

CHAPTER 1

The CDO Paradigm Shift

In the past five years, synthetics have been the most powerful driving force for change in the way collateralized debt obligations (CDOs) are structured. Synthetics have gained increasing attention because of the rapid growth in the credit default swap (CDS) market. In 1996, the global CDS market was only \$100 billion to \$200 billion in size. Morgan Stanley estimates the CDS market grew to \$2.4 trillion in 2002. The size of this over-the-counter (OTC) market is difficult to estimate, because transactions are private and off-balance sheet. It isn't surprising that different sources have different estimates of market size. The British Banker's Association (BBA) estimates that the CDS volume was close to \$1.2 trillion in 2001, grew to \$1.9 trillion in 2002, and will approach \$4.8 trillion in 2004. These figures do not include asset swaps or total return swaps. Furthermore, the BBA estimates that about 50 percent of CDS trading takes place in London.

ESTIMATED MARKET SIZE

The collateralized bond obligation (CBO) market, not including collateralized mortgage obligations (CMOs), the precursor to the current new CDO products, began in the late 1980s when high yield or "junk bonds" had yields of about 13 to 20 percent.

In the United States, the Resolution Trust Corporation (RTC) was charged with liquidating positions held by savings and loan associations (S&Ls). Prior to this, savings and loans essentially enjoyed a put option to the U.S. government. They realized they could buy highly leveraged residuals from CMO transactions and could buy high yield bonds for yield. If there were no losses, they were heroes. If their positions didn't do well, they could put the S&L to the government and walk away. There was more to the crisis than that, such as fraudulent real estate loans, but

this was a contributing factor to the S&L crisis in the United States. The fall of Drexel added further cheap high yield supply to the market, and changes in U.S. insurance capital regulations squelched demand for high yield product.

The beneficiaries were investors interested in diversified pools of cheap high yield bonds. Arbitrage CBOs were the answer. These deals were actively managed cash arbitrage CDOs. The early ones were exclusively leveraged market value deals. The supply glut of high yield bonds declined drastically in the 1990s, and the prices of high yield bonds rose with a corresponding decline in yield. Deal volume declined in the early 1990s. The emergence of the simpler cash flow CDO structure rekindled investor demand after 1995. This was the old paradigm.

By the late 1990s, there was a paradigm shift in the CDO market. A look at the reasons for almost nonexistent growth in the European market versus the U.S. market illustrates the sea change in CDOs and the causes for the paradigm shift.

As we can see from Figures 1.1 and 1.2, the European high yield bond market is minuscule compared to the U.S. high yield bond market. By 1999, the U.S. bond market was approaching \$600 billion in size. In contrast, the European bond market was only about \$35 billion in size. For more than a decade, the capital markets believed that this anemic issuance, combined with the multicurrency nature of the European issuance and investor market, would guarantee that Europe was never a significant factor in CDOs. The lack of supply of high yield bonds in Asia and Australia also inhibited their participation in CDO issuance.

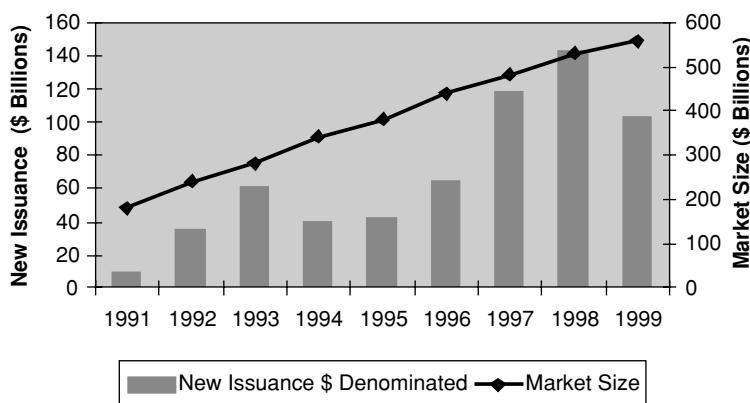


FIGURE 1.1 U.S. High Yield Bond Market
Sources: Moody's, S&P, and Westdeutsche Landesbank.

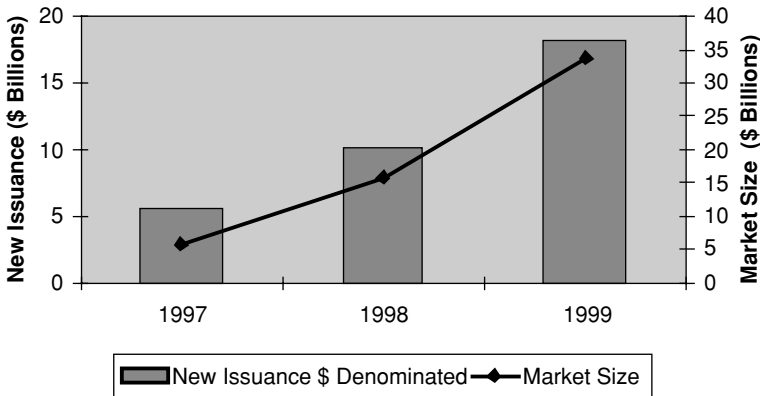


FIGURE 1.2 European High Yield Bond Market
Sources: Moody's, S&P, and Westdeutsche Landesbank.

Before 1995, virtually all CDOs were cash deals. A look at Figure 1.3 shows a change in the growth pattern beginning after 1995. The way the numbers are presented very much depends on who's reporting them. The numbers in Figure 1.3 are primarily CBOs and collateralized loan obligations (CLOs), but do not include the broad range of assets that can be securitized. Figure 1.4 lumps in other asset securitizations to report a much higher deal volume, but one can still see that the trend after 1995 indicates a change in the market.

Going back to the CBO/CLO market, we discover a pattern shift was mainly due to the introduction of *synthetics*. Structurers use CDSs and total return swaps (TRSs) to transfer the risk of assets, instead of selling cash (or physical) assets. As we will see later, the creation of a new tranche—the super senior tranche—gave an enormous boost to the deal arbitrage. It also created greater flexibility, and allowed for easier transfer of risk. In 1995, the CBO/CLO market was about \$2.5 billion in size. By 1999, the CBO/CLO market was around \$120 billion in size.

The growth spurt was chiefly due to the introduction of synthetic CDOs. Synthetics facilitate more efficient portfolio ramp-up, synthetics facilitate getting a higher average credit rating, and synthetics facilitate more efficient portfolio diversification. The synthetic arbitrage is facilitated by the feasibility of a smaller equity tranche, which creates more leverage. The synthetic arbitrage gets a further huge boost from the large, inexpensive super senior tranche that makes up the bulk of the synthetic deal.

Synthetic CDOs contributed to the explosive growth of CDOs in the European market, especially balance sheet deals. Many European banks

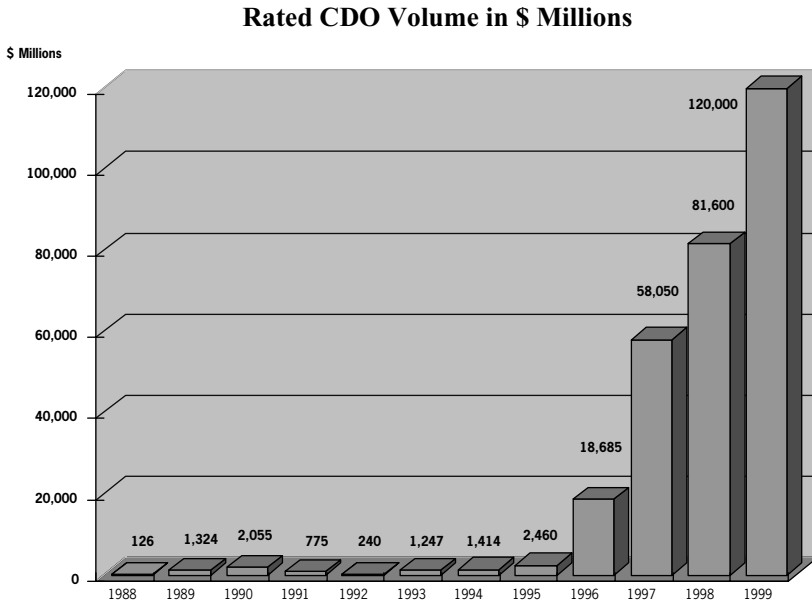


FIGURE 1.3 CDO Market Size—The Old Paradigm

Note: Above figures represent explicitly rated tranches of CBO/CLO transactions only.
Sources: Bank of America and Moody's Investors Service.

attract double the percentage share of discretionary savings relative to U.S. banks, making them very liquid. These European banks have a cheap source of funds. While the structure of the European market allows them a greater share of available savings, they haven't done well at generating high returns. They are under pressure to increase returns, lower costs, and

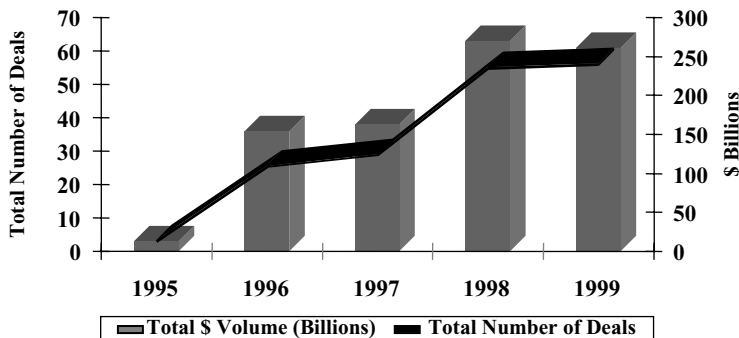


FIGURE 1.4 CDO Issuance 1995–1999

Source: Westdeutsche Landesbank.

manage risks better. Synthetic CDOs allow them to manage risk while employing their inexpensive traditional funding. The European bank funding advantage may disappear in a few years, but for now, synthetics are a welcome product for this market.

Another key shift in the market is the unprecedented number of credit downgrades and defaults in the past two years. Standard & Poor's reported an alarming recent increase in global corporate defaults. From the period from 1981 to 1998, global corporate defaults ranged from annual figures of \$0.1 billion to as high as \$23.6 billion in 1991. This period of low default rates has ended, at least temporarily. Defaults escalated from \$40.4 billion in 1999 to \$44.0 billion in 2000. Defaults then soared to \$118.8 billion in 2001 with a further jump to \$177.8 billion in 2002. The high yield market has been particularly hard hit, but investment grade credits have not been immune. Defaults in investment grade bonds over the past two years exceeded the cumulative total of the past twenty years.

Standard & Poor's reported that global investment grade corporate defaults ranged from 0–5 from 1981 to 2000. Investment grade corporate defaults climbed to 8 in 2001 and jumped to 17 in 2002. Speculative grade defaults ranged from 2–64 from 1981 to 1998, then climbed to 94 in 1999 and to 110 in 2000. In 2001, speculative grade corporate defaults jumped to 176 and remained high at 177 in 2002.

The increase in defaults and credit downgrades contributed to a growth rate of CDO downgrades of 318 percent in 2002. Most of the downgrades, about 74 percent, were in the high yield sector. The fact that the synthetic CDO arbitrage is viable using exclusively investment grade credits is a clear advantage for the synthetic CDO market.

The introduction of the Euro created a wider base of single currency reference assets in Europe. In addition, a wider investor base could participate in the deal when it was brought to market, because they were all purchasers of Euro assets. This helped boost issuance to about \$200 billion in 2001, and issuance in 2002 is expected to be more than \$250 billion when all the figures are in. Lang Gibson, Head of CDO Research at Bank of America, estimates issuance may top \$269 billion. Figure 1.5 charts the explosive growth of the CDO market over the past 10 years, most of which has occurred in the past few years. The year-over-year growth from 2001 to 2002 of \$50 billion exceeds total CDO issuance in 1996 plus all prior years. It equals the volume in 1997 when synthetic CDO issuance began to appear in the market. The explosive growth is due to the use of credit derivatives in the CDO market.

Figure 1.6 shows the breakdown of cash and synthetic deals as components of the total CDO market in 2002. *Whereas all of a deal's assets*

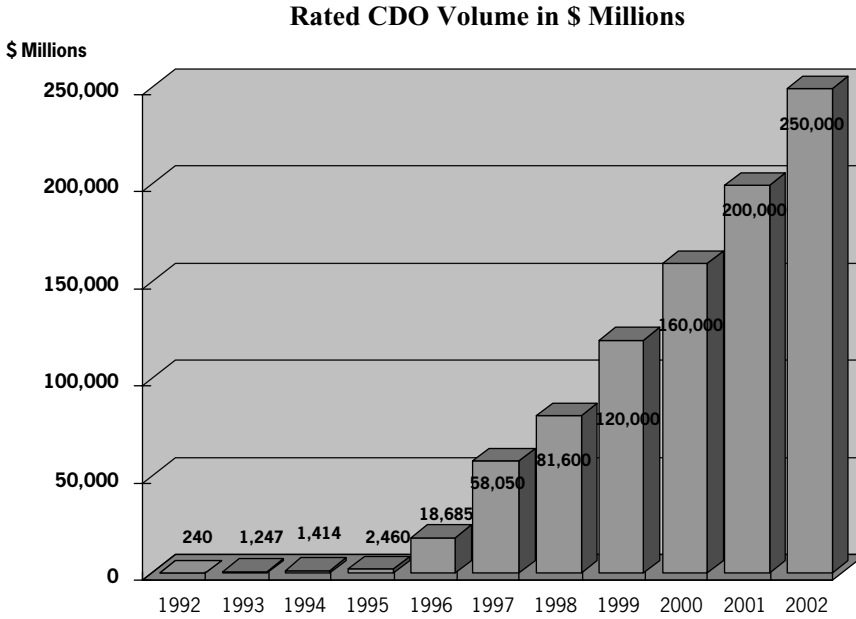
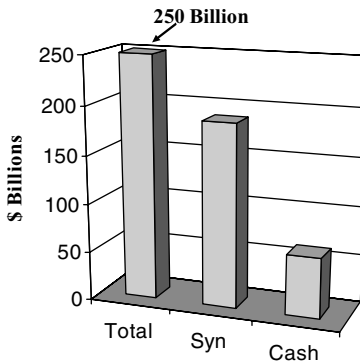


FIGURE 1.5 CDO Market Size 2002—The New Paradigm
Note: Above figures represent explicitly rated tranches of CBO/CLO transactions only.
Sources: Bank of America and Moody’s Investors Service.



Synthetic Market is about 3 times the size of the cash market, and more than 75% of the total CBO/CLO market.

FIGURE 1.6 CDO Market—Synthetic and Cash Breakdown for 2002
Note: Estimates as of January 20, 2003.
Sources: Moody’s Investor Services and Bank of America.

were cash assets in 1995, by 2002, synthetics made up more than 75 percent of the CDO market. The percentage of the overall CDO market made up of synthetics varies by venue. The U.S. market is made up of only about 25 percent synthetic CDOs. Due to the greater volume of high yield bond and loan issuance, the U.S. brings more cash deals to market. In Europe and Asia, about 80 to 90 percent of the CDO market is made up of synthetics.

Synthetic CDOs usually fall into one of three categories:

1. Balance sheet CDOs,
2. Static synthetic arbitrage CDOs, and
3. Managed synthetic arbitrage CDOs.

Most balance sheet CDOs are regulatory capital-driven. Recently, several arbitrage-driven multisector balance sheet CDOs have come to market when banks used portfolios of mezzanine (BBB average-rated) tranches of multisector CDOs from their investment portfolios as the reference collateral.

The figures above understate the size of the synthetic market, because CDO statistics capture only a portion of CDO-related synthetic activity. Many cash deals employ synthetics to make up a portion of the total portfolio. Many synthetic arbitrage CDOs brought to market in 2001 and 2002 were *unrated*. We rely on rating agencies to compile most of the statistics. If a deal isn't rated, and if a deal is privately placed, we rely on word-of-mouth to compile deal data. Some portfolio swaps are privately placed, and some are untranching. Intermediations of synthetic product are not reported in CDO statistics. Neither are basket swaps, a separate but related category of synthetic activity.

In rough figures, balance sheet CDOs are about 45 percent of the synthetic CDO market. Static synthetic arbitrage CDOs are also about 45 percent of the synthetic CDO market. Managed synthetic arbitrage CDOs make up about 10 percent, or the remainder synthetic CDOs.

How did banks and investment banks manage to sell such a huge volume of new issuance to traditional (mutual funds, bank portfolios, pension funds, insurance company portfolios, hedge funds) CDO investors in such a short period of time? The answer is that most of the synthetic volume is not going to traditional CDO investors. While \$250 billion total volume appears to be high, the sales of synthetic tranches and repackaged synthetic tranches are lower than the supply suggests. The super senior tranche makes up 85 to 95 percent of synthetic CDOs. This tranche is usually retained by the banks structuring the deals or is protected by monoline insurance companies.

Of the estimated \$250 billion in CDO issuance in 2002, more than \$187.5 billion is synthetic. Assuming the super senior tranche makes up 90 percent on average of the synthetic CDO, only about \$18.75 billion of synthetic CDO product is available to traditional investors. Often, financial institutions that structure CDOs will retain the equity tranche in addition to the super senior tranche. They may feel like Wild Bill Hickok when he played poker with a man named Doc. Wild Bill was holding a winning hand of aces and eights. But he was shot in the back and killed. As we'll discover, investors in super senior and equity tranches may want to watch their backs.