UNDERSTANDING COMMERCIAL MORTGAGE SECURITIZATION AND ITS IMPACT ON DEBT FINANCING FOR RETAIL CENTERS

Brian A. Ciochetti,
Assistant Professor, University of North Carolina, Chapel Hill, North Carolina

Timothy J. Riddiough
Assistant Professor, Massachusetts Institute of Technology, Cambridge, Massachusetts

Overview

This article examines the growth and structure of commercial mortgage-backed securities (CMBS), with a particular focus on CMBS as an alternative to traditional debt financing for shopping centers. Lending terms are analyzed using two separate but complementary data sources. Disaggregate investment performance of retail center loans is compared with industry aggregates over the past 15 years. The credit crunch of the early 1990s and the focus on CMBS as an alternative source of debt capital are discussed. Then we analyze CMBS structure and pricing in detail. A simple spreadsheet example is developed to illustrate the structural and valuation concepts. The article concludes with a brief discussion of the anticipated long-run viability of the CMBS market as a source of affordable and plentiful capital.

■ Introduction

The primary objectives of this article are first, to examine problems associated with the lack of debt capital when traditional lending sources withdraw from the market. This is an important and timely topic, since obtaining capital for investment or recapitalization in the retail sector (as well as other sectors) became extremely difficult in the early to mid-1990s, and remains a critical concern. Second, to evaluate the short- and long-term effectiveness of commercial mortgage securitization in reducing debt financing costs to owners/investors of shopping centers. In general, the public capital markets represent a vast and potentially less expensive source of debt capital as compared with traditional private debt sources.

A major reason why traditional sources of debt capital withdrew from the market in the early 1990s was that there were unprecedented losses associated with commercial mortgage originations. This experience has changed the way lenders and regulators view both real estate investment and lending risk. In particular, bank and life insurance regulators have now fully phased in capital requirements which place direct real estate debt (and equity) investment at a disadvantage relative to other investment categories. For example, investment in whole commercial mortgages by life insurance companies requires 10 times the amount of capital reserved than does investment in residential mortgage securities. Recent mortgage loss experience and changes in risk-based capital guidelines have therefore continued to discourage many traditional sources of debt capital from funding retail center investments.

To fill the debt financing void, as well as to satisfy the needs of institutions that may wish to sell or re-package existing loans, commercial mortgages have recently been pooled and securitized. The securities created out of a pool of commercial mortgages, CMBS, have varying risk and return characteristics and are sold to investors either publicly or through private placement. This market has grown considerably over the last several years—almost $40 billion of securities were issued in 1994 and 1995 combined—to the point where total capitalization stands at about $90 billion. Significantly, capitalization in this market exceeds the entire equity REIT market capitalization.

The creation of these new securities can, at least in theory, make debt financing cheaper and more accessible to retail market participants. Sophisticated investors will presumably seek out these securities due to their unique set of risk and return characteristics not easily replicable in the marketplace. As a result, security holders may demand a lower rate of return relative to the individually-priced whole loans. In addition, be-

cause of the size and nature of the public markets, the periodic "credit crunches" that have occurred with whole loan commercial mortgage lending may be mitigated. Although the CMBS market is in its infancy, similar benefits associated with the securitization of whole-loans have already been realized in the residential mortgage sector.[1]

The plan of this article is as follows: first we provide an overview of lending terms and conditions that have prevailed in the retail sector over the past 15 years. The overview is intended to provide historical perspective regarding the dynamic nature of commercial retail lending. We then examine the investment performance of retail loans over the past 15 years by using a large historical commercial mortgage data base obtained from a major life insurance company. By comparing intra-retail mortgage investment performance (e.g., large malls with smaller retail strip centers) as well as inter-retail investment performance (e.g., retail with other property types), we will provide perspective as to what the specific problem areas were and how lenders have responded to these problems over the last several years. In the third section we briefly discuss reasons for the capital crunch in the early 1990s, which provided the incentive to consider issuing public debt securities and which opened the door for the CMBS market to gain a foothold. Then we analyze the growth of the CMBS market. The fourth section is meant to familiarize the reader with the basics of how commercial mortgage backed securities are structured and to discuss the risk and return characteristics associated with investment in these securities. We present a simple analysis of a stylized CMBS security issue. The paper concludes with an assessment of the potential of the public market as a source of debt capital that is both more reliable and more affordable than traditional private sources.

■ Review of Traditional Retail Financing

Conventional wisdom suggests that there are several aspects unique to shopping centers—in particular larger retail centers—that distinguish their ability to secure financing relative to other types of commercial real estate. One aspect is due to locational monopoly. Establishment and maintenance of a local monopoly is possible because of land assemblage difficulties, market capture that makes replication unprofitable and complexities associated with putting together a profitable mix of tenants. The ability of large retail centers to establish and maintain a local monopoly is very attractive to lenders, who are generally concerned with

how future competitive market conditions may affect the status of medium- to long-term debt financing.

Another related feature is the anchor tenant, which generates positive externalities that benefit the other non-anchor tenants. The anchor tenant, once secured as a long-term lessee, acts as a market draw that induces smaller tenants to follow. Because anchors are typically large national/regional tenants that sign long-term (e.g., 15 year) operating agreements that preclude the store from "going dark," they create a high degree of security as to maintenance of the tenant base. Lenders view this arrangement positively, since default by the tenant presumably would occur only when there is a rare corporate default.[2]

A third aspect to the retail sector that differentiates it from other sectors is the use of the percentage rent contract. Percentage rent contracts provide shopping center owners with a call option on the upside revenue stream produced by tenants. Well–positioned shopping centers in growing market trade areas that are not vulnerable to new competition have historically experienced strong revenue growth that, in turn, is partially shared with the owner. This upside revenue potential again is viewed favorably by lenders, who presumably have been willing to finance retail centers at relatively lower debt service coverages (where net operating income is based on fixed rents only) as compared to other property types.

This, at least, is the conventional story about the relative desirability of retail lending. What do the data tell us? We analyze loan-to-value ratios, contract mortgage rates and debt service coverage ratios at loan origination from two very different data sources: 1) American Council of Life Insurance (ACLI) mortgage data that are highly aggregated, and 2) disaggregate mortgage data from a large insurance company. The advantage of the ACLI data is that they provide an accurate picture on an industry-wide basis, but suffer from a high level of aggregation that prevents detailed loan-by-loan or sub-sector analysis (i.e., sub-classifications for retail are not available). On the other hand, the company–-specific data suffer from potential underwriting/property selection bias, but allow for more detailed examination. Thus, the two data sets complement one another and should provide a relatively accurate picture of whether lenders favor retail relative to other property types.

Exhibits 1 and 2 display quarterly ACLI loan-to-value ratios and mortgage interest spreads over comparable maturity treasury securities, respectively, by time of origination. Retail is graphed with office property and total property numbers for comparison. These graphs indicate that, except for post-1991 data, there is little discernible difference between basic underwriting ratios and product pricing with retail and non-retail commercial real estate. This contradicts earlier arguments, but may be

EXHIBIT 1
ACLI LOAN-TO-VALUE RATIO (IN PERCENT) BY YEAR OF ORIGINATION

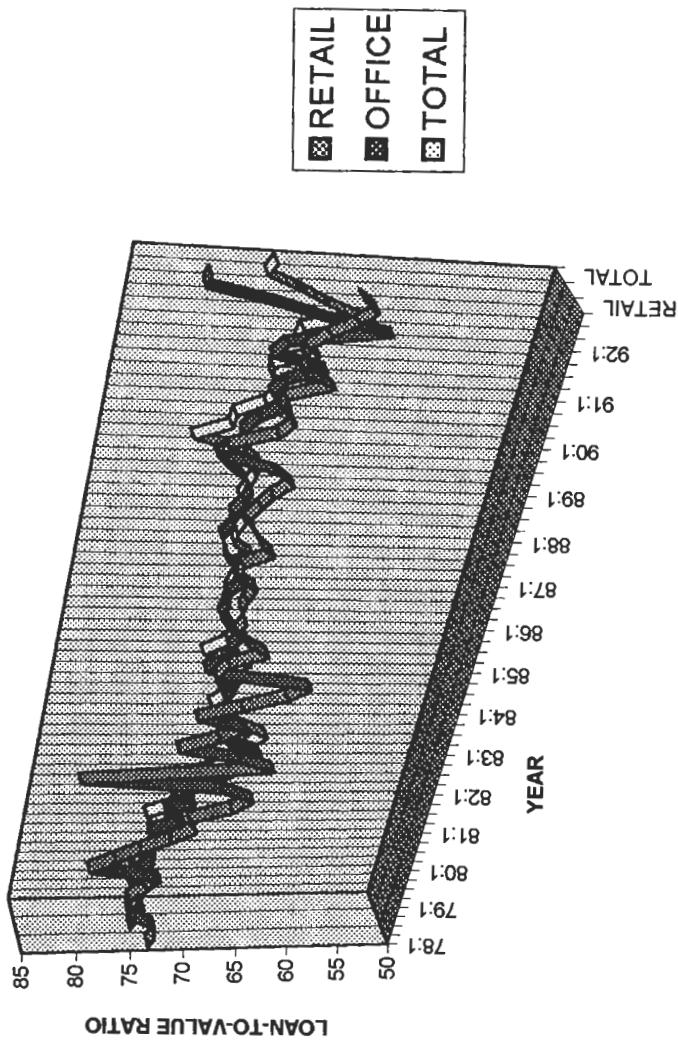


EXHIBIT 2
ACLI MORTGAGE RATE SPREAD (IN PERCENT) BY YEAR OF ORIGINATION

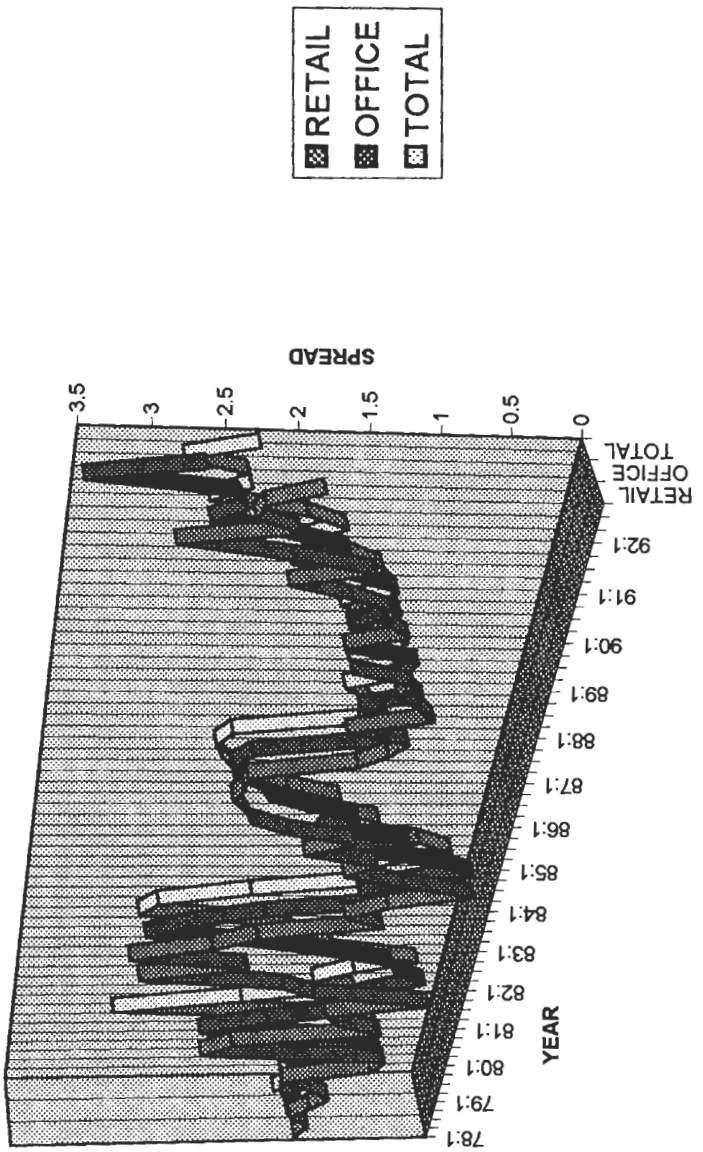


EXHIBIT 3
DEBT SERVICE COVERAGE BY YEAR OF ORIGINATION

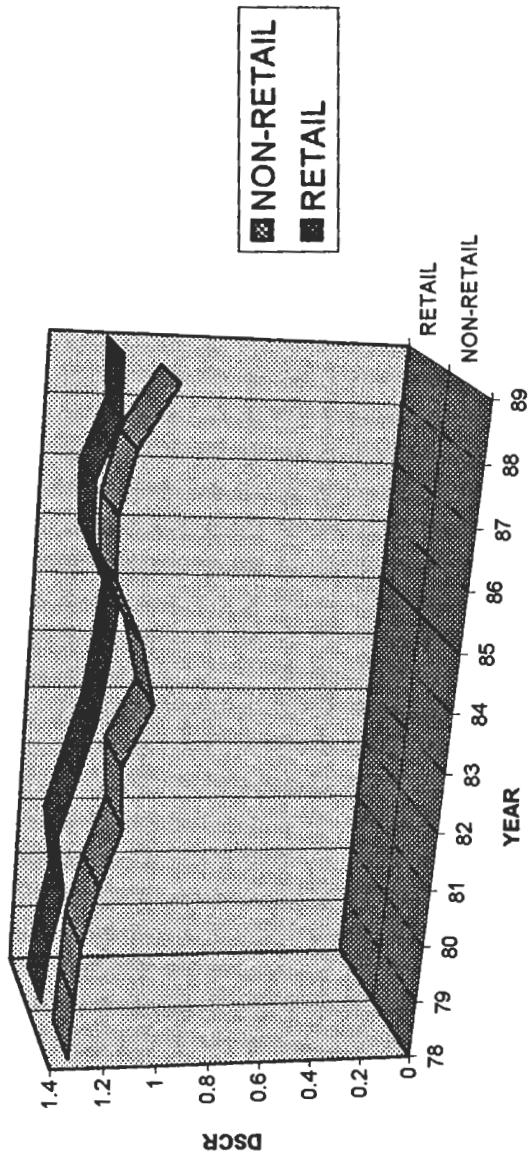


EXHIBIT 4
LOAN-TO-VALUE RATIO (IN PERCENT) BY YEAR OF ORIGINATION

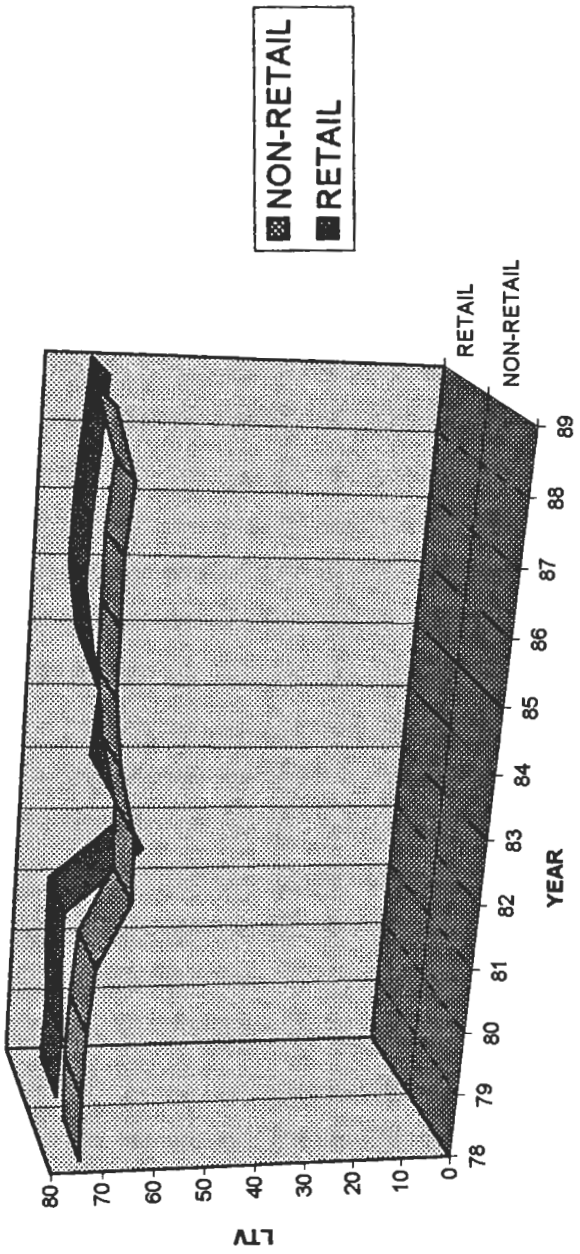


TABLE I UNDERWRITING CRITERIA BY RETAIL SIZE CATEGORY (DSCR/LTV)

YEAR	STRIP	NHBRHOOD	COMM'TY	REGIONAL	SUPER-REGIONAL	NON-RETAIL
1978	1.33 / 72.6	1.35 / 73.4	1.35 / 73.4	1.23 / 74.7	—	1.32 / 73.6
1979	1.31 / 72.9	1.35 / 72.9	1.32 / 74.0	1.31 / 70.1	1.33 / 75.0	1.31 / 74.1
1980	1.37 / 70.1	1.29 / 73.7	1.26 / 74.0	—	1.28 / 75.0	1.30 / 73.8
1981	1.21 / 72.8	1.36 / 73.7	1.17 / 73.1	1.35 / 75.0	—	1.25 / 72.9
1982	1.16 / 59.3	1.39 / 59.2	—	—	—	1.18 / 67.0
1983	1.17 / 68.6	1.26 / 67.2	1.36 / 59.2	—	—	1.20 / 67.5
1984	1.15 / 71.1	1.18 / 68.2	1.17 / 64.0	—	—	1.10 / 70.9
1985	1.11 / 74.0	1.12 / 72.1	1.18 / 70.3	—	—	1.16 / 72.5
1986	1.11 / 77.5	1.32 / 72.2	1.28 / 73.3	1.29 / 73.3	—	1.27 / 72.7
1987	1.13 / 75.0	1.27 / 73.6	1.31 / 73.6	1.25 / 73.3	—	1.28 / 72.9
1988	1.34 / 72.5	1.35 / 74.2	1.18 / 73.7	—	1.16 / 67.0	1.23 / 71.8
1989	—	—	1.04 / 71.0	—	—	1.01 / 76.1
TOTAL	1.22 / 72.6	1.28 / 72.7	1.27 / 72.4	1.29 / 73.1	1.22 / 68.7	1.21 / 72.0
	N=121	N=137	N=143	N=17	N=7	N=2124

Notes to Table I: The first number shown in each column is the debt service coverage ratio and the second number is the loan-to-value ratio. N is the total number of loans in each category. All averages are weighted by relative loan size.

due to the composition of the ACLI origination data which mix large- and small-sized retail together.

The detailed insurance company data—which span 1978 to 1989—are shown in Exhibits 3 and 4.[3] Here we show retail versus non-retail aggregates by year of origination, where visual inspection suggests no large apparent differences in terms of underwriting criteria. Thus the company-specific data are generally consistent with the ACLI data.

In Table 1 we split the shopping center data into five size categories by year of origination. These size categories are labeled as: strip (30,000 square feet or less), neighborhood (30,000 to 100,000 square feet), community (100,000 to 350,000 square feet), regional (350,000 to 600,000 square feet) and super-regional (greater than 600,000 square feet).[4] The data suggest that retail—including regional and super-regional shopping centers—show no significant differences from non-retail in terms of debt service coverage and loan-to-value ratios. This is somewhat surprising given our earlier discussion, which suggested that large retail has characteristics that are particularly attractive to lenders (i.e., lower debt service coverage ratios were expected with retail due to locational monopoly and the overage rent feature).

Therefore, we find no evidence that large shopping centers enjoyed preferential treatment among lenders on loans originated from the late 1970s through the 1980s. Extrapolating to the securitized markets, the retail sector, with the possible exception of very large retail, should therefore expect to be lumped with other property types with respect to qualification criteria.[5]

■ Retail Mortgage Lending Experience Compared

The origination data just examined suggest that the retail sector did not enjoy preferential underwriting treatment relative to other property types. Moreover, the ACLI data suggest that retail has not enjoyed a relative cost advantage, as retail loans have been priced comparable to non-retail loans over the past 15 years or so. A more complete analysis with respect to the going-forward expected cost and availability of debt capital requires that we analyze the investment performance of the retail mortgage sector relative to other sectors. If investment performance has differed by property type, the relative cost and availability of debt may be impacted going forward. For example, if the retail sector outperformed other sectors, we might expect somewhat more flexible underwriting/pricing going forward as well as more options with respect to

sources of debt (including both CMBS and traditional private debt capital).

In this section we use the disaggregate insurance company data to analyze investment performance.[6] We will use three measures in an attempt to portray whole loan investment performance accurately: 1) we will measure the frequency of mortgage default, 2) we will measure loss recoveries on defaulted loans and 3) we will calculate holding period returns on the entire portfolio of loans (defaulted and non-defaulted). These comparisons will be made by property type and, in the case of default frequency, within property type by shopping center size category.

First, Table II displays loan origination counts together with the current status of each loan. These data are as of year-end 1994. Loan status is classified at that time as active, currently delinquent, modified (i.e., loan terms have been renegotiated, but the loan is still currently active), foreclosed, prepaid, paid (i.e., the loan paid according to loan contract terms), or other (i.e., those loans not falling into other categories). All loans included were originated prior to 1991; therefore, the foreclosure numbers have probably nearly peaked and hence provide a good measure of loss experience.

The data show that foreclosure and modified percentages are lower for retail loans than for the total loan portfolio. The only property type that has a lower foreclosure percentage is industrial, which typically is single tenant and exhibits low risk due to very long lease terms and corporate credit backing. Retail foreclosure percentages are significantly below those of office properties. The relatively high percentage of active loans in the retail category suggests potentially solid loan performance going forward (on the other hand, however, recent retail sector performance data suggests that there are some reasons for caution).

We can also break out the loan status data by retail sub-category, shown in Table III. Strip centers and super regional malls have performed quite well in terms of foreclosure percentage. However, differences within shopping center by size of establishment are not large.

The next level of analysis is to examine loss statistics on loans that were subject to foreclosure. In this case, our data are only available through year-end 1990. Thus, we miss the increased foreclosure activity that occurred between 1991 and 1994. Given the depth of the commercial real estate recession, we would expect loss recoveries to be lower in the 1991-1994 period than in the pre-1991 period. Nevertheless, given the cross-property type analysis as shown in Table IV, we should be able to generate a reasonable picture of loss experience.

The first column in Table IV shows the average time from the initiation of the foreclosure action to the actual foreclosure date. In general,

TABLE II LOAN STATUS COUNTS BY PROPERTY TYPE (COLUMN PERCENTAGES)

Status	Apartments	Industrial	Office	Retail	Other	Total
Active	90	65	160	108	16	439
	13.0%	15.2%	18.1%	27.6%	13.9%	17.3%
Delinquent	4	2	5	1	1	13
	.6%	.5%	.6%	.3%	.9%	.5%
Modified	12	7	26	5	6	56
	1.7%	1.6%	2.9%	1.3%	5.2%	2.2%
Foreclosed	108	47	204	52	23	434
	15.6%	11.0%	23.1%	13.3%	20.0%	17.1%
Prepaid	232	134	212	96	29	703
	33.6%	31.2%	24.0%	24.5%	25.2%	27.8%
Paid	172	156	208	100	47	683
	24.9%	36.4%	23.5%	25.5%	40.9%	27.0%
Other	73	18	69	30	1	203
	10.6%	4.2%	7.8%	7.7%	.9%	8.0%
Total	691	429	884	392	115	2531
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

TABLE III. LOAN DISPOSITION COUNTS BY RETAIL SUB-CATEGORY (COLUMN PERCENTAGES)

Status	Strip	Neighborh'd	Community	Regional	S-Regional	Total
Active	5	48	47	5	3	108
	4.9%	36.3%	34.3%	35.7%	42.9%	27.6%
Delinquent	0	1	0	0	0	1
	0.0%	.8%	0.0%	0.0%	0.0%	.3%
Modified	4	1	0	0	0	51.3%
	3.9%	.8%	0.0%	0.0%	0.0%	1.3%
Foreclosed	6	20	23	3	0	52
	5.9%	15.2%	16.8%	21.4%	0.0%	13.3%
Prepaid	28	29	35	3	1	96
	27.4%	22.0%	25.5%	21.4%	14.3%	24.5%
Paid	57	21	20	1	1	100
	55.9%	15.9%	14.6%	7.1%	14.3%	25.5%
Other	2	12	12	2	2	30
	2.0%	9.1%	8.8%	14.3%	28.6%	7.7%
TOTAL	102	132	137	14	7	392
	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Notes to Table III: These numbers may differ from those analyzed in Table I, since some loans were sold off and therefore are unaccounted for in this data.

TABLE IV. MEAN LOSS STATISTICS BY PROPERTY TYPE AND DEFAULT OUTCOME

Property Type	Time to Foreclosure	Loss Recovery	Yield Degradation
Apartment	8.6 mos.	84.8%	2.56%
Hotel	9.8 mos.	71.2%	12.70%
Industrial	9.2 mos.	79.7%	4.41%
Office	9.3 mos.	70.4%	9.00%
Other	12.4 mos.	74.7%	1.94%
Retail	10.1 mos.	77.1%	5.07%
Total	9.1 mos.	77.8%	5.60%

the longer the time until the foreclosure process concludes, the higher are the losses due to lost interest and foreclosure costs. Retail properties have a slightly longer time to foreclosure than most other property types, but the differences are minor. In terms of net loss recovery—which is defined as the property value at the foreclosure date, less foreclosure expenses, less lost interest accrued during the delinquency/foreclosure period—retail recoveries are similar to recoveries of most other property types on average, but significantly higher than the office and hotel sectors. Finally, the last column shows the difference between the contractual (or promised) yield on the foreclosed loans and the realized yields on foreclosed loans, which we label as yield degradation.[7] Again, retail did not differ significantly from the average, but was certainly better than the hotel and office market sectors.

Our final performance measure is a holding period return on all loans that have completed cash flow histories, including those paid, prepaid and foreclosed (but excluding active loans). These results are shown in Table V. Retail outperformed all other property types except industrial, which suggests that in the post-1990 lending environment the retail sector should have been viewed relatively favorably (which indeed seems to have been the case, at least until recently).

However, the real story of this section is that commercial real estate debt in aggregate performed miserably based on loans that were primarily originated in the 1980s. As we will discuss in the next section, this has had profound effects on the cost and availability of mortgage money in the 1990s for all property types, including retail.

TABLE V. MEAN HOLDING PERIOD RETURNS BY PROPERTY TYPE

Property Type	Contractual Yield	Realized Yield	Yield Degradation
Apartment	11.52%	10.97%	.55%
Hotel	12.33%	7.71%	5.62%
Industrial	11.81%	11.51%	.30%
Office	11.85%	9.84%	2.01%
Other	11.92%	11.11%	.81%
Retail	10.56%	10.17%	.39%
Total	11.53%	10.50%	1.03%

■ Withdrawal of Traditional Lending Sources and the Emergence of the CMBS Market

Withdrawal of Traditional Lending Sources

The Savings & Loan and commercial real estate debacle of the 1980s has had a profound impact on the traditional sources of debt capital. The combined effects of poor investment performance, zealous scrutiny by regulators and rather onerous capital reserving requirements for commercial real estate debt led to a credit rationing situation in the early 1990s (where private debt capital was difficult to obtain at any price). This situation opened the door for the CMBS market to emerge as an alternative source of commercial real estate debt financing. Indeed, there has been steady growth in this market, to the point where post-1990 CMBS issuance now exceeds $100 billion.

Regulators responded to poor investment performance by focusing on credit risk, where capital reserving requirements are a convenient way to penalize institutions for "high risk" investment. As an example of the capital reserving approach, Exhibit 5 shows the fully phased-in capital reserving requirements for insurance companies. Non-rated commercial mortgages (referred to as "Other Mortgages" in the exhibit), which historically have been compared with A- or BBB-rated corporate bonds, are now required to set aside roughly three to 10 times the capital as "similar risk" securities. This of course is a disincentive to holding and

EXHIBIT 5
RISK-BASED CAPITAL REQUIREMENTS FOR LIFE INSURANCE COMPANIES

Asset Class	Capital Factor
Full Faith and Credit of US Government: Treasuries, GNMAs	0%
NAIC 1 (AAA-A Securities): Agency debentures and AAA-A rated corporates, MBS, CMOs and ABS	0.3%
NAIC 2 (BBB securities)	1%
NAIC 3 (BB securities)	4%
NIAC 4 (B securities)	9%
NAIC 5 (CCC securities)	20%
NIAC 6 (Securities in default)	30%
Residential Mortgages (single and multifamily)	0.5%*
Farm Mortgages	3%*
City Mortgages Insured or Guaranteed	0.1%*
Other Mortgages (including commercial mortgages)	3%*
Preferred Stock	2.3%-3.0%
Common Stock	30%
Real Estate	10%

*This percentage is multiplied by a factor ranging from 0.5 to 3.0, reflecting the individual company's two-year past delinquency and foreclosure experience compared to the two-year industry average.

Source: *Lehman Brothers Fixed Income Research: Mortgage Securities*

originating commercial mortgages, and has furthered the interest in developing a secondary market outlet for existing debt investments.

Exhibit 6 shows that poor performance, regulatory oversight and stiff reserving requirements have had a huge effect on mortgage flows. Net aggregated mortgage flows were negative starting in 1990, while insurance company net flows were zero in 1991 and negative in 1992 and 1993. These net flows are the result of little new origination (the credit crunch) combined with amortization/payoff of existing debt, the "resolution" of defaulted loans that resulted in the debt being eliminated from the balance sheet, and in some cases the outright sale of the debt to a third party.

In addition to the credit crunch, an important factor in the establishment of the CMBS market was the Resolution Trust Corporation (RTC) property disposition initiatives of the early 1990s. Largely for political reasons, the RTC adopted a "sell, sell, sell" mentality with its inventory, which placed additional downward pressure on the equity and debt real estate markets.

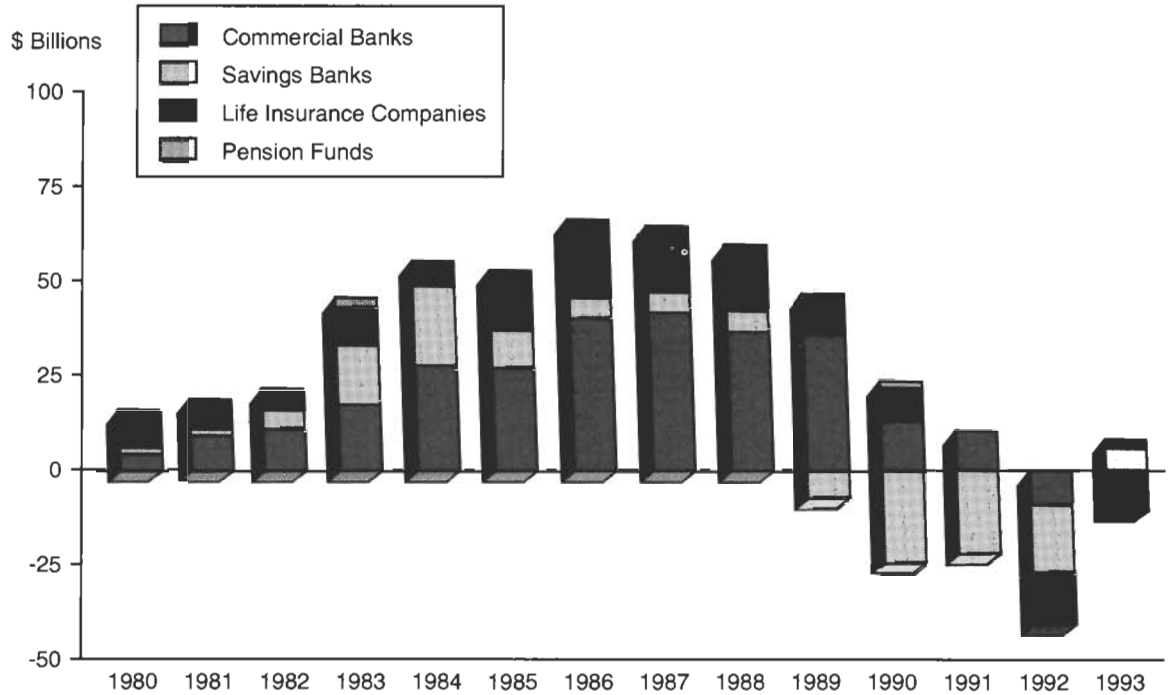
A difficult issue was what to do with performing and non-performing commercial mortgages that were acquired by the RTC. An active secondary market for commercial mortgages was non-existent at the time. As compared to the equity side, traditional auctions were less attractive since "vulture" investors did not perceive as much investment upside potential and because traditional investors such as insurance companies were on the sidelines. Consequently, almost as a last resort, the RTC began considering securitization of these mortgages as a solution to the disposition problem. By pooling and packaging large numbers of mortgages into securities to be sold into the public markets, and by also providing many off-balance sheet guarantees and promises, the RTC in effect held a (non-traditional) bulk auction. In the process they were instrumental in the creation of the CMBS market.

Emergence of the CMBS Market

Establishing successful markets for new securities is never easy. In addition to the fundamental issue of whether sufficient demand exists for a new security, there are significant start-up costs that must be incurred by investment bankers/securities underwriters. In the case of CMBS, these costs presented significant barriers to entry due to the heterogeneous nature of commercial mortgage contracting, the historical presence of a competitive and usually fluid sources of whole commercial debt, and difficulty in accumulating enough product to justify the fixed costs of security issuance.

EXHIBIT 6

NET CAPITAL FLOWS TO COMMERCIAL REAL ESTATE DEBT



Source: *Morgan Stanley Real Estate Research*

Thus the combination of severely rationed private debt capital and the RTC's need to dispose of large quantities of existing product provided Wall Street with the opportunity it needed to gain a foothold in the commercial real estate debt business. Because commercial mortgage securitization was the only available debt financing alternative at that time, and because the RTC was willing to dispose of large quantities of real estate debt at relatively low prices, Wall Street could transfer their start-up costs into the offered yield spreads of these securities. Ultimately, this arrangement proved to be politically and economically feasible for the RTC, since the complex nature of these securities made it difficult to identify exactly what the "true" costs of securitization were (e.g., weighted average yields were hard to calculate and there was no private market alternative with which to compare these results), and because the bulk nature of the sale made it difficult to identify whether individual assets were under- or over-priced.

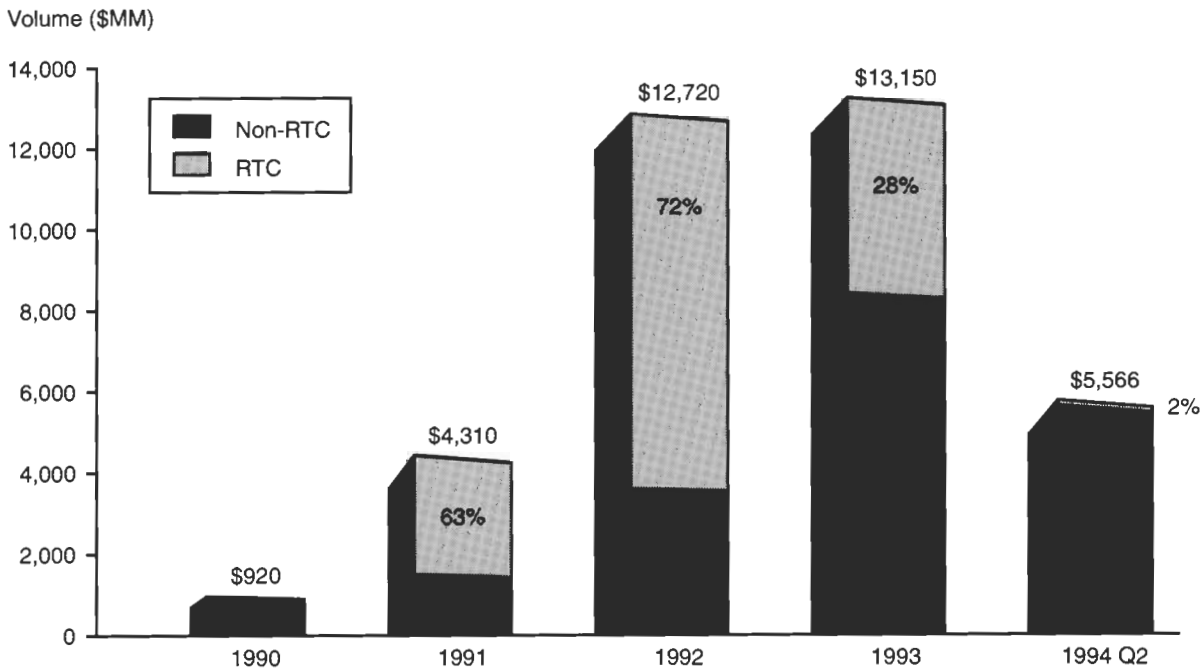
Exhibit 7 shows the relative importance of the RTC in establishing the CMBS market. In 1991 and 1992, the RTC accounted for a majority of the total CMBS issuance volume. Indeed, the roughly $12 billion in RTC issuances in 1991 and 1992 was approximately equal to total issuances in the entire history of the CMBS market up to that time.

Recent Growth in the CMBS Market

CMBS issuance has continued despite the RTC's diminished marketplace presence. In 1994 there were approximately $20 billion in new issues, of which only $2.5 billion was RTC product. Similarly, issuance volume of just under $20 billion was realized in 1995, of which only $1.5 billion was RTC product. Furthermore, this growth has occurred despite the sudden return of private debt capital in 1994. During the middle part of 1994, a combination of factors—including revised expectations regarding commercial real estate fundamentals and reduced regulatory pressure—resulted in increased traditional lending. Commercial mortgage yield spreads on high quality collateral have subsequently declined from well over 200 basis points in early 1994 to less than 150 basis points today.

What explains this continued growth in CMBS in the face of a declining RTC market presence and the return of private debt capital? There are three basic factors, one of which is demand-side based and two of which are supply-side based. The demand-side factor is the gradual maturity of this market. With huge start-up costs behind it, the CMBS market will only become more efficient from a cost-of-issuance

EXHIBIT 7
RTC CMBS ISSUANCE'S



Source: *Morgan Stanley Real Estate Research*

perspective. Moreover, investors are becoming increasingly comfortable with these rather complex securities. Both decreasing costs and increasing demand result in lower weighted average yield spreads on newly issued product.

A second factor explaining the continued growth of the CMBS market is the attractiveness of CMBS as the bulk sale alternative for existing loan product. Because of poor portfolio performance, strict capital reserving requirements and various other factors, many institutional investors have continued to divest themselves of commercial mortgages.[8] There are two basic ways that existing product ends up in a security pool. When a particular investor has sufficient volume of shelf product, he or she may work directly with an investment banker to create a security. When sufficient product does not exist or the mortgage holder does not wish to be troubled with a security issuance, the mortgage(s) are typically sold to an intermediary (e.g., a Wall Street firm), who then accumulates enough product for an issuance.

The third factor is the emergence of conduits and single-issue securities as market niches for new loan originations. Conduits are shell companies—usually residing within banks or insurance companies—that are created with the express purpose of originating loans for placement into a security. Because of the current low yield spreads offered on debt for higher quality properties in the whole loan market, conduits have been forced into the "B" or lower collateral quality market where higher yield spreads can be supported. Single-asset CMBS issuances on large retail and office properties have also gained market share. Due in part to their relative simplicity, mortgages underlying these single-asset securities are being offered at weighted average yields that rival or beat yields available in the whole loan market.

Indeed, the distinction between multiple asset and single asset mortgage pools is important with respect to shopping centers. Many of the single asset deals—which must be large due to required economies of scale with respect to issuance costs—are debt financing provided on super-regional malls. Exhibit 8 breaks out recent issuance spreads on single-asset versus multiple-asset CMBS pools. Single-asset deals are shown to sell at relatively higher prices due to deal simplicity, higher collateral quality and perhaps the prepayment risk present in some multiple-asset deals. Although these numbers are not directly comparable (due to differences in underlying asset/security risks), private market whole loan spreads are in the 100-140 basis point range which, as noted earlier, makes single asset CMBS competitive with the whole loan market.

EXHIBIT 8
CMBS INVESTMENT CLASS YIELD SPREADS: SINGLE VERSUS MULTIPLE ASSET POOLS

Single Borrower

Newly Originated Mortgage Collateral, Bullet, Call Protected, Class A Properties, Zero Delinquencies, High Quality Borrower

RATING	5-yr Fixed	10-yr Fixed	5-yr Float (uncapped)
AAA	+75	+90	L+40
AA(Senior)	+95	+100	L+55
AA (Mezz)	+100	+105	L+65
A	+115	+120	L+85
BBB	+150	+165	L+155

RTC (and Similar Pool Deals)

Mortgage Collateral Originated in the late 1980s, Multiple Borrowers, Multiple Markets, No Call Protection, Mixed Assets, using last 12 months CPR speeds

RATING	3-yr Fixed	5-yr Fixed	7-yr Fixed	10-yr Fixed	3-yr Float (Capped)	5-yr Float (Capped)
AAA	+80	+85	+95	+105	L+45	L+50
AA (Mezz)	+100	+100	+115	+120	--	--
A	+125	+130	+140	+145	--	--
BBB	+160	+170	+175	+185	--	--

Source: *Real Estate Finance and Investment*, May 2, 1996

■ CMBS Security Design and Pricing Issues

The Bond Ratings Process

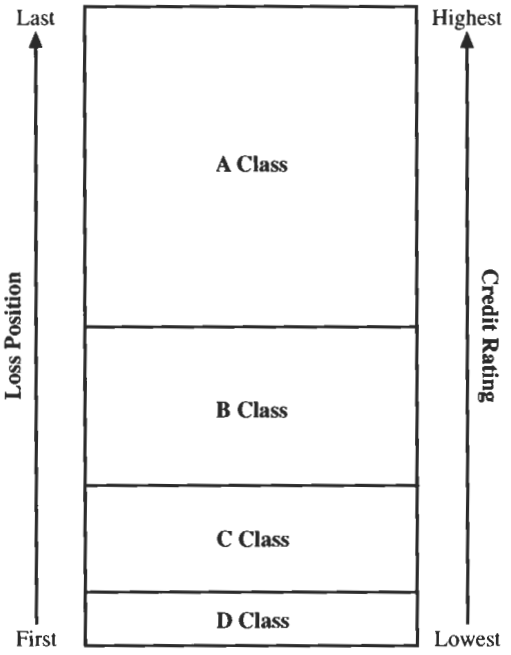
Commercial mortgage-backed securities are unique and rather complex investment vehicles. The general approach in creating these securities has been to shift investment risk down through the structure. This is done by prioritizing return of principal to higher ranking investment classes, and allocating losses to the lowest ranking investment classes. The higher priority investment classes resemble investment grade corporate bonds in terms of credit quality. However, as one moves downward through the security structure, investment class risk characteristics increasingly reflect the risks of the commercial real estate assets that collateralize the CMBS. The lowest-rated pieces of these securities are risky indeed, and typically command stated returns that exceed returns expected on leveraged real estate equity investment. Exhibit 9 visually displays this senior/subordinated risk structure typical in CMBS.

The rating obtained on a fixed income security, which is simply an assessment of credit quality, is critical because of its price effect. The assignment of a high rating means that debt costs are lower than when a low rating is assigned. Consequently, the rating agencies wield enormous power and serve as de facto regulators of those entities that wish to issue debt securities through the public markets. A basic understanding of the ratings process is therefore critical to a comprehensive understanding of the CMBS market.

A first step in the rating process is to assess the credit quality of the mortgage pool. Important factors include the property types which collateralize the loans, the current loan-to-value ratio (LTV) on the mortgages and current debt coverage ratio (DCR). At one end of the quality spectrum are regional malls, which have been viewed favorably due to their locational monopoly. At the other end of the spectrum are hotels, which generally are subject to rapid changes in supply and are immediately susceptible to demand shocks due to their extremely short-term (i.e., a day-at-a-time) lease structure. Current LTV (if obtainable) is a critical indicator of default risk. Indeed, several studies find that LTV is the most important variable in determining whether default occurs or not (e.g., Vandell [1992]). Debt coverage ratio provides similar information, and is generally cheaper and easier to generate than a measure of the contemporaneous LTV.

EXHIBIT 9

SENIOR/SUBORDINATED CMBS SECURTY STRUCTURE



Source: *Nomura Mortgage Securities Research*

Based on measures like property type, LTV and DCR, rating agencies will assess pool-wide probabilities of mortgage default and associated loss severities given that defaults occur. This is done for a variety of economic and "stress test" scenarios. Based on its calculations, the rating agency will make a determination of the credit support that is required to provide particular tranches with a sufficiently large buffer against default loss. In general, the higher the investment class rating, the higher the required level of credit support. For example, a rating agency might require 30% credit support for a tranche to receive a AAA rating. This means that up to 30% of the pool collateral value could disappear due to default losses without compromising return of principal to the AAA-rated tranche. Alternatively, the higher risk BBB-rated tranche might only require credit support of 10%.

A simple way to calculate required credit support is to multiply some tolerated level of default probability for the mortgages in the pool

by an appropriate loss severity percentage. For example, if credit support is set such that it protects against 40% of the mortgages in the pool from defaulting, each with a loss severity of 50% (based on the original loan balance), the required level of credit support would be 20% (i.e., .40 x .50). This is very similar to calculations made by Standard and Poor's (as well as other rating agencies) in their ratings determination, as illustrated in Exhibit 10. By using a combination of property type, LTV and DCR indicators, as well as assumptions related to both loss frequency and loss severity, a "first cut" at calculating credit support levels can be made.

Other important factors for determining security structure and investment class ratings are leasing risk, pool diversification, servicing structure, and extension risk. Leasing risk comes from two basic sources: tenant rollover risk and tenant quality/concentration risk. Rating agencies prefer a relatively even flow of lease rollover dates, good tenant quality and low space concentration from any one tenant. Mortgage pool diversification is a very important factor. Rating agencies look favorably on pools that are well diversified geographically by property type, and which do not have excessive loan size concentration (which is a perceived drawback to single-asset security pricing). High loan concentration brings concerns about "event" risk, where a negative regional economic shock may affect the entire pool at the same time (southern California is a recent example). With respect to servicing structures, two servicers are now required on most rated deals, where a special servicer addresses only financially distressed mortgages. Securities that do not have a well specified role for the special servicer are at risk of incurring large losses, as several past security issues have illustrated. Extension risk is the inability to retire a balloon loan successfully at the debt maturity date, where, as a result, the loan term must be extended to accommodate the borrower. Rating agencies generally prefer that a proactive servicing role be specified to prevent such problems from occurring and/or that "drop dead" dates are specified, past which time the loans can no longer be extended.

A Simple Spreadsheet Example of CMBS Structure and Pricing

To develop a better sense of the interaction of security structure and security pricing, in this sub-section we will walk through a CMBS spreadsheet example. This example, although highly simplistic, is consistent with the basic rating agency approach described above, in which static measures of pool loss frequency and subsequent loss recovery are used

EXHIBIT 10
S&P CREDIT SUPPORT/RATINGS DETERMINATION: A SIMPLIFIED APPROACH

		DSCR	LTV	Foreclosure Frequency	X	Loss Severity	=	Credit Support
Multifamily								
	AAA	1.55	55	10		40		4
		1.30	65	13		52		7
		1.15	80	18		65		12
	AA	1.55	55	9		36		3
		1.30	65	12		49		6
		1.15	80	15		62		9
	A	1.55	55	6		25		2
		1.30	65	8		40		3
		1.15	80	11		55		6
	BBB	1.55	55	6		25		2
		1.30	65	8		40		3
		1.15	80	11		55		6
Retail (Community and Regional)								
	AAA	1.55	55	8		47		4
		1.30	65	10		58		6
		1.15	80	14		70		9
	AA	1.55	55	7		43		3
		1.30	65	9		55		5
		1.15	80	11		67		8
	A	1.55	55	5		34		2
		1.30	65	6		47		3
		1.15	80	8		41		5
	BBB	1.55	55	4		30		1
		1.30	65	5		44		2
		1.15	80	7		58		4
Class A Office Buildings								
	AAA	1.55	55	15		56		8
		1.30	65	20		66		13
		1.15	80	27		96		21
	AA	1.55	55	14		53		7
		1.30	65	18		63		11
		1.15	80	23		74		17
	A	1.55	55	9		45		4
		1.30	65	12		56		7
		1.15	80	17		68		11
	BBB	1.55	55	5		41		3
		1.30	65	11		53		6
		1.15	80	14		66		9
Hotel								
	AAA	1.55	55	25		75		19
		1.30	65	33		82		27
		1.15	80	45		8		40
	AA	1.55	55	23		72		16
		1.30	65	30		79		24
		1.15	80	38		87		33
	A	1.55	55	15		66		10
		1.30	65	20		75		15
		1.15	80	28		83		23
	BBB	1.55	55	13		64		8
		1.30	65	18		72		13
		1.15	80	23		81		18

Source: *Lehman Brothers Fixed Income Research: Mortgage Securities*

to determine investment class risks. One important difference between our presentation and the rating agency approach is in the determination of credit support levels. The ratings agencies conduct scenario analyses to determine the required investment class pool percentages. To keep matters as simple as possible, we instead specify the pool percentages and then examine the subsequent pricing impacts.

Because of the importance of default risk in affecting the timing and receipt of commercial mortgage cash flows, most CMBS structures are designed to shift default risk down through the various security classes. This is accomplished by prioritizing return of total pool principal payments, where "senior" tranches have priority on principal that is returned through loan amortization or default/foreclosure recoveries. Lower priority tranches must wait until senior classes are fully repaid before they are eligible for return of principal. Furthermore, although principal is allocated "top-down," losses resulting from default/foreclosure realizations are allocated "bottom-up," which means that the face value of the lowest-rated tranche declines by the amount of realized default loss.[9] Under certain economic scenarios, sufficiently high losses may be realized such that low-ranking tranches do not receive any return of principal at all.

In practice all tranches typically receive periodic interest payments based on face value, regardless of whether principal is currently being allocated or not. A technical requirement is that the interest rate paid to each investment class is less than or equal to the lowest individual rate on any mortgage in the pool. This guarantees that sufficient interest is available for distribution to each tranche. Because of this allocation scheme, there is usually excess interest that is funneled into an interest-only (IO) investment class. It is worth noting that the IO class has no claim on principal payment and therefore is not exposed to default risk, per se.

Exhibit 11 shows the base case model–input variables/parameters. We will assume a constant risk-free rate of 7%, which is also the assumed cash flow discount rate for the NPV analysis.[10] We will set the senior tranche (tranche A) to a face value of 70% of a $100 million mortgage pool. In other words, there is 30% credit support for this senior tranche, which we split between a mezzanine (B) and junior tranche (C) at 10 and 20% of the pool face amount, respectively. We assume that the annualized coupon/face rate of interest paid to each tranche is 7%.[11] The contract rate is the mortgage rate on each (identical) loan included in the pool, and is set such that the loans are valued at par at time zero (given the default risk characteristics associated with each loan). Thus, in this base case example, a yield spread of 73 basis points (above the risk-free interest rate of 7%) is required to compensate for mortgage default risk. We also assume that each loan has a 10–year maturity and a 20–year

EXHIBIT 11
BASE CASE CMBS PRICING INPUTS

Risk-free Rate	7%										
			Face-rate								
Tranche A %	70.0%		7.0000%								
Tranche B %	10.0%		7.0000%								
Tranche C %	20.0%		7.0000%								
Pool Face Value	$100,000,000										
Contract Rate	7.7300%										
Loan Term	10										
AM Loan Term	20										
Payments	$9,981,437										
	Default Ass'tions	Yr.1	Yr.2	Yr.3	Yr.4	Yr.5	Yr.6	Yr.7	Yr.8	Yr.9	Yr.10
	Pr[Default]	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
	Loss Recovery %	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65

amortization period. As a result, the scheduled pool loan payments each year are $9,981,437.

The last and perhaps most critical set of assumptions pertains to the default risk associated with mortgages in the pool. Over the 10-year of life of the loans, we assume that 2% of those in the (original) pool default each year. This results in a "lifetime" pool default rate of 20%, which is somewhat higher than Snyderman's (1991) estimate of approximately a 15% lifetime default rate.[12] Then, given that a loan defaults, we assume that investors recover 65 cents on the loan face value dollar. As discussed above, losses due to default are allocated bottom-up, which means that 35 cents on the loan dollar is subtracted from the face value of the C tranche when default occurs. Note that this 35% loss–severity assumption is in line with empirical estimates obtained in studies by Snyderman (1991) and Ciochetti and Riddiough (1994).

Given these assumptions and allocation rules, scheduled tranche cash flows can be distributed from the total pool of flows. Exhibit 12 shows annual pool and tranche cash flows under the assumption that all cash flows are received as specified in the mortgage contracts (i.e., no defaults occur). This is done so that internal rates of return calculations can be stated, which require a comparison of the actual market value of the security (determined by consideration of default risk) with its scheduled cash flows. Note that four line items are shown for each security class: interest, principal, total cash flow and outstanding loan balance. Interest and principal are distinguished, since principal is prioritized but interest is not. This prioritization can be seen in the scheduled principal line item for each tranche, where the A tranche receives all available principal prior to any principal being allocated to the more junior tranches. As discussed above, there is also a residual interest-only (IO) investment class, which receives any interest payments that are left over after interest payments are made to the A, B and C tranches.[13]

Exhibit 13 shows the distribution of actual cash flows given that the stated default rate and loss recovery scenarios are realized (where we assume that all loan payments/loan recoveries occur at the end of the year). Note the distinction between principal returned due to default (DEF Principal) and principal returned due to scheduled amortization of the remaining pooled loans (NET Principal). Also note that the face value, or outstanding loan balance (OLB) of the C tranche declines each year even though no principal is returned until year 10. This happens because default losses (35 cents on the face value dollar) are subtracted from the lowest priority investment class. Finally, observe that scheduled cash flows equal actual cash flows only for the B tranche. This means that, given that the stated default scenario is realized, there is no default or cash flow timing risk to investors of this class. Conversely, the A, C

EXHIBIT 12. SCHEDULED CASH FLOWS

Base Cash Flows	CF1	CF2	CF3	CF4	CF5	CF6	CF7	CF8	CF9	CF10
Interest	$ 7,730,000	$ 7,555,964	$ 7,368,475	$ 7,166,493	$ 6,948,898	$ 6,714,482	$ 6,461,947	$ 6,189,890	$ 5,896,803	$ 5,581,061
Sch Principal	$ 2,251,437	$ 2,425,474	$ 2,612,963	$ 2,814,945	$ 3,032,540	$ 3,266,955	$ 3,519,491	$ 3,791,548	$ 4,084,634	$72,200,013
Total CF	$ 9,981,437	$ 9,981,437	$ 9,981,437	$ 9,981,437	$ 9,981,437	$ 9,981,437	$ 9,981,437	$ 9,981,437	$ 9,981,437	$77,781,074
Sch OLB	$97,748,563	$95,323,089	$92,710,126	$89,895,181	$86,862,641	$83,595,686	$80,076,195	$76,284,648	$72,200,013	$ 0
Sch Cash Flows										
A: Interest	$ 4,900,000	$ 4,742,399	$ 4,572,616	$ 4,389,709	$ 4,192,663	$ 3,980,385	$ 3,751,698	$ 3,505,334	$ 3,239,925	$ 2,954,001
Sch Principal	$ 2,251,437	$ 2,425,474	$ 2,612,963	$ 2,814,945	$ 3,032,540	$ 3,266,955	$ 3,519,491	$ 3,791,548	$ 4,084,634	$42,200,013
Total CF	$ 7,151,437	$ 7,167,873	$ 7,185,579	$ 7,204,654	$ 7,225,203	$ 7,247,340	$ 7,271,189	$ 7,296,881	$ 7,324,560	$45,154,014
Sch OLB	$67,748,563	$65,323,089	$62,710,126	$59,895,181	$56,862,641	$53,595,686	$50,076,195	$46,284,648	$42,200,013	$ 0
B: Interest	$ 700,000	$ 700,000	$ 700,000	$ 700,000	$ 700,000	$ 700,000	$ 700,000	$ 700,000	$ 700,000	$ 700,000
Sch Principal	-	-	-	-	-	-	-	-		$10,000,000
Total CF	$ 700,000	$ 700,000	$ 700,000	$ 700,000	$ 700,000	$ 700,000	$ 700,000	$ 700,000	$ 700,000	$10,700,000
Sch OLB	$10,000,000	$10,000,000	$10,000,000	$10,000,000	$10,000,000	$10,000,000	$10,000,000	$10,000,000	$10,000,000	$ 0
C: Interest	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000
Sch Principal	-	-	-	-	-	-	-	-	-	$20,000,000
Total CF	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$ 1,400,000	$21,400,000
Sch OLB	$20,000,000	$20,000,000	$20,000,000	$20,000,000	$20,000,000	$20,000,000	$20,000,000	$20,000,000	$20,000,000	$ 0
IO: Interest	$ 730,000	$ 713,565	$ 695,859	$ 676,784	$ 656,235	$ 634,097	$ 610,249	$ 584,556	$ 556,878	$ 527,060

and IO classes are subject to cash flow timing and/or default risk. The A tranche, although it receives complete return of principal, is subject to cash flow timing risk due to early return of principal from loan defaults. The C tranche, because it is the low-priority tranche, is subject to both cash flow timing and default risk. Lastly, the IO tranche is subject to cash flow timing risk only (there is never direct exposure to default risk), which results from defaulted loans leaving the loan pool to reduce residual interest available for distribution.

Table VI shows the required promised yield spread above the risk-less interest rate of 7% for each investment class, where we vary the lifetime default rate from 10% to 50% (including the base case of 20%). It is interesting to note that neither the A nor the B tranche suffers any losses under any of these default rate assumptions. This follows because the maximum default rate of 50% and a loss severity of 35% result in (at most) 17.5% of the pool balance being lost to default, which is still less the 20% pool allocation to the C tranche. These numbers illustrate just how bad the economic environment must be before well supported CMBS tranches are at risk of loss. On the other hand, C tranche investors will require promised return spreads that vary between 161 and 1270 basis points. These stated returns are substantial, and are required to compensate investors for the anticipated loss of tranche face value. Indeed these fixed income returns may exceed returns required on equity investment, and illustrate the fact that lower-priority investment classes behave much like highly levered debt.

Table VII shows required yield spreads under the same default assumptions, but where the percentage pool allocations to the B and C tranches are changed to 20 and 10%, respectively. Note that both the B and C tranches require higher returns in this case, since both are subject to a higher level of default risk.[14] Indeed, in the 35% and 50% lifetime default cases, losses eat their way entirely through the C tranche balance of $10 million and partially into the B tranche balance.

Last, we should point out that this analysis assumes that there are no market frictions nor that there are any risks other than default risk. If information flows are less than perfectly smooth or any other transaction costs exist, required investment yield spreads will exceed those stated in Tables VI and VII. Similarly, liquidity risk, market risk or cash flow timing risk may all affect investment performance in CMBS and therefore will be priced. Nonetheless, even though other non-default factors may affect risk and return in CMBS investment, we have modeled what is in most cases by far the major pricing component—default loss risk.

What does this exercise suggest about the cost of secondary market debt capital for shopping center owners? One potential outcome is, if

EXHIBIT 13. REALIZED CASH FLOWS

Actual Cash Flows	CF1	CF2	CF3	CF4
DEF Recoveries	$ 1,270,731	$ 1,239,200	$ 1,205,232	$ 1,168,637
NET Interest	$ 7,730,000	$ 7,404,845	$ 7,073,736	$ 6,736,503
NET Principal	$ 2,251,437	$ 2,376,964	$ 2,508,444	$ 2,646,048
Total CF	$ 11,252169	$11,021,009	$10,787,412	$10,551,189
Net OLB	$95,793,591	$91,510,165	$87,147,519	$82,703,567
$ (100,000,000)	$11,252,169	$11,021,009	$10,787,412	$10,551,189
Actual Cash Flows				
A: Interest	$ 4,900,000	$ 4,653,448	$ 4,400,317	$ 4,140,359
DEF Principal	$ 1,270,731	$ 1,239,200	$ 1,205,232	$ 1,168,637
NET Principal	$ 2,251,437	$ 2,376,964	$ 2,508,444	$ 2,646,048
Total	$ 8,422,169	$ 8,269,612	$ 8,113,993	$ 7,955,045
OLB	$66,477,831	$62,861,667	$59,147,991	$55,333,306
$ (70,000,000)	$ 8,422,169	$ 8,269,612	$ 8,113,993	$ 7,955,045
B: Interest	$ 700,000	$ 700,000	$ 700,000	$ 700,000
DEF Principal	-	-	-	-
NET Principal	-	-	-	-
Total	$ 700,000	$ 700,000	$ 700,000	$ 700,000
OLB	$10,000,000	$10,000,000	$10,000,000	$10,000,000
$ (10,000,000)	$ 700,000	$ 700,000	$ 700,000	$ 700,000
C: Interest	$ 1,400,000	$ 1,352,103	$ 1,305,395	$ 1,259,567
DEF Principal	-	-	-	-
NET Principal	-	-	-	-
Total	$ 1,400,000	$ 1,352,103	$ 1,305,395	$ 1,259,967
OLB	$19,315,760	$18,648,498	$17,999,528	$17,370,261
$ ($15,768,421)	$ 1,400,000	$ 1,352,103	$ 1,305,395	$ 1,259,967
IO: Interest	$ 730,000	$ 699,293	$ 668,024	$ 636,177

strong mortgage investment performance is expected in the retail sector, rating agencies may require lower levels of credit support for high-rated investment classes. This would lower the weighted average cost of debt capital, since a greater percentage of the pool is high-rated as opposed to being low-rated. A lower required investor yield will then presumably be passed through to the owner of the retail mortgages and will ultimately result in a lower cost of debt capital to the borrower.

EXHIBIT 13. REALIZED CASH FLOWS (Continued)

CF5	CF6	CF7	CF8	CF9	CF10
$ 1,129,214	$ 1,086,744	$ 1,040,991	$ 991,700	$ 938,600	$ 581,395
$ 6,392,986	$ 6,043,034	$ 5,686,513	$ 5,323,305	$ 4,953,315	$ 4,576,470
$ 2,789,937	$ 2,940,260	$ 3,097,152	$ 3,260,731	$ 3,431,093	$57,848,018
$10,312,137	$10,070,038	$ 9,824,656	$ 9,575,737	$ 9,323,008	$63,305,884
$78,176,377	$73,564,204	$68,865,528	$64,079,104	$59,204,011	$ 0
$10,312,137	$10,070,038	$ 9,824,656	$ 9,575,737	$ 9,323,008	$63,305,884
$ 3,873,331	$ 3,598,991	$ 3,317,101	$ 3,027,431	$ 2,729,760	$ 2,423,882
$ 1,129,214	$ 1,086,744	$ 1,040,991	$ 991,700	$ 938,600	$ 881,395
$ 2,789,937	$ 2,940,260	$ 3,097,152	$ 3,260,731	$ 3,431,093	$33,745,489
$ 7,792,483	$ 7,625,995	$ 7,455,243	$ 7,279,862	$ 7,099,453	$37,050,766
$51,414,155	$47,387,151	$43,249,008	$38,996,577	$34,626,884	$ -
$ 7,792,483	$ 7,625,995	$ 7,455,243	$ 7,279.862	$ 7,099,453	$37,050,766
$ 700,000	$ 700,000	$ 700,000	$ 700,000	$ 700,000	$ 700,000
-	-	-	-	-	-
-	-	-	-	-	$10,000,000
$ 700,000	$ 700,000	$ 700,000	$ 700,000	$ 700,000	$10,700,000
$10,000,000	$10,000,000	$10,000,000	$10,000,000	$10,000,000	-
$ 700,000	$ 700,000	$ 700,000	$ 700,000	$ 700,000	$10,700,000
$ 1,215,918	$ 1,173,356	$ 1,132,394	$ 1,093,156	$ 1,055,777	$ 1,020,399
-	-	-	-	-	-
-	-	-	-	-	$14,102,530
$ 1,215,918	$ 1,173,356	$ 1,132,394	$ 1,093,156	$ 1,055,777	$15,122,928
$16,762,223	$16,177,053	$15,616,520	15,082,527	$14,577,127	$ 0
$ 1,215,918	$ 1,173,356	$ 1,132,394	$ 1,093,156	$ 1,055,777	$15,122,928
$ 603,736	$ 570,688	$ 537,019	$ 502,718	$ 467,777	$ 432,189

TABLE VI. SECURITY CLASS SPREADS DEPENDING ON DEFAULT LOSSES:70/10/20 SECURITY STRUCTURE

Tranche	Observed Market Yield Spread (bp)	Expected Lifetime Default Rate 10%	20%	35%	50%
A	75–100	0	0	0	0
B	125–200	0	0	0	0
C	350–1000	16	352	722	1270
IO	—	83	179	328	495

TABLE VII. SECURITY CLASS SPREADS DEPENDING ON DEFAULT LOSSES:70/20/10 SECURITY STRUCTURE

Tranche	Observed Market Yield Spread (bp)	Expected Lifetime Default Rate 10%	20%	35%	50%
A	75–100	0	0	0	0
B	150–400	0	0	15	223
C	850–2500	350	864	2431	3244
IO	—	83	179	328	495

■ Will CMBS Continue as a Viable Source of Debt Capital?

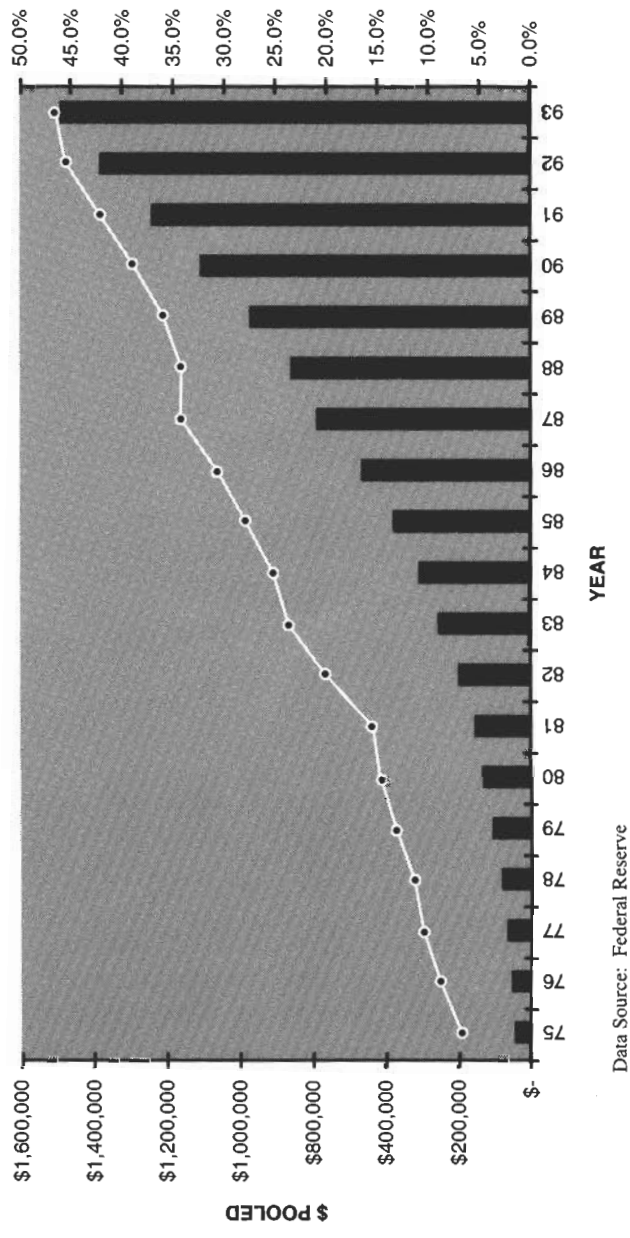
In theory, the CMBS structure holds great promise in reducing debt financing costs to shopping center owners. History has shown that success or failure of newly designed securities is partially related to the "uniqueness" of their risk/return characteristics. Although the higher-rated CMBS tranches are similar to corporate debt, the lower-rated pieces are something new. Indeed, these securities provide risk/return characteristics that are not easily replicated with other available securities. Consequently, demand for the securities may produce prices that exceed their cumulative "fundamental" value and hence ensure their collective survival in a marketplace where competitive alternatives (i.e., the traditional whole loan market) exist.

Perhaps the best example of successful financial innovation and security design—one that has many similarities with CMBS—is the residential MBS/CMO. Exhibit 14 shows the growth of this market since the mid-1970s. In 1976 about 10% of the total residential mortgage market was securitized, which approximately equates to CMBS market share today. Within 10 years, the residential MBS market share increased to over 30%, and by 1993 stood at 50%. This remarkable growth was due to securitization providing lower financing costs to borrowers, to a steady source of credit whatever the state of the economy, for providing liquidity to lenders who may wish to sell their mortgages (or buy securities composed of a pool of mortgages), and to unique risk/return characteristics for potential investors. Provision of similar benefits is the promise of the CMBS market.

Pricing advantages have already been realized on single-asset (e.g., regional mall) deals. Investors like the simplicity of single-asset securi-

EXHIBIT 14

GROWTH IN THE RESIDENTIAL MBS MARKET



Data Source: Federal Reserve

ties, which does much to overcome the "event risk" associated with the all–or–nothing nature of default. Given the competitive pricing between the whole loan and CMBS market on single-asset deals, the choice of debt source comes down to non-pricing or relationship factors. Loan closings are generally faster with securitized debt, but contracting is less flexible. In addition, private sources of capital tend to be more willing to price discount when there is a successful long-term lending relationship, whereas the capital markets treat financing as an impersonal "one shot" deal.

For the smaller shopping center owner, the emergence of the conduit as a niche provider of capital is important. Although private debt capital has returned for the larger, higher profile investments, there is still a private capital gap left by the banks and Savings & Loans for the smaller and perhaps lower quality product. The conduits have partially filled this gap, as evidenced by the amount of issuances in 1995. Indeed, in our opinion, conduit programs will represent an extremely important and progressively cheaper (holding risk constant) source of capital for many shopping center owners.

Overall, we are bullish on the long-term prospects of the CMBS market in providing an affordable and continuously available stream of debt capital to shopping center owners. This may be especially true if the turbulent profit environment in the retail sector continues, since the tumultuous times of the late 1980s/early 1990s have yet to fade completely from the collective memory of traditional private sources of commercial real estate debt.

Notes

[1]There are some particular concerns with respect to shopping center debt securitization. The NAIC, which provides regulatory guidance to insurance companies, has recently issued conflicting pronouncements regarding the way single and small (in terms of number of loans) CMBS pools will be treated for capital requirement purposes. The general effect is that the NAIC seems to be discouraging insurance companies—who at this point are large investors in CMBS—from considering small pool investments. This may impact larger regional mall financing since it only takes a small number of properties to create a pool large enough for securitization. Thus, at least for small-issue pools, the road to CMBS may be bumpy until issues such as this get resolved.

[2]Unfortunately, in the retail sector incidence of corporate default has become somewhat more commonplace in recent years.

[3]We actually have origination data starting in the mid-1960s that go through 1990. Prior to the mid-1970s and in 1990, there is not enough loan origination volume to provide reliable comparisons. No post-1990 data exists because this lender stopped originating commercial mortgages for several years after

1990.

[4]We can further characterize these sub-categories as follows: Strip centers generally have no onsite management, a rectangular shape and individual (non-anchor) tenants; neighborhood centers typically have a grocery store anchor with one sub-anchor (like a drug store); community centers may or may not be enclosed, and typically have one or two regionally-based department store anchors; regional centers are enclosed, generally with two large anchor stores; and super-regional centers have more than two anchors.

[5]This somewhat simplified conclusion obviously depends on how the retail sector performs relative to other property types going forward. For example, if the retail sector were to economically disconnect from the rest of the commercial market, differences in underwriting treatment might surface.

[6]Hence, all of the usual caveats about the generalizability of company specific data apply. However, there are no alternative broader-based, detailed data sources in existence to our knowledge.

[7]Actual cash flows were used to calculate the realized yields. Thus, at time zero, a cash outflow equal to the loan amount is determined. Cash inflows after time zero include scheduled mortgage payments, early return of principal and any other positive flows that accrued due to loan prepayment or default. Cash outflows after time zero include any subsequent loan advances and costs associated with loan default and foreclosure.

[8]A more subtle incentive for securitization as opposed to whole loan sale is that securitization allows the issuer of existing product to reduce lemons-related marketing costs (i.e., costs due to the fact that potential buyers will discount the debt due to adverse selection incentives). By breaking the security up into lower risk and higher risk investment classes, the seller can issuer lower risk classes at close to their true value. Higher risk classes can be retained by the issuer to avoid selling at a discount, with a later sales date anticipated after more loan seasoning occurs.

[9]For example, net recovery of $80 on a face value loan amount of $100 results in a $20 loss that is subtracted from the face value of the lowest-rated CMBS tranche.

[10]This means that investors are risk neutral, which may not be a particularly realistic assumption. However, this keeps the analysis simple and avoids specifying an ad hoc risky discount rate.

[11]That is, each tranche receives seven percent interest based on the outstanding tranche loan balance in each year, regardless of whether it is currently receiving any distribution of principal.

[12]An alternative but equivalent interpretation of the default rate assumption is that there is a 2% probability of the entire pool defaulting each year. This interpretation is more consistent with single-asset CMBS, in which a realized default represents an all or nothing outcome.

[13]Recall that the contract rate on the mortgages is 7.73% while the face rate paid to each security is 7.0 percent. This leaves .73% in interest on the outstanding pool balance to be allocated to the IO tranche.

[14]The total amount of default risk in the pool is equivalent regardless of the relative tranche percentage allocations. Thus, although it might appear that there is more total default risk in this security structure case, if one were to calculate the weighted average yield spread under the two different security structures, they would be identical.

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Acknowledgments

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