THE MARKET FOR COMMERCIAL MORTGAGE-BACKED SECURITIES AMONG LIFE INSURANCE COMPANIES AND PENSION FUNDS

by

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Bachelor of Arts, Economics
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Submitted to the Department of Architecture
in partial Fulfillment of the Requirements for the Degree of
Master of Science in Real Estate Development at the

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ABSTRACT

Life insurance companies and pension funds hold a substantial portion of the commercial mortgage market. In recent years, distress within the commercial real estate market has had an adverse impact on their commercial real estate debt holdings. These losses, coupled with regulatory pressure to restrict or decrease their commercial real estate debt holdings, have forced these institutions to seek alternative vehicles for commercial mortgage investing. Commercial mortgage-backed securities represent an alternative investment vehicle with many of the attributes sought by life insurance companies and pension funds.

A commercial mortgage-backed security is a bond-like instrument that represents an interest in a commercial mortgage or pool of mortgages. These securities address many of the fundamental problems associated with investing in whole loans. The attributes of commercial mortgage-backed securities include enhanced liquidity, rigorous underwriting standards, the ability to better quantify the risks associated with commercial real estate lending and superior returns relative to similarly rated corporate securities.

Commercial mortgage-backed securities should assist life insurance companies and pension funds in allocating an appropriate percentage of their assets to commercial mortgages in order to properly diversify their portfolio. By investing in commercial mortgage-backed securities, life insurance companies and pension funds will be able to create a commercial mortgage portfolio that meets their desired risk characteristics while addressing regulatory constraints.

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INTRODUCTION

The severe real estate recession during the past several years has had an adverse impact on life insurance companies and pension funds. These institutional investors incurred large losses on their commercial real estate loan portfolios. Many of these losses were due to their inability to properly quantify and manage the risks associated with commercial real estate lending. Given the desire to hold commercial real estate loans as a portfolio diversifier, these institutions are actively searching for new vehicles to invest in these loans. Commercial debt securitization will address many of the investment objectives of these institutions.

As of December 31, 1993, life insurance companies and pension funds held an estimated $213.6 billion and $39.4 billion of commercial real estate loans, respectively[1]. During the past several years, many of these loans were renegotiated in recognition of lower asset values. In addition, many loans held prior to 1993 were foreclosed upon due to borrower default. These losses helped identify the need for the following changes within their commercial real estate loan portfolio:

- Increased liquidity
- Reliable value estimates
- Increased diversification within their loan portfolio
- Professional management of these loans through corporate governance

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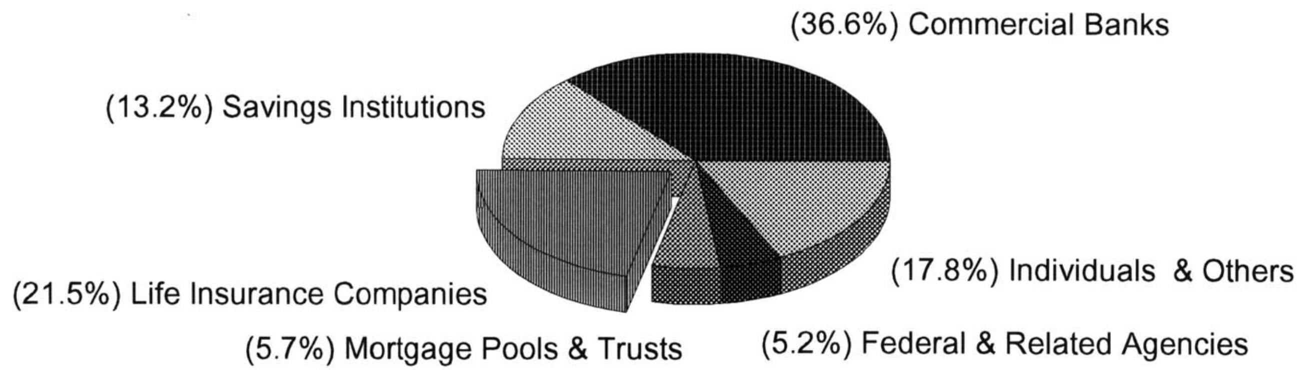
1 Federal Reserve System *"Flow of Funds Accounts"* (March 9, 1994) p.116

Exhibit 1

Holders of Commercial Mortgages



Source: Federal Reserve System: Flow of Funds Accounts

Regulatory guidance has had an impact on the investment strategies of life insurance companies and pension funds. Life insurance companies have to contend with Risk-Based Capital (RBC) requirements imposed by the National Association of Insurance Commissioners (NAIC). These reserve requirements can be significantly higher for whole loans than debt securities. Pension funds have been reluctant to become large participants in the commercial mortgage market due to issues related to the Employment Retirement Income Security Act of 1974 (ERISA). Under ERISA, private pension fund fiduciaries may be held personally responsible for investment decisions under what is known as the *prudent man* standard. The *prudent man* standard is intended to ensure that plan fiduciaries make prudent investments. The inability to properly quantify the risks of commercial real estate lending coupled with the abundance of alternative fixed income investments has stifled pension funds' investment in commercial mortgages.

Debt securitization provides many of the features desired for commercial real estate loans held by life insurance companies and pension funds. Commercial real estate debt securitization is simply the process of transforming the mortgage secured by commercial property into a security known as a commercial mortgage-backed security (CMBS). Mortgage-backed securities "were developed as a means of converting a relatively inflexible and somewhat illicite debt instrument -the mortgage- to a stronger, safer, more liquid instrument that better met investors needs."[2] The following features may make rated MBS a more attractive vehicle for investing in commercial real estate loans than investing in whole loans:

2 Kenneth G. Lore, "Mortgage-Backed Securities- Developments and Trends in the Secondary Market", p. 3-2

- Providing loans on a comparable pool of assets significantly reduces the risk profile of the loan relative to single asset loans through diversification.
- The cash flows which support the securitization are generally reviewed by a number of highly competent parties prior to issuance. These would include an investment banking firm or underwriter, a rating agency, and highly qualified third party due diligence contractors.
- Holding the loan in a securitized form and having the security formally rated, significantly increases the liquidity of the loan and establishes a market value for the securities. Additionally, the ability to sell varying denominations of the loan to other parties enhances the liquidity of the securities.
- Continuous monitoring by rating agencies and the market place allows the holders of the securities to accurately establish a value of the securities on a daily basis.
- Life insurance companies and pension funds can select MBS with the risk level appropriate to accommodate their portfolio strategy.
- It can be advantageous for life insurance companies to hold real estate loans in the form of securities from a RBC perspective. By doing so, they may reduce their Risk-Based capital requirements by reclassifying their commercial real estate loans as bonds.
- To minimize personal recourse, private pension fund fiduciaries will be more apt to provide commercial mortgages in a securitized form where the risk of the security is quantifiable and widely accepted by the public.

In recent years, there has been a significant increase in the number of commercial properties that have been securitized. Much of this securitization is attributable to the Resolution Trust Corporations (RTC) decision to securitize $14.4 billion in commercial loans between 1991 and 1993[3]. Thereafter, many Real Estate Investment Trusts (REIT) and owners of portfolios of properties and commercial real estate debt have pursued debt securitization. As of December, 1993, there was approximately $39 billion of commercial

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3 Kenneth Leventhal & Company *"Income Property Securitization Survey 1993"*, p.9

real estate debt securities in the market[4].

The impact of this growth in commercial debt securitization should allow institutions such as life insurance companies and pension funds to significantly increase their portfolio allocation of commercial real estate loans through the purchase of commercial mortgage-backed securities. Specifically, the attributes of commercial mortgage-backed securities will encourage pension funds and life insurance companies to increase their investment in commercial real estate debt that has been hindered by regulatory pressure and the lack of an appropriate vehicle for holding such loans. This form of lending will increase the efficiency in the real estate capital markets by allowing lenders to more accurately assess the risk, via formal credit ratings, of providing a commercial real estate loan and therefore, price the loan accordingly.

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4 Ibid

COMMERCIAL MORTGAGE-BACKED SECURITIES

A commercial mortgage-backed security (CMBS) is a bond-like instrument that represents an interest in a commercial mortgage or pool of mortgages. The mortgages serve as collateral for the securities and the structures available can greatly differ. Mortgage-backed securities have a rich history in the residential market, but have only recently become a viable option for the commercial real estate market. This is attributable to the need for alternative forms of commercial real estate financing and changes in the tax law which helped foster the CMBS market.

DEVELOPMENT OF THE CMBS MARKET

Prior to the Tax Reform Act of 1986, it was very difficult to issue certain types of mortgage-backed securities due to tax considerations and restrictions on qualifying securities. The Tax Reform Act removed the ambiguity associated with the tax considerations for the issuers of MBS while expanding the definition of qualifying securities. This was accomplished through the creation of the Real Estate Mortgage Investment Conduit (REMIC). A REMIC is a pass-through tax entity which holds real estate mortgages and may issue multiple classes of ownership interests. By explicitly allowing the issuance of senior/ subordinated classes with a clear understanding of the tax consequences, issuers can "overcome previous problems by slicing and dicing commercial mortgages into products that are more attractive to investors. This actually could be done more easily for commercial than for residential loans because in general fewer regulations apply to commercial lending. Commercial mortgage lenders recognize that REMICs provide an opening into the capital markets, creating significant opportunities to sell loans to pension funds and insurance companies."[5] An additional benefit of the REMIC structure is the ability for a third party to form a REMIC to gather commercial mortgages for securitization. Today, many of the investment banking firms are establishing conduits specifically to attain the critical mass of commercial real estate loans necessary to efficiently issue mortgage-backed securities.

The advent of the multi-class MBS was an important development for commercial real estate. A multi-class mortgage-backed security has different classes, known as tranches, with varying priorities as to principal and interest repayment. The most senior tranche will carry the highest rating from the rating agencies. This tranche is protected from loss of principal and interest by subordinating all claims of the junior classes. Therefore, the highest rated tranche of a securitized debt offering has the first claim on the operating cash flow as well as the underlying collateral in the event of default by a borrower.

Each of the tranches of a MBS is commonly referred to as a *derivative* security. The ability to create a derivative security from a mortgage or pool of mortgages is very important for commercial real estate. Investors can purchase tranches with their desired risk and return characteristics. In addition, by allowing issuers to sell CMBS with varying ratings, higher leverage can be attained by issuing lower rated tranches. This is important as it will allow CMBS to compete with alternative forms of real estate financing by

5 Kenneth G. Lore, "Mortgage-Backed Securities- Developments and Trends in the Secondary Market", p. 3- 17

offering leverage ratios that are acceptable to commercial real estate owners. These lower rated tranches are often in the form of non-investment grade classes and provide yields that are commensurate with the level of risk.

OBSTACLES TO THE CREATION OF CMBS

Although the majority of the fiscal impediments for issuing multi-class commercial mortgage-backed securities were resolved in 1986, several obstacles to the proliferation of the CMBS market still existed. These obstacles included the abundance of low cost alternative financing, the absence of established underwriting criteria, the void of buyers for non-investment grade tranches, and the lack of pooled commercial real estate loans.

During the 1980's, commercial property owners enjoyed an abundance of commercial lending sources. These included commercial banks, savings and loans, life insurance companies, pension funds and other institutional lenders. Property owners were able to obtain financing from these sources at attractive rates with relative ease. There was little incentive to access the public capital markets for commercial real estate financing and be subject to the rigorous underwriting criteria of the investment bankers, the rating agencies and other third party due diligence providers. In addition, the high leverage ratios offered by these sources could not be matched by the public markets.

The scarcity of commercial mortgage-backed securities in the marketplace was partially attributable to the lack of established underwriting criteria. For CMBS to garner large scale interest in the marketplace, underwriting standards, rating criteria, valuation techniques and security structures needed to be established. Without a uniform approach to the issuance of CMBS, these instruments lacked the liquidity and confidence of the marketplace.

Although the public debt market can not match the extremely high leverage ratios (sometimes in the 90% to 95% Loan-To-Value range) being underwritten in the mid to late 1980s, commercial real estate debt securitization could offer acceptable leverage ratios with the issuance of the non-investment grade tranches. Unfortunately, there were too few buyers of these tranches in the marketplace until the last couple of years. Without these non- investment grade tranches, debt securitization was not a viable alternative for most commercial property owners due to the resulting equity requirements.

Single property securitization is only an option for a small percentage of the commercial real estate market. This type of securitization requires a property with a value sufficient to justify the costs associated with securitizing the mortgage. For example, a 40 story "class A" office building in New York, with Citibank occupying 75% of the space on a long term lease, may be a candidate for a single property debt securitization. The scarcity of examples such as this requires the pooling of mortgages. Therefore, the pooling of commercial mortgages was paramount for the long term success of commercial property debt securitization. However, the relatively few pools of real estate assets to securitize restricted the ability of the market to securitize a significant portion of the commercial real estate debt.

CHANGES WITHIN THE INDUSTRY

The severe real estate recession during the past few years resulted in large losses in many institutional lenders real estate portfolios. According to the Russell-NCREIF Appreciation Index, commercial properties declined in value by an average of 30% from 1989 through 1993. These losses, and the resulting regulatory pressures on institutional investors to divest their real estate holdings, led to a sharp curtailment in commercial real estate lending. This lack of conventional financing sources forced commercial property owners to seek new sources for financing.

The market for non-investment grade tranches began to develop with the advent of the Resolution Trust Corporation's commercial securitization techniques which were established in 1991. The securitization of over $14 billion of performing commercial mortgages by the RTC garnered enough attention from the capital markets to address the issues of commercial debt securitization. This led to the establishment of underwriting standards, rating criteria, valuation techniques and security structures that were acceptable to investors. Additionally, the techniques developed by the RTC were utilized by the entrepreneurial buyers of the RTC's portfolio sales. Many of these buyers subsequently securitized the portfolio cash flows. In order to raise adequate capital, the owners of the portfolios often times issued non-investment grade tranches. The market for these non-investment grade tranches expanded as more of these portfolios were securitized.

The ability to establish portfolios of real estate assets was critical for the long term success of the commercial debt securitization market. These pools of real estate assets first surfaced from the RTCs bulk sale disposition approach. More portfolios emerged from institutional owners of real estate as a disposition strategy and from Real Estate Investment Trusts as a method of cost effective financing for their properties. Although important, these sources of real estate portfolios did not offer recurring opportunities or sufficient depth to allow commercial debt securitization to become a sizable alternative form of financing for the future.

As previously discussed, the establishment of the REMIC was an important element for the future success of commercial property debt securitization. REMICs are currently being formed by investment banking firms for the purpose of gathering commercial mortgages from financial institutions in order to securitize the cash flows. This vehicle for securitizing commercial debt is expected to increase its presence in the commercial loan origination market during the next few years.

THE RATING PROCESS

There are four primary rating agencies which assign ratings to debt securities. These four rating agencies- Standard & Poors Corporation, Moody's Investors Service, Fitch

Investors Service, and Duff & Phelps- utilize similar criteria in the rating process. "Rating Agencies assign ratings on debt and other securitized transactions with regards to the capacity of an issuer to meet its debt obligations."[6] Rating agencies essentially perform due diligence on the securities for investors.

The rating agency review entails a detailed assessment of the quantitative and qualitative attributes of the debt offering. Each class of security is subject to rigorous *stress testing* by simulating recessionary scenarios to determine the effect on the property's cash flow and value of the underlying collateral. For a large pool of well diversified loans, rating agencies evaluate the pool as a whole, often times relying on statistical inferences for the aggregate portfolio. For a statistical evaluation, the pool of mortgages must contain uniform underwriting standards and a critical mass sufficient to be considered statistically significant. Generally, a securitization representing more than 300 loans are evaluated as a group[7]. For smaller, less diversified pools, a detailed loan-by-loan evaluation is performed. In addition, the borrower, the servicer and the structure of the offering are considered in determining a rating for a security.

A rating placed on a CMBS is considered equal to that of a similarly rated corporate security with regards to the borrowers ability to make principal and interest payments. In-depth studies of historical loan performance is an important determinant of the characteristics which influence performance and recoveries from foreclosures. These

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6 Nomura Securities *"Commercial Mortgage-Backed Securities: An Emerging Market"* (January, 1994), p. 17
7 Kenneth G. Lore, "Mortgage-Backed Securities- Developments and Trends in the Secondary Market", p. 9-50

characteristics may include variables such as interest rate, property type and term. Due to the limited information on the historical performance of commercial real estate debt, and commercial mortgage-backed securities in particular, the rating agencies have undertaken very conservative underwriting criteria in the rating process.

There are two important statistics that are used in determining the rating of a security. These two statistics, the probability of default and loss severity upon default, determine the expected loss associated with the security. The loss severity determines the loss of principal incurred by the security holder in the event the simulated recession. These expectations are based upon extrapolations of historical default rates and recovery of principal in the event of foreclosure upon the underlying collateral. The expected loss will vary among property types and is adjusted based upon the specific characteristics of the offering.

Expected Loss = Probability of Default x Loss Severity

Different scenarios are incorporated in order to stress test the securities. These scenarios are based upon a varying probability of default and loss severity on the collateral for each given class of security. For example, a benchmark put forth by S&P for a AAA rated retail security (i.e., collateralized by a shopping center) with a debt service coverage ratio of 1.3 and a loan-to-value of 65% would have a probability of default of .1 and a loss severity of .58, resulting in an expected loss of .06 or 6% of the principal. Therefore, in order for this security to attain a rating of AAA by S&P, a credit enhancement equal to 6% would be required. A credit enhancement is a method of guaranteeing the return of principal to a security holder equal to a specified dollar amount. The amount of credit enhancement required is such that the expected loss for the security is equal to zero for the corresponding scenarios which are utilized.

Although the rating agencies have established benchmarks for the rating of specific types of commercial mortgage-backed securities, the benchmarks are adjusted to reflect the unique attributes of the offering. These adjustments are based upon a detailed quantitative and qualitative analysis of the offering.

Qualitative Analysis

Unlike residential loans where default is a function of the borrower's behavior, commercial lenders must identify characteristics that affect the financial condition of the underlying collateral. The borrowers decision to default on a residential loan will be a function of the borrowers ability to make payments (i.e.. loss of job) rather than changes in the value of the house. The categories generally reviewed by the rating agencies include: property type, location, borrower evaluation, tenant review, lease terms, property management, property seasoning, construction quality and environmental liability. Each factor is assigned a rating and averaged based upon their importance, to determine an overall qualitative rating.

Each property type has its own unique operating characteristics. The operating cost structures, the type of lease and the correlation of property performance and changes in the economy vary by property type. The evaluation of the property type for real estate is similar to an evaluation of an industry for a corporation.

The rating assigned for location is a function of demographic statistics, industry reliance, zoning laws, specific property locational attributes and geographic dispersion. These attributes would include visibility, ingress and egress, existing supply and demand factors and the potential for new construction in the market area. Rating agencies generally prefer a pool of geographically dispersed properties to avoid reliance on a small number of local economies. This diversification factor is applied to the average locational rating for the pool.

The quality of the borrower is evaluated to determine the creditworthiness, even if the debt is non-recourse. This determination is based upon the borrower's experience with the specific property type and any adverse experiences with previous transactions. This is important since the borrower will have control of the property and ultimately be responsible for maintaining its value.

The assessment of tenant quality and mix is an important factor in the valuation of a property. The assessment entails a review of the number of tenants, the space occupied by each tenant and the credit quality of the large tenants. These characteristics are important in determining the stability of the cash flows necessary to meet the debt obligations. If a single tenant occupies the majority of the property, the credit of the tenant may be used as a basis for the rating on the security, with yields at 40-70 bp over comparable public corporates[8]. The higher spread arises from increased risks related to a single property as opposed to relying on the cumulative assets of the company.

The lease terms are critical for determining the cash flow available to service the debt and for valuing the underlying property. Therefore, the rating agencies review the leases to determine the rental rates, expense reimbursements, rental escalations, renewal and cancellation options and lease rollover schedules. The rating agencies prefer leases that expire after the debt matures. In addition, tenant leases will generally be valued at the lower of the contractual rental rate or the prevailing market rate. An exception to this rule may apply to credit tenants with leases that offer a remote possibility of cancellation.

Good property management is paramount for the long term success of the property. In recognition of this, the rating agencies evaluate the management team based upon their experience with the particular type of property being managed and knowledge of the local market place.

The historical performance of the property is used as an indicator of future cash flow trends. A well seasoned property will provide an indication of stabilized operating levels. This would include stabilized occupancy rates, revenues and expenses.

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8 Laura Quigg, *"Commercial Mortgage-backed Securities,"* Lehman Brothers Fixed Income Research (December, 1993), p. 23

The quality of the construction is an important factor for maintaining the long term value of the property. The rating agencies require an engineering report which covers design, the operating systems and the structural integrity of the property. The rating agencies may require the borrower to establish reserves to cover future capital improvements required by the property.

The rating agencies evaluate potential hazards that may affect the property. These hazards may include potential natural disasters such as earthquakes and hurricanes or environmental hazards such as asbestos or contaminated soil. Adequate insurance is required to cover natural disasters and extensive due diligence is performed to establish that no environmental hazards exist. If environmental hazards are able to be quantified, the rating agency will allow the property to be included in the securitization if adequate reserves are established to mitigate the environmental damage.

Quantitative Analysis

The quantitative analysis is concerned with the borrower's ability to meet all scheduled principal and interest payments while ensuring that there is adequate collateral for the securities. Income generated by the properties is measured against debt service in the form of a debt service coverage ratio (DSCR). Another indicator of the safety of the collateralized debt is measured by the loan-to-value (LTV) ratio. Finally, the security structure is reviewed to ascertain the risks associated with differences between the structure of the securities and the structure of the loans.

The net cash flow produced by the properties is used to service the debt. This cash flow, referred to as net operating income (NOI), is simply the property's revenues less cash expenses excluding capital expenditures. The NOI is measured against the debt service to determine if there is adequate debt service coverage. The higher the DSCR, the more credit worthy the loan.

DSCR = NOI / Debt Service

The property's NOI is subject to downward revisions in an attempt to simulate recession like scenarios. The results of these stress tests have enabled rating agencies to establish benchmark DSCRs for each type of commercial property. The benchmark DSCRs established by the rating agency are then used to establish the credit rating of the security. This minimum DSCR varies by property type and is adjusted for additional quantitative and qualitative attributes including forms of credit enhancement available. The Indicative Minimum DSCRs from S&P for 20 year fixed rate fully amortizing securities collateralized by *good* properties are as follows:

Property Type	Rating	DSCR
Multi-Family	AAA	1.75
	AA	1.65
	A	1.5
	BBB	1.4
Office	AAA	2
	AA	1.9
	A	1.75
	BBB	1.65
Retail	AAA	1.65
	AA	1.55
	A	1.4
	BBB	1.3
Hotel	AAA	2.7
	AA	2.4
	A	2.1
	BBB	1.8

The loan-to-value ratio is used to estimate the amount of protection that the underlying collateral offers security holders in the event of default. The LTV is simply the aggregate loan amount divided by the value of the properties. Property values are typically determined by independently performed appraisals. Loan-to-value ratios of less than 50% are not uncommon for securitized debt transactions.

LTV = Loan Amount / Property Value

<u>Security Structure</u>

The structure of the security is an additional factor that rating agencies consider when assigning a rating. They evaluate the repayment schedule, timing differences between the securities and the property loans, and forms of credit enhancement available to the security holders.

Debt securities can be structured with varying repayment schedules. The securities can be structured to pay only interest until maturity, fully amortize or pay interest and principal each period with the balance due upon maturity. Rating agencies prefer shorter amortizing loans to avoid the uncertainty associated with the inability to raise adequate capital to repay the remaining loan balance upon maturity. Furthermore, rating agencies differentiate fixed rate from floating rate loans, often requiring more support for adjustable rate loans. Increased support is required for adjustable rate loans due to the added interest rate risk, where a large increase in interest rates may adversely affect a property with a fixed income stream derived from the leases.

The maturity of the property loans and the securities may not correspond to each other. This is often the case with balloon mortgages. The security may be designed to mature after the loan matures in order to allow adequate time for the servicer to take the necessary steps raise the required capital. These steps may entail foreclosure and liquidation, extensions for refinancing or the sale of the loan to a third party.

Credit enhancement plays an integral role in determining the ultimate rating of a security. Credit enhancement typically comes in the form of a third party guarantee or sub-ordination. Third party guarantees can be purchased by the issuer of the security, but must generally have a credit rating equal to or greater than the rating of the securities being guaranteed. Subordination is a form of credit enhancement where junior classes of the security are established to absorb the loss of payment prior to the senior class. In other words, the senior class will receive payments of both principal and interest prior to any disbursements to the junior tranches. In addition, in the event of foreclosure or prepayment, the senior class typically receives all of the proceeds until the securities are repaid in full. Table one illustrates S&Ps benchmark rating criteria by property type and required credit support.

Another form of credit enhancement for pooled transactions from a single borrower is known as cross-collateralization and cross-defaulting. Cross-collateralization is when all of the properties within the pool are pledged as collateral for each loan. In the event that

TABLE ONE
S&P Benchmark Credit Support Requirements for
Well Diversified Commercial Mortgage Pools

Rating/ Property Type	DSCR	LTV	Probability of Default	Loss Severity	Required Credit Support
Multi-Family					
AAA	1.55	55%	0.1	0.4	0.04
	1.3	65%	0.13	0.52	0.07
	1.15	80%	0.18	0.65	0.12
AA	1.55	55%	0.09	0.36	0.03
	1.3	65%	0.12	0.49	0.06
	1.15	80%	0.15	0.62	0.09
A	1.55	55%	0.06	0.25	0.02
	1.3	65%	0.08	0.4	0.03
	1.15	80%	0.11	0.55	0.06
BBB	1.55	55%	0.06	0.25	0.02
	1.3	65%	0.08	0.4	0.03
	1.15	80%	0.11	0.55	0.06
Retail					
AAA	1.55	55%	0.08	0.47	0.04
	1.3	65%	0.1	0.58	0.06
	1.15	80%	0.14	0.7	0.09
AA	1.55	55%	0.07	0.43	0.03
	1.3	65%	0.09	0.55	0.05
	1.15	80%	0.11	0.67	0.08
A	1.55	55%	0.05	0.34	0.02
	1.3	65%	0.06	0.47	0.03
	1.15	80%	0.08	0.41	0.05
BBB	1.55	55%	0.04	0.3	0.01
	1.3	65%	0.05	0.44	0.02
	1.15	80%	0.07	0.58	0.04
Office					
AAA	1.55	55%	0.15	0.56	0.08
	1.3	65%	0.2	0.66	0.13
	1.15	80%	0.27	0.76	0.21
AA	1.55	55%	0.14	0.53	0.07
	1.3	65%	0.18	0.63	0.11
	1.15	80%	0.23	0.74	0.17
A	1.55	55%	0.09	0.45	0.04
	1.3	65%	0.12	0.56	0.07
	1.15	80%	0.17	0.68	0.11
BBB	1.55	55%	0.08	0.41	0.03
	1.3	65%	0.11	0.53	0.06
	1.15	80%	0.14	0.66	0.09
Hotel					
AAA	1.55	55%	0.25	0.75	0.19
	1.3	65%	0.33	0.82	0.27
	1.15	80%	0.45	0.89	0.4
AA	1.55	55%	0.23	0.72	0.16
	1.3	65%	0.3	0.79	0.24
	1.15	80%	0.38	0.87	0.33
A	1.55	55%	0.15	0.66	0.1
	1.3	65%	0.2	0.75	0.15
	1.15	80%	0.28	0.83	0.23
BBB	1.55	55%	0.13	0.64	0.08
	1.3	65%	0.18	0.72	0.13
	1.15	80%	0.23	0.81	0.18

a property can not meet its debt service requirement, the excess cash flow from the other properties will be used to cure the deficiency. Therefore, a default can not exist on a single loan unless the remaining properties collateralizing the securitization lack sufficient cash flow to meet the shortage. Cross-defaulting requires all of the properties collateralizing the securitization to guarantee full repayment of each individual loan. If a property can not raise adequate capital to repay the loan from a sale or refinancing, other properties in the securitization may be sold to offset the deficit. This form of credit enhancement is generally found by owners of real estate portfolios such as Real Estate Investment Trusts and other publicly traded real estate companies.

BENEFITS OF CMBS

Investing in rated CMBS rather than whole loans has several benefits. These benefits include stringent underwriting standards, the ability to quantify risks, enhanced liquidity, corporate governance, diversification and favorable yields relative to similarly rated securities. These attributes should be very appealing to institutions that desire to hold commercial real estate mortgages in their portfolio.

The cash flows that support the securitization are typically reviewed by a number of highly competent parties prior to issuance. These parties may include investment bankers, rating agencies and third party due diligence contractors. The investment banker is responsible for providing reliable current cash flow data, reasonable expectations about future cash flows and structuring the offering to attain the highest value for the issuer and investor in the securities. The rating agency is involved in determining the probability of recovery of both principal and interest for the various tranches. The rating agency's stringent underwriting process coupled with any due diligence performed by the purchasers of the securities helps to ensure the merits of the offering.

The ability to quantify risks of commercial real estate lending has always been a challenge to lenders. The stringent underwriting criteria and the associated ratings on the securities help quantify the risks of the investment and allow for an established pricing range based upon the rating. The on going monitoring by the rating agency enables the holder of the securities to accurately assess the value of the instrument at any time. Commercial real estate lenders can now purchase CMBS and properly quantify the risks and price the security with relative certainty.

Commercial mortgage-backed securities enhance the liquidity of commercial debt. By holding rated securities, there is a ready market with established spreads. The liquidity is greatest for the investment grade tranches. The non-investment grade tranches are less liquid than the higher rated tranches, although they appear to have more liquidity than was present when the instrument was a whole loan. An additional benefit of CMBS is the ability to sell varying denominations of the loan as opposed to selling the whole loan or group of whole loans to a single entity.

Corporate governance of the securities is an important attribute of securitized debt. It is a series of policies and procedures to ensure that the borrower(s) are in full compliance with loan documents, to monitor the condition of the property and to take the appropriate actions in the event of default. In addition, corporate governance offers assurances that the debt will be serviced in an appropriate manner and that distributions will be made to the various tranches in accordance with their terms. The debt servicer performs these tasks with experienced and qualified personnel, thus alleviating the holder of the securities of any management responsibility.

Diversification within a portfolio is an important element of portfolio strategy. Purchasing securities that represent an interest in a pool of properties allows the purchaser to receive diversification benefits from a single issuance by reducing property-specific risks. The ability to purchase small denominations of a debt securitization further increases diversification by allowing the buyer to acquire an interest in several offerings, representing multiple pools of properties. Furthermore, diversification benefits arise from the ability to select securities representing a portfolio of properties to meet the needs of the investor. An investor can create a portfolio of CMBS which represent interests in properties with certain geographic characteristics, property types and risk levels. This enables institutional investors to accommodate their desired risk profile by mixing tranches.

VALUATION OF CMBS

The availability of varying maturities, levels of credit risk and call protection enable CMBS to become substitutes for corporate bonds. Despite these similarities, differences in the performance characteristics of the underlying assets require investors to focus on the fundamental differences between corporate bonds and CMBS in their valuation process.

Unlike corporate bonds, whose valuation relies upon the credit worthiness of the borrower, CMBS are valued based upon a hard asset value, real estate. This hard asset designation allows for easier valuations relative to most corporate bonds by requiring investors to focus on a finite number of properties rather than future prospects of an industry and management's ability to implement the proper strategy to enhance marketshare and profits. Furthermore, the ability to accurately project cashflow from a specified number of leases is greater than projecting cashflow from estimates on year to year sales in a dynamic industry.

Real estate's propensity to increase in value as the property matures decreases the downgrade risk of the securities. This arises from real estate's hard asset designation and its generally positive correlation with inflation in the long run. Corporate security holders must contend with general economic conditions, industry dynamics and company specific issues to determine their value in future years.

Corporate governance is generally more stringent for CMBS than corporate bonds. The rules and regulations to ensure the security of bondholders are rigid for CMBS, while corporate bond offerings must allow the corporation to have ample latitude to change management strategies in response to industry changes. This latitude may increase the risk of loss to security holders given management's primary responsibility is to shareholders.

Despite the seemingly beneficial attributes of commercial mortgage-backed securities, they trade at wider spreads relative to comparably rated corporate securities. These spreads tend to be 70-180 bp greater and are determined by such factors as the level of call protection, the size of the pool and the underlying collateral.

Spreads on Commercial Mortgage-Backed Securities and Corporate Debt[9]

Rating	CMBS	Corp. Debt	Difference
AAA	105-125	35-45	70-90
AA	120-140	45-50	75-95
A	170-180	53-70	100-120
BBB	185-270	70-100	115-170
BB	350-450	180-280	120-180
B	450-600	340-420	120-180

The premium on CMBS over comparable corporate securities can be explained by several factors unique to these securities. These factors include the following:

- The lack of historical performance of these securities warrants a premium by investors. This is typical of a market that has yet to mature.
- The fact that real estate collateralizes these securities causes a sense of unease by some investors. The negative connotations associated with *real estate* are a result of the large losses incurred by investors during the past few years from poorly structured transactions.
- The relative illiquidity of these securities as compared to corporate bonds requires a premium from the market place. As the CMBS market increases in depth, these securities should become more liquid.

9 Laura Quigg, *"Commercial Mortgage-backed Securities,"* Lehman Brothers Fixed Income Research (December, 1993), p. 23

The spreads for commercial mortgage-backed securities have decreased during the past few years (Exhibit 2). These spreads should continue to narrow as many of the above stated issues are resolved. The short history of CMBS has been positive. As of December, 1993, none of the securities issued since 1991 have been downgraded.[10] It is data such as this that will be needed to convince the market of the benefits for these securities.

CONCLUSION

The market for commercial mortgage-backed securities is in its infancy. With less than 3% of the commercial mortgage market held in a securitized form, CMBS need to experience dramatic growth before gaining market acceptance similar to that of the $1.5 trillion residential mortgage-backed security market[11]. As it appears that the commercial mortgage-backed securities market has surpassed its embryonic stage (Exhibit 3), these securities should be a viable financing alternative for many commercial real estate owners in the near future. With more than 30 conduits announced in 1993, the $1.2 billion originated by these entities in 1993 is expected to increase to $5-$6 billion in 1994[12]. Since many of these conduits were designed to originate loans through agreements with financial intermediaries, these entities will be instrumental in the refinancing of the estimated 30%[13] of the $991.5[14] billion of commercial mortgages coming due in the next two years. The attractive pricing for borrowers, stringent underwriting standards,

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10 ibid

11 Nomura Securities *"Commercial Mortgage-Backed Securities: An Emerging Market"* (January, 1994), p. 4

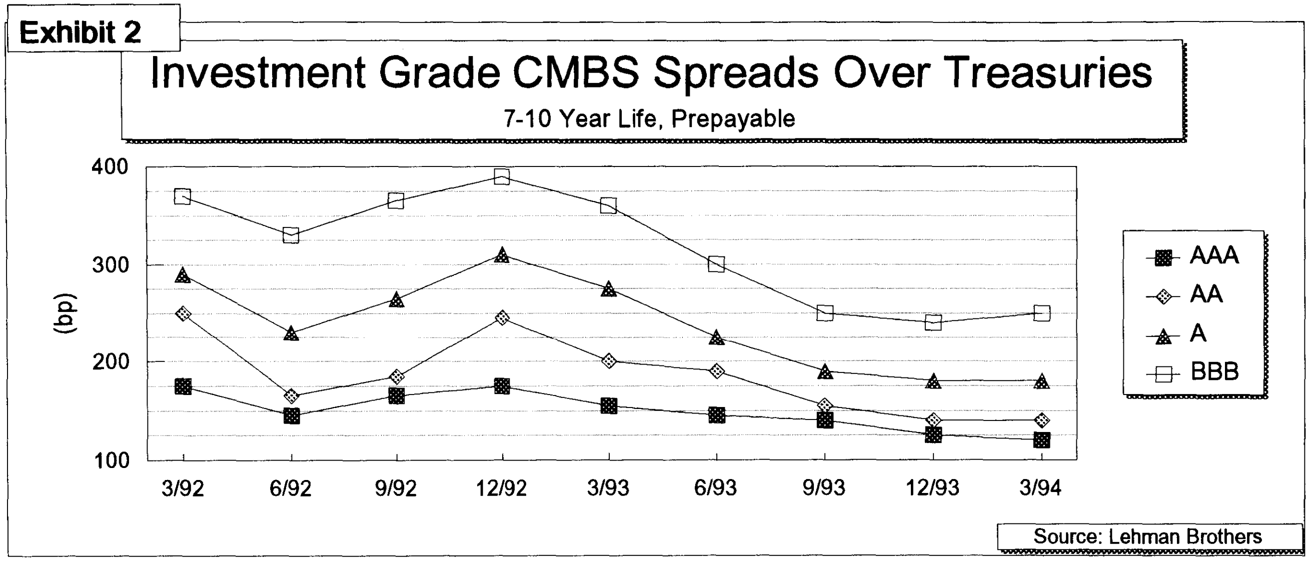
12 Kenneth Leventhal & Company *"Income Property Securitization Survey 1993"*, p.1

13 Nomura Securities *"Commercial Mortgage-Backed Securities: An Emerging Market"* (January, 1994), p. 5

14 Federal Reserve Bulletin, Volume 80 (May, 1994) p.A38

enhanced liquidity and the ability to quantify the risks of commercial lending will expand the market for commercial mortgage-backed securities.

Exhibit 2


Investment Grade CMBS Spreads Over Treasuries
7-10 Year Life, Prepayable
400
300
200
100
(bp)
3/92
6/92
9/92
12/92
3/93
6/93
9/93
12/93
3/94
AAA
AA
A
BBB
Source: Lehman Brothers

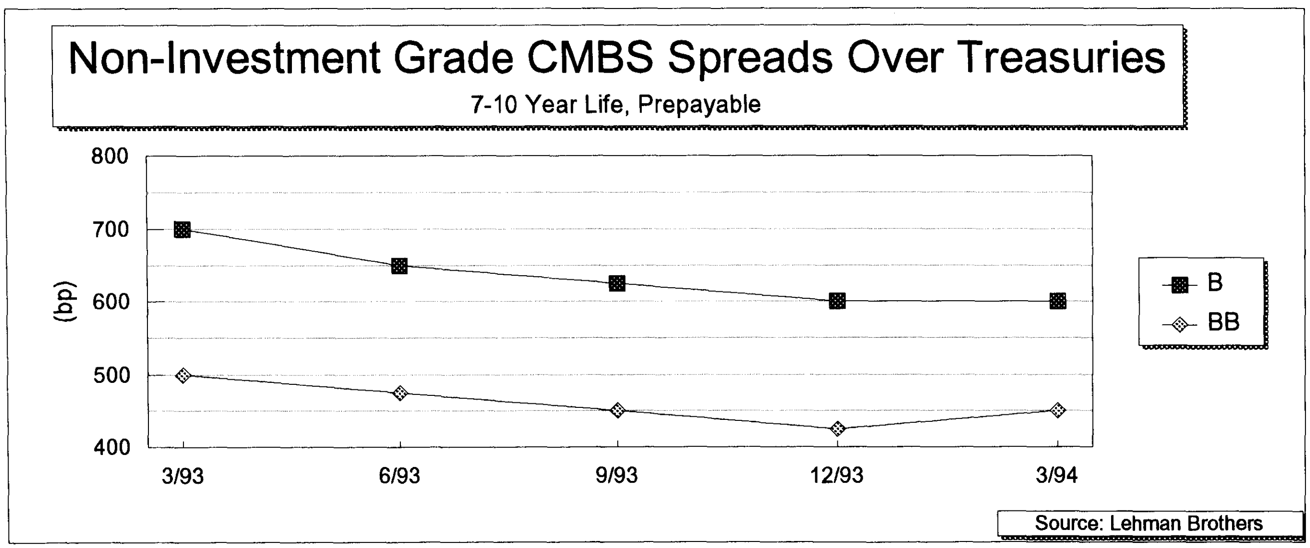
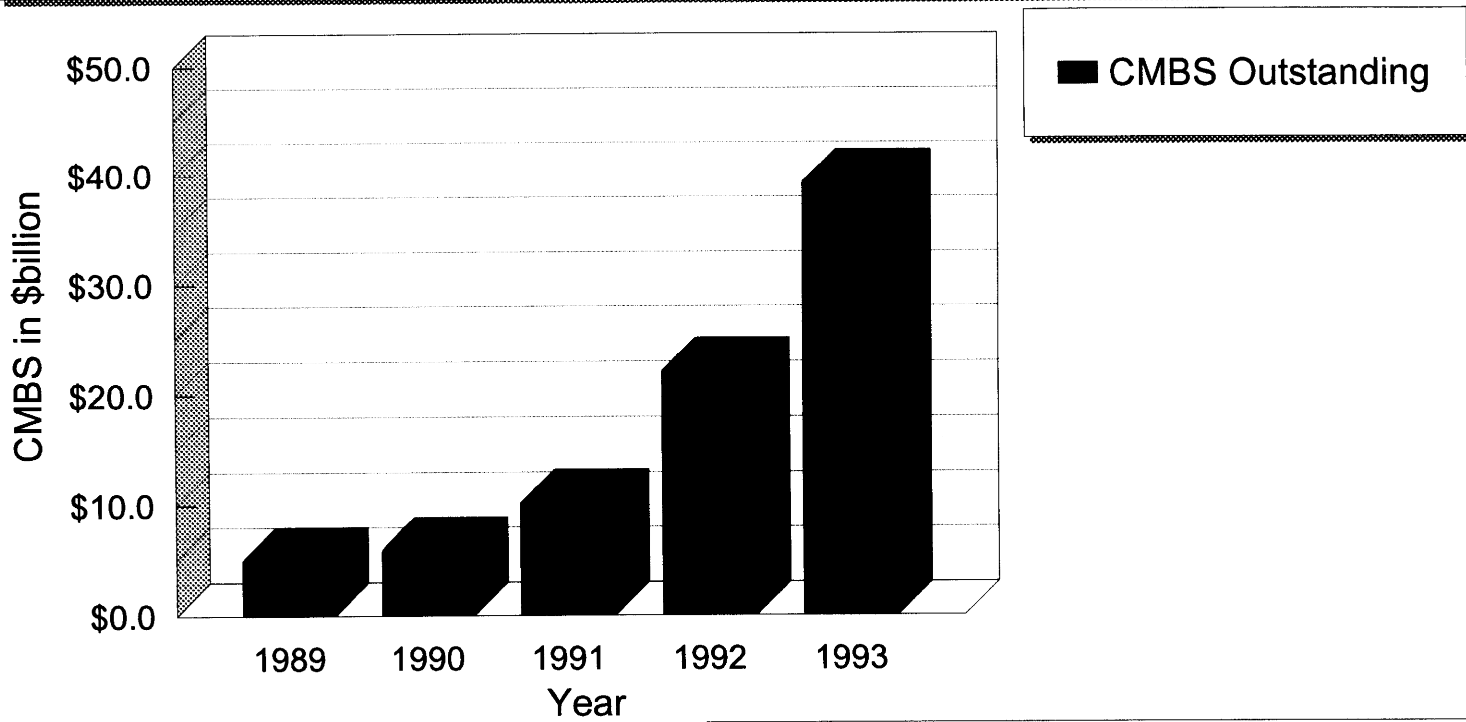

Non-Investment Grade CMBS Spreads Over Treasuries
7-10 Year Life, Prepayable
800
700
600
500
400
(bp)
3/93
6/93
9/93
12/93
3/94
B
BB
Source: Lehman Brothers

Exhibit 3

Nonagency Commercial Mortgage-Backed Securities Outstanding



Source: Kenneth Leventhal & Company, Lehman

RISK-BASED CAPITAL REQUIREMENTS

In December, 1992 the National Association of Insurance Commissioners (NAIC) enacted a series of Risk-Based Capital (RBC) requirements to ensure that life insurance companies remain economically viable. These statutes were enacted following the insolvency of a number of well known life insurance companies. Many industry professionals believe that these failures were a result of imprudent investing in high risk junk bonds and real estate without providing adequate reserves for these often illiquid investments. The NAIC is an association of the insurance commissioners of all fifty states that make recommendations on the governing of insurance companies which are regulated at the state level. The association created a Risk-Based Capital Formula and subsequent benchmarks to assist in the determination of the degree of liquidity and necessary regulatory intervention for life insurance companies. As of December, 1993, life insurance companies were required to file annual reports stating their risk-based capital standing. These requirements may encourage life insurance companies to hold securitized debt in their portfolio rather than whole real estate loans.

The risk-based capital formula considers four categories of risk. These categories are as follows:

Category	Type of Risk
C-1	Asset Default Risk
C-2	Insurance Risk
C-3	Interest Rate Risk
C-4	General Business Hazard

Of these four categories, Asset Default Risk will be the predominant factor in assessing the viability of holding commercial mortgage-backed securities rather than whole loans. The following tables illustrate the RBC factors (% of face value) for bonds and mortgages:[15]

BONDS:

RATING	**RBC FACTOR**
AAA - A	.003
BBB	.01
BB	.04
B	.09
CCC	.20
In or Near Default	.30

MORTGAGES:

STANDING	**RBC FACTOR (Commercial)**
In Good Standing	.03
90 Days Overdue	.06
In Foreclosure	.20

Adjustments are made to these Risk-Based Capital Factors for each class of bonds based upon the level of diversification present within the portfolio[16]. The first adjustment doubles the RBC Factor of the ten largest holdings with the exception of certain low risk issues such as U.S. Treasuries. The next adjustment is determined by the number of

15 National Association of Insurance Companies, "NAIC Life Risk-Based Capital Report - Overview and Instructions for Companies," *Minutes Examination Oversight Task Force* (May 1, 1993), pp 1-37

16 ibid

issuers. The number of issuers are multiplied by the appropriate RBC factor and aggregated. This aggregated factor is then divided by the total number of issuers to determine the weighted average diversification factor. This diversification factor is then multiplied by the bond classes previously determined RBC requirement to establish the total bond categories' RBC requirement. The diversification factor schedule is as follows:[17]

NUMBER OF ISSUERS	FACTOR
First 50	2.5
Next 50	1.3
Next 300	1.0
More than 400	0.9

Since mortgages lack a formal rating system, the NAIC created a mortgage experience adjustment (MEA) factor. This factor is based on a two year moving average of a company's delinquencies and foreclosures relative to industry experience. This system is intended to expose life insurance companies with a history of problem loans and require such companies to establish additional reserves. The adjustment factor is determined by establishing the ratio of the company's mortgage experience for delinquency and foreclosure divided by the industry experience. There is an upper limit of 3.0 and lower limit of .5 for mortgages in good standing and an upper limit of 2.5 and lower limit of 1.0 for overdue mortgages. Unlike the previously stated adjustments to the RBC for bonds, the mortgage experience adjustment factor is multiplied by the Risk-Based Capital Factors rather than the RBC requirement, to establish the adjusted RBC Factors for mortgages.

17 Ibid

Commercial mortgage-backed securities qualify as bonds for the determination of RBC requirements. This increases the liquidity of the commercial real estate debt relative to whole loans and allows life insurers to purchase tranches of debt with the appropriate risk characteristics for their portfolio. In addition, life insurers can construct portfolios with commercial real estate debt to minimize RBC requirements for these securities. By holding rated CMBS rather than commercial real estate mortgages, life insurance companies can more easily reposition their real estate debt portfolio to achieve a RBC target for their portfolio by increasing the number of issuers held and changing the quality of the CMBS held in the portfolio. The attached example illustrates the potential benefits of holding commercial real estate debt in a securitized form rather than a whole loan.

In the attached example, options one and two have identical assets, yet the RBC requirement for the CMBS is substantially less than the whole loan. Option three illustrates the flexibility of holding CMBS in a portfolio in order to decrease the RBC requirement of a commercial real estate loan without significantly reducing the loan principal.

CONCLUSION

Risk-Based Capital Requirements will influence the manner in which life insurance companies will invest in commercial real estate debt. Although the RBC requirements were intended to provide regulators with the necessary tools to evaluate the solvency of

EXAMPLE 1: STRUCTURE CHOICE - SECURITIZED DEBT VS. MORTGAGE

Scenario 1: A life insurance company has a choice to hold a $1 million commercial real estate mortgage as a whole loan or as a CMBS.

Data:	Loan Amount:	$1,000,000
	Loan to Value:	80%
	Cumulative DSCR[18]	1.20
	RBC Factor (Mortgage):	3.0%
	MEA Factor:	1.0
	RBC Factor AAA-A Bonds:	.3%
	RBC Factor BBB Bonds:	1.0%
	RBC Factor BB Bonds:	4.0%

Option 1: Hold Mortgage

Mortgage RBC Requirement: $30,000 ($1,000,000 x .03)

Option 2: Hold CMBS[19]

Rating	DSCR	LTV	Amount	RBC Factor	RBC
AAA	1.55	60%	$750,000	.003	$2,250
AA	1.30	70%	$125,000	.003	$375
A	1.25	75%	$62,500	.003	$187
BBB	1.20	80%	$62,500	.01	$625

CMBS RBC Requirement: $3,437

Option 3: Hold AAA - A Tranches and Sell BBB Tranche

Rating	DSCR	LTV	Amount	RBC Factor	RBC
AAA	1.55	60%	$750,000	.003	$2,250
AA	1.30	70%	$125,000	.003	$375
A	1.25	75%	$62,500	.003	$187

CMBS RBC Requirement: $2,812

18 Assumes that interest rate on CMBS and the whole loan are identical. Typically, interest rates on CMBS with identical collateral will have lower interest rates than whole loans.

19 Assumes excellent quality property, fixed rate fully amortizing mortgage.

life insurance companies, there is a belief that life insurance companies will be evaluated by the public based upon their RBC ratios. "Insurers will seek to position their RBC ratios close to those of others that they identify as their peers. Companies will formulate target RBC ratios that they will seek to maintain as they evaluate policy alternatives. Thus, even insurers with actual capital in excess of their risk-based capital requirements will find the new standards to be a real constraint in decision-making"[20] Based upon the RBC treatment of bonds relative to mortgages, it appears as though securitizing existing portfolios of commercial real estate debt and purchasing CMBS will be of keen interest to life insurance companies.

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20 Alfred Weinberger, "Risk-Based Capital: Implications for Investment Values and Financial Strategies," *Salomon Brothers United States Fixed Income Research - Insurance Strategies* (April 16, 1992), p. 3

LIFE INSURANCE COMPANIES, PENSION FUNDS AND COMMERCIAL MORTGAGE-BACKED SECURITIES

Commercial real estate debt has been a poor performer for life insurance companies and pension funds over the past few years. This stems from a severe real estate recession and liberal underwriting procedures. Many of these liberal underwriting procedures were a consequence of the inability for these institutions to properly quantify the risks associated with commercial real estate lending. To re-enter the commercial real estate lending arena, life insurance companies and pension funds are going to need new financial vehicles to address the negative attributes of commercial real estate loans.

Life insurance companies and pension funds have historically been large participants in the commercial mortgage arena. At the end of 1993, life insurance companies and pension funds held $213.6 billion and $39.4 billion respectively, of commercial mortgages. This represented approximately 25% of the aggregate commercial mortgages outstanding.

The commercial mortgage market represented an estimated 6.56% of the entire United States debt market at the end of 1993[21]. Due to the size of this market, institutional investors recognize the importance of holding real estate assets in order to properly diversify their portfolios, but will only remain a source of financing if they are offered new alternatives which offer less risk, more comprehensive information and higher risk-adjusted yields.

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21 Ross V. Keeler, *"The Commercial Mortgage Market: A Profile", Pension Real Estate Quarterly (January, 1994)*

Many of the real estate losses incurred by life insurance companies and pension funds were incurred during the past few years. This was a direct result of declining property values. As property values decrease, owners' equity decreases and the propensity to default on a property's mortgage increases. This is illustrated on Exhibit 4 which shows the delinquencies and foreclosures experienced by life insurance companies' commercial loan portfolios during the past several years.

LIFE INSURANCE COMPANIES

Since 1980, life insurance companies held an average of 18.1% of their total assets in commercial mortgages[22]. This number has substantially decreased to 11.92% of their estimated $1.8 trillion in assets by the end of 1993. Although general market conditions had an effect on insurance companies' decisions to divest a portion of their commercial mortgage portfolio, regulatory pressure from the NAICs RBC requirements was the primary impetus for this reduction.

Commercial mortgage-backed securities enable life insurance companies to continue to invest in commercial mortgages while benefiting from a reduction in the risk-based capital requirements. Some life insurers have already securitized portions of their commercial real estate loan portfolios. In 1993, life insurance companies issued over $3 billion of CMBS[23]. This trend is expected to continue as life insurance companies seek to reclassify these mortgages as bonds. Furthermore, by increasing the number of issuers in the bond

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22 Federal Reserve System *"Flow of Funds Accounts"* (March 9, 1994) pp. 95-96 & 115-116

23 Kenneth Leventhal & Company *"Income Property Securitization Survey 1993"*, p.1

Exhibit 4

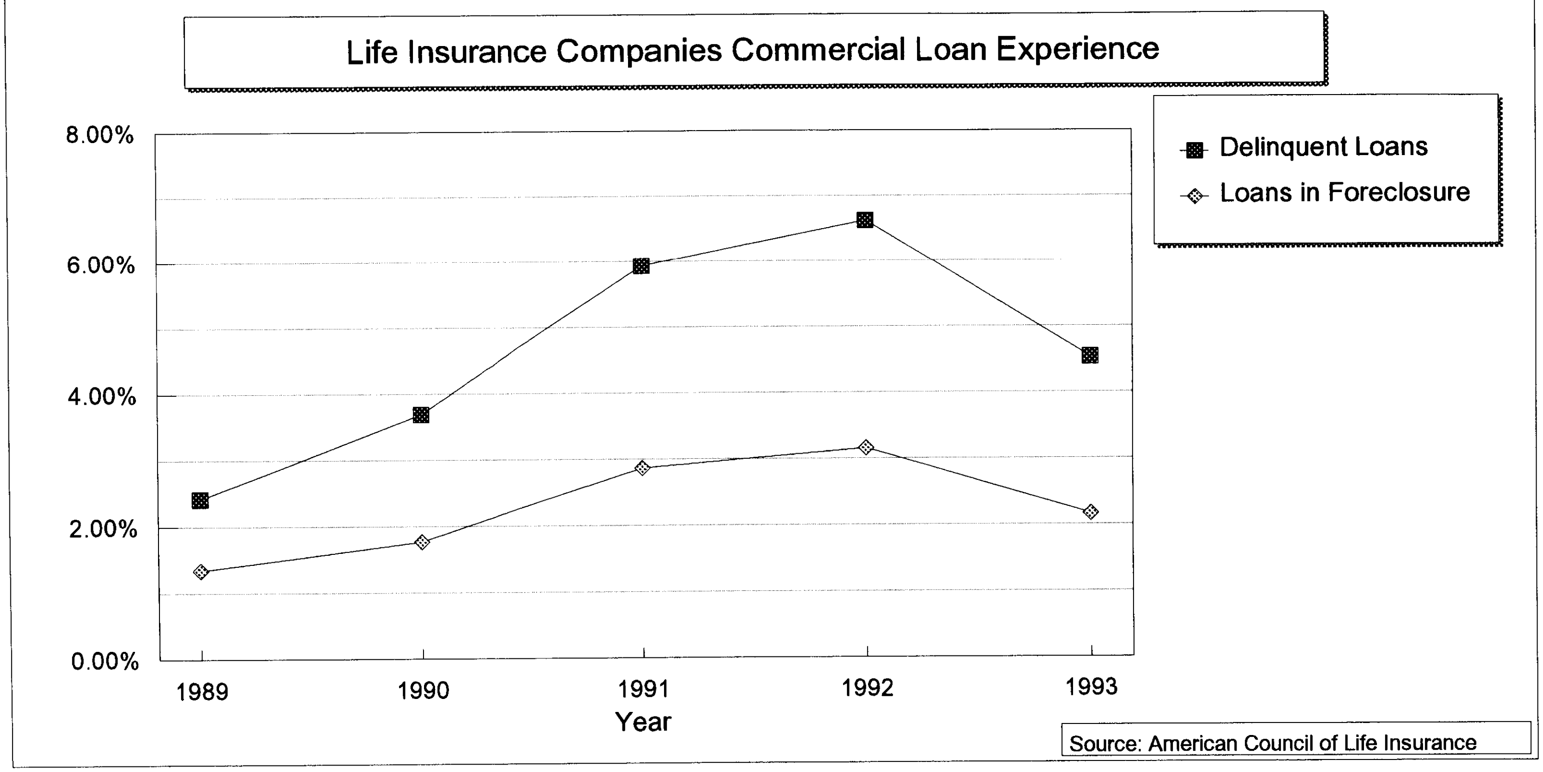
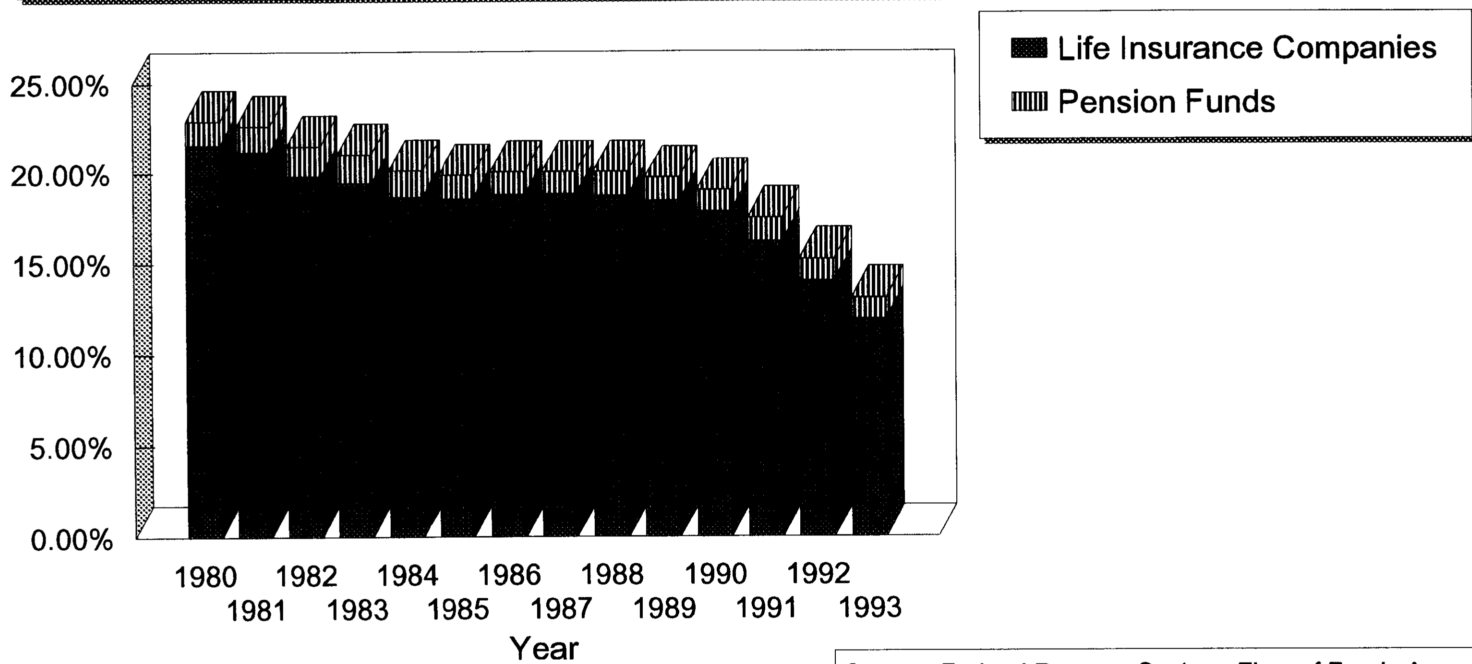

Life Insurance Companies Commercial Loan Experience
8.00%
6.00%
4.00%
2.00%
0.00%
1989
1990
1991
1992
1993
Year
Delinquent Loans
Loans in Foreclosure
Source: American Council of Life Insurance

Exhibit 5

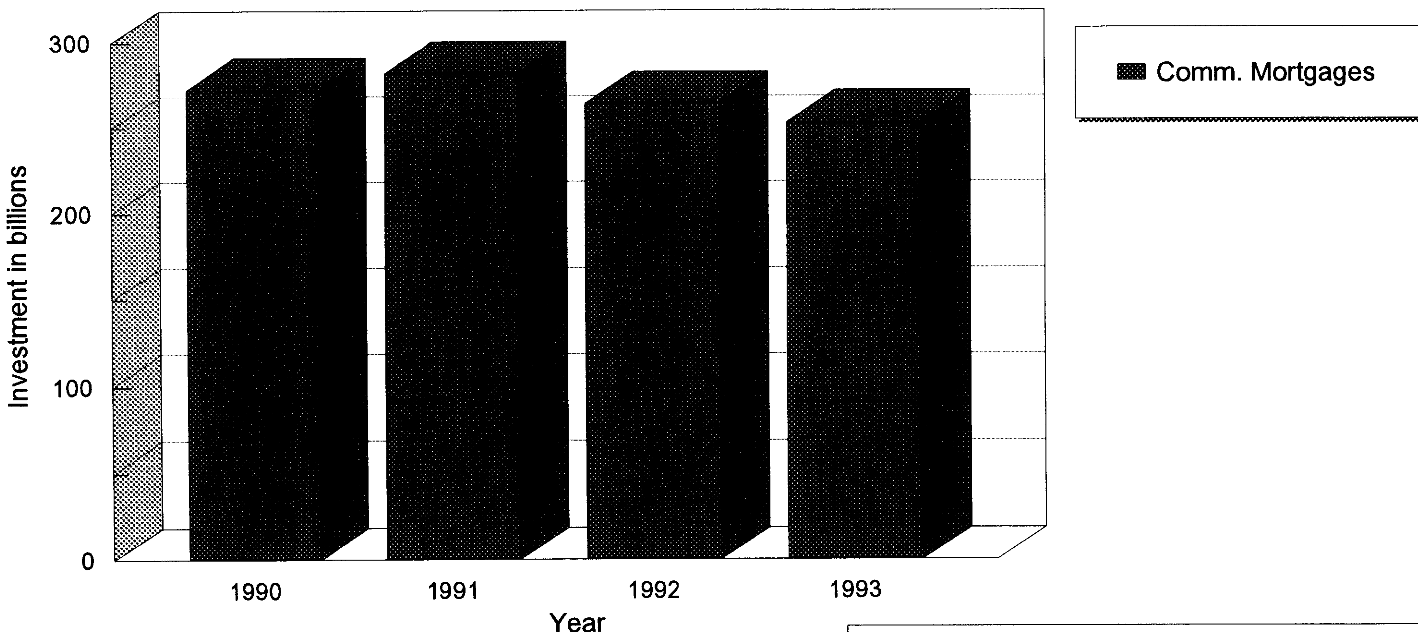
Commercial Mortgages- Percentage of Total Portfolio



Source: Federal Reserve System: Flow of Funds Accounts

Exhibit 6

Commercial Mortgages Held By Life Insurance Companies And Pension Funds



Source: Federal Reserve System: Flow of Funds Accounts

portfolio, a life insurer may decrease their RBC requirement for all of their bonds by decreasing the weighted average diversification factor.

PENSION FUNDS

Pension funds have not been nearly as active in the commercial mortgage market as life insurance companies. From 1980 through 1993, pension funds held an average 1.35% of their portfolio in commercial mortgages[24]. Although their investment has not substantially decreased in recent years, with 1.16% of the $3.4 trillion in assets invested in commercial mortgages at the end of 1993, their allocation is a fraction of that invested by life insurance companies.

Much of this can be attributed to Employment Retirement Income Security Act of 1974 (ERISA). ERISA was passed to ensure that prudent investments were made by private pension funds on behalf of the pension holders. Private pension plans represent approximately two-thirds of the entire pension market. Prudent investments were encouraged by holding the plan fiduciaries, and their investment advisors, personally liable for any and all investment decisions. Investment fiduciaries were held to the *prudent man* standard in determining the reasonableness of an investment decision. "Plan fiduciaries are directed to discharge their duties for the exclusive purpose of providing plan benefits with the care, skill, prudence, and diligence that a prudent man acting in a like capacity and being familiar with such matters would use in conducting a like enterprise having like goals."[25]

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24 Federal Reserve System *"Flow of Funds Accounts"* (March 9, 1994) pp. 95-96 & 115-116

Much of the reluctance to invest in commercial mortgages may stem from the fiduciaries inability to accurately quantify the risks associated with commercial real estate lending. As Tony Pierson, Managing Director of Real Estate and Research at CIGNA stated, "there is no acceptable measure of risk to apply to all commercial real estate loans. Without this measurement, many pension funds decide not to invest heavily in commercial mortgages. They prefer publicly traded, rated debt where the fixed income group understands how to value the debt and has access to an established secondary market." Although many plan fiduciaries viewed commercial mortgages as lucrative investments, it was difficult for them to justify these investments in the event of a steep decline in the value of the mortgages. This was particularly true as there were an abundance of alternative fixed income products available that provided estimates as to the level of risk through bond ratings and the desired liquidity through the secondary market.

Under ERISA, plan fiduciaries were also required to diversify their portfolios to minimize losses in the event of an industry specific downturn. Given that commercial mortgages represent approximately 6.56% of the U.S. debt market, it would appear prudent for pension funds to allocate this percentage of their debt portfolio to commercial mortgages in order to properly represent these assets. Conversely, plan fiduciaries are not required to invest in assets that they consider imprudent investments, even if the asset class could be an important element in their portfolio strategy.

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[25] Kenneth G. Lore, "Mortgage-Backed Securities- Developments and Trends in the Secondary Market", p. 8-5

Beyond regulatory constraints, pension funds did not invest heavily in commercial real estate mortgages due to their organizational structure. The fixed income group often times lacked the real estate expertise to properly underwrite commercial real estate debt. The real estate group concentrated on real estate equities and did not involve themselves in debt underwriting. Bruce Eidelson, Senior Vice President of Institutional Property Consultants, describes this situation as follows; "The fixed income group doesn't understand commercial real estate underwriting. The real estate people understand it but they only deal with equities." Until plan fiduciaries find an acceptable vehicle to invest in commercial mortgages, this asset class will most likely remain under-represented in their portfolios.

THE IMPACT OF CMBS

Providing financing for commercial real estate in the form of mortgage-backed securities will resolve many of the problems that life insurance companies and pension funds had in the past. More specifically, rated mortgage-backed securities will provide the following benefits:

- Increased liquidity due to the ability to sell smaller denominations of the loan to various parties and the generally accepted quality and pricing associated with the rating of the securities.
- Ability to immediately assess the value of the securities based on similar instruments. The spreads for CMBS over treasuries will become better defined as the market develops.
- On going monitoring by the rating agencies will enhance the ability to actively manage the commercial real estate portfolio by assessing the quality of the securities on a periodic basis.

- The stringent underwriting criteria for CMBS ensures a comprehensive evaluation of the borrowers ability to comply with the terms of the loan. Before the CMBS are issued, the offering must undergo the scrutiny of the investment bankers, the rating agencies and often times third party due diligence.
- Corporate governance offers many of the protections allotted to the holders of corporate debt. This is intended to ensure that the value of the underlying collateral remains intact and that the seniority of the bond holders claims are preserved. Additional benefits arise from the professional management of the debt by the servicer and the trustee in their capacity to monitor the performance of the property and take the appropriate actions in the event of default.
- Pension funds and life insurance companies will be better able to diversify their portfolios by purchasing CMBS that are collateralized by a pool of properties. In addition, the institutions can further diversify their portfolio by purchasing smaller positions in several CMBS offerings.
- The ability to purchase specific tranches of a debt securitization allows the institutions to select the appropriate risk level for their portfolio strategy. As the portfolio needs change or the attributes of the CMBS held changes, the portfolio can be realigned by trading the CMBS in the secondary market.

An additional advantage of commercial mortgage-backed securities is their superior returns relative to similarly rated corporate securities. Life insurance companies and pension funds can bolster the returns on their bond portfolios without increasing risk.

CONCLUSION

It is often said that necessity is the greatest innovator of change. Regulatory intervention and distress within the real estate market has caused pension funds and life insurance companies to evaluate their strategy for commercial mortgage investing. After realizing the ramifications of poor underwriting standards and lack of liquidity for commercial real estate debt, it is evident that life insurance companies and pension funds will require changes in the manner that they approach commercial real estate lending. As the market for CMBS continues to expand, this will increasingly become a viable alternative to providing commercial mortgages in the form of whole loans. As the CMBS market increases its capitalization, a secondary market will be established to provide the liquidity necessary for pension funds and life insurance companies to consider CMBS a substitute to other similarly rated corporate securities.

The quantitative benefits associated with the ability to properly evaluate the risks involved with commercial real estate lending and the qualitative advantages of CMBS relative to direct mortgage investing will encourage the institutions to become more actively involved in commercial real estate lending. This will benefit the life insurance companies and pension funds as well as the real estate industry as a whole.

BIBLIOGRAPHY

American Council of Life Insurance, *Investment Bulletin No. 1259*, Washington D.C., May, 1994

Bartlett, William W. "Mortgage-Backed Securities- Products, Analysis, Trading", New York, 1989

Downs, Anthony, "The Revolution in Real Estate Finance", Washington D.C., 1985

Duff & Phelps Credit Rating Co., *The Rating of Commercial Real Estate Securities*, May, 1993

Fabozzi, Frank J. "The Handbook of Mortgage-Backed Securities", Chicago, 1992

Federal Reserve Bulletin, Volume 80, pp. 365-482, May, 1994

Federal Reserve System, *Flow of Funds Accounts*, Fourth Quarter 1993, March 9, 1994

Jacob, David P. & Duncan, Kimbell R., *Commercial Mortgage-Backed Securities: An Emerging Market*, Nomura Securities International Inc., January, 1994

Kenneth Leventhal & Company, *Income Property Securitization Survey 1993*

Keeler, Ross V., *The Commercial Mortgage Market: A Profile"*, Pension Real Estate Quarterly, January, 1994

Lester, Donna L., *Private Commercial Mortgages- Applications for Institutional Investors*, Callan Associates Inc., December 1993

Lore, Kenneth G. "Mortgage-Backed Securities- Developments and Trends in the Secondary Mortgage Market", 1992

Quigg, Laura, *Commercial Mortgage-Backed Securities*, Lehman Brothers Fixed Income Research, December, 1993

Snyderman, Mark P., *Commercial mortgages: Default occurrence and estimated yield impact*, The Journal of Portfolio Management, Fall 1991