# Recovering from record defaults

The growing number of defaults by rated companies is giving rise to interest in systems predicting recovery rates. Standard & Poor's **Roger J Bos**, **Kevin Kelhoffer**, and **David Keisman** report.

The current heavy default cycle, which seems to be peaking with the number of defaults by rated companies hitting an all-time high two years in a row, has created a heightened interest in analysing ultimate recovery. While these higher default rates have been met with increasingly negative investor sentiment towards recovery rates, an investor's individual view of recovery rates usually depends on the investor's definition of recovery (trading price immediately after default or ultimate recovery) and the type of debt in default.

While it is true that default is systemic (the entire balance sheet usually defaults), it is also true that recovery is individual and that an instrument's structuring (seniority, amount of debt contractually subordinated, quality of collateral and covenants) plays a crucial role. It is this instrument-specific data that sets the Standard & Poor's US Loss Recovery Database (Loss Database) apart from other providers of recovery data. The Loss Database demonstrates the importance of collateral, debt cushion, and other variables that influence recovery rates. In other words, it is not enough to know an instrument's seniority on the balance sheet; the collateral securing it and its debt cushion are also very important factors.

For example, the average recovery rate for bank loans secured by all assets or current assets is 87%, while the rate for unsecured bank loans is only 69%. Senior secured bonds provide a good example of the importance of a debt cushion (the amount of debt contractually subordinated as a percentage of total debt). Of senior secured bonds with a large debt cushion (50% or more of the debt contractually subordinated) an average of 79% recovered, while those without (a debt cushion of less than 50%) recovered only 41% of the time (see 'debt cushion analysis' below).

In addition, instruments are classified as well structured, less well structured, or poorly structured. Well-structured instruments are those with a debt cushion of 50% or greater and secured by current assets or all assets. On the other end of the spectrum, poorly structured debt has a much smaller debt cushion and is unsecured or secured by low-quality assets such as second liens, common stock of subsidiaries or intercompany debt. The broad range of debt between these two extremes is referred to as less well structured.

The Loss Database contains more than 1,600 instruments that defaulted and emerged from bankruptcy between 1988 and 2001. The average ultimate recovery rate for this database is 51.9%. A review of the Loss Database shows certain trends in recovery rates:

- Overall recovery rates are decreasing.
- Well-structured debt is maintaining its recovery level significantly better than less well-structured debt.
- The lower recovery rates are being magnified by the reduced quality of instruments received at emergence by owners of the prepetition debt in settlement of the default.

These trends reinforce Standard & Poor's view that recovery is not simply a number, but a behaviour dependent on many factors, among them seniority, debt cushion, collateral quality, economic/default cycle, active management of debt instruments, and settlement quality.

The Loss Database reported on here contains data on US companies. In addition to the above behavioural factors, recovery rates are also influenced by legal and cultural issues that vary by jurisdiction. While results will likely differ in different jurisdictions, some of the behavioural patterns seen in the US data may well be repeated in other countries.

### Recovery methodology

The Loss Database is the only commercially available database that measures ultimate recovery (the recovery achieved upon emergence from default). All other recovery databases base their recovery rates on trading prices of defaulted instruments. Some databases use the trading price immediately after default and others use the trading price about 30 days after default to allow more time for the price to absorb the market information. Another important distinction between the two methodologies is that while trading prices are immediately observable, ultimate recovery is a very analysis-intensive exercise of tracing the post-emergence instruments until they can be valued, and thus is not known until shortly after emergence, at the earliest.

These two methodologies serve distinct segments of the fixed-income market. Those working in structured finance and derivatives focus primarily on trading prices while portfolio managers and distressed-debt traders need the extra level of analysis provided by ultimate recovery.

The Loss Database provides an extra level of analysis for holders of defaulted instruments to draw upon when developing their

trading decisions. In addition, ultimate recovery provides a measure of true economic loss, while recovery based on trading prices is really only a measure of paper loss at a point in time. All holders at emergence can obtain the ultimate recovery measured by the Loss Database, whereas not all holders of an instrument can sell out at an indicated trading price without making a substantial impact on market prices, especially when dealing with distressed securities.

The difference between the two is a matter of market efficiency, and a forthcoming commentary article by Standard & Poor's indicates that while trading prices accurately predict the ultimate recovery for instruments on the lower end of the seniority spectrum, the divergence grows when dealing with more senior debt and bank loans. Likewise, trading prices seem unable to discriminate between well-structured debt and its poorly structured cousins.

#### Recovery rate behaviour by instrument type

The Loss Database tracks the (nominal and discounted) recovery the holders of each class of debt receives once the issuer emerges from bankruptcy and the new instrument becomes marketable. Table A shows summary data for all 1,618 instruments that have defaulted since 1988 and emerged. These numbers show the added value of being in a more senior class of debt instrument – in terms of both higher expected recovery and lower standard deviation – in the event of default. Discounted recoveries are derived from nominal recovery rates by discounting by the interest rate existing just prior to bankruptcy (the effective prepetition interest rate).

The mean and median statistics show the usual skewed behaviour of recoveries. Bank debt and senior secured bonds have a higher median than mean, reflecting the fact that a significant portion of this debt recovers 100%. The opposite reasoning holds for subordinated debt classes in which most instruments have recoveries below the mean. Users should also note the high standard deviations and their implications for the mean recovery. Standard & Poor's has much more confidence in the reliability of the mean bank debt and senior secured bond recovery figures than in the others because for these two categories the mean is much higher than the standard deviation, whereas for lower seniority debt, the recovery is more of a random event than a predictable result that can be modelled.

#### Recent recovery rates

A comparison of recent with past recovery rates can be performed by comparing the most recent four-year period (1998-2001), in which the current heavy default cycle began to accelerate, with the entire period covered by the Loss Database (1988-2001). Although these periods overlap, it is still possible to observe trends while also presenting a maximum amount of data in a limited number of tables and charts. Not surprisingly, ultimate recovery rates for instruments that emerged from bankruptcy between 1998 and 2001 are significantly lower than rates for the entire period. Table B shows that the decrease in recovery rates has been felt across the board. The next section shows that this is at least partially due to the recent declines in settlement quality.

#### Settlement quality

Settlement quality refers to the seniority of the instruments received at emergence by owners of the prepetition debt in settlement of the default (the post-emergence instruments) compared with the original instrument held when the company defaulted (the prepetition instrument). The best possible post-emergence instrument is cash because it is immediately liquid and of known value. The next best is a bank loan or senior secured debt because these instruments have high seniority. The 'other' column in table C comprises instruments ranging from senior secured bonds to common stocks and warrants. These types of instruments are significantly less desirable as post-emergence instruments because they can take a long time to value in the marketplace as they may not start trading immediately and they would have a very low priority of payment should a subsequent default occur. Table C is an equally weighted measure of post-emergence instruments versus prepetition instruments. For example, defaulted bank debt received cash as a settlement 40% of the time (an improvement in quality), new bank debt 40% of the time (same quality) and new senior secured bonds, new senior unsecured bonds or other securities 20% of the time (a decrease in quality).

Table D shows whether the settlement quality of each type of prepetition instrument improved, declined or remained unchanged for two time periods (1991-2000 and 2001).

**A. Discounted recovery for 1988-2001**

| | Mean recovery (%) | Median recovery (%) | Standard deviation (%) | Count |
|---|---|---|---|---|
| Bank debt | 83.5 | 100 | 27.3 | 528 |
| Senior secured bonds | 68.5 | 79 | 31.8 | 204 |
| Senior unsecured bonds | 48.8 | 41 | 36.3 | 247 |
| Senior subordinated bonds | 34.4 | 24 | 32.5 | 278 |
| Subordinated bonds | 31.7 | 18 | 35.1 | 321 |
| Junior subordinated bonds | 18.7 | 5 | 30.0 | 40 |

*Source: Standard & Poor's US Loss Recovery Database*

**B. Recoveries by time period**

| | 1998-2001 | | 1988-2001 | |
|---|---|---|---|---|
| | Mean recovery (%) | Count | Mean recovery (%) | Count |
| Bank debt | 75.6 | 138 | 83.5 | 528 |
| Senior secured bonds | 48.5 | 21 | 68.5 | 204 |
| Senior unsecured bonds | 33.5 | 86 | 48.8 | 247 |
| Senior subordinated bonds | 17.7 | 55 | 34.4 | 278 |
| Subordinated bonds | 18.2 | 29 | 31.7 | 321 |
| Junior subordinated bonds | 2.5 | 4 | 18.7 | 40 |

*Source: Standard & Poor's US Loss Recovery Database*

**C. Settlement quality 1998-2001**

| | | Post-emergence securities (%) | | | |
|---|---|---|---|---|---|
| | Cash | Bank debt | Senior secured bonds | Senior unsecured bonds | Other |
| Bank debt | 40 | 40 | 5 | 4 | 11 |
| Senior secured bonds | 40 | 1 | 38 | 4 | 17 |
| Senior unsecured bonds | 30 | 0 | 6 | 24 | 40 |

*Source: Standard & Poor's US Loss Recovery Database*

### D. Settlement quality 1991-2001 vs. 2001

| | Improved (%) | | Declined (%) | | Unchanged (%) | |
|---|---|---|---|---|---|---|
| | 1991-2000 | 2001 | 1991-2000 | 2001 | 1991-2000 | 2001 |
| Bank Debt | 42.0 | 42.0 | 10.5 | 44.0 | 47.5 | 14.0 |
| Senior Secured Bonds | 27.8 | 12.5 | 44.7 | 37.5 | 27.5 | 50.0 |
| Senior Unsecured Bonds | 41.9 | 25.0 | 41.4 | 57.7 | 16.7 | 17.3 |
| Senior Subordinated Bonds | 25.6 | 15.4 | 66.0 | 80.8 | 8.4 | 3.8 |
| Subordinated Bonds | 36.1 | 25.0 | 53.3 | 62.5 | 10.6 | 12.5 |
| Junior Subordinated Bonds | 15.8 | 0.0 | 77.2 | 100.0 | 7.0 | 0.0 |

*Source: Standard & Poor's US Loss Recovery Database*

### E. Average recovery based on debt cushion

| | Debt cushion less than 50% | | Debt cushion greater than 50% | |
|---|---|---|---|---|
| | Recovery (%) | Count | Recovery (%) | Count |
| Bank Debt | 68.7 | 96 | 87.0 | 427 |
| Senior Secured Bonds | 41.2 | 57 | 79.0 | 147 |
| Senior Unsecured Bonds | 43.4 | 112 | 53.2 | 135 |
| Senior Subordinated Bonds | 28.0 | 134 | 40.4 | 144 |
| Subordinated Bonds | 31.6 | 298 | 33.1 | 23 |
| Junior Subordinated Bonds | 19.2 | 38 | NM | 2 |

*Source: Standard & Poor's US Loss Recovery Database*

Comparing settlement results for 2001 with the average from 1991-2000, Standard & Poor's found that the quality of instruments bank loan holders received in settlement declined. For both periods the percentage of bank debt that improved did not change, but the amount that declined increased to 44% in 2001 from 10.5% in 1991-2000. Since the amount that improved remained the same, all the movement was from the 'unchanged' to the 'declined' category.

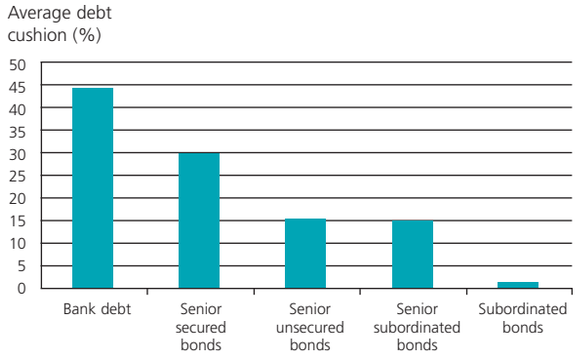
The results for bonds are even more discouraging. In every bond type the percentage that improved in 2001 was always lower than in the 1991-2001 period and the percentage that declined was usually higher in 2001 than in 1991-2000.

#### Debt cushion analysis

Debt cushion is one of the key variables Standard & Poor's uses to describe the recovery behaviour of a defaulted instrument. Debt cushion is the amount of debt on the balance sheet that is contractually inferior to a given instrument. Hence, it refers to debt that will act as a cushion to absorb first losses in the case of bankruptcy. Standard & Poor's measures debt cushion as of the nearest preceding SEC filing to the bankruptcy filing. Instrument type is a good initial indication of where an obligation stands in payment priorities and therefore its expected recovery rate.

Not only is debt cushion positively related to seniority (see chart 1), but it also reveals additional information relevant to recovery that is not captured in seniority (see table E). As expected, the average debt cushion for an instrument type is highly correlated to the seniority of the instrument on the balance sheet. Bank debt almost always has a large debt cushion while subordinated bonds and junior subordinated bonds seldom have any debt cushion at all. However, despite the highly correlated nature of these two variables, adding knowledge of the debt cushion provides a great deal of information helpful to estimating future recovery behaviour. While all bank debt has an average recovery of 83.5%, bank debt with a high debt cushion has a slightly higher average recovery of 87% and bank debt with a low debt cushion usually recovers only about 69% of the time. The fact that the overall bank debt average is similar to the average for the high debt cushion subset reflects bank debt's customary large debt cushion. The average recovery spread between bank debt with a high debt cushion and that with a low debt cushion is more than 18%. For senior secured bonds the spread widens to almost 38%. Clearly, not all senior secured bonds are the same.

### 1. Average debt cushion by instrument type




*Source: Standard & Poor's US Loss Recovery Database*

#### Collateral analysis

The Loss Database has 16 types of collateral, one of which is an all-encompassing category (all assets) and a second one that is similar but excludes assets specifically set aside for other debt (most assets). Based on past recovery research, Standard & Poor's combines these 16 collateral categories into four classes. Class 1 contains current assets such as all assets, cash, inventory and receivables. Class 2 is comprised of non-current assets such as most assets, equipment, plant, PP&E, oil and gas reserves, and real estate. Class 3 contains less desirable collateral such as intercompany debt, capital stock of operating units and second liens. Finally, class 4 is reserved for unsecured debt. Chart 2 shows the breakdown of instruments in the Loss Database by collateral class. Debt below senior secured bonds is generally unsecured and thus is excluded from chart 2.

For the most part, bank debt is collateralised by all assets or current assets. Senior secured bonds are fairly dispersed among the top three collateral classes. Senior unsecured bonds fall in the last class by definition, as do the lower seniority instruments by convention.

Table F shows the average recovery rate for each instrument type categorised into four collateral quality classes, as well as the number of observations in parentheses. The table shows that collateral has a significant impact on ultimate discounted recovery. For the most part, instruments of similar seniority have a better recovery rate when secured by higher quality collateral. Note that the number of observations is in parentheses.

(see how this table is treated in the RD version)

#### Vive la structure

These trends reinforce the importance of debt structure. Collateral quality and debt cushion together provide the best estimate of the

expected behaviour of recoveries. In table G a subset of bank debt and senior secured bonds – only those instruments backed by the highest quality assets (cash, inventory, receivables or all assets) – and the effect of debt cushion on recovery over time are examined.

Whereas bank debt in general recovered an average of 83.5% (see table A) during 1988-2001 and only 75.6% during the last four years (see table B), well-structured bank debt saw a much more modest deterioration of 1.3%, to 88.7% in 2001 from 90% in 1988-2001. The same holds true for senior secured bonds with a solid debt cushion. For bank debt and senior secured bonds without a large debt cushion, there is a little more deterioration in recent recovery rates, but still much less than for the category as a whole, including lower ranked instrument types.

Due to the high standard deviation observed in recovery rates (see table A), the analysis of well-structured instruments applies primarily to bank debt and senior secured bonds because of a higher confidence in the reliability of the recovery figures. Another benefit of analysing a well-structured subset of the data is that such subsets tend to exhibit a marked decrease in standard deviations. For further information about the higher recovery rates historically obtained by well-structured instruments, please see "Ultimate Recovery Remains High for Well-Structured Debt" in the Feb. 13, 2002 issue of CreditWeek.

### The Standard & Poor's US Loss Recovery Database

The Standard & Poor's/PMD Loss Recovery Database has more than 1,600 debt instruments issued by about 450 US companies that have defaulted and emerged since 1988. (In addition to companies that have filed for bankruptcy, the Loss Database also includes companies that had a default that was subsequently cured and those that have completed a distressed exchange or some other debt restructuring outside of bankruptcy.) The Loss Database presents detailed information on the type of debt, its seniority on the balance sheet, its collateral, industry, coupon, maturity and other financial information, as nominal and discounted ultimate recovery. The Loss Database does not define recovery as the trading price 30 days after default, as many market participants do. For this reason, Standard & Poor's often uses the term 'ultimate recovery'. As a result, the Loss Database includes only companies that have emerged from default. Nominal ultimate recovery is determined from one of three methods:

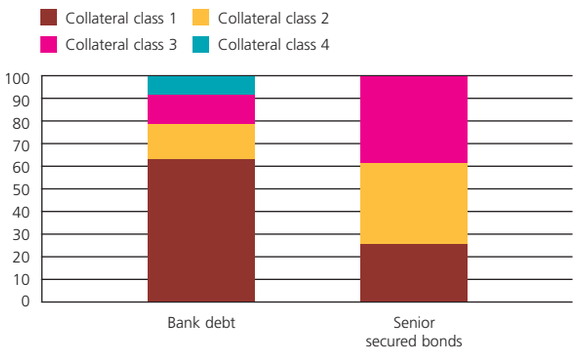
- Emergence price – trading prices of prepetition instruments at the time of their emergence.
- Settlement price – the earliest available public trading prices of new instruments received as a result of the settlement.
- Liquidity event price – the value received as a result of an acquisition, refinancing, further bankruptc, or distressed exchange.

The discounted ultimate recovery is calculated by discounting the nominal ultimate recovery by the instrument's prepetition interest rate. The discounting time frame is from emergence date back to the last date on which a cash payment was made. All the recovery statistics mentioned in this article are discounted ultimate recovery.

### Conclusion

This report summarises the latest findings of the Loss Database, which has now been updated to include companies that emerged from bankruptcy up to 2001. Looking beyond instrument seniority,

**2. Breakdown by collateral class**




*Source: Standard & Poor's US Loss Recovery Database*

**F. Average recovery by collateral class**

| | Class 1 | Class 2 | Class 3 | Class 4 |
|---|---|---|---|---|
| Bank Debt | 86.6% (341) | 88.0% (73) | 73.8% (67) | 68.8% (48) |
| Senior Secured Bonds | 76.3% (53) | 69.3% (74) | 62.4% (77) | n/a |
| Senior Unsecured Bonds | n/a | n/a | n/a | 48.8% (244) |
| Senior Subordinated Bonds | n/a | n/a | 62.4% (8) | 33.5% (267) |
| Subordinated Bonds | n/a | n/a | 22.2% (2) | 31.8% (320) |
| Junior Subordinated Bonds | n/a | n/a | n/a | 18.7% (40) |

*Source: Standard & Poor's US Loss Recovery Database*

**G. Best collateral recoveries by time period and debt cushion**

| | 1998 - 2001 | | 1988 - 2001 | |
|---|---|---|---|---|
| | Cushion < 50% | Cushion >= 50% | Cushion < 50% | Cushion >= 50% |
| Bank Debt | 61.4% | 88.7% | 67.0% | 90% |
| Senior Secured Bonds | 37.3% | 96.0% | 40.5% | 89.0% |

*Source: Standard & Poor's US Loss Recovery Database*

Standard & Poor's concludes that debt cushion and collateral quality provide significant additional detail that allows users of this database to derive better estimates of expected recovery rates and their associated standard deviations.

It is still too early to determine whether recovery rates for bank debt and for bonds will begin to move towards historic averages. Unfortunately, the overall picture will probably remain somewhat grim as currently more than 33% of dollar-weighted defaulted debt tracked by Standard & Poor's Risk Solutions is from telecom companies, with another 15% from telecom-related industries. Recovery rates for the few telecom names that have emerged in the last couple of years have been very low, and the current trading prices for defaulted telecom debt are often in the single digits. In addition, recovery rates are a lagging indicator and should not be expected to improve at the early stages of an economic recovery.

In summary, recovery rates for all types of debt are lower than historic averages and it is quite understandable why investors are longing for the good old (pre-1998) days of low default rates and high recovery rates. While the amount of actual pain varies significantly according to debt types and willingness to hold defaulted debt, investors do have good reason to wish that they could party like it's 1997. ■