PART

Three

Collateralized Debt Obligations

CHAPTER 10

Collateralized Loan Obligations

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The impressive growth that the leveraged loan market has displayed over the past decade has been accompanied by greatly improved liquidity and transparency. The benefits of this asset class, which include stable prices and high recovery and prepayments rates, can be accessed efficiently by collateralized loan obligations (CLOs). During the previous credit cycle (2000–2003), CLOs on average demonstrated more stable performance than both high-yield bond CDOs and straight corporate debt. This stability has fueled CLO growth: as of 2005, CLOs accounted for over one-third of the primary CDO market.

The leveraged loan market has exhibited significant growth over the past decade, with $295 billion of new issuance in 2004, triple the new-issue high-yield bond market. The liquidity and transparency of the loan market continue to improve, with the number of investors increasing from 18 to over 425 in the past 10 years.

Investors have been drawn into market by the advantageous characteristics of leveraged loans, which include floating interest rates, discount pricing, high prepayment rates, and greater control over the borrower in times of stress. The long-term, historical track record is strong: Analysis shows that loans have performed solidly under various economic conditions, revealing a history of stable prices and robust recovery rates.

The stability of loans and inefficiencies of the loan market make leveraged loans particularly attractive to CLO investors, who rely on the asset-backed structuring technologies to gain leveraged exposure to this

market. CLOs represent a subcategory of the collateralized debt obligation (CDO) market, which has grown by more than 1,000 percent since 1995 to reach $166 billion of new issuance in 2005.

The primary reason for CLO market growth has been the strong performance of this asset class through the last credit cycle: Loans lend themselves to leverage in the CLO context. From 1997 to 2005, on average, CLOs have exhibited higher ratings stability relative to both high-yield bond CDOs and straight corporate debt. Drivers of this stability include high recovery and prepayment rates, price stability, and CLO manager expertise.

Despite these obvious benefits, challenges remain. The recent surge in demand for institutional loans by structured vehicles has resulted in a significant tightening of the loan spreads, with some CLOs containing an unacceptably high level of loans purchased at a premium. In addition, investors should be aware that a CLO portfolio built solely with broadly syndicated institutional loan tranches may contain significant name overlap. Recognizing this risk, CLO market participants are now looking to other sectors of the leveraged loan market in search of alternative collateral assets. Revolving credit obligations, middle-market loans (MMLs), and European leveraged loans provide promising opportunities for further diversification, offering comparable yield and credit stability.

LEVERAGED LOAN MARKET OVERVIEW

Strong Primary Market Growth

Syndicated loans can be segmented into two market categories, leveraged (or high-yield) and investment grade. The former is comparable to the high-yield bond market from a ratings and issuer leverage perspective. In most instances, a loan will be classified as a leveraged loan if it generally meets one of the following criteria: (1) debt ratings of below Baa3/BBB–from Moody's Investors Service and S&P, respectively, or (2) debt/EBITDA ratio of 3.0 times or greater.

Leveraged loans constitute a significant part of the syndicated loan market: New issuance was $254 billion in 2004, up from $166 billion in 2003 and greater than the 2004 high-yield bond market issuance of $150 billion. This loan issuance was composed of $154 billion institutional term loans and $100 billion pro rata loans (see Figure 10.1).

During the past decade, institutional investors have driven leveraged loan market growth and have made the fully drawn term loan (or "institutional" term loan) the most widely used structure in the leveraged loan market. New issue volume for the institutional term loan tranche set a

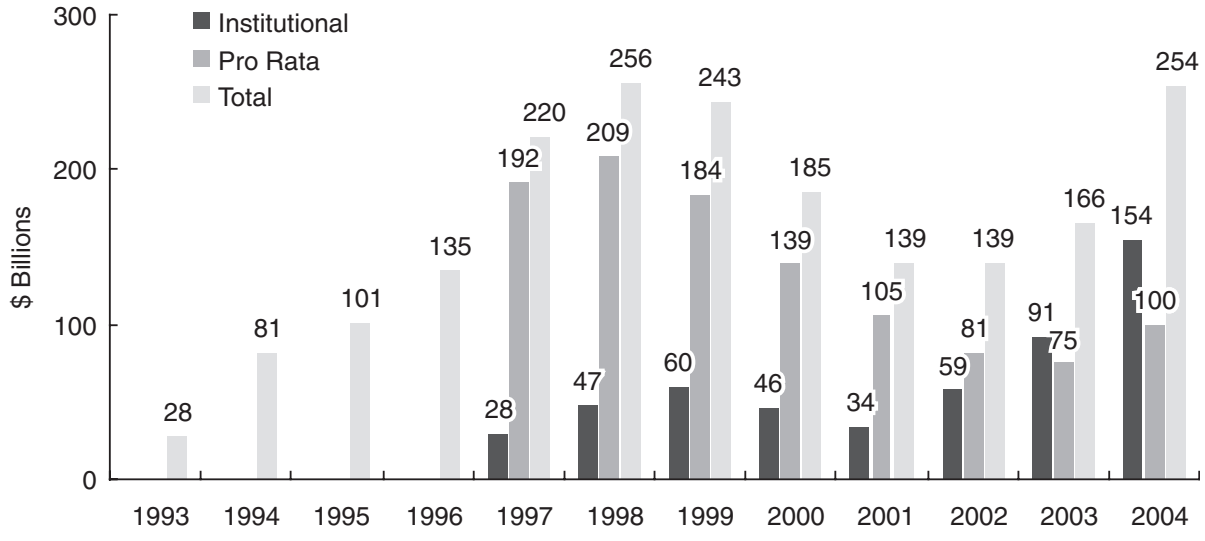


FIGURE 10.1 Annual Leveraged Loan New Issue Volume, 1993 to 2004 ($ billions)
Source: Standard & Poor's.

record of $154 billion in 2004, or 61 percent of the total leveraged loan market. This level was up considerably from the $91 billion issued in 2003 and the $59 billion issued in 2002.

With respect to the overall market, the total amount of institutional leveraged loans outstanding is estimated at $193 billion, up $45 billion from 2003 (see Figures 10.2 and 10.3).[1] As Figure 10.3 illustrates, this large market is diversified across many different industries.

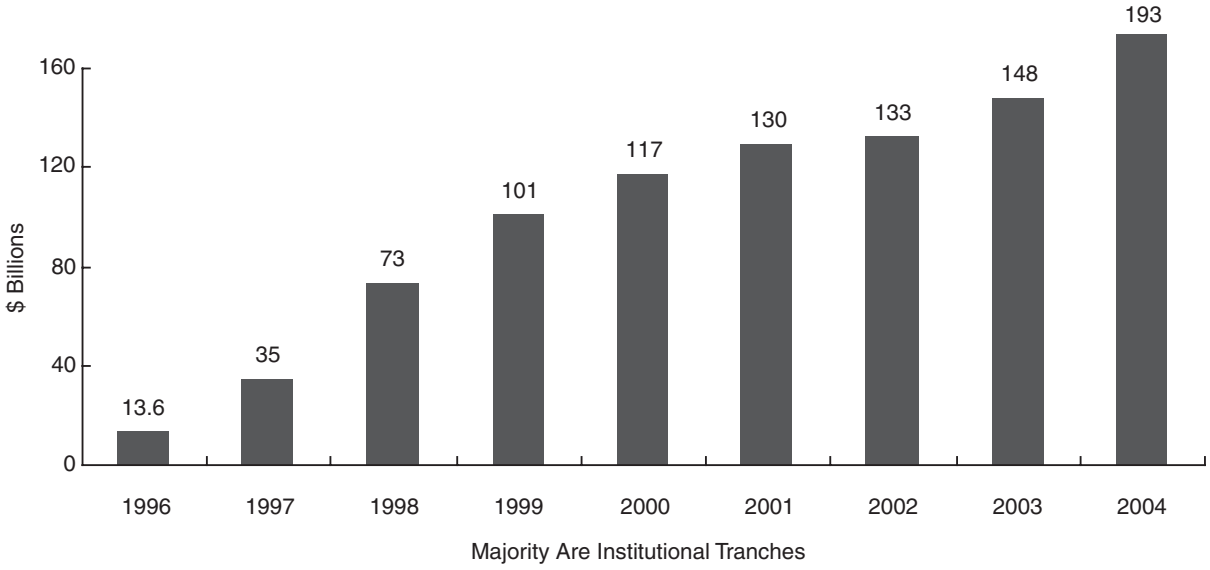


FIGURE 10.2 Par Amount of Outstanding Institutional Leveraged Loans, 1996 to 2004 ($ billions)
Source: Standard & Poor's.

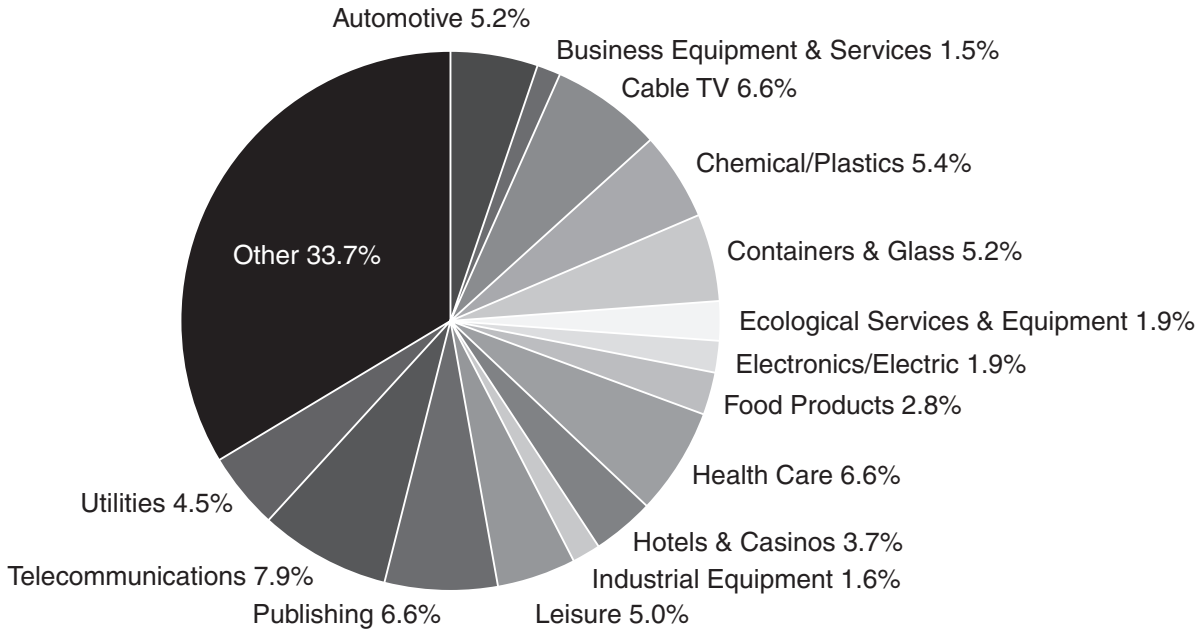


FIGURE 10.3 Par Amount of Outstanding Leveraged Loans by Industry, 2004
Source: Standard & Poor's.

The growth in the institutional market has had many implications. For example, issuers and arranging banks structure deals to be more attractive to institutional investors, especially the larger issues. Furthermore, rating agencies, whose fortunes are tied to the needs of institutional investors, have dramatically increased the number of loans that they rate in the past few years. These positive trends, among others, should help overcome some of the obstacles that previously inhibited the growth in the market.

Broadening Investor Base

Until the mid-1990s, the universe of loan investors included only banks and prime funds.[2] Because these investors generally took positions in loans with the intention of holding until maturity, there was little need for a secondary market. Over the past few years, however, as more institutions realized that loan products could deliver high risk-adjusted returns, new types of investors, such as high-yield bond funds, hedge funds, insurance companies, and CDOs began to enter the market.

Figure 10.4 illustrates the dramatic rise in the loan market share of CDO investors, in particular, during the past decade from only 4.2 percent to 63.6 percent in 2004. The current investor base has diverse needs, and many participants actively look for arbitrage opportunities and trade ideas in the secondary loan market. This impulse has helped fuel the secondary market and the dominance of the institutional loan tranche structure. We discuss the dynamic secondary loan market in the next section.

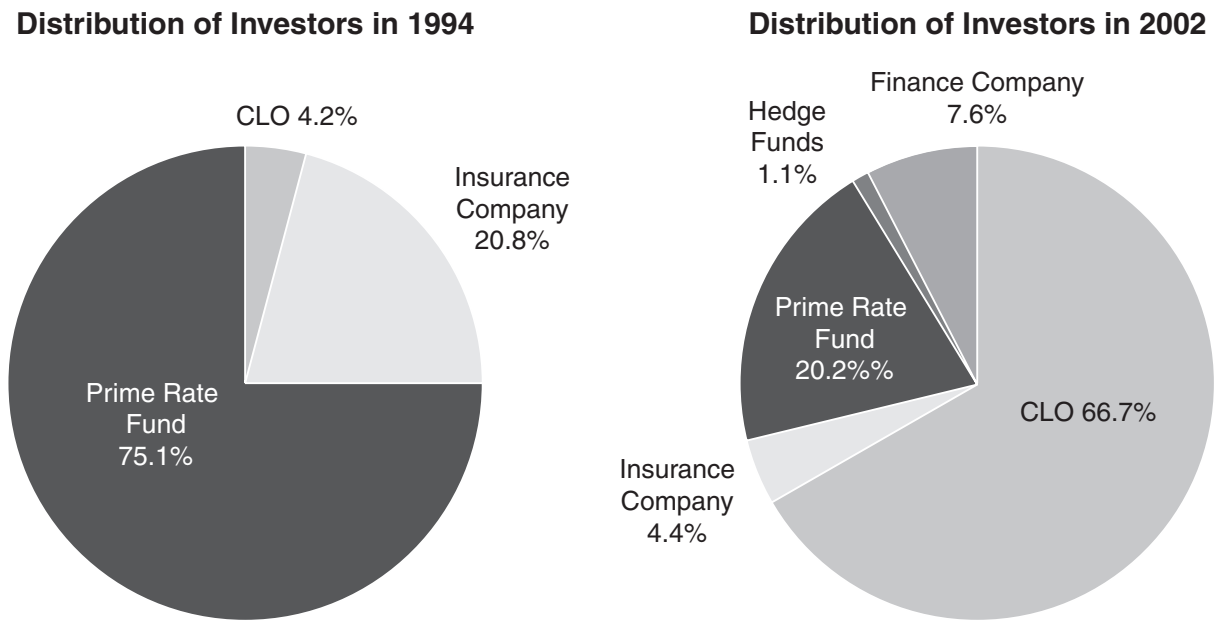


FIGURE 10.4 Primary Market for Institutional Loans by Investor Type, 1994 versus 2004
Source: Standard & Poor's.

Increasing Secondary Market Liquidity

As mentioned, the number of institutional investors in the leveraged loan market has grown dramatically over the past decade. The rise in the number of participants (with varying investment vehicles and agendas) has had a positive impact on liquidity. As shown in Figure 10.5, from 1993 to 2004, the number of active institutional investment vehicles in leveraged

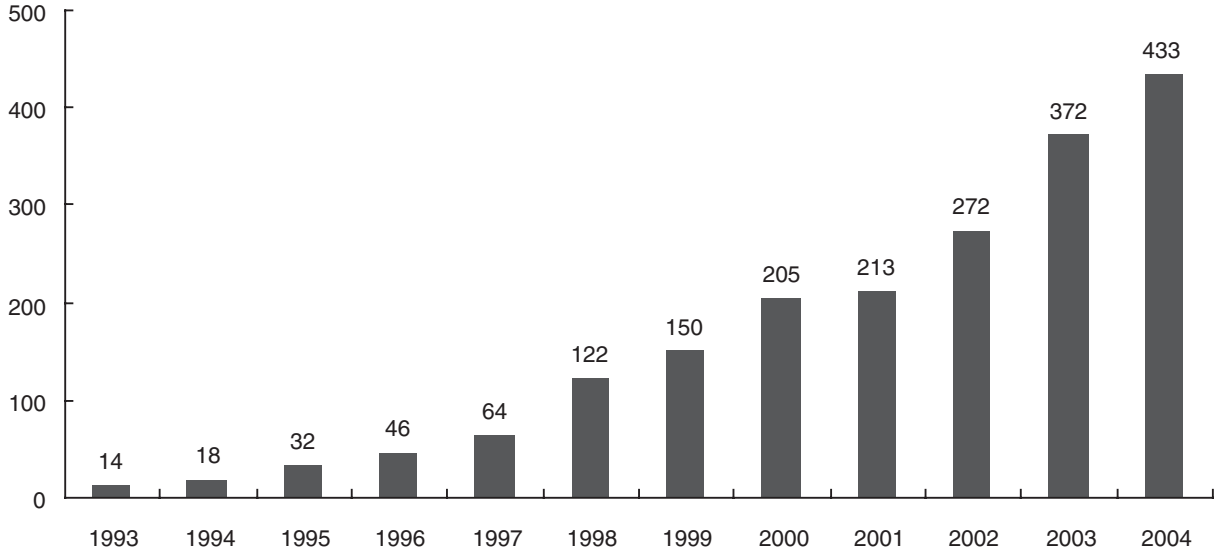


FIGURE 10.5 Total Active Institutional Loan Investors, 1993 to 2003
Source: Standard & Poor's.

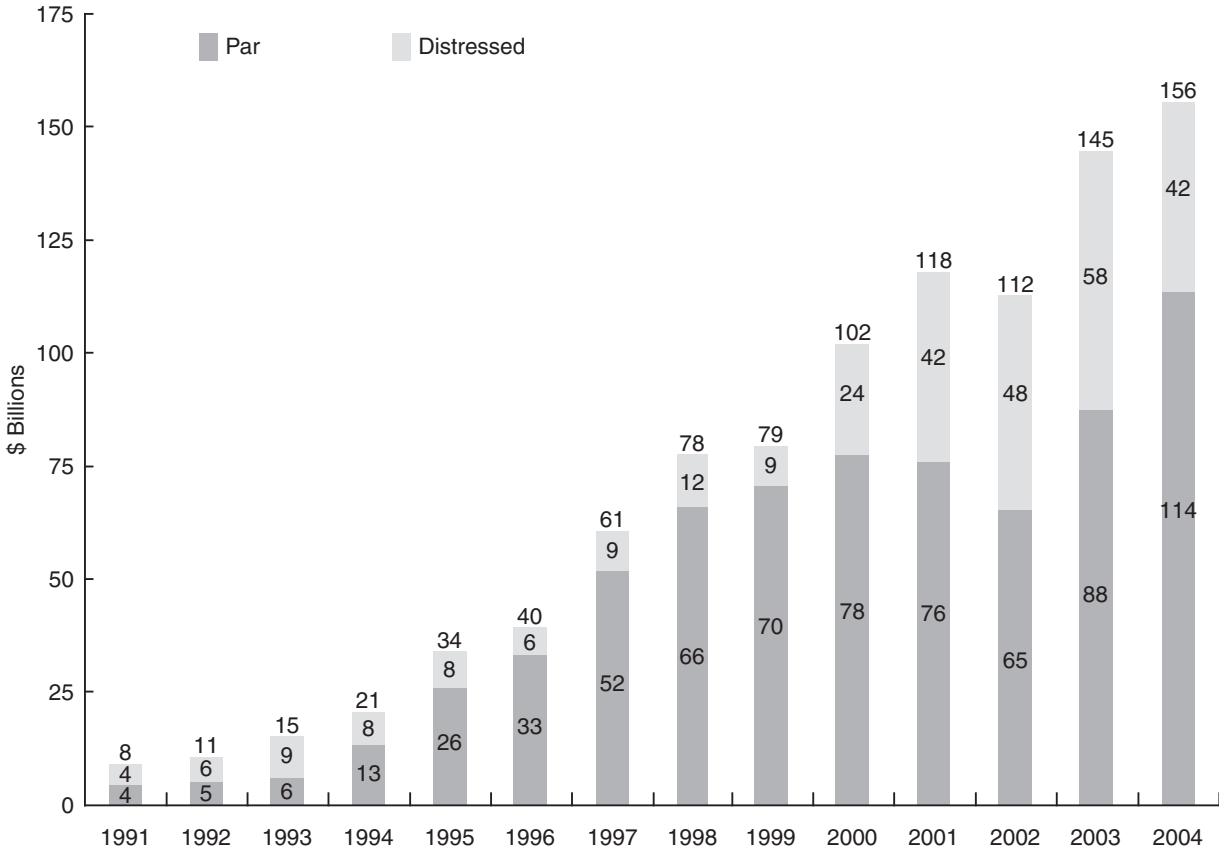


FIGURE 10.6 Annual Secondary Trading Volume, 1991 to 2004 ($ billions)
Source: Standard & Poor's.

loans increased from 14 to 433, and the annual volume of leveraged loans traded followed suit, climbing from approximately $15 billion to about $156 billion. Higher secondary trading volumes (see Figure 10.6) and smaller average trade sizes are direct indicators of the increasing vibrancy and liquidity of the secondary loan market. Ten years ago, the average trade size was $10 million. In 2003, the average trade size was approximately $1 million as loans traded readily among a variety of different types of counterparties.

The industry's trade association, the Loan Sales and Trading Association (LSTA) has contributed significantly to improved liquidity in the secondary loan market by standardizing documents, trade settlement time frames, and industry practices. The organization was founded by a group of banks including Citigroup in 1995 and has expanded to 143 members since then. The LSTA is open to participants in the loan market on both the buy side and the sell side. In 2003, the LSTA continued to implement a number of reforms to the secondary loan market including the following:

- New primary market standardized documents including credit agreements, bank books, amendments, and tax shelters.

- New secondary market standardized documents including distressed purchase and sale agreements, netting agreements, and trade criteria.
- Introduction of the Committee on Uniform Securities Identification Procedures (CUSIPs) to the loan market for use as unique identifiers by agent banks, loan participants, and rating agencies. Use of CUSIPs is the critical first step in moving the loan market to an eventual straight-through processing platform.

Continuing Challenges to Loan Market Liquidity

Despite dramatic improvements, liquidity in the loan market remains constrained for a few reasons, including minimum purchase sizes. A decade ago, $10 million was the industry standard trade size. This minimum requirement served as an impediment to secondary investors in the loan market. Although there is no official minimum amount that can be assigned, credit agreements can still have provisions that require this amount to exceed $5 million, or in some deals, even $10 million. However, the trend is positive: Assignment minimums and trade sizes have been declining as a result of investor pressure. Investors are very sensitive to the relative weights of loan exposures in their portfolios, so they look to the secondary market as a way to balance this exposure. As shown in Figure 10.7, average assignment minimums dropped to $1.12 million in 2004.

In addition to minimum purchase sizes, high transfer fees have limited liquidity. The lead administrative agent bank charges a fee for each trade as compensation for keeping track of holders for documentation purposes.

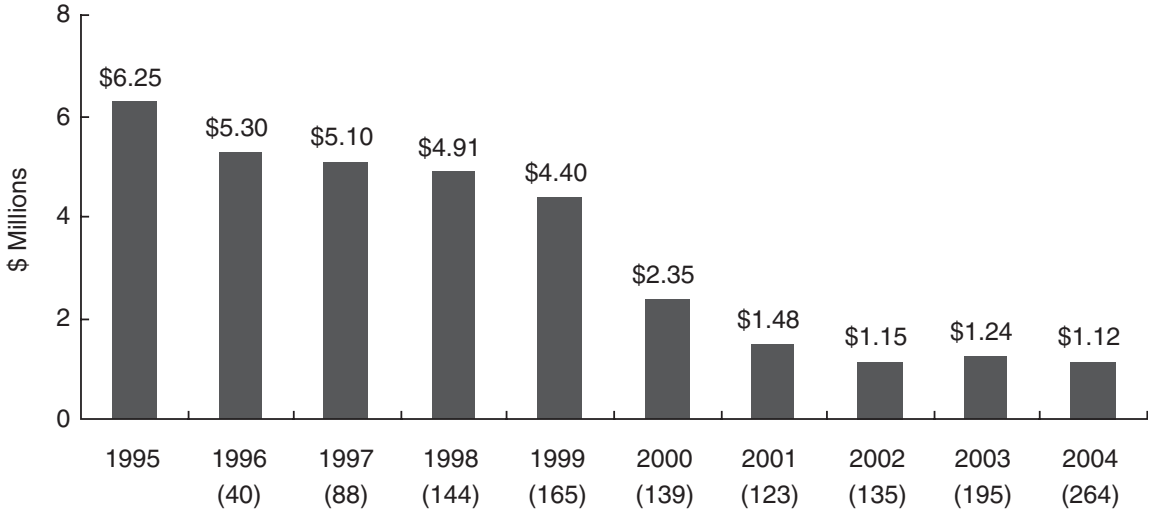


FIGURE 10.7 Average Institutional Assignment Minimum for Loans of $100 million or More
Source: Standard & Poor's.

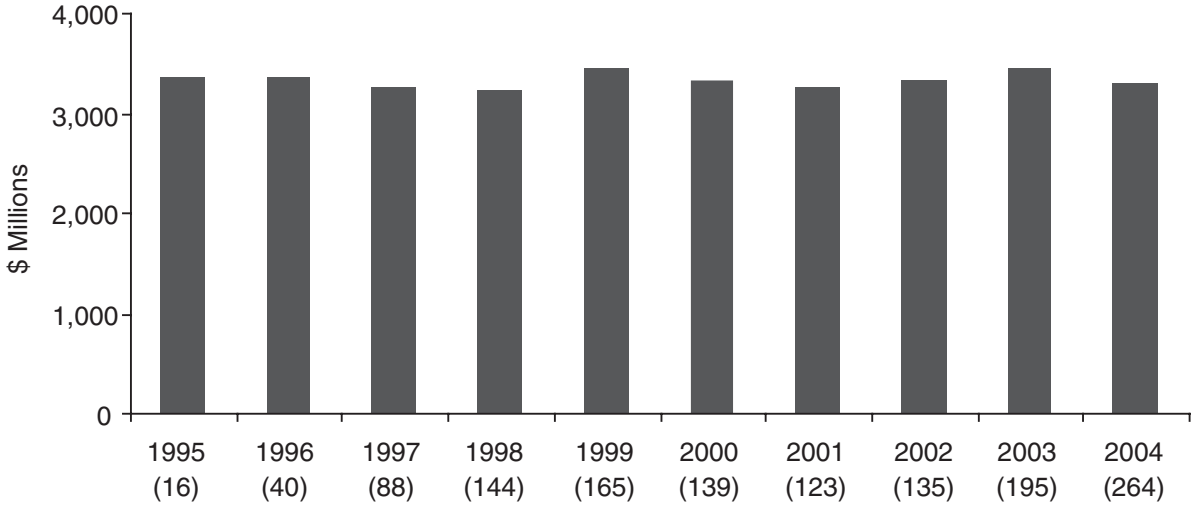


FIGURE 10.8 Average Institutional Assignment Fee for Loans of $100 million or More, 1995 to 2004
Source: Standard & Poor's.

Although certain banks in the industry are trying to lower the cost of these fees to promote greater liquidity in the market, others are not, and as Figure 10.8 illustrates, average fees have remained in the range of $3,000–$3,500 per assignment since the mid-1990s.

Although loan market liquidity clearly remains a challenge for investors, it has improved enormously from only a few years ago. As loan investors continue to increase the pressure, liquidity will rise. We expect secondary loan market liquidity to approach that of the high-yield bond market as documentation and trade procedures standardize, transaction fees are eliminated, and minimum assignments are reduced.

Key Loan Characteristics

Floating-Rate Coupon Leveraged loans pay interest on a floating-rate basis, so interest payments on loans increase as market interest rates rise. This floating-rate structure is created by setting the interest rate of a leveraged loan at a spread above a benchmark market floating interest rate. The most commonly used benchmark in the leveraged loan market is the London Interbank Offered Rate (LIBOR). So a loan paying 3.0 percent above LIBOR (or L + 300 bp) would yield 4.2 percent annually if LIBOR were at 1.2 percent for a given period. As LIBOR moves, the interest payments of a leveraged loan will move with it.

This floating-rate coupon is one of the most significant differences between leveraged loans and high-yield bonds. Because high-yield bonds pay a fixed interest rate using a U.S. Treasury bond benchmark, investors are exposed to movements in interest rates. If market interest rates rise,

the fixed-rate high-yield bond will continue to pay the same lower interest rate. While derivatives can be used to hedge away this risk, this can only be done at a cost that cuts into expected returns. By contrast, the floating-rate interest payments of loans move with the market.

Maturity Term loans generally mature in five to eight years from the time of issue, a considerably shorter period than the ten-year average high yield bond maturity. In 2004, term loans had average maturities of approximately 6.0 years, as shown in Figure 10.9.

Callability Loans are generally callable at par without penalty, meaning that issuers can repay their loans partially or in total at any time. This structure differs from that of high-yield bonds, which are usually structured with a noncall period of three to five years. Occasionally, loans will have noncall periods or call protection that requires the issuer to pay a penalty premium for prepaying loans. These features are usually added to loans in the primary market only when investor demand is weak and a loan needs additional incentives to attract sufficient buyers. Figure 10.10 shows the 12-month rolling prepayment rate for loans at approximately 14 percent in 2004.

Covenants Loan facilities are structured with covenant tests that limit a borrower's ability to increase credit risk beyond certain specific parameters. Covenants are outlined in the legal credit agreement of a loan facility that is executed at the time that a loan is issued. Typically, covenants are tested every quarter, and results are sent to all of the members of the bank group.

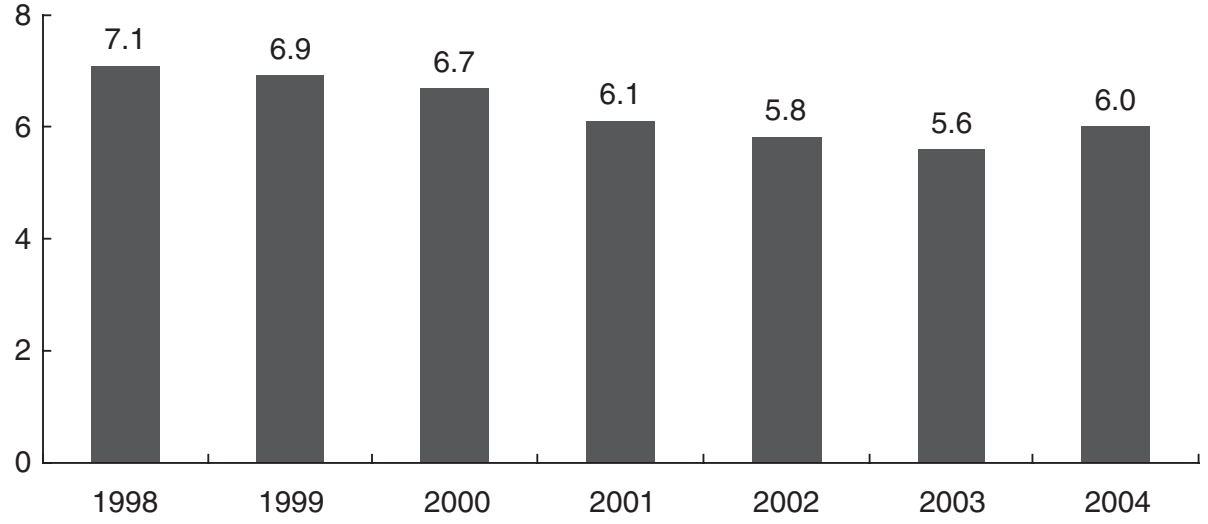


FIGURE 10.9 Average Weighted Term of Institutional Loans, 1998 to 2004 (years)
Source: Standard & Poor's.

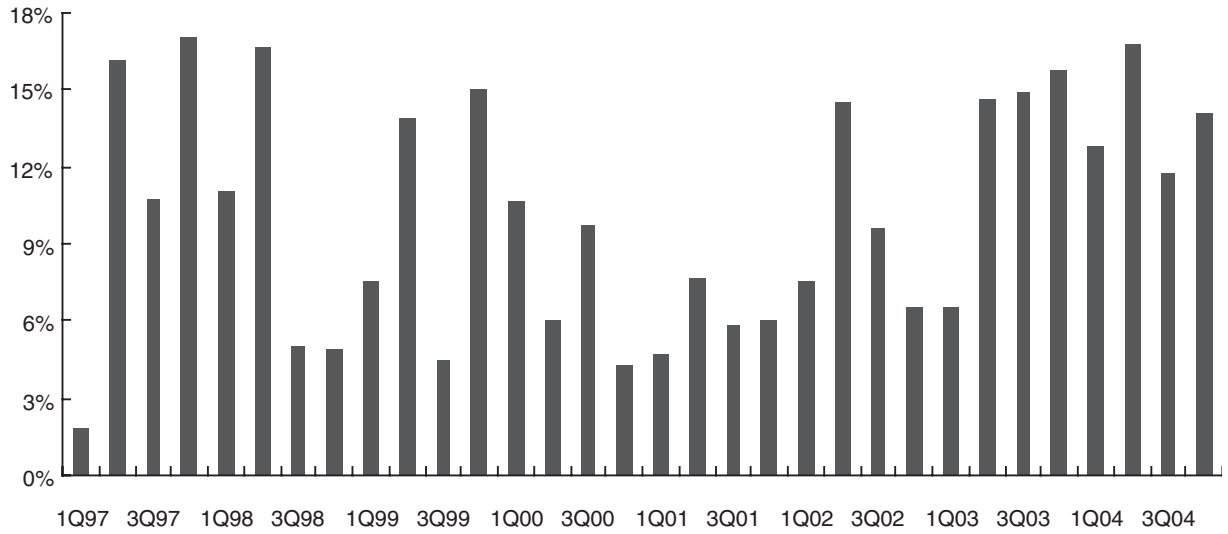


FIGURE 10.10 Repayment Rates, 1Q 97–4Q 03
Source: Standard & Poor's.

Covenant tests provide lenders with a more detailed view of the credit health of a borrower and allow lenders to take action in the event that a borrower gets into credit trouble. A credit agreement for a leveraged loan may generally have between two and six covenants, depending on the credit risk of the borrower and market conditions. Some commonly used covenants include:

- Minimum earnings before interest, taxes, depreciation, and amortization (EBITDA).
- Total leverage debt/EBITDA.
- Senior leverage senior debt/EBITDA.
- Minimum net worth.
- Maximum capital expenditures.
- Minimum interest coverage EBITDA/interest.

Covenants on leveraged loan facilities improve recovery because they allow lenders to limit credit risks such as, but not limited to, capital expenditures, leverage, and acquisitions. Covenants also allow lenders to have an early look at an issuer's credit problems, often before the rest of the market, as an issuer must amend or repay its loans when covenants are breached. This amendment process allows lenders to improve their control and security interest in a troubled issuer, raising potential recovery values.

Ratings In response to strong investor demand over the past decade, the major debt rating agencies have dramatically increased the number of leveraged loan issuers that they rate. Moody's, S&P, and Fitch Ratings all

actively rate and monitor loan deals. The number of rated loans has soared to the point where now 70 percent of all new issues receive a rating from at least one agency.

Although methodologies used to determine the ratings differ somewhat from agency to agency, significant progress in refining the methodology has occurred across all agencies, meaning that investors are receiving more accurate information on a wider number of loans, and this should allow for more reliable pricing. Such information is especially important given the material rise in secondary trading and the corresponding entry into the market of a large number of investors who have to carry out regular mark-to-market portfolio pricing. This phenomenon has transformed the leveraged loan market so that a rating change by any one of the agencies can cause a significant change in the value of a loan. When this type of price swing occurs, these mark-to-market investors have to rearrange their portfolios, creating arbitrage opportunities for investors who can act quickly to take advantage of these opportunities.

The ratings given to loans are primarily based on two factors:

1. Probability of default.
2. Expected recovery rate.

The probability of default for a bank loan is approximately equal to that of a bond. Despite this fact, a loan is frequently given a higher rating than a bond of similar size and duration. The reason for this disparity lies in the fact that default rates do not capture a critical, value-adding component of a loan—its higher status in the capital structure of a firm relative to a bond. Because a bank loan is generally a senior secured debt obligation, the average recovery rate for loans is significantly higher than that for bonds, which, at best, tend to be senior unsecured debt obligations.

The widespread rating of loans is a relatively recent phenomenon that did not take off until the mid-1990s. In the past, when loans were not rated, market participants generally estimated that the loan should be one notch up from the most senior unsecured bond. While this rule is fairly accurate on average, it has some serious shortcomings when used to evaluate pricing for individual credits. In fact, according to a 1998 study carried out by Moody's, only 37 percent of loans were actually rated exactly one notch higher than the senior unsecured bond. This means that an investor exclusively using this one-notch rule to price the premium paid on a loan's higher recovery rate would have mispriced the loan more than 60 percent of the time.

This is not to say that the one-notch rule does not have practical uses. It is still useful as a benchmark from which to start one's credit analysis. As a tool to price loans, however, it is clearly inadequate. Instead, investors

need to follow the lead of the rating agencies and look very carefully at the credit's attributes to determine how such factors as industry, corporate structure, legal subordination, underlying collateral quality, and a host of other factors will affect recovery rates in cases of default, because these factors can cause the recovery rates of seemingly similar loans to differ significantly.

Security Leveraged loans are generally structured with a lien against the assets of the borrower. These asset claims are also known as the security of the loan. Secured loans have a number of advantages over unsecured parts of a company's capital structure. In the event of a default, the lenders can take possession of the borrower's assets to which they have a claim and sell them or operate them for cash. The position of a debt instrument in the firm's capital structure and the degree to which the debt is backed by liquid assets are important indicators of expected recovery rates.

Recovery rates on defaulted loans are consistently higher than recoveries on unsecured parts of the capital structure. As we discussed, the higher recovery rates are primarily due to the senior position of leveraged loans in an issuer's capital structure and the security interest that loan holders have in an issuer's assets.

Fees The fees for leveraged loans generally comprise up-front fees and commitment fees that vary with market conditions. Figure 10.11 shows historical fee levels for the past 10 years.

Up-Front Fees In the leveraged loan market, issuers pay one-time up-front fees at closing to attract banks and institutional investors to invest in their

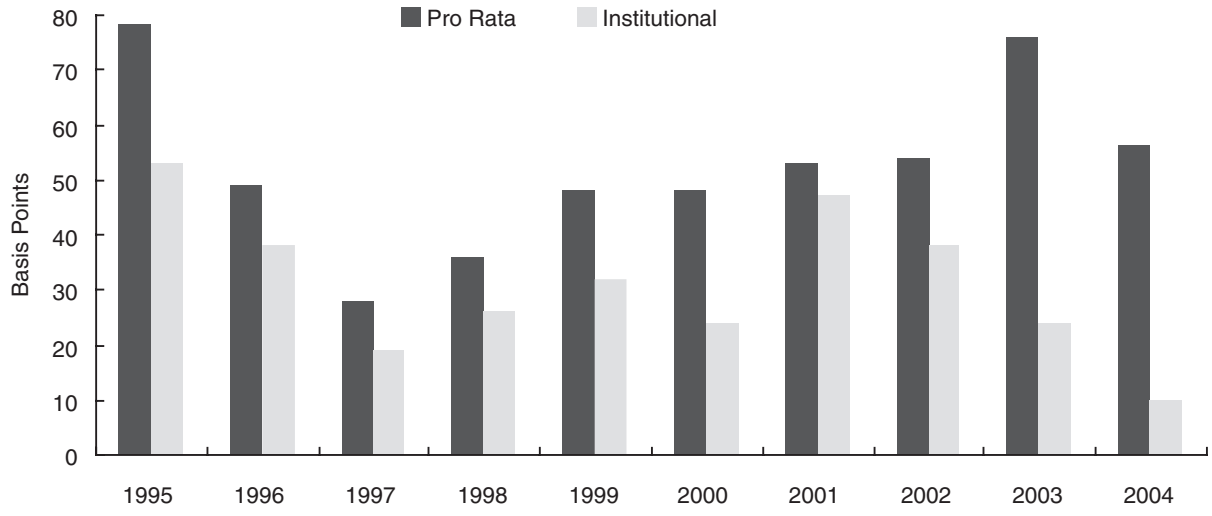


FIGURE 10.11 Average Total Fee, 1995 to 2004 (in Basis Points)
Source: Standard & Poor's.

loans. Up-front fees for pro rata loans tend to be higher than up-front fees on institutional term loans because of their lower coupons than institutional tranches and less favorable supply/demand conditions.

Commitment Fees Also called *unused fees*, commitment fees are assessed on an ongoing basis on the committed but undrawn component of a revolving credit facility. This fee accrues daily on the undrawn balance of a loan at an annualized interest rate specified in the credit agreement. As banks evolve from lending based on relationships to lending based on returns, the average commitment fee has breached the 50 basis point level, a benchmark that was once considered a ceiling on these fees. This trend is expected to persist in the future, as retail bank investors continue to raise the bar on returns for the pro rata tranches of leveraged loans.

Loan Structures

A corporate leveraged loan generally has multiple tranches:

- The revolving credit facility.
- The term loan A.
- A single institutional term loan or multiple loans (B, C, D . . .).

Revolving Credit Facilities

The revolving credit facility is an unfunded or partially funded commitment by lenders that can be drawn and repaid at the issuer's discretion until maturity. The borrower pays a nominal commitment fee on the undrawn amount (usually 50 bp) and a coupon on the drawn amount (usually the same coupon as the term loan A). Maturities are usually either one year (bridge facility or short-term debt 364-day facility) or in the three- to five-year range. Revolvers generally serve as liquidity facilities for borrowers and can be drawn at any time for operational purposes, seasonal capital needs, or letter of credit issuance, as outlined by the credit agreement. From an investor's perspective, the uncertain funding requirements and interest payments make revolvers difficult to administrate and fund.

Amortizing Term Loans

A term loan A (TLA) is a fully funded term loan that usually amortizes throughout the life of the loan but can also be structured with a bullet amortization. Unlike the revolving credit facility, once the borrowed amount is paid back to the lenders, the borrower cannot reborrow the money under

the TLA facility. The TLA and the revolving credit facilities are bundled together during original syndication, but can be unbundled for subsequent redistribution in the secondary market. In virtually every case, the spread and term of the revolving credit facility and TLA are the same.

Institutional Term Loans

Institutional term loans represent the most liquid category of corporate leveraged loans. Unlike the TLA, amortization payments of institutional term loans are usually more heavily back-loaded or come as a bullet payment at final maturity, as is the case for many bonds. For example, on a six-year institutional term loan, the payments over the first five years may be only on interest, with entire principal payments made over the course of the final year. Institutional investors favor institutional term loans because of their more predictable funding requirements, maturities, and interest income streams. Institutional tranches are usually named in alphabetical order (term loan B, C, D, and so on), depending on the number of tranches. For example, term loan A might have a maturity of five years, term loan B six years, term loan C seven years, and so forth. In most leveraged loans, investors expect to receive an additional 25 bp–75 bp in coupon for each additional year until maturity, although in practice spreads reflect what the market is willing to price in compensation for a longer maturity. Recently banks have taken a greater interest in buying institutional tranches in the primary market, joining insurance companies, hedge funds, CDOs, and other institutions seeking the higher coupons available on institutional term loan tranches.

PRO RATA LOANS

Overview

Structure of Pro Rata Loans The pro rata portion of a corporate bank debt facility is the traditional loan structure, historically syndicated and held almost entirely by banks. It usually comprises two pieces, a revolving credit facility and a TLA tranche (see "Loan Structures," listed earlier). This segment of the loan is called the pro rata portion because banks that take part in the syndication must commit to an equivalent proportion of both the revolving credit facility and the term loan A. Coupons (shown as LIBOR plus a spread) on pro rata tranches are often lower than comparable coupons on institutional tranches because of higher up-front fees and accelerated payments associated with pro rata tranches. Because of the funding requirement for the revolver and the accelerated amortization

of the TLA, the universe of lenders tends to be restricted to traditional corporate lending banks.

Pro Rata Market At $75 billion in 2003, new issuance in the pro rata loan market was essentially flat with the $81 billion issued in 2002. The pro rata loan market is comparable in size to the high-yield bond market, which produced $137 billion in new issue in 2003 and $65 billion in 2002. The large size of the pro rata loan market means that investors have opportunities to invest across a wide spectrum of industries and credits and to benefit from the relative value relationships between pro rata loans and other asset classes.

Pro Rata CLOs Higher recoveries and discount pricing, along with the overall depth of the market, make pro rata loans an attractive option for CLO collateral. The major challenge for the CLO market was to create an appropriate structure to handle the funding risk of the revolving part of the loan. In 2003, Citigroup created the very first CLO transaction backed by pro rata loans. In that transaction, Citigroup introduced a new synthetic structure to separate the funding and credit risks of the revolvers, capitalizing on the high ratings of the bank. The funding risk stayed with the bank, whereas the credit risk was sold into the CLO structure. This was the first transaction that provided CLO investors with wide access to the broad pro rata loan market.

Key Characteristics

Discount Pro rata loans generally trade at a discount to par. The discount is due to the combination of a lower coupon for the pro rata loan relative to institutional term loans, certain impediments to liquidity, and the selling pressure caused by banks seeking to rationalize their balance sheets and credit exposures. Pro rata loans are attractive for buyers, including structured vehicles, that may benefit from purchasing discounted instruments.

Security Pro rata loans, like institutional term loans, are senior secured and have maintenance financial covenants. Covenants give investors an early seat at the table in the event that the issuer's credit deteriorates, and lenders often use them to improve their position in terms of security, collateral, coupon, or fees.

Prepayment Rate Because of amortization, prepayments, refinancings, and corporate events such as assets sales and mergers or acquisitions, pro rata loans tend to be repaid prior to their scheduled maturity. Increases in the

prepayment rate garner yield windfalls because of quicker-than-expected recovery of purchase price discounts. Prepayment benefits holders of pro rata loans more than holders of institutional term loans because pro rata loans are generally bought at deeper discounts to par.

Superior Recovery Losses in the event of default are generally lower for pro rata asset classes than for institutional term loans, because the revolving credit portions of pro rata loans, on average, are not fully drawn at default. The obligation to fund the undrawn portion of a revolving credit facility ceases upon default, and thus creates an effective windfall (i.e., tantamount to a repayment of that portion of the pro rata loan at par).

Barriers to Entry Pro rata loans represent a robust yield/value opportunity. The potential price arbitrage versus institutional term loans will likely be maintained because of credit agreements that restrict ownership to banks or other holders the issuer finds acceptable. The requirement for borrowers to consent to transfers of pro rata loans means that the pool of acceptable counterparties is likely to grow slowly. An agent bank can facilitate this approval process but may require cash collateral to do so. Similarly, lenders/investors must be capable of properly managing the variable funding requirements of revolver borrowing. This restricts the number of investors who can buy pro rata loans.

Investment Opportunities

Revolvers and TLAs are attractive from a relative value perspective as they can trade at a discount to par depending on the market, while institutional term loans generally trade at or above par. Because the majority of corporate leveraged loans can be repaid at par (100 cents on the dollar) at any time without a penalty, investors who buy below par collect the difference as a gain upon refinancing. A number of market forces have driven this relationship, including short new issue supply in the loan market, relatively fewer pro rata lenders, the rise in the number of institutional loan investors, and a strong demand for product that has focused on term loan Bs (TLBs).

The fact that few investors are able or willing to participate in the prorata loan market creates additional investment opportunities. The majority of pro rata loan holders are relationship banks that buy the loans during original syndication. Banks continually readjust their balance sheet strategies to diversify credit risk and free up capital for new deals, creating ongoing opportunities to buy pro rata loans in the secondary market at a discount. As the number of pro rata lending banks decreases, we expect this market dynamic to persist for the foreseeable future.

MIDDLE-MARKET LOANS

Overview

The middle-market segment of the leveraged loan market generally comprises smaller companies that satisfy the following criteria: (1) less than $500 million in revenues and $50 million in EBITDA; and (2) a loan facility smaller than $150 million in total size. Within those criteria, large middle-market loans have deal sizes of $100 million to 150 million and issuers with EBITDA of $25 million to 50 million, while standard middle-market loans are smaller. In 2004, 257 middle-market loans were issued with a total size of $25.9 billion, up considerably from $12.5 billion in 2003. Middle-market loan lenders vary across different industrial sectors, with the health care, services/retail, industrial, and media sectors accounting for 51 percent of the total market volume in 2004 (see Figure 10.12).

Key Characteristics

Liquidity Middle-market loans are generally less liquid than leveraged loans because of their smaller size and lower visibility among the institutional investor community. This tighter liquidity makes middle-market loans more suitable for buy-and-hold investors who want to collect the higher yield and tend not to trade as actively. Many CLO structures could benefit from holding discounted middle-market loans and collecting the higher associated yields, because they do not require the liquidity to trade the loans actively.

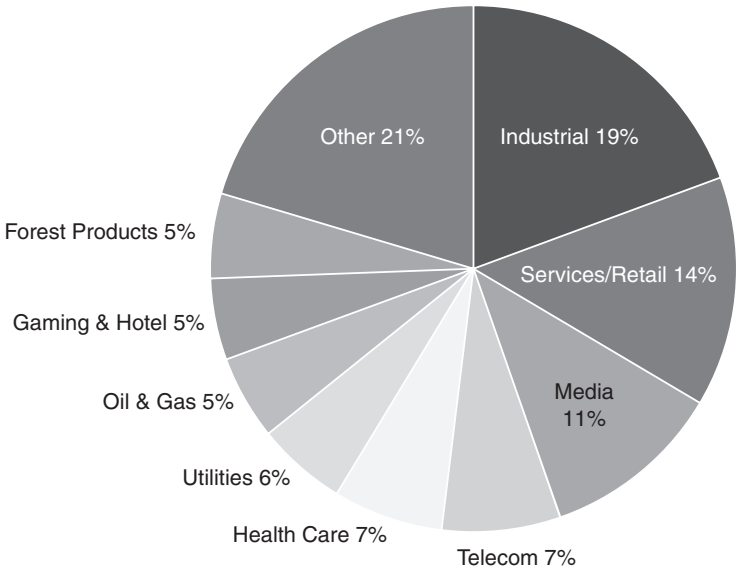


FIGURE 10.12 Loan Volume by Broad Industry Classification for Deals with $50 million or Less of EBITDA, 2004
Source: Standard & Poor's.

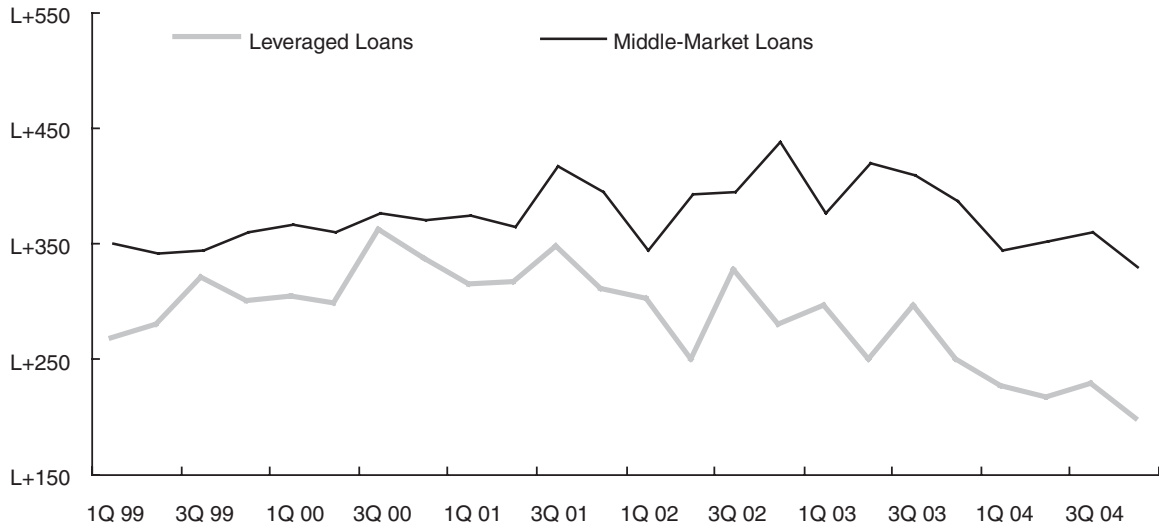


FIGURE 10.13 Average Weighted Institutional Spreads: BB/BB–Leveraged Loans versus Middle-Market Loans, 1Q 99–4Q 04
Source: Standard & Poor's.

Middle-market institutional loans pay a coupon of approximately L + 400bp, nearly 150 bp more than the coupon on a comparable BB/BB–rated institutional leveraged loan (see Figure 10.13).

Leverage Leverage on middle-market loans can be slightly higher than that for comparable leveraged loans, but is currently very similar at an average of about 4.1 times debt/EBITDA compared with the 4.2 times average for the overall leveraged loan market. Figure 10.14 illustrates historical middle-market loan leverage, and Figure 10.15 shows the same for the overall loan

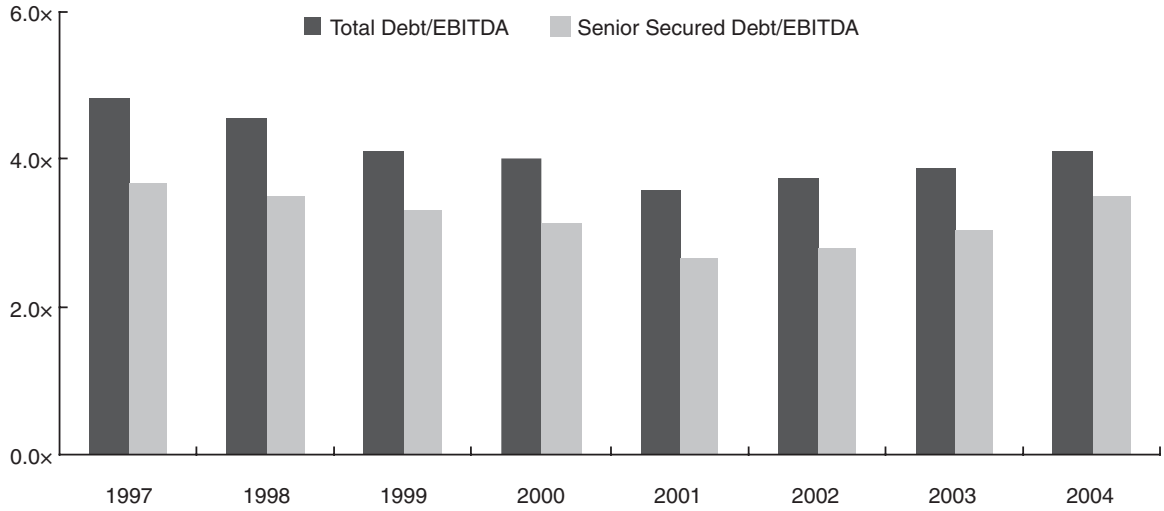


FIGURE 10.14 Rolling Three-Month Debt/EBITDA and Senior Debt/EBITDA Ratios for Issuers with EBITDA of $50 Million or Less, 1997 to 2004
Source: Standard & Poor's.

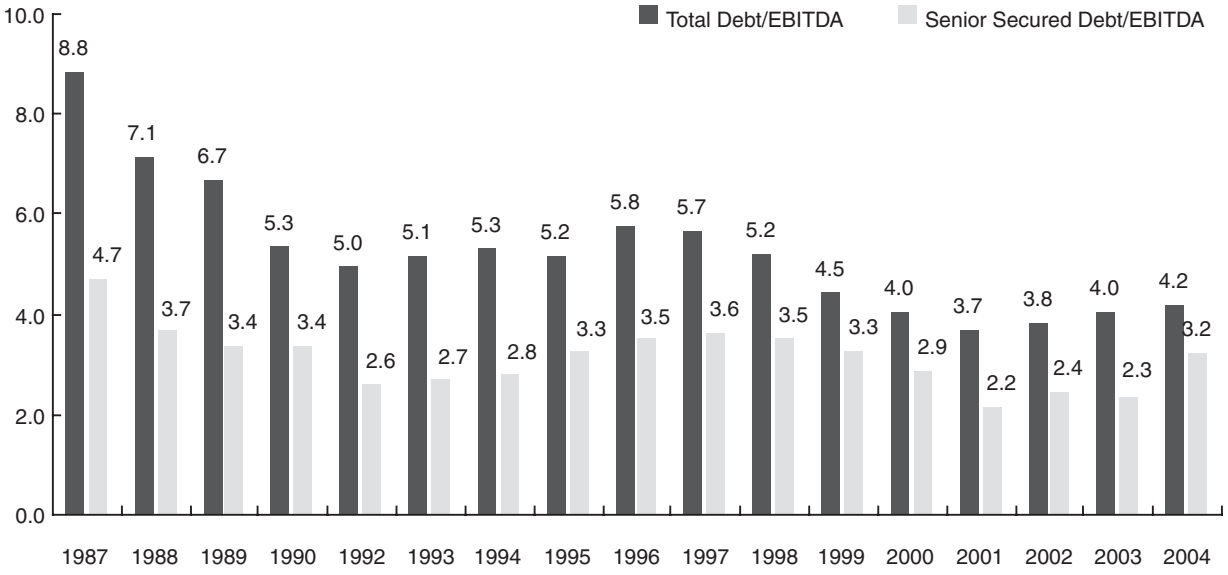


FIGURE 10.15 Average Debt Multiples of Highly Leveraged Loans, 1987 to 2004
Source: Standard & Poor's.

market. In general, middle-market loans tend to include more secured bank debt, so senior secured leverage is often higher than in the leveraged loan market, as evidenced by senior leverage of 3.5 times for middle-market loans versus 3.2 times for the overall loan market.

Ratings Middle-market loans are frequently not rated by the major debt rating agencies like Moody's and S&P. In 2004, only 17 percent of middle-market loans issued had debt ratings (see Figure 10.16). The primary reasons for the lower number of ratings are weaker investor demand and rating

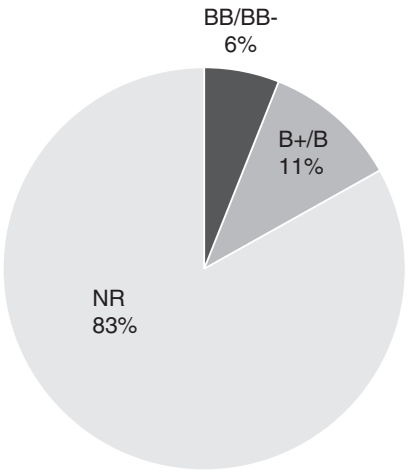


FIGURE 10.16 Loan Volume by Rating for Deals by Issuers with EBITDA of $50 Million or Less (Total New-Issue Volume: $25.9 billion), 2004
NR: not rated.
Source: Standard & Poor's.

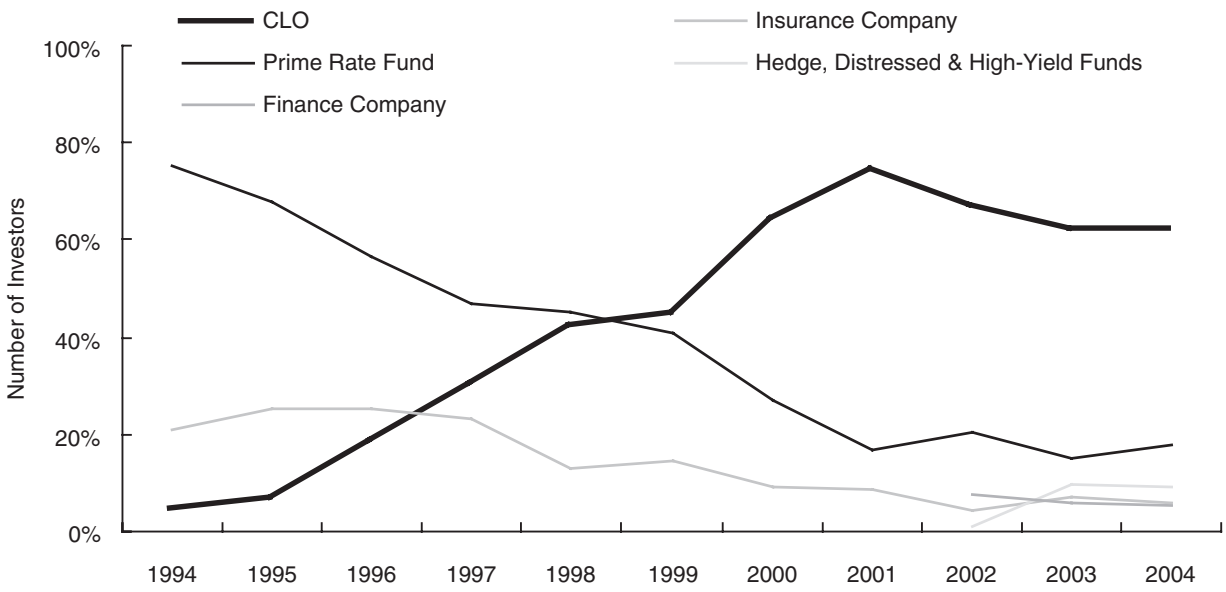


FIGURE 10.17 Primary Markets for Highly Leveraged Loans for Issuers with EBITDA of $50 Million or Less, 1994 to 2004
Source: Standard & Poor's.

fees. Investors tend to focus on larger, widely syndicated leveraged loan deals with debt ratings that allow them to match loan investments to the requirements of their investment vehicles. In addition, the smaller size of a middle-market deal makes it more difficult to justify paying the fees (which can amount hundreds of thousands of dollars) required to obtain a debt rating. As a result, the primary lenders/investors in the middle market are commercial banks and finance companies that do not require debt ratings for their lending process (see Figure 10.17). Moreover, these institutions tend to view their middle-market loan activity as a part of a larger overall business relationship with the issuing company. Institutional investors have just begun to increase exposure to middle-market loans recently because of a lack of standard leveraged loan paper, but they remain a small portion of today's overall market.

Investment Opportunities

Middle-market loans offer investors credit exposure to a pool of issuers beyond those found in the broadly syndicated leveraged loan and high-yield bond markets. Middle-market loans can provide higher yields and attractive price discounts for investors who are willing, in some cases, to take on additional credit risk. The potential for higher yield versus institutional term loans will likely persist because of significant structural differences between the two classes that result in a limited lending group for middle-market issuers. Besides potentially higher yields, middle-market loans, like

institutional term loans, are senior secured and have maintenance financial covenants. We think that it is reasonable to expect that middle-market loan recoveries should be roughly comparable to institutional term loans because both asset classes have a senior secured claim on the assets of the issuer.

EUROPEAN LEVERAGED LOANS

Overview

The European leveraged loan market provides additional opportunities for investors within the senior secured loan asset category. Annual issuance for this market reached a record €78.5 billion in 2001. Issuance then declined to €40.0 billion in 2002 and climbed to €64.8 billion in 2004 (see Figure 10.18).

The new issuance was diversified across industries and countries. In 2003, four countries (the United Kingdom, France, Italy, and Germany) accounted for 71 percent of the total new issuance, with the U.K. constituting a little more than one-third. Lending was well balanced across a number of different industrial sectors, with the cable sector leading with 13 percent of market share (see Figure 10.19).

European banks have traditionally dominated the primary issue leveraged loan market, with almost two-thirds of the total market volume (see Figure 10.20). Institutional investors (mostly CLOs) accounted for only 21 percent of the total size of the European leveraged loan market. These findings are in sharp contrast with the United States where institutional investors dominate the primary loan market.

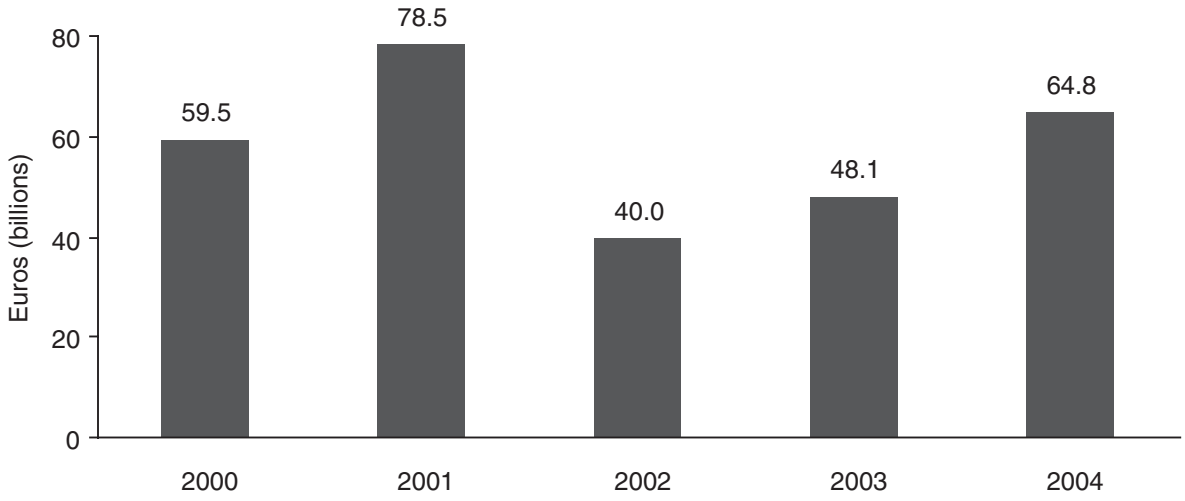


FIGURE 10.18 European Leveraged Loan Volume, 2000 to 2004 (euros in billions)

Source: Standard & Poor's.

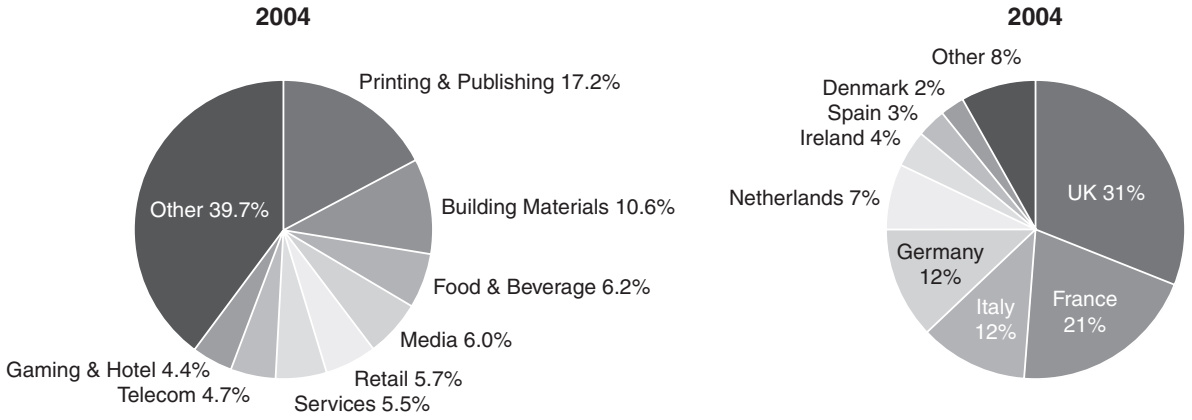
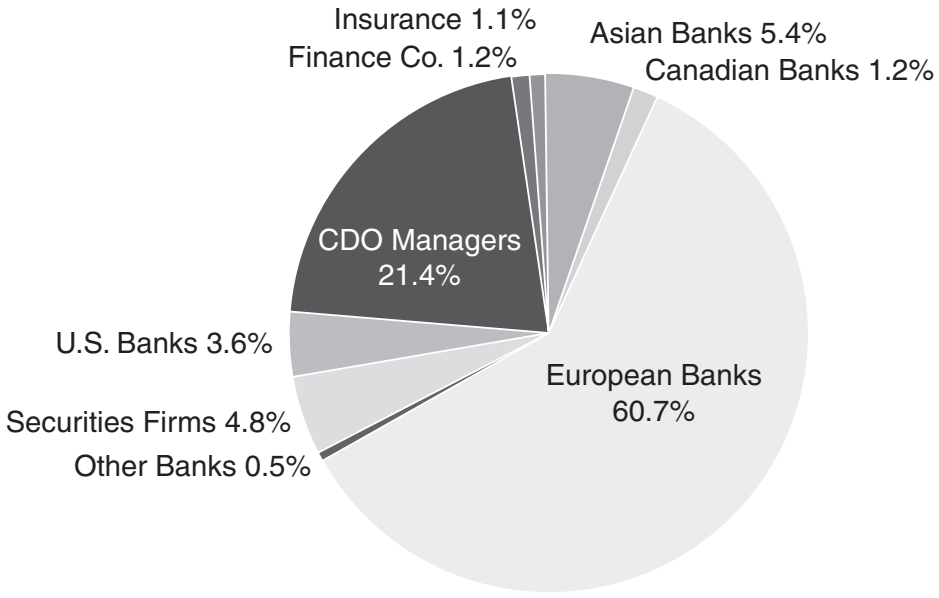


FIGURE 10.19 European Leveraged Loan Volume by Industry and Country
Source: Standard & Poor's.



[a]Excludes U.S. dollar tranches.

FIGURE 10.20 Primary Market for European Leveraged Loans by Investor Type,[a] Latest 12 Months as of December 31, 2004
[a]Excludes U.S. dollar tranches.
Source: Standard & Poor's.

EUROPEAN MEZZANINE BANK LOANS

A growing part of the European loan market is the European mezzanine market (see Figure 10.21 for the historical growth of the market), which has now become the primary source of funding for European leveraged buyouts. A European mezzanine loan is generally a subordinated second secured debt obligation.

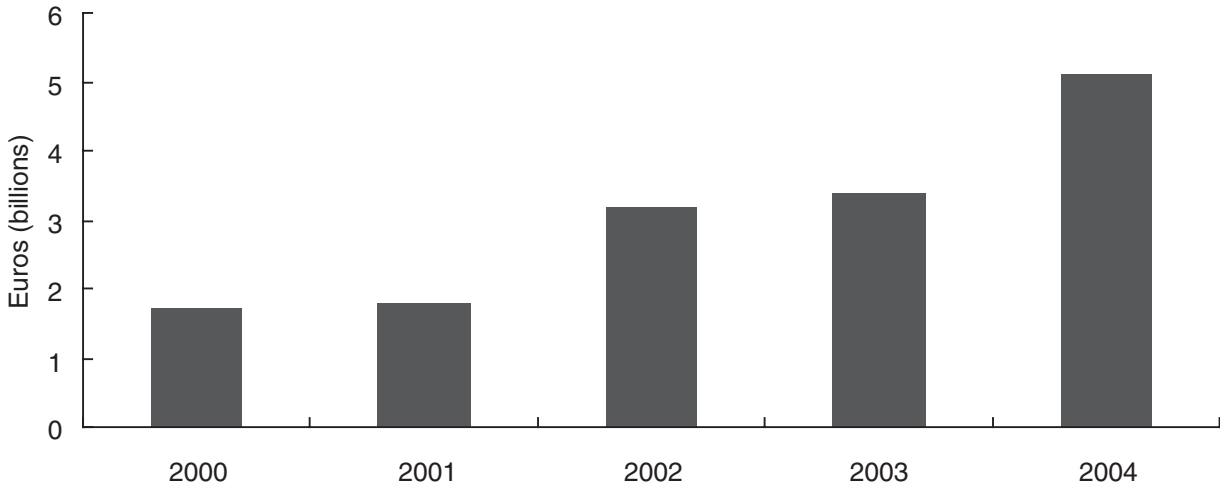


FIGURE 10.21 European Mezzanine Market Evolution
Source: Standard and Poor's.

TABLE 10.1 A Comparison of Typical European Funding Structure Characteristics

	Senior Debt	Mezzanine	High Yield	Equity
Security	Yes—first ranking	Yes—second ranking	Usually none	None
Ranking	Senior	Contractually subordinated	Structurally subordinated	Junior
Covenants	Generally comprehensive	Often track senior debt covenants	Less restrictive; mostly financial	None
Term	5–9 Years	6–10 Years	7–10 Years	Open ended
Income	Cash pay—floating	Cash pay—floating	Cash pay—fixed	Dividends—uncertain, usually cash pay

Source: Fitch.

European mezzanine bank debt is a floating-rate instrument, and its coupon usually includes cash and a pay-in-kind (PIK) component. Table 10.1 shows a typical mezzanine structure and compares it with other debt instruments. Investors are attracted by the higher spread relative to senior secured loans and greater protection than offered by high-yield bonds, achieved through covenants and security. However, European mezzanines still largely constitute a privately rated asset class, and only limited performance data are available.

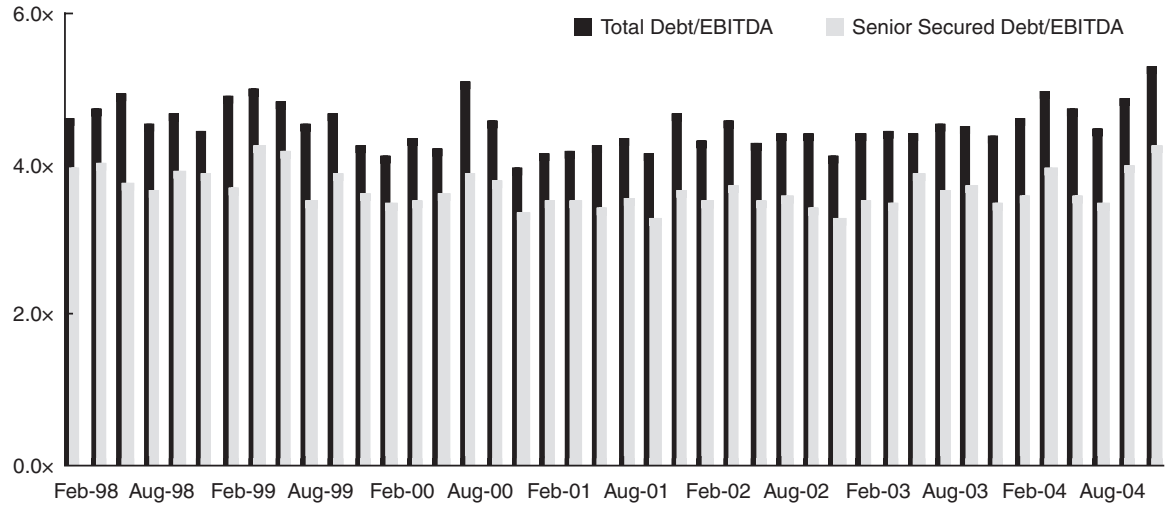


FIGURE 10.22 Average European Leverage Statistics—Rolling Three-Month Debt Multipliers, February 1998–November 2004
Source: Standard & Poor's.

Key Characteristics

Leverage European leveraged loans exhibit debt multipliers similar to those of U.S. leveraged loans. Figure 10.22 shows debt-to-EBITDA ratios for the European loan market.

Recoveries Recovery data for European loans is limited, given the private nature of the loan market. In 2000, the Fitch rating agency conducted research on an unnamed basis that showed an average recovery rate of 76.5 percent, which is slightly lower than the correspondent recovery rate for U.S. loans. However, these findings were hampered by the small size of the data sample used in the analysis. In addition to the limited data availability, differences exist in insolvency regimes across Europe. Because of these differences, recovery rates are expected to vary across European countries depending on the jurisdiction.

Primary Spreads Figure 10.23 provides comparison of the historical spreads on institutional BB/BB–rated new issues in the United States and Europe. The historical data show that European spreads were generally lower than U.S. spreads between 1999 and 2002. However, by 2004, U.S. spreads were rallying significantly, and European spreads ended up almost 75 bp wider than their U.S. counterparts.

Investment Opportunities

Investing in European leveraged loans can provide additional geographic and issuer diversification opportunities beyond the U.S. obligors. Although

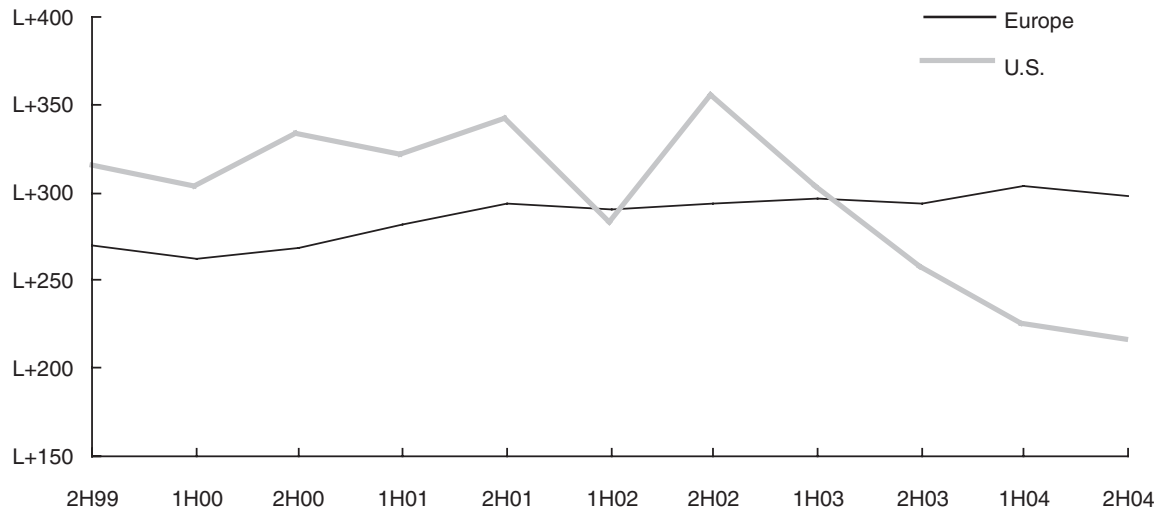


FIGURE 10.23 Weighted-Average New Issue Spread of European and U.S. BB/BB–Institutional Issuers, 2H 99–2H 04
Source: Standard & Poor's.

recovery data are limited, a European leveraged loan represents the senior secured debt of an issuer, and therefore it is expected to have significant recoveries in case of default.

COLLATERALIZED LOAN OBLIGATIONS

Efficient Access to Loan Market Investment Opportunities—Introducing CLOs

As we have discussed in this chapter, leveraged loans represent a broadly diversified, rapidly growing market. The unique characteristics of loans, such as high recoveries and stable prices, appeal to many investor types (including CLOs), especially during events such as the most recent bear credit market.

Despite its unprecedented growth, the loan market investor base has yet to reach the scale of the high-yield bond market. Participation in CLOs allows investors to capitalize on existing price inefficiencies in the loan market, diversify their exposure to the bank loans, and utilize professional management expertise and resources. Various types of investors, ranging from banks to high net worth individuals, have used CLOs to gain leveraged exposure to bank loans (see Figure 10.24).

Basic CLO Structure

CLOs are created by applying asset-backed structuring technology to a pool of bank loans. The formation of a CLO begins with the establishment

Senior/Subordinate (AAA/AA/A/BBB) Securities
Banks
Insurance Companies
Conduits
Fund Managers
Mezzanine (BBB/BB) Securities
Insurance Companies
Banks (Specialized Funds)
Hedge Funds
Fund Managers
Income Notes (CDO Equity)
Insurance Companies
Banks
High Net Worth Individuals
Alternative Investment Group/Special Investment Groups

FIGURE 10.24 CLO Investor Profile
Source: Citigroup.

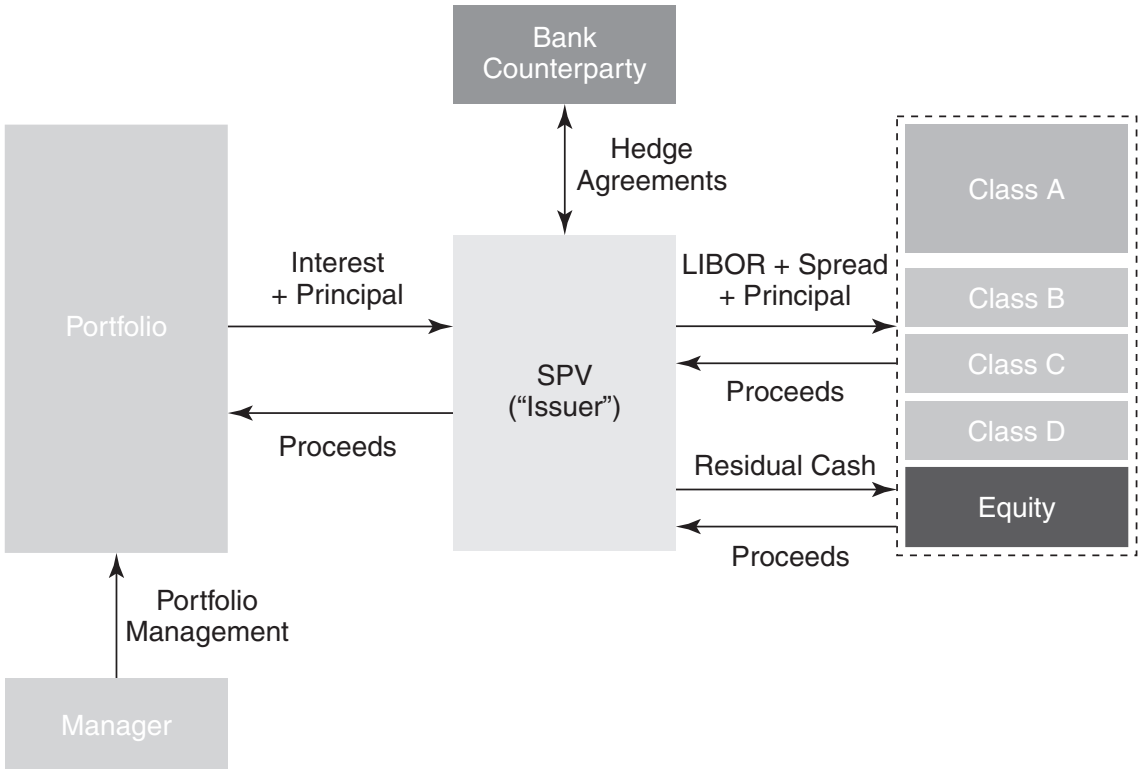


FIGURE 10.25 A Typical CLO Structure
Source: Citigroup.

of a special purpose vehicle (SPV) to acquire a pool of bank loans (see Figure 10.25). The average collateral pool size is usually between $300 million and $500 million par value, with the total exposure diversified across 100 to 200 distinct obligors in 20 to 30 industries.

To fund the acquisition of the debt obligations, the SPV issues rated and unrated liabilities (tranches). The expected average lives of these CDO

liabilities range from 6 to 12 years, depending on the tranche's seniority. Because the majority of these liabilities are highly rated, the CLO can raise most of its capital cheaply in the investment-grade market and invest it more profitably in the leveraged loan market.

A typical CLO consists of five to seven rated tranches with the ratings ranging from AAA to BB and unrated income notes (also known as the *equity tranche*). The desired tranche ratings are achieved through obligor and sector diversification and leverage, and by employing the payment distribution waterfall designed to protect the more senior note holders of the deal's liability structure.

The waterfall directs proceeds from the underlying collateral pool to the liability note holders, ensuring higher asset coverage for the senior tranches (see Figure 10.26). Principal and interest cash flow is paid sequentially from the highest-rated class to the lowest. However, if the cash flow is insufficient to meet rated note costs or certain asset coverage tests are not met, most or all cash flow is diverted from the equity tranche and paid to the most senior tranche. The asset coverage tests are divided into two groups: overcollateralization (OC) and interest coverage (IC) tests. The

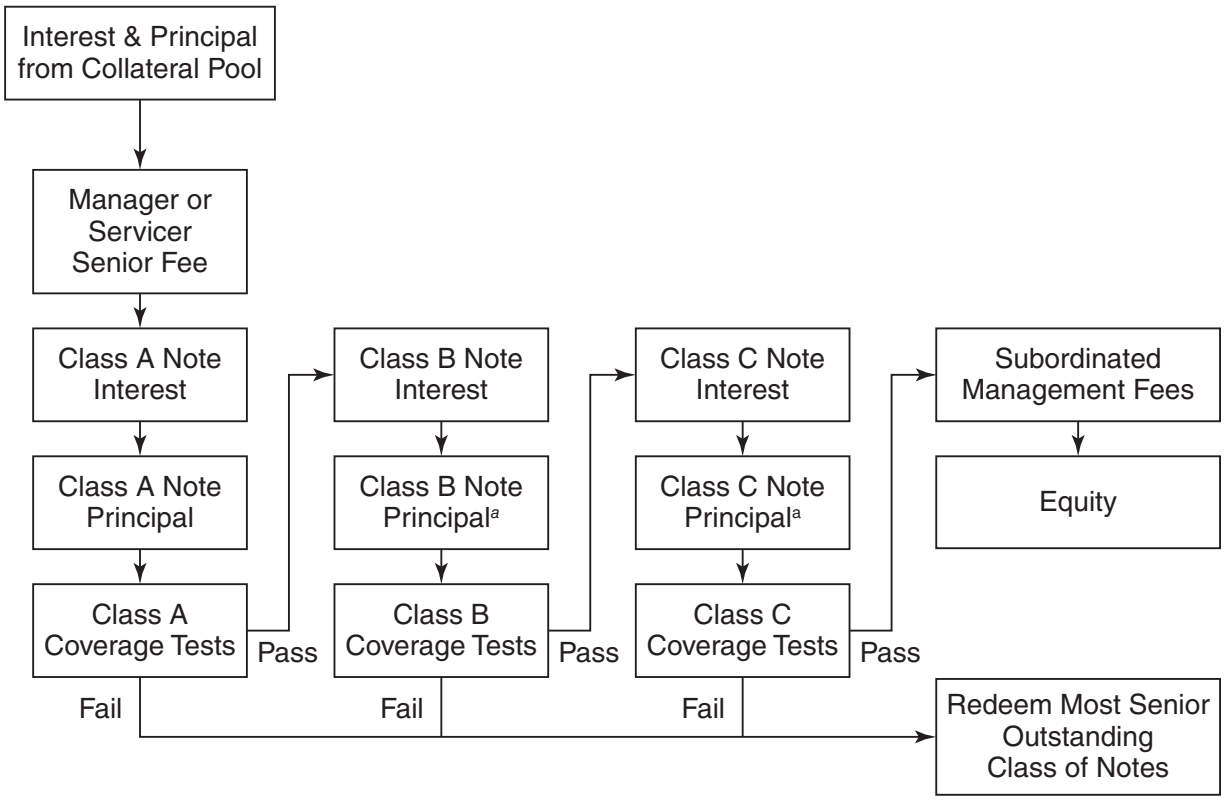


FIGURE 10.26 A Simplified Waterfall
[a]Subject to delevering of the more senior tranches.
Source: Citigroup.

former measures the amount of debt/asset coverage for a tranche, while the latter evaluates available interest proceeds to make coupon payments on the liability tranches.

A CLO investor can achieve a targeted return/risk profile by choosing a particular tranche in which to invest. The coupon margin reflects the relative riskiness of the tranche, and it increases with the lower ratings of the notes. Figure 10.27 shows a sample CLO capital structure. The income notes represent the riskiest investment, and therefore, they offer the highest potential return to compensate for this exposure. These notes receive the residual interest cash flow remaining after payment of fees, rated note holder coupons, and the satisfaction of any asset coverage tests. Depending on their risk/return objectives, investors can position themselves across the capital structure of a CLO.

CLO Asset Manager[3]

Once a CLO is issued, the collateral manager manages the portfolio according to the investment guidelines set forth in the bond indenture and within parameters necessary to satisfy the rating agencies. Within these guidelines, the manager sells and buys assets and, during the reinvestment period, reinvests collateral principal cash flows into new loans. The investment guidelines typically require that the CLO manager maintain a minimum average rating and portfolio diversity with the goal of muting any adverse effects that trading activity may have on note holders. The primary responsibility of the CLO collateral manager is to manage the portfolio in a way that minimizes losses to the note holders stemming from defaults and discounted sales. To this end, all note holders rely on the manager's ability to identify and retain creditworthy investments. In particular, income note

Assets					
Average S&P Rating of the Collateral Loans	B+				
Principal Amount (mm)	$325.0				
Liabilities	**Class A**	**Class B**	**Class C**	**Class D**	**Equity**
S&P Rating	AAA	A-	BBB	BB	NR
Moody's Rating	Aaa	A3	Baa2	Ba2	NR
Principal (mm)	$245.0	$33.0	$13.0	$14.8	$25.5
Percentage of Capital Structure	74.0%	10.0%	3.9%	4.5%	7.7%
Stated Final Maturity (years)	12.0	12.0	12.0	12.0	12.0
Average Life (years)	6.3	8.5	9.1	9.6	—

NR = not rated.

FIGURE 10.27 Sample CLO—Capital Structure
Source: Citigroup.

holders are substantially dependent on a manager's performance; the initial asset selection and trading activity throughout the reinvestment period are critical to achieving high returns.

Because note holder returns hinge upon good collateral manager performance, the choice of a CLO manager is a crucial decision for the investors. When choosing the collateral manager, the following key attributes should be examined in depth:

- The track record managing loan portfolios.
- Experience managing within the CLO framework.
- Level of institutional support.
- Investment and trading philosophy.
- Expertise in each asset class that the manager is permitted to invest in.
- Importance of CLO product to overall organization.
- Manager's access to loans.

A manager with a deep understanding of the underlying credit fundamentals of the various loan markets can make informed credit-based trading decisions, not trading decisions based on price movements.

CLO Market Today

The CLO market is a subsector of the broader CDO market. The latter has grown dramatically since the mid-1990s, reaching $110 billion in new issuance in 2004, eclipsing its record of $78 billion set in 2001 (see Figure 10.28).

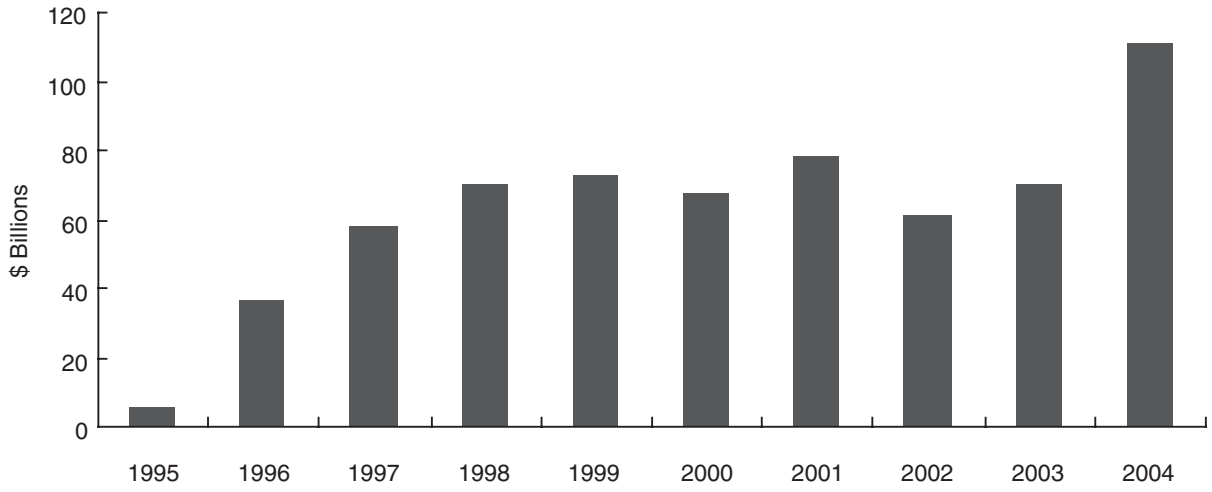


FIGURE 10.28 Global CDO Growth, 1995 to 2004
Source: Bloomberg, Creditflux, IFR Markets, MCM, Fitch, Moody's, and Standard & Poor's.

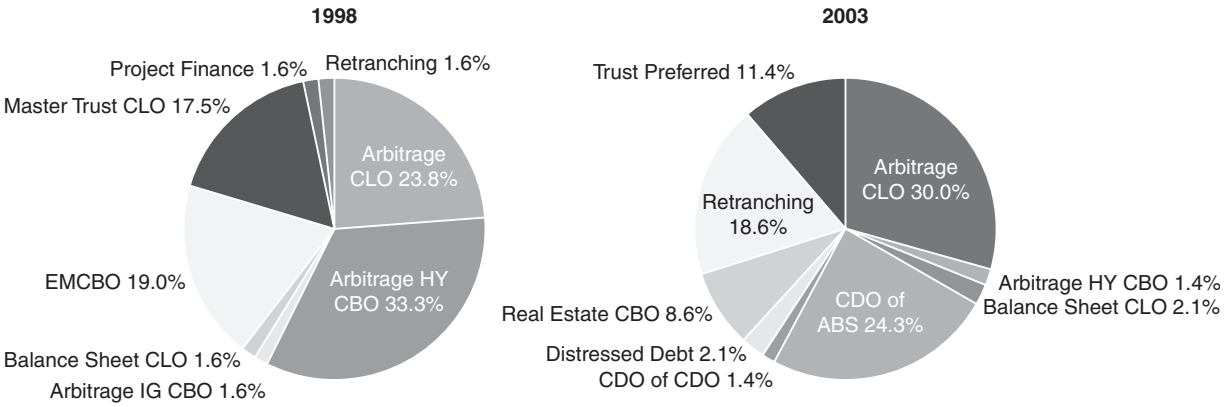


FIGURE 10.29 CDO Collateral—Distribution of U.S. Cash Flow CDOs, 1998 versus 2003
Source: Standard & Poor's.

As the overall CDO market has grown, so has the CLO portion of that market. As Figure 10.29 illustrates, CLOs accounted for 30 percent of all U.S. transactions rated by S&P in 2003, up by 6.2 percent since 1998. By contrast, high-yield bond transaction (high-yield CBO) issuance data show a sharp decline from approximately 33 percent in 1998 to just above 1 percent in 2003.

The credit market blowups and soaring default rates of 2000 to 2002 confirmed the resilience of leveraged loan collateral, steering more investors toward CLOs and away from traditional high-yield CBOs. In 2003, S&P rated only two new high-yield CBOs as opposed to 42 new CLO transactions. Many CDO investors have moved from CBOs into CLOs, attracted by the higher stability and strong returns associated with CLOs. This has caused a surge in the overall demand for primary loan issues. S&P estimates that approximately 67 percent of all issues in the primary institutional loan market were placed into various CLO vehicles in 2002.[4]

Key Drivers of CLO Outperformance

Rating agency data have revealed striking differences in the historical performance of CLOs and compared with high-yield CBOs. In particular, CLO tranche ratings have been much more stable than CBO tranche ratings and corporate debt ratings. Figure 10.30 illustrates Moody's Investors Service's rating transition rates in these three asset classes.[5] Moreover, as evident from Table 10.2, the severity of CLO downgrades was less pronounced than that for CBOs. The historical performance of CLOs indicates far fewer and less pronounced rating downgrades than for high-yield CBOs and corporate debt.

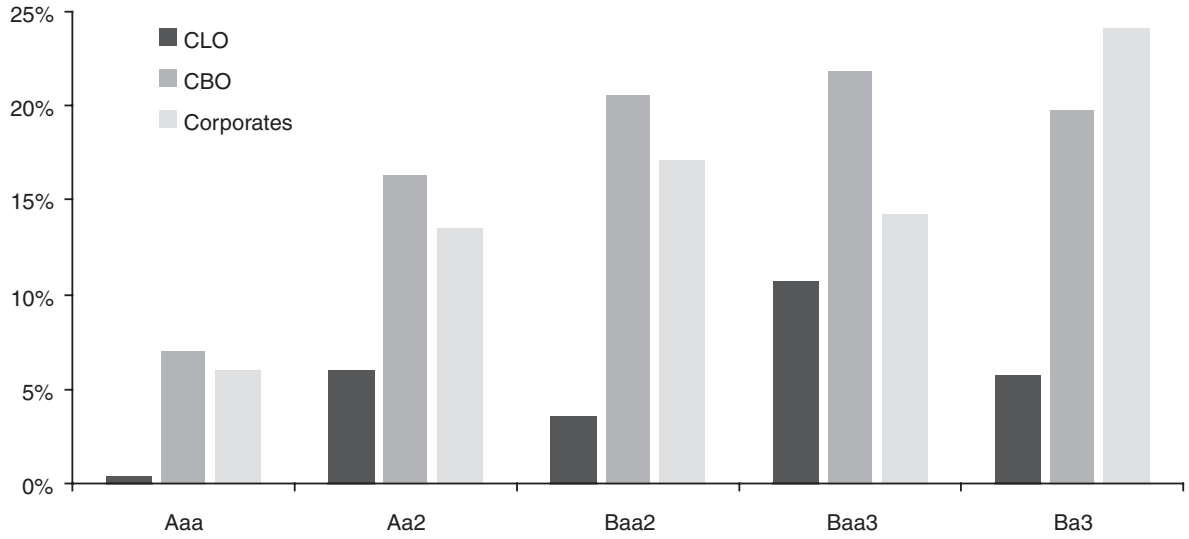


FIGURE 10.30 Moody's Historical CLO and CBO Rating Downgrades, 1996 to 2002
Source: Moody's Investors Service.

TABLE 10.2 Maximum One-Year Historical Downgrades

	Lowest One-Year Rating Transition	
Rating	**CBO**	**CLO**
Aaa	Ba3	Aa2
Aa2	Caa1	A1
A3	Caa3	Baa3
Baa2	Ca/C	Ba2
Baa3	Ca/C	B2
Ba3	Ca/C	Ca/C

Source: Moody's Investors Service.

In addition to the slower pace and scale of downgrades, most CLO downgrades were localized: According to a Moody's 2003 study, the majority of CLO downgrades have been limited to a handful of CLO managers. In fact, 56 percent of all CLOs downgraded by the agency in 2002 were associated with just three collateral managers. The same study indicated that all downgrades in earlier years were associated with the same three managers.

Why are CLO ratings so stable? The answer can be found in two main areas: superior performance of loan collateral and CLO-specific collateral manager expertise. Broad obligor and sector diversification, floating-rate collateral, and high recovery and prepayment rates all augur well for CLOs.

In addition, as we discuss later, the typical bank loan manager mentality is well suited to managing loan portfolios in the CLO context.

Recovery Rates Because they occupy the most senior part of an issuer's capital structure and are secured by its assets, defaulted bank loans often have substantially higher recovery rates than the more subordinated debt obligations of an issuer (see Figure 10.31). Over the 1988 to 2003 period, senior secured bank loans had an average recovery of 77.5 percent of par value, while senior unsecured debt recovered 41.5 percent of par value and junior subordinated bonds recovered only 22 percent. Even in times of credit duress, such as the 1998 to 2002 period, loans realized an average recovery rate of 74.1%, while senior unsecured debt recovered less than half that amount (36.8 percent). High recovery rates make it less likely that the collateral backing the CLO will deteriorate sharply. The CLO manager receives significant principal proceeds from the defaulted assets and has the opportunity to reinvest the cash flow into new collateral.

Prepayment Rates Most corporate bonds have covenants that govern an issuer's prepayment/call rights. High-yield bond prepayments are typically restricted for the first three to five years. By contrast, the vast majority of bank loans can be prepaid at par at any time without penalty. In fact, the average leveraged loan prepayment rate during the recent low interest rate environment was approximately 20 to 25 percent, easily topping the average 5 to 8 percent call rate in the high-yield corporate market. For this reason,

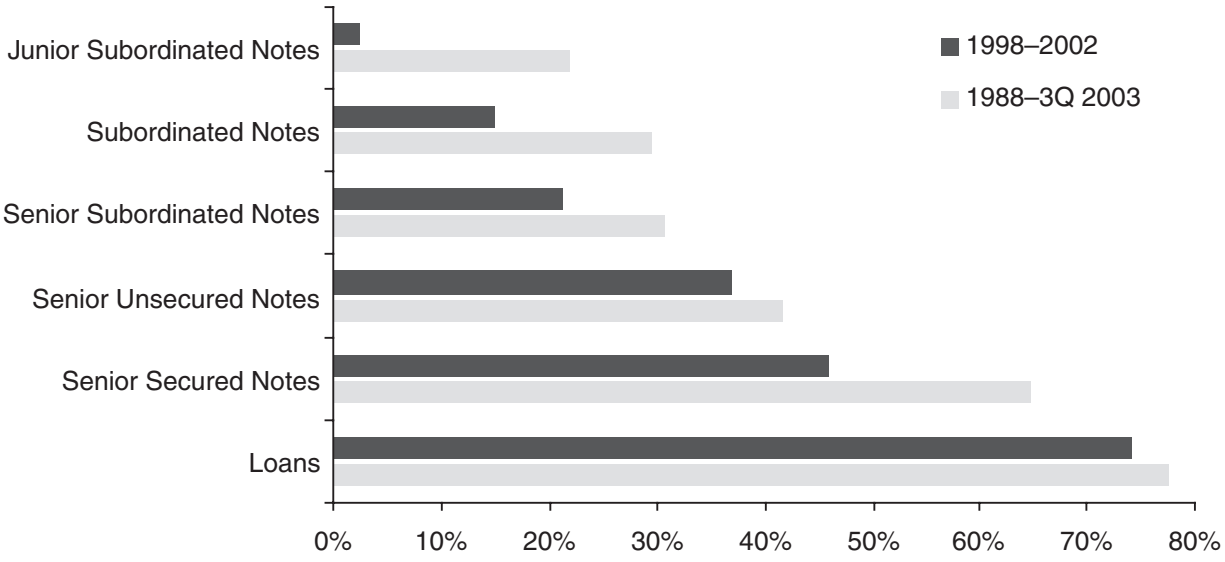


FIGURE 10.31 Historical Recovery Rates, 1988 to 2003 versus 1998 to 2002
Source: Standard & Poor's.

the CLO collateral manager usually has significant principal cash flows to reinvest in additional collateral assets or to de-lever the liabilities. This is particularly useful in a stressed economic environment with the downward credit pressure in the underlying portfolio.

Floating Interest Rates Because most CDO liabilities bear floating-rate coupons (i.e., a spread over LIBOR), floating-rate leveraged loan collateral effectively eliminates the interest rate mismatch between the assets and liabilities of a CLO. By contrast, CDOs that are backed predominately by fixed-rate high-yield bonds must enter into an interest rate hedge agreement with a third party to hedge against interest rate risk. Typically, a high-yield CBO periodically pays the counterparty a predetermined fixed interest rate on a fixed notional amount and in turn it receives floating-rate payments (usually determined by the value of LIBOR on the preceding payment date). The hedge balance is typically structured to decrease over time to mimic the expected amortization schedule of the notes and, hence, reduce the risk of the transaction's being overhedged. Hedge payments are more senior than liability payments in a payment waterfall structure and, thus, may have a pronounced effect on the overall performance of a high-yield CBO.

Although the outstanding balance of the hedge amortizes with the time, the amortization schedule is determined at inception and may differ significantly from the realized amortization of CDO liabilities. In particular, in a highly stressed credit environment (e.g., 2000 to 2002), the most senior tranche of a CDO may experience rapid prepayment caused by the failure of the asset coverage tests. Consequently, the hedge balance grows significantly larger than the reduced balance of the liabilities, and the transaction becomes overhedged. Under stressed economic conditions, which are typically coupled with decreasing interest rates, a CDO can suffer from both an asset/liability balance mismatch and an increase in the periodic payments to the hedge counterparty. This phenomenon has plagued high-yield CBOs over the past few years.

Floating-rate bank loans eliminate the asset/liability mismatch and greatly reduce the interest rate risk in the transaction. Therefore, CLOs are unlikely to suffer from the double blow of being overhedged in a decreasing interest rate environment under stressful credit conditions.

Price Stability High expected recoveries and a surging demand for loans (especially from CLO issuers) are two of the primary reasons why loan prices have remained very stable over the past few years. Although CDOs are not net asset value (NAV)-based vehicles, price stability is very important for

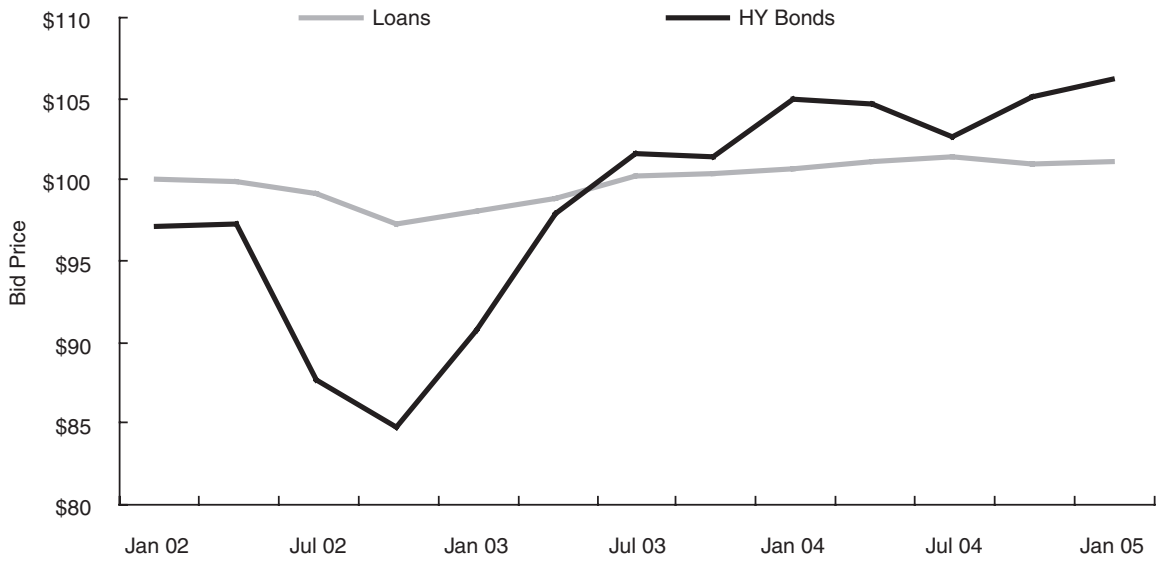


FIGURE 10.32 High-Yield Bonds and BB-Rated Institutional Loans—Average Bid Prices, January 2002–January 2005
Source: Standard & Poor's.

two reasons: credit risk sales and reinvestment into new assets. Regarding the former, if a CLO manager sees signs of credit deterioration at a company, he or she may decide to sell the loan. The ability to sell this asset into a market that has very solid price stability can be a powerful mitigant to loss of par in the CDO. By contrast, as Figure 10.32 illustrates, if the CDO manager sold high-yield bonds of the same issuer, the loss of par could be much more pronounced.

Reinvestment of principal proceeds is the flip side of this issue. Because the loan market (unlike the high-yield bond market) typically does not trade much above par, when a CLO manager has to redeploy principal proceeds into new assets he or she typically will not pay above par for an asset, or if a premium is paid it will be slight as compared with the high-yield bond market.

CLO Collateral Manager The final driver of CLO outperformance is the least tangible, but perhaps one of the most important: *t*he mind-set of the bank loan manager. As we have discussed in the previous section, bank loans are prepayable at par without penalty, and as a result they do not trade much above par. Loan managers recognize this, and the good ones focus zealously on credit risk, because they realize that every point of par lost as the result of trading and/or default is exceedingly difficult to counterbalance through the sale of loans trading at a premium. Not all total return high-yield managers have had the same mind-set, and some high-yield CBOs have suffered as a result.

CONCLUSION

The impressive growth that the leveraged loan market has displayed over the past decade has been accompanied by greatly improved liquidity and transparency. The benefits of this asset class, which include stable prices and high recovery and prepayment rates, can be accessed efficiently by CLOs. During the previous credit cycle, CLOs on average have demonstrated more stable performance than both high-yield bond CDOs and straight corporate debt. This stability has fueled CLO growth: CLOs now account for almost one-third of the primary CDO market.

The growth has not come without challenges. The recent surge in demand for institutional loans by structured vehicles has resulted in a significant tightening of the loan spreads and increased obligor concentrations among some institutional loan CLOs. CLO market participants have acknowledged this and are now searching for ways to complement their institutional loan CLO portfolios. Alternative loan categories, such as revolving credit obligations, middle-market loans, and European leveraged loans, provide new chances for diversification, yield, and credit stability.

MIDDLE-MARKET CLO HANDBOOK

Middle-market collateralized loan obligations (CLOs) offer investors the ability to diversify away from issuers found in the standard leveraged loan and high-yield bond markets. With a single investment, investors can obtain broad, professionally managed exposure to middle-market loans at a risk level of their choosing.

Strong middle-market loan performance has resulted in strong middle-market CLO performance. Of the 39 middle-market CLOs issued through September 30, 2004, none were downgraded by Moody's or Standard & Poor's.[6]

Middle-market CLOs issued for balance-sheet purposes often contain structural features not commonly found in traditional CLOs. These middle-market CLOs often have zero-tolerance loss tests that trap cash immediately upon credit delinquency or default.

Middle-market loans are similar to leveraged loans, but they are issued by medium-size companies and often are not syndicated. Middle-market loan issuers generally have less than $500 million in revenues and less than $50 million in EBITDA. As a result, loan facilities are typically less than $150 million in total size.

We expect loans to continue to deliver superior recovery rates relative to other debt given their advantages in security, seniority, and covenant

protection. In the period from 1988 to 2003, senior secured bank loans had an average recovery of 77.5 percent of par value, while senior unsecured debt recovered only 41.5 percent of par value and junior subordinated bonds recovered only 22 percent.

Middle-Market Size and Definition

Middle-market loans are similar in structure to leveraged loans but they are issued by medium-size companies and often are not syndicated. For the first nine months of 2004, $17.1 billion of middle-market loans were issued, which was nearly double the $9.0 billion issued during the same period of 2003 (see Figure 10.33). Middle-market loan issuance stalled for the three years prior to 2004, as lenders had a much lower appetite for risk owing to rising defaults and volatility in the equity and bond markets.

Middle-market loan issuers generally have less than $500 million in revenues and less than $50 million in EBITDA. As a result, loan facilities are typically less than $150 million in total size. Within these criteria, middle-market loans of $150 million or more are considered large and are normally issued by companies with EBITDA of $25 million to $50 million. Standard middle-market loans are smaller ($50 million to 150 million in size) and small middle-market loans constitute the balance (see Table 10.3). Specialized lenders cater to the middle market given the small loan size and specific needs of these companies. Middle market lending is generally relationship driven, and deals tend to have fewer participants than leveraged loans that are broadly syndicated.

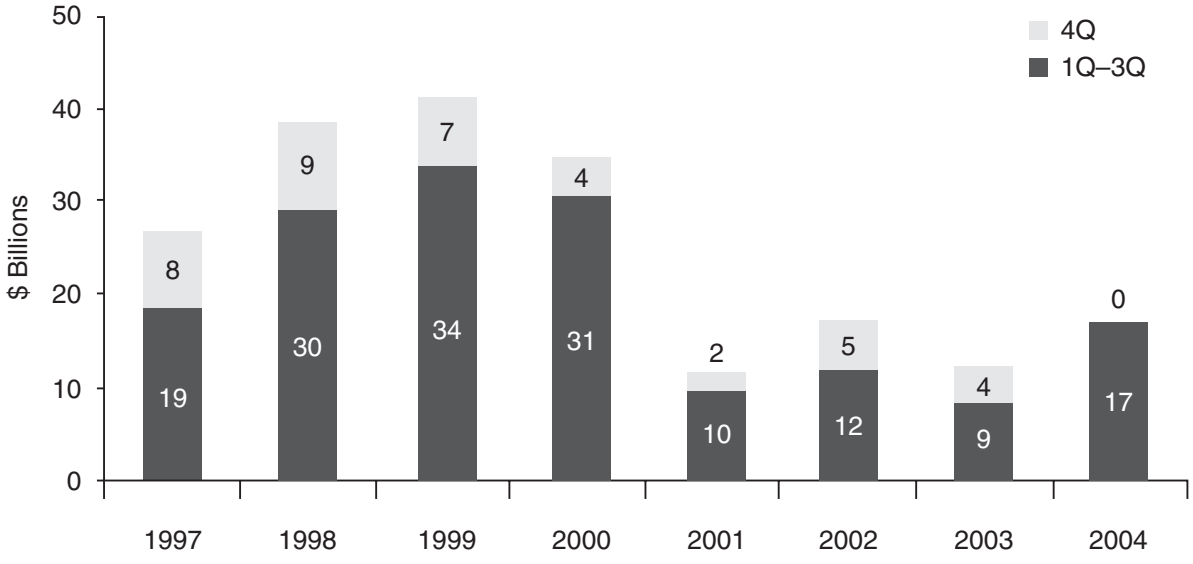


FIGURE 10.33 Total Middle-Market Volume by Year, December 1997–December 2004

Source: Standard & Poor's/Leveraged Commentary and Data.

TABLE 10.3 Middle-Market Segments (all values in $millions)

Loan Size	Revenues	EBITDA	Deal Size	Lender Type
Large	$250–$500	>$50	>$150	Syndicate group
Standard	$100–$250	$25–$50	$50–$150	Regional banks and finance Companies
Small	<$100	<$25	<$50	Finance companies and special lenders

Source: Citigroup.

Middle-market lending increased in the third quarter of 2004 with strong investor appetite and a low default environment fueling the primary market. Increased merger and acquisition (M&A) and leveraged buyout (LBO) activity drove new issuance in 2004, making up over 56 percent of deals done during the third quarter and driving issuance up 42 percent over the same period the prior year. The new deal pipeline is strong, with institutional money chasing yield downmarket and abundant M&A and LBO transactions pending.

Growing Investor Demand

As yields tightened considerably in the traditional leveraged loan and high-yield bond markets during 2004, investors increasingly looked for opportunities to earn higher yields, and some invested in middle-market loans. Institutional investors make up nearly 70 percent of primary investors in the middle market, and CLO structures comprise nearly 70 percent of institutional money (see Figure 10.34).

Dominance of Institutional Term-Loan Debt

In 2004, 62 percent of new-issue middle-market loans were institutional tranches, compared with only 37 percent the prior year (see Figure 10.35). Institutional debt set all-time records for middle-market loans in 2004, outpacing even 1999, which was a record year for new issues but had a smaller proportion of institutional tranches. Institutional tranches, which are fully funded term loans, are much easier for investors to hold because of stable funding requirements and more predictable maturities. These characteristics also make them more attractive for CLO structures.

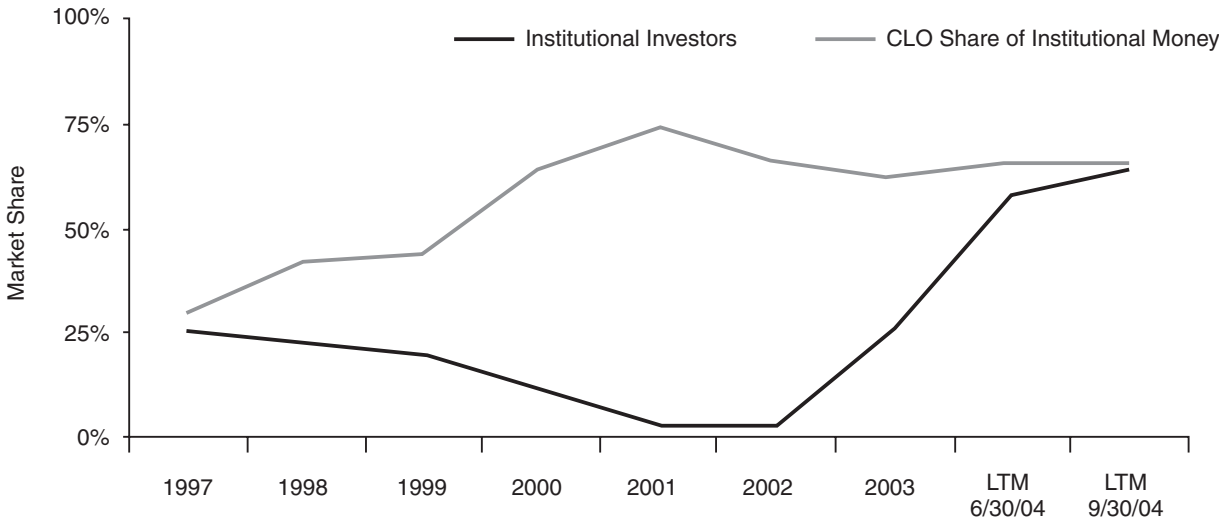


FIGURE 10.34 Institutional Investors' Share of the Primary Market for Highly Leveraged Loans for Issuers with EBITDA of $50 million or Less versus CLOs' Share of the Institutional Market
Source: Standard & Poor's/Leveraged Commentary and Data.

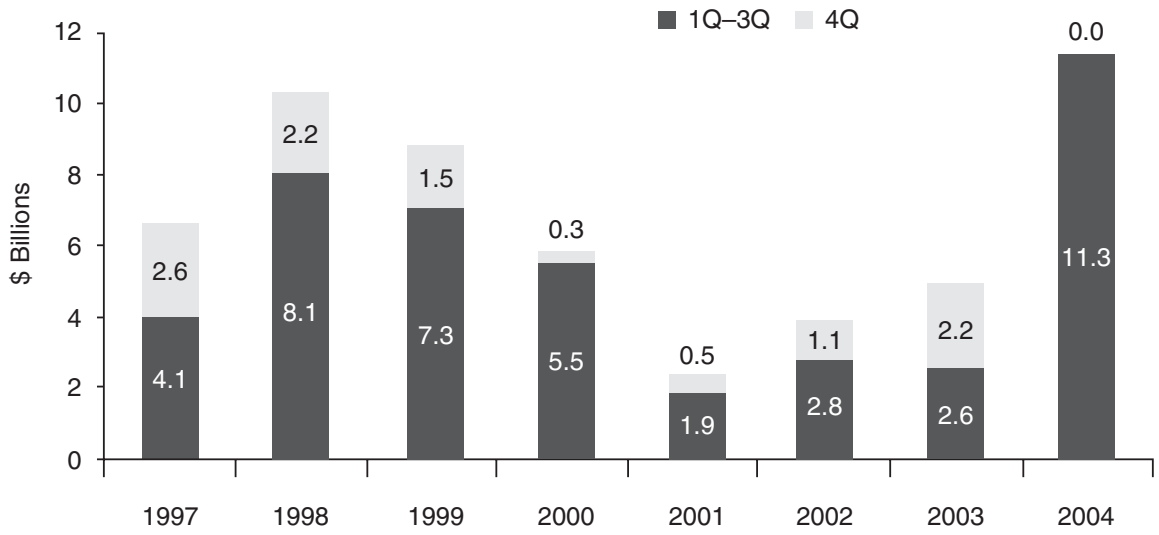


FIGURE 10.35 Total Middle-Market Institutional Volume by Year, December 1997–September 2004
Source: Standard & Poor's/Leveraged Commentary and Data.

Second-Lien Loans Emerge

Second-lien middle-market loans emerged as a significant part of the new-issue market in 2004 as well, with nearly $2.0 billion issues year to date, or 12 percent of the total market (see Figure 10.36). Traditional loan investors and hedge funds are attracted by the high yields paid on the second-lien tranches. Demand is settling, however, as average second-lien middle-market loans had a spread of LIBOR + 750 bp in the third quarter

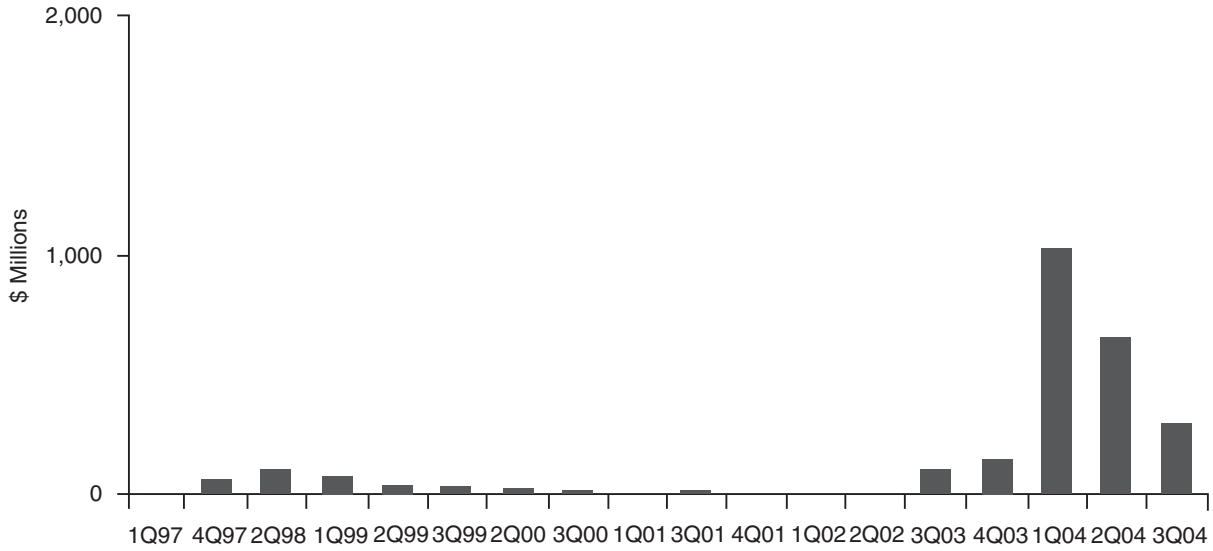


FIGURE 10.36 Volume of Second-Lien Loans for Middle-Market Issuers, March 1997–September 2004
Source: Standard & Poor's/Leveraged Commentary and Data.

of 2004, wider from the tights of LIBOR + 623 bp in the first quarter of 2004 when new investors flooded the market. While second lien loans provide attractive yields and can provide a significant boost to portfolio performance, investors should consider that a secondary claim on the assets of the borrower could have a negative impact on recovery rates for these securities if the obligor defaults.

Investment Considerations for Middle-Market Investors

Middle-market loans[7] can provide higher yields and attractive price discounts for investors who are willing to take higher risk. Because of lower market liquidity, many middle-market loans trade at a discount to par and price points considerably lower than comparable leveraged loans. Investors should consider the following issues when considering whether to buy middle-market loans.

Discount Middle-market loans generally trade at a discount from par and often trade at price points considerably lower than similarly rated leveraged loans. The discount is caused by certain impediments to liquidity (e.g., small deal sizes, few market makers, small lending groups, private information) and the selling pressure caused by banks seeking to rationalize their balance sheets and credit exposures. Middle-market loans are attractive for institutional loan investors, including structured vehicles that benefit from purchasing discounted instruments with higher coupons. Discounted

prices become especially important when loans refinance, which generally occurs at par. Investors who have bought loans at a discount will reap a windfall from the difference between purchase price and par at that time. Conversely, investors who buy loans at a premium above par stand to lose the difference in a potential refinancing.

Higher Coupons Middle-market institutional loans currently pay an average coupon of approximately LIBOR + 361 bp, nearly 140 bp more than a comparable BB/BB–rated institutional leveraged loan, and 80 bp more than a comparable B/B–rated institutional leveraged loan (see Figure 10.37 for this comparison).

Security Middle-market loans, like institutional term loans, are often senior secured, and have maintenance financial covenants. Covenants give investors the ability to restrict the debt capacity and cash flow use of a borrower and provide an early seat at the table in the event of credit deterioration of an issuer, which lenders often use to improve their position in terms of security, collateral, coupon, or fees.

Diversification Middle-market loans offer investors credit exposure to issuers outside of the standard leveraged loan and high-yield bond markets. Limited overlap between middle-market obligors and broadly syndicated obligors or high-yield bond issuers enhances the diversity of a portfolio of leveraged investments. Issuers of middle-market loans come from a varied group of industries, as seen in Figure 10.38. Additionally, middle-market

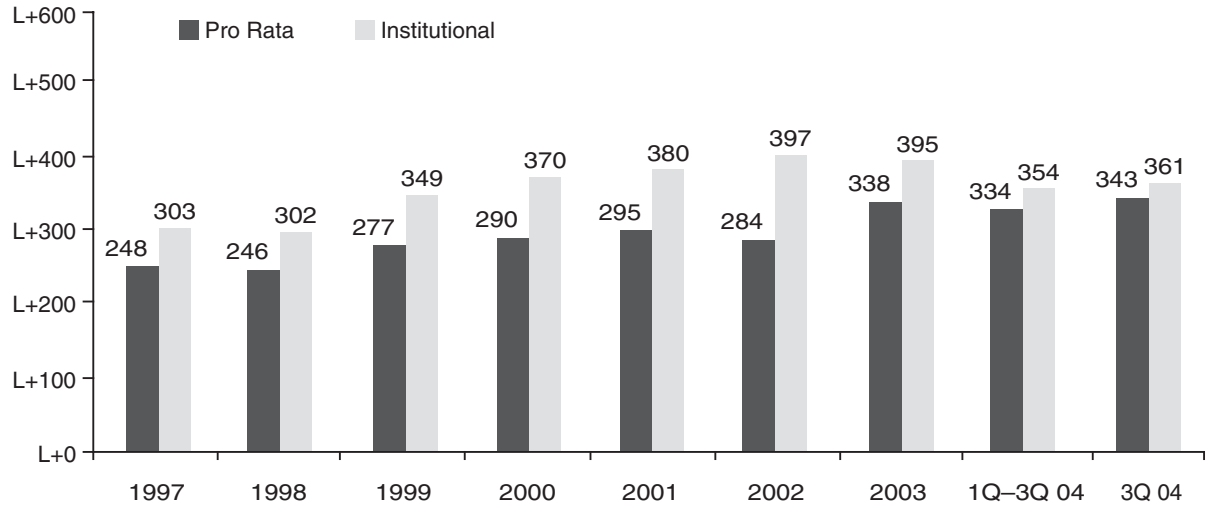


FIGURE 10.37 Average Coupon of Middle-Market Transactions, 1997–September 2004
Source: Standard & Poor's/Leveraged Commentary and Data.

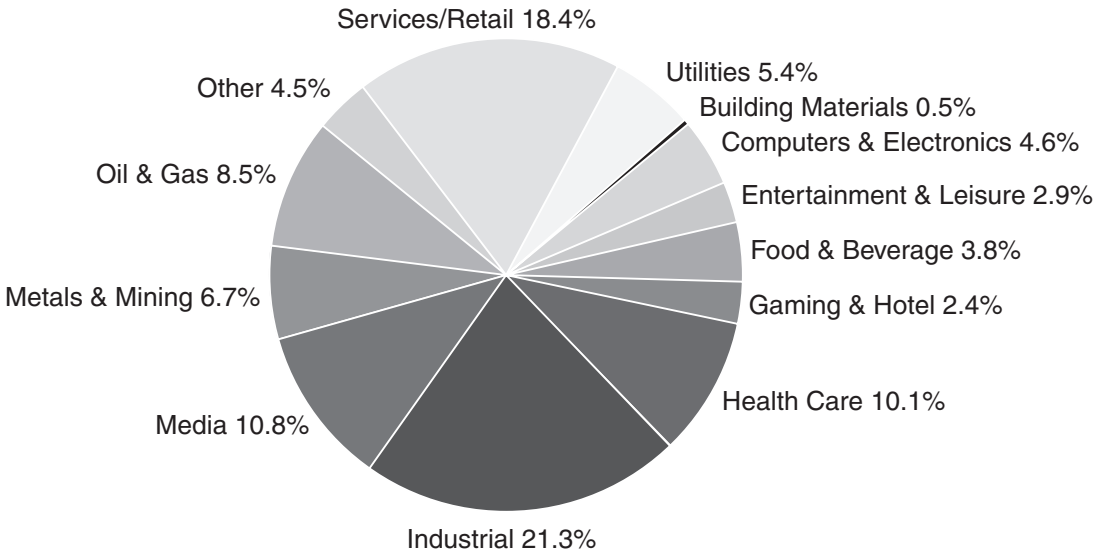


FIGURE 10.38 Total Middle-Market New-Issue Volume by Broad Industry, September 2004
Source: Standard & Poor's/Leveraged Commentary and Data.

loans are not typically available or sought out by the broad market, leading to reduced correlation in a portfolio of loan investments.

Prepayment Rate Because of amortization, prepayments, refinancings, and corporate events such as asset sales and M&As, middle-market loans, like traditional leveraged loans, tend to be repaid prior to scheduled maturity. Increases in the prepayment rate lead to yield windfalls owing to quicker-than-expected recovery in the event of purchase price discounts. Prepayment generally benefits holders of middle-market loans more than holders of institutional term loans because middle-market loans are usually bought at a discount from par, while the average leveraged loan traded at a price of approximately 101 in 2004.

Default Performance and Recovery Rates Leveraged loan default rates were as high as 7.0 percent in the first quarter of 2002, but dropped below 1.0 percent in 2004 (see Figure 10.39). This shows that when the credit cycle turns, default rates can go quite high and put many companies into jeopardy. It is during these times of high default that the value of security in leveraged loans shows its greatest worth in consistently higher recovery rates.

Senior secured bank loans have produced higher recovery rates compared to other asset classes in recent history and over multiple credit cycles (see Table 10.4). The higher recovery rates are primarily due to the senior position in an issuer's capital structure and the security interest that loan holders have in an issuer's assets.[8] Similar to leveraged loans, covenants

FIGURE 10.39 Rolling 12-month Default Rate
Source: Standard & Poor's/Leveraged Commentary and Data.

TABLE 10.4 Recovery Rates by Strength of Collateralization

	Average Recovery Rate	
	1988–3Q 2003 (%)	1998–2002 (%)
Loans	77.5	74.1
Senior secured notes	64.7	45.8
Senior unsecured notes	41.5	36.8
Senior subordinated notes	30.7	21.3
Subordinated notes	29.5	15.0
Junior subordinated notes	22.0	2.5

Note that 256 defaulted loans and bond issues defaulted between 1987 to 2003; 746 defaulted loans and bond issues defaulted between 1998 and 2002. Recoveries are discounted at each instrument's predefault interest rate.
Source: S&P/PMD LossStats™ Database.

on middle-market loan facilities improve recovery since they allow lenders to limit credit risks such as capital expenditure, leverage, and acquisitions. Covenants also allow lenders to have an early look at an issuer's credit problems, often before the rest of the market, as an issuer must amend or repay its loans when covenants are breached. This amendment process allows lenders to improve their control and security interest in a troubled issuer, further positioning loans for a higher recovery.

Average recovery rates on defaulted debt tend to be in the 30 to 40 percent range, but senior secured loan recoveries are consistently significantly

higher. Table 10.4 shows recoveries over two time periods. In the period from 1988 to 2003, senior secured bank loans had an average recovery of 77.5 percent of par value, while senior unsecured debt recovered only 41.5 percent of par value and junior subordinated bonds recovered only 22 percent. Even in times of duress like the period from 1998 to 2002, when default rates increased sharply, loans continued to recover an impressive 74.1 percent on defaulted debt while senior unsecured debt recovered only 36.8%.

Lower Liquidity Trading liquidity for middle-market loans is significantly lower than the comparable leveraged loan market for a number of reasons. Middle-market deals are inherently smaller owing to smaller issuer sizes, so there is less loan paper to trade. Lenders in the middle market generally have business relationships with the issuing companies, which would make them reluctant to trade the bank debt. Middle-market deals are generally not rated by the major debt rating agencies, so many investors cannot buy them due to the rating requirements built into their fund structures.

Higher Senior Leverage Leverage on middle-market loans can be slightly higher than comparable leveraged loans, but is currently similar at an average under 4.0 times debt/EBITDA compared to the 4.2 times average for the overall leveraged loan market. See Figure 10.40 for a historical graph of middle-market loan credit statistics. In general, middle-market loans tend to have more secured bank debt, so senior secured leverage is often higher than the leveraged loan market, as evidenced by senior secured leverage of

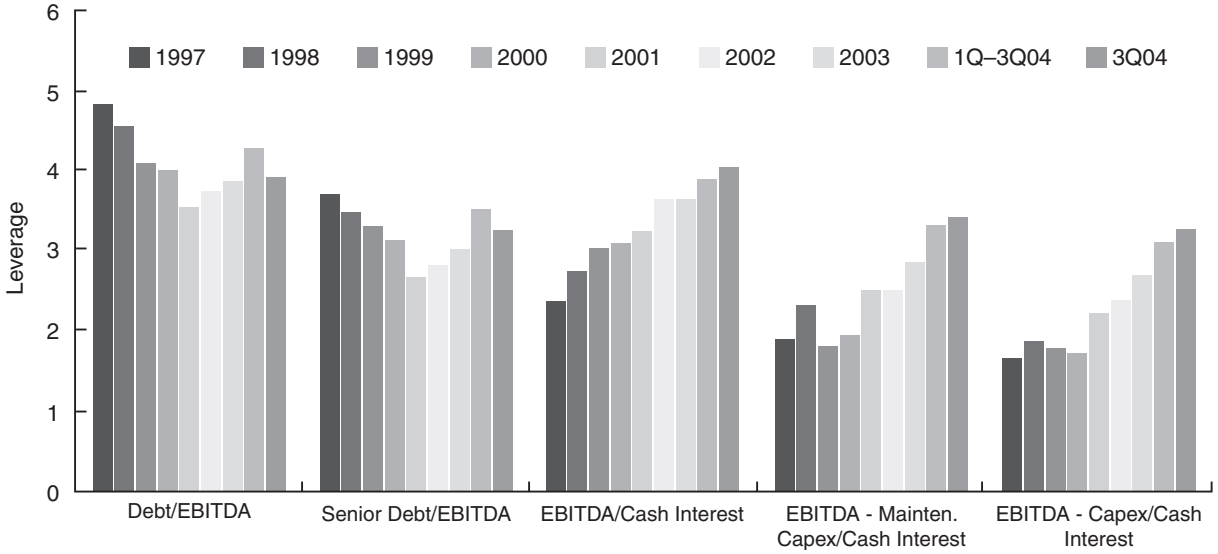


FIGURE 10.40 Average Pro Forma Credit Statistics for Middle-Market Transactions, 1997–September 2004
Source: Standard & Poor's/Leveraged Commentary and Data.

3.7 times for middle-market loans versus 2.9 times for the overall leveraged loan market.

Legal Considerations

As one might expect, middle-market loans are highly individualized transactions. Thus, some middle-market loans lend themselves to securitization while others do not. For example, middle-market loans, like larger loans, are more favorable for CLOs if they are fully assignable without consent from the obligor. In addition, there should be no right of set-off between the obligor and the lender—anything else could compromise the CLOs' ability to collect from the obligor upon default of the original lender/servicer. Finally, if multiple facilities exist, cross collateralization and cross default language should ensure that the lenders' rights are preserved if a payment is missed on a different obligation.

Middle-Market CLOs

Middle-market loans lend themselves well to CLO technology[9] and an investment in middle-market loans through a CLO structure offers the following five advantages:

1. Middle-market loan CLOs are backed by a large and diverse number of loans, which permit investors to buy broad exposure to the middle-market loan asset class in a single investment.
2. Middle-market loan CLOs are often professionally managed. Therefore, investors who are looking to diversify into this asset class do not need to create the infrastructure necessary to invest and trade in middle-market loans directly.
3. A middle-market CLO investment may be chosen to be consistent with the investor's risk appetite. Investors who are bullish on the sector can invest lower in the capital structure whereas more cautious (or ratings constrained) investors will likely prefer to invest in a more senior tranche of the CLO.
4. Although middle-market loans are not liquid themselves (obligors are often privately owned companies that are not required to disclose financials), a growing secondary market in CDOs affords investors a reasonable assurance that they may sell their middle-market CLO holding at a fair price.[10]
5. Middle-market loans often have attractive yields relative to comparably secured larger, syndicated loans (see the subsection entitled "Higher Coupons" earlier in this chapter). The incremental cash flow improves

the expected return of CLO equity and provides a powerful source of subordination for CLO debt holders.

Middle-Market CLO Variations Middle-market CLO structures vary depending on the specific blend of middle-market loan and traditional leveraged loan collateral. For CLOs that are backed by large middle-market loans, and especially for those pools that consist of a blend of traditional leveraged loans and middle-market loans, a traditional CLO structure is often applied, complete with overcollateralization tests and collateral quality tests. In fact, based on structure alone, many investors would be hard-pressed to distinguish these arbitrage transactions from many traditional leveraged loan CLOs. At the other end of the spectrum, transactions backed purely by small middle-market loans often have unique structural features that are not common to traditional CLOs (see the discussion entitled "Unique Structural Features" later in this chapter). These transactions provide issuers with a crucial form of funding (see Figure 10.41).

Completed Middle-Market CLO Transactions By our estimates, 39 middle-market CLO transactions representing $20 billion of rated debt have been issued from 1999 through 2004 (see Table 10.5). Roughly a third of these transactions were issued for balance-sheet (or funding) purposes and are backed purely by middle-market loan collateral. The remaining two-thirds are backed by a blend of middle-market collateral and larger, more broadly syndicated loans and were predominately issued for arbitrage purposes.

Middle-market CLO growth has tracked the growth of the CLO market as a whole, representing about 20 percent of issuance (by deal count) for the past five years (see Figure 10.42). However, we expect this trend to change as

Balance Sheet MMCLOs
- Transactions are often executed for balance sheet or funding purposes.
- Collateral is often composed of club loans or single-lender loans.
- Structural features include zero loss tolerance tests, substitution rights.

Arbitrage MMCLOs
- Collateral is composed of a mix of middle-market loans and large, syndicated loans.
- Transactions are generally executed for arbitrage purposes.
- Structurally, these transactions look very much like traditional CLOs.

FIGURE 10.41 Variations of Middle-Market CLOs
Source: Citigroup.

TABLE 10.5 Middle-Market CLO Issuance through October 2004

Closing Date	CLO	Servicer/Manager	Deal Size ($M)	Rated Par Amount ($M)	Percentage MMLs[a]
Feb. 10, 1999	Ableco Finance LLC	Ableco Finance LLC	1,644	1,205	Mix
Aug. 27, 1999	First Source Financial (Cayman), L.P.	First Source Financial Inc.	2,181	1,820	Mix
Dec. 14, 1999	Antares Funding LP	Antares Capital Corporation	560	517	Mix
Oct. 11, 2000	First Source Loan Obligations Trust	First Source Financial LLP	717	640	Mix
Nov. 1, 2000	Fleet Commercial Loan Master LLC 2000-1	Fleet National Bank	2,073	2,039	Mix
Dec. 20, 2000	ACAS Business Loan Trust 2000-1	American Capital Strategies, Ltd.	154	115	100%
Dec. 29, 2000	Ark CLO 2000-1 Ltd.	Patriarch Partners	1,200	1,001	Mix
Mar. 7, 2001	First Source Loan Obligations Insured Trust	First Source Financial LLP	462	265	Mix
Oct. 23, 2001	Endeavor LLC	PPM America Inc.	470	435	Mix
Oct. 26, 2001	Ark II CLO 2001-1 Ltd.	Patriarch Partners II LLC	675	566	Mix
Oct. 30, 2001	Denali Capital CLO I, Ltd.	U.S. Funding Funding Partners, LLC	400	368	Mix
Dec. 27, 2001	MCG Commercial Loan Trust 2001-1	MCG Capital Corporation	354	265	100%

(*continued*)

TABLE 10.5 (*continued*)

Closing Date	CLO	Servicer/Manager	Deal Size ($M)	Rated Par Amount ($M)	Percentage MMLs[a]
Mar. 15, 2002	ACAS Business Loan Trust 2002-1	American Capital Strategies, Ltd.	196	147	100%
May 15, 2002	CapitalSource Commercial Loan Trust 2002-1	CapitalSource Finance LLC	275	248	100%
Jul. 11, 2002	Mariner CDO 2002 Ltd	Antares Capital Corporation	411	378	Mix
Jul. 30, 2002	Denali Capital CLO II, Ltd.	U.S. Funding Funding Partners, LLC	400	341	Mix
Aug. 7, 2002	ACAS Business Loan Trust 2002-2	American Capital Strategies, Ltd.	211	158	100%
Aug. 20, 2002	Fleet Commercial Loan Master LLC 2002-1	Fleet National Bank	1,000	347	Mix
Aug. 29, 2002	GSC Partners Gemini Fund Ltd	GSC Partners	523	497	Mix
Oct. 30, 2002	CapitalSource Commercial Loan Trust 2002-2	CapitalSource Finance LLC	326	293	100%
Apr. 17, 2003	CapitalSource Commercial Loan Trust 2003-1	CapitalSource Finance LLC	450	405	100%
May 21, 2003	ACAS Business Loan Trust 2003-1	American Capital Strategies, Ltd.	308	239	100%
Jul. 16, 2003	Denali Capital CLO III, Ltd	U.S. Funding Funding Partners, LLC	434	403	Mix

(*continued*)

TABLE 10.5 (*continued*)

Closing Date	CLO	Servicer/Manager	Deal Size ($M)	Rated Par Amount ($M)	Percentage MMLs[a]
Nov. 20, 2003	A3 Funding LP	Cerberus Capital Mgmt (Ableco)	600	420	Mix
Nov. 20, 2003	A4 Funding LP	Cerberus Capital Mgmt (Ableco)	1,000	700	Mix
Nov. 25, 2003	CapitalSource Commercial Loan Trust 2003-2	CapitalSource Finance LLC	500	430	100%
Dec. 17, 2003	Foxe Basin CLO 2003	RBC Capital Partners	416	384	Mix
Dec. 19, 2003	ACAS Business Loan trust 2003-2	American Capital Strategies, Ltd.	397	318	100%
Dec. 19, 2003	Navigator CDO 2003	Antares Capital Corporation	460	424	Mix
Dec. 22, 2003	Special Situations Opportunity Fund I, LLC	LaSalle Bank N.A.	572	300	Mix
Apr. 1, 2004	Bernard National Loan Investors Ltd.	LaSalle Bank N.A.	200	157	Mix
Apr. 1, 2004	Bernard Leveraged Loan Investors, Ltd.	LaSalle Bank N.A.	103	68	Mix
Jun. 22, 2004	CapitalSource Commercial Loan Trust 2004-1	CapitalSource Finance LLC	875	766	100%
Jul. 14, 2004	CoLTS Trust 2004-1	Wachovia Securities	263	247	Mix
Jul. 30, 2004	Fortress Credit Op I & II	LaSalle Bank N.A.	1,500	1,000	Mix
Aug. 25, 2004	Denali Capital CLO IV, Ltd	U.S. Funding Funding Partners, LLC	400	368	Mix

(*continued*)

TABLE 10.5 (*continued*)

Closing Date	CLO	Servicer/Manager	Deal Size ($M)	Rated Par Amount ($M)	Percentage MMLs[a]
Sep. 30, 2004	MCG Commercial Loan Trust 2004-1	MCG Capital Corporation	398	341	Mix
Oct. 14, 2004	Navigator CDO 2004	Antares Capital Corporation	511	471	Mix
Oct. 28, 2004	CapitalSource Commercial Loan Trust 2004-2	CapitalSource Finance LLC	1,108	1,000	100%
Total			**24,724**	**20,084**	

[a]If the exact collateral composition is unknown, the transaction is assumed to be a mix of leveraged loans and middle market loans.
Source: Fitch, Moody's, Standard & Poor's, and Citigroup.

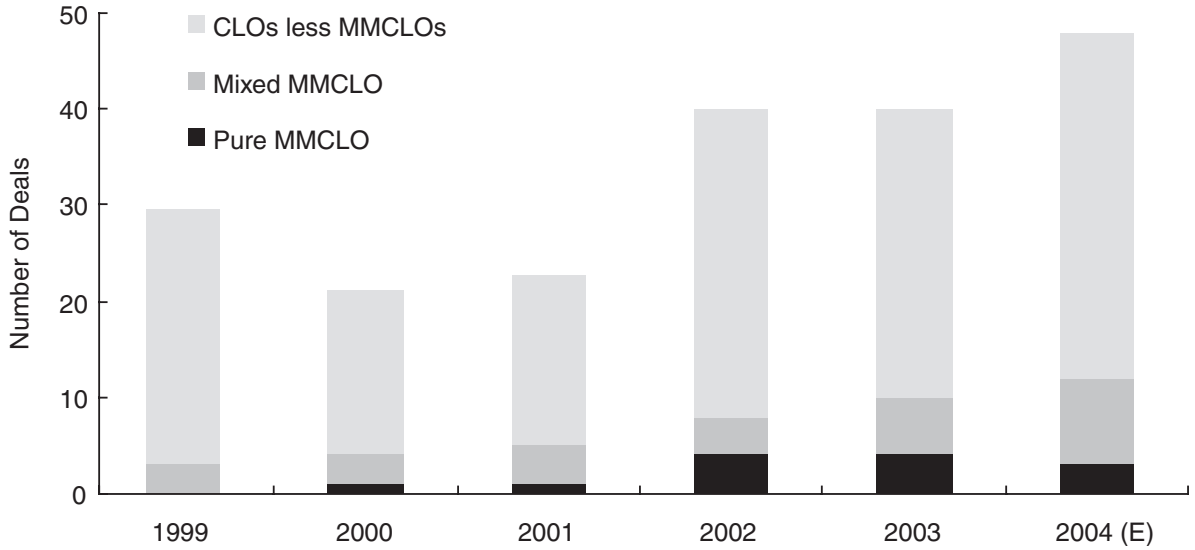


FIGURE 10.42 Growth of the Middle-Market CLO Sector by Deal Count
Source: Citigroup.

tight spreads in the broadly syndicated market push traditional bank lenders back into the middle-market space, and as specialty finance companies expand operations. In addition, several new business development funds have been created to specifically focus on the middle-market loan space. Several of these new funds likely have designs on CLO issuance as well.

Middle-Market CLO Performance Middle-market CLOs performed well through the difficult credit environment of 2001 to 2002. In this subsection, we look specifically at two subclasses of the middle-market CLO market: (1) CLOs backed purely by middle-market loans; and (2) those backed by a mixture of middle-market loans and broadly syndicated loans. The first group was issued exclusively for balance sheet, or funding, purposes, while the second, mixed collateral group was primarily issued for arbitrage purposes (although a few balance-sheet type deals are also included).

CLO Performance Backed Exclusively by Middle-Market Collateral A study by Fitch Ratings in March of 2004 indicated that pure middle-market CLOs have performed well.[11] Of the six 100 *percent* middle-market loan CLOs rated by Fitch with at least one year since issuance, none have experienced a downgrade and four have experienced upgrades. The remaining two were affirmed. By tranche count, seven of 15 tranches were upgraded, six were affirmed, and two have been paid in full (see Table 10.6).

Fitch attributes the strong performance of the middle-market loan CLOs to three things. First, middle-market loan prepayment rates have been high and, since pure middle-market CLOs are static in nature, those unexpected dollars have been used to pay down senior CLO notes quickly. Of the six transactions with a year of maturity, the weighted average prepayment rate was 28.3 percent on an annualized basis. Second, middle-market loan quality has remained relatively firm. After an extensive rerating process, Fitch concluded that some collateral quality deterioration has occurred on average, but the six collateral pools stayed within a single rating subcategory of the original pool rating on average. The resilient nature of middle-market loans is a testament to the underwriting standards of the middle-market specialty finance companies that sponsored these transactions (e.g., American Capital Strategies, CapitalSource Finance, and MCG Capital). Third, Fitch credits strong structural features contained in pure middle-market loan CLOs that deflect excess cash flows whenever a

TABLE 10.6 Performance of CLOs Backed Exclusively by Middle-Market Collateral

	Deals	Tranches Rated	Upgraded	Affirmed	Downgraded	Paid in Full
By number	6	15	7	6	0	2
By volume ($M)	1,515	1,227	277	782	0	167

Source: Middle-Market CLO Performance Update: 2003, Fitch.

loan becomes 60 days delinquent. Excess cash in an amount equal to the balance of the delinquent loan is directed to a reserve account and released to senior note holders in the event that the troubled obligor defaults. Effectively, this amounts to a zero-loss policy that is designed to keep the outstanding amount of CLO liabilities and the outstanding amount of assets at an even one-to-one ratio.

CLO Performance Backed by Mix of Middle-Market and Syndicated Collateral

We conducted a Fitch-like study of mixed collateral CLOs using S&P and Moody's rating changes (Fitch has not rated many of the arbitrage middle-market CLOs). These transactions have also performed well on the whole. Of the 14 mixed-loan CLOs rated by S&P or Moody's with at least one year since issuance, none have experienced a downgrade and two have experienced upgrades. Four more deals have paid in full. By tranche count (see Table 10.7), two of 43 tranches were upgraded and 10 have been paid in full. No tranches have been downgraded by either agency.[12]

We attribute the strong performance of the mixed-loan CLOs to the same drivers that have led to solid performance in the general CLO market. First, leveraged loan prepayment rates have been high and, since many mixed middle-market CLOs are static in nature, those dollars have been used to pay down CDO debt. Second, when loans do default, recoveries have been robust even through the credit downturn (see the earlier discussion entitled "Default Performance and Recovery Rates"). Finally, the mind-set of CLO managers, including middle-market CLO managers, is often one that emphasizes loss avoidance rather than maximization of total portfolio return. Unlike bonds that can, and often do, trade at a significant discount or premium to par, loans generally trade relatively close to par. For example, a loan might trade from 99 to 101, but this potential gain is small when compared with the losses that could be incurred should the credit default. In contrast, a bond manager might buy a credit at 80 with the hope of selling it at par or higher if the credit improves. The lure of large gains gives bond

TABLE 10.7 Performance of CLOs Backed by Middle-Market Loan and Leveraged Loan Collateral

	Deals	Tranches Rated	Upgraded	Affirmed	Downgraded	Paid in Full
By number	14	43	2	NA	0	10
By volume ($M)	12,625	10,323	NA	NA	0	3,160

Source: Moody's, S&P, and Citigroup.

managers more incentive to take chances and, in a bad credit environment, that could be a disastrous strategy. The incentive to trade for gains is not as strong for loan managers and, as a consequence, we believe loan managers are more likely to maintain a sound portfolio.

CLO Investment Considerations

A convenient way for investors to diversify into the middle-market loan asset class is through a middle-market CLO. However, some unique investment considerations are introduced when a CLO structure is imposed onto a middle-market loan pool. In this section, we draw your attention to the considerations that we believe to be the most important and then discuss them in greater detail:

- The reliability and quality of the CLO sponsor (sometimes acting as the collateral originator and servicer).
- The push for diversity.
- Rating agency assumptions regarding collateral quality and middle-market loan recovery rates.
- Middle-market loan and middle-market CLO liquidity.
- Unique middle-market CLO structural features.

Sponsor/Servicer/Originator Depending on the specific middle-market loan transaction, several CLO administrative and credit activities may be conducted by the same individuals. The sponsors of balance-sheet middle-market CLOs also often serve as loan originators and loan servicers for the CLO transaction. Therefore, special consideration should be given to these sponsors, which we discuss here. Arbitrage middle-market CLOs, however, generally have a more traditional partition of responsibilities, with independent portfolio managers and trustees.

As the loan originator, balance-sheet middle-market CLO sponsors are the primary gatekeeper with respect to the quality of collateral that will enter the CLO pool. Therefore, sound credit analysis is supremely important. Further, as servicer, the sponsor also plays an integral part of the day-to-day function of the CLO: tracking loan covenants and payments, and facilitating (with the trustee) the distribution of cash to CLO debt holders. Therefore, it is imperative that the sponsor has the proper systems in place to track loan performance, obligor financial health, collateral cash flows receipts, and CLO cash distributions.

In addition, as the loan servicer, the sponsor is an important driver of recovery upon default. The servicer has the ability to identify troubled credits more quickly because of the close relationship between the originator

and obligor and, in the situation of a bilateral loan or small club loan, to maximize recovery value. Several options are available to the originator, such as modification of the loan covenants, limitation of capital expenditures, facilitation of additional equity investments, taking operational control, partial asset sales, replacement of management, or, ultimately, the sale or liquidation of the company. For middle-market CLOs where the loans are primarily sourced from a single lender, extra consideration should be given to ensure consistent monitoring of the loans.

Because the role of the servicer is so significant and central to the successful execution of a balance-sheet middle-market CLO, a backup servicer is sometimes required—another institution that can service the loans and complete the tasks necessary for the smooth operation of the CLO if needed. We encourage investors to consider only middle-market loan CLO sponsors who have established systems and procedures for monitoring these loans and the transactions that they support.

Collateral Diversification Earlier, we highlighted the diversity advantages of middle-market loans. The diversity of collateral within the CLO is also an issue, and we take up that topic here.

It is generally accepted that diverse collateral pools are less risky than concentrated ones, all else held constant. Traditional CLO managers and arbitrage middle-market CLO managers often strive for and aggregate a diverse collateral pool. However, investors and rating agencies should avoid pushing middle-market CLO sponsors into industries that are not part of their core expertise. Indeed, part of the strength of the middle-market loan CLO transaction is the deep relationship (and understanding) of the lender with the borrower. Therefore, some middle-market loan CLOs may contain higher concentration limits at the obligor level and at the industry level than a traditional CLO. Investors should also consider the geographic concentration of loans, particularly for balance-sheet middle-market CLOs sponsored by specialty finance companies. Some lenders, while diversified across industries, could be relatively concentrated geographically.

Collateral Quality Most middle-market loans are not publicly rated (as shown in Figure 10.43), often because public information on the obligor is scarce, the size of the loan is small, and the cost of rating prohibitively high. Furthermore, many middle-market lenders do not require public obligor ratings. Therefore, when rating CLOs backed by middle-market loans, traditional measures of credit quality (ratings, for example) are not available and alternative methods of collateral quality estimation are needed. In these cases, the participating rating agencies inspect the collateral pool

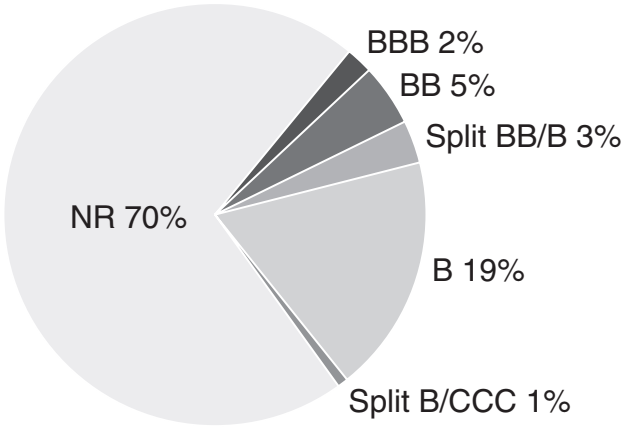


FIGURE 10.43 Total Middle-Market New-Issue by Rating, September 2004
NR: not rated.
Source: Standard & Poor's/Leveraged Commentary and Data.

and assign "shadow ratings" to each loan. This can be accomplished in one of two ways.

For those loan originators (primarily banks) with established internal rating systems, unrated loans (from the perspective of the agencies) can be assigned a rating through a rating mapping process in which a sample of middle-market loans are independently assessed by the rating agency and the bank, and the two rating scales are statistically mapped to one another. Provided enough loans are reviewed, a well-defined link can be established between the rating system of the loan originator and of the rating agency. This mapping is then used to determine the equivalent public rating (shadow rating) for each loan based on the bank's internal credit scoring system. In this way, the overall quality of the CLO collateral pool can be estimated.

CLO sponsors rarely pursue this approach today because the rating mapping process can be unusually harsh in its rating estimation if a large data sample is not available to establish the rating link, or map, because confidence intervals become quite wide. Hence, even quality credits can be given low shadow ratings. Though this method is no longer frequently used, Moody's and Standard & Poor's will consider this approach if asked.

More frequently, and as a general rule for arbitrage middle-market loan CLOs, the rating agencies review the financials of each obligor and assign a private rating to each. Often, this is done through proprietary risk models (e.g., Moody's RiskCalc, and S&P's CreditModel) in conjunction with a deliberate review of several loan files. The risk models are driven by the obligor's financial ratios and typically return a credit estimate that is within two notches of a public rating. For example, Fitch estimates that its CRS model yields a credit estimate that is within two notches of the true rating over 80 percent of the time for nonpublicly traded companies.[13]

Financial obligors and utilities are singled out for a more elaborate analysis. In addition, loans that are estimated to be unusually high or low in quality are also set aside for further analysis. Finally, as part of the review, recovery rates are estimated depending on the specific collateral, the seniority of the loan, and the servicer's track record. Each loan's rating and recovery rate are updated on a periodic basis.

We believe that the models used by the rating agencies for estimating the credit quality of the middle-market loan pools is fair to conservative. Ratings from the credit model often depend on the size of the company and, since middle-market obligors tend to be small, their financial ratios must be commensurately better to achieve the same rating as a larger obligor who issues a broadly syndicated loan. Although one can debate whether this is fair to smaller companies, it does present a significant difference between similarly rated middle-market loans and broadly syndicated loans that we feel is important when evaluating recovery rates.

Liquidity As discussed previously, middle-market loans themselves can be notoriously illiquid, especially if they are small bilateral or club loans. In part, this is because many middle-market obligors are not publicly rated, let alone publicly traded, so timely information can be hard to come by. Furthermore, they often require a long, hands-on workout process should the borrower default. Therefore, frequent valuation of middle-market loans can be difficult.

In contrast, liquidity in the CDO market is vastly improved relative to a few years ago. Clean, AAA/Aaa-rated CDO paper usually trades within a bid/ask spread of a quarter point and often within an even narrower range. Troubled senior CDO debt and junior CDO debt can trade at a much wider spread, but usually not wider than a few points, and often much narrower. Middle-market CLOs do not trade frequently, but we would expect similar trading friction (or the lack thereof). Every transaction is different, however, and investors should not expect these benchmarks to apply to all transactions. In addition, there is no guarantee that the secondary market for middle-market CLOs or CDOs in general will remain at these bid/ask spreads.

Unique Structural Features Arbitrage middle-market CLOs have structures that are often similar to traditional CLO structures backed by broadly syndicated loans. These CLOs tend to track the structural advances being made in the traditional CLO market (pro rata pay-down, longer revolving periods, and senior revolving tranches,for example). However, balance-sheet middle-market CLOs that are sponsored by small specialty finance companies often have unique structural features that are not found in traditional leveraged

loan CLOs. Here are the three most significant structural differences between balance-sheet middle-market loan CLOs and traditional CLOs.

Substitution Most balance-sheet middle-market CLOs permit the substitution of credit-impaired loans with loans of higher quality, subject to limits and other criteria.[14] Servicers often find it beneficial to support their transaction in this way to ensure future access to the capital markets. CLOs represent a significant form of funding for these lenders; therefore, even one troubled CLO could jeopardize future working capital. We believe that this is a powerful incentive for sponsors to manage their transactions in a fashion that protects debt holders.

Cash Trapping Several balance-sheet middle-market loan transactions have zero-tolerance overcollateralization tests that delever the CLO through the accelerated pay-down of senior tranche notes after any collateral loss. As a result, the CLO assets and liabilities remain equal. In addition, while traditional CLOs have recently moved toward look-ahead tests that trap cash when the collateral pool begins to deteriorate, balance-sheet middle-market loan CLOs generally have cash trapping mechanisms that take effect soon after a loan becomes delinquent (generally 60 days), even if an actual default has not yet occurred. Excess cash is trapped until the offending loan balance is fully protected.

Servicer Advances In certain transactions, a provision is made that permits the servicer to advance cash to the transaction in an amount equal to a missing payment from a delinquent obligor. A servicer may support a CLO transaction in this fashion for quite some time. However, *this* does not prevent the loan from being deemed delinquent or defaulted. Hence, cash-trapping tests will be triggered regardless. Servicers may do this when *either* removal of the credit from the pool is not possible (no suitable substitutes) or it is expected that the loan will become current soon. The servicer may be repaid from a senior position in the waterfall on a future distribution date.

CONCLUSION

Tight credit spreads and a desire to diversify away from broadly syndicated loan obligors have contributed to a renaissance in the middle-market loan sector. Issuance has rebounded and continued growth seems likely. The renewed attention to this asset class, combined with the general strength of the credit markets, has reduced spreads over the past two years for middle-market loans. Still, these loans often yield more than larger, broadly

syndicated loans and we contend that relative value remains. Data from Standard & Poor's/LCD indicate that middle-market loans have higher yields for comparable ratings (see Figure 10.37) and, should the obligor run into trouble, strong recoveries as well (see Table 10.4).

Investors who are looking to diversify their holdings and investors who seek relative value should consider a middle-market loan CLO as an alternative to a direct investment into middle-market loans. This alleviates the need to create specialized systems and expertise in this asset class. Middle-market CLOs are often professionally managed and, owing to the growing liquidity in the CDO market, middle-market CLOs are becoming a convenient avenue to obtain access to the middle-market loan market at the risk tolerance of one's choosing.

APPENDIX A: MIDDLE-MARKET LOAN CHARACTERISTICS

Floating-Rate Coupon

Middle-market loans pay interest on a floating-rate basis, like other corporate loans, so interest payments on loans increase as market interest rates rise. This floating-rate structure is accomplished by setting the interest rate of a middle-market loan at a spread above a benchmark market floating interest rate. The most commonly used benchmark in the leveraged loan market is the London Interbank Offered Rate (LIBOR). So a loan paying 3.0 percent above LIBOR, or LIBOR + 300 bp, would temporarily yield 5.2 percent annually if LIBOR was at 2.2 percent. As LIBOR moves, the interest payments of a leveraged loan will move with it.

When comparing middle-market loans to high-yield bonds, one of the most significant differences is the interest rate. High-yield bonds pay a fixed interest rate using a U.S. Treasury bond benchmark that leaves investors exposed to movements in interest rates, the risk being that if market interest rates rise, the fixed-rate high-yield bond will continue to pay the same lower interest rate. While derivatives can be used to hedge away this risk, this can only be done at a cost that cuts into expected returns. Loans, by contrast, have floating-rate interest payments that move with the market.

Maturity

Term loans generally mature in five to eight years from the time of issue, which is less than the 10-year average high-yield bond maturity. In 2003, term loans had average maturities of approximately 5.6 years.

Callability

Loans are generally callable at par, meaning that the issuer can repay its loans partially or in total at any time. This differs from comparable high-yield bonds, which are usually structured with a noncall period of three to five years. Occasionally, loans will have noncall periods or call protection that requires the issuer to pay a penalty premium for prepaying loans. These features are usually only added to loans in the primary market when investor demand requires additional incentives to attract sufficient buyers. The 12-month rolling prepayment rate for loans was approximately 15 percent during 2003, but spiked as high as 57 percent in 2004. Additionally, 31 percent of loans repriced at lower coupons during the 12-month period ended September 30, 2004.

Covenants

Loan facilities are structured with covenant tests that limit a borrower's ability to increase credit risk beyond certain specific parameters. Covenants are outlined in the legal credit agreement of a loan facility that is executed at the time that a loan is issued. Generally, covenants are tested every quarter and results are sent to all of the members of the bank group. Covenant tests provide lenders with a more detailed view of the credit health of a borrower and allow lenders to take action in the event a borrower gets into credit trouble. When a borrower breaches a covenant, the loan is required to be repaid unless the lenders agree to amend the covenants to keep the borrower in compliance with the credit agreement. A credit agreement for a middle-market loan may generally have between two and six covenants, depending on the credit risk of the borrower and market conditions. Some commonly used covenants include:

- Minimum EBITDA.
- Total leverage debt/EBITDA.
- Senior leverage senior debt/EBITDA.
- Minimum net worth.
- Maximum capital expenditures.
- Minimum interest coverage EBITDA/interest.

Structure of a Middle-Market Loan

Middle-market loan facilities are typically made up of three to four types of loans:

1. Revolving loans provide liquidity and are structured to be drawn and repaid at the borrower's discretion.

2. Term loan A tranches are fully drawn and structured to amortize over the life of the loan.
3. Term loan B tranches are fully drawn and structured with a bullet amortization payment similar to bonds.
4. Second-lien loans are term loans with a claim on the assets of the borrower that falls in priority behind the first-lien loan facilities.

Revolvers and Term Loan As The pro rata portion of a corporate bank debt facility is the traditional loan structure, historically syndicated and held almost entirely by banks. It is usually composed of two structures, a revolving credit facility and a term loan (called term loan A) tranche. This segment of the loan is called the pro rata segment, because banks that take part in the syndication must commit to an equivalent proportion of both the revolving credit facility and the term loan A. Coupons (shown as LIBOR plus a spread) on pro rata tranches are often lower than comparable coupons on institutional tranches because of higher up-front fees and the accelerated payments associated with pro rata tranches. Pro rata loans are generally committed to by traditional corporate lending banks owing to the funding requirements of the revolver and the accelerated amortization of the term loan A, which are difficult for investors to service.

Term Loan Bs Term loan tranches are structured to perform like a bond in that they are fully funded and generally have a bullet maturity. This structure makes them easier for institutional investors to hold owing to the less onerous documentation and funding requirements. Term loans also favor institutional investors as a result of more predictable funding requirements, maturities, and interest income streams. In fact, these loans are often referred to in the loan market as "institutional term loans."

Second-Lien Term Loans As the name implies, second-lien term loans have a secured claim to the borrowers' assets behind the first-lien debt of the borrower. In general, second-lien term loans are put in place when an issuer has borrowing requirements that extend beyond the willingness of the first-lien lenders to extend credit. As a result, the second-lien term loan usually has a significantly higher coupon and is sold to funds with a greater appetite for risk and yield. This structure is infrequently used, but has been growing in importance in the middle-market space.

APPENDIX B: THE BASIC CLO STRUCTURE[15]

Collateralized loan obligations (CLOs) distribute cash flow from a pool of loans to investors such that some investors take a greater risk of payment

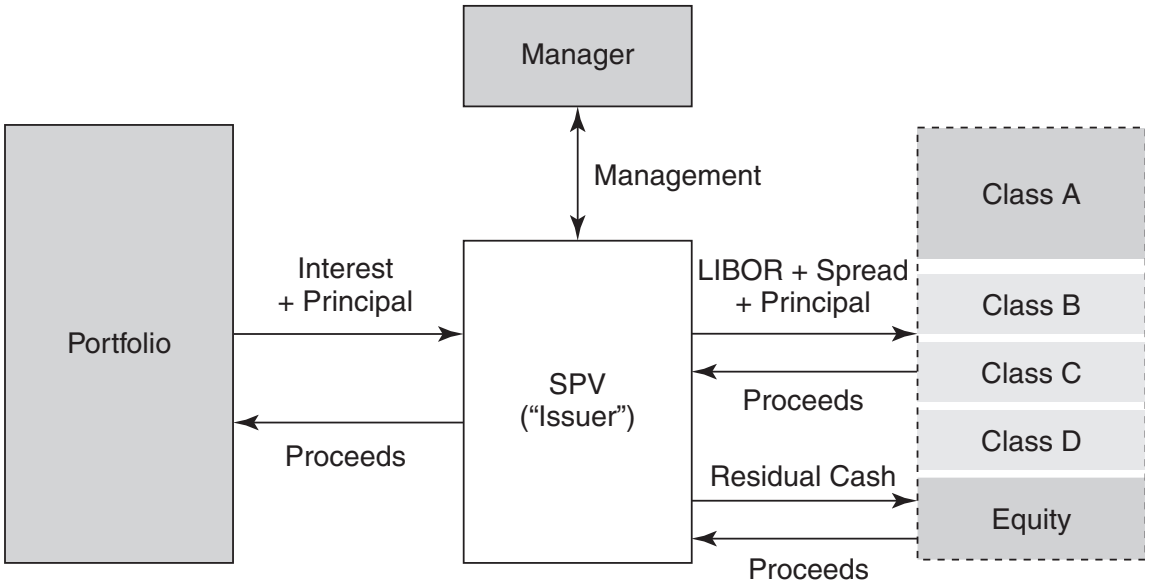


FIGURE 10.44 Basic CLO Structure
Source: Citigroup.

and others take less. The formation of a CLO begins with the establishment of a special purpose vehicle (SPV). The SPV acquires the pool of loans, called the collateral, and issues rated and unrated liabilities (CLO debt and equity) to fund the acquisition of the collateral (see Figure 10.44). Because the majority of the CLO liabilities are highly rated, the CLO can raise most of its capital cheaply in the investment-grade market and invest it more profitably in the collateral.

Coupon payments from the loans are passed to the various debt and equity holders (tranches) according to the rules set forth in the waterfall, which works as follows: The waterfall first assigns proceeds from the collateral to the senior CDO debt holders, resulting in higher asset coverage for those investors (see Figure 10.45), and then to the junior CDO debt holders and equity holders.

If the collateral deteriorates such that doubts arise over the sufficiency of future collateral cash flows to meet obligations (as measured by certain tests), the waterfall can be changed to divert cash flow from the equity tranche (or other junior tranches) to the most senior tranche. The tests are divided into two groups: overcollateralization (OC) and interest coverage (IC) tests. The former measures the amount of collateral coverage for a tranche,[16] while the latter evaluates the sufficiency of available interest proceeds to make coupon payments on the CLO liabilities. Some middle-market CLOs have no OC or IC tests. Instead, these transactions divert cash to senior debt holders immediately upon any collateral loss. A typical CLO consists of five to seven rated tranches, with the ratings ranging from AAA to BB and preferred shares.

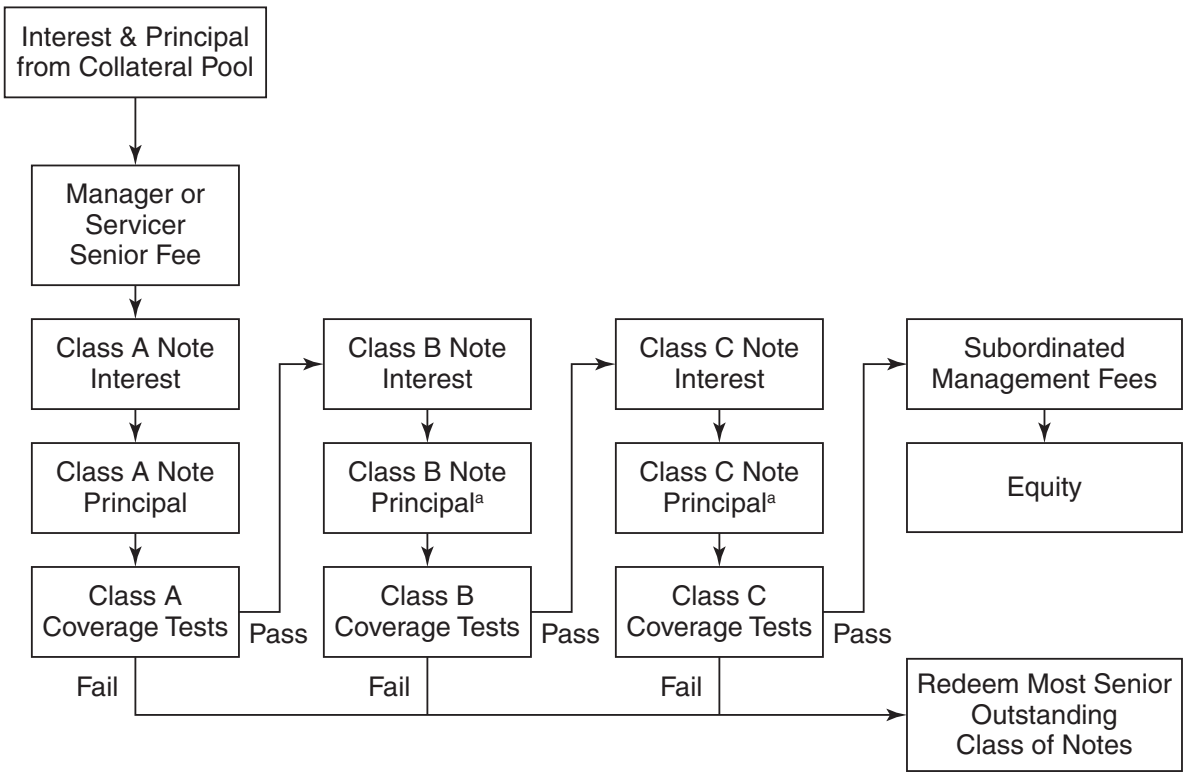


FIGURE 10.45 Basic CLO Waterfall
Source: Citigroup.

The unique combination of CLO tranches, waterfall, and cash diversion tests constitute the structure of the CLO. By analyzing the structure, a CLO investor can achieve a desired return/risk profile by choosing the appropriate tranche in which to invest. The coupon reflects the relative riskiness of the tranche, and this riskiness increases with the lower ratings (and lower seniority) of the notes. The preferred shares represent the riskiest investment and therefore offer the highest potential return.

CASE STUDY: CDO COMBINATION SECURITIES—TAILORING RISK/RETURN PROFILES

CLOs provide investors with a variety of investment options. Given the targeted risk/return profile, investors can choose different tranches. However, during the tight credit conditions in March 2004, investors were further exploring structured credit products looking for higher yields in rated instruments. The case study, written at that time, recommends a CDO combination security that can provide substantial yield pickup as compared to a similarly rated plain-vanilla CDO tranche.

Introduction

At various points in a cycle, credit market conditions may pose a challenge for investors as credit fundamentals continue to improve, but yields remain low. During these times, investors

often turn toward structured credit products, such as collateralized debt obligations (CDOs), as a way to increase returns. As we discussed a few weeks ago, one way to pick up additional yield is through an investment in a CDO equity fund.[17] This structure, although attractive from a targeted return perspective, would not be suitable for an investor who requires a rating on their investments. However, some investors are not excited by traditional, rated plain-vanilla CDO tranches because of their limited upside. A CDO combination security addresses this dilemma: It can be rated investment-grade as well as deliver targeted returns that are higher than those provided by a comparably rated, plain-vanilla CDO tranche.

Equally Rated CDO Combination Securities Are Not Equal

Rating Agency and Deterministic Analyses The CDO combination security can be loosely thought of as the cash flow CDO alternative to the synthetic single-tranche CDO—its risk/return profile can be tailored to an investor's rating, coupon, yield, and capital requirements, just as the credit and return profile of the single-tranche CDO can be carefully constructed. The return on a CDO combination security is derived from the cash flows of two or more underlying CDO tranches.[18] Various parts of the underlying CDO capital structure can be blended together to create a variety of similarly rated combination securities.

An important consideration is that two CDO securities can have the same Moody's rating (and hence, the same Moody's expected loss) but substantially different return profiles. For example, Figure 10.46 compares the return characteristics of a plain vanilla Baa3-rated CLO tranche for various annual constant default rates (CDRs) with those of a Baa3-rated combination security issued from the same CLO. An A1-rated tranche (50 percent) and

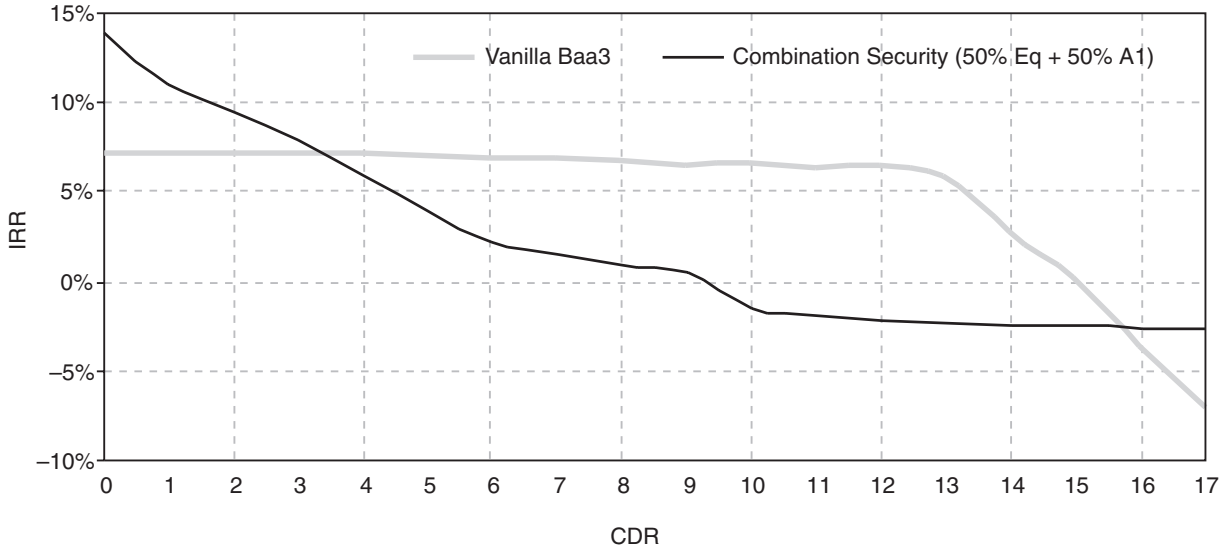


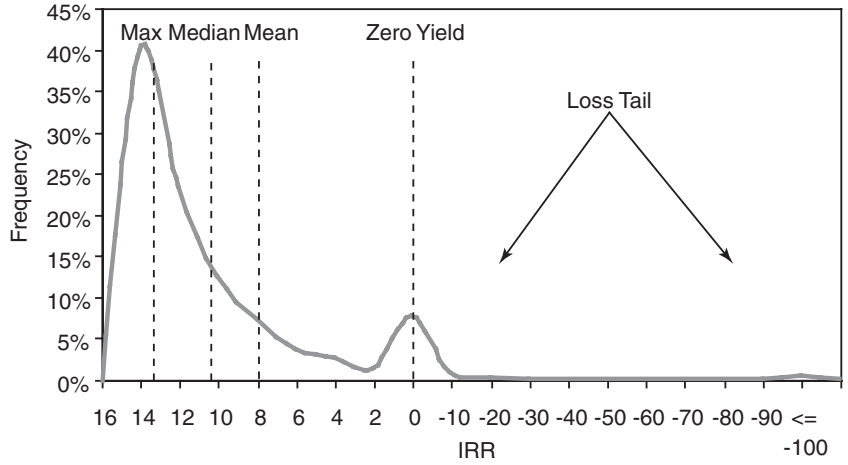
FIGURE 10.46 Plain-Vanilla Baa3 CLO Tranche versus Baa3 Combination Security (50 Percent Equity + 50 Percent A1, Flat LIBOR Coupon)—Stress Analysis of Annualized IRRs
Source: Citigroup.

equity (50 percent) from the underlying CLO back the combination security, and the Moody's rating reflects the LIBOR flat coupon of the security.

In Figure 10.46, the plain-vanilla tranche can withstand about a 13 percent CDR without losing its timely interest or ultimate principal payments, resulting in a stable internal rate of return (IRR) in the range of 6 to 7 percent.[19] This default rate is high relative to the average credit quality of the portfolio supporting this tranche—the average credit quality of the portfolio implies an average CDR of around 3.4 percent. The combination security has a steeper return profile. Under low to moderate default stresses (0 to 3.5 percent CDR), the CDO equity portion of the combination security contributes to a targeted return (between 14 percent and 7 percent) that exceeds the plain-vanilla tranche return. For higher CDRs, the combination security underperforms until CDRs exceed 15.5 percent, at which point the A1-rated component of the CDO combination security allows it to once again outperform the plain-vanilla tranche. In this example, an investor would buy the combination security only if he or she thought that the realized portfolio default rate (over the life of the CDO) would be lower than that implied by the average credit rating.

Monte Carlo and Gaussian Copula Analyses Constant default rate analysis is a simple and quick way (albeit limited) to characterize the quality of a CDO. That is, defaults do not occur uniformly but, instead, fluctuate over time and the resulting volatility of returns cannot be captured by CDR analytics. Thus, we use a Monte Carlo method to simulate defaults and a Gaussian copula technique to establish time-to-default relationships among the assets in a portfolio.[20] Figure 10.47 illustrates the application of these techniques using the combination security shown in Figure 10.46 as an example.[21]

The frequency distributions of returns from the combination security that appears in Figure 10.47 results are consistent with a well-documented fact: Return distributions from fixed-income portfolios are not normal. In this example, the distribution is skewed toward the high IRRs and has a fat, bumpy right tail. Consequently, use of traditional performance measures, such as mean and standard deviation, can be misleading, and it is customary to



Performance Measure	Value ($)
Median IRR	11.31
Average IRR	8.28
Standard Deviation IRR	14.59
Maximum IRR	13.84
Best 5% IRR	13.66
Probability of Loss	9.35
Expected Loss	3.27
Maximum Total Loss	88.04
CVAR	34.97

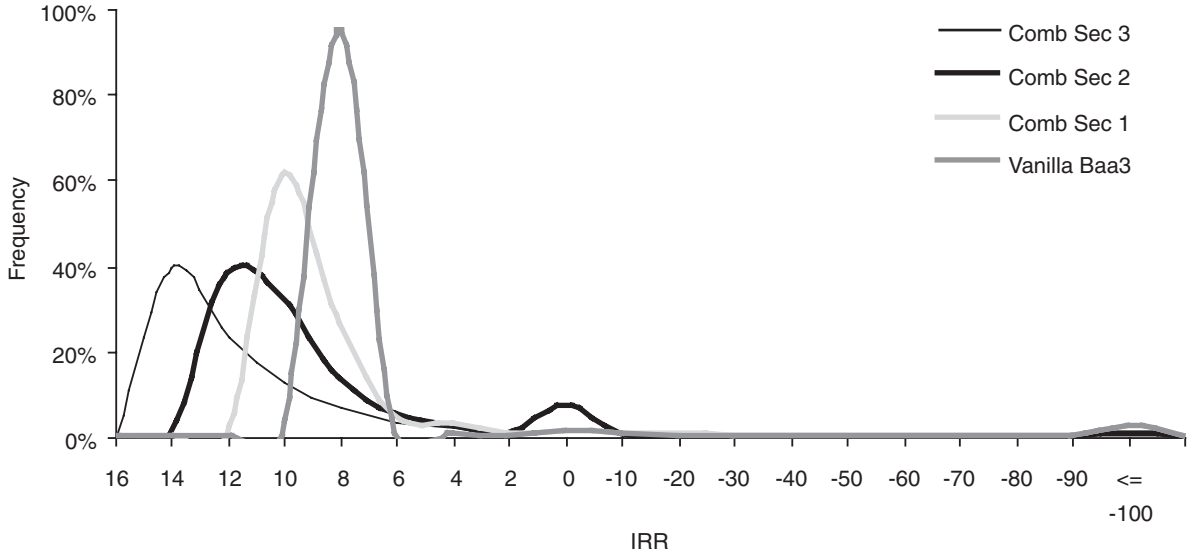
FIGURE 10.47 Baa3 Combination Security (50% Equity + 50% A1, Flat LIBOR Coupon)—Frequency Distribution of Annualized IRRs
Source: Citigroup.

augment these measures with median returns, percentile breaks, and conditional value at risk (CVAR) measures.

In our example, the median return value of 11.31 percent is about 300 bp greater than the average return of 8.28 percent, reflecting the distribution's skewness toward positive outcomes. The CVAR provides a measure of the fatness of the distribution's loss tail (i.e., it estimates an average level of losses in the tail).[22] In particular, the CVAR in Figure 10.47 indicates that if the combination security were to incur any loss, the expected loss would be approximately 35 percent.[23]

Value in Baa3-Rated CLO Combination Securities

We analyze three hypothetical combination securities from a hypothetical CLO and we conclude that there is substantial value in Baa3-rated CLO combination securities as compared with Baa3-rated plain-vanilla CLO notes whose frequency distributions of returns appear in Figure 10.48.[24] We chose a collateralized loan obligation because this CDO asset class performed very well throughout the last credit cycle.[25] The return distributions of all CLO combination securities in Figure 10.48 are shifted to the left relative to the plain-vanilla



	Equity (%)	Baa3 Tranche (%)	A1 Tranche (%)
Combination Security 1	10	90	0
Combination Security 2	30	20	50
Combination Security 3	50	0	50

FIGURE 10.48 Baa3 Combination Securities (Flat LIBOR Coupon)—Frequency Distribution of Annualized IRRs
Source: Citigroup.

TABLE 10.8 Baa3 Combination Securities (Flat LIBOR Coupon)—Frequency Distribution of Annualized IRRs

Performance Measure	Vanilla Tranche Baa3	CCS1 10% Eq + 90% Baa3	CCS2 30% Eq + 20% Baa3 + 50% A1	CCS3 50% Eq + 50% A1
Median IRR	7.1%	8.3%	9.4%	11.3%
Average IRR	1.4	2.5	7.0	8.3
Standard deviation IRR	34.1	32.3	15.0	14.6
Maximum IRR	7.1	9.0	11.2	13.8
Best 5% IRR	7.1	8.9	11.1	13.7
Probability of loss	4.4	4.7	8.4	9.3
Expected loss	3.1	3.2	2.0	3.3
Maximum total loss	95.6	93.5	90.9	88.0
CVAR	69.1	66.6	23.9	35.0

Source: Citigroup.

tranche, illustrating the greater potential upside that CLO equity provides to these securities. The potential upside and downside become more pronounced as the equity percentage within these combination securities increases.

Table 10.8 provides further detail on the performance characteristics of these securities. We believe that the most balanced security is CLO Combination Security 2 (CCS 2). The median and average returns for CCS 2 (9.4 percent and 7.0 percent, respectively) exceed those of both the plain-vanilla tranche and CCS 1, although they are lower than the median and average returns for CCS 3 (11.3 percent and 8.3 percent). The main attraction of CCS 2, however, is that its returns substantially exceed the plain-vanilla tranche returns *and* it provides substantially more protection than CCS 3 in terms of downside protection. In fact, although the probability of loss for CCS 2 is almost twice that for the plain-vanilla tranche (8.4 percent versus 4.4 percent), the level of losses is lower, as measured by expected loss (2.0 percent versus 3.1 percent) and CVAR (23.9 percent versus 69.1 percent).[26]

For those investors who are less concerned with downside risk at this point in the credit cycle, CCS 3 provides an attractive alternative. Its median return is over 400 bp higher than that of the plain-vanilla tranche.

Conclusion

A CDO combination security can be customized to meet an investor's rating, coupon, yield, and risk/return preferences. Because return profiles from similarly rated combination securities are not equal, we recommend that investors use stochastic and correlated default techniques to better understand the benefits and risks of a given CDO combination security. Given the historically strong performance of CLOs and the analysis of the combination securities described in this case study, we recommend a Baa3-rated combination security that is backed by CLO mezzanine and equity tranches for investors who seek pickup in yield using a leveraged credit investment.