

## ZEO QUARTERLY LETTER: 4Q2016

Dear Clients:

Stop us if you've heard this one: A philosophy professor is administering a final exam to his class. The students have three hours to complete it. When they receive the test, there is only one question on the page: "Why?" The students, with looks on their faces somewhere between bewilderment and panic, start writing furiously – three hours hardly seems like enough time to write a meaningful and complete answer to such an open-ended question. The professor notices one student who isn't writing anything. He simply sits still, looking at the exam page but never actually putting pencil to paper....

### Why?

We at Zeo empathize with this student – the answer isn't obvious or easy to articulate. We often get asked to describe our strategy, and many readers will recognize that our answer can at times verge on the philosophical. The question "Why?" factors heavily into our view of our firm and our income strategy. It is not uncommon for investors to ask us why Zeo exists in the first place: to offer investment options to our clients which directly address their needs, drawn from the intersection of our team's hard-earned core competencies. By listening to our clients, responding with strategies designed specifically to fill underserved portfolio gaps, and steering away from asset-class-based or benchmark-driven metrics, we believe we can better serve our purpose within a client's overall allocation.

But why does our approach work? With respect to our income strategy, it's a question we get just as frequently. After all, our portfolio of short-duration corporate credit, mostly with high yield ratings, doesn't fit in cleanly with either short-term strategies or high yield strategies. How do these two categories, traditionally considered separate asset classes, combine to behave like an absolute return<sup>1</sup> strategy even though it is long-only<sup>2</sup>? To understand why we believe our approach has been consistently low volatility despite a variety of market disruptions over the last seven years, it helps to revisit a foundational quantitative building block of fixed income: bond math.<sup>3</sup>

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1 An absolute return investment strategy is one that seeks to deliver positive returns regardless of market direction.

2 A long-only investment strategy is one that only holds long positions in securities. A long position in a security is one that profits from a rise in the value of the security.

3 In this letter, we limit our discussion of bond math to the impact of yield and duration on the total return of an investment given a move in interest rates. Two additional concepts, the calculation of duration and the time value of money, are beyond the scope of this exercise. Please feel free to contact us to pursue these topics further.

We can illustrate this point with a simplified example. When interest rates rise 1%, a bond with a duration of X years can be expected to mark down X%. To break even in six months, that same bond would then need to yield (2X)%. Since interest rates (and yields) increased by 1% at the start of that six month period, that bond would need to yield (2X-1)% before the rate increase, assuming no further interest rate moves.<sup>4</sup> This can be thought of as a six-month absolute return yield hurdle. Not surprisingly, the shorter the duration (X) of the bond, the lower the hurdle (2X-1).<sup>5</sup>

U.S. Treasury Yield Curve (as of 12/31/2016)			
Maturity <sup>6</sup>	Yield <sup>7</sup> (Annualized)	Duration <sup>8</sup>	Hurdle (1% Move)
1M	0.4%	0.07	n/a
3M	0.5%	0.23	n/a
6M	0.6%	0.49	n/a
1Y	0.8%	0.99	1.0%
2Y	1.2%	1.97	2.9%
3Y	1.5%	2.92	4.8%
5Y	1.9%	4.74	8.5%
7Y	2.2%	6.44	11.9%
10Y	2.4%	8.82	16.6%
30Y	3.1%	19.52	38.0%

Source: Bloomberg Finance L.P., Zeo

It would be great if the solution to our fixed income problems was nothing more than such simple arithmetic, right? Unfortunately, if we look at actual yields in the marketplace, we can see this isn't as obvious as it seems. To the left is a table of Treasury yields of varying maturities, along with their durations and six-month absolute return hurdles for a 1% interest rate move. As it turns out, Treasury rates themselves do not yield enough to meet their hurdles. Furthermore, we haven't taken into account the possibility of larger interest rate moves, in which case the hurdles would be even greater. This means that, if one is targeting a portfolio with six-month absolute returns, one must either accept the low yields of Treasuries maturing in six months or less or accept a risk

premium to earn a spread in excess of the risk-free rate indicated by the corresponding Treasury instrument.<sup>9</sup>

It's counterintuitive to suggest that, if one aims to avoid losses, one may have to take on more risk than Treasuries, but it just goes to show what an unfamiliar environment today's fixed income investors are facing. Even the long-standing traditional approach to savings and cash management, the income duration ladder, is called into question.

## "Brilliantly Simple"

<sup>4</sup> We do not specifically discuss credit spread moves here, but the math is the same for credit spreads, substituting the credit spread sensitivity for interest rate duration as X. The credit spread, which is the excess return required to accept the risk of default of a bond issuer, is calculated as the yield (2X-1) minus a risk-free rate, which is typically the yield of a Treasury instrument with a similar maturity.

<sup>5</sup> Of course, bonds with maturities of 6 months or less will always be positive in 6 months regardless of interest rate moves, provided they do not default.

<sup>6</sup> Maturity is the date on which the issuer of a bond is contractually obligated to repay the principal value of the bond.

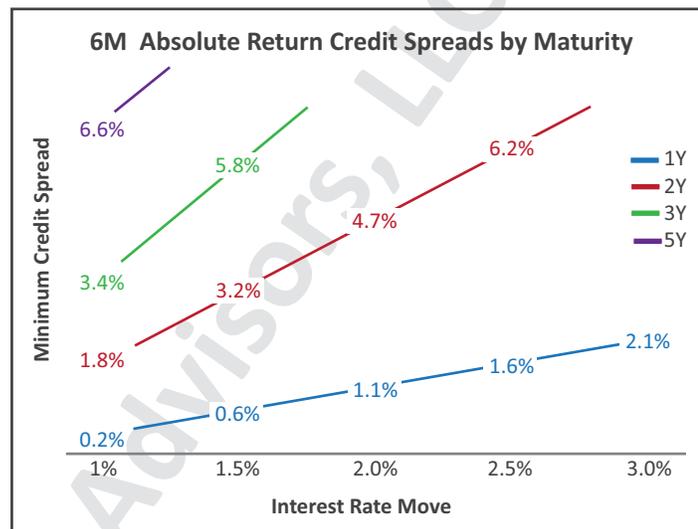
<sup>7</sup> Yield is the rate of income, expressed as a percentage of market price, that an investor earns when buying a bond at the market price.

<sup>8</sup> Duration, also called interest rate duration, is a term used by fixed income investors to describe the sensitivity of a bond's price to a change in interest rates.

<sup>9</sup> A risk premium is a term used to describe the excess return investors require to be willing to take a given risk. The risk premium is often represented as a spread to a risk-free rate. The risk-free rate is typically the yield of a Treasury instrument with a maturity similar to the timeframe of the investment. The spread is the yield in excess of the risk-free rate which investors require. One example of a risk premium is a credit spread, which fixed income investors require to compensate them for the risk of default, or non-payment by the issuer.

A similar thought process can be applied to portfolios of bonds such as ours. However, there are a variety of ways in which one can earn a risk premium, so it's worthwhile to delve deeper into the breakeven bond math from the previous discussion.

The least controversial option for most investors seeking to earn a spread above Treasuries is to focus in on investment grade bond portfolios. These strategies are comforting because the investment grade ratings of the underlying holdings imply a high level of safety. But even with investment grade bonds, we may have a challenge finding the necessary yield/duration balance. If we recalculate the six-month absolute return hurdles for interest rate moves from 1% to 3% and for maturities from 1 year to 5 years, we can calculate the minimum necessary risk premium (in the case of corporate bonds, the credit spread) to meet the necessary hurdle. These spreads are shown in the chart to the right. For ease of presentation, we eliminated the less relevant data points with risk spreads greater than 7%, an indicator of a level of risk and expected return more in line with equities than fixed income.



As a point of comparison, broad market 5-year investment grade credit spreads are currently well below 1% (compared to the 6.6% minimum spreads shown above). Even shorter investment grade maturities, with low absolute yields that don't offer much advantage to Treasury instruments, have spreads below the lowest minimum on the chart. Investors targeting these absolute return profiles seem to be forced to look elsewhere. It should be noted that this is not a new challenge and is not just a result of the abnormally low interest rate environment in which we find ourselves today. Investors have been seeking higher risk spreads in shorter duration strategies for decades.

Many strategies attempt to remain investment grade by moving to complicated structured products. This approach can potentially get additional yield, but the underlying risk is not trivial to understand. Others pursue alternative strategies which employ leverage or rely on the relative value of two instruments, often based on a quantitative model's assessments of value. Traditionally, such approaches have been the domain of hedge funds and other less-accessible investment managers, dramatically limiting the options of most investors who may have need for this approach to fixed income. A third option is to delegate risk selection to managers who tactically shift from asset class to asset class in an effort to be in the right markets at the right times. However, such an approach exposes investors to the risk a manager makes a mistake in his asset class selection. This manager selection risk is virtually impossible to avoid, as investors have little to no visibility into decisions which often depend on complex quantitative analyses incorporating many disparate variables.

Compared to these options, Zeo's approach of applying fundamental research to seek higher quality high yield bonds is easy to understand and easy to explain. By doing deep research

on the companies in which we invest, we aim to identify those high yield bonds which have risk characteristics more commonly found among investment grade companies. This profile cannot be achieved by indexing a short-duration high yield portfolio, which has an intentionally indiscriminate range of issuer credit qualities. To be more selective, one must invest vast amounts of time and effort in a rigorous research and portfolio construction process. But in the end, we can offer our clients a deliberately-selected, well-researched long-only bond portfolio that aims to deliver risk-adjusted returns<sup>10</sup> which we believe compares favorably to investment grade, alternative and tactical options and sets us apart from our peers.

Put another way, we purchase the best bonds we can find, put them into a short average duration portfolio, and let the bond math work. It's not easy, but in the words of one of our clients, it's "brilliantly simple".

### **What Does It Mean to "Risk-Adjust" Returns?**

To some, the term "risk-adjusted returns" conjures up images of numbers that allow for an apples-to-apples comparison of expected returns from a variety of investments with completely different risk profiles. This isn't much different from "tax-adjusted returns", in which investors apply their personal tax rates to their investment yields to compare taxable and tax-advantaged instruments. However, tax rates are verifiable quantitative values<sup>11</sup> whereas risk is not. For one, there are multiple risks in a single investment, and few are easily quantified. Furthermore, just determining what constitutes a risk may be a point of dispute for different investors.

Recognizing this difficulty, market participants have accepted several standard measures of risk, risk/reward and risk-adjusted returns. While two investors may disagree on what risks they are taking in the same portfolio, they are more likely to agree that the risks, whatever they may be, drive uncertainty and volatility. Furthermore, there is little dispute that market volatility and investment losses are major sources of heartburn, made worse by today's markets, replete with tactical trading strategies and short-term benchmark comparisons. There is little mystery, then, as to why the standard deviation<sup>12</sup> of an investment has become a well-accepted measure of risk for both individual investments and portfolios.

However, standard deviation, in and of itself, isn't enough. One can have two investments with comparable standard deviations but wildly different return profiles, and vice-versa. How then, can an investor get a sense of whether she is being paid well or poorly for the risk being taken? In 1966, future Nobel Laureate William Sharpe took on this very question and devised his eponymous metric, the Sharpe ratio – a measure of return per unit risk calculated by dividing an investment's outperformance over a risk-free rate ("excess return") by the standard deviation of its performance. Many of our readers will already know that having a high Sharpe ratio connotes a stronger risk/reward profile. After all, more excess return for the same volatility is obviously

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<sup>10</sup> Risk-adjusted returns refine investment returns by measuring how much risk is involved in producing those returns. These measurements are generally expressed as a number or rating which are then used to compare different investments.

<sup>11</sup> It is worth noting that the uncertainty of tax rates into the future and their variability from person to person may still make this type of return adjustment difficult and time-consuming.

<sup>12</sup> Standard deviation is a measure of the dispersion of a set of data from its mean. The standard deviation is higher if the data points are further from the mean, and vice-versa.

better, right? But there isn't much due diligence value to investors if the primary use of a Sharpe ratio is a qualitative "higher is better" comparison.

To put some quantitative rigor behind this metric, we believe it is worth remembering that the Sharpe ratio consists of an excess return and a standard deviation. Regardless of the actual values, we know that any two investments with a Sharpe ratio of 1.0 have a standard deviation equal to their excess returns. Therefore, we also know that both investments will have risk-free returns one standard deviation below their average total returns. This inflection point can be thought of as an opportunity cost boundary – any further down and one would have been better off owning the corresponding Treasury instrument and earning the risk-free yield.

This relative equivalence is a powerful observation. It allows us to describe the Sharpe ratio another way: the number of standard deviations to the downside before one reaches the opportunity cost boundary. When put in such terms, it becomes a simple and common statistical calculation to arrive at approximate probabilities of loss<sup>13</sup>, as seen in the table to the right. Most importantly, the probability of being above 0% excess return is the same for two investments with the same Sharpe ratio regardless of the actual values since they have the same number of standard deviations down to their opportunity cost boundaries.

Cumulative Probabilities by Sharpe Ratio	
Sharpe ratio	Probability of loss
0.25	40.1%
0.50	30.9%
0.75	22.7%
1.00	15.9%
1.25	10.6%
1.50	6.7%
1.75	4.0%
2.00	2.3%
2.25	1.2%
2.50	0.6%
2.75	0.3%
3.00	0.1%

*Source: Zeo*

When viewed as a quantitative measure of probability, we can better understand why institutional investors, when seeking strategies that aim to deliver absolute returns, tend to target Sharpe ratios of 1.5 and higher. We believe all fixed income investors seeking capital preservation may be well-served to seek similar risk profiles. Traditionally, high Sharpe ratios have been the domain of hard-to-access alternative strategies seeking equity-like returns. We reject that limitation and believe the prudent fixed income investor can achieve her goals using such metrics to find strategies which prioritize risk management principles as part of their investment processes. At Zeo, we believe this is a key characteristic of both our income strategy and our overall investment philosophy.

And what became of the philosophy student taking the exam at the beginning of this letter? Two hours and fifty-nine minutes later, the student finally writes something on the exam booklet and turns it in right as time runs out. The professor looks at the student's response:

<sup>13</sup> In this case, we consider any return below the corresponding risk-free rate to be a loss. In a normal distribution, one can calculate the cumulative probability of being above or below a value (in this case, 0% excess return) given the mean (average excess return) and standard deviation of that distribution. While investment results are not always normally distributed, we believe such calculations over long-term investment track records can reveal relative strengths and weaknesses that may be obscured by simple comparisons to benchmarks.

“Because.”<sup>14</sup> Brilliantly simple, indeed.

As always, we are available for your questions, comments or feedback. We thank you for your continued support and confidence in our management.

Sincerely,



Venkatesh Reddy  
Chief Investment Officer



Bradford Cook  
Portfolio Manager

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<sup>14</sup> For this answer, as the urban legend has it, he of course receives an “A”.

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