



# Artisan High Income Investor (ARTFX)



## Investment Thesis

The SMIF fixed income team wants to position the portfolio to reduce overall interest rate risk due to the two more planned interest rate hikes by the central bank for the rest of 2018, and the high likelihood of more hikes in 2019. The team also wants to transition out of passively managed funds to more active management due to the historical outperformance of active funds versus its passive peers (figure 8).



Figure 1 -- Growth of 10K over 5 yrs

## Recommendation

One of the goals this semester for the SMIF fixed income team is to reduce our exposure in ETFs and transition into more actively managed funds. The swap from HYG, an iShares high yield ETF, to ARTFX, an actively managed high yield bond fund, would not only increase our amount of actively managed funds, but it would also improve our overall duration. This is because HYG has a duration of 3.85, while ARTFX has a lower duration of 3.13; which would further decrease our interest rate risk relative to the Barclays Aggregate Bond Index.

The credit rating for both funds also happen to be the same with a weighted average credit quality of B. We would recommend an exact transfer of assets from HYG to ARTFX. We believe that not increasing the weighted average credit quality is desirable since we are taking less interest rate risk, and an expanding economy typically attributes to lower risk of defaults. Although, the bond team didn't want HYG's replacement to have a credit quality lower than HYG since we don't want to be too exposed to credit risk.

## Fund Facts

<b>Fund Type</b>	Open End Fund
<b>Asset Class</b>	Fixed Income
<b>Strategy</b>	High Yield
<b>Geo Focus</b>	United States

## Key Statistics

<b>NAV</b>	\$9.86
<b>Mod Duration</b>	3.13
<b>WA Credit Rating</b>	B

## Key Ratios

<b>Sharpe (1Y)</b>	.96
<b>Inf Ratio (4Y)</b>	.92
<b>Tracking Error (4Y)</b>	4.58

## Top Sector Allocation

<b>Corporate Bonds</b>	74.8%
<b>Bank Loan</b>	23.2%
<b>Government</b>	2.19%

## Management

### Bryan C. Krug, CFA, Managing Director

With 17 years of experience in the investment industry, Bryan C. Krug manages Artisan Partners' High-Income funds along with 5 analysts averaging 14 years of investment experience. Mr. Krug holds a bachelor's degree in finance from Miami University, and is also CFA certified. Prior to joining Artisan Partners, Krug was a high yield investment analyst from 2001-2006 until he was promoted to portfolio manager of Waddell & Reed's Ivy High Income Fund from 2006-2013. In total Krug has around 30 years of experience specializing in high yield bond investments.

## Holdings

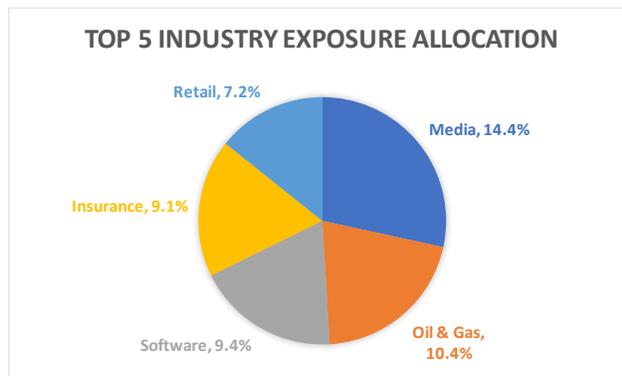


Figure 2

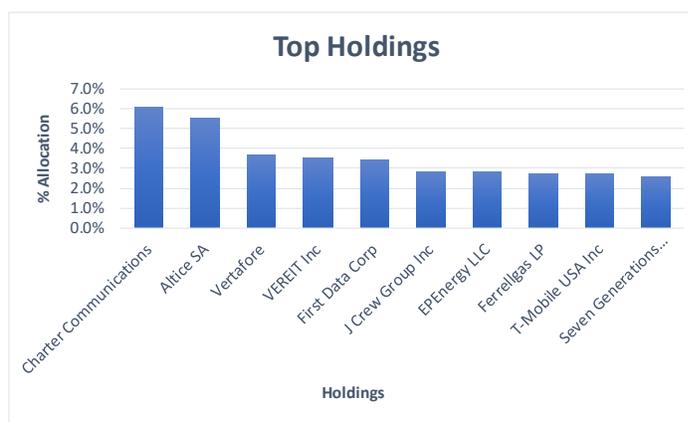


Figure 3

ARTFX has adequate diversification in the corporate bond sector, without being too concentrated within any specific industry.

## What-If Analysis

### Before (with HYG)

	Index (AGG)	Portfolio
Weighted Avg. Credit Rating	AA-	A
Weighted Avg. Duration	5.91	5.15



### After (with ARTFX)

	Index (AGG)	Portfolio
Weighted Avg. Credit Rating	AA-	A
Weighted Avg. Duration	5.91	5.03

Replacing HYG with ARTFX will cause a decrease in the portfolio's weighted average duration, which is suitable for the fixed income team since we want to reduce interest rate risk. The fund swap will also not cause any change in the portfolio's overall credit quality since HYG and ARTFX have the same credit quality.

## Comparable Analysis

Fund	Ticker	Rating	Duration	TTM Yield	1 Yr Sharpe	4 Yr Information Ratio	4 Yr Tracking Error
Artisan High Income Fund	ARTFX	B	3.13	5.36%	0.96	0.92	4.58
iShares HY Corp Bond ETF	HYG	B	3.85	5.11%	0.06	0.24	5.05
American Beacon HY Opps A	SHOAX	B	3.9	5.28%	0.92	0.47	5.05
Northern HY Fixed Income	NHFIX	B	4.3	6.17%	0.45	0.27	5.23
PGIM Short Duration HY Income A	HYSAX	B	2.49	5.00%	0.99	0.4	3.19

Figure 4 -- Ratio Analysis of bonds with similar qualities

While these five bonds have the same credit rating and similar short-term duration, their risk and return metrics are considerably different. HYG's tracking indicators clearly reveal that for the amount of risk taken, it doesn't translate equally into its return versus the benchmark.

The information ratio and tracking error were calculated using the US Barclays Aggregate Bond Index as the benchmark. The information ratio measures a fund's active return divided by the amount of risk the manager takes relative to its benchmark (tracking error). For bond funds, an information ratio above .5 reveals that the portfolio manager has good skill, and a ratio between .2 to .5 is acceptable but most likely reliant on luck.

ARTFX has the highest information ratio, which is a good indicator that the portfolio manager is skilled and not relying on luck to drive returns. The tracking error of 4.58 is high, but can be justified since it is a high yield fund which entails a lot of risk. Although, among the five bonds it has the second lowest tracking error; which is impressive since the higher the tracking error the higher the fund's returns deviate from its designated benchmark.

## Correlation Matrix

	ARTFX	TDTT	IEF	CMBS	PFOAX	VCIT
ARTFX	1					
TDTT	0.09	1				
IEF	-0.15	0.55	1			
CMBS	-0.06	0.35	0.61	1		
PFOAX	0.18	0.13	0.29	0.24	1	
VCIT	0.06	0.54	0.88	0.57	0.33	1

Figure 5 -- Trailing 4-year correlation (based on daily returns)

ARTFX has very low correlation with all the other fixed income funds in the SMIF portfolio, which is appropriate since ARTFX will be the only high yield fund after HYG is removed. Low correlation is beneficial to the portfolio since it will add diversification and help stabilize overall returns.

## Risks

### Credit Risk

- Investing in junk bonds carry a high risk of default relative to higher credit quality bonds.

### Foreign Risk

- Foreign securities have the risk of underperforming US securities and may be more volatile.
- Investment risk in developing/emerging markets is much higher than investments in developed markets due to political, economic, and/or social instability.
- ARTFX does have some foreign investments in high yield corporate bonds
  - Currently has roughly 88% in the US market,
  - And 12% in developed markets (UK, Canada, Netherlands, and Germany)

### Loan Risk

- ARTFX may make loans directly to borrowers or may acquire an interest in a loan.
- Investments in loans typically are subject to the same risks as other debt obligations (credit risk, interest rate risk, prepayment risk, etc.).
  - In many cases loans are subject to risks associated with speculative bonds (significant credit risk)

# Appendix

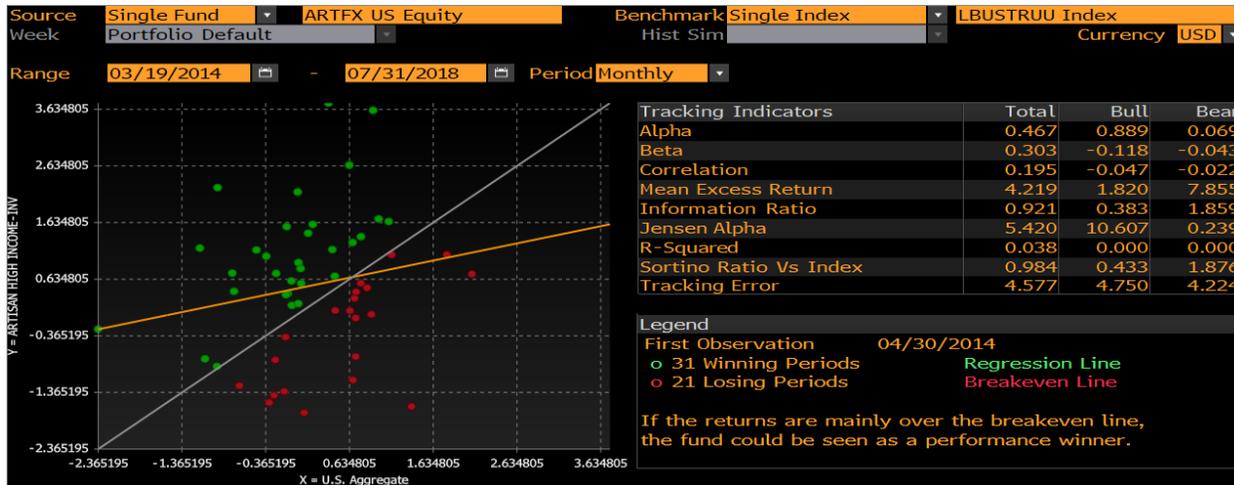


Figure 6 -- ARTFX Tracking Ratios since inception (4-yr period)

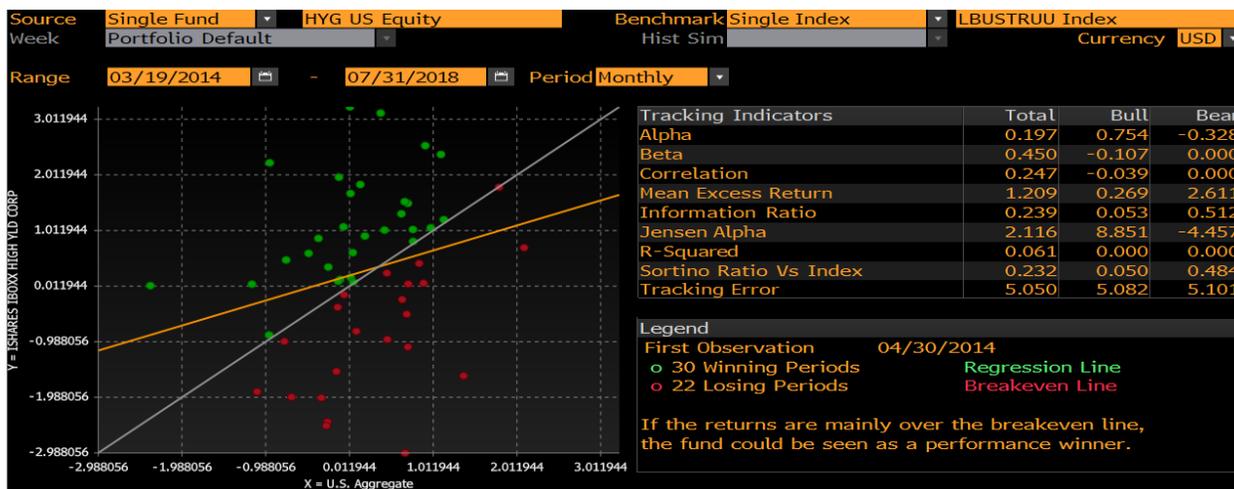


Figure 7 -- HYG Tracking Ratios (4-yr period)

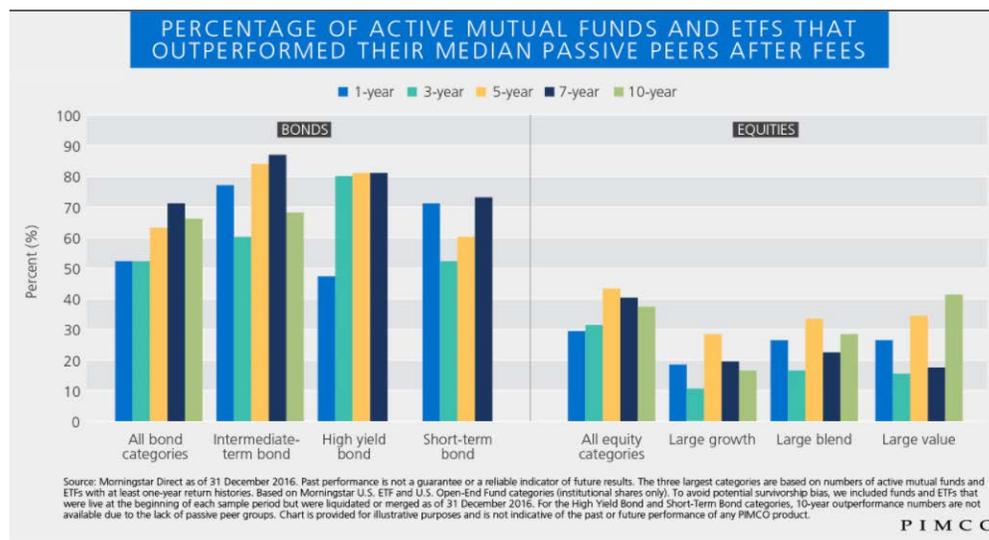


Figure 8 -- Active vs. Passive

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