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JANUARY 2023

MAKING SENSE OF HIGH YIELD DEFAULT RATES

"IS NOW A GOOD TIME TO INVEST IN HIGH YIELD?" THIS IS A COMMON QUESTION WE HEAR FROM CLIENTS AND PROSPECTS. WE REFRAIN FROM OFFERING OUR OPINIONS ON WHETHER HIGH YIELD BONDS ARE LIKELY TO GAIN OR LOSE IN THE NEAR FUTURE, OR WHETHER SPREADS ARE GOING TO NARROW OR WIDEN.

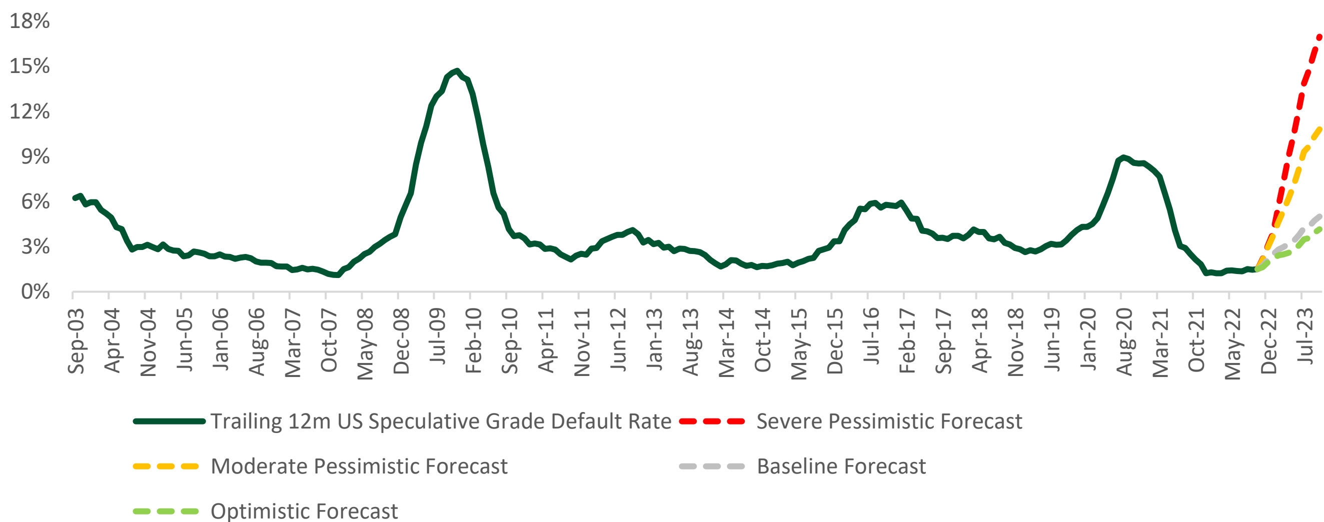
WE CAN, HOWEVER, OFFER SOME INSIGHT INTO WHETHER CURRENT SPREADS ADEQUATELY COMPENSATE INVESTORS FOR ASSUMING HIGH YIELD RISK.

There are many approaches to gauge the attractiveness of the current opportunity. One popular way is to simply compare current spreads to historical levels. In our view this is an overly naïve assessment, as the high yield universe composition changes over time (it is more skewed toward higher-quality bonds now than 10 years ago), and the underlying economic environment also changes over time. We believe that a bond's spread can be decomposed into providing compensation for expected default risk, the uncertainty around unexpected default risk, and illiquidity risk. Therefore, default and recovery rates should be the most important attributes for a bond investor, particularly for buy-and-hold high yield investors.

Default and recovery rates, which together constitute default losses, can have a material impact on investors' expectation of high yield excess returns (i.e. returns above Treasuries of equivalent durations). Given the elevated inflation levels and sudden end to 14 years of central bank quantitative easing, an assessment of defaults has become even more important as businesses face challenges adjusting their balance sheets and operating activities in the new regime. Within high yield we observed a continued focus on default prognostication, which is a positive development. What we find worrisome, however, is that investors may be misapplying generic and popularly quoted default metrics to their investment analyses. We hope to shed some light on this matter.

A frequently referenced default statistic is Moody's US speculative-grade default rate, and its trailing 12-month speculative-grade default rate was 1.5% as of October 31, 2022, with baseline forecasts expected to approach 5% (Figure 1).

Figure 1: Moody's 12-Month US Speculative-Grade Default Rate - Actual and Forecast[1]



[1] Moody's Investor Services. As of October 31, 2022.

With defaults expected to climb given the multiple headwinds issuers face such as higher interest rates, deglobalization and turbulence in supply chains, as well as continued geopolitical instability, investors may be asking what returns they expect to realize over the long-term by investing in the high yield market at current levels.

Return forecasts over a short horizon can be noisy as they are highly sensitive to uncertain capital gains and changes in overall risk appetite. To arrive at a stable and conservative estimate of expected excess return for a longer horizon investor, it is a common practice to use the worst-case, 5-year cumulative default rate estimates based on historical data that includes the Global Financial Crisis (GFC) period.

Worst-Case 5-year Annualized Expected Excess Return:

= Current 5-year OAS - Worst-Case 5-Year Realized Loss (annualized)

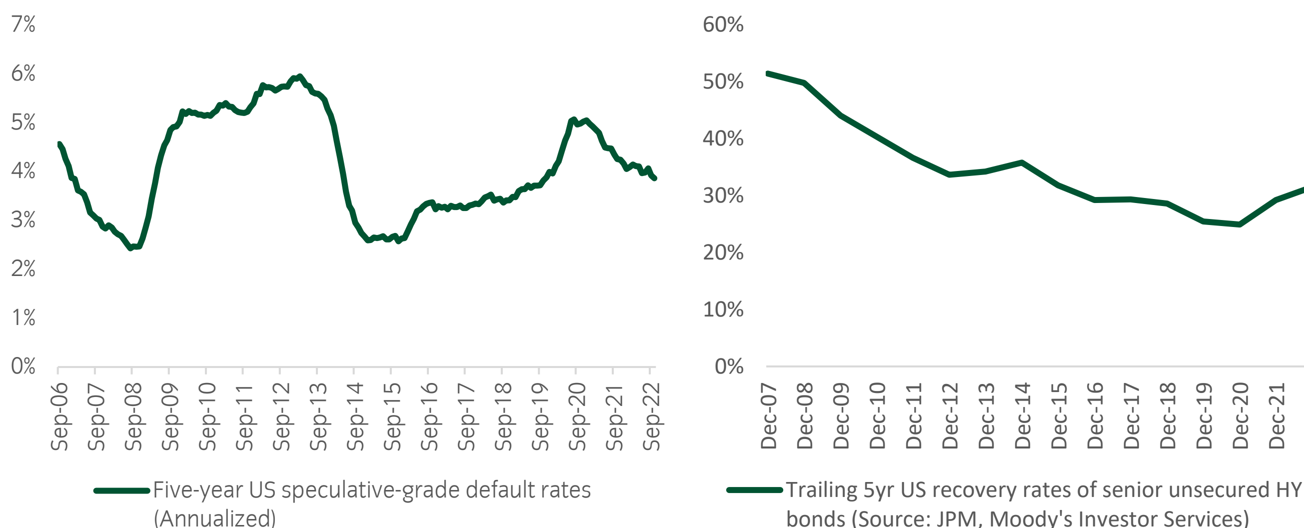
= Current 5-year OAS - Worst-Case 5-Year Realized Default Rate (annualized) * [1 - Worst-Case 5-year

Realized Recovery Rate (annualized)]

For option-adjusted spreads (OAS), analysts typically use a broad high yield index such as the Bloomberg US Corporate High Yield Index or the BAML Master II US High Yield Index. Since default rates on these indexes are not easily available, Moody's speculative-grade default forecasts are typically used as a proxy.

To illustrate this calculation, we compile Moody's realized default and recovery rates over rolling 5-year periods (Figure 2), shown in the graphs below. From these graphs, the highest 5-year annualized default rate is just below 6%, which aligns with the worst 5-year period around the GFC. The worst 5-year annualized recovery rate is about 30%.

Figure 2: Moody's trailing 5-year default and recovery rate[2]



The current Bloomberg US Corporate High Yield Index OAS is about 5%. Based on these numbers, it is commonly estimated that:

Worst-Case 5-Year Annualized Expected Excess Return = 5% - 6%*(1-0.3) = 0.8%

Using Moody's default-rate estimates, an investor in a broad high yield portfolio is expected to realize a worst-case annualized excess return of merely 0.8% over the next five years, which in our view would not justify the risk of investing in high yield bonds. This number can also be interpreted as high yield carry that has been adjusted for worst-case expected default losses, and is a conservative indicator of expected return for a buy-and-hold investor.

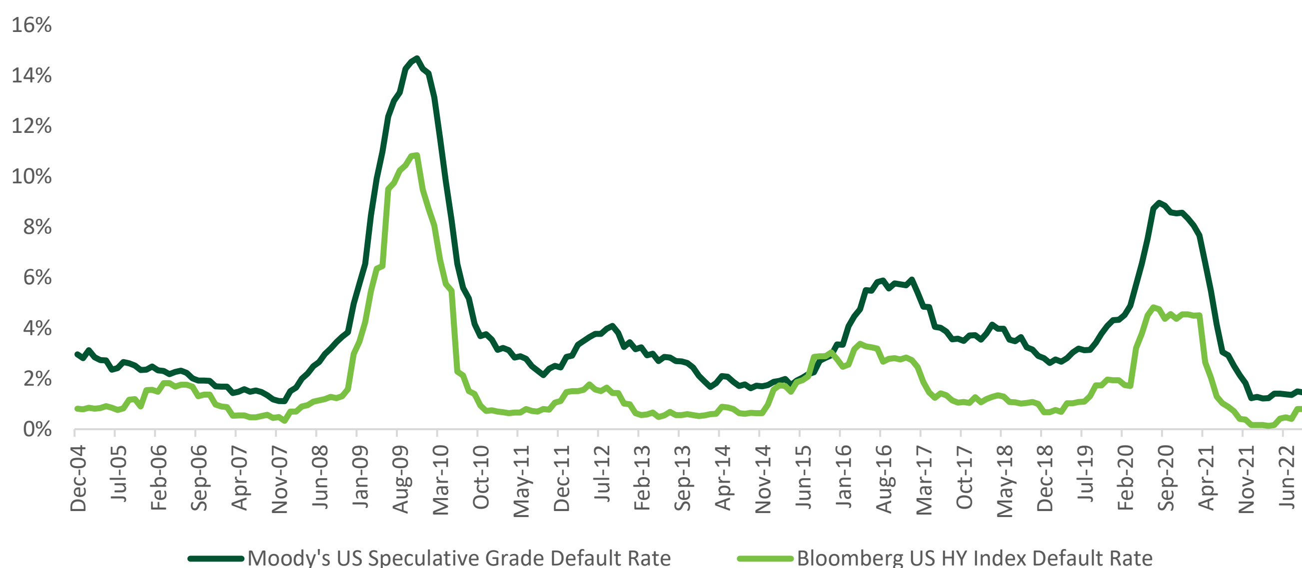
We believe this expectation does not represent reality, however, and constitutes a major flaw in the way many investors determine expected default rates. That is, the commonly used Moody's default rate is very different from that of a typical high yield portfolio that tracks one of the aforementioned broad indexes.

The graph below compares the two default rates. It suggests that the trailing 12-month default rate of an investable high yield index peaked at less than 7% after the GFC, which is roughly half of Moody's speculative grade default rate. This discrepancy has the potential

[2] Moody's Investor Services, October 2022

to influence investor expectations of worst-case excess returns. In other words, comparing Moody's default-rate expectations against the OAS of a high yield portfolio benchmarked to one of the broad indexes is an apples-to-oranges assessment that can produce an erroneous and ultimately useless expected return metric.

Figure 3: Trailing 12-Month Default Rate Comparison[3]



To better understand this issue, we highlight some key differences between the two default-rate calculations below.

Universe Composition: Moody's high yield universe consists of a broad set of speculative-grade companies that issue both fixed-coupon and floating-rate debt (including leveraged loans). The universe also includes unrated issuers, private companies and smaller entities that tend to have concentrated business models with higher default risk. High yield bond indexes, on the other hand, eliminate firms that have financed their operations through loans but have not issued any bonds. These are usually smaller firms, and by imposing a minimum issue-size cutoff of $150 million, index providers further eliminate small issuers (since issue and issuer sizes tend to be positively correlated). By doing size-based filtering, the indexes implicitly have a higher quality universe than the more general speculative-grade universe used in Moody's default-rate calculation.

Figure 4: Key Differences[4]

Weighting Methodology: Moody's estimation of the default rate is commonly done on equal-weighted basis, which can make the estimated default rate more sensitive to small-issuer defaults. In contrast, high yield indexes are typically capitalization weighted. Matching a cap-weighted OAS calculation requires a cap-weighted default rate estimation, which creates a tilt towards large companies that tend to be more safe and profitable. Cap weighting also skews the index towards "cheap" high quality bonds (i.e. fallen angels) as

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[3] Insight calculations on index constituents' data, October 2022

[4] For illustrative purposes only

they tend to be larger issuers and enter the index at a discount to par as a result of forced selling from investment grade mandates. While it is true that cap weighting can also tilt the index towards more prolific issuers and industry sectors, and could worsen the default experience in certain situations, we find that the overall emphasis on larger issuers helps to mitigate the risk.

Default Definition: High yield indexes use a rating aggregator approach (a combination of Moody's, S&P and Fitch) so once a name gets classified as defaulted it is removed from the index. In contrast, Moody's uses its own definition of default. Further, Moody's categorizes a distressed exchange as a default in its calculation, while high yield indexes do not. They treat it like any other downgrade event, with a likelihood of further credit deterioration or improvement.

Maturity Dates: Indexes exclude bonds with a maturity of less than one year while Moody's does not. This rule may help mitigate the index default rate during periods of heightened stress when near-term default risk is usually much higher than longer-term default risk and OAS curves also tend to flatten or invert.

Figure 5: Key differences explored[5]

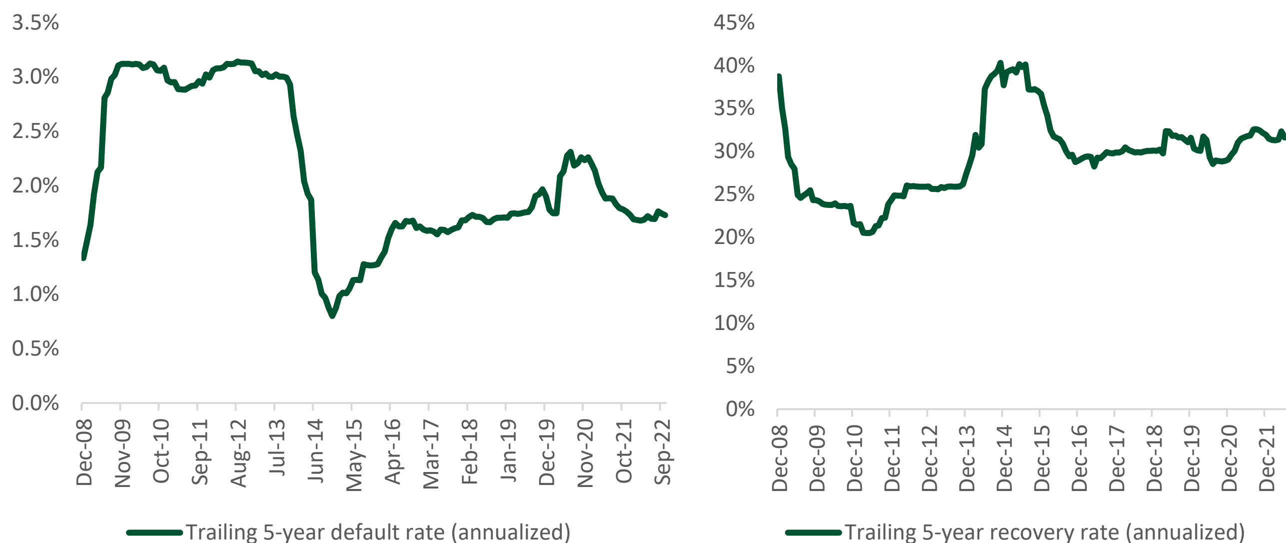
	Moody's US Speculative Grade Default Rate	Bloomberg US HY Index Default Rate
Universe Difference	• Broad universe of speculative grade issuers that are US domiciled and may have issued either fixed or floating rate debt • No explicit size cutoffs • Includes both rated and unrated entities as well as rated and unrated defaulters	• Universe of US dollar-denominated fixed coupon, corporate debt of non-emerging countries with issue size greater than $150 million • Issues must be rated high yield (BB or lower) by at least two of the following rating agencies: Moody's, S&P, Fitch • Includes both SEC registered bonds and SEC rule 144A securities
Weighing Methodology Difference	• In default rate calculation, all issuers (big or small) are equally weighted (an issuer weighted calculation)	• Capitalization weighted; to compute a matching default rate, all issuers are weighted in proportion to the par amount of their outstanding bonds (a par weighted calculation)
Default Definition Difference	• Moody's default definition Includes missed interest payments, bankruptcy filings and distressed exchanges	• Missed interest payments and bankruptcy filings are considered a default; after default issue is removed from the index • A distressed exchange is not explicitly considered as default; the credit remains in the index making a restructuring event equivalent to any other downgrade event with a possibility of subsequent credit improvement or deterioration • Following a distressed exchange, if the credit misses interest payments or files for bankruptcy it gets excluded from the index and is considered a default
Maturity dates	• Moody's universe includes all issues and issuers regardless of their maturity	• Excludes issues with less than one year remaining to maturity, helps in peak stress periods when near-term default risk rises

With these key differences in mind, we think it is more sensible to compare an index's OAS to the same index's historical and expected default rate to assess whether there is an adequate compensation for risk. Note that we are not claiming that Moody's estimates are wrong, rather we are saying that they are not applicable to a typical investable high yield portfolio.

Next, we calculate a conservative expected excess return using worst-case 5-year annualized default and recovery rates based on the Bloomberg US Corporate High Yield Index default history. Default and recovery rates for the index are shown below.

[5] For illustrative purposes only

Figure 7: Bloomberg US Corporate High Yield Index[6]



Worst-Case 5-year Index Expected Excess Return:

= Current 5-year Index OAS - Worst-Case 5-year Index Realized Default Rate (annualized) * [1 - Worst-Case 5-year Index Realized Recovery Rate (annualized)]

= 5% - 3%* (1-0.25) = 2.75%

Based on current OAS levels and the long-term, worst-case default and recovery experience of the index, a long-term investor can conservatively expect to realize a 2.75% annualized excess return. This revised number is substantially larger than our previous excess return estimate of 0.8%, which was calculated by applying broad Moody's default rate estimates to a high yield index portfolio. The new calculation is likely to affect an investor's view about the current opportunity in high yield bonds.

Base Case vs Worst Case Estimates

While the above analysis uses worst-case scenarios in order to derive a conservative estimate, we would argue that near-term default rates are unlikely to reach highs seen in the GFC or the Energy Crisis. High yield issuers are entering the current cycle with remarkably strong balance sheets, a result of taking advantage of cheap post-Covid funding in 2020 and 2021. Leverage ratios are low, interest coverage ratios remain strong, and we do not see significant debt maturities begin until 2025. As such, we would expect any potential recessionary environment to manifest itself in the form of downgrades rather than defaults. Given that US high yield defaults have been close to zero for the past two years, it is almost certain that they will rise. However a reasonable expectation given the strong balance sheets may be to see default rates approach historical averages of around 1% to 2%. Applying a historical average default rate of 1.5% and a historical average recovery rate of near 50% to the calculation would yield expected excess returns of 4.25% (5% - 1.5% * 0.5), which we believe represents a very robust risk premium and an attractive investment opportunity.

CONCLUSION

Default and recovery rates are paramount to investors' views of the high yield market. Determining whether high yield bonds are a good opportunity can be a difficult proposition even with a sound method and quality data. If any inputs are faulty, excess return estimates can be useless at best and misleading at worst. While Moody's speculative• grade default rates are useful in many contexts, they are unsuitable to calculate expected excess returns of broad high yield portfolios. We prefer index-specific default and recovery rate metrics to facilitate an apples-to-apples comparison with the Index OAS. In our view this approach can supply investors with a higher quality metric to determine high yield expected excess returns and better inform their investment decisions.

[6] Insight research on index constituents' data. As of October 31, 2022

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