

FINANCING OPPORTUNITIES THROUGH
PROPERTY SPECIFIC COMMERCIAL MORTGAGE SECURITIES

by

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Bachelor of Architecture
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Submitted to the Department of Architecture
in Partial Fulfillment of the Requirements of the Degree
of
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at the

Massachusetts Institute of Technology

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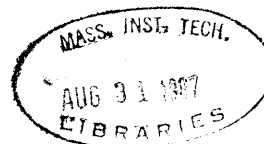
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ABSTRACT

The purpose of this paper is to identify issues relevant to real estate professionals considering the financing of commercial real estate assets through the public or private sale of mortgage backed securities. Currently, two categories of securitized debt issues have emerged; financings of individual, specified properties, and financings of pools of mortgages, in which the underlying mortgages may or may not be specified. This paper limits its examination to property specific financings.

This paper describes the development of the mortgage backed securities and the security markets. It also examines the alternative issuing structures for property specific securities, risk assesment methodologies, and the component costs of capital raised. Two case studies are evaluated to illustrate aspects of current security offerings. Finally, this paper summarizes the advantages and disadvantages of these transactions from the perspective of the borrower of capital.

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CHAPTER I. INTRODUCTION

Purpose

The purpose of this paper is to identify issues relevant to real estate professionals considering the financing of commercial real estate assets through the public or private sale of mortgage backed securities. Currently, two categories of securitized debt issues have emerged; financings of individual, specified properties, and financings of pools of mortgages, in which the underlying mortgages may or may not be specified. This paper limits its examination to property specific commercial mortgage securities (PSCMS's).

In response to continuing interest by investors in commercial real estate, the prominent servicers of the capital markets, the investment banks, have attempted to create efficiently priced and liquid trading instruments. By doing so, Wall Street hopes to overcome the illiquidity of traditional forms of real estate ownership. Instruments have incorporated debt, equity, participation in cash flow or residual value, fixed or floating payments, or accrued interests.

Wall Street has most recently shown interest in tapping into the value of outstanding commercial real estate mortgages,

estimated to exceed \$800 Billion. By securitizing this debt, the investment banks hope to establish a capital market as large as the corporate bond market. Assessing the opportunities in this market, proponents have heralded the success of its precursor, the residential mortgage backed security market. With over \$300 billion of these securities issued, the residential market is firmly established and growing.

Three principal instrument structures have been issued to date in the commercial mortgage market; pass-through structures, bond structures, and collateralized mortgage obligations. Each is distinguished by its legal, accounting and tax status. In addition, several internal structuring devices such as prioritization of cash flows, coupon stripping, and interest rate swaps, are available to modify the income stream and risk distribution. Real Estate Mortgage Investment Conduit's (REMIC's) also provide an overlay structure which can generate similar permutations of the security without altering the underlying debt.

Real estate investors must address several issues before choosing PSCMS's as a funding vehicle. The size of the deal is important, as many issuing cost are relatively fixed; therefore economies of scale can be realized on larger deals. The property must withstand highly conservative scrutiny of all essential operating data in order to achieve

an investment grade rating. Several restrictions are placed on the property and its cash flow in order to protect the interest of investors. In return for these limitations, the borrower is able to access much larger sums of capital than through conventional sources, typically at competitive interest rates.

Organization and Methodology

Chapter II is a description of the development of the residential mortgage securities market, the precursor and model for the more recent commercial mortgage securities market. The commercial mortgage securities market is examined for its similarities to and distinctions from the residential market. Chapter III describes the three capital markets accessed through securitization, and the various regulatory and practical limitations of each.

Chapter IV describes the alternative security structures which have developed for packaging and trading mortgages; pass-throughs, bonds and collateralized mortgage obligations (CMO's). The principal characteristics of the Real Estate Investment Mortgage Conduit (REMIC) legislation, passed as part of the Tax Reform Act of 1986, are identified. Internal structuring devices, such as cash flow prioritization, coupon stripping, and interest rate swaps are also examined. Chapter V examines the risk evaluation

methodology utilized with property specific securities.

Chapter VI identifies and examines the component costs of capital imposed by securitization, including direct and indirect costs, deferred costs, and opportunity costs, while Chapter VII describes and evaluates two case studies of securitized financings.

Chapter VIII concludes the paper with a summary of issues relevant to real estate professionals when considering securitization as a financing alternative.

The methodology used in developing the paper included an extensive literature search and a fieldwork component. Numerous experts in real estate finance, securitization, bond credit rating and credit enhancement were interviewed.

Summary of Conclusions

Securitized transactions are large scale transactions, which use the global capital markets as their source of funds. They typically raise in excess of \$25 million, and are capable of raising over \$1 billion in single offerings. This capacity far exceeds that of conventional lenders, such as commercial banks, insurance companies, and pension funds, which usually loan from \$5 million to \$200 million.

Scale economies play a significant role in the cost of funds of securitized transactions. Although the underwriting and structuring fees paid to the security issuer are usually a percentage of the amount raised, many additional costs, such as legal counsel, financial printing, advertising, appraisals and administrative expense, are relatively constant. As the size of an offering diminishes, these fixed costs translate to an increasing percentage load on the cost of funds to the borrower. There is a threshold at which these costs eliminate the ability for securitized issues to compete with the cost of funds available through conventional sources.

In addition to direct costs, securitized offerings can impose indirect costs on the borrower. Posting of liquid asset reserve facilities, credit support, and the reinvestment risk of property cash flows until payment of semi-annual bond payments should be evaluated. Loan to value ratios may be lower than those allowed by conventional lenders, thereby forcing the borrower to invest additional equity.

Borrowers seeking to raise between \$25 million and \$200 million must compare the effective cost of capital to the cost of capital available through conventional lenders. This comparison must include all costs, including direct and indirect costs, deferred costs and opportunity costs.

Limitations and Further Study

The first property specific commercial mortgage security was issued by MSA Shopping Malls, Inc. in June of 1983¹. To date less than 30 transactions are estimated to have occurred. Most of these securities have been sold in the euromarket or through private placements, without the requirement of public disclosure. Therefore access to specific information regarding the costs of transactions is limited. Of twelve organizations directly involved in securitized transactions which were contacted for this paper, only two were willing to disclose details of their offering. Furthermore, euromarket and private placement issues have limited trading activity after the initial offering, thereby limiting the examination of the characteristics of these instruments performance. Those who choose to enter into these transactions will find the best source of information to be the investment banking houses which underwrite the securities.

With time, the ability to amass comprehensive data regarding property specific commercial mortgage securities may improve. One topic for further research in this area would involve the determination of effective cost of capital to the borrower by making a detailed comparison of actual issuing costs of these securities with respect to their

rating classification and their yield when first issued. This cost of capital could then be compared to the cost of capital through conventional lenders in order to determine if increased frequency of issuance of these securities fosters pricing efficiency.

Another topic for study is the impact of the rating systems on both the method of real estate appraisal and the underwriting guidelines of conventional lenders.

NOTES TO THE INTRODUCTION

1. Stevenson. Eric, The Secondary Market and Securitization for Income Property Mortgages, Washington, DC: The Mortgage Bankers Association, 1986, 69.

CHAPTER II. DEVELOPMENT OF MORTGAGE BACKED SECURITIES

Development of Residential Mortgage Securities

The impetus for securitization of mortgages has its origins in federal support of the residential sector, and developed as a means of increasing capital flows to lenders in order to ensure access to housing. In 1932 the Federal government made its first concerted effort to support housing policy with the formation of the Federal Home Loan Bank System. This system offered financial support to thrift institutions, the principal mortgage lenders of the era. In exchange, the thrifts adopted Federal charters and adhered to standards and regulations established by the Federal Home Loan Bank Board¹.

Further support of housing access was provided through the formation of the Federal Housing Agency (FHA) in 1934. This Agency offered insurance against mortgage defaults on any loan conforming to FHA standards. In later years the Veterans Administration (VA) began to offer guarantees to eligible loans made by veterans². These programs constituted the first forms of federal subsidy of mortgages; it is these federal guarantees which have made the creation of a secondary market for residential mortgages viable.

As demand for mortgage credit grew, the need arose to provide more capital. The federal government once again put its resources to the task. In 1938 the Federal National Mortgage Association (FNMA or Fannie Mae) was formed³. Its purpose was to purchase FHA insured and VA guaranteed mortgages from thrifts, thereby providing further funds for mortgage origination. This system proved adequate throughout the relative economic stability following World War II.

In the late 1960's and early 1970's, inflation became a serious problem. Simultaneously, the demand for mortgage credit increased as city dwellers continued the exodus to the suburbs. Inflation and increased demand combined to cause housing costs to outstrip income growth. As loan to income ratios increased, the creditworthiness of borrowers declined. During this period, federal banking Regulation Q imposed interest rate ceilings payable on individual deposits, the traditional source of the thrift institutions' funds. Depositors, in turn, withdrew funds in favor of higher returns available through other capital market instruments. Insurance companies, which had been purchasers of whole loans from thrifts, were also experiencing capital drains. Policy holders were increasing their demand for loans at below market interest rates, which were available by borrowing against the value of their policies.

In response, thrifts and life insurance companies channeled capital into more interest rate sensitive investments, which further reduced the funds for mortgage lending. The loss of funding, known as disintermediation, in combination with the increased demand for mortgage credit, placed significant upward pressure on mortgage lending rates⁴.

In 1968, in an attempt to provide additional capital sources to the thrifts, the Government National Mortgage Agency (GNMA or Ginnie Mae), was formed. By using the "full faith and credit of the United States", the agency intended to provide capital support through purchases of FHA and VA backed originations. In 1970 the incorporation of the Federal Home Loan Mortgage Corporation (FHLMC or Freddie Mac) created an agency able to purchase, through its borrowing rights with the Federal Reserve, qualifying mortgages that did not have FHA insurance or VA guarantees⁵.

The thrifts' access to funds was further enhanced with the advent of mortgage bankers, who originated loans and sold them wherever regional capital exceeded the demand for credit. Their activities combined with increased uniformity in the underwriting standards of the federal agencies to facilitate interregional capital flows for mortgage funding.⁶

In 1975, with the first GNMA pass-through, these agencies

began issuing securities backed by mortgage purchases. These securities were sold to investors, exchanged with lenders for other mortgages, or used to facilitate further borrowing by mortgage originators, thereby alleviating shortages of mortgage funds. Over time, three basic forms of mortgage securities have developed; pass-throughs, bonds and pass-through derivatives such as collateralized mortgage obligations. Each is distinguished by its legal, accounting and tax status, and is described in greater detail in Chapter IV.

In 1984 the Secondary Mortgage Market Enhancement Act (SMMEA) was enacted, which was designed to expand the role of private agencies issuing mortgage backed securities, through the liberalization of credit restrictions and state blue sky reporting requirements⁷. Currently, residential mortgage backed securities of one form or another are issued by investment banks, insurance companies, mortgage bankers, saving and loans and commercial banks. By 1985 over \$300 Billion of these securities had been issued⁸.

Development of Commercial Mortgage Securities

Wall Street has most recently shown interest in underwriting the value of outstanding commercial real estate mortgages, estimated in 1986 to approach \$800 Billion. Exhibit 2.1 compares the value of these mortgages to other capital

markets. Exhibit 2.2 indicates the growth and distribution by ownership of commercial debt, excluding multi-family, during the period 1976 to 1986.

EXHIBIT 2.1: U.S. CAPITAL MARKETS, OUTSTANDING DEBT (BILLIONS)

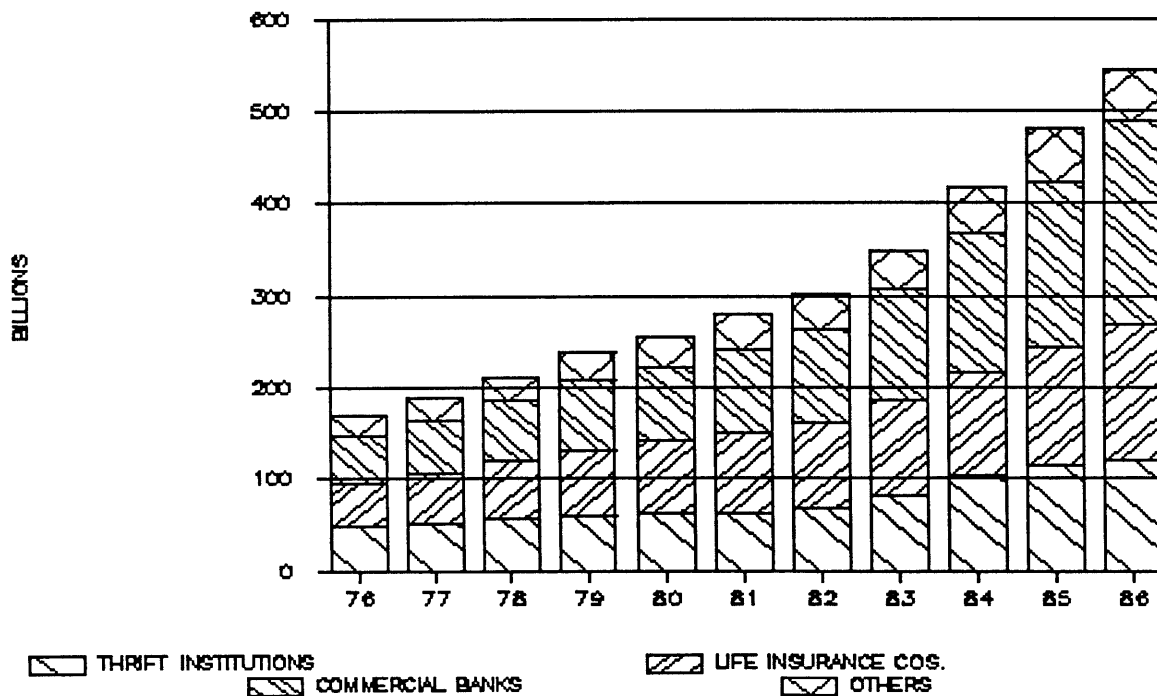
Commercial Mortgages	\$ 500	
Multi-Family Mortgages		200
Federal Agencies, Mortgage Pools		100

		\$ 800
Residential Mortgages		1,700
Corporate Debt Issues		700
Municipal / State Debt		700
U.S. Treasury Debt		1,800

TOTAL DEBT		\$5,700

Source: Roulac and Co., Federal Reserve Bulletin

EXHIBIT 2.2: COMMERCIAL MORTGAGE DEBT OUTSTANDING 1976 -1986 (BY INSTITUTION)



Source: Federal Reserve Bulletin

By securitizing commercial mortgage debt, the investment banks hope to establish a capital market as large as the corporate bond market. Although the social imperative espoused for housing does not exist for commercial real estate, the underwriters have found incentive in the potential fees generated through securitization. For the issuance of non-convertible corporate bonds, studies have estimated underwriting fees, often referred to as spreads, to be approximately 1% of the principal amount of the bonds¹⁰. By this measure, were the full value of outstanding commercial mortgage debt to be securitized, the fees would approach \$8 Billion. Since their inception in 1983, the annual volume of commercial mortgage backed securities issuance has grown to over \$5 billion in 1986. Yet trading activity is very limited, due mainly to the newness of the instruments and trading restrictions in the private placement market and euromarkets where most of the securities to date have been issued¹¹.

Three principal markets exist for mortgage backed securities; the public domestic market, the euromarket, and the private placement market. The choice of market for issuance of the security is determined by the size and characteristics of the offering, risk profile of the offering and differences in return expectations of investors in each market. These markets and their restrictions are discussed in further detail in Chapter III.

NOTES TO CHAPTER II.

1. Fabozzi, Frank J., Editor, The Handbook of Mortgage Backed Securities, Chicago Illinois: Probus Publishing, 1985, 16.
2. *ibid.*
3. Tyson, William C., "The Federal Securities Law Regulatory Environment Of Mortgage Backed Securities", The Real Estate Finance Journal, Spring 1986, 6-16.
4. Fabozzi, 18-20.
5. *ibid.*, 16.
6. *ibid.*, 19.
7. Tyson, 9-10.
8. Fabozzi, 1.
9. Hartzell, David J. Andrea Lepcio, Julia D. Fernald and Susan Jordan, Commercial Mortgage Backed Securities: An Investor's Primer, New York, NY: Salomon Brothers Inc., May 1987, 1.
10. Green, L.A., "Flotation Cost of Common Stock and Corporate Bonds: 1971-1976: A Descriptive and Principal Component Analysis", Unpublished Thesis, Sloan School of Management, Massachusetts Institute of Technology, February, 1978.
11. Hartzell, 3.

CHAPTER III. SECURITIES MARKETS

The Public Domestic Market

Public domestic issues are offered for sale to investors at large, both institutions and individuals¹. For mortgage backed securities, the issuer is typically an entity organized by the borrower for the sole purpose of issuing the securities and serving as a conduit for the proceeds. Public domestic issues are required to conform to the Securities Act of 1933, which requires securities to be offered and sold pursuant to a registration statement filed with, and declared effective by, the Securities and Exchange Commission². In the case of a debt offering, the statement will identify the offering price, coupon rate, information regarding the issuing entity and owner and a description of the underlying collateral. The description includes historical operating statements, property appraisals and forecasted cash flows extending beyond the maturity date of the securities. A statement of certain tax issues, the legality of the securities and certifying testament of financial auditors will also be included. The 1933 Act also requires the issuer of the security to exercise due diligence and imposes liability for any material defects in the registration statement³. After registration, the offering statement is made available to the investors by the underwriters in the form of a prospectus. In keeping with

the public accessibility of information, the securities are traded on one of the large national exchanges, typically the New York exchange, and prices are quoted daily based on trading activity.

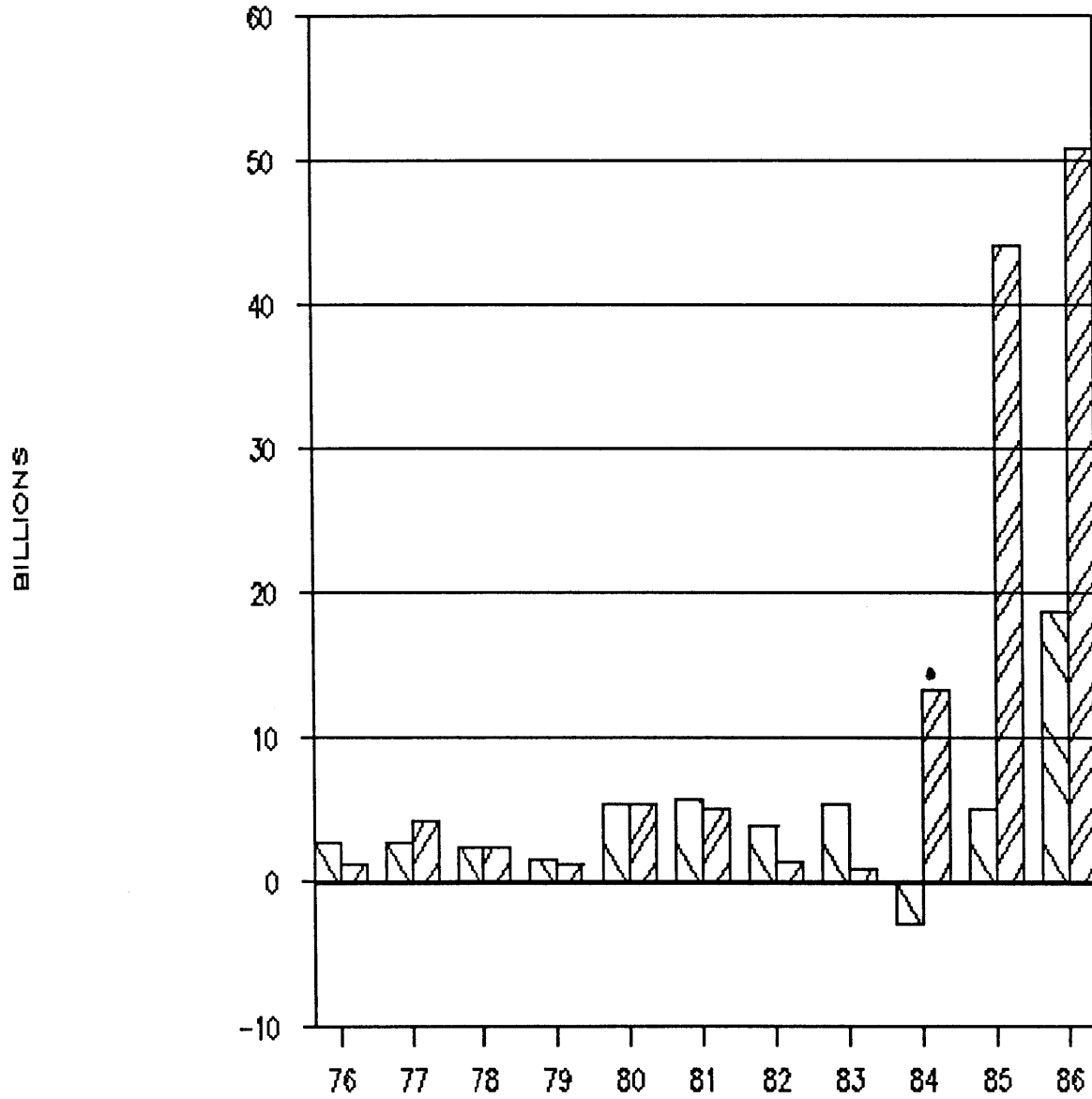
Public domestic issues are subject to other regulations as well. The Securities Exchange Act of 1934 regulates the trading in securities and the activities of the brokers and dealers. It establishes credit restrictions of the issuer, antifraud provisions and additional registration and reporting requirements, including the reporting of any material inside information relating to the transaction. The Trust Indenture Act of 1939 mandates debt securities be offered pursuant to an indenture meeting certain requirements, and prohibits conflict of interests on the part of indenture trustees. The Investment Company Act of 1940 defines and regulates the activities of an investment company engaged primarily in the investment, reinvestment or trading in securities, or which owns or proposes to own securities valued in excess of 40% of its total assets. As mentioned in Chapter II, the Secondary Mortgage Market Enhancement Act of 1984 was enacted to modify the Securities Act of 1933, and liberalizes credit restrictions and certain reporting requirements⁴.

The Euromarket

Euromarket offerings, in the form of eurobonds, are sold in several international markets simultaneously. The offerings are not subject to the jurisdiction of any single national authority, although a few barriers to their issuance do exist in some countries. Eurobonds for sale within the U.S. must be registered with the SEC, a requirement the issuers prefer to dispense with, for reasons of cost, simplicity and privacy. Purchases by U.S. citizens can be accomplished through offshore accounts. The limited disclosure requirements of these offerings is one source of their attraction for investors⁵. Not only is income from eurobonds exempt from taxation at the source of issue, eurobonds are also sold in bearer form, allowing the holder to remain anonymous. Although payment of tax is required to the holder's country of residence, anonymity creates opportunity for tax evasion. Some estimates place over half of all eurobonds in the portfolios of individuals⁶.

The growing acceptance of mortgage securities by the euromarkets parallels the inflow of foreign capital into U.S. real estate and other securities. Exhibit 3.1 illustrates the net foreign investment in U.S. securities from 1976 to 1986. Rapidly increasing in 1985 and 1986, most of this investment has been in the form of debt.

EXHIBIT 3.1: NET FOREIGN INVESTMENT IN U.S. SECURITIES
1976 TO 1986



□ NET STOCK PURCHASES

▨ NET BOND PURCHASES

Source: Federal Reserve Bulletin

Anthony Downs has noted several reasons for this rapid growth in investment activity:

- * The U.S. has recently become a net importer of capital, thereby flooding the world with U.S. dollars.
- * The U.S. is perceived as economically and politically secure.
- * The value of the dollar has declined in relation to some foreign currencies.
- * The cost of capital in some foreign countries is low with respect to the U.S.
- * Some foreign countries have recently eased investment restrictions on major institutions and investors, allowing increased investment in U.S. real assets.
- * Returns on investments in foreign markets have historically been lower than those available in the U.S.⁷.

By investing in securities backed by U.S. real estate mortgages, foreign investors perceive they have gained many of the same benefits of direct investment, while retaining a relatively high degree of liquidity. Furthermore, the recent prices paid by some foreign investors for premier U.S. real estate have often been far greater than those offered by their domestic competition, resulting in below market yield expectations for the purchaser⁸. By comparison, the yields on mortgage backed eurobonds seem attractive.

Private Placements

Private placement offerings are made to a limited group of investors. As defined by the Securities Act of 1933, private placements may not involve public solicitations, and must be limited to not more than 35 large and knowledgeable investors⁹. Offerings which conform to these criteria are exempt from the registration requirements of a public offering. Each investor receives an offering statement, sequentially numbered for identification purposes, containing information substantively similar to a registered statement. As with euromarket offerings, the limited disclosure requirements restrict public access to specific information about these offerings. This limits opportunities for borrowers to objectively compare the advantages and disadvantages of the available structures.

Private placements are somewhat simplified transactions due to the limited number of investors. The ability of the issuer to identify the specific investors prior to the offering also provides the opportunity to carefully tailor the offering to their specific risk exposure limitations and return requirements.

Offering Size

Typically the minimum size of a private placement debt offerings is \$25 Million¹⁰, but most transactions to date have exceeded \$100 Million. A public offering will typically raise in excess of \$100 Million. Most debt offerings to date have been either private placements or eurobond offerings, and have ranged from the \$40 Million Fisher Brothers Financial Realty First Mortgage Notes offered April 1986, to the \$970 Million Olympia & York Maiden Lane Finance Corporation Floating Rate First Mortgage Notes offered February/March 1984¹¹. Both of these issues were offered on the eurobond market¹².

The magnitude of the Olympia & York offering indicates the capital potential of these markets. In fact, the principal reason for choosing securitization given by owners interviewed for this paper was the inability of U.S. banks and insurance companies to handle the capital requirements of their transaction.

The capital accessible through these markets would be more than sufficient for the issuance of pools of commercial mortgages through structures similar to the residential pool offerings. Yet most offerings to date have involved from one to three buildings. This may indicate that the recent evolution of these transaction has been accompanied with

some caution on the parts of both borrowers and investors. A more apparent reason is the current level of development of the underwriting procedures for these transactions. Both the public domestic markets and the eurobond markets look for objective measures of the securities' safety. In addition, certain institutional investors have fiducial restrictions on the quality of issues they may hold. State banking commissions publish a Legal Investment List of permissible securities for investment by savings institutions. The Employee Retirement Investment Savings Act (ERISA) regulates investment by pension funds. Insurance companies are subject to regulation of investment activities by both state insurance commissions and the National Association of Insurance Commissions. The commonly accepted evaluation of the safety of a particular investment is the rating given to the offering by one or more of the rating agencies described in greater detail in Chapter V.

NOTES TO CHAPTER III.

1. Brealey, Richard and Stewart Myers, Principles of Corporate Finance, Second Edition", New York, NY: McGraw-Hill, 1984, 299.
2. Tyson, William C., "The Federal Securities Law Regulatory Environment Of Mortgage Backed Securities", The Real Estate Finance Journal, Spring 1986, 10.
3. *ibid.*, 12.
4. *ibid.*, 9-16.
5. Mendelsohn, Stefan, Money on the Move, New York, NY: McGraw-Hill, 1980, 138.
6. *ibid.*, 148-149.
7. Downs, Anthony, Foreign Capital in U.S. Real Estate Markets, New York, NY: Salomon Brothers Inc, April 1987.
8. Shulman, David and Julia D. Fernald, Japanese Investment in U.S. Real Estate, New York, NY: Salomon Brothers Inc, March 1987, 1.
9. Brealey, 318.
10. Adler, Tamara L., "Pricing Rated Commercial Mortgage Bonds", The Real Estate Finance Journal, Summer 1987, 19.
11. Stevenson. Eric, The Secondary Market and Securitization for Income Property Mortgages, Washington, DC: The Mortgage Bankers Association, 1986, 70-71.
12. Salomon Brothers Inc, Real Estate Market Review, October 1986, 5.

CHAPTER IV. ALTERNATIVE STRUCTURES

Property specific commercial mortgage securities are secured by a mortgage on a single large property, or by mortgages on a small group of properties. Their ability to make timely payments of interest and principal are solely reliant upon the property's cash flow. These securities lack the diversification benefits inherent in the cash flows from a pool of mortgages. The principal benefit of diversification, either by location or property type, is that systematic risk is more significant in determining prepayment speed than is specific risk. Systematic risk is due to economy wide perils, while specific risk is unique to an individual property or its immediate environment. A diversified mortgage pool minimizes the risk of an individual property's effect on returns to the investor. Property specific securities, particularly those based on unseasoned properties, are therefore more subject to prepayment through default risk than mortgage pools unless some form of credit enhancement is provided, which may be purchased from third parties or may be inherent in the internal structure of the offering.

When consideration is given to the unique risk inherent in property specific financings, the three basic residential mortgage backed security structures ; pass-throughs, bonds, and Commercial Mortgage Obligations (CMO's), are still

applicable when suitably adapted. Each of these structures can be distinguished by its legal, accounting and tax status, as discussed below.

Pass-throughs

A pass-through structure does as the name suggests; passing through, on a monthly basis to the investor, a portion of the cash flow yielded by the underlying mortgage or mortgage pool. The structure may be in the form of pass through certificates or participation certificates. Pass-through certificates represent an undivided interest in a trust owning a mortgage or mortgage pool. Participation certificates represent an undivided ownership interest directly in a mortgage or mortgage pool. A pass-through may have any number of series of certificates, each backed by a distinct mortgage or pool. The issuer of pass-throughs must treat the issue as an asset sale for tax purposes.

Pass-throughs were the first type of security issued and represent the largest segment of the residential securities market. By 1985, over \$280 Billion had been issued¹. Their popularity is due in part to their relative predictability of investment performance. The underlying mortgages are largely uniform and have governmental credit support of interest and principal payments. The main concern is the effective maturity of the pass-through, a function of the

speed of prepayment of the mortgages.

Prepayment speed is negatively correlated with changes in lending rates; as interest rates drop, the incentive to refinance and the probability of prepayment increases. The early prepayment of principal passes through to the investor, who must then reinvest the funds at the prevailing lower rates. This prepayment feature distinguishes pass-throughs from U.S. treasuries, which have no prepayment rights, and corporate bonds, which are limited by specified call provisions. The reinvestment risk associated with prepayment is compensated with higher yields as shown in Exhibit 4.1.

EXHIBIT 4.1: BOND EQUIVALENT YIELD SPREADS FOR SELECTED COMMERCIAL AND RESIDENTIAL MORTGAGE PASS THROUGH NEW ISSUES AND CORPORATE BONDS, NONCALLABLE, 31 MAR 86-30 SEP 86

	31 MAR 86 YIELD SPREAD		30 SEP 86 YIELD SPREAD	

COMERCIAL PASS THROUGHHS				
AA Rated, Current Coupon	9.05%	170bp	9.43%	200bp
RESIDENTIAL PASS THROUGHHS				
GNMA 8%	8.88	129	9.07	176
GNMA 9% (New Current Pay)	9.18	159	9.38	202
CORPORATE BONDS (NON CALL)				
AA Rated Domestic	7.86	51	8.04	61
A Rated Domestic	8.03	68	8.41	98
AA Rated Eurodollar	8.10	75	8.38	95

Source: Salomon Brothers Inc².

The typical commercial mortgage differs from its residential

counterpart with respect to prepayment. Usually the mortgage will have a lockout period, during which time the borrower is prohibited from refinancing. Yield maintenance requirements are also becoming prevalent. These provide for premiums payable upon refinancing which sustain the yield as though the mortgage ran the full term. Note the widening of yields between commercial and residential pass-throughs as shown in Table 4.1. This may reflect the increased perception of overbuilding in office markets nationally, and the commensurate increase in potential default.

Mortgage Backed Bonds

Mortgage backed bonds (MBB) were developed to appeal to traditional fixed income investors, who were not comfortable with the reinvestment risk and long maturities of pass-throughs. Originally issued by banks and savings and loans, bonds provided a low cost source of fixed term funds without having to sell assets. The bond structure is treated as debt of the issuer for accounting and tax purposes. It may take the form of a general obligation of the issuer, as in a fixed payment bond secured by a pool of mortgages, in which the issuer is liable for timely interest and principal payments. In this case the issuer assumes all prepayment risk. Property specific bonds are usually non-recourse obligations, backed only by the mortgage. Additional credit enhancement or support may be provided if

the issue is rated.

The bonds are usually issued through a bankruptcy-proof entity of the borrower. Mortgage payments are made to a trustee which maintains separate accounts for principal and interest payments. The principal account is used to redeem the bonds. The interest account is used to make bond coupon payments, with any shortfalls satisfied by the principal account and any credit support that is provided. This reserve eliminates mismatched timing between mortgage and bond payments; however it exposes the issuer to reinvestment risk.

Bonds can be divided into several coupons of varying maturity and yields. Fractioning the payment stream creates options for investors who prefer the characteristics of mortgage backed securities but desire shorter term obligations.

Collateralized Mortgage Obligations

In June, 1983, FHLMC issued the first Collateralized Mortgage Obligations (CMO). A CMO consists of mortgages or mortgage securities repackaged into a multiple class instrument, and has characteristics of both a bond and a pass-through. It is treated as debt by the issuer for tax purposes. Each class receives a different priority claim against the cash

flow. The highest priority class has the safest position and receives a return reflecting the low level of risk. Conversely, the lowest priority class receives a higher return commensurate with its subordinate position.

Prioritization, often referred to as Fast Pay / Slow Pay, provides more cash flow certainty and shorter maturities to the fast pay class. It also provides a measure of call protection to the slow pay class, as funds are only available for redemption after the fast pay class is satisfied. The use of an accrued interest class, receiving payment only at maturity, can free up additional cash flow to earlier classes, thereby reducing collateral requirements. By tailoring CMO's to various investors yield expectations and risk profiles, issuers earn profits on the arbitrage between the bond yields and the cost of the underlying mortgages.

Real Estate Mortgage Investment Conduits

Real Estate Mortgage Investment Conduits offer a new opportunity to create multiple class instruments from underlying mortgages. The Tax Reform Act of 1986 created the new form of intermediary mortgage ownership in order to simplify some of the accounting and taxation problems of mortgage backed security issuance. Impetus for the legislation was fostered principally by Lewis Ranieri and

Andrew Furer of Salomon Brothers and its final form contains several key provisions:

* Elimination of double taxation. By electing REMIC status, the chosen form of intermediary ownership of the mortgage, (partnership, corporation, trust), is exempted from federal taxation at the entity level. (Some states which do not automatically follow federal law, notably California, New York and Connecticut, are considering taxation of REMICs issued in the corporate form. However, no action had been taken by any state as of this writing.³)

* Distinction of Ownership Forms. REMICs may have two forms of ownership; Regular interests which have debt characteristics, and Residual interests which have equity characteristics. There may be any number regular interest classes, but only one residual interest class. Both type of interests are readily transferrable.

* Payment Allocations. REMIC interests may have payments allocated in a disproportionate manner among various classes of investors. Reallocation can occur by subordinating one or more classes or by the creation of fast pay and slow pay categories. Reallocation can be utilized on both new and existing mortgages. This feature allows the restructuring of benefits without altering the

underlying mortgage documents and without explicit borrower involvement. Subordinated instruments are readily transferable, although they may be subject to limitations imposed on certain regulated investors for second mortgages.

- * Taxation of Interests. Regular interest holders are treated as if their interests were debt instruments. Residual interest holders realize all net income of the REMIC not attributed to regular interest holders.
- * Taxation of Foreign Investors. REMICs eliminate the 30% Foreign investor withholding tax on mortgages issued prior to July 18, 1984 .
- * Effect on REITS. Both regular and residual interests are treated as "real estate assets" for purposes of qualification of an organization as a Real Estate Investment Trust (REIT).
- * Permitted REMIC Assets. All of a REMIC's assets must be qualified mortgages and permitted investments. Qualified mortgages are principally secured, directly or indirectly, by an interest in real property. Permitted investments include three narrowly defined categories: cash flow investments of a temporary nature producing passive income in the form of interest; qualified reserve assets; and

foreclosure property which may be held for one year.⁴

Having greater flexibility than CMO's, industry observers predict the REMIC structure will become the dominant form of issuance of multiple class securities, particularly when the issuer wishes to receive asset sale treatment of the securities⁴. Property specific financings issued by a sole purpose entity which intends to treat security issuance as debt can achieve most of the benefits of REMIC status through the mortgage bond structure. Several internal modifications are available which can fraction the income stream, as well as the risk. These modifications, senior / subordinated structuring, stripping, and interest rate swaps are described below. It should be noted that , while the REMIC structure can be overlayed without disturbing the underlying mortgage, these internal modifications may require developing the bond and mortgage indentures simultaneously to ensure compatability and pricing efficiency.

Senior / Subordinated Structure

The senior / subordinated structure can be used to create a self credit enhancing instrument. For example, a security can be composed of two classes; a senior class (class A) which is rated and sold to the public or through a private placement, and a subordinated class (class B) which is

unrated and is either held by the issuer or sold through a private placement. The B class are subordinated in their right to receive payment of principal and interest. A liquid asset reserve fund can be established and replenished with proceeds from the sale of class B interests. The fund is available to support cash flow disruptions to the class A holders. Over time, as the underlying mortgage seasons and risk of future losses diminish, the reserve fund balance can be reduced. Eventually, class B holders can begin to receive funds from the reserve as well as interest and principal.

The senior class can be further divided into short, intermediate, and long term rateable securities. The fractioning of cash flows into several rated classes, each supported by the subordinated class, enhances pricing efficiency and trading liquidity of the instrument. The sale of the subordinated class, with its concentration of risk, requires a high coupon to offset the risk. In the case of an unseasoned property, the subordinated interest is, in effect, an equity option, as it represents a bet on residual value without any certainty regarding interim cash flows. Pricing may explicitly acknowledge this relationship by providing participation in the residual on a percentage, rather than a fixed, basis.

Stripped Mortgage Structure

The conceptual premise of coupon stripping is to obtain a greater value for the securities by redistributing the income stream of the mortgage. The amount of principle relative to interest allocated among the classes can vary instead of being a constant, pro rata share. The allocation may be made as principal only, interest only, or may vary proportions of either or both.

By separating and creating various combinations of principal and interest, the instrument can be tailored to appeal to a broader range of investors. Depending on the prepayment and yield maintenance provisions of the underlying mortgage, the newly created strips may have different prepayment behavior than an unstripped instrument of equal coupon.

If a coupon is created below the coupon rate of the underlying mortgage, it will retain the same likelihood of prepayment as the original mortgage. To offset the lower coupon payments, the strip will sell at a discount to its par value; hence these are termed Discount Strips. Investors in Discount Strips expect that prepayment will occur earlier than anticipated, as their profit lies in the difference between par value and the discount amount paid. Realizing this difference earlier increases the yield to the investor.

A Premium Strip has the opposite characteristics. It has a coupon rate higher than the underlying mortgage and adopts the prepayment characteristics of the lower rate. It therefore sells at a premium to par. The extended time to prepayment assures a longer term flow of coupon payments than an unstripped security of the same coupon rate.

A Principal Only Strip is an extreme form of the Discount Strip. As the name implies, no interim coupon payments are received by the investor; the yield is solely dependent upon prepayment of principal. The investor in premium strips expects an earlier prepayment than the pricing of the strip accounts for, thereby increasing the yield. Principal only strips have limited applicability to property specific commercial mortgage securities since prepayment rights are restricted and therefore prepayment speed is more predictable. The attractiveness of these instruments therefore depend on the prepayment lockout period; if the mortgage is prepayable for several years prior to bond maturity, the investor may be able to realize increased returns.

An Interest Only Strip separates the interest payment from the principal. Without the benefit of any right to principal, the interest only strip is susceptible to severe losses should prepayment occur rapidly. These instruments'

performance therefore tend to be highly positively correlated with interest rate changes, counter to the typical performance of fixed income instruments. Because of this characteristic, Interest Only Strips are suitable for use as hedging instruments.

When used for commercial mortgage securities, the prepayment risk is significantly reduced to events of default and *force majeure* as the prepayment rights are explicitly recorded in the mortgage and offering statements. Furthermore, property specific strips can be combined with the senior / subordinated structure to create a synthetic amortization of the underlying mortgage, thereby reducing default risk. Consequently the remaining risk is principally attributable to the subordination hierarchy of the classes.

Interest Rate Swaps

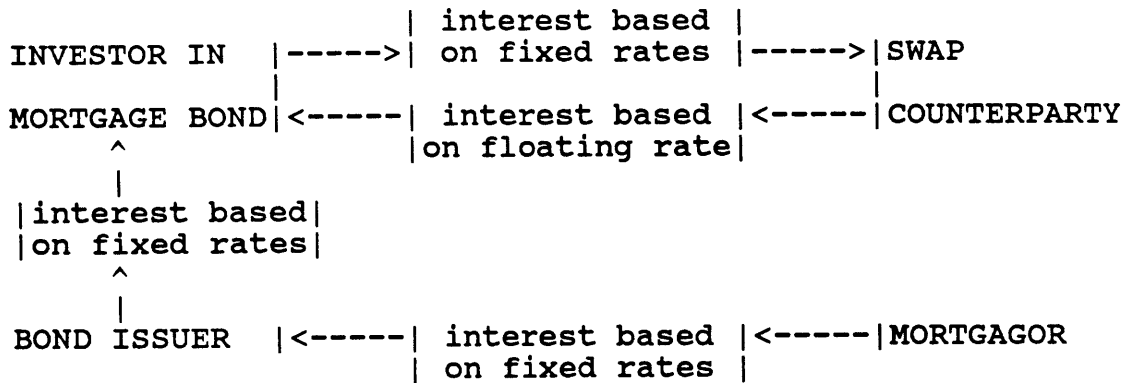
Property specific commercial mortgage securities can be combined with interest rate swaps to create floating rate yields with better prepayment protection than other securities of comparable quality. The attractiveness of the combination depends on the excess yield on the mortgage backed security with respect to the fixed rate payable on the swap. As a hedging technique interest rate swaps can also provide a borrower with a method of converting a floating rate obligation to a fixed payment stream. This

technique can be useful when the preferred source of capital is floating rate debt for its lower cost.

An interest rate swap is the exchange of interest rate payments between two counterparties. The purpose is threefold; to reduce interest rate risk by matching floating rate assets to floating rate liabilities or fixed rate assets to fixed rate liabilities; to exchange favorable financing terms between the swap counterparties; and to limit transaction costs and maintain confidentiality by avoiding conventional refinancing.

In a typical swap an investor purchases a commercial mortgage bond which has a borrowing rate based on Treasuries of comparable maturity. The investor also enters a swap agreement of the same duration as the bond. The investor agrees to pay a fixed payment composed of the treasury yield plus an additional spread to a counterparty. The combined payment is less than the coupon on the mortgage bond. In return the investor receives a floating rate payment, usually the London Interbank Offer Rate (LIBOR), while retaining the differential between the mortgage coupon and the fixed payment. The original fixed rate mortgage bond is synthesized into a floating rate instrument. The swap counterparty in turn converts a floating rate instrument into a fixed payment stream. Exhibit 4.2 illustrates the flow of funds in a basic swap transaction.

EXHIBIT 4.2: INTEREST RATE SWAP



Counterparties to a swap transaction do not exchange liabilities. They only agree to make interest payments to one another. Each counterparty is liable for the interest and principal payments of their original obligation. Although the liability appears on the originator's balance sheet, the swap does not.

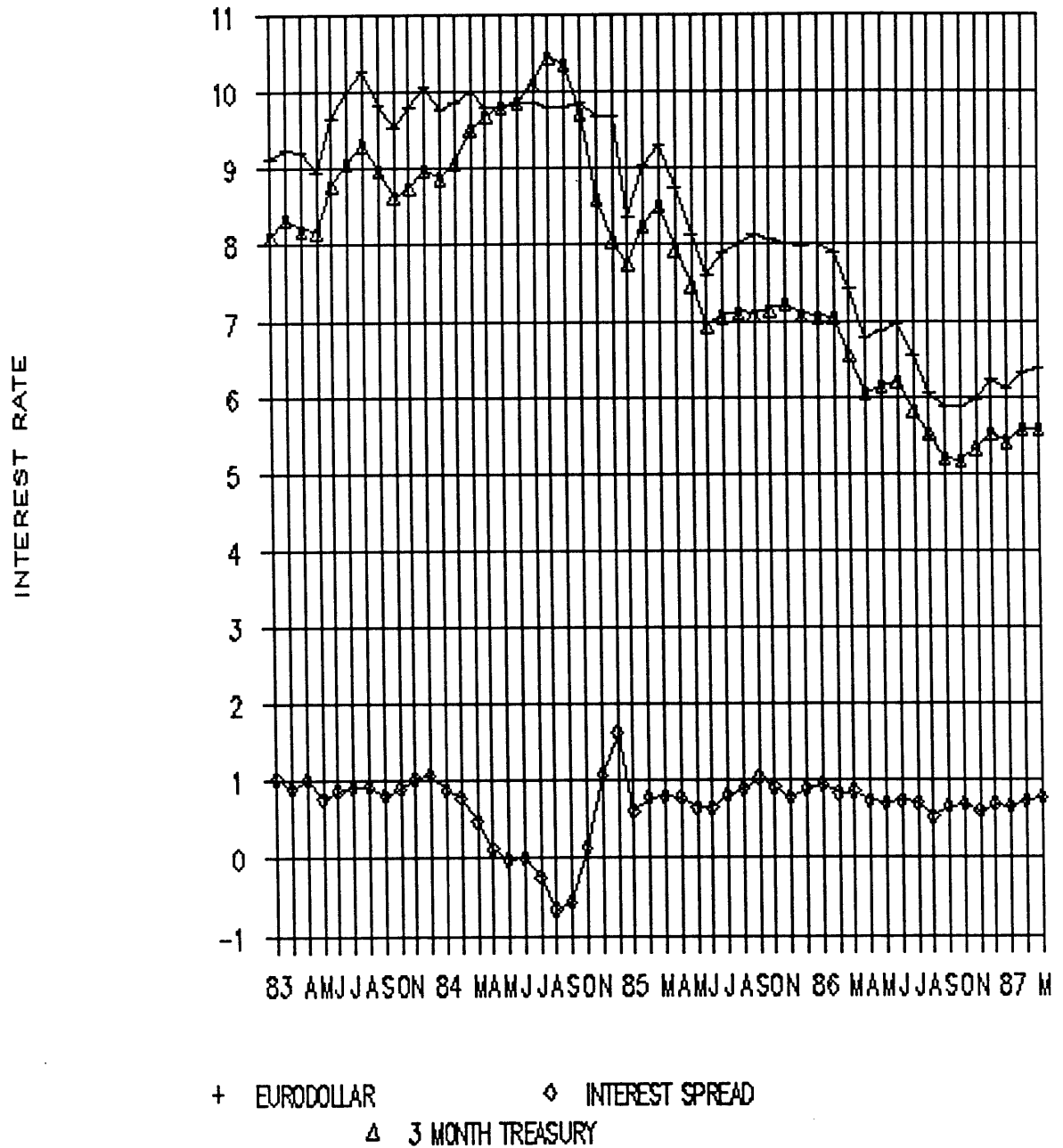
The swap technique depends on differences in borrowing ability between the counterparties, known as quality spreads. A quality spread is the premium a borrower with a low credit rating has to pay over a borrower with a high credit rating. These spreads differ for fixed rates and floating rates and vary over time. It is important to note that comparisons of these spreads are comparisons of debt of different maturities. Floating rates, typically short and intermediate term borrowing, have narrower quality spreads than fixed rates, reflecting lenders' perception of reduced exposure to default risk in shorter term loans.

Interest rate swaps are suitable for longer term debt. Debt with maturities of up to 2.5 years can utilize interest rate futures contracts which typically have lower transaction costs than swaps. These contracts are an agreement to buy or sell a certain financial asset (Treasury bills, notes, bonds; Bank and eurodollar CD's; Sterling CD's and Gilts; GNMA's) for a specific price at a specific date in the future. During the life of the contract, each time the market value of the asset falls (interest rates rise), the seller receives cash. Should the reverse happen, the buyer profits. The cash flow is handled through margins maintained by both parties at the trading exchange.

Interest rate swaps have certain disadvantages. First, there is the potential for disintermediation between the underlying payments on either side of the transaction. While the mortgage is based on Treasuries, the floating rate payment received is often based on LIBOR, or some other eurodollar denominated index. As illustrated in Exhibit 4.3, the spread between three month Treasuries and eurodollars has been fairly constant between 1983 and 1987. However, fluctuations such as that which occurred during the fourth quarter of 1984 create interest rate exposure for the holder of a swap. Transnational interest rate swaps are, in essence, a bet on the future volatility of the indices. This potential volatility can be mitigated by use of simultaneous currency swaps.

EXHIBIT 4.3: 3 MONTH TREASURY VS 3 MONTH EURODOLLAR

February 1983 to May 1987



Source: Federal Reserve Bulletin

Second, although no principal is at risk, the potential exists for loss of interest payments through default. This risk can be mitigated through letters of credit or guarantees, but at additional cost. Collateral posting is another alternative, but in the case of the mortgage security, any collateral position would be subordinate to the bondholders. Furthermore the amount of collateral required, usually 10 to 15 percent of principal, would reduce the amount of senior debt in a senior / subordinated structure.⁵

The default risk is in part assumed by the swap dealer who acts as the intermediary. The intermediaries, make agreements with each counterparty to the transaction. One counterparty, consequently, often does not know who the other counterparty is. The intermediary will also act as settlement agent during the life of the contract, and provide guarantees against default. By acting as a principal to the transaction, the swap dealers must accept the credit exposure for the life of the agreement. Any decline in the creditworthiness of either counterparty, and the dealer's credit exposure is increased. Yet there is no protection from this change; no counterparty is willing to acknowledge the possibility of a downgrading of their credit, let alone make provision for it.

In 1986, The Beacon Companies and Equitable Real Estate

Investment Management financed the construction of a new downtown office building at 75 State Street with a commercial paper interest rate swap in lieu of a traditional construction loan. In order to draw funds as needed, the borrowers raised money by issuing AAA rated commercial paper through a ten year letter of credit (LOC) with Citibank. This paper had a floating coupon payment indexed to the three month treasury bill rate.

In a simultaneous agreement the borrower entered into an interest rate swap with a third party. They agreed to swap a 10 year fixed rate payment at 9.5% in exchange for a floating rate payment based on the Combined Federal Funds rate paid by the counterparty. The floating rate payment, 10 basis points below the floating obligation of the commercial paper, passed through the borrower to meet the debt payments of the commercial paper issued. This arrangement provided the borrower with an effective borrowing rate of 9.6%.

The fundamental concern for the borrower in this transaction is the creditworthiness of the LOC issuer. Any downgrading of the creditworthiness of Citibank will raise the required returns on its commercial paper. This additional cost of funds is passed directly to the borrower, widening the 10 basis point spread between the floating rate payments.

In another transaction, the financing of construction of Rowes Wharf, a mixed use development on Boston Harbor, The same borrowers immunized themselves from this credit risk. A similar swap arrangement was made, but instead of issuing commercial paper, the borrowers negotiated a floating rate loan with the Bank of Boston. The floating rate of this debt obligation was based on an index independent from the creditworthiness of the bank.

Interest rate swaps are a recent development, having first emerged in the late 1970's. Yet, by 1986, the International Swap Dealer's Association estimated outstanding principal contracts of it's 33 largest members to exceed \$200 Billion. The bulk of the activity has occurred in the last two years in the wake of declining interest rates. Most of these deals have yet to weather a high interest rate environment, raising questions about their relative strength. The magnitude of the intermediaries' holdings also raises questions about their creditworthiness⁶.

The secondary market for these instruments is currently limited to the capacity of about two dozen dealers. Furthermore there is no retail market. Consequently liquidity becomes an issue. And without liquidity, there is less chance of laying off risk onto others.

Defaults by intermediaries seems unlikely. However, should

the downgrading of the intermediary's credit worthiness cause default by a counterparty due to unforeseen disintermediation, the acceptance of interest rate swaps would likely diminish. To date, no defaults have occurred, and over 90% of swaps involve debt rated Baa or better.

NOTES TO CHAPTER IV.

1. Fabozzi, Frank J., Editor, The Handbook of Mortgage Backed Securities, Chicago Illinois: Probus Publishing, 1985, 1.
2. Salomon Brothers Inc, Real Estate Market Review, October 1986, 5.
3. Perlman, Judi, "States Going Their Own Way on REMIC", Mortgage-Backed Securities Letter, Vol.II, No25 June 22, 1987, 1-2.
4. Shenkman, Martin M., and Andrew E. Furer, "REMIC's - The New Vehicle for Real Estate Financing", The Real Estate Finance Journal, Spring 1987, 29.
5. Miller, Gregory, "When Swaps Unwind", Institutional Investor, November 1986, 173.
6. ibid., 165.

CHAPTER V. RISK EVALUATION

As identified in Chapter III, regardless of the market in which a mortgage backed security is sold, there is some disclosure of the risk of the deal. Mortgage backed securities can be sold with or without a rating, but in either case, the risk must be evaluated in order to determine a commensurate return. The rating agencies, such as Standard & Poor's, Moody's Investor Services and Duff & Phelps, have simply institutionalized the risk assesment for the benefit of both buyers and sellers of securities. These agencies are disinterested parties to the transactions, providing objective measures. The purpose of the agencies' analysis is to qualify and categorize the risk of the security with respect to its capacity to make timely payments of interest and repayment of principal. The rating is not a recommendation to buy or sell a security. Nor is it a commentary on the price or the suitability for a particular investor.

While the designations differ among the rating agencies, the interpretations are similar. Standard & Poor's rating system uses the following designations:

- AAA The highest quality. Capacity to pay is extremely strong.
- AA Capacity to pay is very strong; differs only slightly from AAA.

A Capacity to pay is strong, but somewhat more susceptible to changes in circumstance and economic conditions than AA, AAA.

BBB Capacity is adequate

BB,B,CCC,CC Predominately speculative with respect to capacity to pay. (These and lower rated issues are characterized as "high yield" or "junk" bonds).

C Reserved for income bonds on which no interest is being paid.

D Debt is in default; payment is in arrears.¹

Studies have indicated that the ratings are good predictors of default. Hickman found that, for the period 1900 to 1943, approximately 6% of bonds rated AAA or AA and 13.4% of bonds rated A at the time of the offering subsequently defaulted². Furthermore, bond ratings have been found to be highly negatively correlated to yields³.

In 1984, Standard & Poor's (S&P) developed the first system for rating property specific commercial mortgage backed securities. In 1986, Moody's and Duff & Phelps followed with their own versions⁴. As all three systems have the same purpose, this paper examines the S&P system. By examination of these rating systems, one can understand the issues of risk relevant to mortgage securities, whether or not they are rated. More significantly, one can also identify the limitations placed on the borrower in order to achieve a particular rating. These limitations can be evaluated with respect to their effect on the cost of funds to the borrower.

Standard & Poor's Rating System

Standard & Poor's uses a two part rating process. First the specifics of the property are carefully analyzed. Then the proforma revenue stream is tested against a phased-in, worst case scenario. The current analytical model has been developed for use on prime quality, fully occupied properties with demonstrated operating histories. However, interviews with staff members indicate the scope of the model may be expanded in the near future to include other commercial uses.

In examining the property, S&P reviews an MAI appraisal, engineering reports and historical operating data. This is followed by a site visit. After establishing the quality of the physical asset, the projected income stream is subjected to the worst case scenario. The scenario, based on Houston's economic changes after 1982, assumes the property will experience sharp declines in rental income while vacancy and operating expense increase. The model develops a matrix of eight variables which are weighted with respect to their effect on each analytical factor. Exhibit 5.1 illustrates these relationships.

EXHIBIT 5.1: S&P WORST CASE MODEL FACTORS

Worst Case Analytical Factors (%)

	RENT	VACANCY	EXPENSE
Project Size	5	5	0
Lease Terms	25	20	5
Tenant Quality & Mix	5	5	5
Property Management	25	30	30
Energy Efficiency	5	5	30
Construction Quality	5	5	30
Site Location	20	20	0
Local Economy	10	10	0
Total	100	100	100

National Worst Case: Maximum Reduction

Rent Reduction	29.0%
Vacancy Increase	11.5%
Operating Expense Increase	15.0%

Source: Standard & Poor's Corp.⁵

The Maximum reduction factors are multiplied by (100 - Variable Sum) to determine the factor for the property. In order to reflect the characteristics of the specific property under evaluation, each of the eight variables can be reduced from 10% to 90%. These reductions can be phased in over the first three years of the projections to reflect a worsening recession, or can occur immediately if region is already in complete decline.

After the worst case cash flow projections are calculated, the current and worst case market value is calculated for every year the bonds are outstanding. S&P uses the income

approach, selecting severe discount rates and residual capitalization rates, which are phased in over time. These rates will vary depending on the desired bond rating, starting with a 10% real rate of return for AA and dropping 50 bp for ratings AA through BBB, then 100bp for ratings BB and B. Any growth rate is added to this real rate.

Finally the cash flows and property values are measured against financial ratios . These ratios also vary depending on the rating desired, and are listed in Exhibit 5.2.

EXHIBIT 5.2: WORST CASE FINANCIAL RATIOS
FOR OFFICE BUILDINGS

RATING	DEBT SERVICE COVERAGE	LOAN TO VALUE RATIO (%)
AA	1.25	75%
A	1.15	75%
BBB	1.1	80%
BB	1.05	85%
B	1	90%

Source: Standard & Poor's Corp.⁶

In addition to these financial ratio tests, S&P requires the project maintain a liquidity reserve account equal to the greater of two months of gross revenue or three months rental payments from the highest paying tenant. In no case must the liquidity reserve be greater than one third of the annual debt service on the bonds. This reserve is required to insure against late mortgage payments.

Any shortfall of cash flow to meet bond interest payments or shortfall of residual value to cover principal repayment for any of the years that the bond is outstanding must be insured against by means of credit support. In addition to shortfalls, the credit support must also cover the liquidity reserve. All credit support must be in place at the bond closing.

S&P recognizes that real estate is not a liquid asset. So to insure that funds are available for bond redemption at maturity, they require the posting of a liquid asset credit facility, equal to the redemption value of the bonds, in the form of a letter of credit, surety bond, cash or U.S. government securities. This must be posted two years prior to bond maturity, unless the property meets a loan to value (LTV) ratio of 67.5% at that time. Passing this test, the posting can be deferred until one year prior to maturity. Posting can be delayed until six months prior if the property still meets the LTV test one year prior⁷.

Meeting the requirements of this rating test will assist the borrower in obtaining the best possible rate on the bond. However, the rating process offsets some of the pricing efficiency gained through the restrictions and reserve requirements it imposes. The costs of these restrictions are discussed in Chapter VI. While the rating system must, by definition, be conservative, over time it is expected

that the criteria may become less restrictive due to the increased availability of historical performance data on rated properties and increased familiarity with real estate market fundamentals. A topic for further study is the impact of the rating systems on both the method of real estate appraisal and the underwriting guidelines of conventional lenders.

NOTES TO CHAPTER V.

1. Belkaoui, Ahmed, Industrial Bonds and the Rating Process, Westport Conn: Quorum Books, 1983, 13-14.
2. ibid., 15.
3. ibid., 16.
4. Adler, Tamara L., "Pricing Rated Commercial Mortgage Bonds", The Real Estate Finance Journal, Summer 1987, 20.
5. Conway, Janet V., Edith H. Shwalb and David B. Smith, "Commercial Mortgage Ratings Credit Review", Supplement to Credit Week by Standard & Poor's, November 24, 1986, 3.
6. ibid., 5.
7. Adler, 22.

CHAPTER VI. COSTS OF CAPITAL

Cost of Securitized Offerings

Direct and Indirect costs, deferred costs and opportunity costs must be identified and aggregated in order to determine the effective cost of capital to the borrower of funds raised through a securitized offering. The basic cost structure of any securitized offering, public or private, consists of the following components:

Base Rate - This rate is set by the cost of treasury securities of the same maturity as the proposed bonds plus a premium. This measure reflects the cost of funds to the issuer.

Spread Over Base Rate - This rate is a percentage over the treasury rate. The combined base rate and spread represent the coupon rate for the bond offering. It also represents the lending rate for the mortgage placed with the borrower. The exact percentage is determined through market testing by the issuer of investors' willingness to pay for the type of offering proposed.

Placement Fee - This is the fee charged by the issuer for placing the offering in the capital markets. Also referred to as the structuring fee or underwriters fee, it is

typically equal to a percentage of the bond principal. Fees for underwriting corporate bonds have been found to average 1%, for bond issues in excess of \$50 Million. Professionals interviewed for this paper indicate this is also the range for commercial mortgage bonds, although the variance is plus or minus 30 basis points.

Credit Enhancement Fee - The fee is charged by an agency in return for the pledge of credit to support the timely payment of principle and interest to the bondholders. Credit Enhancement may be required on a rated security to support any possible shortfalls or disruption to the project cashflow. The amount of credit enhancement required to achieve a given rating is determined by the rating agencies through their evaluation process.

Credit enhancement may provide an unconditional and irrevocable guarantee or may be limited to a specific amount. In either case the fee charged will reflect the magnitude and vulnerability of the liability. Credit Enhancement fees are paid both at the initiation of the transaction structuring, as a form of commitment fee, and quarterly for each year until redemption.

Credit enhancement may take several forms:

* Cash or other liquid asset reserves placed in trust.

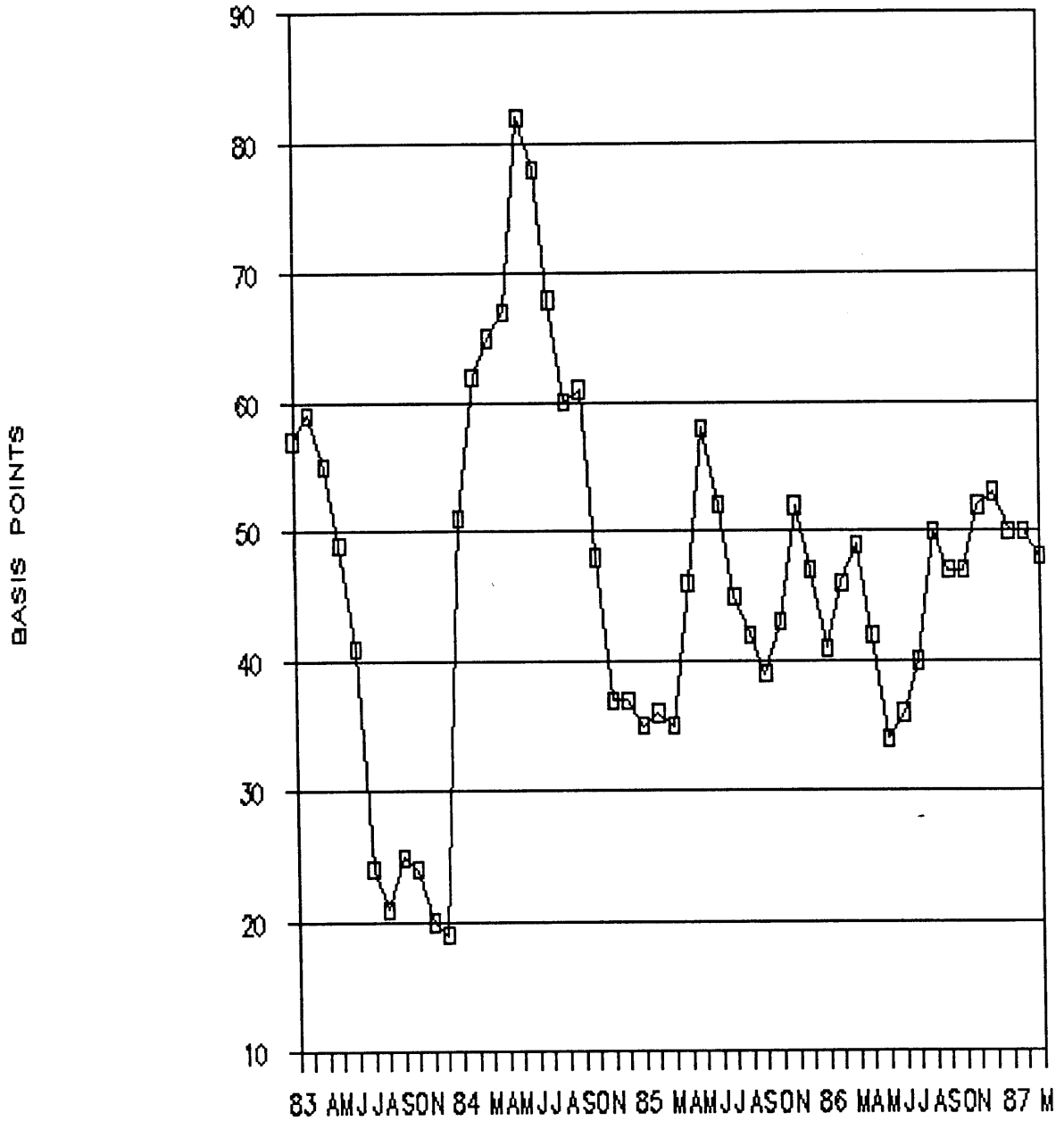
- * Letter of Credit (LC) issued by domestic or foreign banks.
- * Surety Bonds issued by Insurance companies.

As described in earlier chapters, there are ways to achieve credit enhancement without incurring direct costs, such as:

- * Over - collateralization; the reduction of the loan to value (LTV) ratio by increasing collateral assets.
- * Senior / Subordinated Structuring; the reduction of the LTV ratio by reduction of the loan amount.

The cost of credit enhancement have fallen sharply in recent months. This is primarily due to the major Japanese Banks, which seem determined to obtain a foothold in the credit enhancement market through aggressive pricing. They have chosen this strategy to overcome the disadvantage of being an unknown entity to most domestic borrowers, who may show a preference for dealing with familiar organizations, all else being equal. Currently in their favor is that six of the worlds'ten largest and highest rated banks are Japanese.¹ Citibank is the only U.S. bank to maintain the highest rating designation. Those offerings desiring to issue debt with a AAA rating must purchase the credit worthiness of some AAA rated organization.

EXHIBIT 6.1: YIELD SPREADS BETWEEN AAA AND AA RATED
 CORPORATE BONDS, FEBRUARY 1985 TO MARCH 1987



Source: Federal Reserve Bulletin

Recent credit enhancement annual costs have ranged between 30bp to 40bp of the amount of principal and interest payments protected. As shown in Exhibit 6.1, the yield spread between AAA and AA corporate debt varies greatly but during the period February 1985 to March 1987 spreads ranged from 34bp to 59bp. Although this is not an accurate representation of the spreads between similarly rated commercial mortgage backed securities, the relationships are similar. To the extent that credit enhancement fees are less than or equal to these spreads, their cost benefits the borrower.

Legal and Accounting Fees - These are fees charged for the drafting and coordination of all documents including the mortgage and offering statements, as well as review and modification of these documents to conform to the rating agencies' requirements. In the case of a private placement, legal fees may also be incurred for negotiations with investors as to the specific details of credit enhancement, prepayment rights, reserve accounts and other items of importance to the investors security. The accounting fees are also for the procurement of certified statements regarding the offering documents. These costs vary principally with the complexity, rather than the size, of an offering. Estimates range from \$700,000 to \$1,300,000.

Printing and Advertizing Costs - These represent costs of printing of the prospectus and other requirements of notification of the offering. Estimates range from \$75,000 to \$100,000.

Rating Fees - for rating services as described in Chapter 5. These fees are approximately .04% of the amount of the bonds, plus a nominal amount annually to update the rating.

Trustee fees - Collection accounts must be maintained for the receipt of mortgage payments and distribution of interest payments and principal repayments to the bond or certificate holders. These fees are typically calculated on the basis of activity in the accounts. In any event they are an insignificant fraction of the costs.

Title Insurance - As with any real estate transaction, the mortgagee must be protected from claims against or defects in the title. The cost of title insurance are estimated at \$150,000 to \$250,000 for larger transactions.

Appraisal fee - Typically about \$40,000 to \$60,000 plus an annual update fee.

Liquid Asset Credit Facility - As described in Chapter 5, rated offerings require the posting of this facility. As this is a future cost, it is dependent on unforeseeable

market conditions, and therefore cannot be accurately priced. However, if a rated bond has call privileges prior to maturity, it is conceivable the posting requirement would trigger early redemption to avoid the additional cost. The potential for this occurrence is dependent on whether the bonds have yield maintenance provisions and the interest rate environment for reinvestment at that point in time.

Base Rate and Spread

The choice of a base rate is dependent on the cost of capital for the issuer of the bonds and underlying mortgage, as well as the proposed structure of the bond offering. The mortgage supports the timely payment of interest and principle to the bondholders. It is therefore desirable to match the principle payments of the mortgage with the maturities of the bonds. For example, a 10 year, interest only, balloon mortgage is matched with 10 year treasury bonds. Or a mortgage with principle payments due in years 1, 3, 5 and 10 is matched with a group of treasury instruments of the same maturity and par value.

By surveying potential investors, the issuers determine the expected yield demanded for the proposed bond offering. The yield required is influenced by several factors:

Liquidity - Rated Commercial Mortgage Bonds are not actively

traded, principally due to the recent introduction of the instruments. In a few instances the issuer makes a market in the security, offering to buy and sell for its own account in order to create some liquidity. The investor demands a higher return on investments of less liquidity.

Prepayment Risk - As an instrument supported by a physical asset, the bonds are at risk of prepayment of the underlying mortgages due to some catastrophic loss or act of government, such as condemnation. Although these acts may be covered by insurance for the repayment of principle, the investors yield to maturity will drop. Due to the structure of the mortgage instruments and the tendency to include yield maintenance provisions in the event of prepayment at the borrowers choice, property specific financings are less affected by this risk.

Reinvestment Risk - Accompanying prepayment risk is the risk of finding suitable investments offering the desired returns to maintain the yield that would have been achieved had the bond not been prepaid.

Historic Rate Spreads - Traditionally, mortgage lending rates have been higher than corporate lending rates, indicative of a perception of higher risk in real estate related investments. Despite the advent of ratings and liquid trading instruments, investors still carry higher

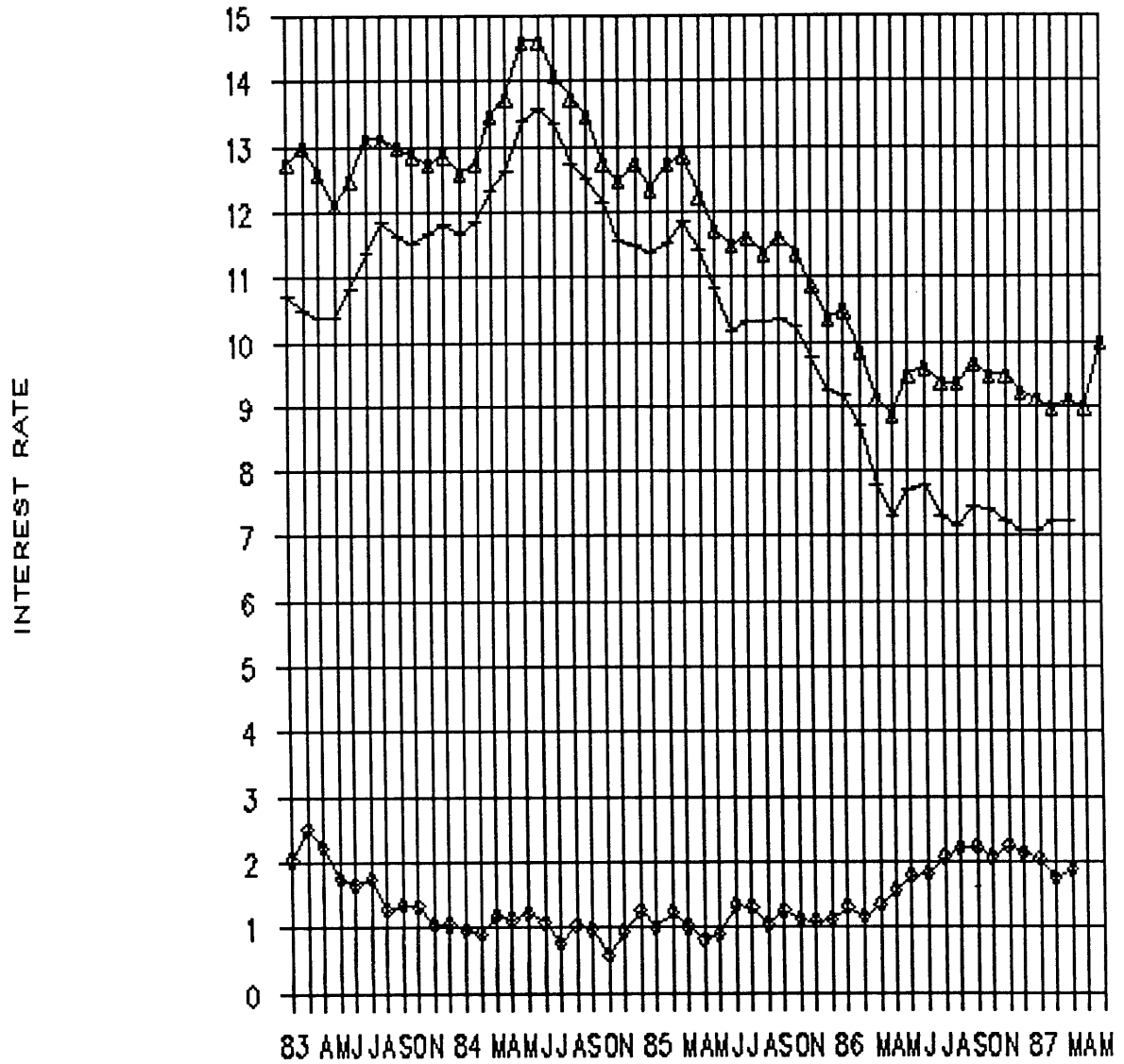
expectations about the risk and returns for mortgage backed investments.

Comparison to Bullet Loans

Evaluating the effective cost of capital to the borrower requires a comparative analysis with respect to the cost of funds available through conventional lenders such as banks, insurance companies and pension funds. As stated earlier, these sources are usually limited to loan amounts between \$5 million and \$200 million², while securitized offerings are limited to a minimum of \$25 million. Borrowers who fall within the overlap may choose whether the restrictions inherent in the securitized offering are warranted by an advantageous effective cost of capital.

Exhibit 6.2 illustrates the average interest rates for ten year, interest only bullet loans offered by thirty major U.S. lenders, the yields of ten year Treasury bonds, and the yield spreads between the two for the period February 1983 to March 1987. Since ten year mortgage bond interest rates are typically indexed to the ten year treasury, the yield spread represents the margin within which the additional costs of the securitized transaction must remain in order to have an interest rate advantage over bullet loans.

EXHIBIT 6.2: YIELDS ON TEN YEAR BULLET LOANS
 VERSUS TEN YEAR TREASURY BONDS



+ 10 YEAR TREASURY ◇ INTEREST SPREAD
 Δ 10 - 12 YR MORTGAGE

Source: Barron's/John B. Levy National Mortgage Survey,
 Federal Reserve Bulletin

It should be noted ,however, that there are costs to a bullet loan in addition to the lending rate, such as commitment fees, appraisals and engineering reports, which raise the effective borrowing rate. Subsequently the spread above ten year treasuries is higher than indicated in Exhibit 6.2, providing a wider margin within which securitized offerings can compete. Estimating these additional costs and comparing them to borrowing rates through security offerings is beyond the scope of this paper, and is a topic for further research. One can expect that increased competition from securitized offerings for loan originations will tend to narrow the spreads of conventional lenders. Evidence of this occurrence can be found in the recent narrowing of spreads between bullet loans and ten year treasuries.³

Opportunity Costs

Time and timing are the most significant determinants of the magnitude of the opportunity costs of securitized offerings. The time required to complete a securitized transaction from inception is estimated to range from seven to nine months. By comparison, a bullet loan transaction typically takes 60 to 90 days to complete, and can be as little as two weeks. This extensive lead time for security offerings exposes the borrower to interest rate risk. As the market for these

securities matures, and the products become more standardized, the lead time may shorten. However, the nature of the sales and disclosure requirements, and the time required to complete the rating analysis, typically thirty to ninety days, limit the potential for improvement in lead time needed to execute such transactions.

NOTES TO CHAPTER VI.

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CHAPTER VII. CASE STUDIES

Lincoln Property Associates

In December 1985, Lincoln Properties Associates Limited, a subsidiary of Lincoln Property of Dallas, Texas, issued \$146 Million in fully registered, first mortgage bonds to finance the take out commitment of two office buildings then under construction. The issuer was organized primarily to issue the bonds and to serve as managing general partner for two project partnerships that would construct and own the buildings. The bonds were placed privately without third party credit enhancement.

Lincoln Liberty, a Pennsylvania limited partnership, was the project partnership for Allegheny Tower, located in Pittsburgh, Pa., which will be 32 stories and will contain 615,360 leasable square feet. At the time of the offering, Allegheny Corporation had committed to approximately 42% of the space under a ten year lease from completion plus an agreement to masterlease another 11%. Rents range from \$26.50 to \$31.50 per square foot. The anticipated completion date is August 1987.

The appraised market value at completion was \$137.5 Million. Construction cost was estimated at \$97.44 Million, or 70.9% of the appraised value. Allegheny Tower received \$114.6

Million (78.5%) of the bond proceeds.

Midland North, a Georgia limited partnership, was the project partnership for the FHLB Building in Atlanta Georgia. The building is 11 stories and contains 240,907 leasable square feet. The tenant, The Federal Home Loan Bank, has leased 62% of the space for ten years from completion, originally estimated as July 1986. Actual completion was on schedule. Midland North has a fee simple interest in the property. The appraised market value at completion was \$45 Million. Construction cost was estimated at \$28.5 Million, or 63.3% of the appraised value. The FHLB Building received \$31.4 Million, or 21.5% of the bond proceeds.

The bonds are secured by mortgages on the two properties. Lincoln Liberty mortgaged its leasehold estate under a groundlease from Penn-Liberty Holding Company. The mortgage is subordinate to the rights of the groundlessee, including the right to receive rent payments. The mortgage is also subordinate to an \$8.5 Million UDAG loan originated in 1984 and maturing in 2066. The mortgage on the FHLB Building is a deed to secure debt evidencing a first lien on Midland North's fee simple interest. The bonds also received collateral assignments of the leases and rents after construction, and have first security interest in the bond proceeds until construction completion. Limitations were

placed on project sale or refinancing, leins and lease terms.

Lincoln Property Associates Limited guaranteed construction costs, including cost overruns without right to reimbursement, and guaranteed funds for bond redemption, in proportion to each project's proceeds, if either project was not completed within one year. The issuer also guaranteed to make loans to the partnerships prior to and for two years after the break even points. The managing general partners defered their development fees.

The bonds mature in 2000 and make interest payments semi-annually. They have a fixed coupon rate of 10.5%, an additional variable rate increment of 50% of net cash flow of the partnerships, and 50% of the residual value of each project at maturity. Maximum allowable interest was capped at 22.5% compounded semi-annually. The bond issue, underwritten by Drexel Burnham Lambert, had a three percent underwriting discount and incurred approximately \$651,000 in transactions costs, equal to an additional 45 basis points¹.

The FHLB Building was sold in January, 1987, approximately six months after completion of the building shell. The capitalization rate at time of sale was approximately 8.5%. Early sale of the project was encouraged by the underwriter in order to maximize the bondholders return, while

shortening the bond duration. The yield to the bondholders was estimated to exceed 30%. This was due in large part to the early redemption and the 50% participation in the residuals. However, since the payment to the bondholders was capped at 22.5% compounded, The additional return from net sale proceeds was held in abeyance until the maturity of the balance of the bonds.

The bonds' participation features created a debt structure tantamount to a participating mortgage. The developer, Lincoln Properties, believed that equivalent, or possibly better terms were available through conventional lenders. Their stated reasons for electing the securitized structure were fourfold. First the capital requirements of the project would probably exceed the lending limits of most individual lenders. Second, by using the capital markets, the developer hoped to expand the ownership pool beyond that of a limited partnership structure. This expansion afforded the opportunity for Lincoln Properties to develop new business relationships and strengthen its reputation as a national development company. Third, by financing two buildings simultaneously; the developer hoped to realize time savings as well as realize scale economies. Fourth, the transaction afforded the opportunity to learn how to access the capital markets. The company believes the best way to accomplish this is through direct experience.

The developer identified certain drawbacks to the transaction. Notably, the issue raised all the funds before they were needed to take out the construction loans. An agreement was negotiated for the underwriter to reinvest the proceeds until needed. The underwriter had to guarantee a reinvestment rate of 10.5%, identical to the bonds fixed coupon, plus the security of the full amount of principal. They also had to guarantee the principal be available when needed. This agreement shifted the reinvestment risk to the underwriter. Without this agreement, the developer would have to consider this risk as part of his cost of capital.

A second feature of the issue was time. It took approximately nine months to organize and complete the complicated transaction. This compares to the typical 60 to 90 days which transpire before receiving funding through conventional lenders. The opportunity cost of this time must also be considered in the cost of capital to the developer. However, Lincoln Properties intends to simultaneously finance multiple projects in the future. They expect additional projects will not incrementally increase the time for issuance and economies of scale will be realized.

Bank of Boston

In December, 1986, Equitable Federal Street Funding Company, a bankruptcy-proof Massachusetts general partnership formed by The Equitable Life Assurance Society, issued \$270 Million in non-recourse, ten year notes secured by a first mortgage on the Bank of Boston Building at 100 Federal Street in Boston, which was purchased by Equitable in 1985 for \$363 million. The bonds were issued to refinance 100 Federal Street by Equitable Federal Street Realty Company Limited Partnership. The issue was provided with \$30,680,000 credit support collateral in the form of a irrevocable, unconditional letter of credit issued by Algemene Bank Nederland N.V. No other guarantees were provided.

Completed in 1971, the property is 37 stories above grade, three stories below grade and contains 1,355,610 rentable square feet (1,474,150 gross square feet). It's site, 82,900 S.F. comprises an entire block of the city's financial district. The building is one of only 12 buildings in this district that is over 25 stories tall. The major tenant is Bank of Boston Corporation's principal subsidiary, The First National Bank of Boston, which leases 77% of the building. Bank of Boston is the largest commercial bank headquartered in New England and its long term debt is rated AA by Standard & Poor's.

On August 1, 1986, the vacancy rate stood at 2.5%; in 1985 the average rate was 3.1%. The vacancy rate for seasoned comparable properties in the downtown area was 2.9%, while for all buildings, seasoned properties as well as completed properties in lease-up, the vacancy rate was 9.1%. Total prime rentable office space by 1987 was projected at approximately 22 million square feet of which approximately 19 million was on line at the offering date. Approximately 14 million was contained in 23 buildings.

Office rents ranged from \$33 to \$41, plus pass through expenses. Estimated net cash flow before debt service was:

	1987	1988	1996

6% Inflation	\$29,191,000	\$32,364,000	\$51,252,000
3% Inflation	\$29,174,000	\$32,086,000	\$38,515,000

The appraised market value of the building and land was \$405 million. The loan to value ratio was therefore 66.67%. Dividing the estimated 1986 unlevered net cash flow of \$29,716,000 by the appraised value yields a capitalization rate of 7.34%.

The bonds were issued at par in two series, current pay coupons and zero ,or accrued interest coupons. \$245 million of current pay notes were redeemable at par, with a 9.271%

semi-annual coupon. Annual debt service for these notes was \$22,713,950. The zero notes were sold at two accrual rates: \$15 million at 9.428%, yielding \$37,456,000 at maturity; and \$10 million at 9.589%, yielding \$25,358,000 at maturity. The effective borrowing rate, or cost of capital, is the blended rate of the three coupons, or 9.29%.

The bonds are call protected for years one through five. In years six through ten the bonds may be redeemed in whole, but not in part, for the full amount of principal plus accrued interest to the redemption date, and a bond premium calculated at redemption to equal the original yield to maturity.

The unlevered return to the owner was equal to the 1986 net cash flow of \$29,717,000 divided by the purchase price of \$363,000,000, yielding 8.19%. After the offering, the return equaled the 1986 net cash flow after debt service of \$6,460,000 divided by the remaining \$93 million in equity, yielding 6.95%. The reduced yield is the result of the negative leverage created by borrowing money at a rate higher than the unlevered return. The negative leverage is further increased by the high interest rates on the accrual bonds. The effect of the lower return must be compensated for either by the reinvestment rate of the \$270 million in proceeds, which must earn in excess of the bond rate, or by the residual value.

The accrual notes are essentially a bet on the residual value of the property. However, their risk is relatively small. The total redemption value of the notes is \$307,814,000. Combined with the value of the owners' initial equity after the offering of \$93 million the total equal \$400,814,000. In order to redeem the bonds and return the owners initial equity in 1996, the property must appreciate at approximately one percent annually.

NOTES TO CHAPTER VII.

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CHAPTER VIII. CONCLUSION

Real estate investors must address several issues before choosing property specific commercial mortgage securities as a funding vehicle. In particular, they must consider the size of the deal, the costs of the offering, and the restrictions placed on the borrower. In return for these limitations, the borrower is able to access much larger sums of capital than through conventional sources, typically at competitive interest rates.

Securitized transactions are large scale transactions, which use the global capital markets as their source of funds. They typically raise in excess of \$25 million, and are capable of raising over \$1 billion in single offerings. This capacity far exceeds that of conventional lenders, which usually loan from \$5 million to \$200 million.

Scale economies play a significant role in the cost of funds of securitized transactions. Although the underwriting and structuring fees paid to the security issuer are usually a percentage of the amount raised, many additional costs, such as legal counsel, financial printing, advertising, appraisals and administrative expense, are relatively constant. As the size of an offering diminishes, these fixed costs translate to an increasing percentage load on the cost of funds to the borrower. There is a threshold at

which these costs eliminate the ability for securitized issues to compete with the cost of funds available through conventional sources.

In addition to direct costs, securitized offerings can impose indirect costs on the borrower. Posting of liquid asset reserve facilities, credit support, and the reinvestment risk of property cash flows until payment of semi-annual bond payments should be evaluated. Loan to value ratios may be lower than those allowed by conventional lenders, thereby forcing the borrower to invest additional equity.

Borrowers seeking to raise between \$25 million and \$200 million must compare the effective cost of capital to the cost of capital available through conventional lenders. This comparison must include all costs, including direct and indirect costs, deferred costs and opportunity costs.

Limitations and Further Study

To date less than 30 PSCMS transactions are estimated to have occurred. Most of these securities have been sold in the euromarket or through private placements, without the requirement of public disclosure. Therefore access to specific information regarding the costs of transactions is limited. Of twelve organizations directly involved in

securitized transactions which were contacted for this paper, only two were willing to disclose details of their offering. Furthermore, euromarkets and private placement issues have limited trading activity after the initial offering, thereby limiting the examination of the characteristics of these instruments performance. Those who choose to enter into these transactions will find the best source of information to be the investment banking houses which underwrite the deals.

With time, the ability to amass comprehensive data regarding property specific commercial mortgage securities may improve. One topic for further research in this area would involve the determination of effective cost of capital to the borrower by making a detailed comparison of actual issuing costs of these securities with respect to their rating classification and their yield when first issued. This cost of capital could then be compared to the cost of capital through conventional lenders to determine if increased frequency of issuance of these securities fosters pricing efficiency.

Another topic for study is the impact of the rating systems on both the method of real estate appraisal and the underwriting guidelines of conventional lenders.

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ADDITIONAL SOURCES

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