



An Introduction to the Altman-NYU Salomon Center Index of Defaulted Debt Securities (December 2004)

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The Altman-NYU Salomon Center Index of Defaulted Debt Securities filled a void that had heretofore impeded the development of an institutional market in bonds and loans of defaulted companies. Prior to its inception in 1990, there had been no effective benchmark for measuring investment performance in the defaulted bond sector, in contrast to the situation in most other asset categories. Equity managers, for example, can compare their returns against indexes either broad (such as the New York Stock Exchange Index, the Standard & Poor's 500, the Value Line Index or the Wilshire 2000 Index) or narrow (such as the Dow-Jones Industrial Average, consisting of 30 stocks). In addition, rating agencies and brokerage firms have for many years published corporate bond indexes of varying levels of specificity (such as corporates of all ratings, noninvestment grade issues only or bonds of a single rating category).

Defaulted bonds, however, have been neglected, in fact excluded, for the most part, from noninvestment grade indexes. With the creation of the Altman-NYU Salomon Center Index of Defaulted Debt Securities, portfolio managers can measure themselves against a benchmark comprised exclusively of defaulted issues. Three defaulted debt Indexes are discussed below and presented for the period January 1987 through September 2004 for bonds, 1996-2004 for bank loans and also for a combined bond and bank loan index. All are updated on a monthly basis.

Specification of the Index

Constructing an Index requires numerous choices among alternative methodologies. After extensive analysis, the following specifications have been selected, based on an objective of creating a performance benchmark that is appropriate, fair and practical to use.

Criteria for Inclusion of Issues

To avoid biases that could arise from arbitrary selection criteria, the Altman-NYU Indexes include all public, nonconvertible corporate debt issues that have either filed for bankruptcy or defaulted on a scheduled interest or principal payment. The first observation date of a particular bond issue in our historical time series is either January 31, 1987 (if default occurred prior to that date) or the first month subsequent to default in the case of a post-January 31, 1987 default. For defaulted bank loans, the initiation of the Index was January 1996. A bond or loan is dropped from the Index once the issuer:

- Cures the default without filing for bankruptcy,
- "Reinstates" the issue by resuming interest payments,

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- Exchanges the original bond or loan for other securities or cash,
- Emerges from Chapter 11 reorganization proceedings, or
- Liquidates with or without making any distribution to creditors.

Pricing

In the interest of utilizing an unbiased, consistent database with an extensive history, the prices used in compiling the Altman-NYU Index were originally drawn from the monthly *Standard & Poor's Bond Guide*. We continued using this source until 1995 when we changed to using bid-side quotations from up to five securities dealers who make markets in the individual bonds and bank loans. The Defaulted Bank Loan Index actually started in December 1995. A Combined Defaulted Bond and Bank Loan Index also is calculated based on the market value weights of the two indexes.

As with corporate bonds generally, there is potential for variances between individual bid-side security quotes, actual transaction prices and true market valuations. The impact of pricing inaccuracies of this nature diminishes through the aggregation of many issues and many observation dates. Nevertheless, portfolio managers should recognize that any index of defaulted securities will be subject to the imperfect pricing inherent in a comparatively thinly traded market.

Weighting of Issues

Returns on the Index are calculated on the basis of a weighted average of market values. That is, each issue is weighted according to the product of its face amount outstanding and its price (as a percentage of par) as of the beginning of the measurement period. This weighting procedure eliminates distortions that would result in an arithmetic average system (i.e., equal weighting for each issue), from a large movement in an issue for which there is only a small amount outstanding. No one issuer is allowed to represent more than 10% of the size of the Index in terms of market value.

Comparability With Other Indexes

Ideally, yields and returns derived from an index of securities should be completely comparable with figures calculated for indexes of other asset categories. In the case of defaulted bonds and bank loans, however, full comparability with certain indexes is precluded by a technical problem related to the lack of current income on the securities.

Ordinarily, interest payments cease when a bond enters the Altman-NYU Index as a consequence of default or bankruptcy. From that point until the bond leaves the Index for one of the reasons listed above, its value is normally the present value (i.e., discounted cash flow) of an expected distribution at some point in the future. For example, if investors demand a 25% pretax internal rate of return and expect to receive 100% of par (with no accrued interest) in three years, the bond will be valued at 51.20 as of its initial inclusion in the Index. If the consensus scenario proves accurate, the bond will gradually appreciate to 100, the price that will be reflected when the bond is removed from the Index. As a result of this experience, the Index price will rise to reflect a 95% gain (from 51.20 to 100), multiplied by the market weighting

of the issue. Because most issues emerge from default or bankruptcy at higher levels than their initial post default/bankruptcy prices, the Altman-NYU Index will tend to rise over time.

The choice of our starting date reflects the fact that prior to 1987 there were comparatively few qualifying issues available for inclusion in a defaulted bond index. The number of bond issues comprising the Altman-NYU Index has ranged from an average of 39 in 1997 to an average of 219 in 1991. Near the end of 2004, the size of our Defaulted Bond Index was \$34.5 billion (face value) and \$16.2 billion (market value). The Defaulted Loan Index had about the same market value. See Figures 1 and 2 for the size of our Defaulted Bond and Bank Loan Indexes from 1987-2004 (Bonds) and 1996-2004 (Bank Loans). The size is noted in terms of face value, market value, number of issues and firms.

Correlations with Other Asset Categories

One attraction of investing in defaulted debt issues is the potential opportunity to add a positive-return asset class that displays low correlations with other assets in a portfolio. A diversification benefit, i.e., a reduction in overall return variability, would then result.

The empirical evidence supports the notion of a diversifying effect through the addition of defaulted bonds and/or bank loans to a portfolio consisting of other assets such as equities and noninvestment grade (but nondefaulted bonds). Figure 3 indicates a correlation of 0.26 with the S&P 500 equity index and also a higher correlation (0.61) between the Altman-NYU Index and the Citigroup High Yield Index (which eliminates defaulted issues once the price impact of their default has been captured). The correlation between defaulted bank loans and equities is even lower (Figure 4). Indeed, for the entire period 1996-2004 this correlation is negative (-0.02) based on monthly returns and only +0.19 based on quarterly returns. Evidently, the forces influencing the price behavior of defaulted issues differ significantly from the factors that move either common stocks or nondefaulted high yield bonds. Both of the latter categories, one should note, produce a meaningful portion of their returns in the form of current income, in contrast to the appreciation-only returns generated by defaulted bonds.

Conclusion

The Altman-NYU Index of Defaulted Debt Securities enables portfolio managers to measure their returns in defaulted bonds and bank loans against a universe of issues in the same asset class. The Indexes also permit investors to measure historical returns on defaulted securities and to calculate the potential diversification benefits of owning them within a broader portfolio. Although its use entails certain constraints related to pricing and somewhat imperfect comparability with other indexes, the Altman-NYU Salomon Center Indexes nonetheless can be a useful tool in the management and measurement of defaulted debt securities.

For more information on how to subscribe to the monthly newsletter of the Altman-NYU Salomon Center Index of Defaulted Debt Securities and quarterly and annual reports, please call Lourdes Tanglao at (212) 998-0701 or send an email to ltanglao@stern.nyu.edu and/or visit the Salomon Center's website at <http://www.stern.nyu.edu/salomon>.