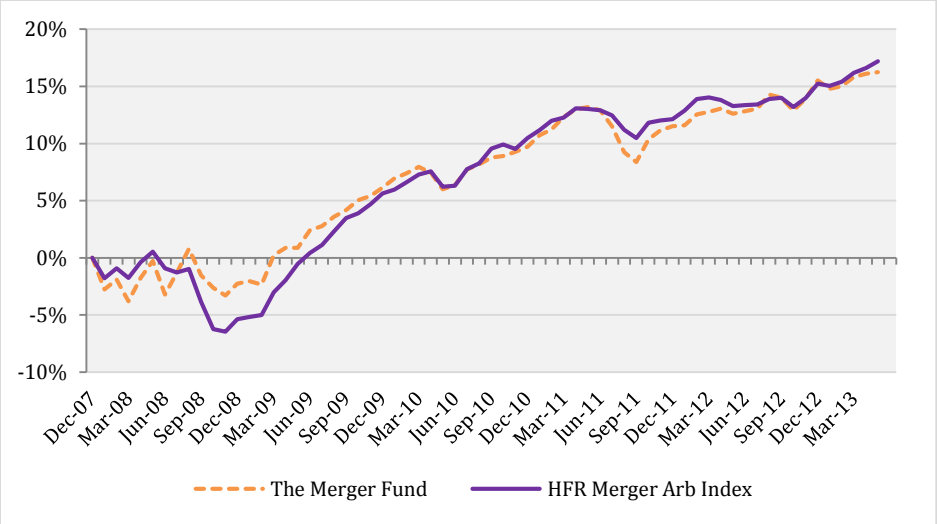
Since January 2010, when the CSLABMN was introduced, both the SPARBMN and CSLABMN have outperformed the hedge fund indices. That said, year to year differences can be significant: the indices outperformed materially during 2010 when many hedge funds deleveraged during the inception of the European fiscal crisis, while the CS index underperformed by approximately 600 bps during 2012.



It's important to note that the indices do not include management fees (although the CSLABMN does include a 50 bps index calculation fee), while the hedge fund indices are reported after hedge fund level fees. In rough terms, the indices returned around 4% per annum gross over the past three years, while actual hedge funds returned around 3% net. A more accurate comparison would be to look at the net returns to investors of each approach. If we assume 100 bps of management fees for the index products, the compound returns over the past three years are comparable. Based on this, it seems reasonable to conclude that the majority of the hedge fund returns are driven by an underlying risk premium. While an investor might not have realized a material increase in returns over the past three or five years, the rules-based approach may still provide materially better liquidity and transparency.

ALTERNATIVE MUTUAL FUND APPROACH

The recent growth of the alternative mutual fund industry raises the question of whether investors can realize similar returns to hedge funds but in a more highly-regulated, potentially lower cost structure. Most alternative mutual fund strategies do not have sufficiently long track records to allow for effective comparison; in the merger arbitrage space, we fortunately can analyze the returns of the Merger Fund, a mutual fund that was launched in 1990 with a mandate to focus exclusively on takeovers. With a large asset base ($4.5 billion), highly diversified portfolio (78 longs and 16 shorts), and a narrow focus, MERFX serves as an interesting proxy for the merger arbitrage sector. The chart below shows performance from January 2008 to the present vs. the HFR index.

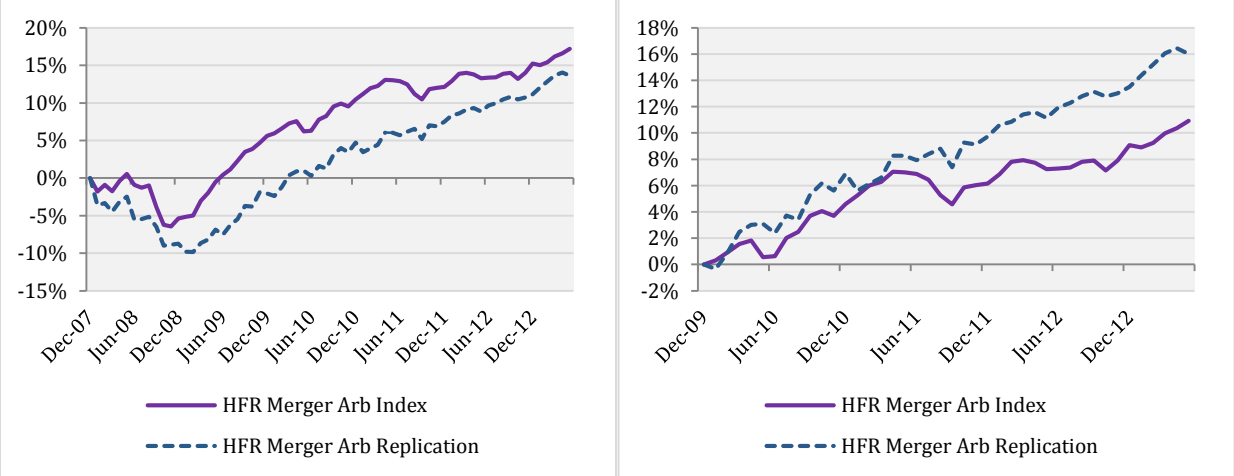


The outperformance of the Merger Fund during the crisis may have been attributable to an outsized weighting in the BoA-Merrill transaction, which had a material impact on merger fund returns.

MERFX charges no incentive fee, but the all-in management fees and expenses are similar to those of a typical merger arbitrage fund (1.33% per annum excluding trading and other investment related expenses). The absence of incentive fees, which for the merger arbitrage hedge fund averaged less than 1% per annum over the past five years, did not appear to translate into higher returns, although some investors may draw comfort from investing in a mutual fund structure.

FACTOR-BASED REPLICATION

Another approach is to use a factor model to seek to replicate the returns of the merger arbitrage hedge fund indices. In the following charts, we examine the results of a replication of the HFR index over the past five (left) and three (right) years.[2]



These results are based on simulated or hypothetical performance results that have certain inherent limitations. Unlike the results shown in an actual performance record, these results do not represent actual trading. Also, because these trades have not actually been executed, these results may have under-or over-compensated for the impact, if any, of certain market factors, such as lack of liquidity. Simulated or hypothetical trading programs in general are also subject to the fact that they are designed with the benefit of hindsight. No representation is being made that any account will or is likely to achieve profits or losses similar to these being shown.

[2] Note that the HFR Merger Arb replication performance presented here is gross of replication fees in order to make the returns comparable to the rules-based merger indices.

We find that a factor-based approach was not effective during the financial crisis; however, since 2010 the factor model approach would have materially outperformed actual hedge funds with comparable volatility but relatively low monthly correlations. Despite the recent results, as practitioners, we would be disinclined to use factor based replication for a portfolio that consists exclusively of merger arbitrage funds due to the consistently low market exposure.

CONCLUSIONS

Any conclusions from the analysis above are constrained by the lack of a robust pool of data. We have only two merger arbitrage indices that extend back through the crisis; a single large diversified mutual fund; and the hedge fund indices themselves are replete with data biases. With those caveats in mind, there are several interesting conclusions and questions that follow.

The most important conclusion appears to be that the construction of merger arbitrage indices is complicated and introduces its own form of idiosyncratic risk. This likely is true for any rules-based "alternative beta" index. While the results above show that comparable returns potentially can be achieved (with greater liquidity, lower all in fees, etc.), it is by no means obvious how to determine – in advance – which complex set of rules will provide the most effective means to capture the merger arbitrage risk premium. An investor in IndexIQ's product in 2008 would be sorely disappointed today, as would an investor in the recently launched S&P Long/Short index, or even an investor in the CS product in early 2012. Consequently, investors who expect this approach to materially reduce tracking error, monitoring costs or other risks are likely to be disappointed. Further, the complications involved in developing and running such a program will limit fee savings, as highlighted by the difficulty of making net of fee comparisons between indices and actual investments.

If the rules-based indices, on average, underperform actual hedge funds, then the question is why. One possible explanation is that by focusing on larger, simpler deals the indices over-allocate to more efficiently priced transactions – where the merger arb risk premium is low. Discussions with actual managers suggest that traditional sellers – long only mutual funds – are now more willing to make their own assessment of deal risk, which undoubtedly has improved with experience and better dissemination of information. This should naturally compress the premium over time and force managers to seek excess returns from more complicated transactions – those with variable consideration, the likelihood of a topping bid, capital structure opportunities, etc.

A broader question that arises is whether "alternative betas" are stable over time. Investors generally believe that certain risk premia – for equities, for credit, for illiquidity – should persist indefinitely; however, even traditional risk premia dramatically compress (equities during the 2000s) and widen (illiquidity post-crisis) in different market environments. Since more complicated risk premia – such as those for benchmark strategies like value, momentum and "insuring" takeovers – are based on the principle that less sophisticated/more constrained investors will consistently transfer value to more sophisticated/less constrained investors, the key question is whether more widespread knowledge of these strategies – and how to efficiently implement them – will inexorably lead to capital inflows, more educated sellers and, by definition, a compression of excess returns over time.