

Analysis of fi360 Fiduciary Score®: “Red is STOP, Green is GO”

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Table of Contents

EXECUTIVE SUMMARY	3
INTRODUCTION TO fi360 FIDUCIARY SCORE®	4
fi360 FIDUCIARY SCORE® EVALUATED	5
VARIABLES USED TO EVALUATE fi360 FIDUCIARY SCORE®	6
ONE-YEAR FORWARD HORIZON ANALYSIS	7
THREE-YEAR FORWARD HORIZON ANALYSIS.....	12
FIVE-YEAR FORWARD HORIZON ANALYSIS	17
STABILITY ANALYSIS	22
CONCLUSION.....	26
APPENDIX.....	27

EXECUTIVE SUMMARY

Economists affiliated with the Center for Financial Planning & Investment (CFPI) analyzed the observed relationship between “color groups” of fi360 Fiduciary Score® as predictors of future outcomes, and confirmed that the top groups (“Green” and “Light Green”) consistently provide better results than the other averages and categories in several dimensions. The first and second quartiles of the one-, three- and five-year average Score (Green and Light Green) demonstrated higher median returns when looking at one-year, three-year, and five-year future annualized returns. They also exhibited higher median annualized return to standard deviation (and lower semideviation) ratios over the same one-, three-, five-year forecasting horizons.

In 2013, CFPI used data from December 31, 2000 through March 31, 2013 to evaluate fi360 Fiduciary Score® for mutual funds and assess the measure’s effectiveness as a screening criterion. Now with updated data from December 31, 2000 through July 31, 2016, CFPI has conducted a revised assessment of fi360 Fiduciary Score® for mutual funds. From December 31, 2000 through the end of 2010 the periods are on a quarterly basis. From January of 2011 through July 31, 2016 the periods are on a monthly basis. Through this revised assessment, we again find that the Score has statistically significant content and is useful as part of a mutual fund portfolio construction process.

With historical Score data provided for approximately 2.35 million fund-date observations, CFPI utilized the date-current (a.k.a. “spot”) Score, the one-year average Score, the three-year average Score and the five-year average Score for all funds in the evaluation. For each date, we also computed the one-year, three-year, and five-year future annualized returns, forward standard deviation of returns, and forward lower semideviation of returns observed for each fund in the time period following the historical observation date. By integrating these forward data (“future outcomes”) with the spot Score and average Score (the “predicting data”), the resulting database facilitated powerful forward-looking testing of returns and empirical risk over one-, three-, and five-year future time horizons.^{1,2} Expanding upon our 2013 assessment, this analysis utilizes the means and medians of the future annualized returns, standard deviation of returns and lower semideviation of returns observed. This assessment also includes a stability analysis of the Score.

¹ The current database only includes currently traded mutual funds. Any fund which has stopped trading or has closed will not be included in the returns analysis though they are included in the stability analysis.

² A 10-year future time horizon analysis is not performed because of inadequate history.

INTRODUCTION TO fi360 FIDUCIARY SCORE®

fi360 Fiduciary Score® is an investment rating system used to evaluate open-ended mutual funds, exchange-traded funds (ETFs), and group retirement annuities on nine different criteria, described in the Appendix and in Figure 1. The Score, itself, ranges from 0 to 100, with zero being the most preferable, and is calculated monthly for investments possessing at least three years of trading history.

Nine Criteria Used in fi360 Fiduciary Score®

- 1) Regulatory Oversight
- 2) Track Record
- 3) Assets in the Investment
- 4) Stability of the Organization
- 5) Composition Consistent with Asset Class
- 6) Style Consistency
- 7) Expense Ratio/Fees Relative to Peers
- 8) Risk-Adjusted Performance Relative to Peers
- 9) Performance Relative to Peers

Figure 1 Nine Criteria Used in fi360 Fiduciary Score®

There are five different fi360 Fiduciary Score®:

- First, there is fi360 Fiduciary Score® calculated monthly for appropriate investments using the nine criteria in Figure 1.
- Second, fi360 Fiduciary Score® Average (1 year) is the rolling 12-month average of fi360 Fiduciary Score®.
- Third, fi360 Fiduciary Score® Average (3 year) is the rolling 36-month average of fi360 Fiduciary Score®.
- Fourth, fi360 Fiduciary Score® Average (5 year) is the rolling 60-month average of fi360 Fiduciary Score®.
- Fifth, fi360 Fiduciary Score® Average (10 year) is the rolling 120-month average of fi360 Fiduciary Score®.

It is important to note that an investment with only three years of trading history would require another year of trading history in order to compute fi360 Fiduciary Score® Average (1 year). The same logic applies for other periods.

fi360 FIDUCIARY SCORE® EVALUATED

CFPI evaluated 16 different versions of fi360 Fiduciary Score®, over one-year, three-year, and five-year future horizons,³ across measures such as annualized returns, standard deviation, lower semideviation, and return/risk ratio. To make it easier to interpret fi360 Fiduciary Score®, colors have been assigned to each quartile. Figure 2 is a modified bar chart presented in *fi360 Fiduciary Score® Methodology*.⁴ For example, fi360 Fiduciary Score® Average (1 year) of 20 will be referred to as FI1YR_GREEN. We present the notation for all 16 versions of fi360 Fiduciary Score® below.

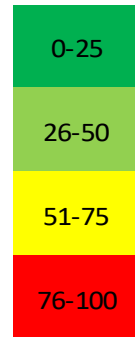


Figure 2 Color Legend
for fi360 Fiduciary
Score and Average

fi360 Fiduciary Score®⁵

- 1) FI_SCORE_GREEN: fi360 Fiduciary Score® between 0-25
- 2) FI_SCORE_LTGREEN: fi360 Fiduciary Score® between 26-50
- 3) FI_SCORE_YELLOW: fi360 Fiduciary Score® between 51-75
- 4) FI_SCORE_RED: fi360 Fiduciary Score® between 76-100

fi360 Fiduciary Score® Average (1 year)

- 5) FI1YR_GREEN: fi360 Fiduciary Score® Average (1 year) between 0-25
- 6) FI1YR_LTGREEN: fi360 Fiduciary Score® Average (1 year) between 26-50
- 7) FI1YR_YELLOW: fi360 Fiduciary Score® Average (1 year) between 51-75
- 8) FI1YR_RED: fi360 Fiduciary Score® Average (1 year) between 76-100

fi360 Fiduciary Score® Average (3 year)

- 9) FI3YR_GREEN: fi360 Fiduciary Score® Average (3 year) between 0-25
- 10) FI3YR_LTGREEN: fi360 Fiduciary Score® Average (3 year) between 26-50
- 11) FI3YR_YELLOW: fi360 Fiduciary Score® Average (3 year) between 51-75
- 12) FI3YR_RED: fi360 Fiduciary Score® Average (3 year) between 76-100

fi360 Fiduciary Score® Average (5 year)

- 13) FI5YR_GREEN: fi360 Fiduciary Score® Average (5 year) between 0-25
- 14) FI5YR_LTGREEN: fi360 Fiduciary Score® Average (5 year) between 26-50
- 15) FI5YR_YELLOW: fi360 Fiduciary Score® Average (5 year) between 51-75
- 16) FI5YR_RED: fi360 Fiduciary Score® Average (5 year) between 76-100

³ One-, three-, five-year horizons are not to be confused with fi360 Fiduciary Score® Average of one year, three and five years. One can use fi360 Fiduciary Score® Average (1 year) to assess probable performance one year, three, or five years into the future.

⁴ Visit www.fi360.com for more information.

⁵ fi360 Fiduciary Score is not to be confused with fi360 Fiduciary Score® Average of one year, three, or five years because fi360 Fiduciary Score® is used to compute the various fi360 Fiduciary Score® Average.

VARIABLES USED TO EVALUATE fi360 FIDUCIARY SCORE®

Annualized Return. The annualized return formula is:

$$\text{Annualized Return} = \left(\frac{\text{Ending value}}{\text{Beginning value}} \right)^{(1/\text{years})} - 1$$

Standard Deviation. Standard deviation is a widely used measure of risk. In this case, annualized standard deviation was used for comparability. Standard deviation and annualized standard deviation⁶ were used interchangeably in this paper.

Lower Semideviation. Lower semideviation is considered a better measure of risk than standard deviation because it calculates the portion of the standard deviation generated on days when the NAV goes down. It is more closely associated with an investor's definition of risk measuring loss than standard deviation which treats both loss and gain as "risk". This analysis presents both standard deviation and lower semideviation but places more emphasis on lower semideviation.

Return/Risk. The return/risk ratio is calculated by dividing annualized return by either the lower semideviation or standard deviation. A higher ratio is preferable.

One-, Three-, and Five-Year Horizons. These are future looking observations, computed from the date associated with each fi360 Fiduciary Score®. It should be stressed that fi360 Fiduciary Score® and averages were based on historical data whereas the variables (annualized return, standard deviation, lower semideviation, and return/risk ratio) used for assessment were based on future data, that is, data observed after the calculation of fi360 Fiduciary Score®.

A technical note on some definitions ...

Annualized Return vs. Annualized Mean Return vs. Mean Return vs. Annual Return vs. Average Annual Return vs. Total Return

Financial assessments often utilize several similar sounding but technically different measures: annualized return, annualized mean return, mean return, annual return, average annual return, and total return. While this report uses annualized return, the other measures are discussed here for reference.

Annualized return is defined to the left. Annualized mean return is calculated by multiplying daily mean return by the number of trading days in a year:

$$(\text{Mean of daily returns}) * 260$$

Mean return is a simple arithmetic average of returns.

Annual return is the percentage return between the investment's NAV over a one-year period, from the beginning date to the ending date of the period. It could be computed as a trailing 12-month (TTM) window.

Average annual return is an arithmetic average of annual returns.

Total return is a return earned within a time period. For example, total return from March 3, 2012 to September 20, 2013 would have the following formula:

$$\left(\frac{\text{Value on Sept. 20, 2013}}{\text{Value on March 3, 2012}} - 1 \right) \times 100$$

CFPI generally will use annualized return because this measure provides consistency and comparability allowing a comparison between investments of different time horizons.

⁶ Annualized standard deviation is calculated by multiplying the daily standard deviation by the square root of the number of trading days in a year: $(\text{Daily standard deviation} \times \sqrt{260})$

ONE-YEAR FORWARD HORIZON ANALYSIS

Annualized Return

CFPI evaluated the average and median percentage returns one year into the future for each of the sixteen versions of fi360 Fiduciary Score®. These evaluations portray the ability of fi360 Fiduciary Score® to maximize returns during the analysis period. An assessment of the average percentage return for each fi360 Fiduciary Score® demonstrated that Green fi360 Fiduciary Score® Average (3 year) performed better than the other versions. However, Green fi360 Fiduciary Score® Average (1 year) was almost the same as Green fi360 Fiduciary Score® Average (3 year).

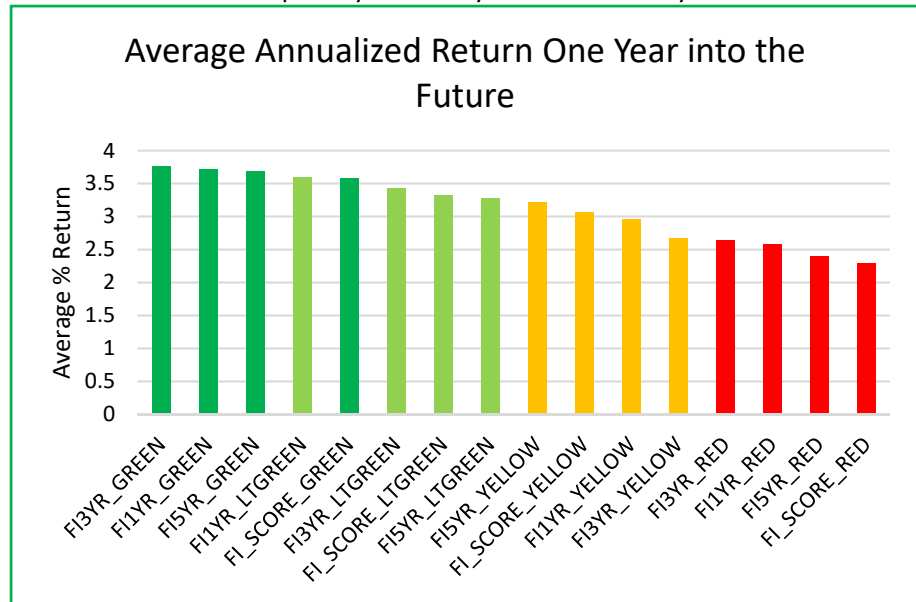


Figure 3 Average Annualized Return One Year into the Future (sorted in descending order)

Looking at the median percentage return for each

version of fi360 Fiduciary Score® highlights the fact that Green fi360 Fiduciary Score® Average (1 year)

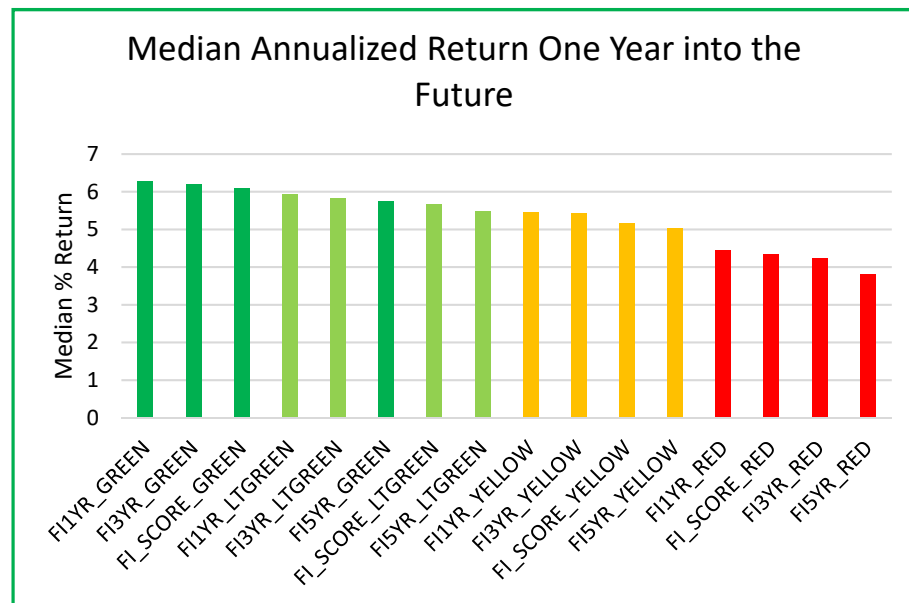


Figure 4 Median Annualized Return One Year into the Future (sorted in descending order)

performed better than the other versions. This time the percent return for Green fi360 Fiduciary Score® Average (3 year) fell just below the percent return for fi360 Fiduciary Score® Average (1 year). This slight difference between the average and median percent return was expected due to the nature of the two measures of central tendency.

Note that the average percent return was a little more than two percentage

points below the median percent return. This suggests that the average percent return was weighed down by a few observations with low returns, which may have been outliers.

Risk

A general assessment of the data indicated that fi360 Fiduciary Score® was helpful in determining a return maximizing group of mutual funds. However, maximizing returns is not the only key factor in investments. Some investors also desire to minimize their risk. CFPI used standard deviation and lower semideviation of returns as a measure of risk. In order to analyze the risk associated with mutual funds classified by

each version of fi360 Fiduciary Score®, CFPI evaluated the averages and medians of the standard deviation and lower semideviation of returns for each version.

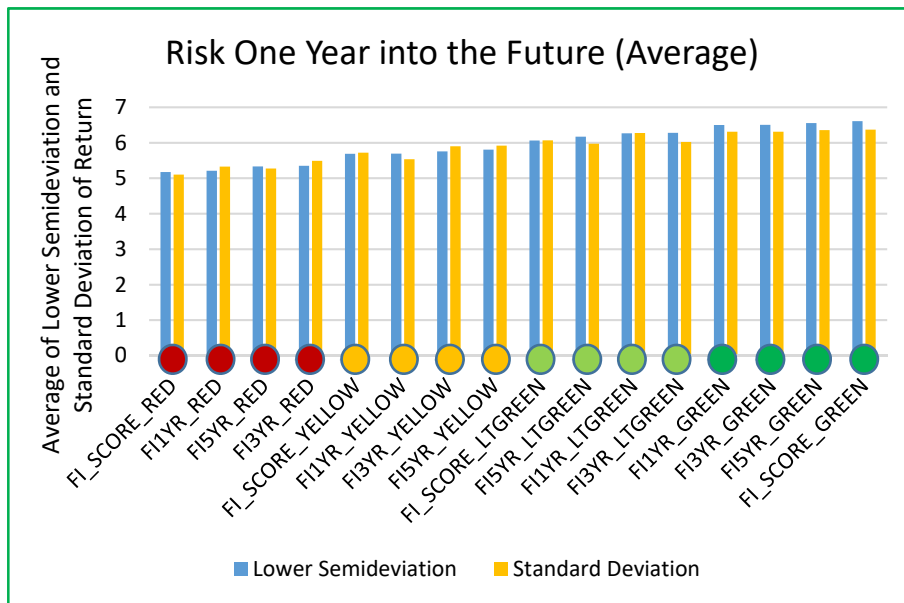


Figure 5 Average Lower Semideviation and Standard Deviation of Return One Year into the Future (sorted in descending order)

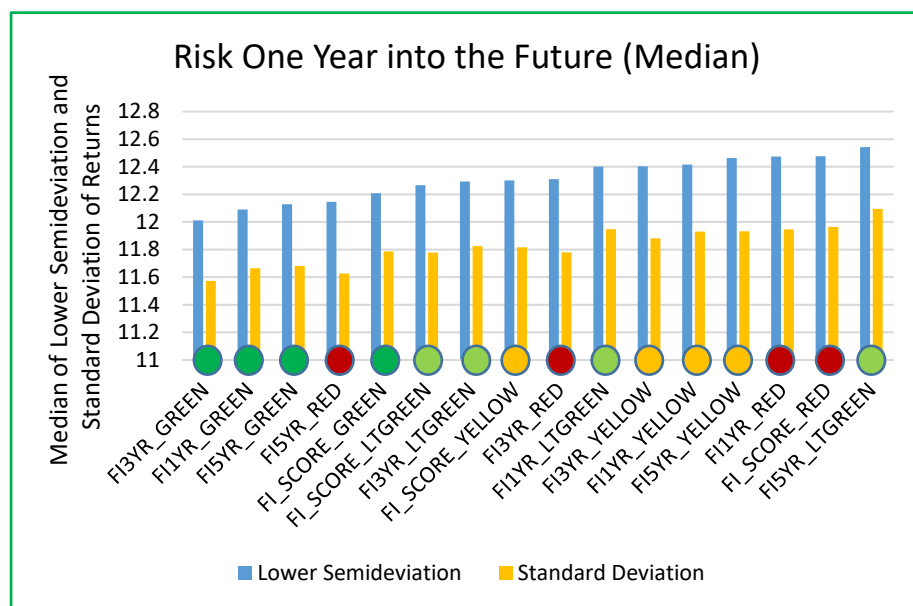


Figure 6 Median Lower Semideviation and Standard Deviation of Return One Year into the Future (sorted in descending order)

As illustrated by Figure 5 “Red” fi360 Fiduciary Score® Average had the lowest average standard deviation and lower semideviation. However, as is illustrated by Figure 6, Green fi360 Fiduciary Score® Average had the lowest median standard deviations and lower semideviations of returns, except for Red fi360 Fiduciary Score® Average (5 year). Once again, Green fi360 Fiduciary Score® Average (1 year) fell narrowly behind Red

fi360 Fiduciary Score® Average (3 year).

Return/Risk

CFPI performed an assessment of the average and median return/risk ratios for each version of fi360 Fiduciary Score®. The results indicated that Green fi360 Fiduciary Score® Average (3 year) had the highest average and median return/risk ratios. Generally speaking, any Green or Light Green fi360 Fiduciary Score® tended to provide a better return/risk ratio in the long run. This is exhibited in Figures 7 and 8 where all Green and Light Green

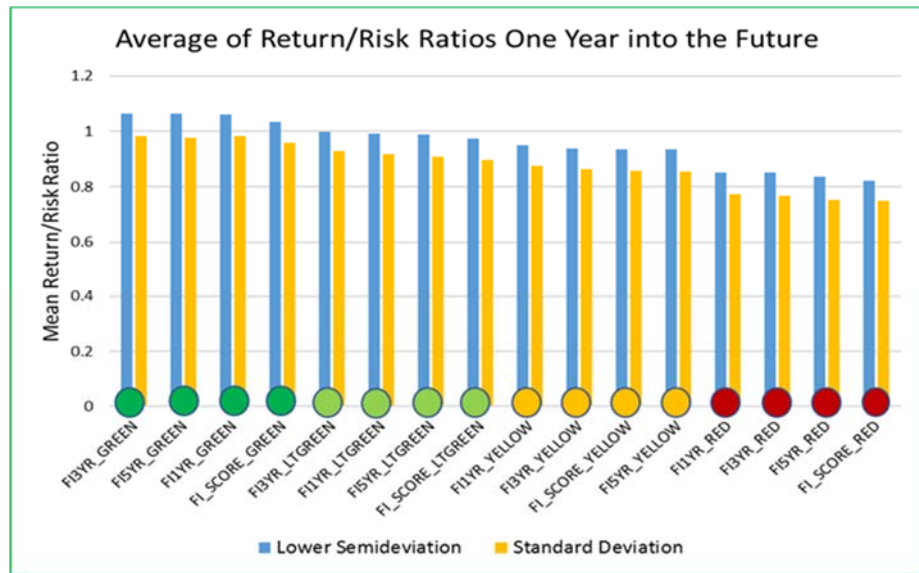


Figure 7 Average of Return/Risk Ratios One Year into the Future. The ratios were computed by dividing annualized returns by the lower semideviation and the standard deviation of returns respectively. The blue and yellow bars represent the averages of the respective ratios.

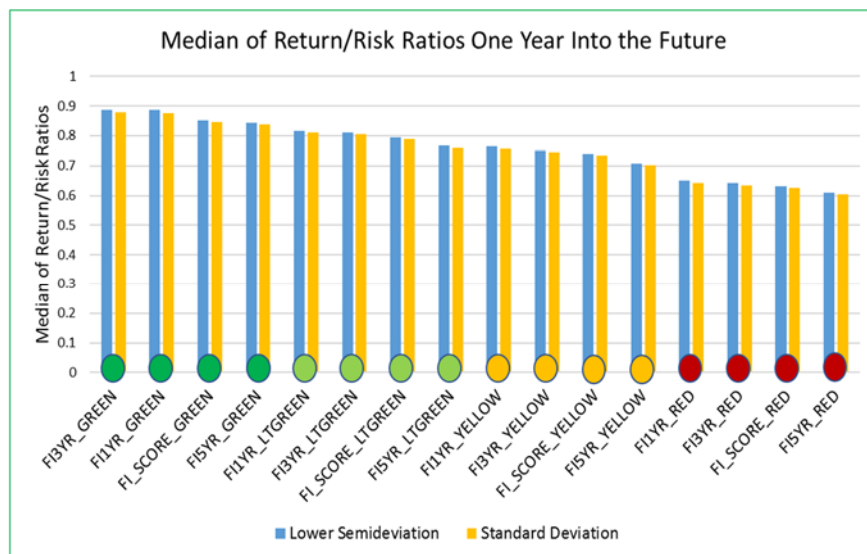


Figure 8 Median of Return/Risk Ratios One Year into the Future. The ratios were computed by dividing annualized returns by the lower semideviation and the standard deviation of returns respectively. The blue and yellow bars represent the averages of the respective ratios.

Score appear toward the left side of the graphs, which represent higher return/risk ratios, and all “Yellow” and Red Score appear toward the right, which represent lower return/risk ratios.

Annualized Return Distribution One Year into the Future

An assessment of the distribution of annualized returns was necessary for analyzing the marginal value of the Score. CFPI assessed the relative frequency distribution of annualized returns for the mutual funds which have a Green fi360 Fiduciary Score® Average (1 year) and the relative frequency distribution for all mutual funds. A comparison of these relative frequency distributions of annualized returns demonstrated that the Score did provide marginal value. From the results in Figure 9, one can see that the relative frequency of positive annualized returns for funds with a Green fi360 Fiduciary Score® Average (1 year) was higher than the relative frequency of positive annualized returns for all mutual funds. Simultaneously, when reviewing the relative frequency of mutual funds that have annualized returns below zero percent, the relative frequency of funds which had a Green fi360 Fiduciary Score® Average (1 year) was less than the relative frequency of all mutual funds. Furthermore, the 25th and 75th percentiles of the annualized returns for the two groups of funds indicated that the group of all mutual funds had a larger spread and was thus not quite as consistent as the group of funds which had Green fi360 Fiduciary Score® Average (1 year) (see Figure 10 on the next page).

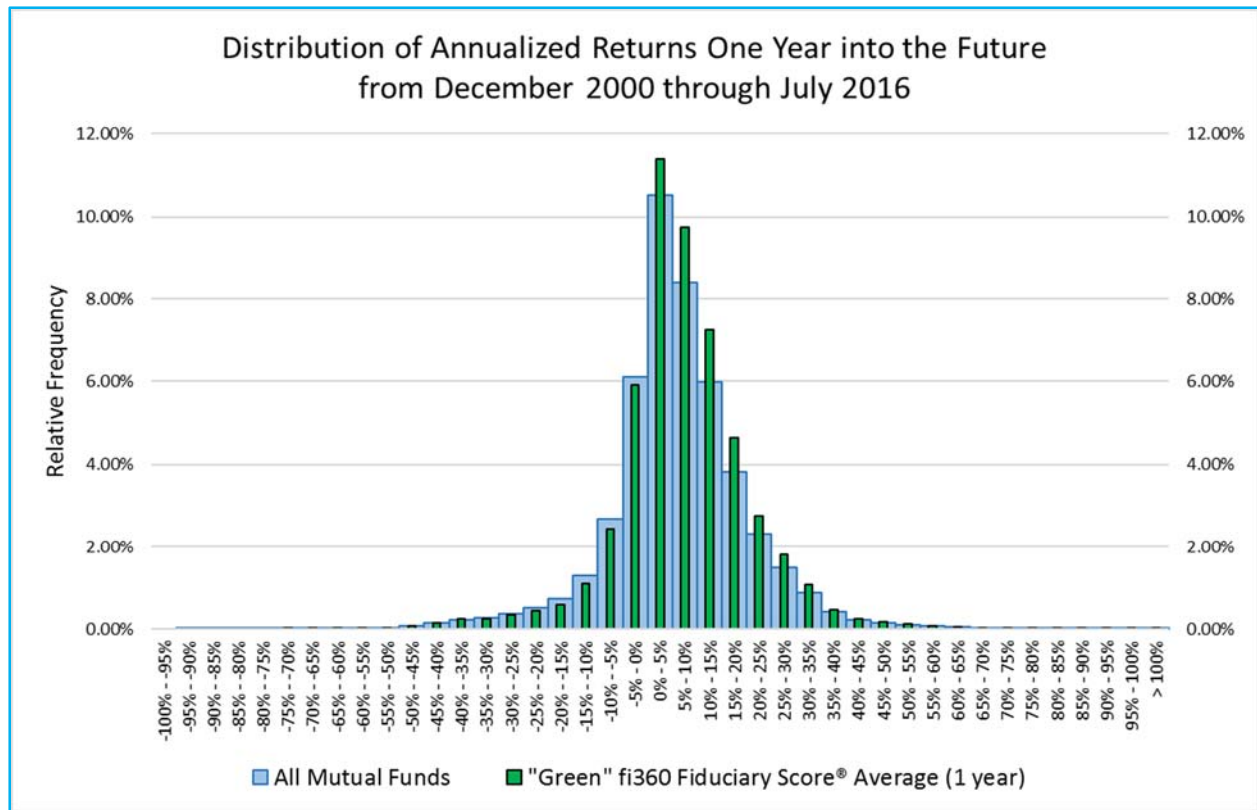


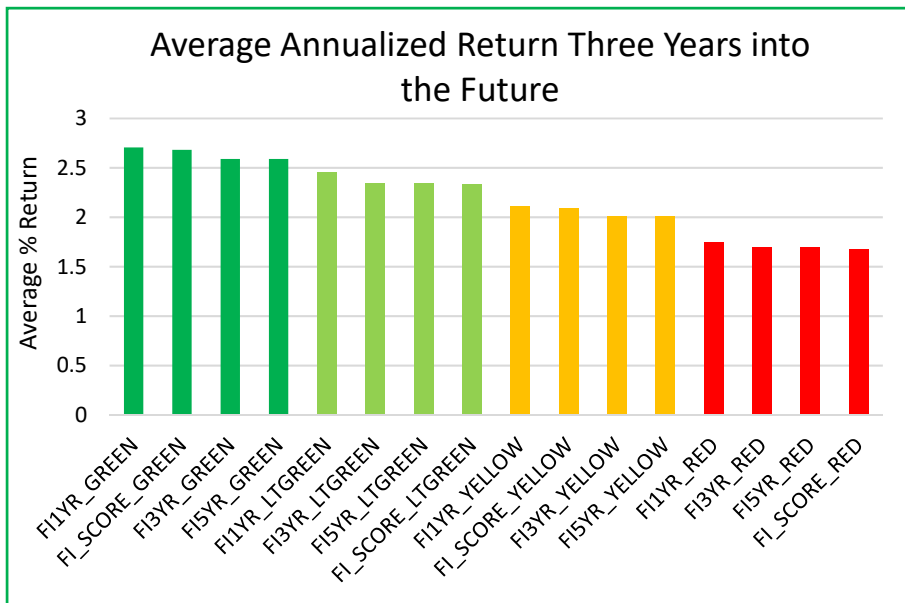
Figure 9 Distribution of Annualized Returns One Year into the Future using Green fi360 Fiduciary Score® Average (1 year) from December 2000 through July 2016.

Descriptive Statistics for the Distribution of Annualized Returns One Year into the Future		
	"Green" fi360 Fiduciary Score® Average (1 year)	All Mutual Funds
Minimum	-70.8932	-90.6511
25th Percentile	0.6397	-0.3973
Median	6.2690	5.2620
75th Percentile	13.9412	13.0505
Maximum	174.9200	39073.8000

Figure 10 Descriptive Statistics for the Distribution of Annualized Returns One Year into the Future from December 2000 through July 2016. The statistics are stated in terms of percent annualized returns, so that a median of 6.2690 means that the funds with a Green fi360 Fiduciary Score® Average (1 year) had a median annualized return of 6.2690%.

THREE-YEAR FORWARD HORIZON ANALYSIS

Annualized Return



In terms of average annualized returns for a three-year horizon, an investor tended to maximize his/her annualized returns when using Green fi360 Fiduciary Score® Average (1 year) (see Figure 11).

Figure 11 Average Annualized Returns Three Years into the Future (sorted in descending order)

Considering the median annualized returns for a three-year horizon however, an investor tended to maximize his or her annualized returns when using Light Green fi360 Fiduciary Score® Average (5 year) (see Figure 12). Once again however, Green fi360 Fiduciary Score® Average (1 year) had the second highest median percent return and fell just under the median percent return for Light Green fi360 Fiduciary Score® Average (5 year) (see Figure 12).

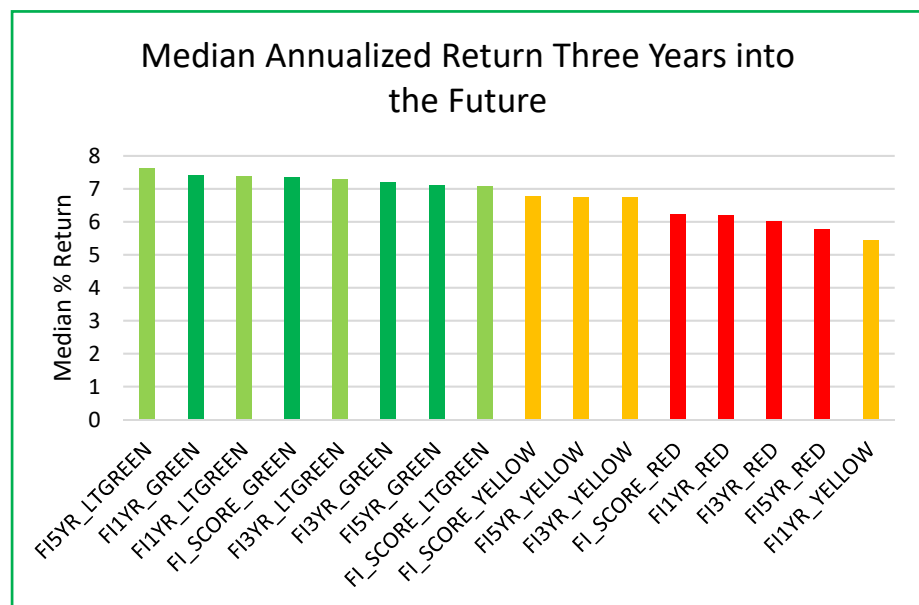


Figure 12 Median Annualized Returns Three Years into the Future (sorted in descending order)

Risk

CFPI also used the averages and medians of the standard deviation and lower semideviation of returns as a measure of risk for each fi360 Fiduciary Score® for the three-year forward horizon. Similar to the results for one year into the future, Red fi360 Fiduciary Score® Average (3 year) three years into the future had the lowest average lower semideviation of returns.

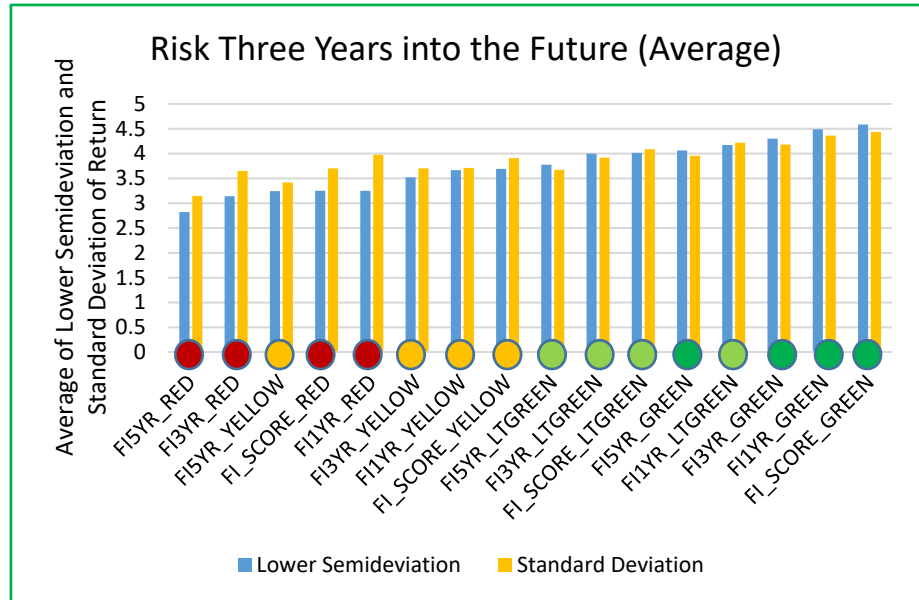


Figure 13 Average Lower Semideviation and Standard Deviation of Return Three Years into the Future (sorted in descending order)

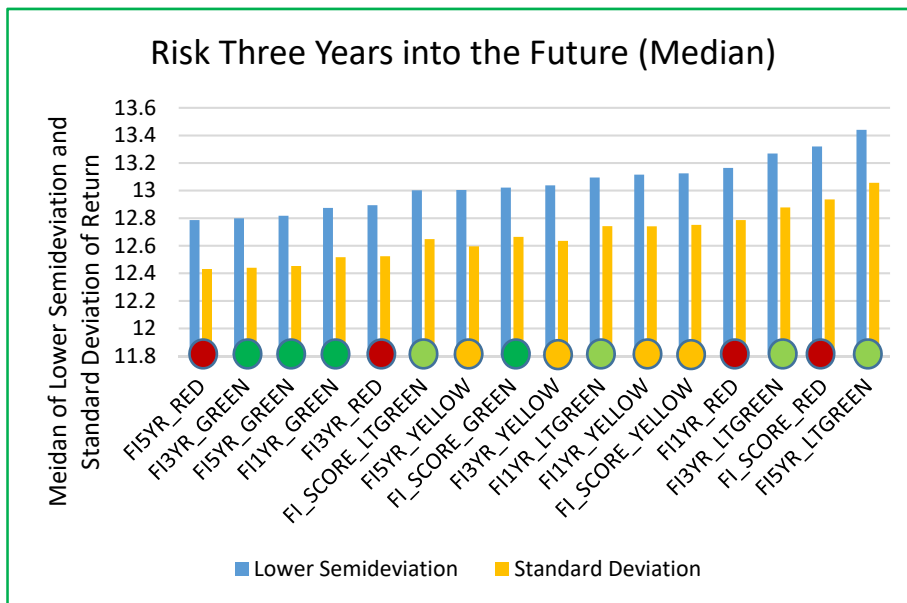


Figure 14 Median Lower Semideviation and Standard Deviation of Return Three Years into the Future (sorted in descending order)

When assessing the results of the median standard deviations and median lower semideviations of annualized returns, the results were also a little scattered. However, in this case the standard deviations and lower semideviations for the Green and Light Green Score tended to be lower than they were for the Yellow and Red Score, with a few exceptions.

Return/Risk

For a three-year forward horizon, Green fi360 Fiduciary Score® Average (5 year) had the highest average return/risk ratio. The Green and Light Green Score had the highest return/risk ratios and the Yellow and Red Score had the lowest return/risk ratios. Each Score performed as expected, and the results were consistent with the results for a one-year forward horizon.

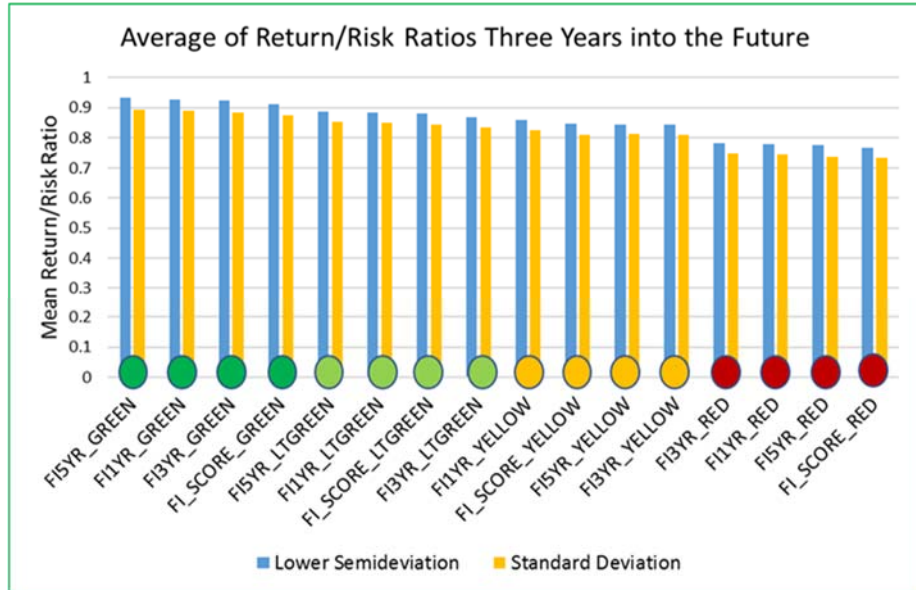


Figure 15 Average of Return/Risk Ratios Three Years into the Future. The ratios were computed by dividing annualized returns by the lower semideviation and the standard deviation of returns respectively. The blue and yellow bars represent the averages of the respective ratios.

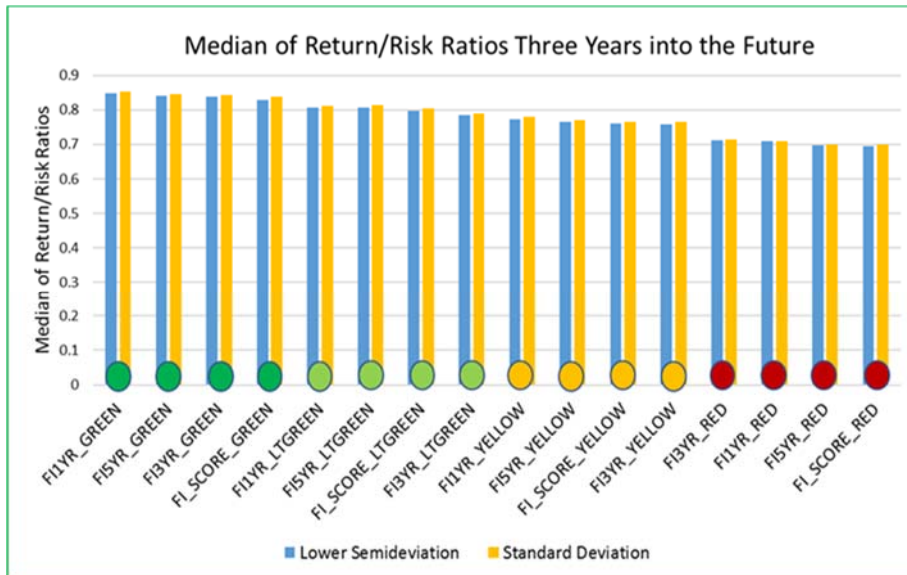


Figure 16 Median of Return/Risk Ratios One Year into the Future. The ratios were computed by dividing annualized returns by the lower semideviation and the standard deviation of returns respectively. The blue and yellow bars represent the averages of the respective ratios.

Similarly, the medians of the return/risk ratios conveyed that all of the funds with a Green Score out-performed those with a Light Green Score, which out-performed those with Yellow, which subsequently outperformed the Red.

Annualized Return Distributions Three Years into the Future

To analyze the marginal value provided by fi360 Fiduciary Score® three years into the future, the relative frequency distribution of annualized returns for Green fi360 Fiduciary Score® Average (1 year) was compared to the relative frequency distribution of annualized returns for all mutual funds. As seen in Figure 17, when compared to all mutual funds, there are relatively fewer mutual funds which have a Green fi360 Fiduciary Score® Average (1 year) and have negative annualized returns and simultaneously a relatively greater number which have positive annualized returns (see Figure 17).

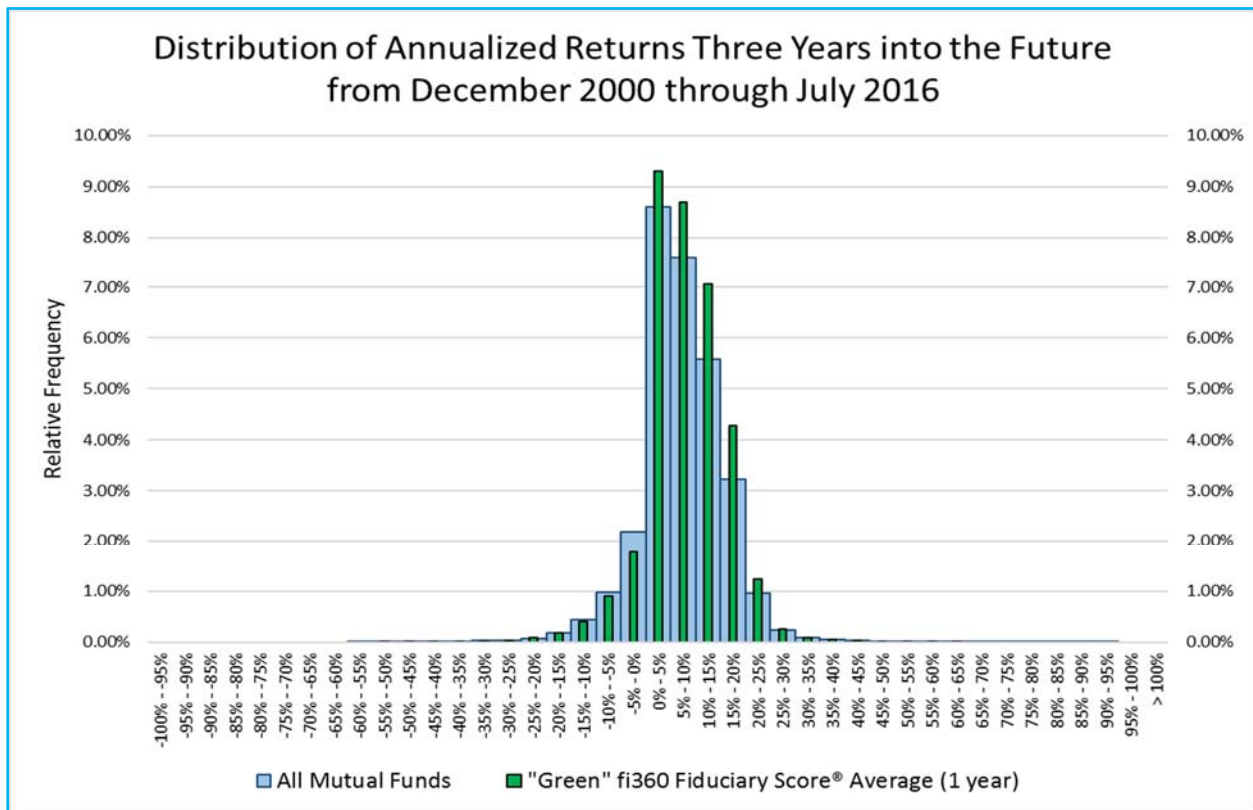


Figure 17 Distribution of Annualized Returns Three Years into the Future using Green fi360 Fiduciary Score® Average (1 year) from December 2000 through July 2016.

Descriptive Statistics for the Distribution of Annualized Returns Three Years into the Future		
	"Green" fi360 Fiduciary Score® Average (1 year)	All Mutual Funds
Minimum	-52.5561	-59.8275
25th Percentile	3.2128	2.4633
Median	7.4267	6.5524
75th Percentile	12.9304	12.1215
Maximum	64.9706	3540.6200

Figure 18 Descriptive Statistics for the Distribution of Annualized Returns Three Years into the Future from December 2000 through July 2016. The statistics are stated in terms of percent annualized returns, so that a median of 7.4267 means that the funds with a Green fi360 Fiduciary Score® Average (1 year) had a median annualized return of 7.4267%.

The relative frequency distribution of Yellow fi360 Fiduciary Score® Average (3 year) was also assessed. As shown in Figure 19, when compared to the relative distribution of all mutual funds, there were relatively fewer scored mutual funds with negative annualized returns and positive annualized returns (see Figure 19).

Once again, the 25th and 75th percentiles demonstrated that the annualized returns of all mutual funds had a wider spread and thus less consistency than did mutual funds which had either a Green fi360 Fiduciary Score® Average (1 year) or a Yellow fi360 Fiduciary Score® Average (3 year) (see Figures 18 and 20).

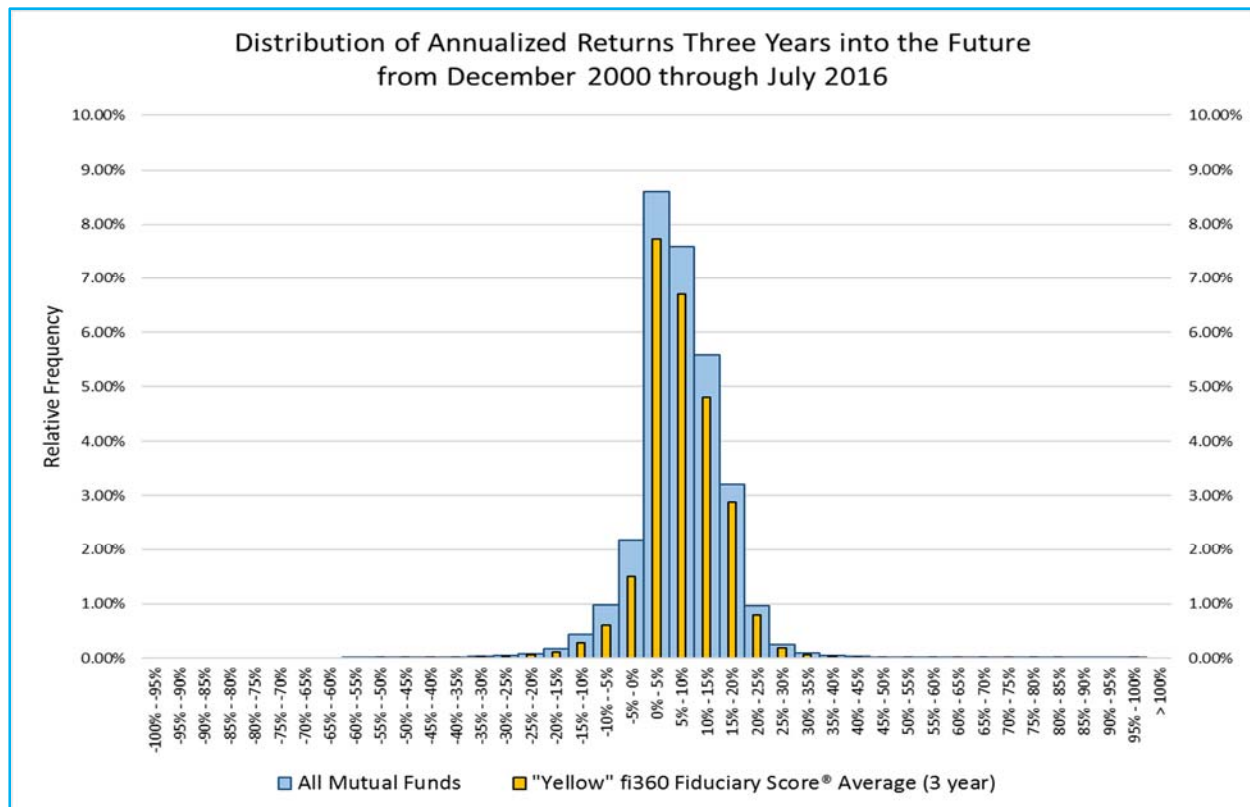


Figure 19 Distribution of Annualized Returns Three Years into the Future using Yellow fi360 Fiduciary Score® Average (3 year) from December 2000 through July 2016.

Descriptive Statistics for the Distribution of Annualized Returns Three Years into the Future		
	"Yellow" fi360 Fiduciary Score® Average (3 year)	All Mutual Funds
Minimum	-54.2506	-59.8275
25th Percentile	2.7302	2.4633
Median	6.7403	6.5524
75th Percentile	12.1953	12.1215
Maximum	2087.6200	3540.6200

Figure 20 Descriptive Statistics for the Distribution of Annualized Returns Three Years into the Future from December 2000 through July 2016. The statistics are stated in terms of percent annualized returns, so that a median of 6.7403 means that the funds with a Yellow fi360 Fiduciary Score® Average (3 year) had a median annualized return of 6.7403%.

FIVE-YEAR FORWARD HORIZON ANALYSIS

Annualized Return

According to the results for average percent return, an investor with a five-year forward horizon could have maximized his/her annualized returns by following Green fi360 Fiduciary Score®. Green fi360 Fiduciary Score® Average (1 year) once again had the second highest level of return.

When reviewing the median percent return results, notice that Light Green fi360 Fiduciary Score® Average (5 year) outranks the other Score measures. Unlike the results for one-year and three-year horizons, Green fi360 Fiduciary Score® Average (1 year) ranked fifth. However, it is interesting to note that the median percent returns for Yellow fi360 Fiduciary Score® Average (5 year), Light Green fi360 Fiduciary

Score® Average (1 year), Green fi360 Fiduciary Score® Average (1 year), and several others differed from each

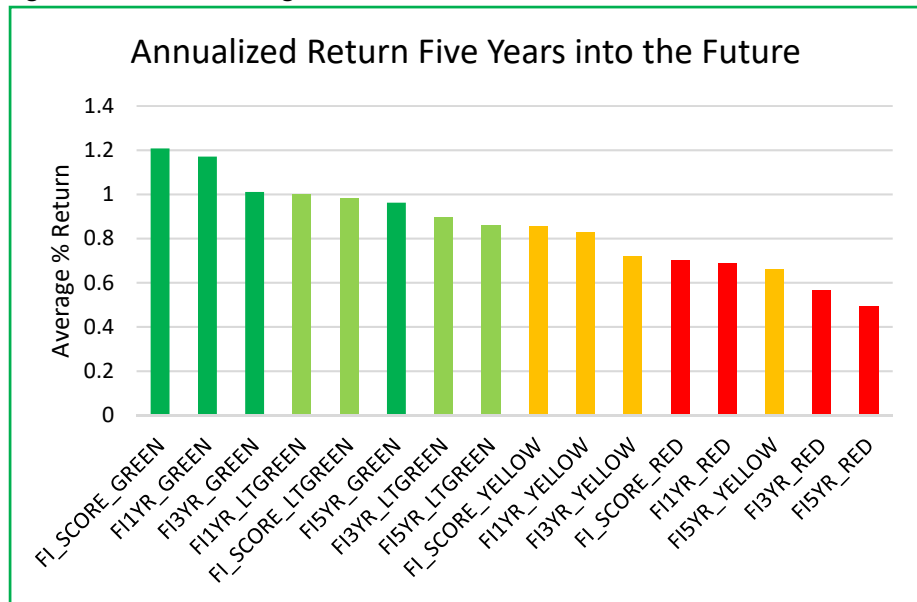


Figure 21 Average Annualized Return Five Years into the Future (sorted in descending order)

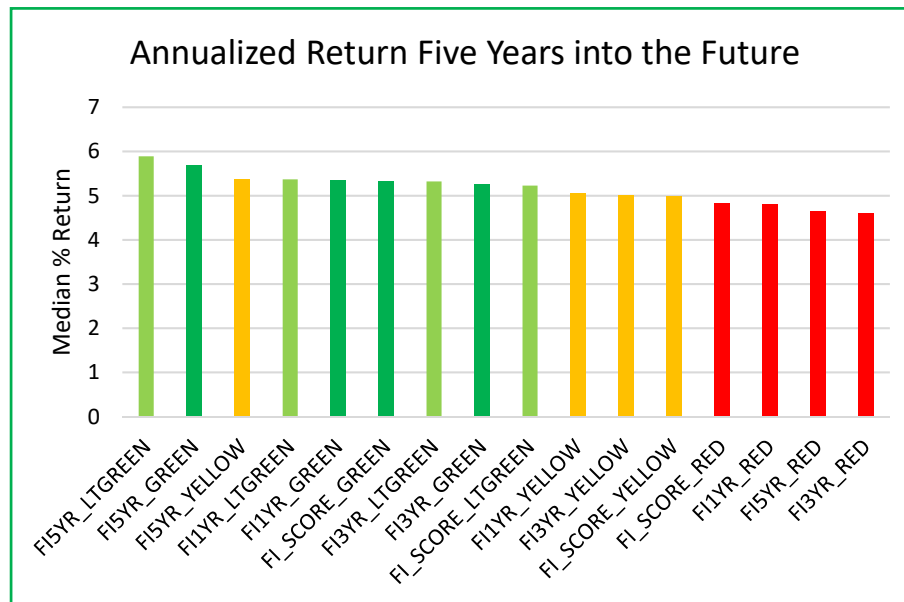


Figure 22 Median Annualized Return Five Years into the Future (sorted in descending order)

other by hundredths of a percent, as can be seen in Figure 22.

It is important to note that Light Green fi360 Fiduciary Score® Average (5 year) had the highest median return for both the three-year forward horizon and the five-year forward horizon, and overall the fi360 Fiduciary Score® Average (5 year) comparatively performed better as the forward horizon increased. While

Green fi360 Fiduciary Score® Average (1 year) performed very well across all forward time horizons, other versions of the Score tended to progress beyond it as the forward horizon increased.

Risk

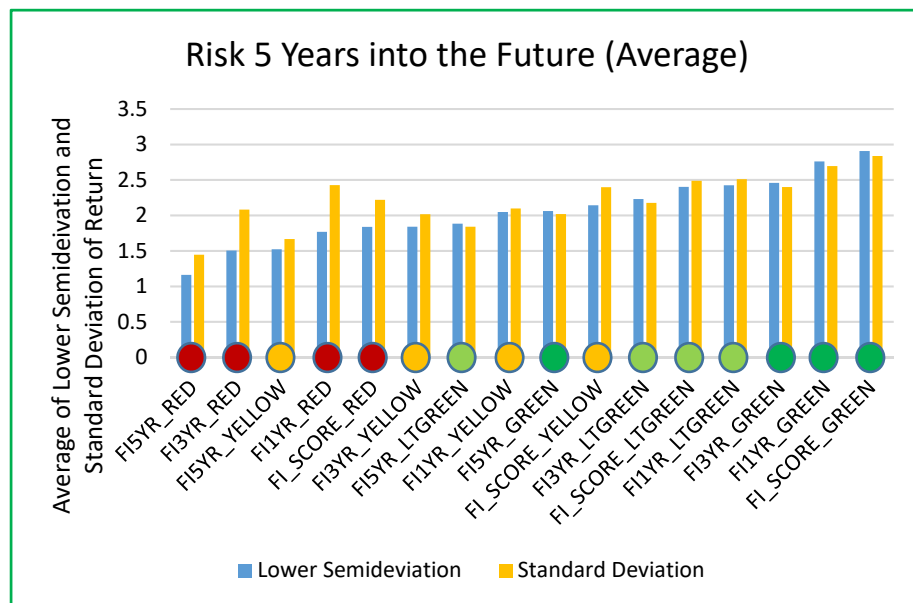


Figure 23 Average Lower Semideviation and Standard Deviation of Return Five Years into the Future (sorted in descending order)

An analysis of the averages and medians of the lower semideviation of returns as a measure of risk for fi360 Fiduciary Score® five years into the future indicated that Yellow fi360 Fiduciary Score® Average had the lowest average lower semideviation of returns. Yellow fi360 Fiduciary Score® Average had the lowest average annualized return and as such would tend to have the lowest average standard deviation and average lower semideviation of returns.

However, an analysis of the average standard deviation of returns demonstrated that the ranking of the Score measures was somewhat different and some Green and Light Green fi360 Fiduciary Score® Average were ranked a little higher. The results of the median standard deviations and lower semideviations of annualized returns indicated that there was no clear grouping of Score that had the lowest or highest measure of risk. However, as can be seen in Figure 24, Green fi360 Fiduciary Score® Average (1 year) and (5 year) fell just

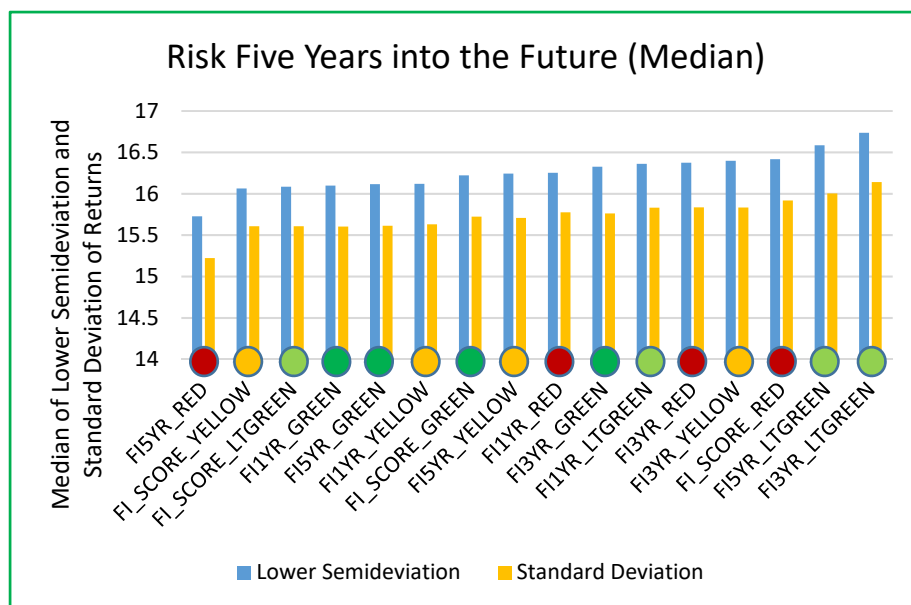


Figure 24 Median Lower Semideviation and Standard Deviation of Return Five Years into the Future (sorted in descending order)

above the measures of risk for Red fi360 Fiduciary Score® Average (5 year), Yellow and Light Green fi360 Fiduciary Score®. These Score risk measures fell within a tenth of a percent from each other.

Return/Risk

CFPI found that the average return/risk ratios five years into the future was maximized by Green fi360 Fiduciary Score® Average (5 year). With a few exceptions, the Green and Light Green Score tended to have the highest return/risk ratios and the Yellow and Red Score tended to have the lowest return/risk ratios. This can be seen in Figure 25. These results demonstrated that the Yellow Score tended to have lower average return/risk ratios than the Red Score.

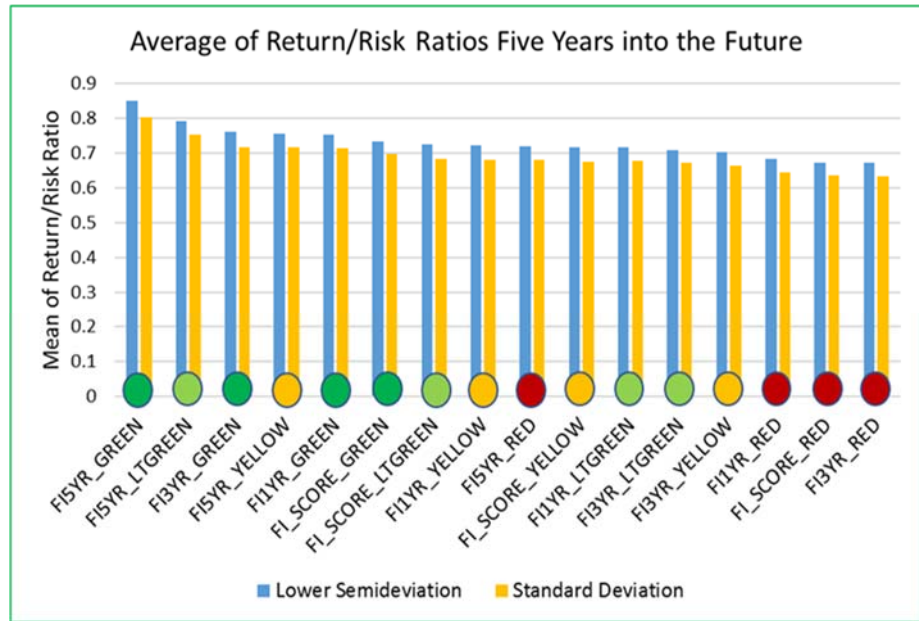


Figure 25 Average of Return/Risk Ratios Three Years into the Future. The ratios were computed by dividing annualized returns by the lower semideviation and the standard deviation of returns respectively. The blue and yellow bars represent the averages of the respective ratios.

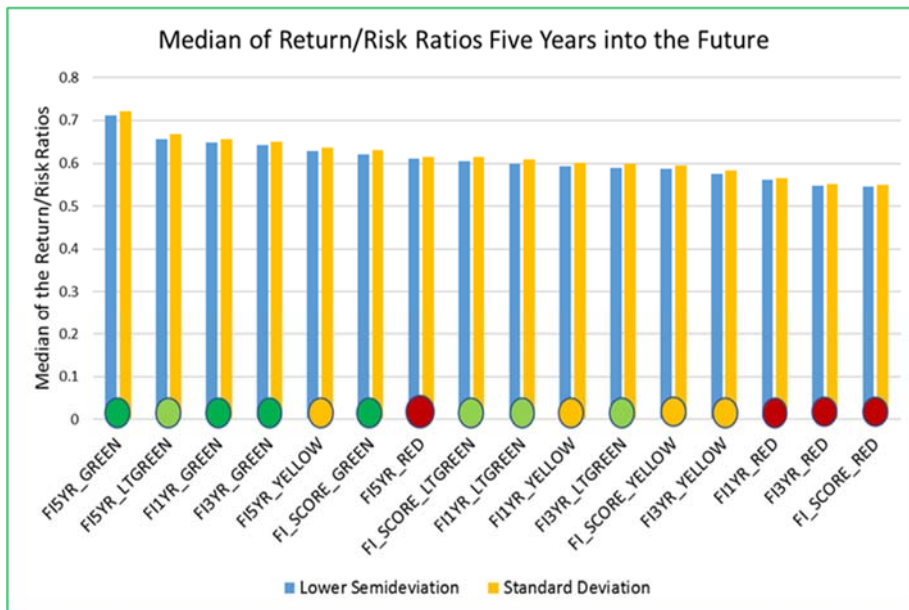


Figure 26 Median of Return/Risk Ratios One Year into the Future. The ratios were computed by dividing annualized returns by the lower semideviation and the standard deviation of returns respectively. The blue and yellow bars represent the averages of the respective ratios.

An assessment of the medians and means of the return/risk ratios indicated that the medians and means displayed similar performance. Overall, the Green funds performed better than funds in other categories, the Light Green and Yellow funds were fairly spread out, and Red funds had the worst performance. Funds with Red fi360 Fiduciary Score® Average (5 year) however, slipped upwards to the middle of the pack. Since Red funds have a greater

probability of demise, funds which survive five years may be somewhat better (this is called survivorship bias and can be seen in figures starting on page 22), but the challenge is knowing which funds those are in advance.

Annualized Return Distributions Five Years into the Future

CFPI compared the relative frequency distribution of annualized returns for Green fi360 Fiduciary Score[®] Average (1 year) to the relative frequency distribution of annualized returns for all mutual funds, five years into the future. As shown in Figure 27, when compared to the relative frequency of all mutual funds, there were fewer mutual funds with a Green fi360 Fiduciary Score[®] Average (1 year) with negative annualized returns and relatively more with positive annualized returns.

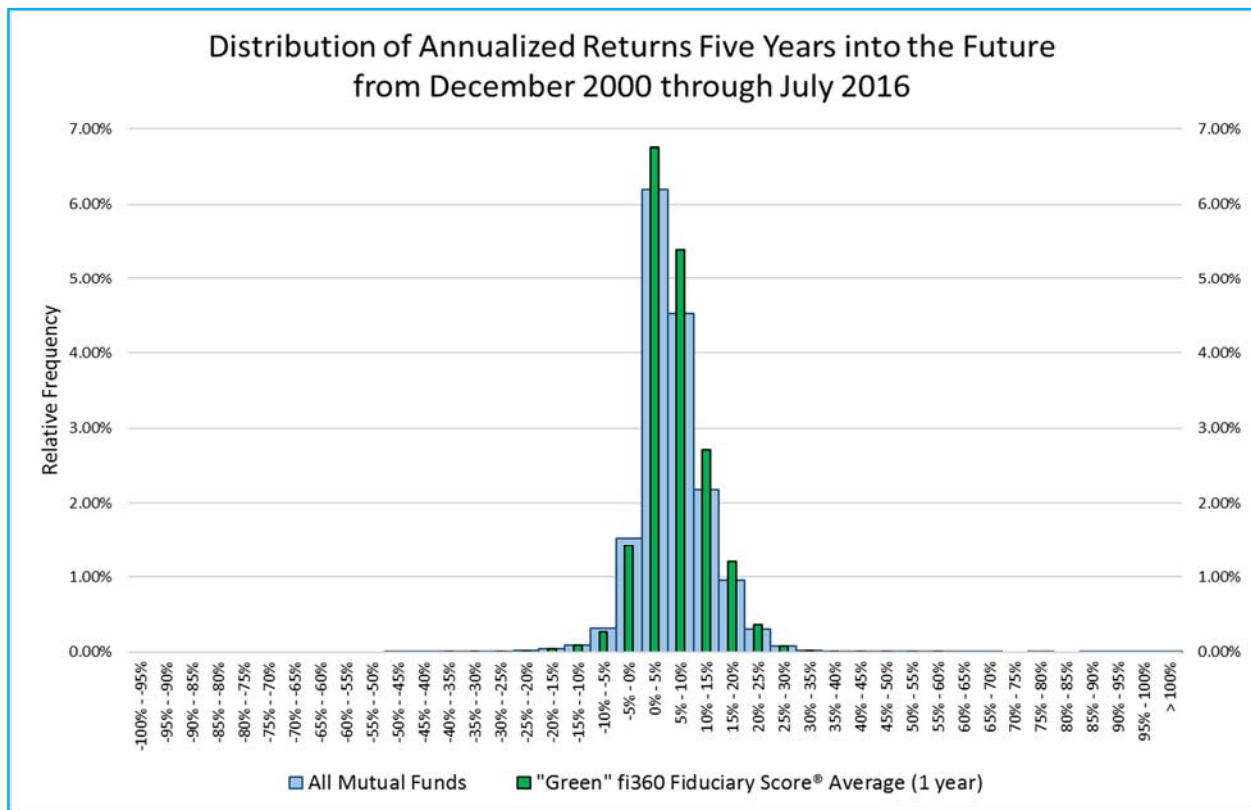


Figure 27 Distribution of Annualized Returns Five Years into the Future using Green fi360 Fiduciary Score[®] Average (1 year) from December 2000 through July 2016.

Descriptive Statistics for the Distribution of Annualized Returns Five Years into the Future		
	"Green" fi360 Fiduciary Score [®] Average (1 year)	All Mutual Funds
Minimum	-38.7541	-48.6837
25th Percentile	2.8555	2.2984
Median	5.3471	4.9571
75th Percentile	9.7406	9.2088
Maximum	56.0153	785.9040

Figure 28 Descriptive Statistics for the Distribution of Annualized Returns Five Years into the Future from December 2000 through July 2016. The statistics are stated in terms of percent annualized returns, so that a median of 5.3471 means that the funds with a Green fi360 Fiduciary Score[®] Average (1 year) had a median annualized return of 5.3471%.

The fi360 Fiduciary Score® with the highest return/risk ratios for five years into the future was Green fi360 Fiduciary Score® Average (5 year) (see Figures 25 and 26). There were relatively fewer scored mutual funds with negative annualized returns than the relative frequency of all mutual funds below zero percent annualized return (see Figure 29). The situation is reversed for funds with positive annualized returns (see Figure 29).

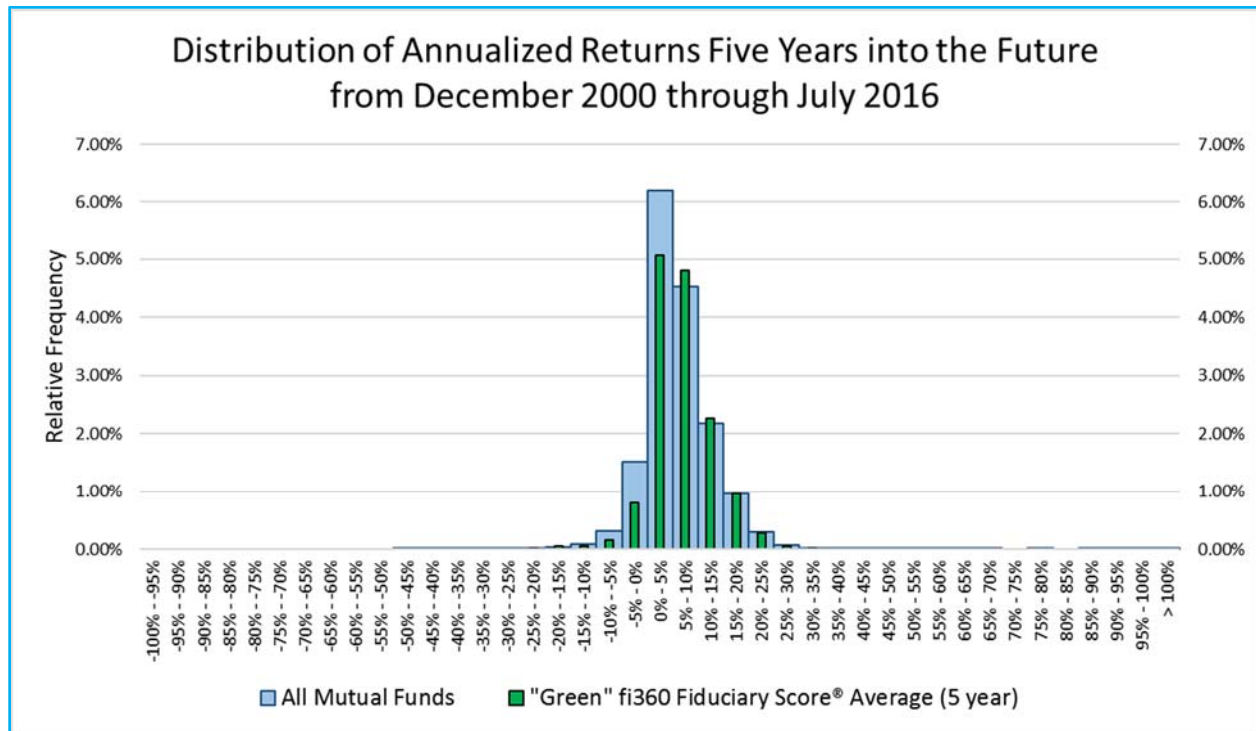


Figure 29 Distribution of Annualized Returns Five Years into the Future using Green fi360 Fiduciary Score® Average (5 year) from December 2000 through July 2016.

The 25th and 75th percentiles of the annualized returns once more demonstrated that the annualized returns for all mutual funds had a wider spread and thus less consistency than did the annualized returns of funds with a Green fi360 Fiduciary Score® Average (1 year) and (5 year) (see Figure 28 above and Figure 30 below).

Descriptive Statistics for the Distribution of Annualized Returns Five Years into the Future		
	"Green" fi360 Fiduciary Score® Average (5 year)	All Mutual Funds
Minimum	-24.2679	-48.6837
25th Percentile	3.3836	2.2984
Median	5.6808	4.9571
75th Percentile	9.8646	9.2088
Maximum	33.8784	785.9040

Figure 30 Descriptive Statistics for the Distribution of Annualized Returns Five Years into the Future from December 2000 through July 2016. The statistics are stated in terms of percent annualized returns, so that a median of 5.6808 means that the funds with a Green® fi360 Fiduciary Score® Average (5 year) had a median annualized return of 5.6808%.

STABILITY ANALYSIS

CFPI also conducted a stability analysis on the funds classified using fi360 Fiduciary Score®. Using fi360 Fiduciary Score® as a base measurement we tracked the performance of the funds over one-, three- and five-year time horizons to determine the long-term “stability” of funds’ Score.

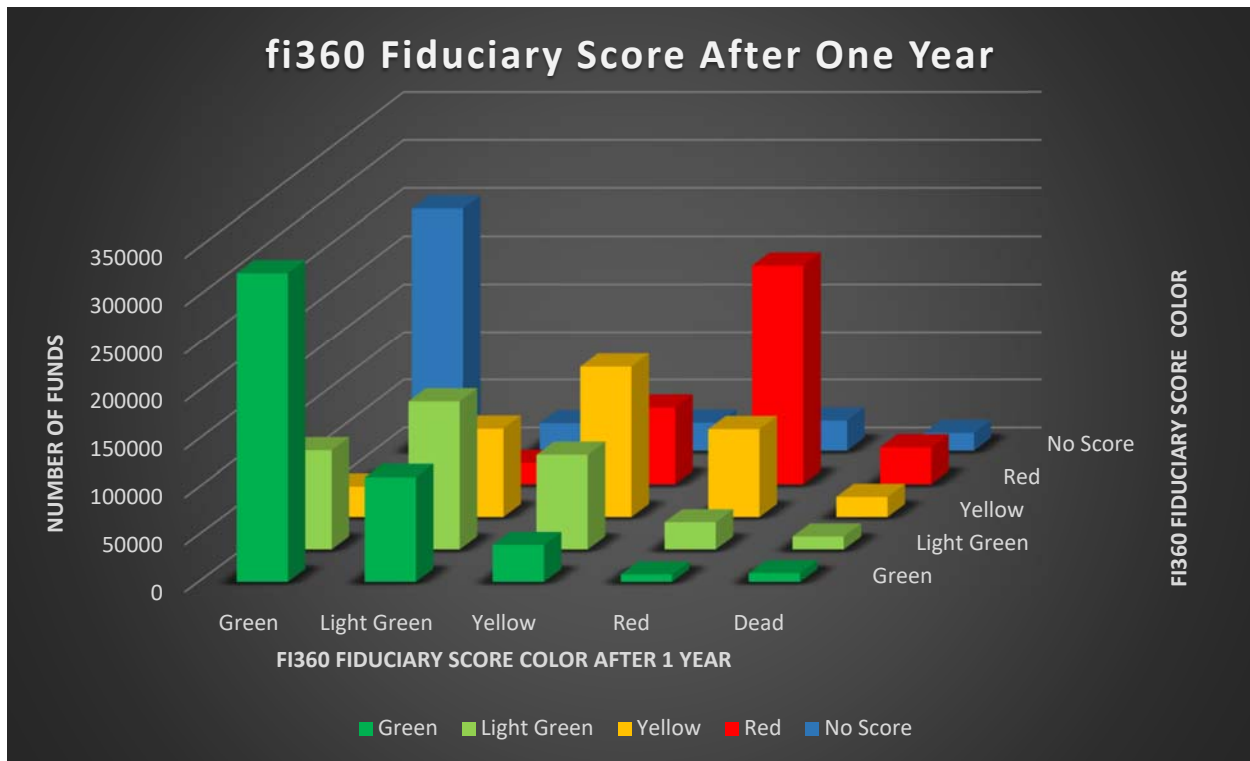


Figure 31 Stability Analysis of fi360 Fiduciary Score® After 1 Year

Most funds that started out with a Green fi360 Fiduciary Score® remained Green one year later, indicating that the Green Score is fairly stable (see Figure 31). Very few funds that started out as Green ended up dead or classified as Red. In Figure 31, the counts are in a step-wise manner, most Green funds stayed Green, fewer became Light Green, fewer still became Yellow and so on. This same pattern also occurred three and five years after the initial Score was assigned (see Figure 32 and Figure 33).

Overall, most funds over a one-year time horizon tended to keep the Score color that they were classified as originally. Looking at funds initially evaluated as Yellow, the highest number of funds remained Yellow but the number of funds that became Red is approximately the same as the number of funds that became Light Green (see Figure 31).

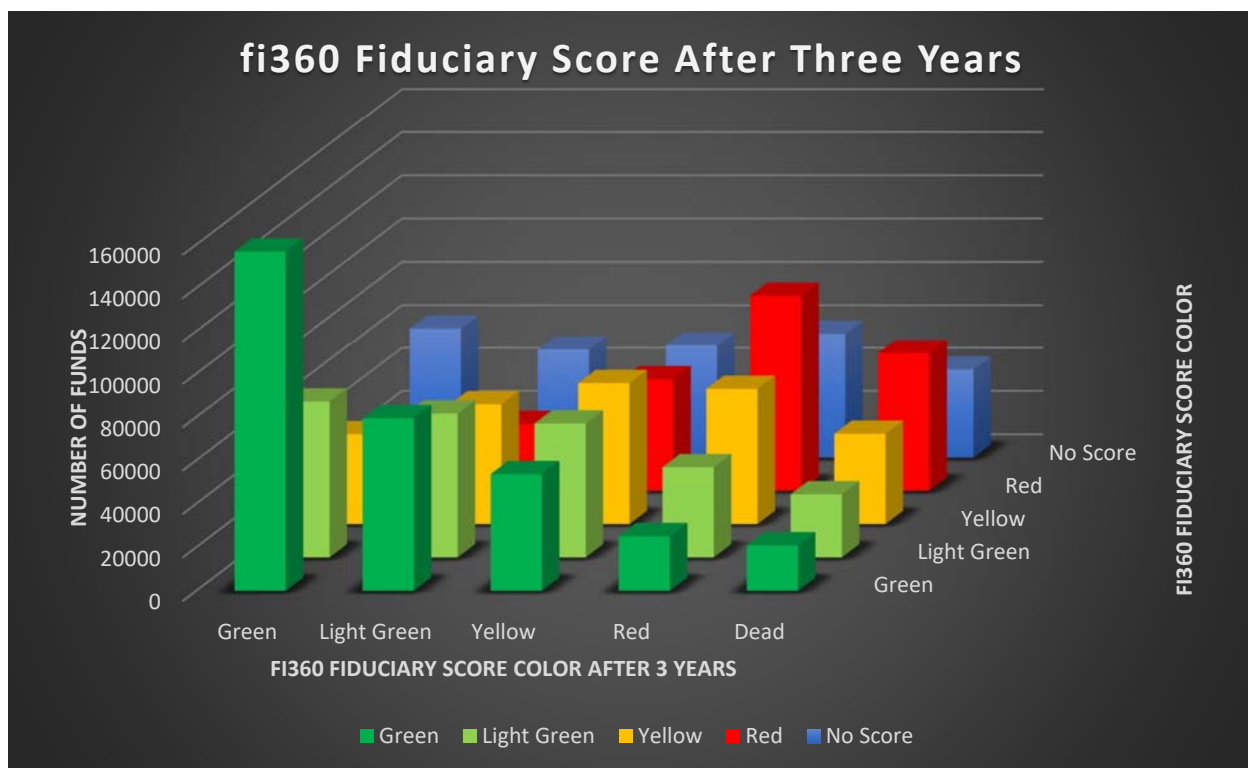


Figure 32 Stability Analysis of fi360 Fiduciary Score® after 3 Years

For the three-year time horizon, funds that began with a Green fi360 Fiduciary Score® once more tended to remain Green and were less and less likely to shift to a worse fi360 Fiduciary Score® (see Figure 32). Although the three-year time horizon was similar to the one-year time horizon in this respect, the three-year time horizon for funds that began with a Light Green, Yellow, or Red fi360 Fiduciary Score® tended to behave quite differently. Over a three-year time horizon, funds that began with a Light Green, Yellow, or Red fi360 Fiduciary Score® acted as though they belonged more to a skewed distribution than a normal distribution. More funds that began with a Light Green fi360 Fiduciary Score® became Green, fewer remained Light Green, even fewer became Yellow, fewer still became Red and a relatively small amount died (see Figure 32). As for the funds that began with a Yellow fi360 Fiduciary Score®, the largest amount remained Yellow, slightly fewer became Red, and smaller amounts became Light Green, Green, or died (see Figure 32). For funds that began

with a Red fi360 Fiduciary Score®, many remained Red, fewer died, and fewer still became Yellow, Light Green, or Green (see Figure 32).

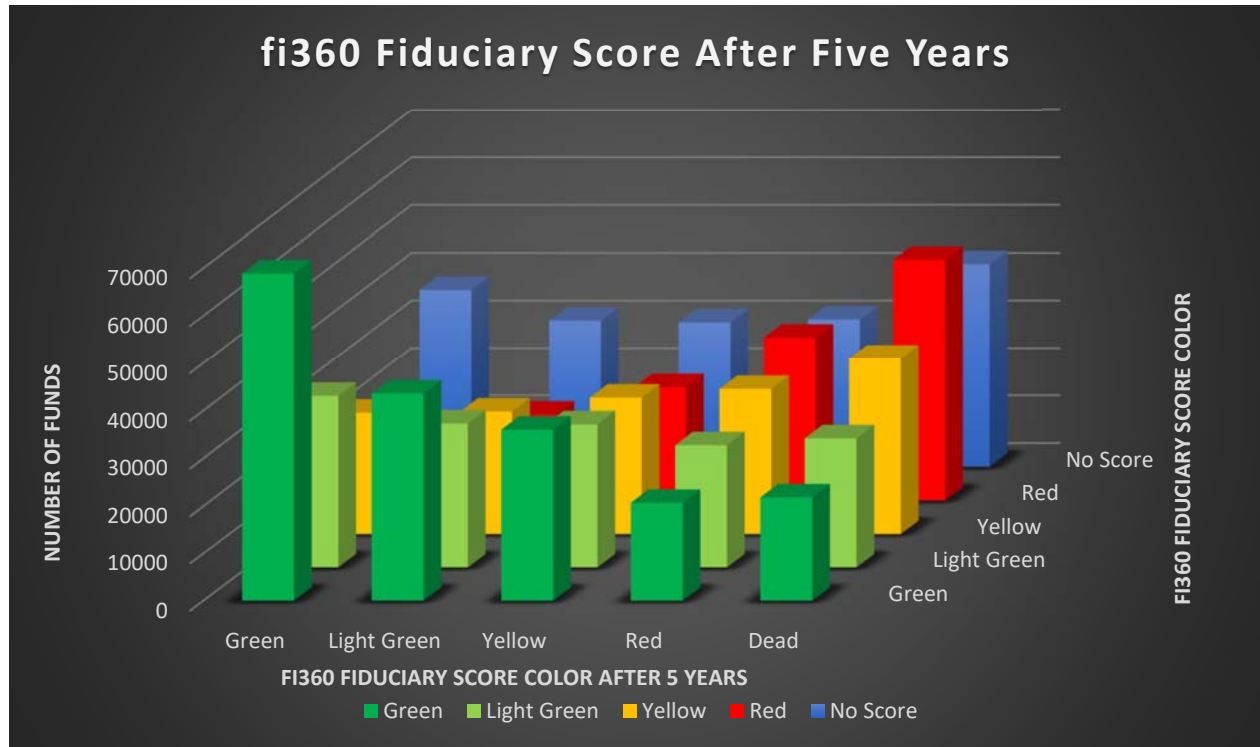


Figure 33 Stability Analysis of fi360 Fiduciary Score® After Five Years

Looking at the results for the five-year time horizon, this skewed trend became even more evident (see Figure 33). Funds that began with a Green or Red fi360 Fiduciary Score® had the most skewed results (see Figure 34). Funds that began with a Light Green fi360 Fiduciary Score® and Yellow fi360 Fiduciary Score® were skewed toward Green and Red, respectively.

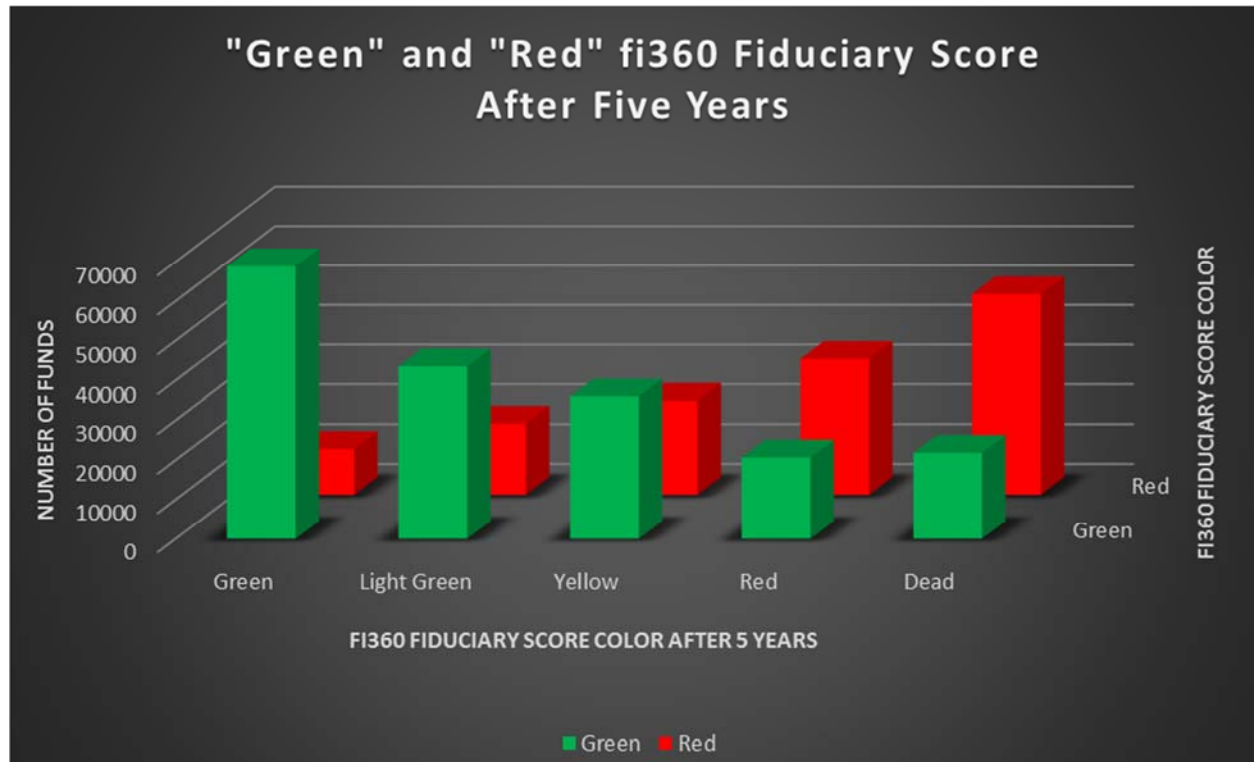


Figure 34 Stability Analysis of Green and Red fi360 Fiduciary Score® After Five Years

CONCLUSION

Overall, the “green is good” and “red is bad” observation from several years ago still holds. The funds identified by a fi360 Fiduciary Score® in the lowest quartile (Green) tended to have higher returns and lower levels of risk than the other quartiles. As a result, these funds tended to have some of the highest return/risk ratios.

The stability analysis demonstrated that funds identified by a fi360 Fiduciary Score® as Green tended to remain in the Green category over one-, three- and five-year time horizons. At the other extreme, the funds with a Red Score were far more likely to remain Red or to stop trading than to improve. The greater stability of the Green funds complemented their higher return per unit risk and facilitated longer term investment positions and, potentially, lowered trading costs. Similarly, purchasing Red category funds suggested lower returns per unit risk and far greater probability of needing to replace the Red funds in portfolios as the funds became delisted.

While certain numerical estimates may differ, overall this assessment is very consistent with the conclusions from our earlier research: The use of fi360 Fiduciary Score® helps to effectively identify mutual funds to consider because of their higher probabilities of risk-adjusted return and long term presence in the marketplace and, conversely, funds to avoid because of higher probabilities of poor risk-adjusted performance and a significantly higher chance of being delisted.

We conclude that when considering funds for inclusion in a portfolio, an initial screen should consider fi360 Fiduciary Score®. Red is STOP and Green is GO.

APPENDIX

Excerpts from: <https://www.fi360.com/fa/docs/guide-to-using-the-fi360-Fiduciary-Score.pdf>

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“The fi360 Fiduciary Score® is a peer percentile ranking of an investment against a set of quantitative due diligence criteria selected to reflect prudent fiduciary management. For each investment with at least a three-year history, fi360® calculates the fi360 Fiduciary Score based on the following due diligence criteria: regulatory oversight, minimum track record, stability of the organization, assets in the investment, composition consistency with asset class, style consistency, expense ratio/fees relative to peers, risk-adjusted performance relative to peers, and performance relative to peers. Investments are evaluated on a monthly basis. If an investment does not meet an individual due diligence criterion, points are assigned. Investments that satisfy all of the due diligence criteria receive a fi360 Fiduciary Score of 0. Every other investment is given a Score of 1-100 based on their point total, and representing their percentile ranking within their peer group. The fi360 Fiduciary Score Average is a one-, three-, five-, or ten-year rolling average of an investment’s fi360 Fiduciary Score. The Average is also calculated on a monthly basis. *The fi360 Fiduciary Score represents a suggested course of action and is not intended, nor should it be used, as the sole source of information for reaching an investment decision. Visit www.fi360.com/fi360-Fiduciary-Score for the complete methodology document.*”

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