

The Loss Curve and Yield Sensitivity of Below-Investment-Grade Residential Mortgages

Much attention is paid to the amount of credit enhancement in nonagency transactions, and deservedly so.⁹ As the credit protection for A-quality jumbos has fallen significantly over the past few years, concern (particularly among below investment-grade investors) grows about whether required credit enhancement is sufficient to realize meaningful yields. We have provided loss sensitivity analysis on the double-B rated class, as well as the entire below-investment-grade piece, found in a typical nonagency transaction recently issued. Furthermore, we have used a similar analysis to project cumulative losses for the life of a pool and after three years of seasoning.

The major conclusions follow:

- For realistic loss assumptions, double-Bs maintain a steady yield profile, above 10%.
- In a favorable loss environment, the entire below-investment-grade piece provides a yield above 12%, while still managing a positive yield in worse-than-expected scenarios.
- At 50% of the standard default assumption (SDA) curve, cumulative losses resemble those experienced from the 1993-1996 origination years in the jumbo-A sector.
- For benchmark purposes, cumulative losses between 10bp and 20bp after three years should be sufficient to realize a 10% yield at the double-B level.
- In addition to SDA, loss severity is a crucial element in realizing expected yield.

Subordinates provide stable loss-adjusted yields given past credit performance.

Double-B Yield Sensitivity

To determine loss-adjusted yields for double-B subordinates, we used a typical 0.30% class size supported by 0.45% credit enhancement. In addition, we assumed a constant prepayment speed of 275% PSA and 12 months to liquidation. We ran the analysis to show a range of SDAs (25%, 50%, and 100%) and loss severities (25% and 35%) that account for reasonable and pessimistic scenarios.

The SDA curve is defined by a series of annualized default rates, which vary month by month during the life of a mortgage. The SDA curve projects default rates which are applied to a pool's remaining principal balance. Therefore, cumulative defaults depend on prepayment rates. At a constant SDA, lowering the prepayment assumption results in higher cumulative losses, depending on loss severity.¹⁰

⁹ See *Bond Market Roundup: Strategy*, Salomon Smith Barney, January 29, 1999.

¹⁰ See *A New Default Benchmark for Pricing Nonagency Securities*, Salomon Smith Barney, July 22, 1993, for a detailed explanation of the SDA curve.

Figure 42. Loss-Adjusted Yields for BB-Rated MBS^a Priced at \$77.500 @ 275% PSA

SDA	Yield ^b	
	25% Loss Severity	35% Loss Severity
25%	10.57 %	10.58 %
50	10.58	10.60
100	7.42	-20.48

^a Assumes 0.30% tranche size and 0.45% credit support. ^b 12 months to liquidation.
Source: Salomon Smith Barney.

Double-Bs hold up well under pessimistic default scenarios.

Double-B rated classes achieve a stable loss-adjusted yield across most scenarios. As shown in Figure 42, the double-B's yield, priced at 575bp/ten-year, is between 10.57% and 10.60% at 25% and 50% SDA and 25% and 35% loss severity. A combination of high defaults and loss severity will drive the double-B's yield down. As shown, at 100% SDA and 25% loss severity, the bond realizes a 7.42% yield, but as severity increases, that yield falls dramatically.

Below-Investment-Grade Yield Sensitivity

Investors who participate in the below-investment-grade sector occasionally purchase all the classes in a transaction, owing to a preference for larger investment size. Accordingly, we combined the 0.30% double-B with the 0.20% single-B and the 0.25% first-loss (non-rated) class (a total of 0.75% of the pool which supports the triple-B class). We then performed the analysis on this combined class to measure its loss-adjusted yields.

Figure 43. Loss-Adjusted Yields for Combined Below-Investment-Grade Classes^a Priced at \$56.389 @ 275% PSA

SDA	Yield ^b	
	25% Loss Severity	35% Loss Severity
25%	13.57 %	12.30 %
50	10.57	7.66
100	2.41	-27.52

^a Assumes 0.75% combined class size. ^b 12 months to liquidation.
Source: Salomon Smith Barney.

Combined classes provide better size and potentially greater yields.

The loss-adjusted yields improve in favorable scenarios and worsen in less favorable ones when measured against the entire below-investment-grade piece. At 25% SDA, the combined class realizes a 13.57% and 12.30% yield at 25% loss severity and 35% loss severity, respectively. At 50% SDA and 25% loss severity, the combined class yields 10.57%, the same as the double-B in the identical scenario. When measuring the combined class against either higher SDAs or loss severity, the yield falls significantly to positive single-digit yields (see Figure 43). However, when measured against higher SDAs and loss severity, the yield falls into negative territory.

Cumulative Loss Estimates

Losses since 1993 have been minimal.

Loss performance in the jumbo-A sector has improved dramatically since the 1989-1991 origination years. It has been well documented throughout the past few years just how extraordinary performance in the following origination years has been.¹¹

¹¹ See *Bond Market Roundup: Strategy*, Salomon Smith Barney, October 24, 1997, for example.

Although losses from 1995, in general, appear to be higher than from the surrounding years, losses from the 1993-1996 origination years overall reflect significant improvement. In fact, credit performance from 1997, 1998, and 1999 may be even better than from the preceding origination years because of the creation of the alt-A sector, which effectively has removed many of the riskier loans from the jumbo-A population.

We are seeing loss performance equivalent to approximately 25% SDA...

When projecting cumulative losses, again we turn to the SDA curve to assist us in measuring the impact of defaults and loss severity on pool performance. Figure 44 shows lifetime cumulative losses as a percentage of original principal balance for the same scenarios used in our earlier analyses. As shown, at 25% SDA and either 25% or 35% loss severity, cumulative losses amount to less than 0.20%. Perhaps this is a likely scenario for transactions with pristine collateral attributes issued in the past few years.

... but the credit structure is equipped for greater SDAs.

At 50% SDA, cumulative losses ranging from 0.27% to 0.38% seem to fit our loss expectations for 1993-1996 pools (although several pools are performing better than expected). Finally, at 100% SDA, losses ranging from 0.54% to 0.76% (see Figure 44) at 25% and 35% loss severity, respectively, would underperform the expectations that most market participants have for these pools.

Figure 44. Lifetime Cumulative Losses as a Percentage of Original Principal Balance @ 275% PSA

SDA	Cumulative Loss	
	25% Loss Severity	35% Loss Severity
25%	0.14 %	0.19 %
50	0.27	0.38
100	0.54	0.76

Source: Salomon Smith Barney.

Figure 45. Cumulative Losses as a Percentage of Original Principal Balance After Three Years @ 275% PSA

SDA	Cumulative Loss After Three Years	
	25% Loss Severity	35% Loss Severity
25%	0.06 %	0.09 %
50	0.12	0.17
100	0.24	0.34

Source: Salomon Smith Barney.

Look for losses under 20bp after three years.

One way to gauge the performance of less seasoned jumbo-A pools versus their eventual lifetime (cumulative) loss is to examine the performance three years after issuance. Many analysts use this point in the seasoning curve because historically it has provided us with a reliable benchmark for determining the ultimate performance of a pool. Figure 45 measures cumulative losses after three years in SDA terms. Cumulative losses of less than 20bp (about 50% SDA at 275% PSA, as shown in the figure) are encouraging when sustained after three years. Ultimately, 50%-75% SDA should provide the double-B and the combined subordinate classes (and, although not shown above, the single-B classes as well), with comfortable loss-adjusted yields.

In the end, credit performance reflects the quality of loan origination and servicing exercised by the parties performing those functions. The rating agencies closely monitor the collateral quality of new pools as well as the credit performance (delinquency and loss trends) of transactions they rated. As a result, rating upgrades or downgrades may occur during the outstanding life of a subordinate class. If that were to occur, it would clearly affect the value of that bond in the secondary market. Loss-adjusted yield analysis is just one tool used by investment analysts to understand the value and risks associated in subordinate offerings.