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# DEFEASANCE VS. YIELD MAINTENANCE: WHAT'S THE DIFFERENCE?

by Michael Schonberger & Donald M. Moliver, CRE

*Defeasance is an attractive alternative to a yield maintenance formula that may provide a benefit to the borrower. While there is some administrative cost, including a possible additional prepayment fee, on balance, the potential gain far outweighs these costs.*

## ABOUT THE AUTHORS

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**N**ow that the commercial mortgages backed securities (CMBS) market is beyond the infancy stage, many in the industry have become familiar with the uniqueness of the loan origination process. For example, owners have come to recognize that to borrow from a Wall Street lender they must form a single purpose entity and agree to a capital improvement escrow account. Borrowers have also come to recognize that Wall Street regards prepayment fees as essential. One industry expert, in reflecting upon the reasons behind the growth in the CMBS market, continually identifies, "limited prepayment risk" as a leading cause.<sup>1</sup> To the borrower, limited prepayment risk means enduring a lockout period, wherein it cannot prepay, followed by a period that prepayment is permitted subject to a significant fee.

Traditionally prepayment fees have been structured as either a declining balance or a yield maintenance formula. Wall Street lending offers a third option; call defeasance, which is rarely used by traditional lenders. This article will explain what defeasance is and how it works, and then compare it to a yield-maintenance formula in terms of cost. More specifically, this article will include:

- An overview of the practical and legal difference between a yield maintenance prepayment and a defeasance transaction;
- A hypothetical comparative example of the cost to prepay using a

yield maintenance formula versus the cost to execute a defeasance; and

- The procedural steps necessary to complete a defeasance.

## OVERVIEW

In the commercial mortgage market the prepayment fees are structured in a fashion whereby the lender receives nearly all of the benefits that are available as a result of declining interest rates. The borrower, however, may still be willing to prepay in order to take advantage of a market opportunity that will, or is perceived to, provide a benefit in excess of the prepayment fee. For example: sell the underlying property, a cash-out refinance, or a simply rollover refinance at a moment when rates are perceived to be at an unusually low point.<sup>2</sup> In each of these cases, the prepayment fee becomes one of many transaction cost/benefit factors to consider. For purposes of this article, the benefit of a refinancing is assumed positive and, therefore, the analysis focuses on a comparison between the commonly used prepayment methods.

The earliest version of a prepayment fee is the declining balance formula. This formula is structured as a fixed percentage of the outstanding loan amount. For example, 5 percent in loan years one and two, 4 percent in loan years three and four, and so on until 1 percent in loan years nine and 10. As both the percentage reduction and a decreasing outstanding loan amount decline, so does the resulting fee. The concept behind this formula is that as a loan matures, prepayment will have a decreasingly smaller impact on the lender's profit. Declining formulas often included windows of 30-180 days prior to termination, wherein, the borrower could prepay with no penalty.

Later, the yield maintenance formula was introduced. Yield maintenance is a bit more creative in that the fee is based on interest rate movement. Therefore, a borrower seeking to take advantage of an interest rate decline would pay a higher fee than the borrower who prepays when rates have remained constant or have risen. The standard yield maintenance formula is defined as the present value of the remaining payments multiplied by the difference between the note rate and the treasury securities yield with the same term as the remaining term.<sup>3</sup> The effect of this is to provide the lender, (or trustee in the case of a securitization), the ability to reinvest this lump-sum amount in treasury securities that will yield the same return as if the loan were in place to full maturity.

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*In a securitized transaction, this replacement collateral must be treasury securities. Therefore, from a practical standpoint, yield maintenance and defeasance provisions are quite similar.*

Later still, defeasance was introduced as an alternative to yield maintenance.<sup>4</sup> Defeasance is a process whereby the borrower offers the lender replacement collateral in order to gain a release of the original collateral. In a securitized transaction, this replacement collateral must be treasury securities. Therefore, from a practical standpoint, yield maintenance and defeasance provisions are quite similar. Under the yield maintenance formula, the lender receives a lump-sum payment (based on treasury yields) that it can reinvest at will. In effect, a defeasement obligates the borrower to reinvest, on behalf of the lender, the prepayment proceeds in treasury securities.

From a legal standpoint, yield maintenance and defeasance are fundamentally different. Prepayment is the up-front payment of the outstanding loan balance, plus a prepayment fee in return for early note termination and collateral release. Since the note is terminated, the prepayment fee is considered to be a liquidated damage and therefore, when challenged, scrutinized under the "reasonableness" test. Defeasance, on the other hand is a collateral substitution. In a defeasance, the lender releases the lien on the original collateral and perfects a new security interest in some agreed replacement collateral (i.e. treasury securities). Throughout this process, the original note stays in effect with minimal or no modification. Since the note survives a defeasance transaction, there is no termination or liquidated damage issues. Courts will interpret defeasance as a prenegotiated contract option, which in general, is more likely to withstand a judicial challenge.<sup>5</sup>

## HYPOTHETICAL EXAMPLE

As shown in *Table 1*, a \$10 million 10-year 7.5 percent loan on a 30-year amortization schedule requires 120 monthly payments of \$69,921, followed by a balloon payment of \$8,679,499.<sup>6</sup> If this

Table 1

Yield Maintenance Calculation						
Initial Terms:	Initial Loan Terms			Payment Differential		
		Note Rate	7.50%		7.500% Note Rate	
	Original Amount	10,000,000		4.659% Reinvestment Rate (semi-annually)		
	Amortization Term	30		4.614% Reinvestment Rate (monthly)		
	Payment	69,921		2.886% Payment Differential (annually)		
				0.240% Payment Differential (monthly)		
	(1)	(2)	(3)	(4)	(5)	(6)
	#	Interest	Amortization	Principal	Payment Differential	Payment Stream
Past Period:	1	62,500	7,421	9,992,579		
	2	62,454	7,468	9,985,111		
	3	62,407	7,515	9,977,596		
	4	62,360	7,561	9,970,035		
	5	62,313	7,609	9,962,426		
	*	*	*	*	*	*
	*	*	*	*	*	*
	*	*	*	*	*	*
Prepayment Date:	82	57,628	12,293	9,208,221		
	83	57,551	12,370	9,195,851		
	84	57,474	12,447	9,183,404		
	85	57,396	12,525	9,170,879	July 1, 2001	
Remaining Term:	86	57,318	12,603	9,158,275	0.240%	22,022
	87	57,239	12,682	9,145,593	0.240%	21,992
	88	57,160	12,761	9,132,832	0.240%	21,961
	89	57,080	12,841	9,119,990	0.240%	21,930
	90	57,000	12,922	9,107,069	0.240%	21,899
	91	56,919	13,002	9,094,066	0.240%	21,868
	92	56,838	13,084	9,080,983	0.240%	21,837
	93	56,756	13,165	9,067,818	0.240%	21,805
		*	*	*	*	*
		*	*	*	*	*
		*	*	*	*	*
		118	54,537	15,384	8,710,556	0.240%
	119	54,441	15,480	8,695,076	0.240%	20,909
	120	54,344	15,577	8,679,499	0.240%	20,871
Outcome:		Balloon	9,170,879		702,135	PV of Payment Stream
		Prepayment Fee	702,135		4.614%	Discount Rate
		Total Release Price	9,873,014			

loan were to be prepaid on July 1, 2001, after 85 payments, the borrower would have to pay the outstanding balance of \$9,170,879 plus a treasury-based prepayment fee of \$702,135. This fee is equal to the present value of a payment stream created by multiplying the difference between the note rate of 7.5 percent and adjusted yield of the three-year (the "remaining term" of the note) treasury security of 4.659 percent.<sup>7</sup> This difference is then divided by 12 and multiplied by the outstanding loan balance for each month of the remaining term (column 4). The outcome of this application is a payment stream (column 6), which when discounted to present value using the reinvestment rate equals \$702,135. The bottom of Table 1 reflects that the total amount necessary to obtain a collateral release is equal to the balloon amount of \$9,170,879 plus the prepayment fee of \$702,135, which is equal to \$9,873,014. If on July 1, 2001, the lender were to reinvest this amount in a June 1, 2004, treasury security yielding 4.659 percent, they would earn the same amount as if investing \$9,170,879 in a 7.5 percent mortgage

maturing on June 1, 2004, thus the lender has "maintained" their yield.<sup>8</sup>

Given the exact same terms above, the cost to execute a defeasement is \$9,905,119. This cost is the summation of the price needed to buy a series of treasury securities that will produce a cash flow exactly equal to what remained on the original loan. So for the present example, the stream to be mirrored is 35 sequential monthly payments of \$69,921 followed by a maturity payment of \$8,679,499. Perhaps the easiest way to understand the mechanics involved is to visualize an account. Funds are entered into this account in two ways: 1). when issues mature; and 2). when semi-annual interest payments are paid. Funds are drawn from this account to provide the lender with the remaining term cash flow. Table 2 provides a list of 17 treasury securities that will source the "account" in a manner that will minimize the time and dollar amount where funds sit idle. As shown in Table 2, an investor would pay \$9,831,715 (column 7) for 17 separate treasury issues

Table 2

Replacement Collateral Portfolio								
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Maturity	Type	Coupon	Yield	\$ Price	Par Amount	Principal Cost	+Accrued Interest	= Total Cost
7/12/2001	T-BILL	3.410%	3.461%	\$99.90	70,000	69,927.06	-	69,927.06
8/15/2001	STRIPS-I	-	3.748%	\$99.54	50,000	49,768.12	-	49,768.12
9/13/2001	T-BILL	3.510%	3.585%	\$99.28	64,000	63,538.24	-	63,538.24
10/11/2001	T-BILL	3.490%	3.574%	\$99.01	64,000	63,367.15	-	63,367.15
2/28/2002	T-NOTE	6.250%	3.701%	\$101.66	50,000	50,828.13	1,044.50	51,872.63
3/31/2002	T-NOTE	6.625%	3.764%	\$102.08	64,000	65,330.00	1,065.79	66,395.79
4/30/2002	T-NOTE	6.625%	3.810%	\$102.28	64,000	65,460.00	714.35	66,174.35
8/31/2002	T-NOTE	6.250%	3.994%	\$102.53	53,000	54,341.56	1,107.17	55,448.73
9/30/2002	T-NOTE	6.000%	4.006%	\$102.39	64,000	65,530.00	965.25	66,495.25
10/31/2002	T-NOTE	5.750%	4.045%	\$102.19	66,000	67,443.75	639.38	68,083.13
2/28/2003	T-NOTE	4.625%	4.224%	\$100.64	53,000	53,339.53	819.30	54,158.83
3/31/2003	T-NOTE	5.500%	4.243%	\$102.09	68,000	69,423.75	940.11	70,363.86
4/30/2003	T-NOTE	5.750%	4.253%	\$102.61	68,000	69,774.38	658.75	70,433.13
8/15/2003	T-BOND	11.125%	4.405%	\$113.47	194,000	220,129.38	8,108.34	228,237.72
2/15/2004	T-NOTE	4.750%	4.542%	\$100.50	205,000	206,025.00	3,658.29	209,683.29
5/15/2004	STRIPS-P	-	4.652%	\$87.63	5,147,000	4,510,128.90	-	4,510,128.90
5/15/2004	T-BOND	12.375%	4.659%	\$120.50	3,392,000	4,087,360.00	53,610.65	4,140,970.65
					9,736,000	9,831,714.95	73,331.88	9,905,046.83
<b>Settlement Date: 7/1/2001</b>								
<b>COMPOSITION OF INITIAL DEPOSIT</b>								
Cash Deposit.....							72.18	
Cost of Investments Purchased with Bond Proceeds.....							9,905,046.83	
Total Cost of Investments.....							\$9,905,119.01	
<i>Provided by: Commercial Defeasance, LLC; CMBS Finance Group, Washington, DC</i>								

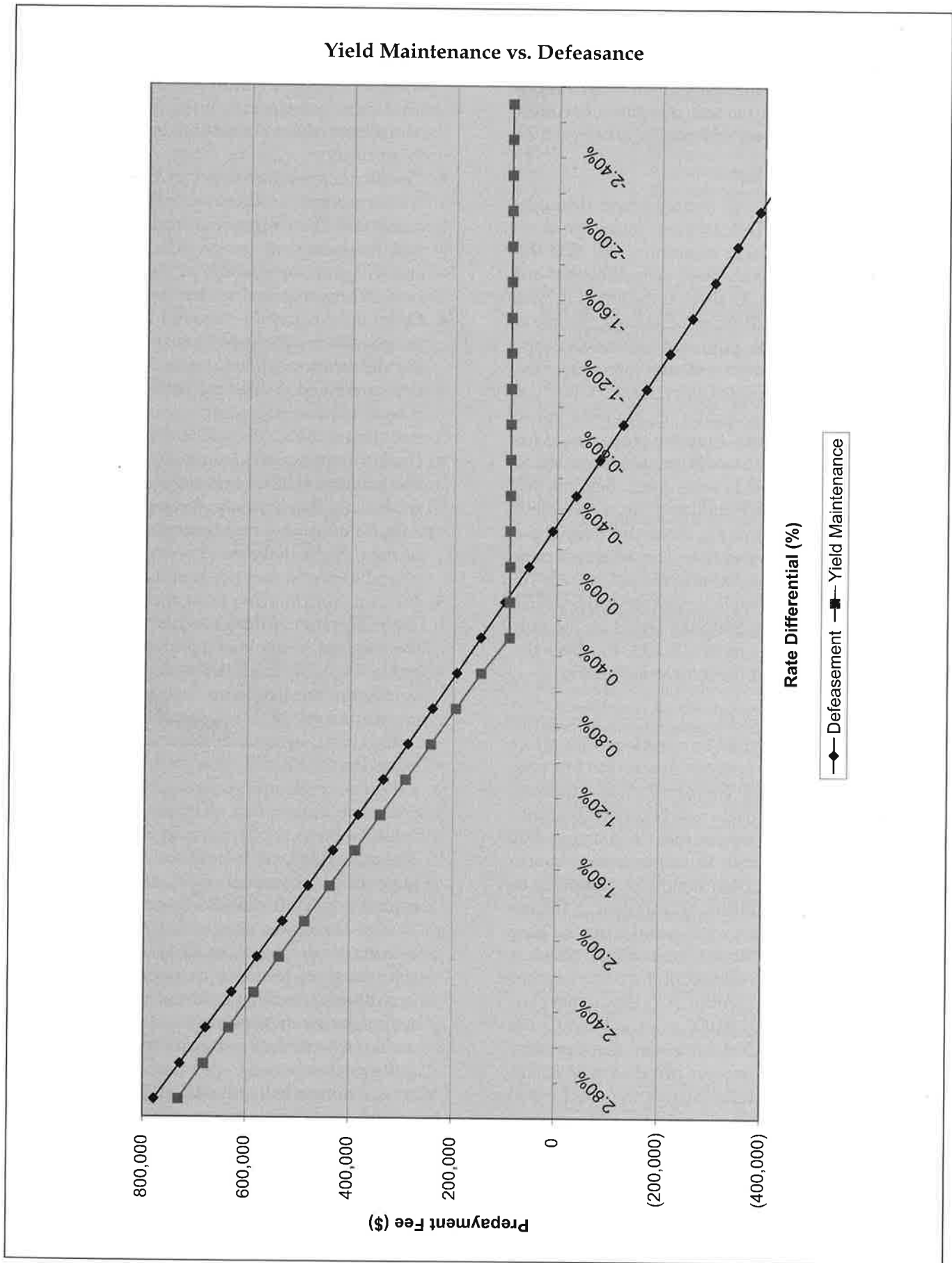
with a par amount of \$9,736,000 (column 6), plus \$73,332 of accrued interest (column 8) and \$72 in cash.<sup>9</sup> The cash amount is added to the account to handle differences that cannot be mirrored by bonds offered in \$1,000 increments.

In terms of comparison, the difference between the two methods is \$32,105. The best way to explain the difference is to first explain the reason for the proximity. For nearly the entire principal amount at issue, the treatment is exactly the same. The reinvestment yield of 4.614 percent used to calculate the prepayment fee is the same factor used to calculate the price of the May 2004 treasury security. The May 2004 issue accounts for the lion's share of the total replacement collateral. The difference is attributable to the price paid for the issues other than the May 2004. These shorter-term interim issues are at yields below that of the reinvestment yield that must be made-up for with additional price.<sup>10</sup>

The difference, called the "yield curve effect," is a function of the slope of the yield curve and the duration of the remaining term. For example, given a flat yield curve this amount will be zero; given a steeper curve it would be greater than the \$32,105; and given a negative sloping curve this amount would be negative. This amount will also be influenced by the duration of the remaining term. Generally, the longer the term, the greater the yield-curve effect because in practice the yield curve is rarely flat or inverted, especially at the short end of the curve where this effect is at issue.

Exhibit 1 provides an illustration that summarizes the yield maintenance vs. defeasement relationship. The methodology used to compile this data is explained in the appendix herein. The yield maintenance curve starts high and decreases in a linear fashion as the payment differential approaches zero. At some point, the yield maintenance formula reaches the contractual minimum point, which is

Exhibit 1



equal to 1 percent of the outstanding loan amount (\$91,709). At this point, the curve remains in a horizontal position because the prepayment fee equals 1 percent regardless of how low the payment differential reaches. Depending on the length of the remaining term, this 1 percent minimum becomes active when the payment differential is between 25 and 60 basis points.

The defeasance curve will remain linear throughout its entire length. Defeasement language does not include any payment minimum. All that the lender seeks is the replacement securities that are not influenced by cost. As such, at the left of *Exhibit 1* where the payment differential is high, the fee is near \$800,000. As the payment differential approaches zero (*i.e.* the reinvestment rate equals the note rate) the fee becomes very small. Once the payment differential is slightly negative the curve intersects with the x-axis; thus the prepayment fee is zero. The slight negative differential is needed to compensate for the yield-curve effect. Beyond this point the payment differential and the prepayment fee are negative. For example, if rate differential is a negative 2.0 percent, meaning the adjusted reinvestment rate is 9.5 percent and the note rate is 7.5 percent, the cost for the replacement securities would be \$8,780,313, which is \$390,566 less than the outstanding loan amount of \$9,170,879. In effect the borrower could payoff the loan at a discount.

The small area between the two curves represents the above mentioned yield-curve effect. This effect will vary with the payment differential but to a very slight degree. As you can see from *Exhibit 1*, the area between the curves remains nearly constant despite changes to the reinvestment rate. In practice, this difference can be reduced. The defeasance scenario can be adjusted to account for the opportunity to earn interest when balances accumulate in the account. For example, on a semi-annual basis the May 2004 issue pays \$209,880 into the account, which is significantly more than the \$69,921 monthly amount being drawn from the account. As a result there is a 60-day period where \$140,000 is left idle and a 30-day period where \$70,000 is left idle. At a 4 percent investment rate the borrower could earn \$5,851 in interest, which if so would narrow the yield-curve effect.<sup>11</sup>

#### PROCEDURAL STEPS

The following is a partial list of procedural steps that must be performed to execute a defeasance in accordance with typical securitized mortgage documents.

1. **Notice** – At least 30 days prior to the intended defeasement date the borrower must deliver a defeasance request to the servicer.
2. **Preparation of the Defeasance Security Agreement** – The payee's attorney must prepare and review the Defeasance Security Agreement. Upon completion, these documents must be delivered to servicer.
3. **Certificate from borrower's public accountant** – An accountant, acceptable to the servicer, must certify as to the adequacy of the defeasance collateral. In essence, adequacy means that the collateral will generate monthly payments equal to the cash stream required under the original note.
4. **Opinion of counsel** – Counsel must opine that the payee has a perfected first priority interest in the defeasance collateral, the defeasance security agreement is valid and enforceable, and the proposed substitution is in accordance with Treasury Regulation 1.860(g)-2(a)(8) and will not be treated as an exchange pursuant to Section 1001. The priority, validity, and enforceability are common issues that attorneys frequently opine to for a fee. The treasury regulation lists specific ways of handling a defeasance as to stay within the boundaries of a non-tax paying entity.
5. **Written confirmation from the rating agency** – The rating agency that provided the REMIC with the original rating must provide a "no downgrade letter."<sup>12</sup> This letter provides that the substitution of the defeasance collateral for the mortgaged property will not result in a downgrade, withdrawal, or qualification of the rating assigned to the REMIC. This process also serves as a means for the rating agency to conduct a final review to ensure that all of the documentation related to the above items is in proper order. There is no apparent credit issue when a mortgage secured by commercial real estate is being replaced by United States Treasury obligations. There is a possible issue with the integrity of the REMIC. If one particular REMIC were to substitute many of its loans or substitute one loan improperly, the IRS could claim it as a seller of real estate assets, thus placing its non-tax paying status in jeopardy. For now this possibility seems quite remote because the number of defeasance transactions is still rather low. The agencies typically do not charge borrowers a fee for a confirmation letter.
6. **Mortgage recording tax** - In some jurisdictions, for example New York, a tax is assessed for the recordation of a mortgage. The tax is calculated on a sliding scale based on the amount of the new mortgage debt. What many borrowers do

in a refinancing is ask the new lender to take assignment of the existing mortgage and note and then record a modification reflecting the terms of the new loan. This way the tax is charged only the "new money." For example, a \$10 million loan is made to refinance an \$8 million existing loan. If the \$8 million loan is terminated, the mortgagee must record a new \$10 million mortgage and pay the recording tax based on that amount. If however, the mortgagee takes the existing note and mortgage by assignment and records a modification agreement the tax is charged on only the \$2 million amount. For quite some time, many attorneys in New York were unsure of the proper recording tax given a defeasement transaction. The confusion surrounded the treatment of the original mortgage, which for defeasement purposes is terminated and for recording tax purposes is assigned. Recently, the State of New York Commissioner of Taxation issued an advisory opinion that, in effect, limits the applicability of the recordation tax to new indebtedness only regardless of whether the mortgage release is associated with a note termination or assignment.<sup>13</sup>

## CONCLUSION

Defeasance is a unique financial concept in that it provides benefits to both sides of a transaction. To the borrower, the trade-off is a clear gain. If rates fall, except for the yield-curve effect, the yield maintenance and defeasance result in the same prepayment fee. If rates rise, the borrower can save substantially. The only downside to the borrower is the unfamiliar administrative aspects to complete a defeasement transaction compared to a straight forward pay-off given a yield maintenance fee. But even this issue is reduced to dollars, as newly formed consulting firms are available to demystify the defeasance process. The lender, or more importantly the CMBS investor, is concerned only with yield maintenance and not yield enhancement, and thus will not insist on a 1 percent minimum prepayment fee.<sup>14</sup> Bond investors are used to dealing with call provisions in corporate issues which can only erode yield. The idea that they can actually profit from prepayment is an anomaly. Moreover, the legal justification for a 1 percent fee in a defeasance is cloudy. Courts may likely frown upon a contract option that compensates one party in excess of its loss.<sub>REI</sub>

## APPENDIX

Below are the variables added to the "replacement collateral portfolio" (Table 2) in order to determine the effects that rate differential changes will have on the portfolio price. The first five

variables are as provided in the baseline case listed in Table 2. The rate adjustment (strip) was entered at a constant difference of 7/10 of a basis point regardless of rate differential movements. Likewise, the slope of .0765 percent (the actual slope of the baseline case) is applied to every rate differential calculation.

7/1/01	Settlement Date
7.50%	Note Rate
4.659%	Reinvestment Rate (semi-annual)
4.614%	Reinvestment Rate (monthly)
2.841%	Rate Differential
0.007%	Rate adjustment (Strip)
0.0765%	Slope

## NOTES

- Gichon, Galia, "The CMBS Market: Past, Present, and Future," *Commercial Mortgage Backed Securities*, 1999.
- A "cash-out" is when a borrower refinances in an amount in excess of the existing loan amount. The return available from an alternative investment that can be earned with the cash-out proceeds often justifies incurring the prepayment fee. A "roll-over" is when a borrower refinances in an amount equal to the existing loan. In this case a borrower might be willing to make the prepayment fee in order to lock-in a currently available perceived advantageous interest rate rather than taking a risk of accepting whatever market rate may be at loan maturity.
- For issues on drafting, see Galowitz, Sam, W., "The Myth of the Yield Maintenance Formula," *The Real Estate Finance Journal*, 1999.
- In fact, defeasance was in existence for years prior to the advent of the CMBS market but used only in limited situations where a borrower would replace real estate collateral with other real estate collateral.
- Murray, C., John, (2001). "Enforceability of Prepayment-Premium Provisions in Mortgage Loan Documents," *First American Title Insurance Company*.
- Assumes payments are based on a 30/360 schedule.
- This yield must be adjusted to account for the difference between semi-annual yield (SAY) and monthly yield (MY). The formula is  $MY = 12[-1 + 1(1 + SAY/2)^{1/6}]$ . "^^" represents an exponential function.
- Actually the available issue is May 15, 2004, not June 1, 2004. As such, the funds will sit in the defeasance account for 15 days before being released to the lender.
- Accrued interest is the amount of interest the bond has earned as of the settlement date but will not be realized until the semi-annual payment date. When bonds are traded between payment dates the buyers are typically required to pay the sellers the amount of this accrual.
- Bond yields and price have an inverse relationship. The higher the yield the greater the attractiveness of the bond, thus the price is bid down. The same holds true for the reverse scenario where yields are down, forcing price to rise to stimulate demand.
- There are several other occasions where smaller balances are left idle in the account. The entire effect of this is estimated at an additional \$5,000.
- A REMIC is a Real Estate Mortgage Investment Conduit created by The Reform Act of 1986. The REMIC is a pass-through entity designed to hold real estate assets without incurring entity level tax.
- New York State Commissions Advisory Opinion, Petition No. M991230A, February 25, 2000.
- A further benefit to a CMBS investor is that the IRS is less likely to consider a defeasance an asset sale than if the prepayment is handled as a payoff. The retention of non-tax paying status is of utmost importance to the REMIC owners.