SKY HARBOR
CAPITAL MANAGEMENT

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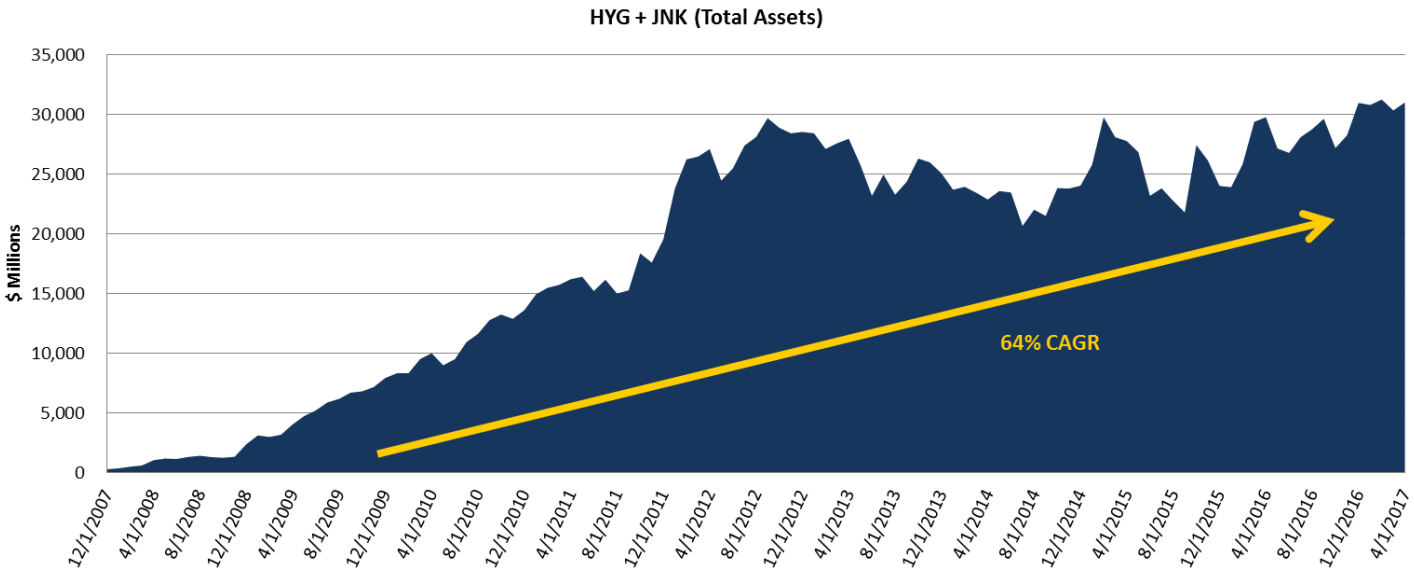
# Not Fake News: Active Beats Passive in High Yield Investing

## The Growth of Passive ETFs in the High Yield Space

The debate between active and passive management has been well articulated by investors and the financial press for years. While the list of pros and cons of each approach is lengthy, the underlying debate can be summed up by one question: Can active managers provide sufficiently attractive returns to justify their typically higher fee structure? Due to the rise in popularity of exchange-traded funds over the last decade, we thought it appropriate to examine this question, particularly as it relates to the US high yield bond market.

The two largest ETFs in the US high yield space – iShares iBoxx $ High Yield Corporate Bond ETF (ticker: HYG) and SPDR Bloomberg Barclays High Yield Bond ETF (ticker: JNK) – have grown materially since inception (late 2007) and now possess assets in excess of $31bn (which equates to over 2% of the size of the high yield market). Given the prodigious asset growth as well as a track record going back over nine years (during both up and down markets), a sufficient ETF data set exists from which a proper evaluation can be conducted.

To begin, we first look at asset accumulation of these two largest US high yield ETFs. As demonstrated below, the strategy began to gain popularity in late 2009, increased dramatically through mid-2012 and has since re-achieved all-time highs in early 2017. From the end of 2007 through March 31, 2017, total assets have increased at a compound annual growth rate of ~ 64%.




Source: SKY Harbor, Bloomberg

## ETFs vs. the US High Yield Index

We preface this section of our analysis with the disclosure that neither HYG nor JNK use the same benchmark as most active US high yield managers. The benchmark for HYG is the Markit iBoxx USD Liquid High Yield Index, a market capitalization weighted index consisting of liquid USD high yield bonds, while the benchmark for JNK is the Bloomberg Barclays High Yield Very Liquid Index, an index designed to track a more liquid subset of USD-denominated high yield securities. Active high yield managers, on the other hand, typically use one of several broad high yield market indices created by Bank of America Merrill Lynch, Barclays, JP Morgan, or Citi. For the present analysis, we chose the BofA Merrill Lynch US High Yield Index (H0A0), one of most commonly used benchmarks in the active space, as a proxy for the US high yield index. Since a significant portion of the buyer base views HYG and JNK as an alternative to active high yield management exposure, we believe the comparison is a fair one to make.

Using data going back to 2008 (the first full year of ETF performance available), we compare performance of the aforementioned high yield ETFs to H0A0, looking at both actual returns and relative returns in terms of percent capture.

**BofA Merrill Lynch US High Yield Index (H0A0) vs. iShares iBoxx $ High Yield Bond ETF (HYG) vs. SPDR Bloomberg Barclays High Yield Bond ETF (JNK)**

| Annual Returns | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|---|---|---|
| H0A0 Total Return (%) | (26.39) | 57.51 | 15.19 | 4.38 | 15.58 | 7.42 | 2.50 | (4.64) | 17.49 |
| HYG Total Return (%) | (17.58) | 28.57 | 11.89 | 6.77 | 11.66 | 5.75 | 1.90 | (5.03) | 13.41 |
| JNK Total Return (%) | (24.73) | 37.55 | 14.20 | 5.12 | 13.46 | 5.86 | 0.77 | (6.77) | 14.43 |
| HYG Capture (relative to H0A0) | 67% | 50% | 78% | 154% | 75% | 78% | 76% | 108% | 77% |
| JNK Capture (relative to H0A0) | 94% | 65% | 93% | 117% | 86% | 79% | 31% | 146% | 82% |

| Standard Deviation of Returns | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|---|---|---|---|
| HYG Capture (relative to H0A0) | 117% | 152% | 134% | 127% | 165% | 120% | 117% | 104% | 89% |
| JNK Capture (relative to H0A0) | 135% | 161% | 139% | 129% | 173% | 117% | 128% | 113% | 100% |

Source: SKY Harbor, BofA Merrill Lynch, Bloomberg
Note: ETF returns are calculated on a price basis; both H0A0 and ETF returns and standard deviations are calculated using monthly data

Putting aside for the moment certain technical issues we address below, on an annualized basis using monthly returns from the start of 2008 until the end of 2016, ETF performance has been weak relative to the BofA Merrill Lynch US High Yield Index, as demonstrated in the Annual Returns table above. In fact, over the nine-year data set shown above, HYG and JNK only outperformed the index in two years (2008 and 2011, as highlighted in green). Additionally, we would note that total returns are not the only metric investors are concerned with; the volatility of those returns is also a meaningful part of this comparison. Looking at the above annualized Standard Deviation of Returns table, again using monthly data, we find that both ETFs expose the buyer to greater volatility relative to H0A0 in every year except 2016 (which is split). In summary, on an annualized basis through the duration of our data set, ETFs appear to earn, on average, ~ 70% of the index return, with ~ 120% of the index volatility.

It should be noted, however, that this comparison is somewhat unfair. Investors cannot get direct exposure to the BofA Merrill Lynch US High Yield Index, and index performance benefits from no management fee, no transaction costs (frictional costs can be quite high, especially in less liquid markets), and an unfettered ability to gain exposure to any and all securities, even those that are illiquid and unavailable for actual purchase at any given time. Recognizing this, we attempt to level the playing field, and continue our analysis below, this time comparing ETFs to active managers.

## ETFs vs. Active Managers

Using the eVestment Global Database, we created a data set of managers we believe are most representative of a broad market US high yield mandate. An initial screen of US high yield managers within the eVestment database provides information on 169 funds/ composites. In an effort to filter out more conservative and shorter duration strategies, as well as more aggressive / distressed mandates, we excluded entries that contained descriptive terms such as “constrained,” “short duration,” “high quality,” “defensive,” “aggressive” or “distressed” in the product name category. We further refined the manager set to include only those with at least $1bn in AUM and who report returns net of fees. After screening for these qualifications, our set was reduced to 50 managers, which we believe are representative of a long-only, broad US high yield strategy.

Below, we compare returns and volatility of both HYG (left) and JNK (right) to the median manager from our data set as well as the 25th and the 75th percentile managers (gateway to 1st and 4th quartiles). Data in each chart represents the difference, in basis points, between the ETF and manager subset on a rolling 1yr, 3yr, 5yr and 7yr basis (all periods ended 3/31/17).

**Active Manager vs. iShares iBoxx $ High Yield Bond ETF (HYG)**

| Annualized Return Differential (bps) | 1yr | 3yr | 5yr | 7yr |
|---|---|---|---|---|
| Performance vs. HYG | | | | |
| 25th Percentile Manager | 299 | 170 | 168 | 144 |
| Median Manager | 143 | 90 | 103 | 79 |
| 75th Percentile Manager | (54) | 24 | 60 | 39 |

| Annualized Standard Deviation Differential (bps) | 1yr | 3yr | 5yr | 7yr |
|---|---|---|---|---|
| Volatility vs. HYG | | | | |
| 25th Percentile Manager | (39) | (69) | (110) | (160) |
| Median Manager | (7) | (31) | (78) | (132) |
| 75th Percentile Manager | 13 | 10 | (44) | (97) |

**Active Manager vs. SPDR Bloomberg Barclays High Yield Bond ETF (JNK)**

| Annualized Return Differential (bps) | 1yr | 3yr | 5yr | 7yr |
|---|---|---|---|---|
| Performance vs. JNK | | | | |
| 25th Percentile Manager | 167 | 250 | 196 | 175 |
| Median Manager | 11 | 170 | 131 | 110 |
| 75th Percentile Manager | (186) | 104 | 88 | 70 |

| Annualized Standard Deviation Differential (bps) | 1yr | 3yr | 5yr | 7yr |
|---|---|---|---|---|
| Volatility vs. JNK | | | | |
| 25th Percentile Manager | (58) | (137) | (151) | (199) |
| Median Manager | (26) | (98) | (120) | (171) |
| 75th Percentile Manager | (5) | (58) | (85) | (137) |

Source: SKY Harbor, BofA Merrill Lynch, Bloomberg, eVestment Global Database; data through 3/31/17
Note: ETF returns are calculated on a price basis; H0A0, ETF and manager net returns and standard deviations are calculated using monthly data.

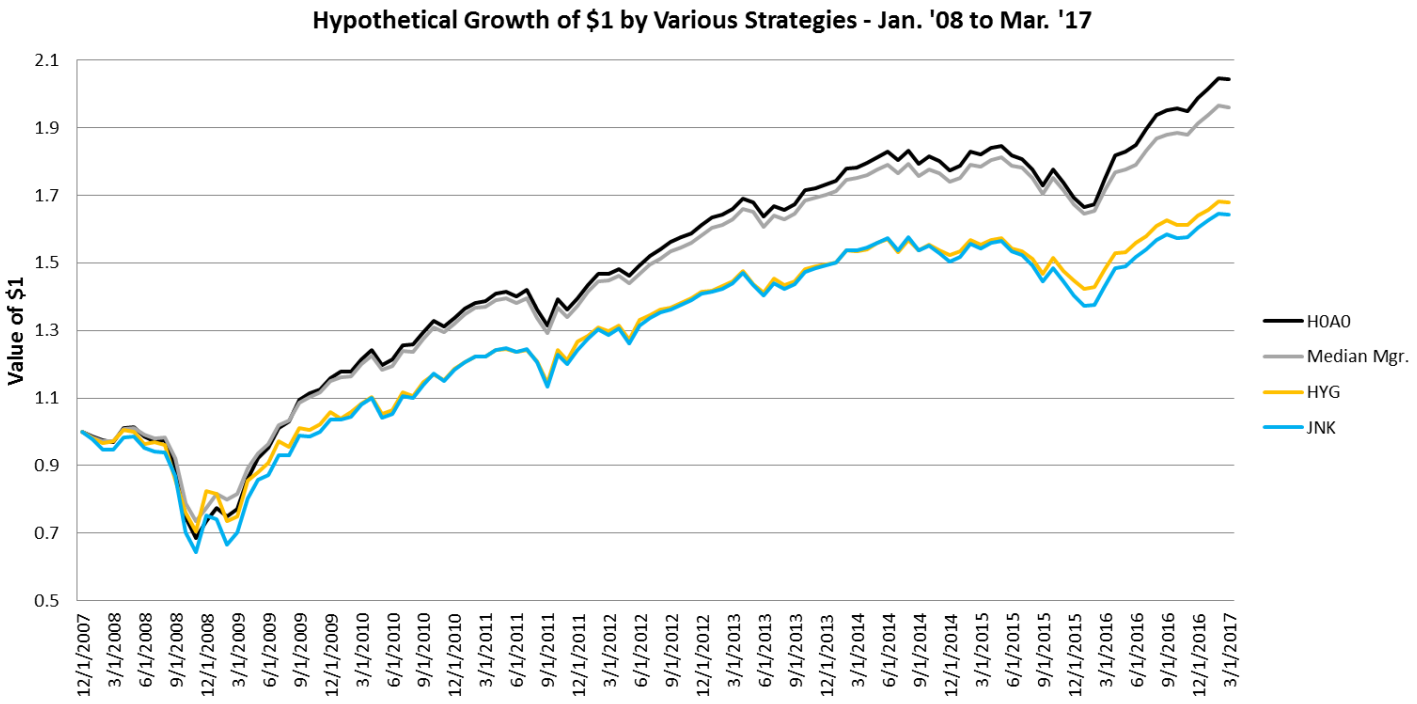
As demonstrated above, both HYG and JNK have provided weaker returns and higher volatility in all periods relative to the 25th percentile manager and median manager in our data set. Additionally, the ETFs compare unfavorably to the 75th percentile manager in most time periods. Below, we present a hypothetical situation in which HYG and JNK returns are included in our 50-manager data set, and provide implied performance percentile rankings in each time period. Also, note that the active manager performance data is net of management fees, so the comparison represents realized returns from the perspective of an investor. As seen below, HYG and JNK would rank as a bottom quartile manager in most time periods tested (the exception being on a rolling 1yr basis, where they are both third quartile).

| Hypothetical Percentile Rankings (Performance Based) | 1yr | 3yr | 5yr | 7yr |
|---|---|---|---|---|
| HYG | 0.68 | 0.84 | 0.92 | 0.91 |
| JNK | 0.52 | 0.99 | 0.99 | 0.96 |
| ***Quartile Estimate*** | ***3rd Q*** | ***4th Q*** | ***4th Q*** | ***4th Q*** |

Source: SKY Harbor, BofA Merrill Lynch, Bloomberg, eVestment Global Database; data through 3/31/17

## Underperformance Adds Up Over Time

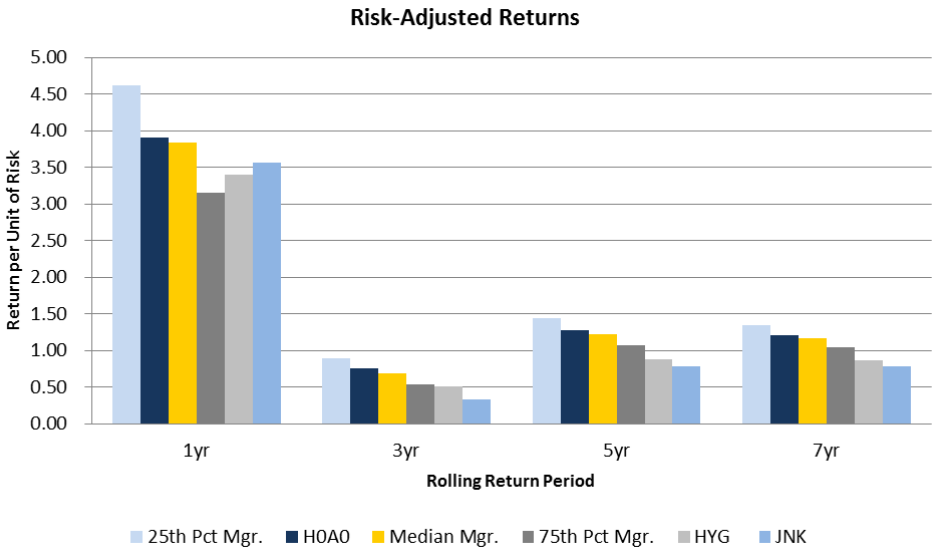
While the degree to which HYG and JNK underperform H0A0 and the median active manager tends to vary by year, the drag is consistent and adds up over time. The following graph illustrates the investment of $1 at the start of 2008 (the first full year for HYG and JNK). The degree to which an investment in passive mandates would underperform relative to an active manager is material, as charted below.




Source: SKY Harbor, BofA Merrill Lynch, Bloomberg, eVestment Global Database

## Risk-Adjusted Returns Over Time

Integrating investment performance and volatility, below we present risk per unit of return for the index, active managers, HYG and JNK in the same 1yr, 3yr, 5yr and 7yr rolling periods ended 3/31/17. In all periods, the 25th percentile active manager, H0A0 and the median active manager provide the best risk-adjusted returns, with the 75th percentile manager and both ETFs following (order in the trailing 1yr period is different than the longer rolling periods).




Source: SKY Harbor, BofA Merrill Lynch, Bloomberg, eVestment Global Database

## What Is Causing Underperformance?

Differences in active and passive performance are likely tied to a variety of factors. However, we believe there are several key limitations inherent to passive investing in the high yield space that account for the majority of the performance gap.

## Key Limitation #1 – Fee Structure

One of the most often cited arguments in favor of passive management is predicated on the belief that active managers are unable to consistently outperform their benchmark after accounting for management fees, which are often well above fees charged by passive vehicles. By way of example, two of the largest US equity ETFs – the SPDR S&P 500 ETF Trust (ticker: SPY) and the iShares Core S&P 500 ETF (ticker: IVV) – have expense ratios of 9.5 bps and 4.0 bps, respectively, both well below fees charged by some of the more popular mutual funds focused on US large cap equities. More specifically, a 2015 fee study conducted by Morningstar[1] estimates the asset-weighted expense ratio for passive funds was ~ 0.20% in 2014, materially lower than the 0.79% average charged by active counterparts. In light of this disparity, it's reasonable to think that passive funds are always at an advantage given active manager fee drag. However, this is not the case in all markets. As demonstrated below, and employing the same 50-manager composite used to compare total returns, we find that high yield ETF fees are roughly in line with management fees charged by the median high yield active manager.

| ETF | Ticker | Expense Ratio |
|---|---|---|
| iShares iBoxx $ High Yield Corporate Bond ETF | HYG | 0.50% |
| SPDR Bloomberg Barclays High Yield Bond ETF | JNK | 0.40% |

| Manager Class | Mandate Size | Mmgt. Fee |
|---|---|---|
| 10th Percentile Active Manager | | 0.45% |
| Median Active Manager | ~ $10mm | 0.50% |
| 90th Percentile Active Manager | | 0.65% |
| 10th Percentile Active Manager | | 0.42% |
| Median Active Manager | ~ $100mm | 0.48% |
| 90th Percentile Active Manager | | 0.60% |

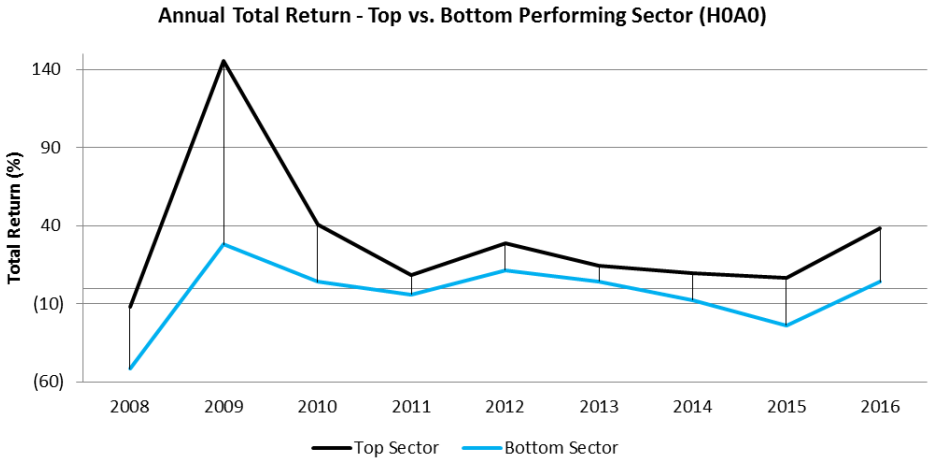
Source: SKY Harbor, BofA Merrill Lynch, Bloomberg, eVestment Global Database
Note: Within our 50-manager data set, only 38 provided relevant management fee data.

Furthermore, based on our internal fee schedule, as well as our knowledge of the competitive landscape, we believe investors can gain exposure to active management in the high yield market at similar, if not more attractive, rates than what these ETFs charge. Ultimately, our findings would imply that in the most liquid financial markets, such as large cap equities, ETFs typically possess a material fee advantage relative to active managers. Our analysis, however, demonstrates that whatever fee advantage exists in liquid markets is largely eroded in less liquid markets, such as high yield. In short, active high yield management fees are comparable to high yield ETF fees.

[1] See *2015 Fee Study: Investors Are Driving Expense Ratios Down*, published by Morningstar, 2015.

## Key Limitation #2 – Fund Construction

Since credit poses one of the largest quantifiable risks in the high yield market, active managers spend material amounts of time analyzing issuer fundamentals and the macro environment on both a bottom-up and top-down basis in order to identify the most attractively priced areas of the market in which to invest (and, alternatively, the most unattractive areas of the market, in which they seek to avoid). A passive manager, in contrast, invests according to a pre-determined set of rules for the index, essentially gaining exposure to the largest issuers and sectors within the benchmark. If done correctly, fundamental credit work undertaken by active managers has the potential to generate outsized returns, while passive ETFs are left without such flexibility. Take sector allocation as an example: return dispersion on a sector basis can be quite significant from year to year. If we isolate the best- and worst-performing sectors in the H0A0 index each year from 2008 to 2016, we find that the total return differential between the two, on average, is 35.0% (excluding 2009, which was extraordinary for many reasons, the average differential is 24.7%), as shown below.



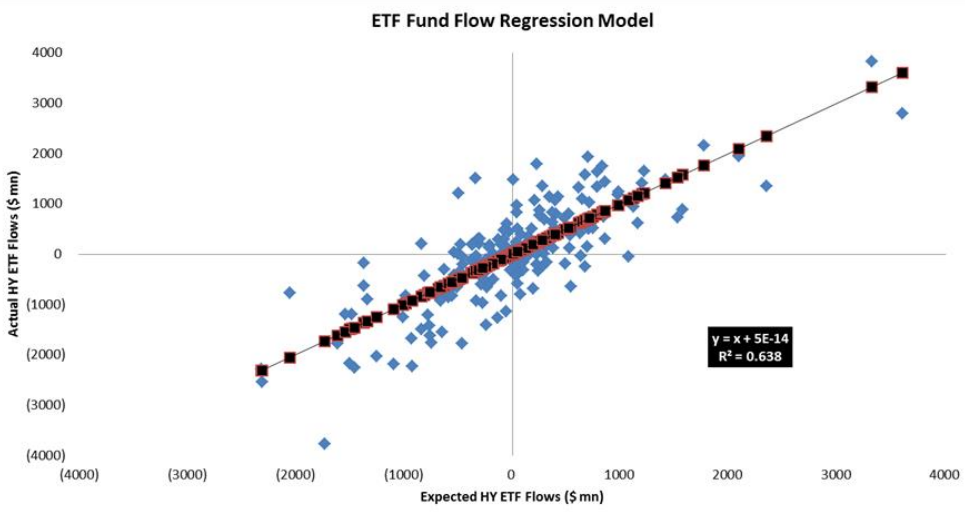

Source: SKY Harbor, BofA Merrill Lynch, Bloomberg

The average annualized return for the index as a whole for the same period is just under 8%. Clearly, correctly identifying the appropriate sectors to under- and overweight in any given year can lead to alpha generation not available to passive strategies.

Additionally, active managers are able to position themselves based on other risk factors, such as interest rates, by opportunistically increasing or decreasing portfolio duration relative to their benchmark – an option not available to passive ETFs.

## Key Limitation #3 – Fund Flows

While liquidity is an often cited benefit of an ETF strategy, it can also be detrimental to investors. ETF fund flow volatility has been material over the last several years, often causing market disruptions despite the relatively small portion of the high yield asset base made up of passive investments. Last December, in an effort to better anticipate these market technicals, we attempted to create a regression model that served to predict future flow volatility. After testing numerous factors that we had expected might be key determinants, our final analysis showed that the prior-5-day return on the high yield index and the trailing-3-month return on the high yield index were the primary drivers, implying that ETF flows are somewhat momentum based. Our regression output, based on these key inputs, is presented below:




Source: SKY Harbor, BofA Merrill Lynch, Bloomberg

This dynamic implies a risk that money flows into ETFs (and therefore is being invested) most heavily at market peaks, when valuations are less attractive, and flows out of ETFs (and therefore prompting bonds to be sold) most heavily at market troughs, when valuations are more attractive, thus disadvantaging returns. Active managers, particularly those experiencing flows that are less volatile than ETFs, are less likely to be forced buyers or sellers at inopportune times.

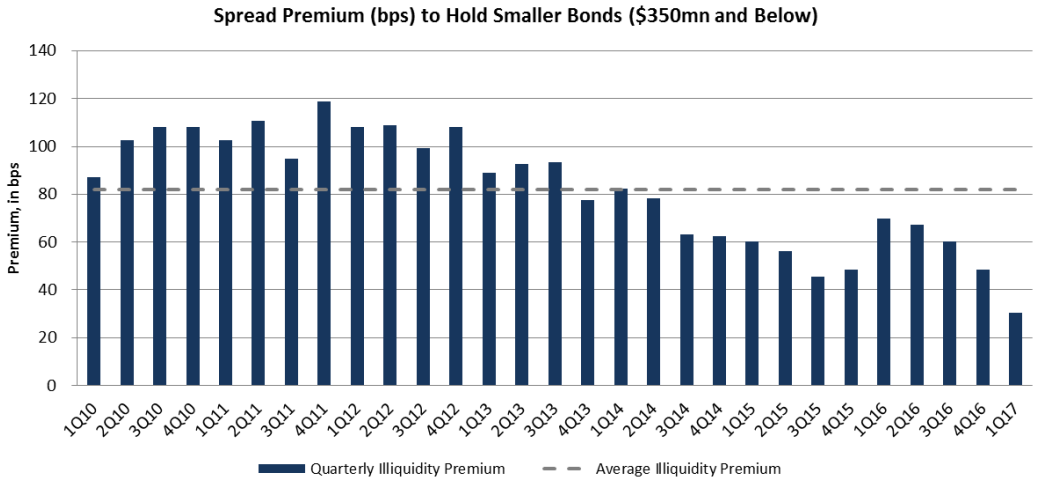
### Key Limitation #4 – Potential Adverse Selection

As ETFs seek to replicate their benchmark, this exposure will naturally be biased toward the most prolific issuers of debt – that is, as an issuer incurs more debt, it becomes a larger component within a benchmark, which in turn makes it a larger component within an ETF. Over time, anecdotal evidence suggests that securities and sectors with debt growing at the highest rate often do so as a function of aggressive issuance (project finance, rapid expansion, debt-financed dividends, LBO activity, etc.), which often leads to disproportionate defaults later in the cycle. Passive management does not allow for the avoidance of credits deemed likely to default (issuer fundamentals and capital structure sustainability are not considered). Not owning certain credits remains a critical component of performance (it's often more important to identify and avoid the worst securities than to identify and buy the best securities), and active managers are at an advantage.

### Key Limitation #5 – Size Bias

Some of the most restrictive rules surrounding inclusion criteria for high yield ETFs pertain to minimum issue sizes. According to published fact sheets, HYG requires a minimum issue size of $400mn and aggregate issuer debt of at least $1bn in order to be included in the fund. Similarly, JNK rules stipulate an issue must be at least $500mn in size (par amount outstanding) to be included in the fund. These rules materially limit the investable universe for ETFs, and give active managers a comparatively larger set of options. In particular, of the 1,943 issues (as of March 31, 2017) included in the H0A0 index, 34% and 53% fall below the $400mn and $500mn size requirement, respectively.

In addition to limiting the investable universe (in some cases by half), the minimum size requirement may also be preventing ETFs from taking advantage of historical premiums associated with smaller-sized issues. Internal work conducted by SKY Harbor suggests that the premium paid to investors for holding smaller bonds (in this case, an issue size of $350mn or smaller), after controlling for credit and term risk, is substantial, approximating on average over 80 bps in recent history. While this premium changes over time, it has been material and positive, as shown below:




Source: SKY Harbor, BofA Merrill Lynch

### Key Takeaways

- High yield ETFs, particularly the largest two (HYG and JNK), have grown materially over the last several years.
- Relative to the BofA Merrill Lynch US High Yield Index (H0A0), HYG and JNK have underperformed in 7 of the last 9 years; from 2008 to 2016, high yield ETFs captured ~ 70% of the index return with ~ 120% of the index volatility.
- Relative to our representative set of long-only, broad market US high yield managers, HYG and JNK tend to underperform the median manager with both ETFs also showing a higher amount of volatility over 1, 3, 5 and 7 year rolling periods (ended 3/31/17).
- Compared to the same custom manager set, HYG and JNK performance is 3$^{rd}$ or 4$^{th}$ quartile over 1, 3, 5 and 7 year rolling periods
- Risk-adjusted returns (return per unit of risk) are similarly weak over the same time periods.
- HYG and JNK fees are not materially lower than the median active US high yield manager.
- Fund flows in and out of high yield ETFs can be volatile, and may force buying and selling at unattractive times.
- HYG and JNK may suffer from adverse selection, as they are biased toward the issuers and sectors experiencing the greatest amount of debt growth, which can often portend heightened defaults later in the cycle.
- Minimum size requirements for HYG and JNK materially limit the investable high yield universe.
- While passive ETF investing may be an attractive option in some asset classes, it is not ideally suited for the US high yield market.

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