

**BOND PRICING WITH TAXES IN THE
US GOVERNMENT BOND MARKET**

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Abstract

Research on the impact of taxes on the pricing of government bonds has resulted in two somewhat conflicting arguments. The first is that of Schaefer's clientele effects. Schaefer finds that because of differing tax implications, investors will prefer some bonds to others, and no investor will want to hold all bonds. Litzenberger and Rolfo, meanwhile argue that a representative investor exists, and that all bonds are correctly priced for each tax bracket. In this situation, investors will hold positive amounts of all bonds.

The purpose of this thesis, is to test which of these arguments hold in the US government bond market. A methodology similar to that used by Schaefer will be employed, however, we will replace the linear combination of Bernstein polynomials used by Schaefer with a different functional form known as basis splines.

The period examined encompasses the pre-legislation, legislation, and the post-legislation period of the Tax Reform Act of 1986. We find that clientele effects exist during the pre-legislation period, that they diminish during the legislation period, and then disappear in post-legislation period.

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Chapter 1

Introduction

Despite the fact that the market today is much more efficient than ever before given the advances in communications and modern evaluation techniques, relative values can still be found. One reason for this is taxes. The search for relative value in itself is a valuable reason to understand the role that taxes play in bond pricing. In addition, the effect of taxes on bond prices has direct applications in very fundamental areas of finance, for example, the creation of an immunized portfolio. When constructing an immunized portfolio, one must properly select the bonds to be included in the portfolio, and then form the portfolio meeting the required duration specifications. Inclusion of improperly priced bonds will only result in the failure of the immunization process.

Research concerning the impact of taxes on the pricing of government bonds began with a seminal contribution by Schaefer in 1982, who after examining the UK Gilt market concluded that because of differing tax implications, no agent will want to hold all bonds, and that investors in only particular tax brackets will want to hold a given security. This is referred to as the clientele effect.

In contrast to these findings, Litzenberger and Rolfo, after testing the bond markets of several countries insisted instead that no clientele effect exists and that bonds are properly priced for each tax bracket. This approach is referred to that of the representative

investor.

This thesis will examine the impact of taxes on the prices of government bonds, more specifically, it will explore whether clientele effects exist in the US government bond market, between April 1982 through August 1987. This period selected encompasses the pre-legislation, legislation, and post-legislation period of the Tax Reform Act of 1986. Prior to this act, tax rates ranged from 0% through 50% with a maximum capital gains tax of 20% for individuals. The Tax Reform Act of 1986, eliminated the capital gains tax and thus all gains were then taxed as ordinary income.

The methodology used will be similar to that used by Schaefer[23] except that rather than using a linear combination of Bernstein polynomials, a different functional form known as basis splines will instead be used to describe the discount function. The approach taken attempts to construct a least cost portfolio which replicates the cashflow stream of a given bond. A least cost portfolio is a portfolio of bonds which provides at least as great a cashflow but at a lower price. Should such a portfolio be constructed then we have shown that that a particular bond is not rationally held by investors in a particular tax bracket. The existence of dominated bonds demonstrates a tax clientele effect.

As might be expected, clientele effects do exist during the early years of our observation period, and then slowly phase out as tax regulations begin to treat capital gains as ordinary income.

Chapter two will begin by reviewing past works concerning the impact of taxes on the pricing of government securities. The two conflicting arguments of Schaefer, and Litzenberger and Rolfo will be examined. Also more recent works will be covered.

Chapter three then covers basic concepts and terms related to the term structure area. It continues then by surveying the literature related to direct term structure estimation methodologies, beginning first with discrete approaches, and progressing to continuous methodologies. In the past, high degree polynomials have been used. More recently, several low degree polynomials joined together at knot points have been used. These piecewise polynomials are referred to as spline functions. The spline function which we will use is called basis spline. A discussion of basis splines is also included in this chapter.

Chapter four delves into the model and the methodology which will be implemented. The discrete primal version of the linear program model which minimizes the cost of the portfolio, subject to the fact that the cashflow of the target bond is less than or equal to the cashflow of the replicating portfolio. It is then followed by its discrete dual and continuous version. The chapter ends with an example which summarizes the main points of the chapter.

Before the results are presented, chapter five discusses the data which is used, the progression of the various tax regimes during the period examined, and finally the spline parameters which are used.

Finally in chapter six, the empirical results are presented. The results from representative months are examined and a comparison with Schaefer's results is made.

Chapter 2

Impact of Taxes on the Pricing of Government Bonds

2.1 Introduction

Dybvig and Ross[22] define a clientele effect as a securities market equilibrium where due to differing taxation, no agent will want to hold all assets. The empirical evidence on clientele effects are mixed. Schaefer[23][24], who after examining the UK Gilt market concluded that no agent will want to hold all bonds, and that investors in only particular tax-brackets will chose to hold given securities. In contrast to these finding, Litzenberger and Rolfo[15][16], after testing various bond markets conclude that no clientele effects exist, and that bonds are properly priced for all tax-brackets.

In the next section, we will discuss these findings in more detail, as well as review more recent theoretical contributions made by Prisman[20], Ronn[19], Zechner[34].

2.2 Relationship Between Price and the Present Value of a Bond

Work concerning the impact of taxes on the pricing of government bonds began with a seminal contribution by Schaefer in 1982. The essence of his argument is that investors in different tax brackets will not typically agree on security values. Therefore an equilibrium

will not exist unless these tax arbitrage opportunities are constrained by some form of market friction, such as a ban on short sales. This form of market friction, allows for an equilibrium, characterized by clientele effects to appear.

Let C^e be a $n \times T$ after-tax cashflow matrix for tax-bracket e with $e = 1, \dots, k$. Then c_{ij}^e represents the after-tax cashflow from bond i at time j where $i = 1, \dots, n$ and $j = 1, \dots, T$. Let d^e be a $T \times 1$ vector of discount rates for tax bracket e , P be a $n \times 1$ column vector of market prices, and x a $n \times 1$ vector representing the number of units of a bond which is held. In a perfect, frictionless market, i.e. one where no taxes or other frictions exist, and where short sales are allowed, the following **no-arbitrage condition** holds:

$$C^e d^e = P \quad (2.1)$$

Here the present value of a bond's cashflow is equal to its market price. Alternatively we can say that the no-arbitrage condition holds when the term structure equates the present value of the cashflow with its price. The existence of a set of discount rates which satisfy the no-arbitrage equation and the absence of arbitrage opportunities are exactly equivalent.

An **arbitrage opportunity** exists when there exists an x such that $x'P \leq 0$ and $x'C^e \geq 0$ with at least one of these inequalities being a strict inequality. An arbitrage opportunity is then one in which a zero net investment portfolio which provides a positive cashflow in the current or future period can be constructed.

Now assume that taxes exist in an otherwise frictionless market, and that the treatment of short positions is symmetric with the treatment of long positions. Also assume

that all future tax rates are known. In equilibrium, the no-arbitrage condition must hold for each individual in the market. Therefore a separate no-arbitrage condition must now be satisfied for each tax bracket. However, we find that once taxes are included in a frictionless market, it is often impossible to satisfy separate no-arbitrage conditions simultaneously for each tax-bracket. Therefore arbitrage may result. The example below illustrates this point.

Let us assume that we have two, one-period bonds. We compare a tax-exempt scenario and a taxable scenario where the ordinary income tax rate is assumed to be 50% and the capital gains rate is 20%. Bond 1 has a coupon of 3.5% and Bond 2 a coupon of 12%. If a no-arbitrage opportunity exists for the tax-exempt investor then a discount factor d_{ex} must exist and must equate the present value of each bond to its market price. Therefore,

$$\begin{aligned} 103.50d_{ex} &= p_1 \\ 112.00d_{ex} &= p_2 \end{aligned} \tag{2.2}$$

Rearranging these equations we get:

$$\frac{103.50}{112.00} = \frac{p_1}{p_2} \tag{2.3}$$

For the taxable investor, the discount factor, d_{tx} , would equate the following:

$$(100 + 0.50(3.50) - 0.20(100 - p_1))d_{tx} = p_1$$

$$(100 + 0.50(12.00) - 0.20(100 - p_2))d_{tx} = p_2 \quad (2.4)$$

Rearranging these equations we get:

$$\frac{81.75}{86.00} = \frac{p_1}{p_2} \quad (2.5)$$

Since the ratio of prices are not equal it is impossible for the two investors to agree on the relative value of the bonds. Therefore we conclude that the two scenarios are inconsistent, and any set of prices will offer at least one investor an arbitrage opportunity.

In order to realize arbitrage profits, one investor must short a position in at least one security. Therefore in order to prevent such opportunities, one can impose some sort of friction, such as a ban on short sales. This constraint then alters the above no-arbitrage equation to the following inequality:

$$C^e d^e \leq P \quad (2.6)$$

This leaves us with investors in the same tax bracket forming a tax-clientele and holding only bonds for which the above equation holds with a strict equality. Should $C^e d^e > P$, then the investor could arbitrage by purchasing at P , and an equilibrium cannot exist until all such opportunities are exhausted.

When selecting between various one-period bonds, the bond which offers the highest after-tax return is selected by the investor. However, in the multi-period scenario a more complicated linear programming approach of forming a least cost portfolio which replicates a given cashflow stream must be taken. Schaefer uses this approach to find

evidence supporting the tax-clientele argument while examining the UK Gilt market. More on Schaefer's method will be covered later in this thesis.

Litzenberger and Rolfo[16], while examining the treasury markets of various countries, find evidence contrary to that of Schaefer's. They maintain that a bond's cashflow can be decomposed into three components: ordinary income, capital gains, and non-taxable wealth. Each component attracts a different tax rate as well as a different discount rate. They argue that the existence of three discount rates for each time period provides sufficient flexibility to ensure that all bonds can be properly priced for each tax-bracket. The Litzenberger and Rolfo equilibrium is characterized by investors from different tax brackets holding positive amounts of all bonds. They estimate the term structure via linear regression techniques. This implicitly allows them to incorporate random errors. They find that most investors are in the tax bracket which minimizes the standard error of the residuals of the term structure regression. These investors are referred to as the representative investor.

Prisman[20], then reviews the Schaefer and the Litzenberger and Rolfo models using a utility-based and a no-arbitrage argument. He concludes that a regression approach as used by Litzenberger and Rolfo is inconsistent with equilibrium and distorts the tax effect, whereas Schaefer's linear programs identify the bonds priced correctly for the specific clientele.

Ronn[19] uses a discrete-time linear program which maximizes arbitrage profits by purchasing underpriced bonds at the ask price and selling short overpriced bonds at the bid price, while simultaneously minimizing the amount of cash carried forward. He finds that clientele effects are evident in the pricing of government bonds, although not all high coupon bonds are attractive to tax-exempt investors, nor are all low coupon bonds

desirable to taxable investors.

Both Schaefer's and Litzenberger and Rolfo's approaches are implicitly based on a buy-hold assumption. Constantinides and Ingersoll[5] relax this buy-hold assumption by developing a model based on an optimal trading strategy, whereby investors have the option of recognizing gains and/or losses for tax reasons. In a second paper[15], Litzenberger and Rolfo test for this tax option effect. They begin by examining sets of three government bonds with the same maturity date. From option pricing theory, we know that the value of a portfolio of options on individual securities is greater than the value of a single option on a portfolio of securities. The realization of capital gains can be viewed as an option, one which can be profitably exercised for some bonds and not for others. Therefore if a tax option effect exists, a portfolio of two bonds that offers the same cashflow if held to maturity as a third bond would have a higher value. Litzenberger and Rolfo find a positive price difference but of a magnitude less than the transaction costs. They conclude that a tax option effects exists, but they fail to find evidence supporting a tax clientele effect. They note however, that triplets with wider a dispersion of coupons and longer maturity exhibit some clientele effects.

All of the above analyses assume that the default risks of bonds are essentially zero and that the coupon rate of each bond is determined by the existing market rates. In contrast to previous papers, Zechner points out that coupon rates differ because of different levels of default risk[34]. He shows that because of the asymmetry which exists with personal taxes, riskier bonds will offer a greater amount of taxable income than less riskier bonds. This being the case, these riskier bonds will then be more attractive to investors in lower tax brackets, while their less riskier counterparts will be preferred by investors in higher tax-bracket, i.e., the risk of bonds' cashflow and bondholders' tax-brackets are inversely

related.

Chapter 3

Review of Direct Estimation of Term Structure Studies

One approach to estimating the term structure of interest rates includes equilibrium term structure models such as the single factor models of Vasicek[32] and Courtadon[6], and the two-factor model of Brennan and Schwartz[2], to name only a few. These equilibrium term structure models are derived by assigning stochastic processes to one or more interest rates. Vasicek and Courtadon employ the short rate of interest as their state variable, and equilibrium levels of all other rates are then derived from this one variable. Brennan and Schwartz present a two-factor model in which the dynamics of the term structure are related to the rate on a perpetual or console rate and the short rate.

Some practical difficulties involved with this approach are that the models require the estimation of, or the assumption of, the stochastic process driving one or two interest rates. Also, these models require the estimation of a parameter determined by investor utility. This parameter relates to risk aversion[10]. In addition, the spot rate curves derived from these models do not conform well to the observed data, and often the spot rate curves exhibit more varied shapes than those proposed by these equilibrium models.

An alternative approach to estimating the term structure is to accept the current observed term structure as consistent with an unobserved and unspecified equilibrium and then simply measure. The objective in direct estimation of the term structure is to

fit a spot rate curve (or discount function) such that the data fits sufficiently well and is sufficiently smooth. It is the balance of these two objectives which we seek. From a practical point of view, we are not so much interested in a curve with many sharp turns that fits statistically well, and explains the observed bond prices well. We are more interested in a curve which is economically sensible, one which reveals the time value of money. Also the spot rate curve is not constructed to reflect what we think it should be. The construction recognizes the role the term structure plays in explaining observed bond prices and that it behaves in a “reasonable” fashion. Decisions concerning how smooth the curve should be or how well it should explain bond prices are purely subjective. Therefore the spot curve is not uniquely defined by the observed bond prices and if it is possible to construct another spot rate curve, the most likely, the two curves cannot be terribly different[10].

In this section, we will review the progression of continuous direct estimation methods of measuring the term structure of interest rates. Methodologies involving Bernstein polynomials, quadratic and cubic splines, truncated power basis, exponential splines, and basis splines will be examined. However, before these methods are explored, basic concepts will first be reviewed, followed by a brief digression on discrete methodologies.

3.1 Concepts and Terms

The **spot interest rate** of a given maturity is defined as the yield on a pure discount or zero coupon bond of a similar maturity. The **term structure of interest rates** refers to a continuum of spot rates on pure discount securities which differ only by their time to maturity. These spot rates are often not directly observable, as there are only a few

pure discount bonds available. Therefore a **term structure model** which estimates the spot rates from the prices of coupon bearing bonds is needed.

Conceptually, the estimation of the term structure is rather straightforward. The standard bond pricing equation for bond i is:

$$P_i = \sum_{j=1}^T c_{ij}d_j \quad (3.7)$$

where P_i is the price of bond i , c_{ij} are coupon payments of bond i at time j , and d_j is the discount factor at time j , where there are T periods. Therefore each coupon bond can be thought of as a package of discount bonds—i.e. one composed of T bonds with face values equal to the coupon amount and one bond corresponding to the principal payment. Each component bond is then discounted by the spot rate corresponding to its maturity. The current value of this package, i.e. the price of this coupon bond, is then the sum of the prices of these discounted component bonds.

Once the discount factors are uncovered, the spot rates, R_j , can readily be found for $j = 1, \dots, T$, using the following equation:

$$R_j = \left(\frac{1}{d_j}\right)^{\frac{1}{j}} - 1 \quad (3.8)$$

Spot rates describe the term structure by specifying the current interest rate for a given maturity.

The implication of spot rates to the future can be described in terms of forward rates. The **forward rates** are one-period future reinvestment rates implied by the current term

structure. The implied forward rates are given by the following equation:

$$f_j = \frac{d_{j-1}}{d_j} - 1 \quad (3.9)$$

where f_j is the forward rate at time j , and d_{j-1} and d_j are the discount factors at time $j - 1$ and j respectively.

Solving (3.9) for the discount factor d_j gives us the following:

$$d_j = \frac{1}{(1 + R_j)^j} \quad (3.10)$$

Notice that the discount factor is the present value of a \$1 payment in the future. If we were to substitute equation (3.10) into equation (3.9), we get the following:

$$1 + f_j = \frac{(1 + R_j)^j}{(1 + R_{j-1})^{j-1}} \quad (3.11)$$

We can see from the above, that the forward rate for a given period j in the future is the marginal rate of return from investing in a discount bond for one additional period. From equation (3.11), we can state the relationship between the spot and forward rate in the following manner:

$$(1 + R_j) = (1 + f_j)(1 + f_{j-1})\dots(1 + f_1) \quad (3.12)$$

The above equation states that the spot rates are obtained by compounding the forward

rates over the term structure of the spot rates. This is the reason why, we can interpret the forward rate f_j as the spot rate over the period $j - 1$ and j which is implicit in the current term structure of interest rates.

3.2 Discrete Estimation

By using multiple regression techniques, the standard bond equation (3.7) is often used to estimate the discrete time discount factors, d_j . There are, however, several problems with this methodology. The primary difficulty stems from the fact that there are too many different payment dates which makes it difficult to estimate directly the parameters of equation (3.7). A linear program technique[11] using a portfolio dedication model has also been employed. But these also suffer from similar dimensionality deficiencies.

One simple approach around this problem is to assume that bond payments are made only on a given set of specified dates. This is the approach taken by Carleton and Cooper[3]. They successfully carried out this technique by carefully selecting US Treasury bonds and Federal Home Loan Bank securities which made payments on only four payment dates per year. In order to ensure that the cashflow matrix had sufficient rank, they found it necessary to restrict the maximum maturity to seven years. This maturity restriction, along with the fact that all available bonds cannot be used are limiting arguments against the use of their technique.

Other technical problems with discrete discount factor estimation, involves the matters of smoothness and interpolation between discrete discount factors. Without smoothing, the implied forward rates derived from discrete discount factors may vary in a "peaky" and unrealistic fashion. Also with discrete discount factors, it is unclear as

to how intermediate discount factors can be estimated.

3.3 Continuous Estimation

It is often more convenient to define the discount function as a continuous function of time. Normally, a continuous time discount function is smooth and monotonically non-increasing where the price of \$1 at time zero is \$1, and the value of a payment some time in the future tends to zero.

From the previous section, we can list a few reasons as to why a continuous approximation method is convenient to use in the estimation of the term structure of interest rates:

- Continuous estimation allows the use of all available bonds spanning the entire maturity spectrum;
- Continuous estimation can estimate *any* point in time between sample maturities;
- Continuous estimation can provide non-negative, continuous, and smooth forward rates¹;
- Continuous estimation is consistent with the view of the term structure of interest rates being a continuum.

However, with these benefits are costs. One potential cost relates to functional form distortions. This involves an approximating function imposing an extraneous shape onto

¹The key word here happens to be *can*. Continuous estimation can provide the above, however it also *may not*. Proper selection of component function will ensure that rates are non-negative and smooth.

the term structure. In addition to this cost, there is the related risk of over- or under-smoothing which is related to the arbitrary selection of the number of component functions used. These costs/risks need to be addressed when estimating the term structure continuously.

3.3.1 Direct Estimation Methodologies

Polynomial approximation is one method of approximating differentiable functions. Often it is very tempting to fit a high degree polynomial approximation, which passes very closely through or nearby all of ones data points. However, this will result in approximations which fluctuate wildly over a large range, and it will produce unreliable error and parameter estimates.

One example of a polynomial approximation is the one used by Schaefer[23] [24]. He chose a combination of functions derived from Bernstein polynomials which are monotonic and dependent on the order of the polynomial set employed. Jordan[13], in his examination of Schaefer's Bernstein polynomials, reports that a close fit necessitates the use of a higher order approximating set which in turn induces more oscillation in the forward rates. A high degree polynomial is much too flexible and may imply negative forward rates especially for maturities in which insufficient bonds are available[12].

An alternative to approximation via high degree polynomials, is the use of several low degree polynomials joined together at join points or knots. These piecewise polynomials are called spline functions. All spline functions are continuously differentiable over all subsections in which the low order polynomials are defined. The placement of the knots is left up to the discretion of the user, although there are a number of considerations which

aid in their placement. The primary motivation behind the use of spline approximating methodologies is to allow the approximation more flexibility in shape, i.e. to allow the subintervals to be to a certain extent independently determined. This is possible because of the local dependence of spline functions, i.e. the shapes of the different polynomial pieces are largely determined by the local data.

As spline functions are linear combinations of functions known as *basis* functions, the key to spline estimation is the selection of the basis function which best reflect the nature of the term structure of interest rates over a subinterval. McCulloch[17] in 1971 first used quadratic spline functions to approximate the discount function for US Treasury securities and a few corporate issues. Since the function is only once continuously differentiable, his forward rate curves possessed discontinuous first derivatives. In 1975, McCulloch used cubic splines to estimate tax-adjusted discount functions. This method produces reasonable spot rates but produce rather unbelievable forward rates[13] which are very volatile for longer maturities, i.e. small changes in the curvature of the spot rate function, especially in the twenty to thirty year maturity range, induce large changes in the forward rate function.

Rose and Schworm[21] in 1980, used a truncated power basis to estimate the term structure based on Canadian federal debt. They report that term structure estimates based on spline functions often generate forward rates that were unstable and which fluctuated wildly.

In 1982, Vasicek and Fong[33] specify that the discount functions are of an exponential shape, and that while spline functions are indeed flexible estimation tools they are ill-suited to fit an exponentially shaped curve. They state that although polynomial splines can be forced to fit arbitrarily close to an exponential curve by selecting a sufficiently

large number of knots, the polynomial spline tends to weave around the exponential spline, resulting in unstable forward rates. They note also that spline functions can not be forced to tail off in an exponential fashion as the maturity increases.

Shea[30] counters in 1985, stating that while Vasicek and Fong correctly pinpointed the difficulties connected with modeling exponential functions, they neglected to report that these difficulties did not apply to local polynomial approximations of exponential functions. Shea also points out that the Vasicek and Fong model is no more likely to produce more stable forward rates than ordinary spline models.

Shea[28] in 1982 and Steeley[31] in 1989 recommend a function known as basis or B-splines. The next section will deal with this spline specification as it is the functional form which will be used later in this thesis.

3.3.2 Basis Splines

The problem often cited with other bases is that they generate regressor matrices which are nearly perfectly collinear. Basis splines are often recommended since they are identically zero over a large portion of the approximation space which very conveniently increases its computational efficiency. In spline terminology, it is said that a basis spline basis possesses a small support. This means that a small proportion of the basis function is nonzero. The smaller the support, the more likely the matrix of spline regressors will have columns filled with zeros[28].

The following notation will be used in the discussion on basis splines.

- m = order of spline function

- k = number of internal knots
- ξ_i = knot points with $i = 1, \dots, k$
- $B_{p,m}$ = basis spline of order m at an index point of p

To develop the concept of basis splines, let us first suppose we are interested in splines of a given order² with some set of knots

$$a < \xi_1 < \dots < \xi_k < b$$

where k indicates the number of internal knots between the endpoints a and b . Recall that knots are simply the points at which the piecewise polynomials are joined. Although knot point selection is left primarily to the discretion of the user, knot points which best fit the given prices need to be selected. Too many knots produce very wiggly term structures that weave through the data points. Too few, on the other hand, produces systematic biases, where regions of over- and under-priced bonds exist[14].

The order of the spline function determines its degree of smoothness. With lower order splines, the estimated term structure will range from a discontinuous step function of order one, to a kinked term structure of order two, to a smooth term structure with “scalloped” forward rates of order three. The cubic spline (order 4) is the lowest order spline which produces a smooth spot and forward curve. We will therefore use a cubic basis spline.

²At times the use of the word *order* can be a source of confusion. Some texts on splines prefer to use the term *degree m*. *Order* is equivalent to *degree* plus one. Therefore a spline function of order four is equivalent to a spline function of degree three.

We then introduce $2m$ extra knots outside the interval $[a, b]$ to satisfy the boundary conditions, and set m of them equal to a and m of them to b . This gives us the following:

$$a = \xi_{-(m-1)} = \dots = \xi_0$$

$$\xi_{k+1} = \dots = \xi_{k+m} = b$$

An example would be helpful at this stage. Suppose we were applying a cubic spline with two internal knots, and that $a = 0$ and $b = 1$. Then m would be equal to 4, as we are working with a *cubic* spline, and k would be equal to 2, say we arbitrarily select $\xi_1 = .25$ and $\xi_2 = .75$. If we assume that $a = 0$ and $b = 1$, then the progression of knots will be 0,0,0,0,.25,.75,1,1,1,1.

There are many different equivalent definitions for basis splines[8][9]. For our purposes, it is most convenient to use the recursive definition of divided differences to obtain a recursion formula for the basis spline of order m at index p , $B_{p,m}$. The index p relates to the given knot scheme.

Assuming that $\xi_1, \dots, \xi_k$ are distinct, then $B_{p,m}(t)$ can then be defined as:

$$B_{p,m}(t) = \frac{t - \xi_p}{\xi_{p+m-1} - \xi_p} B_{p,m-1}(t) + \frac{\xi_{p+m} - t}{\xi_{p+m} - \xi_{p+1}} B_{p+1,m-1}(t). \quad (3.13)$$

A basis spline of order 1 ($m = 1$) is defined by

$$B_{p,1}(t) = \begin{cases} 1 & \text{if } t \in [\xi_p, \xi_{p+1}). \\ 0 & \text{otherwise} \end{cases} \quad (3.14)$$

The basis spline of order one transforms the time variable so that it is equal to one between the interval $[\xi_p, \xi_{p+1})$, and it zero otherwise. Since $2m$ is equal to 2, two additional knots $a = \xi_0$ and $b = \xi_{k+1}$ are required. $B_{p,1}(t)$ is discontinuous. The *support* of this function is defined as the set of points where the function is not equal to zero. Thus we say that the support of $B_{p,1}$ is the interval $[\xi_p, \xi_{p+1})$.

With the function $B_{p,1}$ as a starting point, we can now recursively generate the higher order basis splines by applying definition (3.13).

Now let us determine the *linear* basis spline, $B_{p,2}$, where $m = 2$. Since $2m$ is equal to 4, four additional knots $a = \xi_{-1} = \xi_0$ and $b = \xi_{k+1} = \xi_{k+2}$ are needed in this computation. Applying (3.13), we get

$$B_{p,2}(t) = \frac{t - \xi_p}{\xi_{p+1} - \xi_p} B_{p,1}(t) + \frac{\xi_{p+2} - t}{\xi_{p+2} - \xi_{p+1}} B_{p+1,1}(t). \quad (3.15)$$

This linear basis spline can be thought of as a weighted average of basis splines of order one from index points p and $p + 1$.

By convention we set $B_{-1,1}(t) = 0$ and $B_{k+1,1}(t) = 0$. This gives us:

$$B_{p,2}(t) = \begin{cases} B_{-1,2}(t) = \frac{\xi_1-t}{\xi_1-\xi_0} B_{0,1}(t) \\ B_{0,2}(t) = \frac{t-\xi_0}{\xi_1-\xi_0} B_{0,1}(t) + \frac{\xi_2-t}{\xi_2-\xi_1} B_{1,1}(t) \\ \vdots \\ B_{k,2}(t) = \frac{t-\xi_k}{\xi_{k+1}-\xi_k} B_{k,1}(t) \end{cases} \quad (3.16)$$

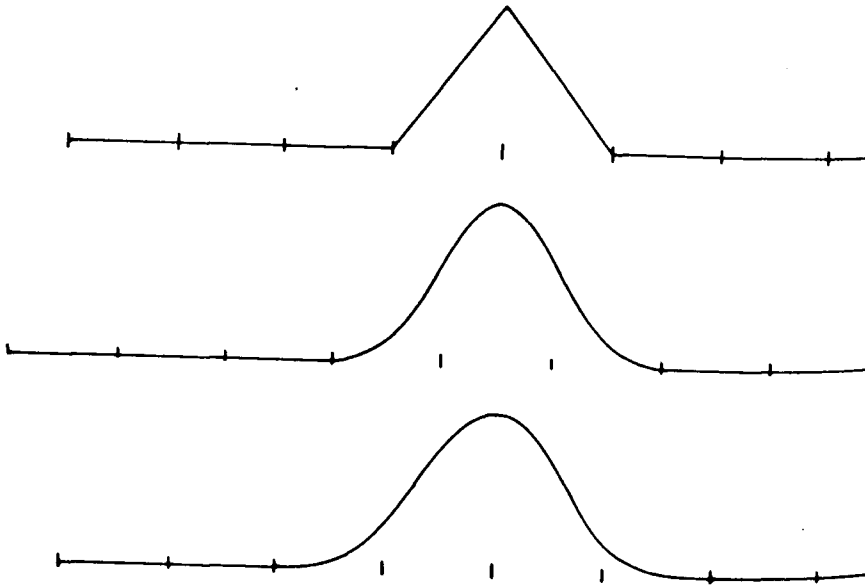
or more generally,

$$B_{p,2}(t) = \begin{cases} 0 & \text{if } t \geq \xi_{p+2} \text{ or } t \leq \xi_p \\ \frac{t-\xi_p}{\xi_{p+1}-\xi_p} & \text{if } \xi_p < t < \xi_{p+1} \\ \frac{\xi_{p+2}-t}{\xi_{p+2}-\xi_{p+1}} & \text{if } \xi_{p+1} \leq t < \xi_{p+2} \end{cases} \quad (3.17)$$

Figure 3.1 illustrates the linear basis spline. The support of $B_{p,2}$ is the open interval (ξ_p, ξ_{p+2}) .

Figure 3.1:

Basis Spline of Order 2, 3, and 4



Source: Powell

As we are interested in the cubic basis spline, or a basis spline of order four, $B_{p,4}$, we will continue to recursively generate $B_{p,3}$ by applying definition (3.13). Figure 3.1 illustrates a cubic basis spline.

As mentioned earlier, basis splines are often recommended since they are identically zero over a large portion of the approximation space. In addition to possessing a small support, basis splines also possess local support. Specifically this means that $B_{p,m}(t) = 0$ if t is not included within $[\xi_p, \xi_{p+m}]$. This local support property is one of the key reasons for the popularity of basis splines.

Basis splines also have other desirable properties such as being normalized to sum to one, i.e., $\sum_{p=-\infty}^{\infty} B_{p,m}(t) = 1$ for all t . From our last example, we can say that

$\sum_{p=-\infty}^{\infty} B_{p,2}(t) = 1$ for all t , and consequently, we can see that every spline of order two is a linear combination of $B_{p,2}$, and therefore it can therefore be said to be piecewise linear. Similar results hold for splines of higher order. Note that $B_{p,3}$ is piecewise quadratic, and $B_{p,4}$ is piecewise cubic, and so on. The discount function then at any maturity depends on only four of the spline functions³, rather than all of the spline functions, thereby reducing the amount of computation.

³Assuming of course that we are using a cubic spline function.

Chapter 4

Methodology

Schaefer[23] used a linear programming approach to test for clientele effects. Using a replication argument, he attempts to replicate the cashflow stream of a given bond by using other available bonds. Should replication be possible, and if it is accomplished at a lower cost, then we conclude that a bond is improperly priced, and would not be held by those in the assumed tax bracket. Should no such replication be possible, then we say that a given bond is properly priced for the assumed tax bracket. We will in essence use this same approach. The only variation will be in the component function used. Schaefer describes the discount function as a linear combination of functions derived from Bernstein polynomials. We will replace the use of these Bernstein polynomials with cubic basis splines.

In its primal form, the model minimizes the cost of the portfolio subject to the constraint that the cashflow of the target bond is less than or equal to the cashflow of the replicating portfolio. The dual of this program maximizes that value of the target bond subject to the fact that the discounted cashflow of every other bond is less than or equal to its price. This constraint is the no-arbitrage condition, equation (2.6).

In order to explain the model in more detail, the discrete case will first be examined, followed by its continuous version. Finally, an example is used to clarify and point out

key issues concerning the methodology.

4.1 Discrete Model

The following notation will be used:

- c_{hj} = after-tax cashflow from the target bond h in period j
- c_{ij} = after-tax cashflow from bond i in period j
- p_i^{ask} = ask price of bond i
- x_i^{ask} = number of units of bond i which are held
- d_j = discount factor at time j
- $i = 1, \dots, n$ = number of bonds
- $j = 1, \dots, T$ = number of time periods

The least cost portfolio which replicates the cashflow of target bond h is the solution to the program below. Here we are minimizing the cost of the portfolio, subject to the fact that the cashflow of the target bond is less than or equal to the cashflow of the replicating portfolio.

$$\begin{aligned}
 & \text{Min}_{x_i^{ask}} \quad \sum_{i=1}^n p_i^{ask} x_i^{ask}, \\
 & \text{s.t.} \quad \sum_{i=1}^n c_{ij} x_i^{ask} \geq c_{hj}, \quad j = 1, \dots, T \\
 & \quad \quad \quad x_i^{ask} \geq 0, \quad i = 1, \dots, n.
 \end{aligned} \tag{4.18}$$

This linear program has an optimum solution provided that for every period j there is at least one bond which pays a cashflow during that period. However, note that as no provision for carrying excess cash forward or backward from one period to another (lending and borrowing rates) is made, the cost of meeting the cashflow constraint may be prohibitively high. One solution to this problem is the incorporation of an exogenously given reinvestment and/or discount rate.

The dual variables from this linear program measures the cost of a marginal increase in the cashflow in each period and therefore correspond to discount factors. Note that unless the cashflow constraints are binding, the corresponding discount factor at the given time point is zero. Thus only the payment dates of bond h need be examined. This however is a conceptually flawed manner of measuring the term structure. It is inconsistent to think that a discount factor exists at one point, and then nonexistent at another nearby point.

As we are interested in the discount factors the dual of this program is more convenient to work with. It is given by the following linear program:

$$\begin{aligned}
 \text{Max}_{d_j} \quad & \sum_{j=1}^T c_{hj} d_j, \\
 \text{s.t.} \quad & \sum_{j=1}^T c_{ij} d_j \leq p_i^{ask}, \quad i = 1, \dots, n \\
 & d_j \geq 0, \quad j = 1, \dots, T.
 \end{aligned} \tag{4.19}$$

The solution to the above program gives us the maximum value for the target bond h which does not imply a positive net present value for the other bonds. Net present value is the present value of bond i less the price of bond i . Individuals may designate a lower

value than the solution from program (4.19); however, no rational individual will assign a higher value. For this reason linear program (4.19) calculates the upper bound on the value of bond h .

Notice that the first constraint is merely the no-arbitrage condition of equation (2.6). Should this constraint not hold, then arbitrage would be possible. Schaefer then also adds $1 \geq d_1 \geq d_2 \geq \dots \geq d_T \geq 0$ in order to ensure a monotonic, nonincreasing discount function.

No bond with a present value less than its purchase price will be purchased. However, bonds whose present value exactly equals the purchase price will be purchased as they are regarded as correctly priced, and the discount rates used to calculate the maximum value for the target bond h will be derived from these properly priced bonds. The discount rates derived from these properly priced bonds constitute the tax-specific term structure. The constraints which are binding will vary with tax rates. Therefore the tax-specific term structures are not merely transformations of their pretax counterparts, but are estimated from securities which are rationally held by investors at that tax bracket.

Although both of these discrete problems can be modified to include a lending and borrowing rate, the more immediate question then concerns the appropriate rate(s) to be used. One approach is to simply initially set an exogenously low lending rate and high borrowing rate, so that bonds might be mispriced relative to each other, but not because of desirable reinvestment opportunities. The resulting spot rate function would then be piecewise linear with very peaky and therefore an implausible forward rate function[12]. Also, the lending/borrowing rates chosen may be substantially different from the rates existing in the market from one period to another. To overcome this problem, we could

repeatedly solve the model, resetting the two rates each time. An approach which effectively accomplishes this is described in the next section on the continuous model.

4.2 Continuous Model

It is often natural to think of the discount function or term structure of interest rates as a smooth curve. After all it is difficult to conceptually explain with the discrete model why at certain time points, for instance at points where target bond h makes payments, a discount rate exists, and why at other points the discount rate is zero. Conveniently, the continuous estimation of the discount function resolves this problem, while simultaneously substantially lessening the number of variables involved and allowing for the precise timing of each cashflow. It also implicitly resets repeatedly the borrowing and lending rates as described in the previous section.

We will apply a spline methodology as described previously since its segmented nature provides more flexibility in handling more complex shapes than polynomial approximations and the approximation is allowed to adjust more effectively to local characteristics of the data.[9]

Employing this concept of connecting lower degree polynomials, we can approximate the discount function by a linear combination of L component functions $f_l(t)$, $l = 1, \dots, L$ where $L = m + k$, i.e. L is the sum of the order of the function and the number of interior knots, as

$$d(t) = \sum_{l=1}^L \alpha_l f_l(t) \quad (4.20)$$

where $d(t)$ is the discount function, $\alpha_l, l = 1, \dots, L$ are weights attached to the component function $f_l(t)$ which is a function of time, t . The discount function is then the sum of weighted, transformed time points.

The standard bond pricing equation for bond i is

$$p_i = \sum_{j=1}^T c_{ij} d_j \quad (4.21)$$

Using (4.20) in the standard bond pricing equation and rearranging the order of summation, we get

$$p_i = \sum_{l=1}^L \alpha_l \sum_{j=1}^T c_{ij} f_l(t_{ij}) \quad (4.22)$$

or

$$p_i = \sum_{l=1}^L \alpha_l D_{il} \quad (4.23)$$

where

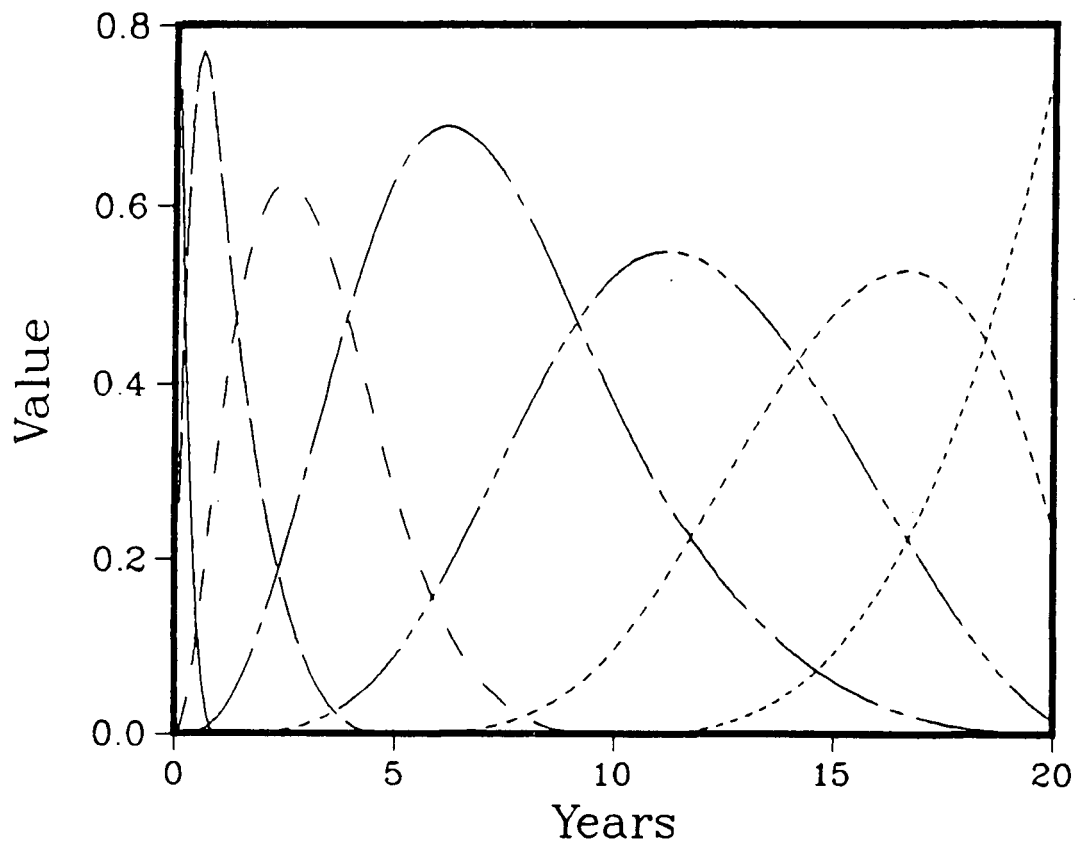
$$D_{il} = \sum_{j=1}^T c_{ij} f_l(t_{ij}). \quad (4.24)$$

In selecting an approximating function $f_l(t)$, we use a cubic basis splines. From this point on $f_l(t)$ will refer to the cubic or fourth order basis spline, $B_{p,4}$, rather than to a

general approximation function. Figure 4.2 illustrates a cubic basis spline with a and b equal to maturities of 0 and 21 years, with internal knots at 1, 5, and 10 year maturities.

D_{it} can now be interpreted as the summed products of cashflows and basis splines. More specifically, it is the summed products of bond i 's cashflow at time j and its

Figure 4.2:
Cubic Basis Splines With Knot Points
at Maturities 0, 1, 5, 10, and 21



respective basis spline at time j . Notice that in equation (4.5) the c_{ij} 's and the $f_l(t_{ij})$'s are known. Only the α 's are unknown.

We can now rewrite the dual linear program (4.19) in its continuous form by replacing d_j with its continuous counterpart:

$$\text{Max}_{\alpha_l} \quad \sum_{l=1}^L \alpha_l \sum_{j=1}^T c_{hj} f_l(t_{hj}), \quad (4.25)$$

$$\text{s.t.} \quad \sum_{l=1}^L \alpha_l \sum_{j=1}^T c_{ij} f_l(t_{ij}) \leq p_i^{\text{ask}}, \quad (4.26)$$

$$\sum_{l=1}^L f_l(t_0) \alpha_l = 1, \quad (4.27)$$

$$\sum_{l=1}^L f_l(t_T) \alpha_l \geq 0, \quad (4.28)$$

$$\sum_{l=1}^L f_l(t_\tau) \alpha_l = d(t_\tau), \quad (4.29)$$

$$\alpha_l \geq 0, \quad l = 1, \dots, L \quad (4.30)$$

Rather than maximizing the discount rates d_j as was done previously, this problem now maximizes the coefficient weights α_l . Constraint (4.26) is our no-arbitrage condition in its continuous form. $f_l(t_0)$ represents the basis splines evaluated at time zero, while $f_l(t_T)$ and $f_l(t_\tau)$ represent the basis splines at maturity T and τ respectively. Equation (4.27) ensures that the discount function at time zero is equal to one. Equation (4.28) constrains the discount function at maturity T to be non-negative for all maturities. The sole addition to this continuous version is equation (4.29). This equation aids in increasing the accuracy of the term structure in the short end by guiding the discount function through a discount factor implied by a treasury bill at some point in time τ . In this study, the discount rate implied by a three-month treasury bill is used.

The solution to equation (4.25) – (4.30) provides us with the component weights α_l .

These weights are then substituted into equation (4.20) to get the tax-specific discount rates.

4.3 Methodological Benefits

This approach conveniently holds constant the number of unknown variables to L , the number of coefficient weights, α , used. In the previous case of linear program (4.18) and (4.19), the number of unknowns were conditioned either on the number of bonds included in the observation set or on the number of time periods for which discount factors were desired. One key attribute of this continuous approach is the relative low number of unknown variables. This is a valued attribute when working with an expanded bond universe.

A second useful attribute of a continuous approach is that it resolves the problem of selecting borrowing and lending rates at which excess cash can be carried forward or backward in time. We said previously that one solution is to set exogenously low lending and high borrowing rates, so that bonds are mispriced relative to each other, and not because of attractive reinvestment opportunities. A very peaky spot rate curve results which then implies implausible forward rates. We then said that we could repeatedly solve the model, resetting the two rates each time. Effectively this is what is accomplished in the continuous model. Previously in the discrete case, we were limited to cashflows which were perfectly matched. Now, in the continuous case, the mismatch in cashflow is reinvested at the forward rate.

The last attribute pertains to the use of basis splines as opposed to Bernstein polynomials. As a polynomial, Bernstein polynomials are dependent on the order selected.

Schaefer tests whether increasing the order to infinity causes the clientele effects to disappear. He finds that clientele effects do still exist, however, as the order increases to infinity, the number of bonds which are dominated decreases. With an order of infinity, only nine out of thirty-six bond remain as dominated. He also finds that although his spot and forward term structures are formally consistent with the equilibrium where no short selling is allowed, they are “exotic”¹ and they imply a strong preference for a particular cashflow stream².

When basis splines are used, the selection of order is never arbitrary. Splines of order four is the lowest order which produces smooth spot and forward rates. Similar to Schaefer’s finding, we find that the discount functions for various cashflow streams may differ³, however, unlike him, we find that when a bond is properly priced its discount functions are “reasonable”, that is, non-exotic, monotonically nonincreasing, and very similar in shape. More on this topic is presented in chapter 6. As we mentioned previously, the uniqueness of the term structure is not problematic. And given the no-arbitrage constraint used in the linear program, where the present value of a bond is less than or equal to its market price, we would expect because of the weak inequality, that the number of feasible term structures is infinite.

¹Schaefer found that while it was not possible to make the term structure independent of the cashflow stream, he did manage through an iterative approach to ensure that all estimates of the spot rates were equally sensitive to the objective function. He refers to this discount function as the “normal” discount function.

²See [23] p.150 for a diagrammatical comparison.

³This is because the optimal solution to linear program (4.19) and its continuous counterpart are dependent on the cashflow stream in the objective function

4.4 Example

An example will now be used to summarize the main points of the previous section. Table 4.1 below provides the price, coupon, cashflow, and return for two bonds for a tax-exempt and tax-paying clientele. The ordinary tax rate is assumed to be 50%, while the capital gain rate is assumed to be 20%.

Table 4.1:

Bond Information for Tax-Exempt and
Tax-Paying Clientele

Bond	Price	Coupon	Tax-Exempt Clientele's CF	Return
1	\$ 92.41	3.50%	\$103.50	12%
2	\$100.00	12.00%	\$112.00	12%

Bond	Price	Coupon	Tax-Paying Clientele's CF	Return
1	\$ 92.41	3.50%	\$100.23	8.464%
2	\$100.00	12.00%	\$106.00	6.000%

Bond 1 is a one-period bond with a coupon of 3.5% and a price of \$92.41. It provides a cashflow of \$103.50 at maturity. Bond 2 is also a one-period bond, but with a coupon of 12% and price of \$100. Its cashflow at maturity is \$112. The tax-exempt investor would be indifferent between the two bonds as they both provide a return of 12%.

However, the tax-paying investor would prefer the 3.5% bond to the 12% bond since the 3.5% bond provides a higher rate of return. This result parallels the expectation of a high tax-paying investor preferring a low coupon bond.

Since this is a one-period problem, the minimum cost of obtaining an after-tax cashflow of \$106 can easily be found. If 1.05755 ($106/100.23$) units of Bond 1 is held, then

the cashflow of Bond 2 will be replicated at a lower cost of \$97.72787 (1.05755×92.41). As Bond 1 provides an identical cashflow as Bond 2 and at a lower price, Bond 1 is said to dominate Bond 2.

In order to measure the degree by which a given security, say Bond 2 is overpriced, we use a measure known as percentage opportunity cost or POC. A bond's POC is equal to its net present value expressed as a percentage of price and multiplied by negative one. A bond's net present value is the difference between the value of the least cost portfolio and the price of the target bond.

Therefore in our example, we can calculate that the POC of Bond 2 is 2.325%. We can be interpreted as the market price of bond 2 is overpriced by 2.325% for a clientele in the 50% tax-bracket, or we can say that we can replicated the cashflow of bond 2 by 2.325% less than its market price.

We can now extend this problem, by applying the information from Table 4.1 to linear program (4.18). We get the following:

$$\begin{aligned}
 \text{Min} \quad & 92.41x_1 + 100x_2 \\
 \text{s.t.} \quad & 100.23x_1 + 106x_2 \geq 106 \\
 & x_1, x_2 \geq 0
 \end{aligned} \tag{4.31}$$

x_1 and x_2 are the amounts of Bond 1 and Bond 2 held. The results to this problem are given in Table 4.2.

The *objective function* gives the value of the least cost portfolio we calculated previously. The *Value* column lists the amount of Bond 1 and Bond 2 to be held. 1.057546 units of x_1 and none of x_2 should be held. The 2.272127 is the reduced cost or the amount by which the price of Bond 2 needs to be decreased before x_2 enters the optimal solution. Conversely, it can be interpreted as the amount by which the objective function will deteriorate if X_2 is forced into the solution. The #1 in the *Constraint* column refers to the first constraint, $100.23x_1 + 106x_2 \geq 106$ in the linear program. The *Slack/Surplus* is zero, indicating that the constraint holds with an equality. The dual price, .921961, is our discount rate for the period one. This discount rate correctly converts to a return of 8.464%.

Note that if a third bond is added which has a payment prior to the end of period one, say at half a period, it will have no effect on the objective function since we are not assuming a reinvestment rate, and the corresponding discount factor at that point in time will be zero.

Applying the information from Table 4.1 to linear program (4.19), give us the following:

$$\begin{aligned}
 \text{Max} \quad & 106d_1 \\
 \text{s.t.} \quad & 100.23d_1 \leq 92.41 \\
 & 106d_1 \leq 100 \\
 & d_1 \geq 0
 \end{aligned} \tag{4.32}$$

d_1 is the discount factor at time 1. The results to this problem are given in Table 4.3.

The maximum value for target bond 2 which simultaneously satisfies the no-arbitrage condition is 97.72787. The value of the discount function is .921961. The slack/surplus for the first constraint which corresponds to Bond 1 is zero. Therefore the constraint holds with an equality and the bond will be purchased. As Bond 1 is considered to be properly priced, its discount factor will be used in the calculation of the maximum value of the target bond and it is its discount factor which will constitute the tax-specific term structure.

Applying the information from Table 4.1 to the continuous model given by equations (4.25) – (4.30) is a bit more interesting. The basis splines, $f_l(t)$, at time zero and one where $L = 7$, i.e. seven component functions are employed, are given in Table 4.4. $f_l(t_0)$ is the basis splines at time zero; $f_l(t_1)$ is the basis spline at time 1.

Substitute the values of $f_l(t_1)$ into equation (4.20). This gives us the following representation for the discount function at time one:

$$d_1 = .64\alpha_2 + .34\alpha_3 + .02\alpha_4 \quad (4.33)$$

Recall that the α_l 's are the coefficient weights. Substitute equation (4.33) into linear program (4.19) to get equations (4.25) and (4.26) of our continuous model. Also include constraints satisfy equations (4.27), (4.28), and (4.30). This gives us the following:

$$\begin{aligned} \text{Max} \quad & 67.84\alpha_2 + 36\alpha_3 + 2.12\alpha_4 \\ \text{s.t.} \quad & 64.14848\alpha_2 + 34.07888\alpha_3 + 2.0046\alpha_4 \leq 92.41 \\ & 67.84\alpha_2 + 36\alpha_3 + 2.12\alpha_4 \leq 100 \end{aligned}$$

$$\begin{aligned}
\alpha_1 &= 1 \\
.64\alpha_2 + .34\alpha_3 + .02\alpha_4 &\geq 0 \\
\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5 &\geq 0
\end{aligned} \tag{4.34}$$

The constraint $\alpha_1 = 1$ ensures that the discount rate at time zero is equal to one. Constraint $.64\alpha_2 + .34\alpha_3 + .02\alpha_4 \geq 0$ constrains the discount function at maturity one to be non-negative. All α 's are greater than zero. No equivalent to equation (4.29) is used here.

Results from the continuous model are given in Table 4.5. The objective function is identical to the previous discrete versions. The coefficient weights are $\alpha_1 = 1$, $\alpha_2 = 1.440564$, $\alpha_3 = 0$, $\alpha_4 = 0$. These weights are substituted into equation (4.20) to give us .9219616 ($1.440564 \times .64$) which is our discount rate for period 1.

This may seem like a lot of trouble in this one simple instance, but recall that even with an expanded bond universe of 200 bonds, with average maturities of 15 years, and which pays semiannual coupons, we will still be solving for L α 's. In our situation, L will be seven.

Table 4.2:

Results from Linear Program (4.31)

Objective Function = 97.72787

Variable	Value	Reduced Cost
x_1	1.057546	0
x_2	0	2.272127

Constraint	Slack/Surplus	Dual Price
#1	0	.921961

Table 4.3:

Results from Linear Program (4.32)

Objective Function = 97.72787

Variable	Value	Reduced Cost
d_1	.921961	0

Constraint	Slack/Surplus	Dual Price
#1	0	1.057546
#2	2.272127	0

Table 4.4:

Basis Splines at Time 0 and 1

1	$f_l(t_0)$	$f_l(t_1)$
1	1	0
2	0	.64
3	0	.34
4	0	.02
5	0	0
6	0	0
7	0	0

Table 4.5:

Results from Linear Program (4.34)

Objective Function = 97.72787

Variable	Value	Reduced Cost
α_1	1	0
α_2	1.440564	0
α_3	0	.039996
α_4	0	0

Constraint	Slack/Surplus	Dual Price
#1	0	1.057546
#2	2.272127	0
#3	0	0
#4	.921961	0

Chapter 5

Data, Taxation, Tax Regimes and Spline Parameters

5.1 Data

Month-end closing prices of noncallable US Treasury bonds and notes for the months ending April, August, and December between April 1982 and August 1987 will be examined for any tax clientele effects. The period selected encompasses the pre-legislation, legislation, and post-legislation period of the Tax Reform Act of 1986. No callable bonds, flower bonds, or tax anticipation bonds will be used. Also bonds within six months of maturity will not be included as they are infrequently traded and therefore imply large deviations in the quoted price.

The observed data set for each month will in essence remain constant over the observed period. As bonds mature, replacement bonds will be added to the data set in a manner which best deals with any existing maturity gaps. Also other technical considerations such as having a *sufficient* number of bonds within each subinterval is taken into account.

The initial data set spans the entire maturity spectrum of available bonds, which in this case is twenty years. 55 bonds are selected. Ten bonds maturing a year from the observed date, and then three bonds for each year thereafter in which at least three bonds are available. In years in which less than three bonds are available, all eligible bonds are

included. In August 1983, the data set is expanded to include four bonds for each year, if they are available, giving us a data set of 63.

Coupons ranged from 3% through 16.125%. Bonds within a given year were selected so that the coupon rates were representative of the entire range of coupons available for that year.

5.2 Taxation

Cashflows are adjusted for the presence of taxes. Coupon income will always be taxed as ordinary income. However, the treatment of capital gains will vary depending on the governing tax regulations pertinent to specific investor classes.

For a discount bond, i.e. a bond whose the purchase price is less than its par value, the after-tax cashflow for bond i at time j is given by the following:

$$c_{ij}(1 - \tau) \quad (5.35)$$

where τ is the ordinary tax rate. At maturity, the difference between the face amount of 100 and the purchase price is taxable at the capital gains rate. Therefore the cashflow for the i th bond at maturity is:

$$100 - (100 - p_i^{ask})\tau_{cg} \quad (5.36)$$

where τ_{cg} is the capital gains rate.

For premium bonds, i.e. bonds purchased above par, the premium is amortized against ordinary income over the remaining life of the bond. The cashflow for a premium bond would then be:

$$(c_{ij} - \frac{p_i^{ask} - 100}{n_i})(1 - \tau) + \frac{p_i^{ask} - 100}{n_i} \quad (5.37)$$

where n_i is the number of bond i 's coupon payments remaining to maturity. A premium bond makes a nontaxable payment of the face value at maturity.

5.3 Tax Regimes

The Tax Reform Act (TRA) of 1986 dramatically reduced the individual and corporate tax rates in the US. For individuals, the rate reduction occurred in two phases. In 1987, the highest individual tax bracket dropped from 50% to 38.5%, and the number of brackets was reduced from fifteen to five. Then in 1988, only two brackets existed with the top bracket falling to 28%.

Beginning in January 1, 1987, the 60% capital gains exclusion for individuals was repealed, i.e. the full capital gains was taxed at the same rate as any other income. However, for 1987 the Act provided a special transitional adjustment under which the maximum capital gains tax was capped at 28% even though the highest regular rate was 38.5%. After 1987, capitals gains was taxed at the same rates as ordinary income [1].

The TRA of 1986, similarly reduced the top corporate tax rate from 46% to 34%, effective July 1, 1987. For tax years that include July 1, 1987, a blended rate was also

introduced to reflect the reduced rates for the portion of the year after June 30, 1987.

Prior to the enactment of the TRA of 1986, an alternative tax rate of 28% applied to a corporation's net capital gain if the tax computed using that rate was lower than the corporation's regular tax. The Act eliminates the use of this alternative tax rate. Beginning July 1, 1987, all corporate capital gains was then taxed at the corporation's regular tax rate, which could go as high as 34% [4].

A summary of individual and corporate tax rates are given below:

Table 5.6:

Summary of Individual Rates

<i>Year</i>	<i>Max Rate</i>	<i>Brackets</i>	<i>Max CG</i>	<i>Effective</i>
1986	50%	15	20%	—
1987	38.5%	5	28%	1/1/87
1988	28%	2	28%	1/1/88

Table 5.7:

Summary of Corporate Rates

<i>Year</i>	<i>Max Rate</i>	<i>Brackets</i>	<i>Max CG</i>	<i>Effective</i>
1986	46%	5	28%	—
1987	34%	3	34%	7/1/87
1988	34%	3	34%	7/1/88

5.4 Spline Parameters

A cubic basis spline will be used. Knot points which best fit the given prices are selected. If too many knots are selected, a very wiggly term structure that weaves around the data

points will be produced. If too few knots are incorporated then systematic biases, such as regions of overpriced and underpriced bonds will arise. Endpoints of $a = 0$ and $b = 21$ is used. These endpoints correspond to the range of maturities in the data set. Three interior knots are set at 1, 5, and 10 years. These points seem to best fit the given prices. This placement corresponds roughly to the interpretation of short term, medium, and long term money[14], and it is also the placement used by others such as Litzenberger and Rolfo, and Langetieg and Smoot. As the order is 4, i.e. $m = 4$, and the number of interior knots is 3, i.e. $k = 3$, we will use $L = 7$ component functions in the estimation of the discount function. (See equation (4.20).) The discount rate implied by a three-month Treasury bill is used to increase the accuracy of the term structure in the short end.

Chapter 6

Empirical Results

6.1 Introduction

A summary of results which supports Schaefer's clientele argument is presented in this chapter. We begin by examining the Augusts throughout the observation period, taking note of the progression of the percentage opportunity costs or POC's for different tax brackets. The POC is the net present value, or the difference between the least cost portfolio and the price of the target bond h , expressed as a percentage of price and multiplied by negative one. As we progress through the various stages of tax regulations, beginning with a period where a preferential tax treatment of capital gains existed, through a transitional or capital gains phase-out period, followed by a period where both capital gains and ordinary income are taxed similarly, we find that the POC's similarly reflect this progression.

Section two then compares these results with those of Schaefer. We find that Schaefer's POC's are slightly larger, but we cite the differences in the functional form and differences in the two markets as explanations for the slight variation in magnitude of the POC's.

6.2 Results

6.2.1 Results for August 1982

In 1982, tax rates were solidly entrenched in what we could call the pre-Tax Reform Act of 1986 era or the pre-legislation period. The highest individual and corporate tax rates were 50% and 46% respectively. Individuals benefited from a 60% capital gains exclusion, while corporations were allowed to use an alternative tax rate of 28% if the tax computed with this rate was lower than the corporation's regular tax. In essence, we have the ideal setting to test for the existence of tax clientele.

Linear program (4.25) – (4.30) provides us with the value of a least cost portfolio which replicates the cashflow of the target bond. The difference between the value of the least cost portfolio and the actual market price of the target bond h is its net present value. We then express this difference as a percentage of price multiplied by negative one. This figure will be referred to as the percentage opportunity cost or POC. The POC can be thought of as the after-tax cashflow in relation to a bond's market price.

Table 6.11 provides the POC's by maturity for August 31, 1982 when rates applicable to individuals are used. Table 6.12 is similar to Table 6.11 but instead ranks bonds and their POC's by their coupons. Results for the entire observation period for both individual and corporate tax rates ranked by maturity and coupon, are presented in Appendix B.

For ease of identifying bonds, a number code is given to each bond. The coupon, month and year of maturity are also given. The figures below the 0%, 10%, 20%, 30%, 40%, and 50% headings are the POC's for each bond in the 0% through 50% tax bracket.

The relevant capital gains rate is used for each bracket.

For bond 23, for example, we could interpret the 5.40 under the heading of 0% as the percentage by which the market price of bond 23 is overpriced at the 0% tax bracket, or in other words, we can say that we can replicate the cashflow of bond 23 by 5.40% less than its market price. When no replicating portfolio can be constructed at a lower cost, we say that bond h is *undominated*. For clarity the POC's for these bonds have been replaced by an asterisk (*).

We define a clientele effect to exist when investors in some tax brackets consider some securities as dominated. Typically, we would expect that low tax bracket individuals would prefer high coupon bonds, while their counterparts in high tax brackets would prefer bonds with low coupons. The results for August 31, 1982 generally follow this pattern. Bond 23 for instance has a low coupon rate of 6.125%. Its POC progresses from 5.40% at the 0% tax-bracket down to 1.07% at the 30% tax-bracket, and is zero for the 40% and 50% brackets. We can then interpret this result by saying that high tax bracket clienteles would find this 6.125% bond attractive, and that it would be considered properly priced for their tax-brackets. The reasoning behind this behavior is linked to the preferential tax treatment of capital gains which is especially enjoyed by clienteles in the higher tax-brackets. In contrast to low coupon bond 23, bond 24 has a much higher coupon rate of 16.125%. It is undominated up to the 30% tax -racket, from which it increases to .05% and ends up with a POC of 1.38% at the 50% tax bracket.

There are however other patterns which also exist. Bond 11 and 39 exhibit one such pattern. These bonds have coupon rates of 7% and 14.125% respectively, and are *dominated* for *all* tax brackets. Although dominated for all tax brackets, the 7% bond exhibits the POC progression expected of a low coupon bond, while the progression of

the POC's for the 14.125% bond behaves as a high coupon bond. Excluding the very low coupon bonds, bonds from our entire observation set which exhibit this pattern typically have at least one POC which is less than 0.50%. For all practical purposes, we could consider it as undominated for that tax-bracket. Another feasible explanation might be that the bonds are simply over priced.

An additional pattern which also exists, is one in which a bond is *undominated* for all tax brackets. Bond 32 and 42 are examples. The implication of a bond being undominated can either mean that a bond is properly priced for each tax bracket, or it could also mean that the bond is underpriced¹. The fact that the last bond in the data set is undominated for all tax brackets should not be surprising since replicating this bond would be difficult if not impossible. On August 31, 1982, bond 1 is also undominated. But the first bond need not always be undominated (and typically it isn't), as it can sometimes be replicated by the three-month Treasury bill which we use to peg the short end of the term structure. Also it should be pointed out that most of the bonds which follow this undominated pattern hover in the medium through long maturity range.

A peculiarity, particular only to this observed month is that the bonds within the first year all exhibit a similar decreasing POC trend, rather than the expected progression of POC's as we progress from a 0% bracket scenario to a 50% scenario. This peculiarity is probably due to the fact that the first bond is undominated for all tax-brackets.

One difficulty which exists in analyzing clientele effects is that maturity effects may exist. Similar to a tax clientele effect, certain bond maturities may be preferred by individuals in certain tax brackets. One way of eliminating this effect is to compare a set of bonds which mature during a given year. From Table 6.11, we see that in 1988, three

¹See Appendix A for further insight as to why this could imply that bonds are underpriced.

bonds (#28, #29, and #30) with coupons which we could consider as low, medium, and high exist. As is expected, the low coupon bond is undominated in the higher brackets, while the high coupon bond is undominated in the lower brackets. The medium coupon bond may be undominated between the 20% and 30% or 30% and 40% tax bracket. 1986 could be examined in this similar fashion.

If it is possible to capture the tax clientele effect by holding maturity constant, the reverse should assist in spotting patterns concerning maturity effects. However, when examining Table 6.12 for bonds with similar coupons, but varying maturities, consistent patterns are difficult to pinpoint.

A regression of the POC's of each tax-bracket is run against *coupon* and *maturity year*. The bonds at the 3% level are excluded. Using a standard t-test, we find that both variables are very significant at the $\alpha = .05$ level for the 0% - 20% tax-brackets. Only *coupon* is significant at the 30% and 50% tax-brackets, while neither are significant in the 40% tax-bracket. Table 6.8 presents the R^2 's and the coefficients for the variables *coupon* and *maturity year*. The t-statistic for each coefficient is given within the parenthesis. Notice that the coupon coefficient is negative at the 0% tax-bracket, and that it increases to a positive coefficient at the 50% tax-bracket. This positive relationship is expected as coupon is positively related to the mispricing.

The magnitude of the POC's for August 1982, are in general not excessively large. The highest POC, excluding those with coupons in the 3% range, is 5.40%. The magnitude of the POC's do not seem to be affected by coupon level or length of maturity. A puzzling finding is the magnitude of the POC's around the 3% range. These bonds are prone to be very overpriced, but they still exhibit POC progressions which are expected of low coupon bonds. In Table 6.12, we see that on average, the value of the after-tax cashflow

of these bonds are about 80% of their market price. A peculiarity that may explain the magnitude of the overpricing is that the bid-ask spreads on these bonds. Typically they are very large, for instance, the 3% February 1995 on August 31, 1982, was quoted at 88.16 and 90.16. This kind of spread would indicate that the market for these bonds are illiquid, and we might conclude that the holders of these deep discount securities may be choosing not to sell their bonds and realize capital gains, unless they are adequately compensated for the tax payments that will be realized when their securities are traded.

6.2.2 Results for August 1983 and 1984

The results for August 1983 and 1984 are found in Tables 6.13 – 6.16. Table 6.13 and 6.15 rank the bonds by maturity, while Table 6.14 and 6.16 rank them by coupon. The results in these tables are similar to those found in Table 6.11 and 6.12. In Table 6.13, bonds 25, 26, and 27 nicely illustrate the tax clientele, or the tax brackets for which the given bond is undominated, or is rationally held. Notice that bond 27, with a high coupon of 15.375% has a tax clientele of 0% to 20%. Bond 26, with a medium coupon of 10.5% has a tax clientele of 20% to 30%. Finally, bond 25, with its lower coupon of 8.125% has a tax clientele beginning at 30% and running through to the 50% bracket level.

Perhaps the most interesting point in Table 6.13 or 6.14 is the existence of two bonds with the same coupon and maturity. Notice that the POC's for bonds 2 and 10 are small but not identical, and that they seem to be responding in different ways. Bond 2 behaves in a manner which we would expect of a lower coupon bond, whereas bond 10 reacts more like a medium coupon bond. Because of these types of discrepancies it is difficult to pinpoint the separation points between what might be considered high,

medium, and low coupon bonds.

In addition to maturity effects, the effect of tax options on POC's should be considered. Bondholders are taxed on the basis of realized capital gains. Therefore investors are presented with an option to realize gains or losses for some bonds prior to maturity. We know from option pricing theory, that the value of a portfolio of options on individual securities is greater than the value of a single option on a portfolio of securities. However, should a tax option effect exist, we would then expect that the value of the replicating portfolio to be greater than that of the replicated bond. The model used here unfortunately, is not constructed to specifically identify these situations. Our only clue of the possible existence of the possibility of such a situation is the progression of the alphas, when the least cost portfolio equals to the market price of the bond. This involves a more technical explanation concerning the values of the alphas. Therefore we relegate this discussion to Appendix A.

The magnitude of the POC's for both August 1983 and 1984 are relatively similar to those found in Table 6.11 and 6.12, and again it is difficult to definitively spot the effects of maturity on the pricing of bonds. The regression of *coupon* and *maturity year* again reinforces these conclusions.

6.2.3 Results for August 1985

By August of 1985, we begin to see anticipatory effects of the Tax Reform Act of 1986. As we move from a tax regime where a preferential tax treatment existed for capital gains to one where ordinary income and capital gains are taxed indifferently, we would expect to find changes in the progression of the POC's as well as changes in their magnitude.

The POC's ranked by maturity and coupon are found in Tables 6.17 and 6.18. The first noticeable change concerns the progression of the POC's. Rather than seeing the clientele patterns we had seen previously, we see instead a decreasing progression of POC's up to the maturity year 1991. Thereafter, this pattern reverses for all bonds which exhibit POC patterns except those with coupons around the 3% level. The magnitude of these 3% bonds have decreased slightly, but still continue to behave as they did previously. This may seem to resemble a sort of maturity effect, where high tax-brackets individuals prefer short maturities, and where low tax-bracket individuals prefer longer maturities. But when a regression of *coupon* and *maturity year* is run against the POC's of each tax-bracket, we still find that coupon plays a more significant role than maturity year. Part of the reason for this is that a good portion of the longer maturity bonds are undominated for all tax-brackets. This then leads us to the second noticeable change.

The second noticeable change pertains to the percentage of bonds in the observation set which is undominated for all tax brackets. As we move to a tax regime where ordinary income and capital gains are taxed in a similar fashion, we would expect to see an increase in the number of bonds undominated for all tax brackets.

Table 6.9 illustrates how the percentage of undominated bonds change for Augusts 1982 through 1987. In August 1982, 1983, and 1984, 16.4%, 14.3%, and 15.9% of those bonds in the observation set are undominated for all tax brackets, while in August of 1985 this percentage more than doubles to 38.1%, followed by a further increase to 52.4% in 1986. In 1985 and 1986, the majority of the undominated bonds are either medium or long term bonds. Table 6.23 summarizes the number of bonds which are undominated for all tax brackets, along with the number of bonds included in the sample set for each observation month.

A third noticeable change relates to the magnitude of the POC's. During August 1982, 1983, and 1984, excluding the bonds with coupons around the 3% level, 60.8%, 44.1%, and 54.2% of the bonds possessed POC's greater than 1%. In 1985, this tapers off to 18.3% and then to 0.0% in 1986. Table 6.10 summarized this trend. Table 6.24 presents a more detailed account of the number of bonds with POC's greater than 1.0%, 2.0%, 3.0%, and 4.0%. Table 6.25 summarizes Table 6.24 by illustrating for each year, the average percentage of bonds with POC's greater than 1.0%, 2.0%, 3.0%, and 4.0%. Using Table 6.25 as a gauge, we could then label the 1982 through 1984 period as the pre-legislational period, the 1985 period as the legislation period, and the period 1986 onward as the post-legislational period. It is important to note that the Tax Reform Act of 1986 was not effective until January 1, 1987.

6.2.4 Results for August 1986 and 1987

By August 1986 and 1987, bond prices seem to reflect the changes that had or will be occurring in the tax system. As might be expected, no clientele effects seem apparent, and the POC's, excluding of course the few bonds with coupons at around the 3% level, were all minimal. Table 6.19 - 6.22 illustrate these results. An explanation for the existence of these minimal rather than zero POC's stems from the fact that premium bonds still retain some tax advantage because of a part of the interest income is not taxed when earned. Also some holders of discount bonds may chose not to sell their bonds as they prefer not to realize gains for tax reasons.

6.2.5 Conclusion

The empirical results broadly support Schaefer's clientele argument. Clientele effects were apparent in the earlier years when a preferential tax treatment of capital gains existed. By August 1985, we begin to see transitional effects in the POC's, and by 1986, the POC's are minimal.

6.3 Comparison With Schaefer's Results

The existence of clientele effects in the US Treasury market confirms Schaefer's findings. There are however, some differences in the results that need to be pointed out.

First of all, the magnitude of the POC's in Schaefer's study³, when a Bernstein polynomial of 25 is used, seems to be slightly larger. However, it must be noted that the tax situation in the UK at that time was slightly more extreme compared to that of the US. Tax rates in the UK ranged from a low of 0% all the way up to 98%, compared to 0% - 50% in the US market. Also no tax on capital gains for bonds held for longer than 12 months existed in the UK market. In the US, investors faced a maximum capital gains tax of 20%. For these reasons we would expect larger POC's to exist.

Another factor which may contribute to the largeness of Schaefer's POC's is the selection of a Bernstein polynomial of order 25. Perhaps POC's calculated with an order of 30 or 42 may provide POC's closer to those we uncovered in the US bond market⁴.

A final comparison, concerns the spot and forward prices generated using Bernstein

³See page 136, Table 2[23]

⁴See page 148, Table 6.5[23] for a comparison of orders ranging from 0 through infinity

polynomials versus basis splines. Schaefer finds that although his implicit discount functions were consistent with an equilibrium with a no short selling constraint, they were often “exotic” and displayed an extreme degree of preference for a particular cashflow stream. We noted previously that Jordan[13] had reported that a close fit of the term structure necessitated the use of a higher order approximation set which in turn induces more oscillation in the forward rates, and may even imply negative forward rates. As a result of these difficulties we have selected to use cubic basis splines. The use of cubic basis splines provides us with reasonable spot and forward rates which do not display extreme degree of preference for certain cashflow streams. Figure 6.3 illustrates the discount function⁵ for the 0% tax-bracket on August 31, 1983 for bond #58, a bond with a coupon of 15.75% and maturing in November 2001. Figure 6.4 and 6.5 illustrate the spot and forward rates for this bond.

⁵The following α 's were used:

- $\alpha_1 = 1.000000$
- $\alpha_2 = 0.970411$
- $\alpha_3 = 0.798634$
- $\alpha_4 = 0.490055$
- $\alpha_5 = 0.215066$
- $\alpha_6 = 0.112011$
- $\alpha_7 = 0.087411$

Table 6.8:

Regression Coefficients for August 1982
 Coupon and Year Regressed Against the POC's of Each Tax-Bracket

Tax Bracket	R^2	Coupon	Maturity Year	Constant
0	.3385	-.18906 (-3.95)	-0.0785 (-2.89)	159.210 (2.952)
10	.3414	-.14187 (-3.92)	-0.0616 (-2.99)	124.910 (3.056)
20	.3064	-0.0997 (-3.88)	-0.0349 (-2.39)	71.1600 (2.453)
30	.1139	-0.0592 (-2.41)	-0.0074 (-0.54)	16.1640 (0.583)
40	.0177	-0.0057 (-1.757)	0.16970 (0.916)	-33.040 (-0.89)
50	.0919	0.09210 (1.890)	0.02990 (1.086)	-59.619 (-1.09)

Table 6.9:

Percentage of Bonds Undominated for All Tax Brackets
 for Augusts 1982 - 1987

1982	1983	1984	1985	1986	1987
16.4%	14.3%	15.9%	38.1%	52.4%	31.7%

Table 6.10:

Percentage of Bonds With POC's Greater than 1%
 for Augusts 1982—1987²

1982	1983	1984	1985	1986	1987
60.8%	44.1%	54.2%	18.3%	0.0%	0.5%

Figure 6.3:

Discount Function for Bond #58 (Nov 2001, 15.75%)
on August 31, 1983 (0% Tax-Bracket)

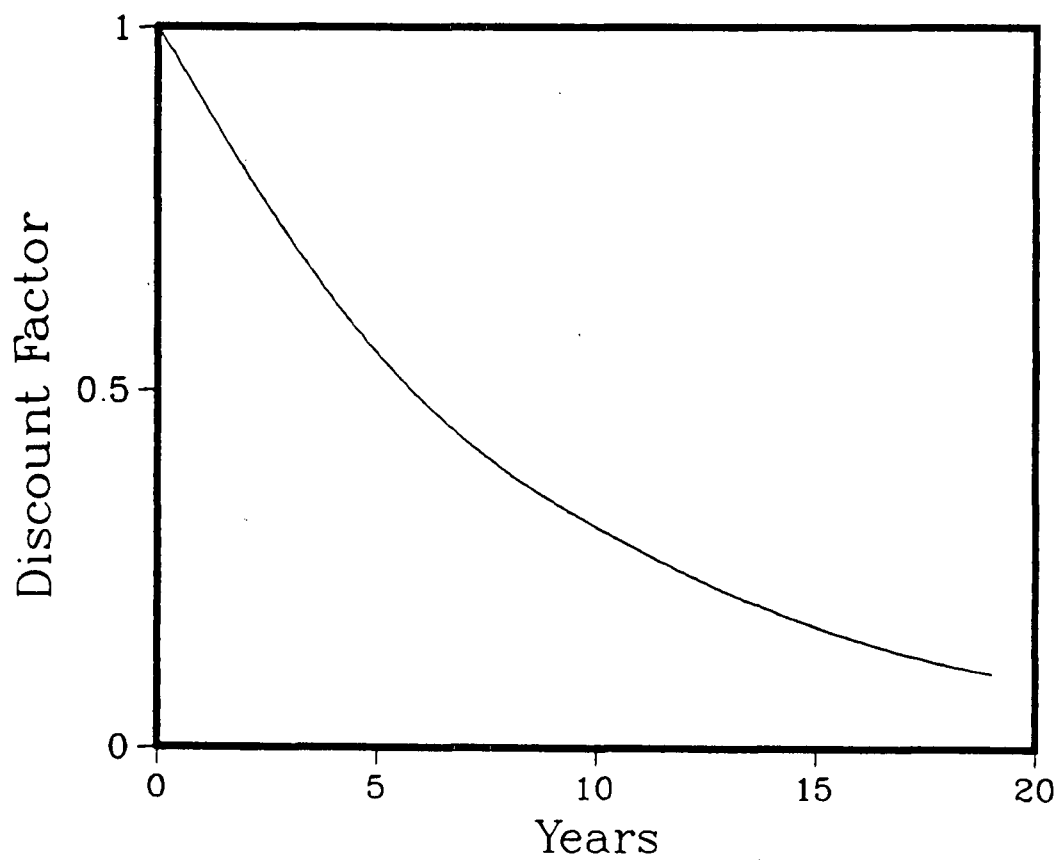


Figure 6.4:

Spot Rate Curve for Bond #58 (Nov 2001, 15.75%)
on August 31, 1983 (0% Tax-Bracket)

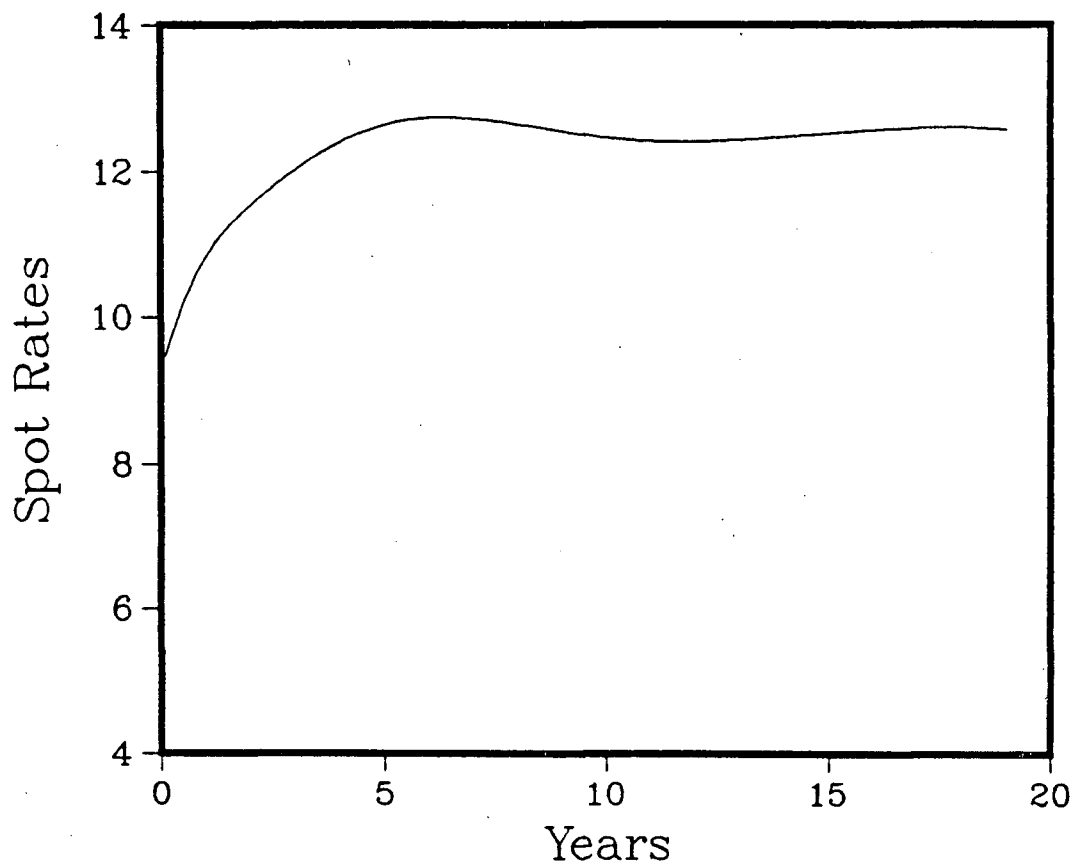


Figure 6.5:

Forward Rate Curve for Bond #58 (Nov 2001, 15.75%)
on August 31, 1983 (0% Tax-Bracket)

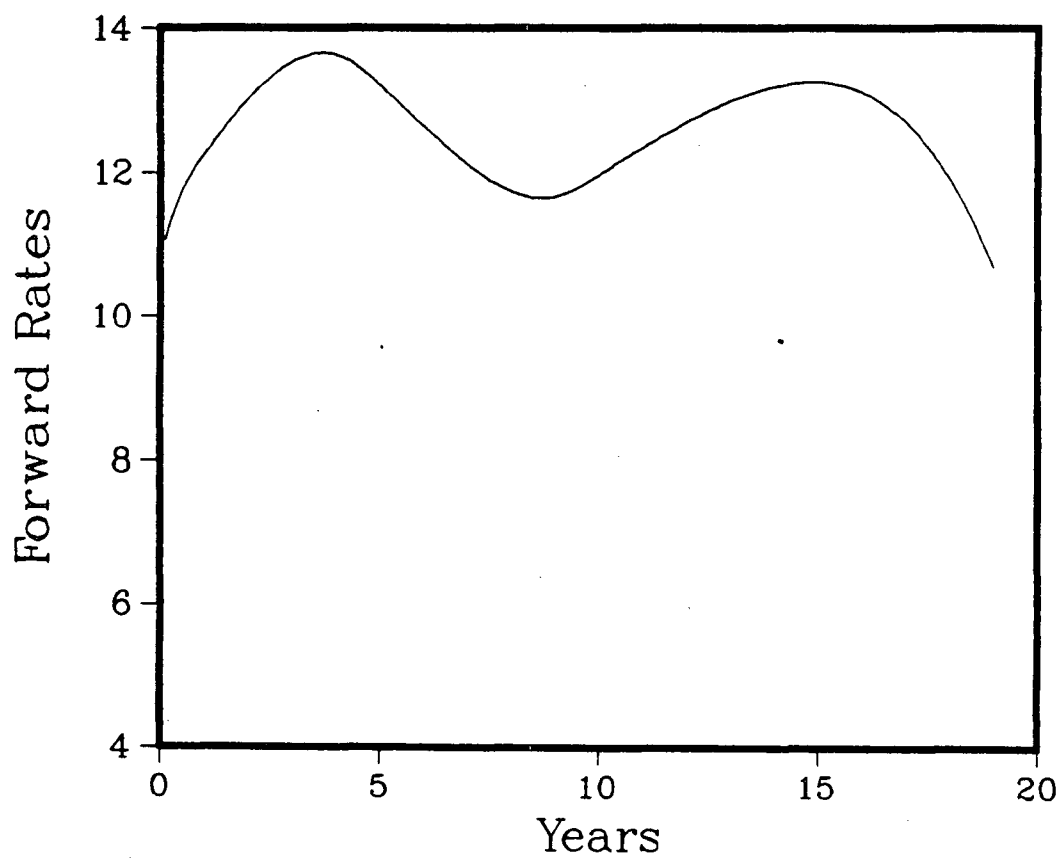


Table 6.11:

POC for August 31, 1982 by Maturity (Individual Rates)

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
1	9.250	3	1983	*	*	*	*	*	*
2	12.625	3	1983	0.03	0.03	0.02	0.02	0.02	0.01
3	14.500	4	1983	0.20	0.17	0.15	0.13	0.12	0.10
4	7.875	5	1983	0.27	0.24	0.21	0.18	0.15	0.14
5	11.625	5	1983	0.22	0.20	0.17	0.15	0.13	0.12
6	14.625	6	1983	0.29	0.26	0.22	0.19	0.16	0.17
7	15.875	7	1983	0.55	0.48	0.41	0.35	0.30	0.31
8	9.250	8	1983	0.64	0.48	0.33	0.17	0.04	*
9	11.875	8	1983	1.53	1.37	1.20	1.04	0.90	0.84
10	16.250	8	1983	0.61	0.53	0.45	0.38	0.33	0.36
11	7.000	11	1983	2.17	1.85	1.53	1.21	0.93	0.78
12	9.875	11	1983	0.89	0.79	0.69	0.59	0.54	0.61
13	13.000	12	1983	0.79	0.69	0.59	0.49	0.46	0.56
14	9.250	5	1984	2.18	1.91	1.64	1.36	1.25	1.35
15	6.375	8	1984	4.59	3.71	2.82	1.91	1.25	0.85
16	13.250	8	1984	1.56	1.33	1.11	0.88	0.91	1.20
17	16.000	11	1984	1.04	0.88	0.71	0.54	0.69	1.12
18	8.000	2	1985	2.77	1.98	1.17	0.35	*	*
19	13.375	3	1985	1.14	0.98	0.81	0.63	0.87	1.47
20	3.250	5	1985	13.74	12.00	10.21	8.35	6.85	5.80
21	15.875	9	1985	0.75	0.62	0.49	0.34	0.52	1.30
22	13.500	2	1986	0.90	0.70	0.50	0.30	0.36	1.34
23	6.125	11	1986	5.40	3.99	2.51	1.07	*	*
24	16.125	11	1986	*	*	*	*	0.05	1.38
25	12.000	5	1987	2.56	2.21	1.83	1.63	2.04	3.10

POC for August 31, 1982 by Maturity (Individual Rates) (cont.)

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
26	14.000	5	1987	0.36	0.20	0.01	*	0.56	1.85
27	7.625	11	1987	3.79	2.47	1.06	*	*	*
28	13.250	4	1988	0.87	0.69	0.48	0.47	1.09	2.19
29	8.125	5	1988	3.26	2.26	1.08	*	*	*
30	15.375	10	1988	*	*	*	*	0.06	1.21
31	14.625	1	1989	*	*	*	*	*	1.01
32	9.250	5	1989	*	*	*	*	*	*
33	10.750	11	1989	*	*	0.28	0.64	1.16	1.79
34	3.500	2	1990	27.70	25.85	23.87	21.76	19.52	17.12
35	8.250	5	1990	*	*	*	*	*	*
36	13.000	11	1990	*	*	0.22	0.48	1.39	2.61
37	14.500	5	1991	*	*	*	*	0.90	2.40
38	14.875	8	1991	0.08	*	*	*	0.89	2.48
39	14.125	11	1991	0.34	0.48	0.64	0.87	1.95	3.60
40	14.625	2	1992	*	*	*	0.11	1.41	3.28
41	7.250	8	1992	1.37	1.36	1.35	1.33	1.30	1.26
42	6.750	2	1993	*	*	*	*	*	*
43	8.625	8	1993	0.22	0.16	0.59	1.14	1.75	2.34
44	8.625	11	1993	*	0.04	0.61	1.14	1.64	2.09
45	9.000	2	1994	0.30	0.25	0.61	1.02	1.35	1.65
46	8.750	8	1994	*	*	*	*	*	*
47	10.125	11	1994	0.27	0.56	1.12	1.72	2.32	2.92
48	3.000	2	1995	34.64	32.24	29.68	26.94	24.03	20.95
49	10.375	5	1995	*	*	*	*	*	*
50	12.625	5	1995	*	0.06	0.82	1.65	2.52	3.40

POC for August 31, 1982 by Maturity (Individual Rates) (cont.)

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
51	3.500	11	1998	32.13	29.44	26.42	23.04	19.22	13.77
52	11.750	2	2001	*	*	*	*	*	*
53	13.375	8	2001	0.14	0.14	0.14	0.16	0.20	0.30
54	15.750	11	2001	*	*	*	*	*	*
55	14.250	2	2002	*	*	*	*	*	*

Table 6.12:

POC for August 31, 1982 by Coupon (Individual Rates)

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
48	3.000	2	1995	34.64	32.24	29.68	26.94	24.03	20.95
20	3.250	5	1985	13.74	12.00	10.21	8.35	6.85	5.80
51	3.500	11	1998	32.13	29.44	26.42	23.04	19.22	13.77
34	3.500	2	1990	27.70	25.85	23.87	21.76	19.52	17.12
23	6.125	11	1986	5.40	3.99	2.51	1.07	*	*
15	6.375	8	1984	4.59	3.71	2.82	1.91	1.25	0.85
42	6.750	2	1993	*	*	*	*	*	*
11	7.000	11	1983	2.17	1.85	1.53	1.21	0.93	0.78
41	7.250	8	1992	1.37	1.36	1.35	1.33	1.30	1.26
27	7.625	11	1987	3.79	2.47	1.06	*	*	*
4	7.875	5	1983	0.27	0.24	0.21	0.18	0.15	0.14
18	8.000	2	1985	2.77	1.98	1.17	0.35	*	*
29	8.125	5	1988	3.26	2.26	1.08	*	*	*
35	8.250	5	1990	*	*	*	*	*	*
43	8.625	8	1993	0.22	0.16	0.59	1.14	1.75	2.34
44	8.625	11	1993	*	0.04	0.61	1.14	1.64	2.09
46	8.750	8	1994	*	*	*	*	*	*
45	9.000	2	1994	0.30	0.25	0.61	1.02	1.35	1.65
32	9.250	5	1989	*	*	*	*	*	*
14	9.250	5	1984	2.18	1.91	1.64	1.36	1.25	1.35
8	9.250	8	1983	0.64	0.48	0.33	0.17	0.04	*
1	9.250	3	1983	*	*	*	*	*	*
12	9.875	11	1983	0.89	0.79	0.69	0.59	0.54	0.61
47	10.125	11	1994	0.27	0.56	1.12	1.72	2.32	2.92
49	10.375	5	1995	*	*	*	*	*	*

POC for August 31, 1982 by Coupon (Individual Rates) (cont.)

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
33	10.750	11	1989	*	*	0.28	0.64	1.16	1.79
5	11.625	5	1983	0.22	0.20	0.17	0.15	0.13	0.12
52	11.750	2	2001	*	*	*	*	*	*
9	11.875	8	1983	1.53	1.37	1.20	1.04	0.90	0.84
25	12.000	5	1987	2.56	2.21	1.83	1.63	2.04	3.10
2	12.625	3	1983	0.03	0.03	0.02	0.02	0.02	0.01
50	12.625	5	1995	*	0.06	0.82	1.65	2.52	3.40
13	13.000	12	1983	0.79	0.69	0.59	0.49	0.46	0.56
36	13.000	11	1990	*	*	0.22	0.48	1.39	2.61
16	13.250	8	1984	1.56	1.33	1.11	0.88	0.91	1.20
28	13.250	4	1988	0.87	0.69	0.48	0.47	1.09	2.19
19	13.375	3	1985	1.14	0.98	0.81	0.63	0.87	1.47
53	13.375	8	2001	0.14	0.14	0.14	0.16	0.20	0.30
22	13.500	2	1986	0.90	0.70	0.50	0.30	0.36	1.34
26	14.000	5	1987	0.36	0.20	0.01	*	0.56	1.85
39	14.125	11	1991	0.34	0.48	0.64	0.87	1.95	3.60
55	14.250	2	2002	*	*	*	*	*	*
37	14.500	5	1991	*	*	*	*	0.90	2.40
3	14.500	4	1983	0.20	0.17	0.15	0.13	0.12	0.10
40	14.625	2	1992	*	*	*	0.11	1.41	3.28
31	14.625	1	1989	*	*	*	*	*	1.01
6	14.625	6	1983	0.29	0.26	0.22	0.19	0.16	0.17
38	14.875	8	1991	0.08	*	*	*	0.89	2.48
30	15.375	10	1988	*	*	*	*	0.06	1.21
54	15.750	11	2001	*	*	*	*	*	*

POC for August 31, 1982 by Coupon (Individual Rates) (cont.)

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
7	15.875	7	1983	0.55	0.48	0.41	0.35	0.30	0.31
21	15.875	9	1985	0.75	0.62	0.49	0.34	0.52	1.30
17	16.000	11	1984	1.04	0.88	0.71	0.54	0.69	1.12
24	16.125	11	1986	*	*	*	*	0.05	1.38
10	16.250	8	1983	0.61	0.53	0.45	0.38	0.33	0.36

Table 6.13:

POC for August 31, 1983 by Maturity (Individual Rates)

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
1	9.250	5	1984	0.16	0.15	0.13	0.12	0.10	0.11
2	13.250	5	1984	0.17	0.16	0.14	0.12	0.11	0.11
3	15.750	5	1984	*	*	*	*	*	0.02
4	8.875	6	1984	0.19	0.17	0.15	0.15	0.17	0.20
5	14.375	6	1984	0.15	0.14	0.12	0.12	0.14	0.18
6	13.125	7	1984	0.15	0.14	0.12	0.15	0.23	0.32
7	6.375	8	1984	0.71	0.48	0.24	0.11	0.05	*
8	7.250	8	1984	0.42	0.25	0.08	*	*	0.02
9	11.625	8	1984	0.06	0.05	0.04	0.13	0.29	0.47
10	13.250	8	1984	0.15	0.13	0.11	0.18	0.34	0.51
11	16.000	11	1984	0.01	0.02	0.02	0.14	0.36	0.61
12	8.000	2	1985	0.70	0.47	0.24	0.13	0.18	0.27
13	13.375	3	1985	0.17	0.17	0.18	0.29	0.56	0.87
14	3.250	5	1985	4.25	3.45	2.64	1.93	1.41	0.94
15	15.875	9	1985	0.15	0.17	0.18	0.25	0.57	0.96
16	13.500	2	1986	*	*	*	*	0.37	0.85
17	9.375	5	1986	0.44	0.34	0.24	0.13	0.43	0.83
18	6.125	11	1986	7.22	6.29	5.32	4.37	3.86	3.40
19	16.125	11	1986	*	*	*	0.02	0.49	1.05
20	14.000	5	1987	*	*	*	0.15	0.73	1.37
21	10.500	6	1987	0.25	0.15	0.06	0.23	0.77	1.36
22	7.625	11	1987	1.46	0.74	0.01	*	*	*
23	12.625	11	1987	*	*	*	0.57	1.27	2.01
24	13.250	4	1988	0.04	0.02	0.04	0.64	1.34	2.06
25	8.125	5	1988	1.41	0.68	0.01	*	*	*

POC for August 31, 1983 by Maturity (Individual Rates) (cont.)

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
26	10.500	8	1988	0.56	0.20	*	*	0.31	0.64
27	15.375	10	1988	*	*	*	0.37	1.08	1.80
28	14.625	1	1989	*	*	*	0.18	0.82	1.46
29	9.250	5	1989	0.42	*	*	*	*	*
30	11.875	10	1989	*	*	0.20	0.76	1.42	2.08
31	10.750	11	1989	*	*	0.17	0.69	1.25	1.80
32	3.500	2	1990	24.74	23.03	21.23	19.31	17.28	15.12
33	10.500	4	1990	*	*	0.12	0.79	1.55	2.73
34	8.250	5	1990	*	*	*	*	*	*
35	13.000	11	1990	*	0.09	0.26	0.96	1.96	3.01
36	14.500	5	1991	0.06	0.14	0.23	0.87	2.00	3.19
37	14.875	8	1991	*	*	*	0.58	1.80	3.09
38	14.125	11	1991	0.28	0.46	0.67	1.44	2.70	4.04
39	14.625	2	1992	0.24	0.15	0.30	1.22	2.56	4.00
40	13.750	5	1992	*	*	0.35	1.56	3.05	4.62
41	7.250	8	1992	*	*	*	*	*	*
42	10.500	11	1992	0.33	0.66	1.63	2.93	4.30	5.82
43	6.750	2	1993	*	*	*	*	*	*
44	10.125	5	1993	0.39	0.61	1.45	2.69	4.08	5.60
45	8.625	8	1993	*	*	0.09	0.57	1.06	1.53
46	11.875	8	1993	*	*	1.02	2.45	4.10	5.95
47	9.000	2	1994	0.04	0.03	0.16	0.48	0.81	1.13
48	8.750	8	1994	*	*	*	*	*	*
49	10.125	11	1994	0.49	0.81	1.31	1.90	2.41	2.88
50	3.000	2	1995	31.38	29.11	26.69	24.12	21.39	18.48

POC for August 31, 1983 by Maturity (Individual Rates) (cont.)

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
51	10.500	2	1995	*	*	0.04	0.24	0.42	0.58
52	10.375	5	1995	*	*	*	*	*	*
53	12.625	5	1995	*	*	0.58	1.45	2.29	2.97
54	3.500	11	1998	34.27	31.27	27.88	24.06	19.74	14.86
55	11.750	2	2001	*	*	*	*	*	*
56	13.125	5	2001	*	0.08	0.23	0.39	0.54	0.76
57	13.375	8	2001	0.01	*	*	*	0.03	0.19
58	15.750	11	2001	0.06	0.02	0.05	0.12	0.26	0.50
59	14.250	2	2002	0.12	0.02	*	*	0.05	0.26
60	11.625	11	2002	*	*	*	*	*	*
61	10.750	2	2003	*	*	*	*	*	*
62	10.750	5	2003	*	*	*	*	0.14	0.31
63	11.125	8	2003	*	*	*	*	*	*

Table 6.14:

POC for August 31, 1983 by Coupon (Individual Rates)

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
50	3.000	2	1995	31.38	29.11	26.69	24.12	21.39	18.48
14	3.250	5	1985	4.25	3.45	2.64	1.93	1.41	0.94
54	3.500	11	1998	34.27	31.27	27.88	24.06	19.74	14.86
32	3.500	2	1990	24.74	23.03	21.23	19.31	17.28	15.12
18	6.125	11	1986	7.22	6.29	5.32	4.37	3.86	3.40
7	6.375	8	1984	0.71	0.48	0.24	0.11	0.05	*
43	6.750	2	1993	*	*	*	*	*	*
41	7.250	8	1992	*	*	*	*	*	*
8	7.250	8	1984	0.42	0.25	0.08	*	*	0.02
22	7.625	11	1987	1.46	0.74	0.01	*	*	*
12	8.000	2	1985	0.70	0.47	0.24	0.13	0.18	0.27
25	8.125	5	1988	1.41	0.68	0.01	*	*	*
34	8.250	5	1990	*	*	*	*	*	*
45	8.625	8	1993	*	*	0.09	0.57	1.06	1.53
48	8.750	8	1994	*	*	*	*	*	*
4	8.875	6	1984	0.19	0.17	0.15	0.15	0.17	0.20
47	9.000	2	1994	0.04	0.03	0.16	0.48	0.81	1.13
1	9.250	5	1984	0.16	0.15	0.13	0.12	0.10	0.11
29	9.250	5	1989	0.42	*	*	*	*	*
17	9.375	5	1986	0.44	0.34	0.24	0.13	0.43	0.83
44	10.125	5	1993	0.39	0.61	1.45	2.69	4.08	5.60
49	10.125	11	1994	0.49	0.81	1.31	1.90	2.41	2.88
52	10.375	5	1995	*	*	*	*	*	*
26	10.500	8	1988	0.56	0.20	*	*	0.31	0.64
42	10.500	11	1992	0.33	0.66	1.63	2.93	4.30	5.82

POC for August 31, 1983 by Coupon (Individual Rates) (cont.)

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
21	10.500	6	1987	0.25	0.15	0.06	0.23	0.77	1.36
51	10.500	2	1995	*	*	0.04	0.24	0.42	0.58
33	10.500	4	1990	*	*	0.12	0.79	1.55	2.73
31	10.750	11	1989	*	*	0.17	0.69	1.25	1.80
62	10.750	5	2003	*	*	*	*	0.14	0.31
61	10.750	2	2003	*	*	*	*	*	*
63	11.125	8	2003	*	*	*	*	*	*
60	11.625	11	2002	*	*	*	*	*	*
9	11.625	8	1984	0.06	0.05	0.04	0.13	0.29	0.47
55	11.750	2	2001	*	*	*	*	*	*
30	11.875	10	1989	*	*	0.20	0.76	1.42	2.08
46	11.875	8	1993	*	*	1.02	2.45	4.10	5.95
23	12.625	11	1987	*	*	*	0.57	1.27	2.01
53	12.625	5	1995	*	*	0.58	1.45	2.29	2.97
35	13.000	11	1990	*	0.09	0.26	0.96	1.96	3.01
56	13.125	5	2001	*	0.08	0.23	0.39	0.54	0.76
6	13.125	7	1984	0.15	0.14	0.12	0.15	0.23	0.32
2	13.250	5	1984	0.17	0.16	0.14	0.12	0.11	0.11
10	13.250	8	1984	0.15	0.13	0.11	0.18	0.34	0.51
24	13.250	4	1988	0.04	0.02	0.04	0.64	1.34	2.06
57	13.375	8	2001	0.01	*	*	*	0.03	0.19
13	13.375	3	1985	0.17	0.17	0.18	0.29	0.56	0.87
16	13.500	2	1986	*	*	*	*	0.37	0.85
40	13.750	5	1992	*	*	0.35	1.56	3.05	4.62
20	14.000	5	1987	*	*	*	0.15	0.73	1.37

POC for August 31, 1983 by Coupon (Individual Rates) (cont.)

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
38	14.125	11	1991	0.28	0.46	0.67	1.44	2.70	4.04
59	14.250	2	2002	0.12	0.02	*	*	0.05	0.26
5	14.375	6	1984	0.15	0.14	0.12	0.12	0.14	0.18
36	14.500	5	1991	0.06	0.14	0.23	0.87	2.00	3.19
28	14.625	1	1989	*	*	*	0.18	0.82	1.46
39	14.625	2	1992	0.24	0.15	0.30	1.22	2.56	4.00
37	14.875	8	1991	*	*	*	0.58	1.80	3.09
27	15.375	10	1988	*	*	*	0.37	1.08	1.80
58	15.750	11	2001	0.06	0.02	0.05	0.12	0.26	0.50
3	15.750	5	1984	*	*	*	*	*	0.02
15	15.875	9	1985	0.15	0.17	0.18	0.25	0.57	0.96
11	16.000	11	1984	0.01	0.02	0.02	0.14	0.36	0.61
19	16.125	11	1986	*	*	*	0.02	0.49	1.05

Table 6.15:

POC for August 31, 1984 by Maturity (Individual Rates)

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
1	13.375	3	1985	0.18	0.16	0.14	0.12	0.10	0.10
2	9.500	4	1985	*	*	*	*	*	0.03
3	3.250	5	1985	2.18	1.81	1.45	1.08	0.72	0.41
4	4.250	5	1985	1.56	1.28	1.00	0.71	0.43	0.20
5	14.375	5	1985	*	*	*	*	0.01	0.07
6	10.000	6	1985	0.07	0.06	0.06	0.08	0.12	0.21
7	10.625	7	1985	0.15	0.13	0.12	0.17	0.27	0.40
8	8.250	8	1985	0.47	0.27	0.07	*	*	*
9	9.625	8	1985	0.31	0.19	0.08	0.09	0.17	0.26
10	13.125	8	1985	0.17	0.15	0.13	0.25	0.43	0.61
11	10.875	9	1985	0.19	0.20	0.20	0.34	0.55	0.75
12	13.500	2	1986	0.16	0.16	0.18	0.36	0.67	1.00
13	9.375	5	1986	0.08	0.02	*	0.10	0.37	0.66
14	6.125	11	1986	2.33	1.73	1.18	0.67	0.38	0.14
15	16.125	11	1986	0.12	0.19	0.33	0.52	0.92	1.37
16	10.875	2	1987	0.09	*	*	*	0.26	0.60
17	12.500	5	1987	*	0.10	0.33	0.55	1.03	1.59
18	14.000	5	1987	0.14	0.23	0.43	0.64	1.10	1.63
19	7.625	11	1987	1.63	1.12	0.70	0.29	0.15	0.05
20	13.250	4	1988	0.32	0.52	0.83	1.16	1.78	2.42
21	8.125	5	1988	1.03	0.62	0.30	*	*	*
22	10.500	8	1988	0.10	*	*	*	0.07	0.36
23	15.375	10	1988	*	0.24	0.62	1.02	1.50	2.15
24	14.625	1	1989	*	*	0.36	0.79	1.28	1.91
25	9.250	5	1989	0.52	0.09	*	*	*	*

POC for August 31, 1984 by Maturity (Individual Rates) (cont.)

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
26	11.875	10	1989	0.04	0.25	0.55	1.19	1.88	2.58
27	10.750	11	1989	*	*	*	0.43	0.92	1.43
28	3.500	2	1990	27.40	24.81	22.33	20.31	18.24	16.12
29	10.500	4	1990	*	*	*	0.63	1.30	2.00
30	8.250	5	1990	0.83	0.06	*	*	*	*
31	13.000	11	1990	0.15	0.24	0.57	1.57	2.66	3.79
32	11.750	1	1991	*	*	*	0.74	1.48	2.19
33	12.375	4	1991	*	*	0.35	1.37	2.39	3.39
34	13.750	7	1991	0.09	0.04	0.41	1.57	2.85	4.14
35	14.875	8	1991	0.09	0.03	0.37	1.47	2.74	4.09
36	14.625	2	1992	*	*	0.42	1.66	3.11	4.66
37	13.750	5	1992	*	0.08	0.74	2.10	3.68	5.35
38	7.250	8	1992	*	*	*	*	*	*
39	10.500	11	1992	*	*	0.68	1.79	3.24	4.76
40	6.750	2	1993	*	*	*	*	*	*
41	10.125	5	1993	*	0.22	0.80	1.62	3.01	4.52
42	8.625	8	1993	*	*	*	*	0.16	0.70
43	11.875	8	1993	0.09	0.61	1.51	2.52	4.04	5.75
44	13.125	5	1994	*	0.66	1.84	3.08	4.60	6.27
45	8.750	8	1994	*	*	*	*	*	*
46	10.125	11	1994	0.40	0.86	1.37	1.86	2.34	2.79
47	3.000	2	1995	32.78	30.61	28.29	25.81	23.14	20.28
48	10.500	2	1995	0.02	0.09	0.21	0.33	0.46	0.58
49	10.375	5	1995	*	*	*	*	*	*
50	12.625	5	1995	0.40	1.05	1.83	2.59	3.33	4.05

POC for August 31, 1984 by Maturity (Individual Rates) (cont.)

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
51	3.500	11	1998	33.49	30.71	27.61	24.14	20.25	15.87
52	11.750	2	2001	*	*	*	*	*	*
53	13.125	5	2001	0.19	0.47	0.78	1.11	1.76	1.83
54	13.375	8	2001	0.24	0.34	0.48	0.67	0.91	1.19
55	15.750	11	2001	0.11	0.24	0.46	0.68	1.04	1.48
56	14.250	2	2002	0.52	0.56	0.65	0.81	1.08	1.43
57	11.625	11	2002	*	*	*	*	*	*
58	10.750	2	2003	*	*	*	*	*	*
59	10.750	5	2003	*	*	*	*	0.06	0.24
60	11.125	8	2003	*	*	*	*	*	*
61	11.875	11	2003	0.24	0.59	0.96	1.31	1.63	1.91
62	12.375	5	2004	*	*	*	*	*	*
63	13.750	8	2004	*	*	*	*	*	*

Table 6.16:

POC for August 31, 1984 by Coupon (Individual Rates)

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
47	3.000	2	1995	32.78	30.61	28.29	25.81	23.14	20.28
3	3.250	5	1985	2.18	1.81	1.45	1.08	0.72	0.41
51	3.500	11	1998	33.49	30.71	27.61	24.14	20.25	15.87
28	3.500	2	1990	27.40	24.81	22.33	20.31	18.24	16.12
4	4.250	5	1985	1.56	1.28	1.00	0.71	0.43	0.20
14	6.125	11	1986	2.33	1.73	1.18	0.67	0.38	0.14
40	6.750	2	1993	*	*	*	*	*	*
38	7.250	8	1992	*	*	*	*	*	*
19	7.625	11	1987	1.63	1.12	0.70	0.29	0.15	0.05
21	8.125	5	1988	1.03	0.62	0.30	*	*	*
8	8.250	8	1985	0.47	0.27	0.07	*	*	*
30	8.250	5	1990	0.83	0.06	*	*	*	*
42	8.625	8	1993	*	*	*	*	0.16	0.70
45	8.750	8	1994	*	*	*	*	*	*
25	9.250	5	1989	0.52	0.09	*	*	*	*
13	9.375	5	1986	0.08	0.02	*	0.10	0.37	0.66
2	9.500	4	1985	*	*	*	*	*	0.03
9	9.625	8	1985	0.31	0.19	0.08	0.09	0.17	0.26
6	10.000	6	1985	0.07	0.06	0.06	0.08	0.12	0.21
46	10.125	11	1994	0.40	0.86	1.37	1.86	2.34	2.79
41	10.125	5	1993	*	0.22	0.80	1.62	3.01	4.52
49	10.375	5	1995	*	*	*	*	*	*
29	10.500	4	1990	*	*	*	0.63	1.30	2.00
48	10.500	2	1995	0.02	0.09	0.21	0.33	0.46	0.58

POC for August 31, 1984 by Coupon (Individual Rates) (cont.)

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
22	10.500	8	1988	0.10	*	*	*	0.07	0.36
39	10.500	11	1992	*	*	0.68	1.79	3.24	4.76
7	10.625	7	1985	0.15	0.13	0.12	0.17	0.27	0.40
27	10.750	11	1989	*	*	*	0.43	0.92	1.43
59	10.750	5	2003	*	*	*	*	0.06	0.24
58	10.750	2	2003	*	*	*	*	*	*
11	10.875	9	1985	0.19	0.20	0.20	0.34	0.55	0.75
16	10.875	2	1987	0.09	*	*	*	0.26	0.60
60	11.125	8	2003	*	*	*	*	*	*
57	11.625	11	2002	*	*	*	*	*	*
32	11.750	1	1991	*	*	*	0.74	1.48	2.19
52	11.750	2	2001	*	*	*	*	*	*
26	11.875	10	1989	0.04	0.25	0.55	1.19	1.88	2.58
43	11.875	8	1993	0.09	0.61	1.51	2.52	4.04	5.75
61	11.875	11	2003	0.24	0.59	0.96	1.31	1.63	1.91
33	12.375	4	1991	*	*	0.35	1.37	2.39	3.39
62	12.375	5	2004	*	*	*	*	*	*
17	12.500	5	1987	*	0.10	0.33	0.55	1.03	1.59
50	12.625	5	1995	0.40	1.05	1.83	2.59	3.33	4.05
31	13.000	11	1990	0.15	0.24	0.57	1.57	2.66	3.79
53	13.125	5	2001	0.19	0.47	0.78	1.11	1.76	1.83
10	13.125	8	1985	0.17	0.15	0.13	0.25	0.43	0.61
44	13.125	5	1994	*	0.66	1.84	3.08	4.60	6.27
20	13.250	4	1988	0.32	0.52	0.83	1.16	1.78	2.42
1	13.375	3	1985	0.18	0.16	0.14	0.12	0.10	0.10

POC for August 31, 1984 by Coupon (Individual Rates) (cont.)

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
54	13.375	8	2001	0.24	0.34	0.48	0.67	0.91	1.19
12	13.500	2	1986	0.16	0.16	0.18	0.36	0.67	1.00
63	13.750	8	2004	*	*	*	*	*	*
34	13.750	7	1991	0.09	0.04	0.41	1.57	2.85	4.14
37	13.750	5	1992	*	0.08	0.74	2.10	3.68	5.35
18	14.000	5	1987	0.14	0.23	0.43	0.64	1.10	1.63
56	14.250	2	2002	0.52	0.56	0.65	0.81	1.08	1.43
5	14.375	5	1985	*	*	*	*	0.01	0.07
24	14.625	1	1989	*	*	0.36	0.79	1.28	1.91
36	14.625	2	1992	*	*	0.42	1.66	3.11	4.66
35	14.875	8	1991	0.09	0.03	0.37	1.47	2.74	4.09
23	15.375	10	1988	*	0.24	0.62	1.02	1.50	2.15
55	15.750	11	2001	0.11	0.24	0.46	0.68	1.04	1.48
15	16.125	11	1986	0.12	0.19	0.33	0.52	0.92	1.37

Table 6.17:

POC for August 30, 1985 by Maturity (Individual Rates)

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
1	11.500	3	1986	0.10	0.09	0.07	0.05	0.03	0.01
2	14.000	3	1986	0.23	0.20	0.17	0.14	0.11	0.08
3	11.750	4	1986	0.12	0.11	0.09	0.07	0.05	0.03
4	7.875	5	1986	0.10	0.09	0.08	0.07	0.06	0.05
5	9.375	5	1986	*	*	*	*	*	*
6	13.000	6	1986	0.26	0.24	0.21	0.18	0.16	0.13
7	14.875	6	1986	0.94	0.85	0.76	0.66	0.57	0.48
8	8.000	8	1986	0.15	0.14	0.12	0.11	0.09	0.08
9	11.375	8	1986	*	*	*	*	*	*
10	12.375	8	1986	0.06	0.05	0.05	0.04	0.04	0.03
11	6.125	11	1986	1.36	1.23	1.10	0.97	0.83	0.70
12	11.000	11	1986	*	*	*	*	*	0.01
13	16.125	11	1986	0.45	0.40	0.36	0.32	0.28	0.24
14	10.875	2	1987	0.01	*	*	*	*	*
15	12.500	5	1987	0.93	0.84	0.75	0.66	0.57	0.48
16	14.000	5	1987	*	*	*	*	*	*
17	7.625	11	1987	0.92	0.83	0.74	0.64	0.54	0.43
18	13.250	4	1988	0.13	0.11	0.10	0.07	0.05	0.02
19	8.125	5	1988	1.39	1.26	1.12	0.98	2.70	0.68
20	10.500	8	1988	0.58	0.49	0.41	0.34	0.26	0.19
21	15.375	10	1988	*	*	*	*	*	*
22	14.625	1	1989	*	*	*	*	*	*
23	9.250	5	1989	1.39	1.27	1.14	1.00	0.85	0.69
24	11.875	10	1989	*	*	*	*	*	*
25	10.750	11	1989	0.28	0.24	0.20	0.16	0.12	0.08

POC for August 30, 1985 by Maturity (Individual Rates) (cont.)

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
26	3.500	2	1990	15.35	13.54	11.68	9.77	7.79	5.76
27	10.500	4	1990	*	*	*	*	*	*
28	8.250	5	1990	3.89	3.53	3.16	2.78	2.37	1.94
29	13.000	11	1990	0.68	0.62	0.57	0.52	0.46	0.40
30	11.750	1	1991	0.02	*	*	*	*	*
31	12.375	4	1991	0.95	0.89	0.83	0.75	0.67	0.58
32	13.750	7	1991	*	*	*	*	*	*
33	14.875	8	1991	0.06	0.02	*	*	*	0.05
34	14.625	2	1992	0.31	0.23	0.16	0.10	0.37	0.76
35	13.750	5	1992	*	*	*	*	0.48	1.13
36	7.250	8	1992	*	*	*	*	*	*
37	10.500	11	1992	0.04	0.40	0.78	1.19	1.97	2.95
38	6.750	2	1993	*	*	*	*	*	*
39	10.125	5	1993	0.28	0.62	0.99	1.37	2.06	3.15
40	8.625	8	1993	*	*	*	*	*	0.47
41	11.875	8	1993	0.02	0.14	0.29	0.59	1.16	2.21
42	13.125	5	1994	*	*	*	0.05	0.64	1.46
43	8.750	8	1994	*	*	*	*	*	*
44	10.125	11	1994	1.19	1.39	1.59	1.78	1.97	2.20
45	11.625	11	1994	*	*	0.10	0.49	0.96	1.44
46	3.000	2	1995	24.45	21.35	18.08	14.69	11.26	8.94
47	10.500	2	1995	0.16	0.18	0.22	0.27	0.34	0.46
48	10.375	5	1995	*	*	*	*	*	*
49	12.625	5	1995	*	*	*	*	*	*
50	3.500	11	1998	21.63	18.27	14.43	10.03	4.93	0.94

POC for August 30, 1985 by Maturity (Individual Rates) (cont.)

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
51	11.750	2	2001	*	*	*	*	*	*
52	13.125	5	2001	*	*	*	0.03	0.12	0.18
53	13.375	8	2001	0.12	0.04	*	*	*	*
54	15.750	11	2001	*	*	*	*	*	*
55	14.250	2	2002	*	*	*	*	*	*
56	11.625	11	2002	*	*	*	*	*	*
57	10.750	2	2003	*	*	*	*	*	*
58	10.750	5	2003	*	*	*	*	*	0.10
59	11.125	8	2003	*	*	*	*	*	*
60	11.875	11	2003	*	*	*	0.06	0.15	0.22
61	12.375	5	2004	*	*	*	*	*	*
62	13.750	8	2004	*	*	*	*	*	*
63	12.000	5	2005	*	*	*	*	*	*

Table 6.18:

POC for August 30, 1985 by Coupon (Individual Rates)

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
46	3.000	2	1995	24.45	21.35	18.08	14.69	11.26	8.94
26	3.500	2	1990	15.35	13.54	11.68	9.77	7.79	5.76
50	3.500	11	1998	21.63	18.27	14.43	10.03	4.93	0.94
11	6.125	11	1986	1.36	1.23	1.10	0.97	0.83	0.70
38	6.750	2	1993	*	*	*	*	*	*
36	7.250	8	1992	*	*	*	*	*	*
17	7.625	11	1987	0.92	0.83	0.74	0.64	0.54	0.43
4	7.875	5	1986	0.10	0.09	0.08	0.07	0.06	0.05
8	8.000	8	1986	0.15	0.14	0.12	0.11	0.09	0.08
19	8.125	5	1988	1.39	1.26	1.12	0.98	2.70	0.68
28	8.250	5	1990	3.89	3.53	3.16	2.78	2.37	1.94
40	8.625	8	1993	*	*	*	*	*	0.47
43	8.750	8	1994	*	*	*	*	*	*
23	9.250	5	1989	1.39	1.27	1.14	1.00	0.85	0.69
5	9.375	5	1986	*	*	*	*	*	*
39	10.125	5	1993	0.28	0.62	0.99	1.37	2.06	3.15
44	10.125	11	1994	1.19	1.39	1.59	1.78	1.97	2.20
48	10.375	5	1995	*	*	*	*	*	*
47	10.500	2	1995	0.16	0.18	0.22	0.27	0.34	0.46
37	10.500	11	1992	0.04	0.40	0.78	1.19	1.97	2.95
27	10.500	4	1990	*	*	*	*	*	*
20	10.500	8	1988	0.58	0.49	0.41	0.34	0.26	0.19
25	10.750	11	1989	0.28	0.24	0.20	0.16	0.12	0.08
58	10.750	5	2003	*	*	*	*	*	0.10
57	10.750	2	2003	*	*	*	*	*	*

POC for August 30, 1985 by Coupon (Individual Rates) (cont.)

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
14	10.875	2	1987	0.01	*	*	*	*	*
12	11.000	11	1986	*	*	*	*	*	0.01
59	11.125	8	2003	*	*	*	*	*	*
9	11.375	8	1986	*	*	*	*	*	*
1	11.500	3	1986	0.10	0.09	0.07	0.05	0.03	0.01
56	11.625	11	2002	*	*	*	*	*	*
45	11.625	11	1994	*	*	0.10	0.49	0.96	1.44
30	11.750	1	1991	0.02	*	*	*	*	*
3	11.750	4	1986	0.12	0.11	0.09	0.07	0.05	0.03
51	11.750	2	2001	*	*	*	*	*	*
24	11.875	10	1989	*	*	*	*	*	*
60	11.875	11	2003	*	*	*	0.06	0.15	0.22
41	11.875	8	1993	0.02	0.14	0.29	0.59	1.16	2.21
63	12.000	5	2005	*	*	*	*	*	*
10	12.375	8	1986	0.06	0.05	0.05	0.04	0.04	0.03
31	12.375	4	1991	0.95	0.89	0.83	0.75	0.67	0.58
61	12.375	5	2004	*	*	*	*	*	*
15	12.500	5	1987	0.93	0.84	0.75	0.66	0.57	0.48
49	12.625	5	1995	*	*	*	*	*	*
6	13.000	6	1986	0.26	0.24	0.21	0.18	0.16	0.13
29	13.000	11	1990	0.68	0.62	0.57	0.52	0.46	0.40
52	13.125	5	2001	*	*	*	0.03	0.12	0.18
42	13.125	5	1994	*	*	*	0.05	0.64	1.46
18	13.250	4	1988	0.13	0.11	0.10	0.07	0.05	0.02
53	13.375	8	2001	0.12	0.04	*	*	*	*

POC for August 30, 1985 by Coupon (Individual Rates) (cont.)

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
32	13.750	7	1991	*	*	*	*	*	*
35	13.750	5	1992	*	*	*	*	0.48	1.13
62	13.750	8	2004	*	*	*	*	*	*
2	14.000	3	1986	0.23	0.20	0.17	0.14	0.11	0.08
16	14.000	5	1987	*	*	*	*	*	*
55	14.250	2	2002	*	*	*	*	*	*
22	14.625	1	1989	*	*	*	*	*	*
34	14.625	2	1992	0.31	0.23	0.16	0.10	0.37	0.76
7	14.875	6	1986	0.94	0.85	0.76	0.66	0.57	0.48
33	14.875	8	1991	0.06	0.02	*	*	*	0.05
21	15.375	10	1988	*	*	*	*	*	*
54	15.750	11	2001	*	*	*	*	*	*
13	16.125	11	1986	0.45	0.40	0.36	0.32	0.28	0.24

Table 6.19:

POC for August 29, 1986 by Maturity (Individual Rates)

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
1	10.250	3	1987	0.20	0.17	0.14	0.12	0.09	0.06
2	10.750	3	1987	0.16	0.13	0.11	0.09	0.06	0.04
3	9.125	5	1987	0.12	0.11	0.10	0.08	0.07	0.06
4	12.000	5	1987	0.03	0.03	0.02	0.02	0.02	0.01
5	12.500	5	1987	*	*	*	*	*	*
6	14.000	5	1987	0.03	0.03	0.03	0.02	0.02	0.02
7	8.500	6	1987	0.12	0.11	0.10	0.09	0.07	0.06
8	10.500	6	1987	0.18	0.16	0.14	0.13	0.11	0.09
9	12.375	8	1987	0.11	0.10	0.08	0.07	0.06	0.05
10	13.750	8	1987	0.23	0.21	0.18	0.16	0.14	0.11
11	7.625	11	1987	0.13	0.12	0.11	0.09	0.08	0.07
12	12.625	11	1987	*	*	*	*	*	*
13	7.875	12	1987	0.10	0.09	0.08	0.07	0.05	0.04
14	8.000	2	1988	0.11	0.09	0.07	0.06	0.05	0.04
15	13.250	4	1988	*	*	*	*	*	*
16	8.125	5	1988	0.46	0.41	0.37	0.32	0.27	0.23
17	10.500	8	1988	0.15	0.12	0.09	0.07	0.05	0.04
18	15.375	10	1988	0.25	0.21	0.18	0.15	0.13	0.11
19	14.625	1	1989	0.06	0.03	0.01	*	*	*
20	9.250	5	1989	0.22	0.19	0.15	0.12	0.10	0.07
21	11.875	10	1989	*	*	*	*	*	*
22	10.750	11	1989	0.05	0.03	0.02	0.02	0.01	*
23	3.500	2	1990	5.26	4.53	3.80	3.05	2.28	1.51
24	10.500	4	1990	*	*	*	*	*	*
25	8.250	5	1990	0.79	0.71	0.62	0.54	0.45	0.35

POC for August 29, 1986 by Maturity (Individual Rates) (cont.)

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
26	13.000	11	1990	0.05	0.05	0.04	0.03	0.02	0.01
27	11.750	1	1991	*	*	*	*	*	*
28	12.375	4	1991	*	*	*	*	*	*
29	13.750	7	1991	*	*	*	*	*	*
30	14.875	8	1991	0.12	0.10	0.08	0.06	0.04	0.03
31	14.625	2	1992	0.27	0.21	0.15	0.09	0.03	*
32	13.750	5	1992	*	*	*	*	*	*
33	7.250	8	1992	*	*	*	*	*	*
34	10.500	11	1992	*	*	*	*	*	*
35	6.750	2	1993	0.63	0.28	*	*	*	*
36	10.125	5	1993	*	*	*	*	*	*
37	8.625	8	1993	*	*	*	*	*	*
38	11.875	8	1993	*	*	*	*	*	*
39	13.125	5	1994	*	*	*	*	*	*
40	8.750	8	1994	*	*	*	*	*	*
41	10.125	11	1994	*	*	0.01	0.03	0.05	0.06
42	11.625	11	1994	0.16	0.16	0.17	0.16	0.15	0.13
43	3.000	2	1995	13.64	12.02	10.33	8.56	6.72	4.79
44	10.500	2	1995	*	*	*	*	*	*
45	10.375	5	1995	*	*	*	*	*	*
46	12.625	5	1995	*	*	*	*	*	*
47	8.875	2	1996	*	*	*	*	*	*
48	7.375	5	1996	*	*	*	*	*	*
49	3.500	11	1998	3.76	1.07	*	*	*	*
50	11.750	2	2001	*	*	*	*	*	*

POC for August 29, 1986 by Maturity (Individual Rates) (cont.)

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
51	13.125	5	2001	*	*	*	*	*	*
52	13.375	8	2001	*	*	*	*	*	*
53	15.750	11	2001	*	*	*	*	*	*
54	14.250	2	2002	*	*	*	*	*	*
55	11.625	11	2002	*	*	0.01	0.04	0.06	0.06
56	10.750	2	2003	*	*	*	*	*	*
57	10.750	5	2003	*	*	*	*	*	*
58	11.125	8	2003	*	*	*	*	*	*
59	11.875	11	2003	*	*	0.03	0.05	0.08	0.10
60	12.375	5	2004	*	*	*	*	*	*
61	13.750	8	2004	0.13	0.01	*	*	*	*
62	12.000	5	2005	*	*	*	*	*	*
63	9.375	5	2006	*	*	*	*	*	*

Table 6.20:

POC for August 29, 1986 by Coupon (Individual Rates)

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
43	3.000	2	1995	13.64	12.02	10.33	8.56	6.72	4.79
23	3.500	2	1990	5.26	4.53	3.80	3.05	2.28	1.51
49	3.500	11	1998	3.76	1.07	*	*	*	*
35	6.750	2	1993	0.63	0.28	*	*	*	*
33	7.250	8	1992	*	*	*	*	*	*
48	7.375	5	1996	*	*	*	*	*	*
11	7.625	11	1987	0.13	0.12	0.11	0.09	0.08	0.07
13	7.875	12	1987	0.10	0.09	0.08	0.07	0.05	0.04
14	8.000	2	1988	0.11	0.09	0.07	0.06	0.05	0.04
16	8.125	5	1988	0.46	0.41	0.37	0.32	0.27	0.23
25	8.250	5	1990	0.79	0.71	0.62	0.54	0.45	0.35
7	8.500	6	1987	0.12	0.11	0.10	0.09	0.07	0.06
37	8.625	8	1993	*	*	*	*	*	*
40	8.750	8	1994	*	*	*	*	*	*
47	8.875	2	1996	*	*	*	*	*	*
3	9.125	5	1987	0.12	0.11	0.10	0.08	0.07	0.06
20	9.250	5	1989	0.22	0.19	0.15	0.12	0.10	0.07
63	9.375	5	2006	*	*	*	*	*	*
36	10.125	5	1993	*	*	*	*	*	*
41	10.125	11	1994	*	*	0.01	0.03	0.05	0.06
1	10.250	3	1987	0.20	0.17	0.14	0.12	0.09	0.06
45	10.375	5	1995	*	*	*	*	*	*
24	10.500	4	1990	*	*	*	*	*	*
17	10.500	8	1988	0.15	0.12	0.09	0.07	0.05	0.04
44	10.500	2	1995	*	*	*	*	*	*

POC for August 29, 1986 by Coupon (Individual Rates) (cont.)

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
8	10.500	6	1987	0.18	0.16	0.14	0.13	0.11	0.09
34	10.500	11	1992	*	*	*	*	*	*
56	10.750	2	2003	*	*	*	*	*	*
2	10.750	3	1987	0.16	0.13	0.11	0.09	0.06	0.04
57	10.750	5	2003	*	*	*	*	*	*
22	10.750	11	1989	0.05	0.03	0.02	0.02	0.01	*
58	11.125	8	2003	*	*	*	*	*	*
42	11.625	11	1994	0.16	0.16	0.17	0.16	0.15	0.13
55	11.625	11	2002	*	*	0.01	0.04	0.06	0.06
50	11.750	2	2001	*	*	*	*	*	*
27	11.750	1	1991	*	*	*	*	*	*
59	11.875	11	2003	*	*	0.03	0.05	0.08	0.10
38	11.875	8	1993	*	*	*	*	*	*
21	11.875	10	1989	*	*	*	*	*	*
4	12.000	5	1987	0.03	0.03	0.02	0.02	0.02	0.01
62	12.000	5	2005	*	*	*	*	*	*
9	12.375	8	1987	0.11	0.10	0.08	0.07	0.06	0.05
60	12.375	5	2004	*	*	*	*	*	*
28	12.375	4	1991	*	*	*	*	*	*
5	12.500	5	1987	*	*	*	*	*	*
46	12.625	5	1995	*	*	*	*	*	*
12	12.625	11	1987	*	*	*	*	*	*
26	13.000	11	1990	0.05	0.05	0.04	0.03	0.02	0.01
39	13.125	5	1994	*	*	*	*	*	*
51	13.125	5	2001	*	*	*	*	*	*

POC for August 29, 1986 by Coupon (Individual Rates) (cont.)

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
15	13.250	4	1988	*	*	*	*	*	*
52	13.375	8	2001	*	*	*	*	*	*
29	13.750	7	1991	*	*	*	*	*	*
10	13.750	8	1987	0.23	0.21	0.18	0.16	0.14	0.11
32	13.750	5	1992	*	*	*	*	*	*
61	13.750	8	2004	0.13	0.01	*	*	*	*
6	14.000	5	1987	0.03	0.03	0.03	0.02	0.02	0.02
54	14.250	2	2002	*	*	*	*	*	*
19	14.625	1	1989	0.06	0.03	0.01	*	*	*
31	14.625	2	1992	0.27	0.21	0.15	0.09	0.03	*
30	14.875	8	1991	0.12	0.10	0.08	0.06	0.04	0.03
18	15.375	10	1988	0.25	0.21	0.18	0.15	0.13	0.11
53	15.750	11	2001	*	*	*	*	*	*

Table 6.21:

POC for August 31, 1987 by Maturity (Individual Rates)

No.	Coupon	Month	Year	0%	10%	20%	30%	40%
1	12.000	3	1988	0.23	0.23	0.18	0.15	0.12
2	6.625	4	1988	*	*	*	*	*
3	13.250	4	1988	0.24	0.24	0.19	0.17	0.15
4	8.125	5	1988	0.23	0.23	0.18	0.16	0.14
5	9.875	5	1988	0.09	0.09	0.07	0.06	0.05
6	6.625	7	1988	0.19	0.19	0.14	0.12	0.10
7	14.000	7	1988	0.54	0.54	0.43	0.37	0.31
8	6.125	8	1988	0.26	0.26	0.19	0.14	0.03
9	9.500	8	1988	0.25	0.25	0.19	0.16	0.13
10	10.500	8	1988	0.31	0.31	0.24	0.20	0.17
11	15.375	10	1988	0.48	0.48	0.38	0.33	0.28
12	10.625	12	1988	0.42	0.42	0.32	0.27	0.22
13	6.125	1	1989	0.35	0.35	0.24	0.17	0.02
14	14.625	1	1989	0.55	0.55	0.41	0.35	0.29
15	9.250	5	1989	0.42	0.42	0.31	0.25	0.20
16	11.875	10	1989	0.19	0.19	0.11	0.06	0.04
17	10.750	11	1989	0.28	0.28	0.18	0.12	0.08
18	3.500	2	1990	4.19	4.19	3.26	2.68	1.68
19	10.500	4	1990	0.10	0.10	0.04	*	*
20	8.250	5	1990	1.11	1.11	0.86	0.72	0.62
21	13.000	11	1990	0.04	0.04	0.03	0.01	0.01
22	11.750	1	1991	*	*	*	*	*
23	12.375	4	1991	*	*	*	*	*
24	13.750	7	1991	0.06	0.06	*	*	*
25	14.875	8	1991	0.12	0.12	0.03	0.02	0.01

POC for August 31, 1987 by Maturity (Individual Rates) (cont.)

No.	Coupon	Month	Year	0%	10%	20%	30%	40%
26	14.625	2	1992	0.11	0.11	*	*	*
27	13.750	5	1992	*	*	*	*	*
28	7.250	8	1992	2.10	2.10	1.53	1.20	0.84
29	10.500	11	1992	*	*	*	*	0.14
30	6.750	2	1993	0.45	0.45	*	*	*
31	10.125	5	1993	*	*	*	0.05	0.36
32	8.625	8	1993	*	*	*	*	*
33	11.875	8	1993	*	*	*	*	*
34	13.125	5	1994	*	*	*	*	*
35	8.750	8	1994	*	*	*	*	*
36	10.125	11	1994	*	*	*	*	0.01
37	11.625	11	1994	*	*	*	0.01	0.03
38	3.000	2	1995	18.84	18.84	15.45	13.58	11.37
39	10.500	2	1995	0.05	0.05	*	*	*
40	10.375	5	1995	0.18	0.18	0.21	0.25	0.34
41	12.625	5	1995	0.12	0.12	0.11	0.13	0.29
42	8.875	2	1996	0.02	0.02	0.12	0.23	0.65
43	7.375	5	1996	*	*	*	*	*
44	7.250	11	1996	*	*	*	*	*
45	8.500	5	1997	*	*	0.08	0.20	0.48
46	8.625	8	1997	*	*	*	*	*
47	3.500	11	1998	16.19	16.19	11.28	8.37	4.84
48	11.750	2	2001	*	*	*	*	*
49	13.125	5	2001	*	*	*	0.01	0.06
50	13.375	8	2001	*	*	*	*	*

POC for August 31, 1987 by Maturity (Individual Rates) (cont.)

No.	Coupon	Month	Year	0%	10%	20%	30%	40%
51	15.750	11	2001	0.85	0.85	0.61	0.50	0.41
52	14.250	2	2002	0.77	0.77	0.54	0.43	0.33
53	11.625	11	2002	0.13	0.13	0.21	0.23	0.23
54	10.750	2	2003	*	*	*	*	*
55	10.750	5	2003	*	*	*	*	*
56	11.125	8	2003	*	*	*	*	*
57	11.875	11	2003	*	*	*	0.04	0.09
58	12.375	5	2004	*	*	*	*	*
59	13.750	8	2004	0.02	0.02	*	*	*
60	11.625	11	2004	*	*	*	*	*
61	12.000	5	2005	*	*	*	0.05	0.10
62	10.750	8	2005	*	*	*	*	*
63	9.375	5	2006	*	*	*	*	*

Table 6.22:

POC for August 31, 1987 by Coupon (Individual Rates)

No.	Coupon	Month	Year	0%	10%	20%	30%	40%
38	3.000	2	1995	18.84	18.84	15.45	13.58	11.37
18	3.500	2	1990	4.19	4.19	3.26	2.68	1.68
47	3.500	11	1998	16.19	16.19	11.28	8.37	4.84
8	6.125	8	1988	0.26	0.26	0.19	0.14	0.03
13	6.125	1	1989	0.35	0.35	0.24	0.17	0.02
2	6.625	4	1988	*	*	*	*	*
6	6.625	7	1988	0.19	0.19	0.14	0.12	0.10
30	6.750	2	1993	0.45	0.45	*	*	*
44	7.250	11	1996	*	*	*	*	*
28	7.250	8	1992	2.10	2.10	1.53	1.20	0.84
43	7.375	5	1996	*	*	*	*	*
4	8.125	5	1988	0.23	0.23	0.18	0.16	0.14
20	8.250	5	1990	1.11	1.11	0.86	0.72	0.62
45	8.500	5	1997	*	*	0.08	0.20	0.48
46	8.625	8	1997	*	*	*	*	*
32	8.625	8	1993	*	*	*	*	*
35	8.750	8	1994	*	*	*	*	*
42	8.875	2	1996	0.02	0.02	0.12	0.23	0.65
15	9.250	5	1989	0.42	0.42	0.31	0.25	0.20
63	9.375	5	2006	*	*	*	*	*
9	9.500	8	1988	0.25	0.25	0.19	0.16	0.13
5	9.875	5	1988	0.09	0.09	0.07	0.06	0.05
31	10.125	5	1993	*	*	*	0.05	0.36
36	10.125	11	1994	*	*	*	*	0.01
40	10.375	5	1995	0.18	0.18	0.21	0.25	0.34

POC for August 31, 1987 by Coupon (Individual Rates) (cont.)

No.	Coupon	Month	Year	0%	10%	20%	30%	40%
19	10.500	4	1990	0.10	0.10	0.04	*	*
29	10.500	11	1992	*	*	*	*	0.14
10	10.500	8	1988	0.31	0.31	0.24	0.20	0.17
39	10.500	2	1995	0.05	0.05	*	*	*
12	10.625	12	1988	0.42	0.42	0.32	0.27	0.22
55	10.750	5	2003	*	*	*	*	*
62	10.750	8	2005	*	*	*	*	*
54	10.750	2	2003	*	*	*	*	*
17	10.750	11	1989	0.28	0.28	0.18	0.12	0.08
56	11.125	8	2003	*	*	*	*	*
53	11.625	11	2002	0.13	0.13	0.21	0.23	0.23
60	11.625	11	2004	*	*	*	*	*
37	11.625	11	1994	*	*	*	0.01	0.03
48	11.750	2	2001	*	*	*	*	*
22	11.750	1	1991	*	*	*	*	*
57	11.875	11	2003	*	*	*	0.04	0.09
16	11.875	10	1989	0.19	0.19	0.11	0.06	0.04
33	11.875	8	1993	*	*	*	*	*
1	12.000	3	1988	0.23	0.23	0.18	0.15	0.12
61	12.000	5	2005	*	*	*	0.05	0.10
23	12.375	4	1991	*	*	*	*	*
58	12.375	5	2004	*	*	*	*	*
41	12.625	5	1995	0.12	0.12	0.11	0.13	0.29
21	13.000	11	1990	0.04	0.04	0.03	0.01	0.01
34	13.125	5	1994	*	*	*	*	*

POC for August 31, 1987 by Coupon (Individual Rates) (cont.)

No.	Coupon	Month	Year	0%	10%	20%	30%	40%
49	13.125	5	2001	*	*	*	0.01	0.06
3	13.250	4	1988	0.24	0.24	0.19	0.17	0.15
50	13.375	8	2001	*	*	*	*	*
24	13.750	7	1991	0.06	0.06	*	*	*
27	13.750	5	1992	*	*	*	*	*
59	13.750	8	2004	0.02	0.02	*	*	*
7	14.000	7	1988	0.54	0.54	0.43	0.37	0.31
52	14.250	2	2002	0.77	0.77	0.54	0.43	0.33
14	14.625	1	1989	0.55	0.55	0.41	0.35	0.29
26	14.625	2	1992	0.11	0.11	*	*	*
25	14.875	8	1991	0.12	0.12	0.03	0.02	0.01
11	15.375	10	1988	0.48	0.48	0.38	0.33	0.28
51	15.750	11	2001	0.85	0.85	0.61	0.50	0.41

Table 6.23:

Summary of the Number of Bonds Undominated
for All Tax Brackets

Month	No. of Bonds Undominated	No. of Bonds in Sample
Apr 1982	8	55
Aug 1982	9	55
Dec 1982	16	55
Apr 1983	18	55
Aug 1983	9	63
Dec 1983	10	63
Apr 1984	10	63
Aug 1984	10	63
Dec 1984	17	63
Apr 1985	15	63
Aug 1985	24	63
Dec 1985	27	63
Apr 1986	36	63
Aug 1986	33	63
Dec 1986	31	63
Apr 1987	23	63
Aug 1987	20	63

Table 6.24:

Number of Bonds with POC's Greater
Than 1.0%, 2.0%, 3.0%, 4.0%

Month	POC $\geq$ 1.0%	POC $\geq$ 2.0%	POC $\geq$ 3.0%	POC $\geq$ 4.0%	# of Bonds
Apr 1982	30	21	12	7	51
Aug 1982	31	18	8	2	51
Dec 1982	8	3	1	0	51
Apr 1983	7	0	0	0	51
Aug 1983	26	15	10	7	59
Dec 1983	26	17	5	1	59
Apr 1984	32	14	11	7	59
Aug 1984	32	18	11	9	59
Dec 1984	22	8	2	0	60
Apr 1985	13	8	4	1	60
Aug 1985	11	5	2	0	60
Dec 1985	3	1	1	0	60
Apr 1986	2	0	0	0	60
Aug 1986	0	0	0	0	60
Dec 1986	0	0	0	0	60
Apr 1987	5	1	0	0	60
Aug 1987	2	1	0	0	60

Table 6.25:

Average Percentage of Bonds with POC's Greater
Than 1.0%, 2.0%, 3.0%, 4.0%

Year	POC $\geq$ 1.0%	POC $\geq$ 2.0%	POC $\geq$ 3.0%	POC $\geq$ 4.0%
1982	45.1%	27.5%	13.7%	5.9%
1983	34.9%	18.9%	8.9%	4.7%
1984	48.3%	22.5%	13.5%	9.0%
1985	15.0%	7.8%	3.9%	0.1%
1986	1.1%	0.0%	0.0%	0.0%
1987	3.9%	1.7%	0.0%	0.0%

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Appendix A

Analysis of Alpha Parameters

The purpose of this appendix is to assist in providing a more in-depth understanding of the results given in Chapter 6. Most of the material in this section is not directly related to answering the question of whether a tax clientele effect exists in the US government bond market. However, it does provide a more technical insight as to the significance or usefulness of the *alpha* parameters which are solved for in linear program (4.25) to (4.30), as the POC's or the degree by which the after-tax cashflow differs from its market price alone do not indicate necessarily that a given bond is "properly" priced. Some of the results presented here can also be applied to the area of tax timing options.

We will proceed via an example. In the example, we assume the existence of a given term structure and then we note the various results which occur when a bond is "correctly" priced, versus when it is either "over-" or "underpriced". It is often difficult to speak of a bond's "true"/"correct" price. Here we will define a bond's "correct" price as being its price implied by the assumed term structure. The terms "over-" and "underpricing" also hold in relation to the given term structure. We find that the following results hold:

- When bonds are *correctly* priced, α_1 is equal to one, and all other α 's progress in a decreasing manner. Such a progression ensures that the term structure is monotonic

decreasing. Also, as would be expected, the POC's for each bond is equal to zero.

- When a given bond is *overpriced* relative to the remaining set of correctly priced bonds, then the linear program will identify it as being overpriced by constructing a replicating portfolio at a lower price. The program also provides the “correct” price for the “overpriced” bond. The POC's of these bonds will therefore be greater than zero. The progression of the alphas may at times progress in a decreasing fashion, but may differ from those initially assumed. At other instances, they may follow no particular pattern. Alphas which fail to progress as expected definitely signal mispricing.
- When a given bond is *underpriced* relative to the remaining set of correctly priced bonds, the POC's will equal zero, as our linear program is not designed to detect underpricing. Our only clue to possible underpricing is that the alphas typically fail to exhibit any pattern, decreasing or otherwise.

Example

In this example, we will assume that the current date is December 15, 1990, and that a term structure, described by the following set of alphas exists.

$$\alpha_1 = 1.000000$$

$$\alpha_2 = 0.976716$$

$$\alpha_3 = 0.807613$$

$$\alpha_4 = 0.546745$$

These alphas imply the following six-month, one-year, year-and-a-half, and two-year discount factors:

Table A.26:

Implied Discount Factors

Time	Discount Factor
0.5	.9586820
1.0	.9106216
1.5	.8633620
2.0	.8183691

Given this term structure we can then properly price any existing bonds. The 16 bonds listed in Table A.27 will be used in this example¹.

The coupons for these bonds range from 4% through 16%. Coupon payments are assumed to be semi-annual. Maturities range from six-months through two years. No taxes are assumed, although this example could easily be adapted to accommodate a given tax situation. The *correct* price is calculated by using the assumed term structure.

When linear program (4.25) – (4.30) is used along with the *correct* bond prices, we find that the POC's are exactly zero, and that the alphas progress in a decreasing manner. These results are apparent from Table A.28. Compare each alpha with the originally assumed alphas. The alphas are typically close to what was initially assumed. But also note that as we are assuming an incomplete market, the alphas do not necessarily equal one another as more than one discount rate may exist. Recall that each LP is conditional on the cashflow used in its objective function.

¹The size of this sample set was selected in order to ensure that sufficient degrees of freedom existed between each knot point. An internal knot existed at time point one-year. Also the discount factor at time point .3 of .9765258 was used to ensure the accuracy of estimation in the short end as no bonds

Perhaps it is important to point out that the decreasing pattern followed by the alphas imply that our discount function will be monotonic decreasing. Should the alphas fail to decrease in this manner, then our discount function may similarly fail to be monotonic decreasing, and we may be faced with the unlikely situation of negative forward rates.

When a given bond is *overpriced* relative to the remaining set of correctly priced bonds, then LP (4.25) – (4.30) identifies the bond as being overpriced by constructing a portfolio of bonds which replicates the overpriced bond's cashflow at a lower price. The program also provides the maximum value of this "overpriced" bond. This value is then the "overpriced" bond's "correct" price. The POC's of these "overpriced" bonds will be greater than zero. The progression of the alphas may at times follow a decreasing pattern, but may differ from those initially assumed, or they may follow no pattern at all. Alphas which fail to progress as expected will definitely signal mispricing. Table A.29 below illustrates these findings.

The first column lists the "correct" price of each bond. The *Overpriced* column provides bond prices which overprice the given bond for the assumed term structure. Two overpricing scenarios are considered. The third column lists the POC for each overpricing scenario. The alphas for each scenario then follows. Not shown in Table A.26 is that the linear program also produces the "correct" price for each bond. From the first bond in Table A.29, we examine two overpricing scenarios. In the first, we assume that the bond is priced at 98 rather than 97.78556, and in the second, we assume a price of 99. The POC of the first overpricing scenario is .24. However, as the mispricing is increased to 99, we see that the POC also increases to 1.24.

When a given bond is *underpriced* relative to the remaining set of correctly priced

with maturities shorter than 6 months was used.

bonds, we find that the POC's equal zero. This occurs since our linear program is not designed to detect underpricing. Our only clue to possible underpricing occurs when the alphas fail to exhibit any pattern, decreasing or otherwise. Table A.30 illustrates these results.

The underpriced column provides a bond price which underprices the given bond for the assumed term structure. Again, two underpricing scenarios are considered. The third column lists the POC for each underpricing scenario. The alphas for each scenario then follows. The maximum value for each linear program coincides with the underpriced price assumed.

Table A.27:

Details on Sample Bonds Used

Bond	Coupon	Maturity	Correct Price
1	4%	06.15.91	97.78556
2	8%	06.15.91	99.70292
3	12%	06.15.91	101.6202
4	16%	06.15.91	103.5376
5	4%	12.15.91	94.80076
6	8%	12.15.91	98.53937
7	12%	12.15.91	102.2779
8	16%	12.15.91	106.0165
9	4%	06.15.92	91.80153
10	8%	06.15.92	97.26686
11	12%	06.15.92	102.7321
12	16%	06.15.92	108.1975
13	4%	12.15.92	88.93897
14	8%	12.15.92	96.04104
15	12%	12.15.92	103.1431
16	16%	12.15.92	110.2451

Table A.28:

POC's and Alphas for Correctly Priced Bonds

Bond	POC	α_1	α_2	α_3	α_4
1	0	1	.975900	.824481	0
2	0	1	.975900	.824481	0
3	0	1	.975900	.824481	0
4	0	1	.975900	.824481	0
5	0	1	.976722	.807518	.548131
6	0	1	.976722	.807518	.548131
7	0	1	.976722	.807518	.548131
8	0	1	.976718	.807590	.547056
9	0	1	.976761	.806966	.552299
10	0	1	.976726	.807472	.547959
11	0	1	.976722	.807518	.548131
12	0	1	.976718	.807590	.547056
13	0	1	.975900	.824481	0
14	0	1	.976717	.807601	.546689
15	0	1	.976721	.807539	.547376
16	0	1	.976717	.807601	.546689

Table A.29:

POC's and Alphas for "Overpriced" Bonds

Correct Price	Overpriced	POC	α_1	α_2	α_3	α_4
97.78556	98	.22	1	.975900	.824481	0
	99	1.24	1	.975900	.824481	0
99.70292	100	.30	1	.975900	.834480	0
	101	1.30	1	.975900	.834480	0
101.6202	102	.37	1	.975900	.834486	0
	103	1.36	1	.975900	.834486	0
103.5376	104	.44	1	.976718	.807590	.547056
	105	1.41	1	.976718	.807590	.547056
94.80076	95	.21	1	.976722	.807518	.548131
	96	1.27	1	.976722	.807518	.548131
98.53937	99	.47	1	.976722	.807518	.548131
	100	1.48	1	.976722	.807518	.548131
102.2779	103	.71	1	.976722	.807518	.548131
	104	1.68	1	.976722	.807518	.548131
106.0165	107	.93	1	.976718	.807590	.548131
	108	1.87	1	.976718	.807590	.547059
91.80153	92	.22	1	.976760	.806977	.547059
	93	1.31	1	.976760	.806977	.552252
97.26686	98	.75	1	.976726	.807472	.552252
	99	1.78	1	.976726	.807472	.547959
102.7321	103	.26	1	.976718	.807590	.547959
	104	1.23	1	.976718	.807590	.547056
108.1975	109	.74	1	.976718	.807590	.547056
	110	1.67	1	.976718	.807590	.547056
88.93897	89	.07	1	.976635	.814949	.547056
	90	1.19	1	1.039453	0	0
96.04104	97	1.00	1	.976717	.807601	.546689
	98	2.04	1	.976717	.807601	.546689
103.1431	104	.83	1	.976721	.807539	.547376
	105	1.80	1	.976721	.807539	.547376
110.2451	111	.68	1	.976717	.807595	.546884
	112	1.59	1	.976717	.807595	.546884

Table A.30:

POC's and Alphas for "Underpriced" Bonds

Correct Price	Underpriced	POC	α_1	α_2	α_3	α_4
97.78556	97	0	1	.985910	.694626	0
	96	0	1	.998653	.529307	0
99.70292	99	0	1	.984684	.710523	0
	98	0	1	.997182	.548382	0
101.6202	101	0	1	.983505	.725819	0
	100	0	1	.995768	.566738	0
103.5376	103	0	1	.982370	.740548	0
	102	0	1	.994405	.584414	0
94.80076	94	0	1	.976462	.817187	0
	93	0	1	.979052	.783592	0
98.53937	98	0	1	.975977	.051221	.051221
	97	0	1	.978289	.793487	0
102.2779	102	0	1	.976343	.815330	.296374
	101	0	1	.977561	.802937	0
106.0165	106	0	1	.976696	.808044	.532445
	105	0	1	.976864	.811972	0
91.80153	91	0	1	.979715	.766565	.733485
	90	0	1	.983400	.716160	.959535
97.26686	97	0	1	.977701	.794102	.609991
	96	0	1	.981229	.745857	.826354
102.7321	102	0	1	.979236	.773113	.704121
	101	0	1	.982618	.726850	.911594
108.1975	108	0	1	.977401	.798218	.591535
	107	0	1	.980649	.753781	.790818
88.93897	88	0	1	.975900	.824481	0
	87	0	1	.975900	.824481	0
96.04104	96	0	1	.980189	.760080	.762570
	95	0	1	1.035779	0	4.147004
103.1431	103	0	1	.982751	.725035	.919735
	102	0	1	1.024728	.150864	3.494714
110.2451	110	0	1	.983605	.713357	.972108
	109	0	1	1.011589	.330579	2.688745

Appendix B

Results for the Entire Observation Period

Results from April 30, 1982 through August 31, 1987 are presented in this appendix. For each observation date, tables contain the POC's generated from both individual and corporate tax rates. Bonds in these tables are ranked by maturity as well as coupon.

Tables are ordered for each date in the following manner:

1. Bonds ranked by *maturity* when *individual* tax rates are used;
2. Bonds ranked by *coupon* when *individual* tax rates are used;
3. Bonds ranked by *maturity* when *corporate* tax rates are used;
4. Bonds ranked by *coupon* when *corporate* tax rates are used.

For ease of identifying bonds, a number code is attached to each bond. The coupon, month and year are also provided. The figures below the 0%, 10%, 20%, 30%, 40%, and 50% headings are the POC's for each bond in the 0% – 50% tax bracket. The relevant capital gains rate is used for each bracket.

POC for April 30, 1982 by Maturity

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
1	7.125	11	1982	0.21	0.18	0.16	0.14	0.16	0.21
2	7.875	11	1982	0.07	0.06	0.05	0.04	0.08	0.14
3	9.375	12	1982	*	*	*	*	0.06	0.17
4	15.125	12	1982	0.13	0.11	0.10	0.09	0.14	0.23
5	13.625	1	1983	0.13	0.11	0.11	0.13	0.21	0.34
6	8.000	2	1983	0.47	0.29	0.12	0.03	*	*
7	9.250	3	1983	0.34	0.15	*	*	*	*
8	12.625	3	1983	0.40	0.35	0.33	0.47	0.61	0.74
9	14.500	4	1983	0.42	0.36	0.34	0.50	0.67	0.84
10	16.250	8	1983	0.53	0.47	0.45	0.70	0.98	1.29
11	7.000	11	1983	1.68	1.22	0.80	0.73	0.69	0.72
12	9.875	11	1983	0.79	0.68	0.62	0.89	1.20	1.58
13	13.000	12	1983	0.69	0.61	0.59	0.92	1.30	1.77
14	9.250	5	1984	1.15	0.83	0.55	0.71	1.00	1.48
15	6.375	8	1984	2.82	1.78	0.79	0.31	0.01	*
16	13.250	8	1984	1.05	0.87	0.76	1.14	1.71	2.55
17	16.000	11	1984	0.48	0.38	0.33	0.80	1.47	2.32
18	8.000	2	1985	2.15	1.21	0.30	*	*	*
19	13.375	3	1985	1.08	0.85	0.67	1.08	1.81	2.56
20	3.250	5	1985	12.61	10.60	8.56	6.97	5.75	4.48
21	15.875	9	1985	0.64	0.42	0.24	0.53	1.32	2.12
22	13.500	2	1986	1.01	0.79	0.60	0.72	1.52	2.34
23	6.125	11	1986	8.04	6.38	4.97	3.55	2.79	1.97
24	16.125	11	1986	*	*	*	0.07	1.06	2.06
25	12.000	5	1987	1.26	1.07	1.49	1.99	2.98	3.99

POC for April 30, 1982 by Maturity (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
26	14.000	5	1987	0.40	0.28	0.69	1.19	2.24	3.30
27	7.625	11	1987	1.39	0.05	*	*	*	*
28	13.250	4	1988	0.38	0.13	0.57	1.53	2.70	3.95
29	8.125	5	1988	0.71	*	*	*	*	*
30	15.375	10	1988	*	*	*	0.87	2.19	3.59
31	14.625	1	1989	*	0.20	0.43	1.38	2.67	3.99
32	9.250	5	1989	*	*	*	*	*	*
33	10.750	11	1989	*	0.04	0.43	1.10	1.91	2.70
34	3.500	2	1990	29.69	27.85	25.86	23.64	21.25	18.69
35	8.250	5	1990	*	*	*	*	*	*
36	13.000	11	1990	0.42	0.64	1.11	2.24	3.68	5.21
37	14.500	5	1991	*	0.02	0.23	1.22	2.83	4.55
38	14.875	8	1991	*	*	*	0.82	2.47	4.27
39	14.125	11	1991	0.78	0.93	1.07	1.92	3.62	5.44
40	14.625	2	1992	*	*	*	0.82	2.66	4.67
41	7.250	8	1992	0.40	0.39	0.38	0.36	0.35	0.32
42	6.750	2	1993	*	*	*	*	*	*
43	8.625	8	1993	*	*	*	*	*	0.68
44	8.625	11	1993	*	0.02	0.24	0.45	0.80	1.39
45	9.000	2	1994	*	0.12	0.22	0.31	0.49	0.96
46	8.750	8	1994	*	*	*	*	*	*
47	10.125	11	1994	0.05	0.59	1.19	1.82	2.44	3.05
48	3.000	2	1995	35.29	32.90	30.29	27.45	24.33	20.92
49	10.375	5	1995	*	*	*	*	*	*
50	12.625	5	1995	*	0.82	1.80	2.85	3.89	4.91

POC for April 30, 1982 by Maturity (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
51	3.500	11	1998	29.60	26.61	23.24	19.43	15.08	10.09
52	11.750	2	2001	*	*	*	*	*	*
53	13.375	8	2001	0.54	0.58	0.64	0.73	0.89	1.08
54	15.750	11	2001	*	*	*	*	*	*
55	14.250	2	2002	*	*	*	*	*	*

POC for April 30, 1982 by Coupon

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
48	3.000	2	1995	35.29	32.90	30.29	27.45	24.33	20.92
20	3.250	5	1985	12.61	10.60	8.56	6.97	5.75	4.48
51	3.500	11	1998	29.60	26.61	23.24	19.43	15.08	10.09
34	3.500	2	1990	29.69	27.85	25.86	23.64	21.25	18.69
23	6.125	11	1986	8.04	6.38	4.97	3.55	2.79	1.97
15	6.375	8	1984	2.82	1.78	0.79	0.31	0.01	*
42	6.750	2	1993	*	*	*	*	*	*
11	7.000	11	1983	1.68	1.22	0.80	0.73	0.69	0.72
1	7.125	11	1982	0.21	0.18	0.16	0.14	0.16	0.21
41	7.250	8	1992	0.40	0.39	0.38	0.36	0.35	0.32
27	7.625	11	1987	1.39	0.05	*	*	*	*
2	7.875	11	1982	0.07	0.06	0.05	0.04	0.08	0.14
6	8.000	2	1983	0.47	0.29	0.12	0.03	*	*
18	8.000	2	1985	2.15	1.21	0.30	*	*	*
29	8.125	5	1988	0.71	*	*	*	*	*
35	8.250	5	1990	*	*	*	*	*	*
44	8.625	11	1993	*	0.02	0.24	0.45	0.80	1.39
43	8.625	8	1993	*	*	*	*	*	0.68
46	8.750	8	1994	*	*	*	*	*	*
45	9.000	2	1994	*	0.12	0.22	0.31	0.49	0.96
14	9.250	5	1984	1.15	0.83	0.55	0.71	1.00	1.48
32	9.250	5	1989	*	*	*	*	*	*
7	9.250	3	1983	0.34	0.15	*	*	*	*
3	9.375	12	1982	*	*	*	*	0.06	0.17
12	9.875	11	1983	0.79	0.68	0.62	0.89	1.20	1.58

POC for April 30, 1982 by Coupon (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
47	10.125	11	1994	0.05	0.59	1.19	1.82	2.44	3.05
49	10.375	5	1995	*	*	*	*	*	*
33	10.750	11	1989	*	0.04	0.43	1.10	1.91	2.70
52	11.750	2	2001	*	*	*	*	*	*
25	12.000	5	1987	1.26	1.07	1.49	1.99	2.98	3.99
50	12.625	5	1995	*	0.82	1.80	2.85	3.89	4.91
8	12.625	3	1983	0.40	0.35	0.33	0.47	0.61	0.74
36	13.000	11	1990	0.42	0.64	1.11	2.24	3.68	5.21
13	13.000	12	1983	0.69	0.61	0.59	0.92	1.30	1.77
16	13.250	8	1984	1.05	0.87	0.76	1.14	1.71	2.55
28	13.250	4	1988	0.38	0.13	0.57	1.53	2.70	3.95
53	13.375	8	2001	0.54	0.58	0.64	0.73	0.89	1.08
19	13.375	3	1985	1.08	0.85	0.67	1.08	1.81	2.56
22	13.500	2	1986	1.01	0.79	0.60	0.72	1.52	2.34
5	13.625	1	1983	0.13	0.11	0.11	0.13	0.21	0.34
26	14.000	5	1987	0.40	0.28	0.69	1.19	2.24	3.30
39	14.125	11	1991	0.78	0.93	1.07	1.92	3.62	5.44
55	14.250	2	2002	*	*	*	*	*	*
37	14.500	5	1991	*	0.02	0.23	1.22	2.83	4.55
9	14.500	4	1983	0.42	0.36	0.34	0.50	0.67	0.84
40	14.625	2	1992	*	*	*	0.82	2.66	4.67
31	14.625	1	1989	*	0.20	0.43	1.38	2.67	3.99
38	14.875	8	1991	*	*	*	0.82	2.47	4.27
4	15.125	12	1982	0.13	0.11	0.10	0.09	0.14	0.23
30	15.375	10	1988	*	*	*	0.87	2.19	3.59

POC for April 30, 1982 by Coupon (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
54	15.750	11	2001	*	*	*	*	*	*
21	15.875	9	1985	0.64	0.42	0.24	0.53	1.32	2.12
17	16.000	11	1984	0.48	0.38	0.33	0.80	1.47	2.32
24	16.125	11	1986	*	*	*	0.07	1.06	2.06
10	16.250	8	1983	0.53	0.47	0.45	0.70	0.98	1.29

POC for April 30, 1982 by Maturity

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
1	7.125	11	1982	0.18	0.16	0.14	0.11	0.13
2	7.875	11	1982	0.06	0.05	0.04	0.03	0.07
3	9.375	12	1982	*	*	*	*	0.06
4	15.125	12	1982	0.11	0.10	0.09	0.08	0.13
5	13.625	1	1983	0.11	0.10	0.09	0.09	0.20
6	8.000	2	1983	0.42	0.36	0.26	0.06	*
7	9.250	3	1983	0.29	0.24	0.15	*	*
8	12.625	3	1983	0.35	0.30	0.25	0.33	0.56
9	14.500	4	1983	0.36	0.30	0.25	0.35	0.62
10	16.250	8	1983	0.47	0.40	0.33	0.49	0.93
11	7.000	11	1983	1.49	1.29	1.00	0.62	0.62
12	9.875	11	1983	0.72	0.64	0.53	0.66	1.16
13	13.000	12	1983	0.61	0.53	0.44	0.66	1.28
14	9.250	5	1984	0.99	0.82	0.59	0.53	1.03
15	6.375	8	1984	2.36	1.91	1.28	0.31	*
16	13.250	8	1984	0.87	0.69	0.51	0.80	1.75
17	16.000	11	1984	0.38	0.27	0.16	0.54	1.57
18	8.000	2	1985	1.71	1.27	0.70	*	*
19	13.375	3	1985	0.85	0.61	0.38	0.74	1.82
20	3.250	5	1985	11.27	9.91	8.31	6.15	4.71
21	15.875	9	1985	0.42	0.19	*	0.22	1.30
22	13.500	2	1986	0.79	0.57	0.36	0.40	1.43
23	6.125	11	1986	7.04	6.05	4.96	3.09	1.99
24	16.125	11	1986	*	*	*	*	1.09
25	12.000	5	1987	1.07	0.85	0.92	1.63	2.93

POC for April 30, 1982 by Maturity (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
26	14.000	5	1987	0.28	0.15	0.27	0.94	2.27
27	7.625	11	1987	0.76	0.17	*	*	*
28	13.250	4	1988	0.18	*	0.11	1.18	2.89
29	8.125	5	1988	0.28	*	*	*	*
30	15.375	10	1988	*	*	*	0.58	2.46
31	14.625	1	1989	0.11	0.21	0.34	1.11	2.90
32	9.250	5	1989	*	*	*	*	*
33	10.750	11	1989	*	*	0.23	1.00	2.06
34	3.500	2	1990	27.77	25.70	23.40	21.04	18.53
35	8.250	5	1990	*	*	*	*	*
36	13.000	11	1990	0.48	0.61	0.87	2.10	4.07
37	14.500	5	1991	*	0.10	0.24	1.16	3.35
38	14.875	8	1991	*	*	*	0.70	1.85
39	14.125	11	1991	0.88	0.97	1.04	1.83	4.15
40	14.625	2	1992	*	*	*	0.77	3.31
41	7.250	8	1992	0.33	0.24	0.16	0.18	0.20
42	6.750	2	1993	*	*	*	*	*
43	8.625	8	1993	*	*	*	*	0.29
44	8.625	11	1993	*	0.08	0.22	0.48	1.00
45	9.000	2	1994	0.07	0.10	0.13	0.26	0.63
46	8.750	8	1994	*	*	*	*	*
47	10.125	11	1994	0.38	0.72	1.08	1.81	2.57
48	3.000	2	1995	32.88	30.39	27.65	24.46	21.10
49	10.375	5	1995	*	*	*	*	*
50	12.625	5	1995	0.42	0.87	1.38	2.63	3.95

POC for April 30, 1982 by Maturity (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
51	3.500	11	1998	26.92	23.91	20.38	15.83	10.61
52	11.750	2	2001	*	*	*	*	*
53	13.375	8	2001	0.52	0.51	0.53	0.69	0.92
54	15.750	11	2001	*	*	*	*	*
55	14.250	2	2002	*	*	*	*	*

POC for April 30, 1982 by Coupon

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
48	3.000	2	1995	32.88	30.39	27.65	24.46	21.10
20	3.250	5	1985	11.27	9.91	8.31	6.15	4.71
51	3.500	11	1998	26.92	23.91	20.38	15.83	10.61
34	3.500	2	1990	27.77	25.70	23.40	21.04	18.53
23	6.125	11	1986	7.04	6.05	4.96	3.09	1.99
15	6.375	8	1984	2.36	1.91	1.28	0.31	*
42	6.750	2	1993	*	*	*	*	*
11	7.000	11	1983	1.49	1.29	1.00	0.62	0.62
1	7.125	11	1982	0.18	0.16	0.14	0.11	0.13
41	7.250	8	1992	0.33	0.24	0.16	0.18	0.20
27	7.625	11	1987	0.76	0.17	*	*	*
2	7.875	11	1982	0.06	0.05	0.04	0.03	0.07
6	8.000	2	1983	0.42	0.36	0.26	0.06	*
18	8.000	2	1985	1.71	1.27	0.70	*	*
29	8.125	5	1988	0.28	*	*	*	*
35	8.250	5	1990	*	*	*	*	*
44	8.625	11	1993	*	0.08	0.22	0.48	1.00
43	8.625	8	1993	*	*	*	*	0.29
46	8.750	8	1994	*	*	*	*	*
45	9.000	2	1994	0.07	0.10	0.13	0.26	0.63
14	9.250	5	1984	0.99	0.82	0.59	0.53	1.03
32	9.250	5	1989	*	*	*	*	*
7	9.250	3	1983	0.29	0.24	0.15	*	*
3	9.375	12	1982	*	*	*	*	0.06
12	9.875	11	1983	0.72	0.64	0.53	0.66	1.16

POC for April 30, 1982 by Coupon (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
47	10.125	11	1994	0.38	0.72	1.08	1.81	2.57
49	10.375	5	1995	*	*	*	*	*
33	10.750	11	1989	*	*	0.23	1.00	2.06
52	11.750	2	2001	*	*	*	*	*
25	12.000	5	1987	1.07	0.85	0.92	1.63	2.93
50	12.625	5	1995	0.42	0.87	1.38	2.63	3.95
8	12.625	3	1983	0.35	0.30	0.25	0.33	0.56
36	13.000	11	1990	0.48	0.61	0.87	2.10	4.07
13	13.000	12	1983	0.61	0.53	0.44	0.66	1.28
16	13.250	8	1984	0.87	0.69	0.51	0.80	1.75
28	13.250	4	1988	0.18	*	0.11	1.18	2.89
53	13.375	8	2001	0.52	0.51	0.53	0.69	0.92
19	13.375	3	1985	0.85	0.61	0.38	0.74	1.82
22	13.500	2	1986	0.79	0.57	0.36	0.40	1.43
5	13.625	1	1983	0.11	0.10	0.09	0.09	0.20
26	14.000	5	1987	0.28	0.15	0.27	0.94	2.27
39	14.125	11	1991	0.88	0.97	1.04	1.83	4.15
55	14.250	2	2002	*	*	*	*	*
37	14.500	5	1991	*	0.10	0.24	1.16	3.35
9	14.500	4	1983	0.36	0.30	0.25	0.35	0.62
40	14.625	2	1992	*	*	*	0.77	3.31
31	14.625	1	1989	0.11	0.21	0.34	1.11	2.90
38	14.875	8	1991	*	*	*	0.70	1.85
4	15.125	12	1982	0.11	0.10	0.09	0.08	0.13
30	15.375	10	1988	*	*	*	0.58	2.46

POC for April 30, 1982 by Coupon (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
54	15.750	11	2001	*	*	*	*	*
21	15.875	9	1985	0.42	0.19	*	0.22	1.30
17	16.000	11	1984	0.38	0.27	0.16	0.54	1.57
24	16.125	11	1986	*	*	*	*	1.09
10	16.250	8	1983	0.47	0.40	0.33	0.49	0.93

POC for August 31, 1982 by Maturity

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
1	9.250	3	1983	*	*	*	*	*	*
2	12.625	3	1983	0.03	0.03	0.02	0.02	0.02	0.01
3	14.500	4	1983	0.20	0.17	0.15	0.13	0.12	0.10
4	7.875	5	1983	0.27	0.24	0.21	0.18	0.15	0.14
5	11.625	5	1983	0.22	0.20	0.17	0.15	0.13	0.12
6	14.625	6	1983	0.29	0.26	0.22	0.19	0.16	0.17
7	15.875	7	1983	0.55	0.48	0.41	0.35	0.30	0.31
8	9.250	8	1983	0.64	0.48	0.33	0.17	0.04	*
9	11.875	8	1983	1.53	1.37	1.20	1.04	0.90	0.84
10	16.250	8	1983	0.61	0.53	0.45	0.38	0.33	0.36
11	7.000	11	1983	2.17	1.85	1.53	1.21	0.93	0.78
12	9.875	11	1983	0.89	0.79	0.69	0.59	0.54	0.61
13	13.000	12	1983	0.79	0.69	0.59	0.49	0.46	0.56
14	9.250	5	1984	2.18	1.91	1.64	1.36	1.25	1.35
15	6.375	8	1984	4.59	3.71	2.82	1.91	1.25	0.85
16	13.250	8	1984	1.56	1.33	1.11	0.88	0.91	1.20
17	16.000	11	1984	1.04	0.88	0.71	0.54	0.69	1.12
18	8.000	2	1985	2.77	1.98	1.17	0.35	*	*
19	13.375	3	1985	1.14	0.98	0.81	0.63	0.87	1.47
20	3.250	5	1985	13.74	12.00	10.21	8.35	6.85	5.80
21	15.875	9	1985	0.75	0.62	0.49	0.34	0.52	1.30
22	13.500	2	1986	0.90	0.70	0.50	0.30	0.36	1.34
23	6.125	11	1986	5.40	3.99	2.51	1.07	*	*
24	16.125	11	1986	*	*	*	*	0.05	1.38
25	12.000	5	1987	2.56	2.21	1.83	1.63	2.04	3.10

POC for August 31, 1982 by Maturity (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
26	14.000	5	1987	0.36	0.20	0.01	*	0.56	1.85
27	7.625	11	1987	3.79	2.47	1.06	*	*	*
28	13.250	4	1988	0.87	0.69	0.48	0.47	1.09	2.19
29	8.125	5	1988	3.26	2.26	1.08	*	*	*
30	15.375	10	1988	*	*	*	*	0.06	1.21
31	14.625	1	1989	*	*	*	*	*	1.01
32	9.250	5	1989	*	*	*	*	*	*
33	10.750	11	1989	*	*	0.28	0.64	1.16	1.79
34	3.500	2	1990	27.70	25.85	23.87	21.76	19.52	17.12
35	8.250	5	1990	*	*	*	*	*	*
36	13.000	11	1990	*	*	0.22	0.48	1.39	2.61
37	14.500	5	1991	*	*	*	*	0.90	2.40
38	14.875	8	1991	0.08	*	*	*	0.89	2.48
39	14.125	11	1991	0.34	0.48	0.64	0.87	1.95	3.60
40	14.625	2	1992	*	*	*	0.11	1.41	3.28
41	7.250	8	1992	1.37	1.36	1.35	1.33	1.30	1.26
42	6.750	2	1993	*	*	*	*	*	*
43	8.625	8	1993	0.22	0.16	0.59	1.14	1.75	2.34
44	8.625	11	1993	*	0.04	0.61	1.14	1.64	2.09
45	9.000	2	1994	0.30	0.25	0.61	1.02	1.35	1.65
46	8.750	8	1994	*	*	*	*	*	*
47	10.125	11	1994	0.27	0.56	1.12	1.72	2.32	2.92
48	3.000	2	1995	34.64	32.24	29.68	26.94	24.03	20.95
49	10.375	5	1995	*	*	*	*	*	*
50	12.625	5	1995	*	0.06	0.82	1.65	2.52	3.40

POC for August 31, 1982 by Maturity (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
51	3.500	11	1998	32.13	29.44	26.42	23.04	19.22	13.77
52	11.750	2	2001	*	*	*	*	*	*
53	13.375	8	2001	0.14	0.14	0.14	0.16	0.20	0.30
54	15.750	11	2001	*	*	*	*	*	*
55	14.250	2	2002	*	*	*	*	*	*

POC for August 31, 1982 by Coupon

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
48	3.000	2	1995	34.64	32.24	29.68	26.94	24.03	20.95
20	3.250	5	1985	13.74	12.00	10.21	8.35	6.85	5.80
51	3.500	11	1998	32.13	29.44	26.42	23.04	19.22	13.77
34	3.500	2	1990	27.70	25.85	23.87	21.76	19.52	17.12
23	6.125	11	1986	5.40	3.99	2.51	1.07	*	*
15	6.375	8	1984	4.59	3.71	2.82	1.91	1.25	0.85
42	6.750	2	1993	*	*	*	*	*	*
11	7.000	11	1983	2.17	1.85	1.53	1.21	0.93	0.78
41	7.250	8	1992	1.37	1.36	1.35	1.33	1.30	1.26
27	7.625	11	1987	3.79	2.47	1.06	*	*	*
4	7.875	5	1983	0.27	0.24	0.21	0.18	0.15	0.14
18	8.000	2	1985	2.77	1.98	1.17	0.35	*	*
29	8.125	5	1988	3.26	2.26	1.08	*	*	*
35	8.250	5	1990	*	*	*	*	*	*
43	8.625	8	1993	0.22	0.16	0.59	1.14	1.75	2.34
44	8.625	11	1993	*	0.04	0.61	1.14	1.64	2.09
46	8.750	8	1994	*	*	*	*	*	*
45	9.000	2	1994	0.30	0.25	0.61	1.02	1.35	1.65
32	9.250	5	1989	*	*	*	*	*	*
14	9.250	5	1984	2.18	1.91	1.64	1.36	1.25	1.35
8	9.250	8	1983	0.64	0.48	0.33	0.17	0.04	*
1	9.250	3	1983	*	*	*	*	*	*
12	9.875	11	1983	0.89	0.79	0.69	0.59	0.54	0.61
47	10.125	11	1994	0.27	0.56	1.12	1.72	2.32	2.92
49	10.375	5	1995	*	*	*	*	*	*

POC for August 31, 1982 by Coupon (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
33	10.750	11	1989	*	*	0.28	0.64	1.16	1.79
5	11.625	5	1983	0.22	0.20	0.17	0.15	0.13	0.12
52	11.750	2	2001	*	*	*	*	*	*
9	11.875	8	1983	1.53	1.37	1.20	1.04	0.90	0.84
25	12.000	5	1987	2.56	2.21	1.83	1.63	2.04	3.10
2	12.625	3	1983	0.03	0.03	0.02	0.02	0.02	0.01
50	12.625	5	1995	*	0.06	0.82	1.65	2.52	3.40
13	13.000	12	1983	0.79	0.69	0.59	0.49	0.46	0.56
36	13.000	11	1990	*	*	0.22	0.48	1.39	2.61
16	13.250	8	1984	1.56	1.33	1.11	0.88	0.91	1.20
28	13.250	4	1988	0.87	0.69	0.48	0.47	1.09	2.19
19	13.375	3	1985	1.14	0.98	0.81	0.63	0.87	1.47
53	13.375	8	2001	0.14	0.14	0.14	0.16	0.20	0.30
22	13.500	2	1986	0.90	0.70	0.50	0.30	0.36	1.34
26	14.000	5	1987	0.36	0.20	0.01	*	0.56	1.85
39	14.125	11	1991	0.34	0.48	0.64	0.87	1.95	3.60
55	14.250	2	2002	*	*	*	*	*	*
37	14.500	5	1991	*	*	*	*	0.90	2.40
3	14.500	4	1983	0.20	0.17	0.15	0.13	0.12	0.10
40	14.625	2	1992	*	*	*	0.11	1.41	3.28
31	14.625	1	1989	*	*	*	*	*	1.01
6	14.625	6	1983	0.29	0.26	0.22	0.19	0.16	0.17
38	14.875	8	1991	0.08	*	*	*	0.89	2.48
30	15.375	10	1988	*	*	*	*	0.06	1.21
54	15.750	11	2001	*	*	*	*	*	*

POC for August 31, 1982 by Coupon (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
7	15.875	7	1983	0.55	0.48	0.41	0.35	0.30	0.31
21	15.875	9	1985	0.75	0.62	0.49	0.34	0.52	1.30
17	16.000	11	1984	1.04	0.88	0.71	0.54	0.69	1.12
24	16.125	11	1986	*	*	*	*	0.05	1.38
10	16.250	8	1983	0.61	0.53	0.45	0.38	0.33	0.36

POC for August 31, 1982 by Maturity

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
1	9.250	3	1983	*	*	*	*	*
2	12.625	3	1983	0.03	0.02	0.02	0.02	0.01
3	14.500	4	1983	0.10	0.15	0.13	0.11	0.10
4	7.875	5	1983	0.07	0.21	0.18	0.15	0.13
5	11.625	5	1983	0.03	0.17	0.15	0.12	0.10
6	14.625	6	1983	0.01	0.22	0.19	0.15	0.13
7	15.875	7	1983	0.13	0.41	0.35	0.29	0.25
8	9.250	8	1983	0.10	0.47	0.37	0.17	*
9	11.875	8	1983	0.92	1.20	1.04	0.88	0.75
10	16.250	8	1983	0.09	0.45	0.38	0.31	0.27
11	7.000	11	1983	1.28	1.71	1.45	1.06	0.76
12	9.875	11	1983	0.14	0.69	0.59	0.48	0.47
13	13.000	12	1983	*	0.59	0.49	0.39	0.40
14	9.250	5	1984	1.03	1.69	1.42	1.12	1.10
15	6.375	8	1984	3.08	3.50	2.84	1.70	0.98
16	13.250	8	1984	0.39	1.11	0.88	0.65	0.85
17	16.000	11	1984	*	0.71	0.54	0.36	0.72
18	8.000	2	1985	1.42	1.91	1.37	0.30	*
19	13.375	3	1985	0.15	0.81	0.63	0.43	0.96
20	3.250	5	1985	11.63	11.01	9.45	7.29	5.79
21	15.875	9	1985	*	0.49	0.34	0.17	0.68
22	13.500	2	1986	0.25	0.50	0.30	0.09	0.55
23	6.125	11	1986	4.61	3.89	3.00	1.10	*
24	16.125	11	1986	*	*	*	*	0.47
25	12.000	5	1987	2.20	1.83	1.60	1.41	2.17

POC for August 31, 1982 by Maturity (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
26	14.000	5	1987	0.19	0.01	*	*	0.93
27	7.625	11	1987	2.98	2.19	1.24	*	*
28	13.250	4	1988	0.69	0.48	0.28	0.36	1.36
29	8.125	5	1988	2.74	2.11	1.26	*	*
30	15.375	10	1988	*	*	*	*	0.38
31	14.625	1	1989	*	*	*	*	0.18
32	9.250	5	1989	*	*	*	*	*
33	10.750	11	1989	*	*	*	0.51	1.27
34	3.500	2	1990	25.72	23.63	21.42	19.23	16.91
35	8.250	5	1990	*	*	*	*	*
36	13.000	11	1990	*	*	*	0.39	1.67
37	14.500	5	1991	*	*	*	0.01	1.32
38	14.875	8	1991	*	*	*	*	1.30
39	14.125	11	1991	0.42	0.48	0.61	0.89	2.38
40	14.625	2	1992	*	*	*	0.13	1.96
41	7.250	8	1992	1.28	1.17	1.06	1.08	1.10
42	6.750	2	1993	*	*	*	*	*
43	8.625	8	1993	0.06	0.12	0.39	1.13	1.86
44	8.625	11	1993	*	0.09	0.40	1.05	1.67
45	9.000	2	1994	0.19	0.21	0.39	0.85	1.30
46	8.750	8	1994	*	*	*	*	*
47	10.125	11	1994	2.95	0.62	0.95	1.68	2.41
48	3.000	2	1995	32.34	29.87	27.19	24.21	21.05
49	10.375	5	1995	*	*	*	*	*
50	12.625	5	1995	*	*	0.40	1.45	2.58

POC for August 31, 1982 by Maturity (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
51	3.500	11	1998	29.62	26.82	23.60	19.66	14.09
52	11.750	2	2001	*	*	*	*	*
53	13.375	8	2001	0.10	0.07	0.05	0.11	0.21
54	15.750	11	2001	*	*	*	*	*
55	14.250	2	2002	*	*	*	*	*

POC for August 31, 1982 by Coupon

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
48	3.000	2	1995	32.34	29.87	27.19	24.21	21.05
20	3.250	5	1985	11.63	11.01	9.45	7.29	5.79
51	3.500	11	1998	29.62	26.82	23.60	19.66	14.09
34	3.500	2	1990	25.72	23.63	21.42	19.23	16.91
23	6.125	11	1986	4.61	3.89	3.00	1.10	*
15	6.375	8	1984	3.08	3.50	2.84	1.70	0.98
42	6.750	2	1993	*	*	*	*	*
11	7.000	11	1983	1.28	1.71	1.45	1.06	0.76
41	7.250	8	1992	1.28	1.17	1.06	1.08	1.10
27	7.625	11	1987	2.98	2.19	1.24	*	*
4	7.875	5	1983	0.07	0.21	0.18	0.15	0.13
18	8.000	2	1985	1.42	1.91	1.37	0.30	*
29	8.125	5	1988	2.74	2.11	1.26	*	*
35	8.250	5	1990	*	*	*	*	*
43	8.625	8	1993	0.06	0.12	0.39	1.13	1.86
44	8.625	11	1993	*	0.09	0.40	1.05	1.67
46	8.750	8	1994	*	*	*	*	*
45	9.000	2	1994	0.19	0.21	0.39	0.85	1.30
32	9.250	5	1989	*	*	*	*	*
14	9.250	5	1984	1.03	1.69	1.42	1.12	1.10
8	9.250	8	1983	0.10	0.47	0.37	0.17	*
1	9.250	3	1983	*	*	*	*	*
12	9.875	11	1983	0.14	0.69	0.59	0.48	0.47
47	10.125	11	1994	2.95	0.62	0.95	1.68	2.41
49	10.375	5	1995	*	*	*	*	*

POC for August 31, 1982 by Coupon (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
33	10.750	11	1989	*	*	*	0.51	1.27
5	11.625	5	1983	0.03	0.17	0.15	0.12	0.10
52	11.750	2	2001	*	*	*	*	*
9	11.875	8	1983	0.92	1.20	1.04	0.88	0.75
25	12.000	5	1987	2.20	1.83	1.60	1.41	2.17
2	12.625	3	1983	0.03	0.02	0.02	0.02	0.01
50	12.625	5	1995	*	*	0.40	1.45	2.58
13	13.000	12	1983	*	0.59	0.49	0.39	0.40
36	13.000	11	1990	*	*	*	0.39	1.67
16	13.250	8	1984	0.39	1.11	0.88	0.65	0.85
28	13.250	4	1988	0.69	0.48	0.28	0.36	1.36
19	13.375	3	1985	0.15	0.81	0.63	0.43	0.96
53	13.375	8	2001	0.10	0.07	0.05	0.11	0.21
22	13.500	2	1986	0.25	0.50	0.30	0.09	0.55
26	14.000	5	1987	0.19	0.01	*	*	0.93
39	14.125	11	1991	0.42	0.48	0.61	0.89	2.38
55	14.250	2	2002	*	*	*	*	*
37	14.500	5	1991	*	*	*	0.01	1.32
3	14.500	4	1983	0.10	0.15	0.13	0.11	0.10
40	14.625	2	1992	*	*	*	0.13	1.96
31	14.625	1	1989	*	*	*	*	0.18
6	14.625	6	1983	0.01	0.22	0.19	0.15	0.13
38	14.875	8	1991	*	*	*	*	1.30
30	15.375	10	1988	*	*	*	*	0.38
54	15.750	11	2001	*	*	*	*	*

POC for August 31, 1982 by Coupon (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
7	15.875	7	1983	0.13	0.41	0.35	0.29	0.25
21	15.875	9	1985	*	0.49	0.34	0.17	0.68
17	16.000	11	1984	*	0.71	0.54	0.36	0.72
24	16.125	11	1986	*	*	*	*	0.47
10	16.250	8	1983	0.09	0.45	0.38	0.31	0.27

POC for December 31, 1982 by Maturity

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
1	9.750	7	1983	0.16	0.14	0.12	0.10	0.08	0.06
2	15.875	7	1983	0.24	0.22	0.19	0.16	0.13	0.11
3	9.250	8	1983	0.11	0.10	0.09	0.08	0.07	0.06
4	11.875	8	1983	*	*	*	*	*	*
5	16.250	8	1983	0.20	0.18	0.16	0.14	0.12	0.10
6	16.000	9	1983	0.32	0.29	0.25	0.22	0.19	0.16
7	7.000	11	1983	0.53	0.47	0.41	0.35	0.29	0.23
8	9.875	11	1983	0.01	0.01	*	*	*	*
9	12.125	11	1983	0.09	0.08	0.07	0.06	0.05	0.04
10	13.000	12	1983	0.31	0.27	0.24	0.21	0.17	0.14
11	9.250	5	1984	0.39	0.36	0.32	0.28	0.25	0.21
12	15.750	5	1984	*	*	*	*	*	*
13	6.375	8	1984	1.38	1.22	1.04	0.87	0.68	0.54
14	13.250	8	1984	0.05	0.06	0.06	0.06	0.05	0.09
15	16.000	11	1984	0.06	0.05	0.03	0.02	0.01	0.08
16	8.000	2	1985	0.92	0.84	0.76	0.68	0.58	0.65
17	13.375	3	1985	0.35	0.32	0.29	0.25	0.21	0.34
18	3.250	5	1985	4.87	3.88	2.87	1.85	0.80	*
19	15.875	9	1985	*	*	*	*	*	0.21
20	13.500	2	1986	0.09	0.09	0.08	0.07	0.05	0.39
21	6.125	11	1986	3.64	2.79	1.91	1.00	0.06	*
22	16.125	11	1986	*	*	*	*	*	0.63
23	12.000	5	1987	1.47	1.34	1.20	1.04	0.92	1.26
24	14.000	5	1987	*	*	*	*	*	0.48
25	7.625	11	1987	2.96	2.16	1.33	0.44	*	*

POC for December 31, 1982 by Maturity (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
26	13.250	4	1988	0.41	0.29	0.16	0.01	0.12	0.51
27	8.125	5	1988	2.87	2.11	1.32	0.49	*	*
28	15.375	10	1988	*	*	*	*	*	*
29	14.625	1	1989	*	*	*	*	*	0.04
30	9.250	5	1989	0.40	*	*	*	*	*
31	10.750	11	1989	*	*	*	*	*	0.20
32	3.500	2	1990	15.11	13.62	12.03	10.34	8.53	6.65
33	8.250	5	1990	*	*	*	*	*	*
34	13.000	11	1990	*	*	*	*	*	*
35	14.500	5	1991	*	*	*	*	*	*
36	14.875	8	1991	0.08	0.12	0.15	0.17	0.22	0.35
37	14.125	11	1991	0.30	0.28	0.28	0.29	0.38	0.62
38	14.625	2	1992	*	*	*	*	0.15	0.59
39	7.250	8	1992	*	*	*	*	*	*
40	6.750	2	1993	*	*	*	*	*	*
41	8.625	8	1993	0.08	0.25	0.48	0.89	1.29	1.70
42	8.625	11	1993	*	*	*	*	*	*
43	9.000	2	1994	0.26	0.43	0.60	0.80	1.02	1.23
44	8.750	8	1994	*	*	*	*	*	*
45	10.125	11	1994	0.70	0.73	0.77	0.85	0.97	1.11
46	3.000	2	1995	20.83	18.71	16.47	14.10	11.60	8.99
47	10.375	5	1995	*	*	*	*	*	*
48	12.625	5	1995	*	*	*	*	*	*
49	3.500	11	1998	20.80	17.99	14.92	10.91	5.89	0.28
50	11.750	2	2001	*	*	*	*	*	*

POC for December 31, 1982 by Maturity (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
51	13.375	8	2001	*	*	*	*	*	*
52	15.750	11	2001	0.29	0.02	*	*	*	*
53	14.250	2	2002	0.08	0.05	0.03	0.06	0.09	0.12
54	11.625	11	2002	*	*	*	*	*	*
55	10.750	2	2003	*	*	*	*	*	*

POC for December 31, 1982 by Coupon

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
46	3.000	2	1995	20.83	18.71	16.47	14.10	11.60	8.99
18	3.250	5	1985	4.87	3.88	2.87	1.85	0.80	*
49	3.500	11	1998	20.80	17.99	14.92	10.91	5.89	0.28
32	3.500	2	1990	15.11	13.62	12.03	10.34	8.53	6.65
21	6.125	11	1986	3.64	2.79	1.91	1.00	0.06	*
13	6.375	8	1984	1.38	1.22	1.04	0.87	0.68	0.54
40	6.750	2	1993	*	*	*	*	*	*
7	7.000	11	1983	0.53	0.47	0.41	0.35	0.29	0.23
39	7.250	8	1992	*	*	*	*	*	*
25	7.625	11	1987	2.96	2.16	1.33	0.44	*	*
16	8.000	2	1985	0.92	0.84	0.76	0.68	0.58	0.65
27	8.125	5	1988	2.87	2.11	1.32	0.49	*	*
33	8.250	5	1990	*	*	*	*	*	*
42	8.625	11	1993	*	*	*	*	*	*
41	8.625	8	1993	0.08	0.25	0.48	0.89	1.29	1.70
44	8.750	8	1994	*	*	*	*	*	*
43	9.000	2	1994	0.26	0.43	0.60	0.80	1.02	1.23
11	9.250	5	1984	0.39	0.36	0.32	0.28	0.25	0.21
3	9.250	8	1983	0.11	0.10	0.09	0.08	0.07	0.06
30	9.250	5	1989	0.40	*	*	*	*	*
1	9.750	7	1983	0.16	0.14	0.12	0.10	0.08	0.06
8	9.875	11	1983	0.01	0.01	*	*	*	*
45	10.125	11	1994	0.70	0.73	0.77	0.85	0.97	1.11
47	10.375	5	1995	*	*	*	*	*	*
31	10.750	11	1989	*	*	*	*	*	0.20

POC for December 31, 1982 by Coupon (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
55	10.750	2	2003	*	*	*	*	*	*
54	11.625	11	2002	*	*	*	*	*	*
50	11.750	2	2001	*	*	*	*	*	*
4	11.875	8	1983	*	*	*	*	*	*
23	12.000	5	1987	1.47	1.34	1.20	1.04	0.92	1.26
9	12.125	11	1983	0.09	0.08	0.07	0.06	0.05	0.04
48	12.625	5	1995	*	*	*	*	*	*
10	13.000	12	1983	0.31	0.27	0.24	0.21	0.17	0.14
34	13.000	11	1990	*	*	*	*	*	*
26	13.250	4	1988	0.41	0.29	0.16	0.01	0.12	0.51
14	13.250	8	1984	0.05	0.06	0.06	0.06	0.05	0.09
17	13.375	3	1985	0.35	0.32	0.29	0.25	0.21	0.34
51	13.375	8	2001	*	*	*	*	*	*
20	13.500	2	1986	0.09	0.09	0.08	0.07	0.05	0.39
24	14.000	5	1987	*	*	*	*	*	0.48
37	14.125	11	1991	0.30	0.28	0.28	0.29	0.38	0.62
53	14.250	2	2002	0.08	0.05	0.03	0.06	0.09	0.12
35	14.500	5	1991	*	*	*	*	*	*
38	14.625	2	1992	*	*	*	*	0.15	0.59
29	14.625	1	1989	*	*	*	*	*	0.04
36	14.875	8	1991	0.08	0.12	0.15	0.17	0.22	0.35
28	15.375	10	1988	*	*	*	*	*	*
12	15.750	5	1984	*	*	*	*	*	*
52	15.750	11	2001	0.29	0.02	*	*	*	*
19	15.875	9	1985	*	*	*	*	*	0.21

POC for December 31, 1982 by Coupon (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
2	15.875	7	1983	0.24	0.22	0.19	0.16	0.13	0.11
15	16.000	11	1984	0.06	0.05	0.03	0.02	0.01	0.08
6	16.000	9	1983	0.32	0.29	0.25	0.22	0.19	0.16
22	16.125	11	1986	*	*	*	*	*	0.63
5	16.250	8	1983	0.20	0.18	0.16	0.14	0.12	0.10

POC for December 31, 1982 by Maturity

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
1	9.750	7	1983	0.14	0.12	0.10	0.08	0.06
2	15.875	7	1983	0.22	0.19	0.16	0.13	0.11
3	9.250	8	1983	0.10	0.09	0.08	0.07	0.06
4	11.875	8	1983	*	*	*	*	*
5	16.250	8	1983	0.18	0.16	0.14	0.12	0.10
6	16.000	9	1983	0.29	0.25	0.22	0.19	0.16
7	7.000	11	1983	0.48	0.43	0.37	0.31	0.24
8	9.875	11	1983	0.01	*	*	*	*
9	12.125	11	1983	0.08	0.07	0.06	0.05	0.04
10	13.000	12	1983	0.27	0.24	0.21	0.17	0.14
11	9.250	5	1984	0.36	0.32	0.28	0.25	0.21
12	15.750	5	1984	*	*	*	*	*
13	6.375	8	1984	1.26	1.13	0.99	0.78	0.56
14	13.250	8	1984	0.06	0.06	0.06	0.05	0.05
15	16.000	11	1984	0.05	0.03	0.02	0.01	*
16	8.000	2	1985	0.84	0.76	0.68	0.58	0.49
17	13.375	3	1985	0.32	0.29	0.25	0.21	0.17
18	3.250	5	1985	4.35	3.83	3.16	1.81	0.43
19	15.875	9	1985	*	*	*	*	*
20	13.500	2	1986	0.09	0.08	0.07	0.05	0.05
21	6.125	11	1986	3.21	2.78	2.21	1.00	*
22	16.125	11	1986	*	*	*	*	0.07
23	12.000	5	1987	1.34	1.20	1.04	0.89	0.79
24	14.000	5	1987	*	*	*	*	*
25	7.625	11	1987	2.46	1.94	1.31	0.34	*

POC for December 31, 1982 by Maturity (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
26	13.250	4	1988	0.29	0.16	0.01	*	0.23
27	8.125	5	1988	2.36	1.85	1.24	0.23	*
28	15.375	10	1988	*	*	*	*	*
29	14.625	1	1989	*	*	*	*	*
30	9.250	5	1989	0.10	*	*	*	*
31	10.750	11	1989	*	*	*	*	*
32	3.500	2	1990	13.86	12.56	11.08	9.10	7.05
33	8.250	5	1990	*	*	*	*	*
34	13.000	11	1990	*	*	*	*	*
35	14.500	5	1991	*	*	*	*	*
36	14.875	8	1991	0.12	0.15	0.17	0.18	0.27
37	14.125	11	1991	0.24	0.18	0.14	0.20	0.41
38	14.625	2	1992	*	*	*	*	0.30
39	7.250	8	1992	*	*	*	*	*
40	6.750	2	1993	*	*	*	*	*
41	8.625	8	1993	0.09	0.16	0.31	0.83	1.35
42	8.625	11	1993	*	*	*	*	*
43	9.000	2	1994	0.34	0.40	0.47	0.74	1.02
44	8.750	8	1994	*	*	*	*	*
45	10.125	11	1994	0.62	0.52	0.47	0.66	0.89
46	3.000	2	1995	19.23	17.56	15.64	12.83	9.85
47	10.375	5	1995	*	*	*	*	*
48	12.625	5	1995	*	*	*	*	*
49	3.500	11	1998	18.54	16.10	12.43	7.16	1.22
50	11.750	2	2001	*	*	*	*	*

POC for December 31, 1982 by Maturity (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
51	13.375	8	2001	*	*	*	*	*
52	15.750	11	2001	0.02	*	*	*	*
53	14.250	2	2002	0.05	0.03	0.06	0.09	0.11
54	11.625	11	2002	*	*	*	*	*
55	10.750	2	2003	*	*	*	*	*

POC for December 31, 1982 by Coupon

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
46	3.000	2	1995	19.23	17.56	15.64	12.83	9.85
18	3.250	5	1985	4.35	3.83	3.16	1.81	0.43
49	3.500	11	1998	18.54	16.10	12.43	7.16	1.22
32	3.500	2	1990	13.86	12.56	11.08	9.10	7.05
21	6.125	11	1986	3.21	2.78	2.21	1.00	*
13	6.375	8	1984	1.26	1.13	0.99	0.78	0.56
40	6.750	2	1993	*	*	*	*	*
7	7.000	11	1983	0.48	0.43	0.37	0.31	0.24
39	7.250	8	1992	*	*	*	*	*
25	7.625	11	1987	2.46	1.94	1.31	0.34	*
16	8.000	2	1985	0.84	0.76	0.68	0.58	0.49
27	8.125	5	1988	2.36	1.85	1.24	0.23	*
33	8.250	5	1990	*	*	*	*	*
42	8.625	11	1993	*	*	*	*	*
41	8.625	8	1993	0.09	0.16	0.31	0.83	1.35
44	8.750	8	1994	*	*	*	*	*
43	9.000	2	1994	0.34	0.40	0.47	0.74	1.02
11	9.250	5	1984	0.36	0.32	0.28	0.25	0.21
3	9.250	8	1983	0.10	0.09	0.08	0.07	0.06
30	9.250	5	1989	0.10	*	*	*	*
1	9.750	7	1983	0.14	0.12	0.10	0.08	0.06
8	9.875	11	1983	0.01	*	*	*	*
45	10.125	11	1994	0.62	0.52	0.47	0.66	0.89
47	10.375	5	1995	*	*	*	*	*
31	10.750	11	1989	*	*	*	*	*

POC for December 31, 1982 by Coupon (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
55	10.750	2	2003	*	*	*	*	*
54	11.625	11	2002	*	*	*	*	*
50	11.750	2	2001	*	*	*	*	*
4	11.875	8	1983	*	*	*	*	*
23	12.000	5	1987	1.34	1.20	1.04	0.89	0.79
9	12.125	11	1983	0.08	0.07	0.06	0.05	0.04
48	12.625	5	1995	*	*	*	*	*
10	13.000	12	1983	0.27	0.24	0.21	0.17	0.14
34	13.000	11	1990	*	*	*	*	*
26	13.250	4	1988	0.29	0.16	0.01	*	0.23
14	13.250	8	1984	0.06	0.06	0.06	0.05	0.05
17	13.375	3	1985	0.32	0.29	0.25	0.21	0.17
51	13.375	8	2001	*	*	*	*	*
20	13.500	2	1986	0.09	0.08	0.07	0.05	0.05
24	14.000	5	1987	*	*	*	*	*
37	14.125	11	1991	0.24	0.18	0.14	0.20	0.41
53	14.250	2	2002	0.05	0.03	0.06	0.09	0.11
35	14.500	5	1991	*	*	*	*	*
38	14.625	2	1992	*	*	*	*	0.30
29	14.625	1	1989	*	*	*	*	*
36	14.875	8	1991	0.12	0.15	0.17	0.18	0.27
28	15.375	10	1988	*	*	*	*	*
12	15.750	5	1984	*	*	*	*	*
52	15.750	11	2001	0.02	*	*	*	*
19	15.875	9	1985	*	*	*	*	*

POC for December 31, 1982 by Coupon (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
2	15.875	7	1983	0.22	0.19	0.16	0.13	0.11
15	16.000	11	1984	0.05	0.03	0.02	0.01	*
6	16.000	9	1983	0.29	0.25	0.22	0.19	0.16
22	16.125	11	1986	*	*	*	*	0.07
5	16.250	8	1983	0.18	0.16	0.14	0.12	0.10

POC for April 29, 1983 by Maturity

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
1	7.000	11	1983	0.25	0.23	0.20	0.18	0.15	0.13
2	9.875	11	1983	*	*	*	*	*	*
3	12.125	11	1983	0.12	0.11	0.10	0.09	0.08	0.06
4	10.500	12	1983	0.18	0.17	0.15	0.13	0.11	0.09
5	13.000	12	1983	0.18	0.16	0.15	0.13	0.11	0.09
6	7.250	2	1984	0.25	0.22	0.20	0.17	0.14	0.12
7	15.125	2	1984	0.28	0.25	0.22	0.19	0.16	0.13
8	14.125	3	1984	0.41	0.36	0.32	0.28	0.23	0.19
9	13.875	4	1984	0.35	0.30	0.26	0.23	0.19	0.15
10	9.250	5	1984	0.32	0.29	0.27	0.24	0.21	0.18
11	15.750	5	1984	0.11	0.10	0.09	0.09	0.08	0.07
12	6.375	8	1984	1.50	1.32	1.14	0.96	0.78	0.60
13	13.250	8	1984	0.08	0.07	0.05	0.04	0.03	0.02
14	16.000	11	1984	*	*	*	*	*	*
15	8.000	2	1985	0.64	0.56	0.48	0.41	0.34	0.30
16	13.375	3	1985	0.29	0.23	0.19	0.14	0.11	0.11
17	3.250	5	1985	4.22	3.46	2.69	1.92	1.14	0.42
18	15.875	9	1985	0.28	0.21	0.15	0.11	0.08	0.18
19	13.500	2	1986	0.08	0.02	*	*	*	0.24
20	6.125	11	1986	1.94	1.38	0.81	0.22	*	*
21	16.125	11	1986	*	*	*	*	0.22	0.71
22	12.000	5	1987	0.35	0.32	0.28	0.25	0.22	0.56
23	14.000	5	1987	*	*	*	*	0.02	0.41
24	7.625	11	1987	1.83	1.43	1.06	0.69	0.29	*
25	13.250	4	1988	0.14	0.03	*	*	*	*

POC for April 29, 1983 by Maturity (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
26	8.125	5	1988	1.76	1.47	1.15	0.79	0.39	*
27	15.375	10	1988	0.02	*	*	*	*	*
28	14.625	1	1989	*	*	*	*	*	*
29	9.250	5	1989	0.67	0.45	0.21	*	*	*
30	10.750	11	1989	*	*	*	*	*	*
31	3.500	2	1990	20.13	18.38	16.54	14.59	12.53	10.34
32	8.250	5	1990	*	*	*	*	*	*
33	13.000	11	1990	*	*	*	*	*	*
34	14.500	5	1991	*	*	*	*	*	0.01
35	14.875	8	1991	*	*	*	*	*	*
36	14.125	11	1991	0.21	0.33	0.44	0.53	0.62	0.78
37	14.625	2	1992	*	*	*	*	0.05	0.44
38	7.250	8	1992	*	*	*	*	*	*
39	6.750	2	1993	*	*	*	*	*	*
40	8.625	8	1993	*	*	*	0.22	0.70	1.15
41	8.625	11	1993	*	0.08	0.25	0.55	1.00	1.42
42	9.000	2	1994	0.01	*	0.03	0.23	0.55	0.85
43	8.750	8	1994	*	*	*	*	*	*
44	10.125	11	1994	0.69	0.90	1.15	1.38	1.62	1.87
45	3.000	2	1995	24.99	22.70	20.29	17.74	15.05	12.22
46	10.375	5	1995	*	*	*	*	*	*
47	12.625	5	1995	*	*	*	*	*	*
48	3.500	11	1998	27.90	24.77	21.25	17.31	12.86	7.86
49	11.750	2	2001	*	*	*	*	*	*
50	13.375	8	2001	*	*	*	*	*	*

POC for April 29, 1983 by Maturity (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
51	15.750	11	2001	*	*	*	*	*	0.02
52	14.250	2	2002	*	*	*	*	*	*
53	11.625	11	2002	*	*	*	*	*	*
54	10.750	2	2003	*	*	*	*	*	*
55	10.750	5	2003	*	*	*	*	*	*

POC for April 29, 1983 by Coupon

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
45	3.000	2	1995	24.99	22.70	20.29	17.74	15.05	12.22
17	3.250	5	1985	4.22	3.46	2.69	1.92	1.14	0.42
48	3.500	11	1998	27.90	24.77	21.25	17.31	12.86	7.86
31	3.500	2	1990	20.13	18.38	16.54	14.59	12.53	10.34
20	6.125	11	1986	1.94	1.38	0.81	0.22	*	*
12	6.375	8	1984	1.50	1.32	1.14	0.96	0.78	0.60
39	6.750	2	1993	*	*	*	*	*	*
1	7.000	11	1983	0.25	0.23	0.20	0.18	0.15	0.13
6	7.250	2	1984	0.25	0.22	0.20	0.17	0.14	0.12
38	7.250	8	1992	*	*	*	*	*	*
24	7.625	11	1987	1.83	1.43	1.06	0.69	0.29	*
15	8.000	2	1985	0.64	0.56	0.48	0.41	0.34	0.30
26	8.125	5	1988	1.76	1.47	1.15	0.79	0.39	*
32	8.250	5	1990	*	*	*	*	*	*
40	8.625	8	1993	*	*	*	0.22	0.70	1.15
41	8.625	11	1993	*	0.08	0.25	0.55	1.00	1.42
43	8.750	8	1994	*	*	*	*	*	*
42	9.000	2	1994	0.01	*	0.03	0.23	0.55	0.85
10	9.250	5	1984	0.32	0.29	0.27	0.24	0.21	0.18
29	9.250	5	1989	0.67	0.45	0.21	*	*	*
2	9.875	11	1983	*	*	*	*	*	*
44	10.125	11	1994	0.69	0.90	1.15	1.38	1.62	1.87
46	10.375	5	1995	*	*	*	*	*	*
4	10.500	12	1983	0.18	0.17	0.15	0.13	0.11	0.09
54	10.750	2	2003	*	*	*	*	*	*

POC for April 29, 1983 by Coupon (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
55	10.750	5	2003	*	*	*	*	*	*
30	10.750	11	1989	*	*	*	*	*	*
53	11.625	11	2002	*	*	*	*	*	*
49	11.750	2	2001	*	*	*	*	*	*
22	12.000	5	1987	0.35	0.32	0.28	0.25	0.22	0.56
3	12.125	11	1983	0.12	0.11	0.10	0.09	0.08	0.06
47	12.625	5	1995	*	*	*	*	*	*
33	13.000	11	1990	*	*	*	*	*	*
5	13.000	12	1983	0.18	0.16	0.15	0.13	0.11	0.09
25	13.250	4	1988	0.14	0.03	*	*	*	*
13	13.250	8	1984	0.08	0.07	0.05	0.04	0.03	0.02
16	13.375	3	1985	0.29	0.23	0.19	0.14	0.11	0.11
50	13.375	8	2001	*	*	*	*	*	*
19	13.500	2	1986	0.08	0.02	*	*	*	0.24
9	13.875	4	1984	0.35	0.30	0.26	0.23	0.19	0.15
23	14.000	5	1987	*	*	*	*	0.02	0.41
8	14.125	3	1984	0.41	0.36	0.32	0.28	0.23	0.19
36	14.125	11	1991	0.21	0.33	0.44	0.53	0.62	0.78
52	14.250	2	2002	*	*	*	*	*	*
34	14.500	5	1991	*	*	*	*	*	0.01
37	14.625	2	1992	*	*	*	*	0.05	0.44
28	14.625	1	1989	*	*	*	*	*	*
35	14.875	8	1991	*	*	*	*	*	*
7	15.125	2	1984	0.28	0.25	0.22	0.19	0.16	0.13
27	15.375	10	1988	0.02	*	*	*	*	*

POC for April 29, 1983 by Coupon (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
51	15.750	11	2001	*	*	*	*	*	0.02
11	15.750	5	1984	0.11	0.10	0.09	0.09	0.08	0.07
18	15.875	9	1985	0.28	0.21	0.15	0.11	0.08	0.18
14	16.000	11	1984	*	*	*	*	*	*
21	16.125	11	1986	*	*	*	*	0.22	0.71

POC for April 29, 1983 by Maturity

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
1	7.000	11	1983	0.23	0.20	0.18	0.15	0.13
2	9.875	11	1983	*	*	*	*	*
3	12.125	11	1983	0.11	0.10	0.09	0.08	0.06
4	10.500	12	1983	0.17	0.15	0.13	0.11	0.09
5	13.000	12	1983	0.16	0.15	0.13	0.11	0.09
6	7.250	2	1984	0.22	0.20	0.17	0.14	0.12
7	15.125	2	1984	0.25	0.22	0.19	0.16	0.13
8	14.125	3	1984	0.36	0.32	0.28	0.23	0.19
9	13.875	4	1984	0.30	0.26	0.23	0.19	0.15
10	9.250	5	1984	0.29	0.27	0.24	0.21	0.18
11	15.750	5	1984	0.10	0.09	0.09	0.08	0.07
12	6.375	8	1984	1.35	1.20	1.04	0.84	0.64
13	13.250	8	1984	0.07	0.05	0.04	0.03	0.02
14	16.000	11	1984	*	*	*	*	*
15	8.000	2	1985	0.56	0.48	0.41	0.34	0.27
16	13.375	3	1985	0.23	0.19	0.14	0.11	0.07
17	3.250	5	1985	3.78	3.34	2.80	1.81	0.80
18	15.875	9	1985	0.21	0.15	0.11	0.08	0.05
19	13.500	2	1986	0.02	*	*	*	0.01
20	6.125	11	1986	1.69	1.44	1.09	0.29	*
21	16.125	11	1986	*	*	*	*	0.33
22	12.000	5	1987	0.32	0.28	0.25	0.21	0.25
23	14.000	5	1987	*	*	*	*	0.09
24	7.625	11	1987	1.57	1.36	1.10	0.61	0.09
25	13.250	4	1988	0.03	*	*	*	*

POC for April 29, 1983 by Maturity (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
26	8.125	5	1988	1.56	1.35	1.08	0.61	0.10
27	15.375	10	1988	*	*	*	*	*
28	14.625	1	1989	*	*	*	*	*
29	9.250	5	1989	0.45	0.21	*	*	*
30	10.750	11	1989	*	*	*	*	*
31	3.500	2	1990	18.47	16.72	14.85	12.73	10.48
32	8.250	5	1990	*	*	*	*	*
33	13.000	11	1990	*	*	*	*	*
34	14.500	5	1991	*	*	*	*	0.01
35	14.875	8	1991	*	*	*	*	*
36	14.125	11	1991	0.29	0.36	0.42	0.52	0.65
37	14.625	2	1992	*	*	*	*	0.19
38	7.250	8	1992	*	*	*	*	*
39	6.750	2	1993	*	*	*	*	*
40	8.625	8	1993	*	*	*	0.11	0.74
41	8.625	11	1993	0.01	0.09	0.18	0.45	1.03
42	9.000	2	1994	*	*	*	0.12	0.55
43	8.750	8	1994	*	*	*	*	*
44	10.125	11	1994	0.77	0.85	0.95	1.27	1.62
45	3.000	2	1995	22.95	20.82	18.49	15.64	12.63
46	10.375	5	1995	*	*	*	*	*
47	12.625	5	1995	*	*	*	*	*
48	3.500	11	1998	24.92	21.58	17.79	13.26	8.15
49	11.750	2	2001	*	*	*	*	*
50	13.375	8	2001	*	*	*	*	*

POC for April 29, 1983 by Maturity (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
51	15.750	11	2001	*	*	*	*	*
52	14.250	2	2002	*	*	*	*	*
53	11.625	11	2002	*	*	*	*	*
54	10.750	2	2003	*	*	*	*	*
55	10.750	5	2003	*	*	*	*	*

POC for April 29, 1983 by Coupon

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
45	3.000	2	1995	22.95	20.82	18.49	15.64	12.63
17	3.250	5	1985	3.78	3.34	2.80	1.81	0.80
48	3.500	11	1998	24.92	21.58	17.79	13.26	8.15
31	3.500	2	1990	18.47	16.72	14.85	12.73	10.48
20	6.125	11	1986	1.69	1.44	1.09	0.29	*
12	6.375	8	1984	1.35	1.20	1.04	0.84	0.64
39	6.750	2	1993	*	*	*	*	*
1	7.000	11	1983	0.23	0.20	0.18	0.15	0.13
6	7.250	2	1984	0.22	0.20	0.17	0.14	0.12
38	7.250	8	1992	*	*	*	*	*
24	7.625	11	1987	1.57	1.36	1.10	0.61	0.09
15	8.000	2	1985	0.56	0.48	0.41	0.34	0.27
26	8.125	5	1988	1.56	1.35	1.08	0.61	0.10
32	8.250	5	1990	*	*	*	*	*
40	8.625	8	1993	*	*	*	0.11	0.74
41	8.625	11	1993	0.01	0.09	0.18	0.45	1.03
43	8.750	8	1994	*	*	*	*	*
42	9.000	2	1994	*	*	*	0.12	0.55
10	9.250	5	1984	0.29	0.27	0.24	0.21	0.18
29	9.250	5	1989	0.45	0.21	*	*	*
2	9.875	11	1983	*	*	*	*	*
44	10.125	11	1994	0.77	0.85	0.95	1.27	1.62
46	10.375	5	1995	*	*	*	*	*
4	10.500	12	1983	0.17	0.15	0.13	0.11	0.09
54	10.750	2	2003	*	*	*	*	*

POC for April 29, 1983 by Coupon (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
55	10.750	5	2003	*	*	*	*	*
30	10.750	11	1989	*	*	*	*	*
53	11.625	11	2002	*	*	*	*	*
49	11.750	2	2001	*	*	*	*	*
22	12.000	5	1987	0.32	0.28	0.25	0.21	0.25
3	12.125	11	1983	0.11	0.10	0.09	0.08	0.06
47	12.625	5	1995	*	*	*	*	*
33	13.000	11	1990	*	*	*	*	*
5	13.000	12	1983	0.16	0.15	0.13	0.11	0.09
25	13.250	4	1988	0.03	*	*	*	*
13	13.250	8	1984	0.07	0.05	0.04	0.03	0.02
16	13.375	3	1985	0.23	0.19	0.14	0.11	0.07
50	13.375	8	2001	*	*	*	*	*
19	13.500	2	1986	0.02	*	*	*	0.01
9	13.875	4	1984	0.30	0.26	0.23	0.19	0.15
23	14.000	5	1987	*	*	*	*	0.09
8	14.125	3	1984	0.36	0.32	0.28	0.23	0.19
36	14.125	11	1991	0.29	0.36	0.42	0.52	0.65
52	14.250	2	2002	*	*	*	*	*
34	14.500	5	1991	*	*	*	*	0.01
37	14.625	2	1992	*	*	*	*	0.19
28	14.625	1	1989	*	*	*	*	*
35	14.875	8	1991	*	*	*	*	*
7	15.125	2	1984	0.25	0.22	0.19	0.16	0.13
27	15.375	10	1988	*	*	*	*	*

POC for April 29, 1983 by Coupon (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
51	15.750	11	2001	*	*	*	*	*
11	15.750	5	1984	0.10	0.09	0.09	0.08	0.07
18	15.875	9	1985	0.21	0.15	0.11	0.08	0.05
14	16.000	11	1984	*	*	*	*	*
21	16.125	11	1986	*	*	*	*	0.33

POC for August 31, 1983 by Maturity

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
1	9.250	5	1984	0.16	0.15	0.13	0.12	0.10	0.11
2	13.250	5	1984	0.17	0.16	0.14	0.12	0.11	0.11
3	15.750	5	1984	*	*	*	*	*	0.02
4	8.875	6	1984	0.19	0.17	0.15	0.15	0.17	0.20
5	14.375	6	1984	0.15	0.14	0.12	0.12	0.14	0.18
6	13.125	7	1984	0.15	0.14	0.12	0.15	0.23	0.32
7	6.375	8	1984	0.71	0.48	0.24	0.11	0.05	*
8	7.250	8	1984	0.42	0.25	0.08	*	*	0.02
9	11.625	8	1984	0.06	0.05	0.04	0.13	0.29	0.47
10	13.250	8	1984	0.15	0.13	0.11	0.18	0.34	0.51
11	16.000	11	1984	0.01	0.02	0.02	0.14	0.36	0.61
12	8.000	2	1985	0.70	0.47	0.24	0.13	0.18	0.27
13	13.375	3	1985	0.17	0.17	0.18	0.29	0.56	0.87
14	3.250	5	1985	4.25	3.45	2.64	1.93	1.41	0.94
15	15.875	9	1985	0.15	0.17	0.18	0.25	0.57	0.96
16	13.500	2	1986	*	*	*	*	0.37	0.85
17	9.375	5	1986	0.44	0.34	0.24	0.13	0.43	0.83
18	6.125	11	1986	7.22	6.29	5.32	4.37	3.86	3.40
19	16.125	11	1986	*	*	*	0.02	0.49	1.05
20	14.000	5	1987	*	*	*	0.15	0.73	1.37
21	10.500	6	1987	0.25	0.15	0.06	0.23	0.77	1.36
22	7.625	11	1987	1.46	0.74	0.01	*	*	*
23	12.625	11	1987	*	*	*	0.57	1.27	2.01
24	13.250	4	1988	0.04	0.02	0.04	0.64	1.34	2.06
25	8.125	5	1988	1.41	0.68	0.01	*	*	*

POC for August 31, 1983 by Maturity (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
26	10.500	8	1988	0.56	0.20	*	*	0.31	0.64
27	15.375	10	1988	*	*	*	0.37	1.08	1.80
28	14.625	1	1989	*	*	*	0.18	0.82	1.46
29	9.250	5	1989	0.42	*	*	*	*	*
30	11.875	10	1989	*	*	0.20	0.76	1.42	2.08
31	10.750	11	1989	*	*	0.17	0.69	1.25	1.80
32	3.500	2	1990	24.74	23.03	21.23	19.31	17.28	15.12
33	10.500	4	1990	*	*	0.12	0.79	1.55	20.73
34	8.250	5	1990	*	*	*	*	*	*
35	13.000	11	1990	*	0.09	0.26	0.96	1.96	3.01
36	14.500	5	1991	0.06	0.14	0.23	0.87	2.00	3.19
37	14.875	8	1991	*	*	*	0.58	1.80	3.09
38	14.125	11	1991	0.28	0.46	0.67	1.44	2.70	4.04
39	14.625	2	1992	0.24	0.15	0.30	1.22	2.56	4.00
40	13.750	5	1992	*	*	0.35	1.56	3.05	4.62
41	7.250	8	1992	*	*	*	*	*	*
42	10.500	11	1992	0.33	0.66	1.63	2.93	4.30	5.82
43	6.750	2	1993	*	*	*	*	*	*
44	10.125	5	1993	0.39	0.61	1.45	2.69	4.08	5.60
45	8.625	8	1993	*	*	0.09	0.57	1.06	1.53
46	11.875	8	1993	*	*	1.02	2.45	4.10	5.95
47	9.000	2	1994	0.04	0.03	0.16	0.48	0.81	1.13
48	8.750	8	1994	*	*	*	*	*	*
49	10.125	11	1994	0.49	0.81	1.31	1.90	2.41	2.88
50	3.000	2	1995	31.38	29.11	26.69	24.12	21.39	18.48

POC for August 31, 1983 by Maturity (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
51	10.500	2	1995	*	*	0.04	0.24	0.42	0.58
52	10.375	5	1995	*	*	*	*	*	*
53	12.625	5	1995	*	*	0.58	1.45	2.29	2.97
54	3.500	11	1998	34.27	31.27	27.88	24.06	19.74	14.86
55	11.750	2	2001	*	*	*	*	*	*
56	13.125	5	2001	*	0.08	0.23	0.39	0.54	0.76
57	13.375	8	2001	0.01	*	*	*	0.03	0.19
58	15.750	11	2001	0.06	0.02	0.05	0.12	0.26	0.50
59	14.250	2	2002	0.12	0.02	*	*	0.05	0.26
60	11.625	11	2002	*	*	*	*	*	*
61	10.750	2	2003	*	*	*	*	*	*
62	10.750	5	2003	*	*	*	*	0.14	0.31
63	11.125	8	2003	*	*	*	*	*	*

POC for August 31, 1983 by Coupon

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
50	3.000	2	1995	31.38	29.11	26.69	24.12	21.39	18.48
14	3.250	5	1985	4.25	3.45	2.64	1.93	1.41	0.94
54	3.500	11	1998	34.27	31.27	27.88	24.06	19.74	14.86
32	3.500	2	1990	24.74	23.03	21.23	19.31	17.28	15.12
18	6.125	11	1986	7.22	6.29	5.32	4.37	3.86	3.40
7	6.375	8	1984	0.71	0.48	0.24	0.11	0.05	*
43	6.750	2	1993	*	*	*	*	*	*
41	7.250	8	1992	*	*	*	*	*	*
8	7.250	8	1984	0.42	0.25	0.08	*	*	0.02
22	7.625	11	1987	1.46	0.74	0.01	*	*	*
12	8.000	2	1985	0.70	0.47	0.24	0.13	0.18	0.27
25	8.125	5	1988	1.41	0.68	0.01	*	*	*
34	8.250	5	1990	*	*	*	*	*	*
45	8.625	8	1993	*	*	0.09	0.57	1.06	1.53
48	8.750	8	1994	*	*	*	*	*	*
4	8.875	6	1984	0.19	0.17	0.15	0.15	0.17	0.20
47	9.000	2	1994	0.04	0.03	0.16	0.48	0.81	1.13
1	9.250	5	1984	0.16	0.15	0.13	0.12	0.10	0.11
29	9.250	5	1989	0.42	*	*	*	*	*
17	9.375	5	1986	0.44	0.34	0.24	0.13	0.43	0.83
44	10.125	5	1993	0.39	0.61	1.45	2.69	4.08	5.60
49	10.125	11	1994	0.49	0.81	1.31	1.90	2.41	2.88
52	10.375	5	1995	*	*	*	*	*	*
26	10.500	8	1988	0.56	0.20	*	*	0.31	0.64
42	10.500	11	1992	0.33	0.66	1.63	2.93	4.30	5.82

POC for August 31, 1983 by Coupon (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
21	10.500	6	1987	0.25	0.15	0.06	0.23	0.77	1.36
51	10.500	2	1995	*	*	0.04	0.24	0.42	0.58
33	10.500	4	1990	*	*	0.12	0.79	1.55	20.73
31	10.750	11	1989	*	*	0.17	0.69	1.25	1.80
62	10.750	5	2003	*	*	*	*	0.14	0.31
61	10.750	2	2003	*	*	*	*	*	*
63	11.125	8	2003	*	*	*	*	*	*
60	11.625	11	2002	*	*	*	*	*	*
9	11.625	8	1984	0.06	0.05	0.04	0.13	0.29	0.47
55	11.750	2	2001	*	*	*	*	*	*
30	11.875	10	1989	*	*	0.20	0.76	1.42	2.08
46	11.875	8	1993	*	*	1.02	2.45	4.10	5.95
23	12.625	11	1987	*	*	*	0.57	1.27	2.01
53	12.625	5	1995	*	*	0.58	1.45	2.29	2.97
35	13.000	11	1990	*	0.09	0.26	0.96	1.96	3.01
56	13.125	5	2001	*	0.08	0.23	0.39	0.54	0.76
6	13.125	7	1984	0.15	0.14	0.12	0.15	0.23	0.32
2	13.250	5	1984	0.17	0.16	0.14	0.12	0.11	0.11
10	13.250	8	1984	0.15	0.13	0.11	0.18	0.34	0.51
24	13.250	4	1988	0.04	0.02	0.04	0.64	1.34	2.06
57	13.375	8	2001	0.01	*	*	*	0.03	0.19
13	13.375	3	1985	0.17	0.17	0.18	0.29	0.56	0.87
16	13.500	2	1986	*	*	*	*	0.37	0.85
40	13.750	5	1992	*	*	0.35	1.56	3.05	4.62
20	14.000	5	1987	*	*	*	0.15	0.73	1.37

POC for August 31, 1983 by Coupon (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
38	14.125	11	1991	0.28	0.46	0.67	1.44	2.70	4.04
59	14.250	2	2002	0.12	0.02	*	*	0.05	0.26
5	14.375	6	1984	0.15	0.14	0.12	0.12	0.14	0.18
36	14.500	5	1991	0.06	0.14	0.23	0.87	2.00	3.19
28	14.625	1	1989	*	*	*	0.18	0.82	1.46
39	14.625	2	1992	0.24	0.15	0.30	1.22	2.56	4.00
37	14.875	8	1991	*	*	*	0.58	1.80	3.09
27	15.375	10	1988	*	*	*	0.37	1.08	1.80
58	15.750	11	2001	0.06	0.02	0.05	0.12	0.26	0.50
3	15.750	5	1984	*	*	*	*	*	0.02
15	15.875	9	1985	0.15	0.17	0.18	0.25	0.57	0.96
11	16.000	11	1984	0.01	0.02	0.02	0.14	0.36	0.61
19	16.125	11	1986	*	*	*	0.02	0.49	1.05

POC for August 31, 1983 by Maturity

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
1	9.250	5	1984	0.15	0.13	0.12	0.10	0.08
2	13.250	5	1984	0.16	0.14	0.12	0.11	0.11
3	15.750	5	1984	*	*	*	*	*
4	8.875	6	1984	0.17	0.15	0.13	0.11	0.15
5	14.375	6	1984	0.14	0.12	0.11	0.09	0.13
6	13.125	7	1984	0.14	0.12	0.10	0.10	0.21
7	6.375	8	1984	0.63	0.55	0.43	0.11	0.03
8	7.250	8	1984	0.37	0.32	0.23	*	*
9	11.625	8	1984	0.05	0.04	0.03	0.04	0.29
10	13.250	8	1984	0.13	0.11	0.09	0.09	0.33
11	16.000	11	1984	0.02	0.02	0.03	0.05	0.37
12	8.000	2	1985	0.62	0.54	0.41	0.10	0.15
13	13.375	3	1985	0.17	0.18	0.17	0.18	0.54
14	3.250	5	1985	3.83	3.41	2.85	1.78	1.08
15	15.875	9	1985	0.17	0.18	0.18	0.19	0.55
16	13.500	2	1986	*	*	*	*	0.34
17	9.375	5	1986	0.41	0.37	0.31	*	0.38
18	6.125	11	1986	6.55	5.86	5.06	3.88	3.19
19	16.125	11	1986	*	*	*	*	0.48
20	14.000	5	1987	*	*	*	0.04	0.76
21	10.500	6	1987	0.20	0.15	0.09	0.10	0.79
22	7.625	11	1987	1.16	0.88	0.48	*	*
23	12.625	11	1987	*	*	*	0.39	1.38
24	13.250	4	1988	0.02	*	*	0.46	1.45
25	8.125	5	1988	1.07	0.74	0.33	*	*

POC for August 31, 1983 by Maturity (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
26	10.500	8	1988	0.36	0.16	*	*	0.31
27	15.375	10	1988	*	*	*	0.23	1.21
28	14.625	1	1989	*	*	*	0.06	0.92
29	9.250	5	1989	0.14	*	*	*	*
30	11.875	10	1989	*	*	0.04	0.64	1.54
31	10.750	11	1989	*	*	*	0.58	1.30
32	3.500	2	1990	22.94	21.01	18.99	17.01	14.92
33	10.500	4	1990	*	*	*	0.69	1.72
34	8.250	5	1990	*	*	*	*	*
35	13.000	11	1990	0.04	0.07	0.12	0.81	2.20
36	14.500	5	1991	0.12	0.17	0.22	0.74	2.30
37	14.875	8	1991	*	*	*	0.44	2.13
38	14.125	11	1991	0.39	0.48	0.59	1.31	3.04
39	14.625	2	1992	0.15	0.07	0.08	1.07	2.94
40	13.750	5	1992	*	*	0.12	1.50	3.52
41	7.250	8	1992	*	*	*	*	*
42	10.500	11	1992	0.49	0.65	1.17	2.84	4.73
43	6.750	2	1993	*	*	*	*	*
44	10.125	5	1993	0.52	0.64	1.05	2.63	4.52
45	8.625	8	1993	*	*	*	0.48	1.12
46	11.875	8	1993	*	*	0.45	2.35	4.64
47	9.000	2	1994	0.02	*	0.03	0.39	0.82
48	8.750	8	1994	*	*	*	*	*
49	10.125	11	1994	0.69	0.89	1.12	1.75	2.41
50	3.000	2	1995	29.24	26.97	24.50	21.68	18.65

POC for August 31, 1983 by Maturity (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
51	10.500	2	1995	*	*	*	0.10	0.37
52	10.375	5	1995	*	*	*	*	*
53	12.625	5	1995	*	0.02	0.26	1.23	2.22
54	3.500	11	1998	31.44	28.25	24.59	20.17	15.16
55	11.750	2	2001	*	*	*	*	*
56	13.125	5	2001	0.07	0.19	0.31	0.46	0.64
57	13.375	8	2001	*	*	*	*	0.07
58	15.750	11	2001	0.01	*	0.01	0.10	0.29
59	14.250	2	2002	0.01	*	*	*	0.08
60	11.625	11	2002	*	*	*	*	*
61	10.750	2	2003	*	*	*	*	*
62	10.750	5	2003	*	*	*	0.04	0.23
63	11.125	8	2003	*	*	*	*	*

POC for August 31, 1983 by Coupon

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
50	3.000	2	1995	29.24	26.97	24.50	21.68	18.65
14	3.250	5	1985	3.83	3.41	2.85	1.78	1.08
54	3.500	11	1998	31.44	28.25	24.59	20.17	15.16
32	3.500	2	1990	22.94	21.01	18.99	17.01	14.92
18	6.125	11	1986	6.55	5.86	5.06	3.88	3.19
7	6.375	8	1984	0.63	0.55	0.43	0.11	0.03
43	6.750	2	1993	*	*	*	*	*
41	7.250	8	1992	*	*	*	*	*
8	7.250	8	1984	0.37	0.32	0.23	*	*
22	7.625	11	1987	1.16	0.88	0.48	*	*
12	8.000	2	1985	0.62	0.54	0.41	0.10	0.15
25	8.125	5	1988	1.07	0.74	0.33	*	*
34	8.250	5	1990	*	*	*	*	*
45	8.625	8	1993	*	*	*	0.48	1.12
48	8.750	8	1994	*	*	*	*	*
4	8.875	6	1984	0.17	0.15	0.13	0.11	0.15
47	9.000	2	1994	0.02	*	0.03	0.39	0.82
1	9.250	5	1984	0.15	0.13	0.12	0.10	0.08
29	9.250	5	1989	0.14	*	*	*	*
17	9.375	5	1986	0.41	0.37	0.31	*	0.38
44	10.125	5	1993	0.52	0.64	1.05	2.63	4.52
49	10.125	11	1994	0.69	0.89	1.12	1.75	2.41
52	10.375	5	1995	*	*	*	*	*
26	10.500	8	1988	0.36	0.16	*	*	0.31
42	10.500	11	1992	0.49	0.65	1.17	2.84	4.73

POC for August 31, 1983 by Coupon (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
21	10.500	6	1987	0.20	0.15	0.09	0.10	0.79
51	10.500	2	1995	*	*	*	0.10	0.37
33	10.500	4	1990	*	*	*	0.69	1.72
31	10.750	11	1989	*	*	*	0.58	1.30
62	10.750	5	2003	*	*	*	0.04	0.23
61	10.750	2	2003	*	*	*	*	*
63	11.125	8	2003	*	*	*	*	*
60	11.625	11	2002	*	*	*	*	*
9	11.625	8	1984	0.05	0.04	0.03	0.04	0.29
55	11.750	2	2001	*	*	*	*	*
30	11.875	10	1989	*	*	0.04	0.64	1.54
46	11.875	8	1993	*	*	0.45	2.35	4.64
23	12.625	11	1987	*	*	*	0.39	1.38
53	12.625	5	1995	*	0.02	0.26	1.23	2.22
35	13.000	11	1990	0.04	0.07	0.12	0.81	2.20
56	13.125	5	2001	0.07	0.19	0.31	0.46	0.64
6	13.125	7	1984	0.14	0.12	0.10	0.10	0.21
2	13.250	5	1984	0.16	0.14	0.12	0.11	0.11
10	13.250	8	1984	0.13	0.11	0.09	0.09	0.33
24	13.250	4	1988	0.02	*	*	0.46	1.45
57	13.375	8	2001	*	*	*	*	0.07
13	13.375	3	1985	0.17	0.18	0.17	0.18	0.54
16	13.500	2	1986	*	*	*	*	0.34
40	13.750	5	1992	*	*	0.12	1.50	3.52
20	14.000	5	1987	*	*	*	0.04	0.76

POC for August 31, 1983 by Coupon (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
38	14.125	11	1991	0.39	0.48	0.59	1.31	3.04
59	14.250	2	2002	0.01	*	*	*	0.08
5	14.375	6	1984	0.14	0.12	0.11	0.09	0.13
36	14.500	5	1991	0.12	0.17	0.22	0.74	2.30
28	14.625	1	1989	*	*	*	0.06	0.92
39	14.625	2	1992	0.15	0.07	0.08	1.07	2.94
37	14.875	8	1991	*	*	*	0.44	2.13
27	15.375	10	1988	*	*	*	0.23	1.21
58	15.750	11	2001	0.01	*	0.01	0.10	0.29
3	15.750	5	1984	*	*	*	*	*
15	15.875	9	1985	0.17	0.18	0.18	0.19	0.55
11	16.000	11	1984	0.02	0.02	0.03	0.05	0.37
19	16.125	11	1986	*	*	*	*	0.48

POC for December 30, 1983 by Maturity

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
1	6.375	8	1984	0.83	0.75	0.67	0.59	0.50	0.42
2	7.250	8	1984	0.04	0.04	0.03	0.03	0.02	0.02
3	11.625	8	1984	0.05	0.05	0.04	0.04	0.03	0.03
4	13.250	8	1984	*	*	*	*	*	*
5	9.750	10	1984	0.03	0.03	0.03	0.02	0.02	0.04
6	9.875	11	1984	0.03	0.03	0.02	0.02	0.02	0.06
7	14.375	11	1984	*	*	*	*	*	0.04
8	16.000	11	1984	0.01	0.01	0.01	0.01	0.01	0.05
9	14.000	12	1984	0.36	0.33	0.29	0.26	0.22	0.27
10	8.000	2	1985	0.50	0.47	0.43	0.40	0.36	0.55
11	13.375	3	1985	0.15	0.14	0.14	0.14	0.14	0.44
12	3.250	5	1985	2.49	1.88	1.26	0.66	0.04	*
13	15.875	9	1985	*	*	0.01	0.06	0.11	0.74
14	13.500	2	1986	0.05	0.10	0.17	0.26	0.35	0.99
15	9.375	5	1986	0.04	*	*	*	*	0.53
16	6.125	11	1986	2.60	1.87	1.20	0.68	0.15	0.01
17	16.125	11	1986	0.09	0.11	0.20	0.42	0.65	1.28
18	14.000	5	1987	*	*	0.09	0.50	0.93	1.61
19	10.500	6	1987	0.09	*	0.02	0.38	0.76	1.35
20	7.625	11	1987	0.89	0.23	*	*	*	*
21	12.625	11	1987	*	*	0.33	0.95	1.60	2.29
22	13.250	4	1988	*	*	0.33	0.96	1.61	2.27
23	8.125	5	1988	0.93	0.26	*	*	*	*
24	10.500	8	1988	*	*	0.28	0.89	1.49	2.09
25	15.375	10	1988	*	*	0.22	0.79	1.39	2.01

POC for December 30, 1983 by Maturity (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
26	14.625	1	1989	*	*	0.33	0.89	1.46	2.05
27	9.250	5	1989	0.28	*	*	*	*	*
28	11.875	10	1989	*	*	0.26	0.75	1.39	2.05
29	10.750	11	1989	0.19	0.06	0.17	0.64	1.12	1.62
30	3.500	2	1990	22.65	20.74	19.23	17.63	15.93	14.11
31	10.500	4	1990	*	*	*	0.40	1.11	1.85
32	8.250	5	1990	0.56	*	*	*	*	*
33	13.000	11	1990	*	*	*	0.38	1.35	2.37
34	11.750	1	1991	*	*	0.08	0.81	1.84	2.90
35	14.500	5	1991	*	*	*	0.27	1.29	2.39
36	14.875	8	1991	0.03	0.08	0.12	0.50	1.56	2.69
37	14.125	11	1991	0.45	0.33	0.35	0.77	1.84	3.00
38	14.625	2	1992	*	*	0.02	0.56	1.74	2.99
39	13.750	5	1992	*	*	*	0.59	1.84	3.18
40	7.250	8	1992	*	*	*	*	*	*
41	10.500	11	1992	*	*	0.05	0.89	2.05	3.30
42	6.750	2	1993	*	*	*	*	*	*
43	10.125	5	1993	*	*	*	0.72	1.84	3.08
44	8.625	8	1993	*	*	*	*	0.59	1.09
45	11.875	8	1993	*	*	0.49	1.57	3.04	4.65
46	9.000	2	1994	*	*	0.05	0.19	0.53	0.86
47	8.750	8	1994	*	*	*	*	*	*
48	10.125	11	1994	0.37	0.41	0.53	0.72	0.94	1.20
49	3.000	2	1995	29.77	27.75	25.60	23.32	20.81	18.08
50	10.500	2	1995	0.04	0.35	0.72	1.11	1.52	1.94

POC for December 30, 1983 by Maturity (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
51	10.375	5	1995	*	*	*	*	*	*
52	12.625	5	1995	*	0.09	0.37	0.75	1.24	1.82
53	3.500	11	1998	32.55	29.37	25.85	21.92	17.56	12.68
54	11.750	2	2001	*	*	*	*	*	*
55	13.125	5	2001	0.01	*	*	*	*	*
56	13.375	8	2001	0.01	0.05	0.14	0.22	0.28	0.33
57	15.750	11	2001	0.20	*	*	*	*	*
58	14.250	2	2002	0.40	0.34	0.38	0.43	0.49	0.58
59	11.625	11	2002	*	*	*	*	*	*
60	10.750	2	2003	*	*	*	*	*	*
61	10.750	5	2003	*	*	*	*	*	*
62	11.125	8	2003	*	*	*	*	0.04	0.20
63	11.875	11	2003	*	*	*	*	*	*

POC for December 30, 1983 by Coupon

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
49	3.000	2	1995	29.77	27.75	25.60	23.32	20.81	18.08
12	3.250	5	1985	2.49	1.88	1.26	0.66	0.04	*
30	3.500	2	1990	22.65	20.74	19.23	17.63	15.93	14.11
53	3.500	11	1998	32.55	29.37	25.85	21.92	17.56	12.68
16	6.125	11	1986	2.60	1.87	1.20	0.68	0.15	0.01
1	6.375	8	1984	0.83	0.75	0.67	0.59	0.50	0.42
42	6.750	2	1993	*	*	*	*	*	*
2	7.250	8	1984	0.04	0.04	0.03	0.03	0.02	0.02
40	7.250	8	1992	*	*	*	*	*	*
20	7.625	11	1987	0.89	0.23	*	*	*	*
10	8.000	2	1985	0.50	0.47	0.43	0.40	0.36	0.55
23	8.125	5	1988	0.93	0.26	*	*	*	*
32	8.250	5	1990	0.56	*	*	*	*	*
44	8.625	8	1993	*	*	*	*	0.59	1.09
47	8.750	8	1994	*	*	*	*	*	*
46	9.000	2	1994	*	*	0.05	0.19	0.53	0.86
27	9.250	5	1989	0.28	*	*	*	*	*
15	9.375	5	1986	0.04	*	*	*	*	0.53
5	9.750	10	1984	0.03	0.03	0.03	0.02	0.02	0.04
6	9.875	11	1984	0.03	0.03	0.02	0.02	0.02	0.06
48	10.125	11	1994	0.37	0.41	0.53	0.72	0.94	1.20
43	10.125	5	1993	*	*	*	0.72	1.84	3.08
51	10.375	5	1995	*	*	*	*	*	*
31	10.500	4	1990	*	*	*	0.40	1.11	1.85
50	10.500	2	1995	0.04	0.35	0.72	1.11	1.52	1.94

POC for December 30, 1983 by Coupon (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
41	10.500	11	1992	*	*	0.05	0.89	2.05	3.30
19	10.500	6	1987	0.09	*	0.02	0.38	0.76	1.35
24	10.500	8	1988	*	*	0.28	0.89	1.49	2.09
29	10.750	11	1989	0.19	0.06	0.17	0.64	1.12	1.62
61	10.750	5	2003	*	*	*	*	*	*
60	10.750	2	2003	*	*	*	*	*	*
62	11.125	8	2003	*	*	*	*	0.04	0.20
59	11.625	11	2002	*	*	*	*	*	*
3	11.625	8	1984	0.05	0.05	0.04	0.04	0.03	0.03
54	11.750	2	2001	*	*	*	*	*	*
34	11.750	1	1991	*	*	0.08	0.81	1.84	2.90
28	11.875	10	1989	*	*	0.26	0.75	1.39	2.05
45	11.875	8	1993	*	*	0.49	1.57	3.04	4.65
63	11.875	11	2003	*	*	*	*	*	*
52	12.625	5	1995	*	0.09	0.37	0.75	1.24	1.82
21	12.625	11	1987	*	*	0.33	0.95	1.60	2.29
33	13.000	11	1990	*	*	*	0.38	1.35	2.37
55	13.125	5	2001	0.01	*	*	*	*	*
4	13.250	8	1984	*	*	*	*	*	*
22	13.250	4	1988	*	*	0.33	0.96	1.61	2.27
11	13.375	3	1985	0.15	0.14	0.14	0.14	0.14	0.44
56	13.375	8	2001	0.01	0.05	0.14	0.22	0.28	0.33
14	13.500	2	1986	0.05	0.10	0.17	0.26	0.35	0.99
39	13.750	5	1992	*	*	*	0.59	1.84	3.18
18	14.000	5	1987	*	*	0.09	0.50	0.93	1.61

POC for December 30, 1983 by Coupon (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
50	10.500	2	1995	0.04	0.35	0.72	1.11	1.52	1.94
9	14.000	12	1984	0.36	0.33	0.29	0.26	0.22	0.27
37	14.125	11	1991	0.45	0.33	0.35	0.77	1.84	3.00
58	14.250	2	2002	0.40	0.34	0.38	0.43	0.49	0.58
7	14.375	11	1984	*	*	*	*	*	0.04
35	14.500	5	1991	*	*	*	0.27	1.29	2.39
26	14.625	1	1989	*	*	0.33	0.89	1.46	2.05
38	14.625	2	1992	*	*	0.02	0.56	1.74	2.99
36	14.875	8	1991	0.03	0.08	0.12	0.50	1.56	2.69
25	15.375	10	1988	*	*	0.22	0.79	1.39	2.01
57	15.750	11	2001	0.20	*	*	*	*	*
13	15.875	9	1985	*	*	0.01	0.06	0.11	0.74
8	16.000	11	1984	0.01	0.01	0.01	0.01	0.01	0.05
17	16.125	11	1986	0.09	0.11	0.20	0.42	0.65	1.28

POC for December 30, 1983 by Maturity

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
1	6.375	8	1984	0.75	0.67	0.59	0.50	0.42
2	7.250	8	1984	0.04	0.03	0.03	0.02	0.02
3	11.625	8	1984	0.05	0.04	0.04	0.03	0.03
4	13.250	8	1984	*	*	*	*	*
5	9.750	10	1984	0.03	0.03	0.02	0.02	0.02
6	9.875	11	1984	0.03	0.02	0.02	0.02	0.01
7	14.375	11	1984	*	*	*	*	*
8	16.000	11	1984	0.01	0.01	0.01	0.01	0.01
9	14.000	12	1984	0.33	0.29	0.25	0.22	0.19
10	8.000	2	1985	0.47	0.43	0.39	0.35	0.35
11	13.375	3	1985	0.14	0.13	0.12	0.12	0.18
12	3.250	5	1985	2.23	1.97	1.59	0.74	*
13	15.875	9	1985	*	*	*	0.04	0.20
14	13.500	2	1986	0.05	0.07	0.09	0.21	0.38
15	9.375	5	1986	*	*	*	*	*
16	6.125	11	1986	2.27	1.96	1.52	0.67	*
17	16.125	11	1986	0.06	0.05	0.06	0.27	0.65
18	14.000	5	1987	*	*	*	0.30	0.96
19	10.500	6	1987	0.05	0.01	*	0.21	0.79
20	7.625	11	1987	0.67	0.47	0.13	*	*
21	12.625	11	1987	*	*	*	0.70	1.64
22	13.250	4	1988	*	*	*	0.72	1.66
23	8.125	5	1988	0.66	0.42	0.06	*	*
24	10.500	8	1988	*	*	0.01	0.67	1.52
25	15.375	10	1988	*	*	*	0.59	1.45

POC for December 30, 1983 by Maturity (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
26	14.625	1	1989	*	*	0.11	0.74	1.54
27	9.250	5	1989	0.01	*	*	*	*
28	11.875	10	1989	*	*	*	0.61	1.50
29	10.750	11	1989	0.10	0.01	*	0.43	1.13
30	3.500	2	1990	20.62	18.96	17.22	15.59	13.87
31	10.500	4	1990	*	*	*	0.32	1.29
32	8.250	5	1990	*	*	*	*	*
33	13.000	11	1990	*	*	*	0.24	1.59
34	11.750	1	1991	*	*	*	0.72	2.11
35	14.500	5	1991	*	*	*	0.12	1.56
36	14.875	8	1991	0.08	0.12	0.16	0.38	1.85
37	14.125	11	1991	0.33	0.27	0.25	0.58	2.10
38	14.625	2	1992	*	0.02	0.07	0.46	2.08
39	13.750	5	1992	*	*	*	0.47	2.20
40	7.250	8	1992	*	*	*	*	*
41	10.500	11	1992	*	*	*	0.81	2.41
42	6.750	2	1993	*	*	*	*	*
43	10.125	5	1993	*	*	*	0.67	2.21
44	8.625	8	1993	*	*	*	0.05	0.71
45	11.875	8	1993	*	0.03	0.33	1.54	3.52
46	9.000	2	1994	*	*	*	0.12	0.57
47	8.750	8	1994	*	*	*	*	*
48	10.125	11	1994	0.33	0.32	0.36	0.62	0.95
49	3.000	2	1995	27.82	25.74	23.50	20.94	18.13
50	10.500	2	1995	0.23	0.42	0.65	1.12	1.63

POC for December 30, 1983 by Maturity (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
51	10.375	5	1995	*	*	*	*	*
52	12.625	5	1995	*	0.06	0.22	0.69	1.31
53	3.500	11	1998	29.59	26.32	22.61	18.11	13.08
54	11.750	2	2001	*	*	*	*	*
55	13.125	5	2001	*	*	*	*	*
56	13.375	8	2001	0.05	0.13	0.21	0.27	0.33
57	15.750	11	2001	*	*	*	*	*
58	14.250	2	2002	0.33	0.35	0.38	0.42	0.52
59	11.625	11	2002	*	*	*	*	*
60	10.750	2	2003	*	*	*	*	*
61	10.750	5	2003	*	*	*	*	*
62	11.125	8	2003	*	*	*	*	0.12
63	11.875	11	2003	*	*	*	*	*

POC for December 30, 1983 by Coupon

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
49	3.000	2	1995	27.82	25.74	23.50	20.94	18.13
12	3.250	5	1985	2.23	1.97	1.59	0.74	*
30	3.500	2	1990	20.62	18.96	17.22	15.59	13.87
53	3.500	11	1998	29.59	26.32	22.61	18.11	13.08
16	6.125	11	1986	2.27	1.96	1.52	0.67	*
1	6.375	8	1984	0.75	0.67	0.59	0.50	0.42
42	6.750	2	1993	*	*	*	*	*
2	7.250	8	1984	0.04	0.03	0.03	0.02	0.02
40	7.250	8	1992	*	*	*	*	*
20	7.625	11	1987	0.67	0.47	0.13	*	*
10	8.000	2	1985	0.47	0.43	0.39	0.35	0.35
23	8.125	5	1988	0.66	0.42	0.06	*	*
32	8.250	5	1990	*	*	*	*	*
44	8.625	8	1993	*	*	*	0.05	0.71
47	8.750	8	1994	*	*	*	*	*
46	9.000	2	1994	*	*	*	0.12	0.57
27	9.250	5	1989	0.01	*	*	*	*
15	9.375	5	1986	*	*	*	*	*
5	9.750	10	1984	0.03	0.03	0.02	0.02	0.02
6	9.875	11	1984	0.03	0.02	0.02	0.02	0.01
48	10.125	11	1994	0.33	0.32	0.36	0.62	0.95
43	10.125	5	1993	*	*	*	0.67	2.21
51	10.375	5	1995	*	*	*	*	*
31	10.500	4	1990	*	*	*	0.32	1.29
50	10.500	2	1995	0.23	0.42	0.65	1.12	1.63

POC for December 30, 1983 by Coupon (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
41	10.500	11	1992	*	*	*	0.81	2.41
19	10.500	6	1987	0.05	0.01	*	0.21	0.79
24	10.500	8	1988	*	*	0.01	0.67	1.52
29	10.750	11	1989	0.10	0.01	*	0.43	1.13
61	10.750	5	2003	*	*	*	*	*
60	10.750	2	2003	*	*	*	*	*
62	11.125	8	2003	*	*	*	*	0.12
59	11.625	11	2002	*	*	*	*	*
3	11.625	8	1984	0.05	0.04	0.04	0.03	0.03
54	11.750	2	2001	*	*	*	*	*
34	11.750	1	1991	*	*	*	0.72	2.11
28	11.875	10	1989	*	*	*	0.61	1.50
45	11.875	8	1993	*	0.03	0.33	1.54	3.52
63	11.875	11	2003	*	*	*	*	*
52	12.625	5	1995	*	0.06	0.22	0.69	1.31
21	12.625	11	1987	*	*	*	0.70	1.64
33	13.000	11	1990	*	*	*	0.24	1.59
55	13.125	5	2001	*	*	*	*	*
4	13.250	8	1984	*	*	*	*	*
22	13.250	4	1988	*	*	*	0.72	1.66
11	13.375	3	1985	0.14	0.13	0.12	0.12	0.18
56	13.375	8	2001	0.05	0.13	0.21	0.27	0.33
14	13.500	2	1986	0.05	0.07	0.09	0.21	0.38
39	13.750	5	1992	*	*	*	0.47	2.20
18	14.000	5	1987	*	*	*	0.30	0.96

POC for December 30, 1983 by Coupon (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
9	14.000	12	1984	0.33	0.29	0.25	0.22	0.19
37	14.125	11	1991	0.33	0.27	0.25	0.58	2.10
58	14.250	2	2002	0.33	0.35	0.38	0.42	0.52
7	14.375	11	1984	*	*	*	*	*
35	14.500	5	1991	*	*	*	0.12	1.56
26	14.625	1	1989	*	*	0.11	0.74	1.54
38	14.625	2	1992	*	0.02	0.07	0.46	2.08
36	14.875	8	1991	0.08	0.12	0.16	0.38	1.85
25	15.375	10	1988	*	*	*	0.59	1.45
57	15.750	11	2001	*	*	*	*	*
13	15.875	9	1985	*	*	*	0.04	0.20
8	16.000	11	1984	0.01	0.01	0.01	0.01	0.01
17	16.125	11	1986	0.06	0.05	0.06	0.27	0.65

POC for April 30, 1984 by Maturity

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
1	9.875	11	1984	0.13	0.11	0.08	0.05	0.03	0.02
2	14.375	11	1984	0.13	0.11	0.08	0.05	0.03	0.02
3	16.000	11	1984	0.09	0.06	0.04	0.02	*	*
4	14.000	12	1984	0.43	0.37	0.31	0.25	0.20	0.17
5	9.250	1	1985	0.36	0.32	0.27	0.21	0.17	0.14
6	8.000	2	1985	0.71	0.62	0.52	0.42	0.32	0.23
7	9.625	2	1985	0.57	0.51	*	0.38	0.31	0.26
8	14.625	2	1985	0.63	0.56	0.49	0.42	0.35	0.30
9	13.375	3	1985	*	*	*	*	*	*
10	9.500	4	1985	0.95	0.81	0.66	0.51	0.36	0.21
11	3.250	5	1985	3.89	3.34	2.79	2.22	1.66	1.08
12	15.875	9	1985	1.51	1.36	1.22	1.08	0.96	0.84
13	13.500	2	1986	1.40	1.25	1.13	1.01	0.96	0.91
14	9.375	5	1986	1.26	1.13	1.03	0.95	0.97	0.98
15	6.125	11	1986	4.19	3.37	2.60	1.84	1.29	0.72
16	16.125	11	1986	1.20	1.07	0.99	0.94	1.07	1.20
17	10.875	2	1987	1.11	0.91	0.80	0.73	0.94	1.15
18	14.000	5	1987	0.95	0.83	0.81	0.83	1.15	1.48
19	7.625	11	1987	1.68	1.00	0.47	*	*	*
20	12.625	11	1987	0.50	0.42	0.50	0.65	1.24	1.84
21	13.250	4	1988	0.40	0.28	0.36	0.53	1.11	1.72
22	8.125	5	1988	1.32	0.73	0.35	*	*	*
23	10.500	8	1988	0.24	*	*	*	0.17	0.49
24	15.375	10	1988	0.33	0.24	0.40	0.59	1.01	1.55
25	14.625	1	1989	*	*	0.15	0.46	0.90	1.44

POC for April 30, 1984 by Maturity (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
26	9.250	5	1989	0.53	0.22	*	*	*	*
27	11.875	10	1989	*	*	0.03	0.32	0.65	1.13
28	10.750	11	1989	*	0.12	0.32	0.68	1.05	1.59
29	3.500	2	1990	28.09	25.59	23.33	21.14	18.89	16.64
30	10.500	4	1990	*	*	*	*	*	0.38
31	8.250	5	1990	0.66	*	*	*	*	*
32	13.000	11	1990	*	0.02	0.58	1.34	2.17	3.27
33	11.750	1	1991	*	*	0.41	1.32	2.19	2.90
34	12.375	4	1991	*	*	0.24	1.13	2.18	2.92
35	14.875	8	1991	*	*	0.45	1.39	2.42	3.72
36	14.125	11	1991	0.48	0.55	1.17	2.23	3.35	4.69
37	14.625	2	1992	0.10	0.04	0.66	1.81	3.06	4.53
38	13.750	5	1992	*	0.01	0.85	2.19	3.62	5.23
39	7.250	8	1992	*	*	*	*	*	*
40	10.500	11	1992	*	0.03	0.92	2.21	3.67	5.24
41	6.750	2	1993	*	*	*	*	*	*
42	10.125	5	1993	*	0.32	1.00	2.13	3.60	5.12
43	8.625	8	1993	*	*	*	*	0.51	1.03
44	11.875	8	1993	*	0.47	1.40	2.67	4.38	6.16
45	9.000	2	1994	*	0.02	0.12	0.21	0.56	0.92
46	8.750	8	1994	*	*	*	*	*	*
47	10.125	11	1994	*	0.52	1.07	1.59	2.09	2.55
48	3.000	2	1995	34.29	32.02	29.61	27.01	24.25	21.33
49	10.500	2	1995	0.07	0.18	0.32	0.45	0.58	0.71
50	10.375	5	1995	*	*	*	*	*	*

POC for April 30, 1984 by Maturity (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
51	12.625	5	1995	*	0.66	1.46	2.23	2.95	3.65
52	3.500	11	1998	35.79	32.93	29.73	26.13	22.08	17.50
53	11.750	2	2001	*	*	*	*	*	*
54	13.125	5	2001	0.26	0.50	0.79	1.08	1.40	1.73
55	13.375	8	2001	0.29	0.35	0.47	0.62	0.82	1.07
56	15.750	11	2001	2.59	2.56	2.61	2.70	2.82	3.02
57	14.250	2	2002	0.53	0.50	0.60	0.75	0.96	1.27
58	11.625	11	2002	*	*	*	*	*	*
59	10.750	2	2003	*	*	*	*	*	*
60	10.750	5	2003	*	*	*	0.01	0.19	0.36
61	11.125	8	2003	*	*	*	*	*	*
62	11.875	11	2003	0.19	0.49	0.81	1.13	1.46	1.79
63	12.375	5	2004	*	*	*	*	*	*

POC for April 30, 1984 by Coupon

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
48	3.000	2	1995	34.29	32.02	29.61	27.01	24.25	21.33
11	3.250	5	1985	3.89	3.34	2.79	2.22	1.66	1.08
52	3.500	11	1998	35.79	32.93	29.73	26.13	22.08	17.50
29	3.500	2	1990	28.09	25.59	23.33	21.14	18.89	16.64
15	6.125	11	1986	4.19	3.37	2.60	1.84	1.29	0.72
41	6.750	2	1993	*	*	*	*	*	*
39	7.250	8	1992	*	*	*	*	*	*
19	7.625	11	1987	1.68	1.00	0.47	*	*	*
6	8.000	2	1985	0.71	0.62	0.52	0.42	0.32	0.23
22	8.125	5	1988	1.32	0.73	0.35	*	*	*
31	8.250	5	1990	0.66	*	*	*	*	*
43	8.625	8	1993	*	*	*	*	0.51	1.03
46	8.750	8	1994	*	*	*	*	*	*
45	9.000	2	1994	*	0.02	0.12	0.21	0.56	0.92
26	9.250	5	1989	0.53	0.22	*	*	*	*
5	9.250	1	1985	0.36	0.32	0.27	0.21	0.17	0.14
14	9.375	5	1986	1.26	1.13	1.03	0.95	0.97	0.98
10	9.500	4	1985	0.95	0.81	0.66	0.51	0.36	0.21
7	9.625	2	1985	0.57	0.51	*	0.38	0.31	0.26
1	9.875	11	1984	0.13	0.11	0.08	0.05	0.03	0.02
42	10.125	5	1993	*	0.32	1.00	2.13	3.60	5.12
47	10.125	11	1994	*	0.52	1.07	1.59	2.09	2.55
50	10.375	5	1995	*	*	*	*	*	*
49	10.500	2	1995	0.07	0.18	0.32	0.45	0.58	0.71
40	10.500	11	1992	*	0.03	0.92	2.21	3.67	5.24

POC for April 30, 1984 by Coupon (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
30	10.500	4	1990	*	*	*	*	*	0.38
23	10.500	8	1988	0.24	*	*	*	0.17	0.49
60	10.750	5	2003	*	*	*	0.01	0.19	0.36
28	10.750	11	1989	*	0.12	0.32	0.68	1.05	1.59
59	10.750	2	2003	*	*	*	*	*	*
17	10.875	2	1987	1.11	0.91	0.80	0.73	0.94	1.15
61	11.125	8	2003	*	*	*	*	*	*
58	11.625	11	2002	*	*	*	*	*	*
53	11.750	2	2001	*	*	*	*	*	*
33	11.750	1	1991	*	*	0.41	1.32	2.19	2.90
27	11.875	10	1989	*	*	0.03	0.32	0.65	1.13
62	11.875	11	2003	0.19	0.49	0.81	1.13	1.46	1.79
44	11.875	8	1993	*	0.47	1.40	2.67	4.38	6.16
34	12.375	4	1991	*	*	0.24	1.13	2.18	2.92
63	12.375	5	2004	*	*	*	*	*	*
20	12.625	11	1987	0.50	0.42	0.50	0.65	1.24	1.84
51	12.625	5	1995	*	0.66	1.46	2.23	2.95	3.65
32	13.000	11	1990	*	0.02	0.58	1.34	2.17	3.27
54	13.125	5	2001	0.26	0.50	0.79	1.08	1.40	1.73
21	13.250	4	1988	0.40	0.28	0.36	0.53	1.11	1.72
9	13.375	3	1985	*	*	*	*	*	*
55	13.375	8	2001	0.29	0.35	0.47	0.62	0.82	1.07
13	13.500	2	1986	1.40	1.25	1.13	1.01	0.96	0.91
38	13.750	5	1992	*	0.01	0.85	2.19	3.62	5.23
4	14.000	12	1984	0.43	0.37	0.31	0.25	0.20	0.17

POC for April 30, 1984 by Coupon (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
18	14.000	5	1987	0.95	0.83	0.81	0.83	1.15	1.48
36	14.125	11	1991	0.48	0.55	1.17	2.23	3.35	4.69
57	14.250	2	2002	0.53	0.50	0.60	0.75	0.96	1.27
2	14.375	11	1984	0.13	0.11	0.08	0.05	0.03	0.02
8	14.625	2	1985	0.63	0.56	0.49	0.42	0.35	0.30
37	14.625	2	1992	0.10	0.04	0.66	1.81	3.06	4.53
25	14.625	1	1989	*	*	0.15	0.46	0.90	1.44
35	14.875	8	1991	*	*	0.45	1.39	2.42	3.72
24	15.375	10	1988	0.33	0.24	0.40	0.59	1.01	1.55
56	15.750	11	2001	2.59	2.56	2.61	2.70	2.82	3.02
12	15.875	9	1985	1.51	1.36	1.22	1.08	0.96	0.84
3	16.000	11	1984	0.09	0.06	0.04	0.02	*	*
16	16.125	11	1986	1.20	1.07	0.99	0.94	1.07	1.20

POC for April 30, 1984 by Maturity

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
1	9.875	11	1984	0.11	0.08	0.05	0.03	0.02
2	14.375	11	1984	0.11	0.08	0.05	0.03	0.02
3	16.000	11	1984	0.06	0.04	0.02	*	*
4	14.000	12	1984	0.37	0.31	0.25	0.20	0.17
5	9.250	1	1985	0.32	0.27	0.21	0.17	0.14
6	8.000	2	1985	0.64	0.56	0.47	0.36	0.26
7	9.625	2	1985	0.51	0.44	0.38	0.31	0.26
8	14.625	2	1985	0.56	0.49	0.42	0.35	0.30
9	13.375	3	1985	*	*	*	*	*
10	9.500	4	1985	0.86	0.76	0.65	0.46	0.28
11	3.250	5	1985	3.52	3.15	2.71	2.02	1.32
12	15.875	9	1985	1.36	1.20	1.05	0.91	0.81
13	13.500	2	1986	1.25	1.09	0.93	0.82	0.81
14	9.375	5	1986	1.12	0.99	0.85	0.76	0.84
15	6.125	11	1986	3.69	3.19	2.61	1.63	0.95
16	16.125	11	1986	1.05	0.89	0.76	0.71	0.95
17	10.875	2	1987	0.90	0.71	0.55	0.49	0.84
18	14.000	5	1987	0.80	0.65	0.54	0.59	1.10
19	7.625	11	1987	1.33	1.03	0.67	*	*
20	12.625	11	1987	0.38	0.28	0.25	0.45	1.29
21	13.250	4	1988	0.22	0.08	0.06	0.30	1.15
22	8.125	5	1988	1.03	0.80	0.56	0.01	*
23	10.500	8	1988	0.09	*	*	*	0.20
24	15.375	10	1988	0.19	0.11	0.13	0.44	1.03
25	14.625	1	1989	*	*	*	0.34	0.96

POC for April 30, 1984 by Maturity (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
26	9.250	5	1989	0.44	0.32	0.12	*	*
27	11.875	10	1989	*	*	*	0.16	0.68
28	10.750	11	1989	0.07	0.18	0.28	0.56	1.10
29	3.500	2	1990	25.75	23.33	20.72	18.37	16.35
30	10.500	4	1990	*	*	*	*	0.09
31	8.250	5	1990	0.21	*	*	*	*
32	13.000	11	1990	*	0.08	0.31	1.22	2.42
33	11.750	1	1991	*	*	0.01	0.82	1.96
34	12.375	4	1991	*	*	*	0.75	1.92
35	14.875	8	1991	*	*	*	1.26	2.73
36	14.125	11	1991	0.52	0.58	0.72	2.10	3.67
37	14.625	2	1992	0.02	*	0.13	1.67	3.43
38	13.750	5	1992	*	0.07	0.37	2.14	4.08
39	7.250	8	1992	*	*	*	*	*
40	10.500	11	1992	*	0.11	0.55	2.23	4.18
41	6.750	2	1993	*	*	*	*	*
42	10.125	5	1993	0.15	0.40	0.76	2.17	4.10
43	8.625	8	1993	*	*	*	*	0.67
44	11.875	8	1993	0.09	0.46	1.01	2.62	4.90
45	9.000	2	1994	*	*	0.05	0.18	0.64
46	8.750	8	1994	*	*	*	*	*
47	10.125	11	1994	0.29	0.58	0.88	1.51	2.14
48	3.000	2	1995	32.03	29.61	27.00	24.17	21.22
49	10.500	2	1995	0.07	0.08	0.12	0.32	0.53
50	10.375	5	1995	*	*	*	*	*

POC for April 30, 1984 by Maturity (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
51	12.625	5	1995	0.27	0.63	1.02	1.97	2.94
52	3.500	11	1998	33.03	29.94	26.41	22.28	17.63
53	11.750	2	2001	*	*	*	*	*
54	13.125	5	2001	0.45	0.64	0.84	1.16	1.54
55	13.375	8	2001	0.30	0.32	0.37	0.58	0.87
56	15.750	11	2001	2.50	2.42	2.35	2.49	2.73
57	14.250	2	2002	0.45	0.41	0.44	0.67	1.02
58	11.625	11	2002	*	*	*	*	*
59	10.750	2	2003	*	*	*	*	*
60	10.750	5	2003	*	*	*	0.08	0.28
61	11.125	8	2003	*	*	*	*	*
62	11.875	11	2003	0.44	0.69	0.93	1.26	1.61
63	12.375	5	2004	*	*	*	*	*

POC for April 30, 1984 by Coupon

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
48	3.000	2	1995	32.03	29.61	27.00	24.17	21.22
11	3.250	5	1985	3.52	3.15	2.71	2.02	1.32
52	3.500	11	1998	33.03	29.94	26.41	22.28	17.63
29	3.500	2	1990	25.75	23.33	20.72	18.37	16.35
15	6.125	11	1986	3.69	3.19	2.61	1.63	0.95
41	6.750	2	1993	*	*	*	*	*
39	7.250	8	1992	*	*	*	*	*
19	7.625	11	1987	1.33	1.03	0.67	*	*
6	8.000	2	1985	0.64	0.56	0.47	0.36	0.26
22	8.125	5	1988	1.03	0.80	0.56	0.01	*
31	8.250	5	1990	0.21	*	*	*	*
43	8.625	8	1993	*	*	*	*	0.67
46	8.750	8	1994	*	*	*	*	*
45	9.000	2	1994	*	*	0.05	0.18	0.64
26	9.250	5	1989	0.44	0.32	0.12	*	*
5	9.250	1	1985	0.32	0.27	0.21	0.17	0.14
14	9.375	5	1986	1.12	0.99	0.85	0.76	0.84
10	9.500	4	1985	0.86	0.76	0.65	0.46	0.28
7	9.625	2	1985	0.51	0.44	0.38	0.31	0.26
1	9.875	11	1984	0.11	0.08	0.05	0.03	0.02
42	10.125	5	1993	0.15	0.40	0.76	2.17	4.10
47	10.125	11	1994	0.29	0.58	0.88	1.51	2.14
50	10.375	5	1995	*	*	*	*	*
49	10.500	2	1995	0.07	0.08	0.12	0.32	0.53
40	10.500	11	1992	*	0.11	0.55	2.23	4.18

POC for April 30, 1984 by Coupon (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
30	10.500	4	1990	*	*	*	*	0.09
23	10.500	8	1988	0.09	*	*	*	0.20
60	10.750	5	2003	*	*	*	0.08	0.28
28	10.750	11	1989	0.07	0.18	0.28	0.56	1.10
59	10.750	2	2003	*	*	*	*	*
17	10.875	2	1987	0.90	0.71	0.55	0.49	0.84
61	11.125	8	2003	*	*	*	*	*
58	11.625	11	2002	*	*	*	*	*
53	11.750	2	2001	*	*	*	*	*
33	11.750	1	1991	*	*	0.01	0.82	1.96
27	11.875	10	1989	*	*	*	0.16	0.68
62	11.875	11	2003	0.44	0.69	0.93	1.26	1.61
44	11.875	8	1993	0.09	0.46	1.01	2.62	4.90
34	12.375	4	1991	*	*	*	0.75	1.92
63	12.375	5	2004	*	*	*	*	*
20	12.625	11	1987	0.38	0.28	0.25	0.45	1.29
51	12.625	5	1995	0.27	0.63	1.02	1.97	2.94
32	13.000	11	1990	*	0.08	0.31	1.22	2.42
54	13.125	5	2001	0.45	0.64	0.84	1.16	1.54
21	13.250	4	1988	0.22	0.08	0.06	0.30	1.15
9	13.375	3	1985	*	*	*	*	*
55	13.375	8	2001	0.30	0.32	0.37	0.58	0.87
13	13.500	2	1986	1.25	1.09	0.93	0.82	0.81
38	13.750	5	1992	*	0.07	0.37	2.14	4.08
4	14.000	12	1984	0.37	0.31	0.25	0.20	0.17

POC for April 30, 1984 by Coupon (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
18	14.000	5	1987	0.80	0.65	0.54	0.59	1.10
36	14.125	11	1991	0.52	0.58	0.72	2.10	3.67
57	14.250	2	2002	0.45	0.41	0.44	0.67	1.02
2	14.375	11	1984	0.11	0.08	0.05	0.03	0.02
8	14.625	2	1985	0.56	0.49	0.42	0.35	0.30
37	14.625	2	1992	0.02	*	0.13	1.67	3.43
25	14.625	1	1989	*	*	*	0.34	0.96
35	14.875	8	1991	*	*	*	1.26	2.73
24	15.375	10	1988	0.19	0.11	0.13	0.44	1.03
56	15.750	11	2001	2.50	2.42	2.35	2.49	2.73
12	15.875	9	1985	1.36	1.20	1.05	0.91	0.81
3	16.000	11	1984	0.06	0.04	0.02	*	*
16	16.125	11	1986	1.05	0.89	0.76	0.71	0.95

POC for August 31, 1984 by Maturity

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
1	13.375	3	1985	0.18	0.16	0.14	0.12	0.10	0.10
2	9.500	4	1985	*	*	*	*	*	0.03
3	3.250	5	1985	2.18	1.81	1.45	1.08	0.72	0.41
4	4.250	5	1985	1.56	1.28	1.00	0.71	0.43	0.20
5	14.375	5	1985	*	*	*	*	0.01	0.07
6	10.000	6	1985	0.07	0.06	0.06	0.08	0.12	0.21
7	10.625	7	1985	0.15	0.13	0.12	0.17	0.27	0.40
8	8.250	8	1985	0.47	0.27	0.07	*	*	*
9	9.625	8	1985	0.31	0.19	0.08	0.09	0.17	0.26
10	13.125	8	1985	0.17	0.15	0.13	0.25	0.43	0.61
11	10.875	9	1985	0.19	0.20	0.20	0.34	0.55	0.75
12	13.500	2	1986	0.16	0.16	0.18	0.36	0.67	1.00
13	9.375	5	1986	0.08	0.02	*	0.10	0.37	0.66
14	6.125	11	1986	2.33	1.73	1.18	0.67	0.38	0.14
15	16.125	11	1986	0.12	0.19	0.33	0.52	0.92	1.37
16	10.875	2	1987	0.09	*	*	*	0.26	0.60
17	12.500	5	1987	*	0.10	0.33	0.55	1.03	1.59
18	14.000	5	1987	0.14	0.23	0.43	0.64	1.10	1.63
19	7.625	11	1987	1.63	1.12	0.70	0.29	0.15	0.05
20	13.250	4	1988	0.32	0.52	0.83	1.16	1.78	2.42
21	8.125	5	1988	1.03	0.62	0.30	*	*	*
22	10.500	8	1988	0.10	*	*	*	0.07	0.36
23	15.375	10	1988	*	0.24	0.62	1.02	1.50	2.15
24	14.625	1	1989	*	*	0.36	0.79	1.28	1.91
25	9.250	5	1989	0.52	0.09	*	*	*	*

POC for August 31, 1984 by Maturity (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
26	11.875	10	1989	0.04	0.25	0.55	1.19	1.88	2.58
27	10.750	11	1989	*	*	*	0.43	0.92	1.43
28	3.500	2	1990	27.40	24.81	22.33	20.31	18.24	16.12
29	10.500	4	1990	*	*	*	0.63	1.30	2.00
30	8.250	5	1990	0.83	0.06	*	*	*	*
31	13.000	11	1990	0.15	0.24	0.57	1.57	2.66	3.79
32	11.750	1	1991	*	*	*	0.74	1.48	2.19
33	12.375	4	1991	*	*	0.35	1.37	2.39	3.39
34	13.750	7	1991	0.09	0.04	0.41	1.57	2.85	4.14
35	14.875	8	1991	0.09	0.03	0.37	1.47	2.74	4.09
36	14.625	2	1992	*	*	0.42	1.66	3.11	4.66
37	13.750	5	1992	*	0.08	0.74	2.10	3.68	5.35
38	7.250	8	1992	*	*	*	*	*	*
39	10.500	11	1992	*	*	0.68	1.79	3.24	4.76
40	6.750	2	1993	*	*	*	*	*	*
41	10.125	5	1993	*	0.22	0.80	1.62	3.01	4.52
42	8.625	8	1993	*	*	*	*	0.16	0.70
43	11.875	8	1993	0.09	0.61	1.51	2.52	4.04	5.75
44	13.125	5	1994	*	0.66	1.84	3.08	4.60	6.27
45	8.750	8	1994	*	*	*	*	*	*
46	10.125	11	1994	0.40	0.86	1.37	1.86	2.34	2.79
47	3.000	2	1995	32.78	30.61	28.29	25.81	23.14	20.28
48	10.500	2	1995	0.02	0.09	0.21	0.33	0.46	0.58
49	10.375	5	1995	*	*	*	*	*	*
50	12.625	5	1995	0.40	1.05	1.83	2.59	3.33	4.05

POC for August 31, 1984 by Maturity (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
51	3.500	11	1998	33.49	30.71	27.61	24.14	20.25	15.87
52	11.750	2	2001	*	*	*	*	*	*
53	13.125	5	2001	0.19	0.47	0.78	1.11	1.76	1.83
54	13.375	8	2001	0.24	0.34	0.48	0.67	0.91	1.19
55	15.750	11	2001	0.11	0.24	0.46	0.68	1.04	1.48
56	14.250	2	2002	0.52	0.56	0.65	0.81	1.08	1.43
57	11.625	11	2002	*	*	*	*	*	*
58	10.750	2	2003	*	*	*	*	*	*
59	10.750	5	2003	*	*	*	*	0.06	0.24
60	11.125	8	2003	*	*	*	*	*	*
61	11.875	11	2003	0.24	0.59	0.96	1.31	1.63	1.91
62	12.375	5	2004	*	*	*	*	*	*
63	13.750	8	2004	*	*	*	*	*	*

POC for August 31, 1984 by Coupon

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
47	3.000	2	1995	32.78	30.61	28.29	25.81	23.14	20.28
3	3.250	5	1985	2.18	1.81	1.45	1.08	0.72	0.41
51	3.500	11	1998	33.49	30.71	27.61	24.14	20.25	15.87
28	3.500	2	1990	27.40	24.81	22.33	20.31	18.24	16.12
4	4.250	5	1985	1.56	1.28	1.00	0.71	0.43	0.20
14	6.125	11	1986	2.33	1.73	1.18	0.67	0.38	0.14
40	6.750	2	1993	*	*	*	*	*	*
38	7.250	8	1992	*	*	*	*	*	*
19	7.625	11	1987	1.63	1.12	0.70	0.29	0.15	0.05
21	8.125	5	1988	1.03	0.62	0.30	*	*	*
8	8.250	8	1985	0.47	0.27	0.07	*	*	*
30	8.250	5	1990	0.83	0.06	*	*	*	*
42	8.625	8	1993	*	*	*	*	0.16	0.70
45	8.750	8	1994	*	*	*	*	*	*
25	9.250	5	1989	0.52	0.09	*	*	*	*
13	9.375	5	1986	0.08	0.02	*	0.10	0.37	0.66
2	9.500	4	1985	*	*	*	*	*	0.03
9	9.625	8	1985	0.31	0.19	0.08	0.09	0.17	0.26
6	10.000	6	1985	0.07	0.06	0.06	0.08	0.12	0.21
46	10.125	11	1994	0.40	0.86	1.37	1.86	2.34	2.79
41	10.125	5	1993	*	0.22	0.80	1.62	3.01	4.52
49	10.375	5	1995	*	*	*	*	*	*
29	10.500	4	1990	*	*	*	0.63	1.30	2.00
48	10.500	2	1995	0.02	0.09	0.21	0.33	0.46	0.58
22	10.500	8	1988	0.10	*	*	*	0.07	0.36

POC for August 31, 1984 by Coupon (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
39	10.500	11	1992	*	*	0.68	1.79	3.24	4.76
7	10.625	7	1985	0.15	0.13	0.12	0.17	0.27	0.40
27	10.750	11	1989	*	*	*	0.43	0.92	1.43
59	10.750	5	2003	*	*	*	*	0.06	0.24
58	10.750	2	2003	*	*	*	*	*	*
11	10.875	9	1985	0.19	0.20	0.20	0.34	0.55	0.75
16	10.875	2	1987	0.09	*	*	*	0.26	0.60
60	11.125	8	2003	*	*	*	*	*	*
57	11.625	11	2002	*	*	*	*	*	*
32	11.750	1	1991	*	*	*	0.74	1.48	2.19
52	11.750	2	2001	*	*	*	*	*	*
26	11.875	10	1989	0.04	0.25	0.55	1.19	1.88	2.58
43	11.875	8	1993	0.09	0.61	1.51	2.52	4.04	5.75
61	11.875	11	2003	0.24	0.59	0.96	1.31	1.63	1.91
33	12.375	4	1991	*	*	0.35	1.37	2.39	3.39
62	12.375	5	2004	*	*	*	*	*	*
17	12.500	5	1987	*	0.10	0.33	0.55	1.03	1.59
50	12.625	5	1995	0.40	1.05	1.83	2.59	3.33	4.05
31	13.000	11	1990	0.15	0.24	0.57	1.57	2.66	3.79
53	13.125	5	2001	0.19	0.47	0.78	1.11	1.76	1.83
10	13.125	8	1985	0.17	0.15	0.13	0.25	0.43	0.61
44	13.125	5	1994	*	0.66	1.84	3.08	4.60	6.27
20	13.250	4	1988	0.32	0.52	0.83	1.16	1.78	2.42
1	13.375	3	1985	0.18	0.16	0.14	0.12	0.10	0.10
54	13.375	8	2001	0.24	0.34	0.48	0.67	0.91	1.19

POC for August 31, 1984 by Coupon (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
12	13.500	2	1986	0.16	0.16	0.18	0.36	0.67	1.00
63	13.750	8	2004	*	*	*	*	*	*
34	13.750	7	1991	0.09	0.04	0.41	1.57	2.85	4.14
37	13.750	5	1992	*	0.08	0.74	2.10	3.68	5.35
18	14.000	5	1987	0.14	0.23	0.43	0.64	1.10	1.63
56	14.250	2	2002	0.52	0.56	0.65	0.81	1.08	1.43
5	14.375	5	1985	*	*	*	*	0.01	0.07
24	14.625	1	1989	*	*	0.36	0.79	1.28	1.91
36	14.625	2	1992	*	*	0.42	1.66	3.11	4.66
35	14.875	8	1991	0.09	0.03	0.37	1.47	2.74	4.09
23	15.375	10	1988	*	0.24	0.62	1.02	1.50	2.15
55	15.750	11	2001	0.11	0.24	0.46	0.68	1.04	1.48
15	16.125	11	1986	0.12	0.19	0.33	0.52	0.92	1.37

POC for August 31, 1984 by Maturity

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
1	13.375	3	1985	0.16	0.14	0.12	0.10	0.07
2	9.500	4	1985	*	*	*	*	*
3	3.250	5	1985	1.96	1.75	1.48	1.01	0.55
4	4.250	5	1985	1.41	1.25	1.06	0.68	0.32
5	14.375	5	1985	*	*	*	*	0.02
6	1 * 0	6	1985	0.06	0.05	0.05	0.05	0.12
7	10.625	7	1985	0.13	0.11	0.10	0.11	0.26
8	8.250	8	1985	0.41	0.35	0.25	*	*
9	9.625	8	1985	0.27	0.23	0.17	0.04	0.17
10	13.125	8	1985	0.15	0.12	0.11	0.13	0.41
11	10.875	9	1985	.19	0.19	0.18	0.23	0.54
12	13.500	2	1986	0.13	0.11	0.11	0.19	0.65
13	9.375	5	1986	0.07	0.07	0.05	0.03	0.37
14	6.125	11	1986	2.05	1.81	1.47	0.70	0.21
15	16.125	11	1986	0.11	0.12	0.18	0.38	0.89
16	10.875	2	1987	0.01	*	*	*	0.25
17	12.500	5	1987	*	0.01	0.11	0.42	1.02
18	14.000	5	1987	0.12	0.12	0.21	0.50	1.07
19	7.625	11	1987	1.37	1.17	0.91	0.30	0.05
20	13.250	4	1988	0.33	0.38	0.51	0.93	1.79
21	8.125	5	1988	0.83	0.71	0.53	0.03	*
22	10.500	8	1988	*	*	*	*	0.10
23	15.375	10	1988	0.05	0.15	0.33	0.87	1.55
24	14.625	1	1989	*	*	*	0.60	1.32
25	9.250	5	1989	0.35	0.18	*	*	*

POC for August 31, 1984 by Maturity (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
26	11.875	10	1989	0.12	0.19	0.30	0.94	1.93
27	10.750	11	1989	*	*	*	0.26	0.96
28	3.500	2	1990	25.09	22.67	20.20	17.89	15.88
29	10.500	4	1990	*	*	*	0.53	1.46
30	8.250	5	1990	0.47	0.14	*	*	*
31	13.000	11	1990	0.15	0.20	0.29	1.35	2.87
32	11.750	1	1991	*	*	*	0.16	1.25
33	12.375	4	1991	*	*	0.20	0.82	2.27
34	13.750	7	1991	0.02	0.02	0.07	1.35	3.02
35	14.875	8	1991	*	*	*	1.24	3.02
36	14.625	2	1992	*	*	0.01	1.46	3.49
37	13.750	5	1992	0.02	0.13	0.35	1.99	4.14
38	7.250	8	1992	*	*	*	*	*
39	10.500	11	1992	*	0.01	0.39	1.79	3.73
40	6.750	2	1993	*	*	*	*	*
41	10.125	5	1993	0.06	0.29	0.62	1.65	3.51
42	8.625	8	1993	*	*	*	*	0.35
43	11.875	8	1993	0.21	0.56	1.06	2.40	4.49
44	13.125	5	1994	0.18	0.73	1.44	3.04	5.10
45	8.750	8	1994	*	*	*	*	*
46	10.125	11	1994	0.64	0.89	1.17	1.77	2.38
47	3.000	2	1995	30.64	28.34	25.85	23.16	20.27
48	10.500	2	1995	*	*	0.03	0.22	0.42
49	10.375	5	1995	*	*	*	*	*
50	12.625	5	1995	0.67	1.00	1.38	2.34	3.33

POC for August 31, 1984 by Maturity (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
51	3.500	11	1998	30.83	27.86	24.47	20.50	16.03
52	11.750	2	2001	*	*	*	*	*
53	13.125	5	2001	0.41	0.61	0.82	1.19	1.61
54	13.375	8	2001	0.27	0.31	0.38	0.64	0.98
55	15.750	11	2001	0.15	0.23	0.31	0.65	1.17
56	14.250	2	2002	0.48	0.46	0.48	0.74	1.15
57	11.625	11	2002	*	*	*	*	*
58	10.750	2	2003	*	*	*	*	*
59	10.750	5	2003	*	*	*	*	0.16
60	11.125	8	2003	*	*	*	*	*
61	11.875	11	2003	0.52	0.76	0.98	1.32	1.68
62	12.375	5	2004	*	*	*	*	*
63	13.750	8	2004	*	*	*	*	*

POC for August 31, 1984 by Coupon

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
47	3.000	2	1995	30.64	28.34	25.85	23.16	20.27
3	3.250	5	1985	1.96	1.75	1.48	1.01	0.55
51	3.500	11	1998	30.83	27.86	24.47	20.50	16.03
28	3.500	2	1990	25.09	22.67	20.20	17.89	15.88
4	4.250	5	1985	1.41	1.25	1.06	0.68	0.32
14	6.125	11	1986	2.05	1.81	1.47	0.70	0.21
40	6.750	2	1993	*	*	*	*	*
38	7.250	8	1992	*	*	*	*	*
19	7.625	11	1987	1.37	1.17	0.91	0.30	0.05
21	8.125	5	1988	0.83	0.71	0.53	0.03	*
8	8.250	8	1985	0.41	0.35	0.25	*	*
30	8.250	5	1990	0.47	0.14	*	*	*
42	8.625	8	1993	*	*	*	*	0.35
45	8.750	8	1994	*	*	*	*	*
25	9.250	5	1989	0.35	0.18	*	*	*
13	9.375	5	1986	0.07	0.07	0.05	0.03	0.37
2	9.500	4	1985	*	*	*	*	*
9	9.625	8	1985	0.27	0.23	0.17	0.04	0.17
6	10.000	6	1985	0.06	0.05	0.05	0.05	0.12
46	10.125	11	1994	0.64	0.89	1.17	1.77	2.38
41	10.125	5	1993	0.06	0.29	0.62	1.65	3.51
49	10.375	5	1995	*	*	*	*	*
29	10.500	4	1990	*	*	*	0.53	1.46
48	10.500	2	1995	*	*	0.03	0.22	0.42
22	10.500	8	1988	*	*	*	*	0.10

POC for August 31, 1984 by Coupon (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
39	10.500	11	1992	*	0.01	0.39	1.79	3.73
7	10.625	7	1985	0.13	0.11	0.10	0.11	0.26
27	10.750	11	1989	*	*	*	0.26	0.96
59	10.750	5	2003	*	*	*	*	0.16
58	10.750	2	2003	*	*	*	*	*
11	10.875	9	1985	.19	0.19	0.18	0.23	0.54
16	10.875	2	1987	0.01	*	*	*	0.25
60	11.125	8	2003	*	*	*	*	*
57	11.625	11	2002	*	*	*	*	*
32	11.750	1	1991	*	*	*	0.16	1.25
52	11.750	2	2001	*	*	*	*	*
26	11.875	10	1989	0.12	0.19	0.30	0.94	1.93
43	11.875	8	1993	0.21	0.56	1.06	2.40	4.49
61	11.875	11	2003	0.52	0.76	0.98	1.32	1.68
33	12.375	4	1991	*	*	0.20	0.82	2.27
62	12.375	5	2004	*	*	*	*	*
17	12.500	5	1987	*	0.01	0.11	0.42	1.02
50	12.625	5	1995	0.67	1.00	1.38	2.34	3.33
31	13.000	11	1990	0.15	0.20	0.29	1.35	2.87
53	13.125	5	2001	0.41	0.61	0.82	1.19	1.61
10	13.125	8	1985	0.15	0.12	0.11	0.13	0.41
44	13.125	5	1994	0.18	0.73	1.44	3.04	5.10
20	13.250	4	1988	0.33	0.38	0.51	0.93	1.79
1	13.375	3	1985	0.16	0.14	0.12	0.10	0.07
54	13.375	8	2001	0.27	0.31	0.38	0.64	0.98

POC for August 31, 1984 by Coupon (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
12	13.500	2	1986	0.13	0.11	0.11	0.19	0.65
63	13.750	8	2004	*	*	*	*	*
34	13.750	7	1991	0.02	0.02	0.07	1.35	3.02
37	13.750	5	1992	0.02	0.13	0.35	1.99	4.14
18	14.000	5	1987	0.12	0.12	0.21	0.50	1.07
56	14.250	2	2002	0.48	0.46	0.48	0.74	1.15
5	14.375	5	1985	*	*	*	*	0.02
24	14.625	1	1989	*	*	*	0.60	1.32
36	14.625	2	1992	*	*	0.01	1.46	3.49
35	14.875	8	1991	*	*	*	1.24	3.02
23	15.375	10	1988	0.05	0.15	0.33	0.87	1.55
55	15.750	11	2001	0.15	0.23	0.31	0.65	1.17
15	16.125	11	1986	0.11	0.12	0.18	0.38	0.89

POC for December 31, 1984 by Maturity

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
1	10.625	7	1985	0.09	0.08	0.07	0.06	0.04	0.03
2	8.250	8	1985	0.19	0.17	0.15	0.13	0.11	0.10
3	9.625	8	1985	0.07	0.06	0.05	0.05	0.04	0.03
4	13.125	8	1985	*	*	*	*	*	*
5	15.875	9	1985	0.20	0.18	0.16	0.14	0.12	0.10
6	10.875	9	1985	0.04	0.03	0.03	0.03	0.02	0.02
7	10.500	10	1985	2.87	2.60	2.32	2.04	1.76	1.47
8	9.750	11	1985	0.02	0.02	0.01	0.01	0.01	0.01
9	11.750	11	1985	*	*	*	*	*	*
10	14.125	12	1985	0.29	0.26	0.23	0.20	0.17	0.15
11	13.500	2	1986	0.11	0.11	0.11	0.10	0.10	0.12
12	9.375	5	1986	0.18	0.17	0.15	0.13	0.11	0.19
13	6.125	11	1986	1.77	1.36	0.95	0.53	0.11	*
14	16.125	11	1986	*	*	*	*	*	0.30
15	10.875	2	1987	*	0.28	0.27	0.26	0.26	0.58
16	12.500	5	1987	0.12	0.11	0.10	0.09	0.14	0.51
17	14.000	5	1987	*	*	*	*	0.06	0.43
18	7.625	11	1987	1.16	0.74	0.39	0.15	*	*
19	13.250	4	1988	*	*	0.12	0.43	0.78	1.19
20	8.125	5	1988	0.60	0.20	*	*	*	*
21	10.500	8	1988	0.22	0.32	0.27	0.58	0.93	1.29
22	15.375	10	1988	*	*	*	0.29	0.64	1.00
23	14.625	1	1989	*	*	*	0.24	0.59	0.94
24	9.250	5	1989	0.47	0.11	*	*	*	*
25	11.875	10	1989	*	*	*	*	0.28	0.70

POC for December 31, 1984 by Maturity (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
26	10.750	11	1989	0.78	0.68	0.57	0.49	0.74	1.10
27	3.500	2	1990	20.52	18.30	16.08	14.38	12.81	10.84
28	10.500	4	1990	0.02	*	*	0.08	0.66	1.31
29	8.250	5	1990	1.30	0.53	*	*	*	*
30	13.000	11	1990	*	*	*	*	0.49	1.23
31	11.750	1	1991	*	*	*	0.12	0.25	0.42
32	12.375	4	1991	*	*	*	*	*	*
33	13.750	7	1991	*	*	*	0.09	0.72	1.45
34	14.875	8	1991	*	*	*	0.05	0.77	1.73
35	14.625	2	1992	0.08	0.11	0.13	0.45	1.34	2.40
36	13.750	5	1992	*	*	*	0.47	1.48	2.64
37	7.250	8	1992	*	*	*	*	*	*
38	10.500	11	1992	0.02	0.21	0.46	1.28	2.27	3.39
39	6.750	2	1993	*	*	*	*	*	*
40	10.125	5	1993	0.51	*	*	0.50	1.52	2.61
41	8.625	8	1993	*	*	*	*	0.23	0.70
42	11.875	8	1993	*	0.08	0.46	1.23	2.49	3.80
43	13.125	5	1994	*	*	*	0.58	1.48	2.51
44	8.750	8	1994	*	*	*	*	*	*
45	10.125	11	1994	0.44	0.39	0.48	0.65	0.86	1.10
46	11.625	11	1994	*	*	0.18	0.71	1.34	2.04
47	3.000	2	1995	25.73	23.75	21.63	19.37	16.94	14.32
48	10.500	2	1995	0.22	0.45	0.79	1.17	1.51	1.82
49	10.375	5	1995	*	*	*	*	*	*
50	12.625	5	1995	*	0.02	0.21	0.49	0.80	1.16

POC for December 31, 1984 by Maturity (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
51	3.500	11	1998	26.57	22.80	18.61	13.94	8.73	2.89
52	11.750	2	2001	*	*	*	*	*	*
53	13.125	5	2001	*	*	*	*	*	*
54	13.375	8	2001	*	*	*	*	0.01	0.05
55	15.750	11	2001	0.53	0.42	0.33	0.31	0.32	0.36
56	14.250	2	2002	*	*	*	*	*	*
57	11.625	11	2002	*	*	*	*	*	*
58	10.750	2	2003	*	*	*	*	*	*
59	10.750	5	2003	*	*	*	*	*	*
60	11.125	8	2003	*	*	*	*	*	*
61	11.875	11	2003	*	*	*	*	*	*
62	12.375	5	2004	*	*	*	*	*	*
63	13.750	8	2004	*	*	*	*	*	*

POC for December 31, 1984 by Coupon

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
47	3.000	2	1995	25.73	23.75	21.63	19.37	16.94	14.32
51	3.500	11	1998	26.57	22.80	18.61	13.94	8.73	2.89
27	3.500	2	1990	20.52	18.30	16.08	14.38	12.81	10.84
13	6.125	11	1986	1.77	1.36	0.95	0.53	0.11	*
39	6.750	2	1993	*	*	*	*	*	*
37	7.250	8	1992	*	*	*	*	*	*
18	7.625	11	1987	1.16	0.74	0.39	0.15	*	*
20	8.125	5	1988	0.60	0.20	*	*	*	*
2	8.250	8	1985	0.19	0.17	0.15	0.13	0.11	0.10
29	8.250	5	1990	1.30	0.53	*	*	*	*
41	8.625	8	1993	*	*	*	*	0.23	0.70
44	8.750	8	1994	*	*	*	*	*	*
24	9.250	5	1989	0.47	0.11	*	*	*	*
12	9.375	5	1986	0.18	0.17	0.15	0.13	0.11	0.19
3	9.625	8	1985	0.07	0.06	0.05	0.05	0.04	0.03
8	9.750	11	1985	0.02	0.02	0.01	0.01	0.01	0.01
45	10.125	11	1994	0.44	0.39	0.48	0.65	0.86	1.10
40	10.125	5	1993	0.51	*	*	0.50	1.52	2.61
49	10.375	5	1995	*	*	*	*	*	*
21	10.500	8	1988	0.22	0.32	0.27	0.58	0.93	1.29
7	10.500	10	1985	2.87	2.60	2.32	2.04	1.76	1.47
28	10.500	4	1990	0.02	*	*	0.08	0.66	1.31
38	10.500	11	1992	0.02	0.21	0.46	1.28	2.27	3.39
48	10.500	2	1995	0.22	0.45	0.79	1.17	1.51	1.82
1	10.625	7	1985	0.09	0.08	0.07	0.06	0.04	0.03

POC for December 31, 1984 by Coupon (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
26	10.750	11	1989	0.78	0.68	0.57	0.49	0.74	1.10
58	10.750	2	2003	*	*	*	*	*	*
59	10.750	5	2003	*	*	*	*	*	*
15	10.875	2	1987	*	0.28	0.27	0.26	0.26	0.58
6	10.875	9	1985	0.04	0.03	0.03	0.03	0.02	0.02
60	11.125	8	2003	*	*	*	*	*	*
57	11.625	11	2002	*	*	*	*	*	*
46	11.625	11	1994	*	*	0.18	0.71	1.34	2.04
31	11.750	1	1991	*	*	*	0.12	0.25	0.42
9	11.750	11	1985	*	*	*	*	*	*
52	11.750	2	2001	*	*	*	*	*	*
61	11.875	11	2003	*	*	*	*	*	*
42	11.875	8	1993	*	0.08	0.46	1.23	2.49	3.80
25	11.875	10	1989	*	*	*	*	0.28	0.70
62	12.375	5	2004	*	*	*	*	*	*
32	12.375	4	1991	*	*	*	*	*	*
16	12.500	5	1987	0.12	0.11	0.10	0.09	0.14	0.51
50	12.625	5	1995	*	0.02	0.21	0.49	0.80	1.16
30	13.000	11	1990	*	*	*	*	0.49	1.23
43	13.125	5	1994	*	*	*	0.58	1.48	2.51
4	13.125	8	1985	*	*	*	*	*	*
53	13.125	5	2001	*	*	*	*	*	*
19	13.250	4	1988	*	*	0.12	0.43	0.78	1.19
54	13.375	8	2001	*	*	*	*	0.01	0.05
11	13.500	2	1986	0.11	0.11	0.11	0.10	0.10	0.12

POC for December 31, 1984 by Coupon (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
36	13.750	5	1992	*	*	*	0.47	1.48	2.64
63	13.750	8	2004	*	*	*	*	*	*
33	13.750	7	1991	*	*	*	0.09	0.72	1.45
17	14.000	5	1987	*	*	*	*	0.06	0.43
10	14.125	12	1985	0.29	0.26	0.23	0.20	0.17	0.15
56	14.250	2	2002	*	*	*	*	*	*
35	14.625	2	1992	0.08	0.11	0.13	0.45	1.34	2.40
23	14.625	1	1989	*	*	*	0.24	0.59	0.94
34	14.875	8	1991	*	*	*	0.05	0.77	1.73
22	15.375	10	1988	*	*	*	0.29	0.64	1.00
55	15.750	11	2001	0.53	0.42	0.33	0.31	0.32	0.36
5	15.875	9	1985	0.20	0.18	0.16	0.14	0.12	0.10
14	16.125	11	1986	*	*	*	*	*	0.30

POC for December 31, 1984 by Maturity

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
1	10.625	7	1985	0.08	0.07	0.06	0.04	0.03
2	8.250	8	1985	0.17	0.15	0.13	0.11	0.10
3	9.625	8	1985	0.06	0.05	0.05	0.04	0.03
4	13.125	8	1985	*	*	*	*	*
5	15.875	9	1985	0.18	0.16	0.14	0.12	0.10
6	10.875	9	1985	0.03	0.03	0.03	0.02	0.02
7	10.500	10	1985	2.60	2.32	2.04	1.76	1.47
8	9.750	11	1985	0.02	0.02	0.01	0.01	0.01
9	11.750	11	1985	*	*	*	*	*
10	14.125	12	1985	0.26	0.23	0.20	0.17	0.14
11	13.500	2	1986	0.11	0.11	0.10	0.10	0.09
12	9.375	5	1986	0.17	0.15	0.13	0.11	0.10
13	6.125	11	1986	1.58	1.40	1.14	0.57	*
14	16.125	11	1986	*	*	*	*	0.01
15	10.875	2	1987	0.28	0.27	0.26	0.23	0.26
16	12.500	5	1987	0.11	0.10	0.09	0.08	0.17
17	14.000	5	1987	*	*	*	*	0.09
18	7.625	11	1987	0.99	0.83	0.59	0.16	*
19	13.250	4	1988	*	*	*	0.30	0.82
20	8.125	5	1988	0.46	0.34	0.13	*	*
21	10.500	8	1988	0.22	0.22	0.21	0.41	0.93
22	15.375	10	1988	*	*	*	0.15	0.66
23	14.625	1	1989	*	*	*	0.14	0.63
24	9.250	5	1989	0.29	0.12	*	*	*
25	11.875	10	1989	*	*	*	*	0.33

POC for December 31, 1984 by Maturity (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
26	10.750	11	1989	0.68	0.57	0.46	0.35	0.69
27	3.500	2	1990	18.61	16.65	14.50	12.77	10.82
28	10.500	4	1990	*	*	*	0.01	0.81
29	8.250	5	1990	0.88	0.49	*	*	*
30	13.000	11	1990	*	*	*	*	0.65
31	11.750	1	1991	*	*	*	0.04	0.24
32	12.375	4	1991	*	*	*	*	*
33	13.750	7	1991	*	*	0.03	0.10	0.89
34	14.875	8	1991	*	*	*	0.04	1.04
35	14.625	2	1992	0.11	0.13	0.15	0.38	1.62
36	13.750	5	1992	*	*	*	0.36	1.78
37	7.250	8	1992	*	*	*	*	*
38	10.500	11	1992	2.14	0.11	0.22	1.11	2.53
39	6.750	2	1993	*	*	*	*	*
40	10.125	5	1993	*	*	*	0.40	0.94
41	8.625	8	1993	*	*	*	*	0.34
42	11.875	8	1993	*	0.13	0.31	1.12	2.81
43	13.125	5	1994	*	*	*	0.47	1.77
44	8.750	8	1994	*	*	*	*	*
45	10.125	11	1994	0.36	0.29	0.30	0.56	0.87
46	11.625	11	1994	*	*	0.01	0.63	1.52
47	3.000	2	1995	23.92	21.98	19.85	17.31	14.58
48	10.500	2	1995	0.35	0.46	0.65	1.07	1.50
49	10.375	5	1995	*	*	*	*	*
50	12.625	5	1995	*	*	0.08	0.43	0.88

POC for December 31, 1984 by Maturity (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
51	3.500	11	1998	23.12	19.30	14.95	9.55	3.49
52	11.750	2	2001	*	*	*	*	*
53	13.125	5	2001	*	*	*	*	*
54	13.375	8	2001	*	*	*	0.01	0.04
55	15.750	11	2001	0.42	0.33	0.26	0.23	0.29
56	14.250	2	2002	*	*	*	*	*
57	11.625	11	2002	*	*	*	*	*
58	10.750	2	2003	*	*	*	*	*
59	10.750	5	2003	*	*	*	*	*
60	11.125	8	2003	*	*	*	*	*
61	11.875	11	2003	*	*	*	*	*
62	12.375	5	2004	*	*	*	*	*
63	13.750	8	2004	*	*	*	*	*

POC for December 31, 1984 by Coupon

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
47	3.000	2	1995	23.92	21.98	19.85	17.31	14.58
51	3.500	11	1998	23.12	19.30	14.95	9.55	3.49
27	3.500	2	1990	18.61	16.65	14.50	12.77	10.82
13	6.125	11	1986	1.58	1.40	1.14	0.57	*
39	6.750	2	1993	*	*	*	*	*
37	7.250	8	1992	*	*	*	*	*
18	7.625	11	1987	0.99	0.83	0.59	0.16	*
20	8.125	5	1988	0.46	0.34	0.13	*	*
2	8.250	8	1985	0.17	0.15	0.13	0.11	0.10
29	8.250	5	1990	0.88	0.49	*	*	*
41	8.625	8	1993	*	*	*	*	0.34
44	8.750	8	1994	*	*	*	*	*
24	9.250	5	1989	0.29	0.12	*	*	*
12	9.375	5	1986	0.17	0.15	0.13	0.11	0.10
3	9.625	8	1985	0.06	0.05	0.05	0.04	0.03
8	9.750	11	1985	0.02	0.02	0.01	0.01	0.01
45	10.125	11	1994	0.36	0.29	0.30	0.56	0.87
40	10.125	5	1993	*	*	*	0.40	0.94
49	10.375	5	1995	*	*	*	*	*
21	10.500	8	1988	0.22	0.22	0.21	0.41	0.93
7	10.500	10	1985	2.60	2.32	2.04	1.76	1.47
28	10.500	4	1990	*	*	*	0.01	0.81
38	10.500	11	1992	2.14	0.11	0.22	1.11	2.53
48	10.500	2	1995	0.35	0.46	0.65	1.07	1.50
1	10.625	7	1985	0.08	0.07	0.06	0.04	0.03

POC for December 31, 1984 by Coupon (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
26	10.750	11	1989	0.68	0.57	0.46	0.35	0.69
58	10.750	2	2003	*	*	*	*	*
59	10.750	5	2003	*	*	*	*	*
15	10.875	2	1987	0.28	0.27	0.26	0.23	0.26
6	10.875	9	1985	0.03	0.03	0.03	0.02	0.02
60	11.125	8	2003	*	*	*	*	*
57	11.625	11	2002	*	*	*	*	*
46	11.625	11	1994	*	*	0.01	0.63	1.52
31	11.750	1	1991	*	*	*	0.04	0.24
9	11.750	11	1985	*	*	*	*	*
52	11.750	2	2001	*	*	*	*	*
61	11.875	11	2003	*	*	*	*	*
42	11.875	8	1993	*	0.13	0.31	1.12	2.81
25	11.875	10	1989	*	*	*	*	0.33
62	12.375	5	2004	*	*	*	*	*
32	12.375	4	1991	*	*	*	*	*
16	12.500	5	1987	0.11	0.10	0.09	0.08	0.17
50	12.625	5	1995	*	*	0.08	0.43	0.88
30	13.000	11	1990	*	*	*	*	0.65
43	13.125	5	1994	*	*	*	0.47	1.77
4	13.125	8	1985	*	*	*	*	*
53	13.125	5	2001	*	*	*	*	*
19	13.250	4	1988	*	*	*	0.30	0.82
54	13.375	8	2001	*	*	*	0.01	0.04
11	13.500	2	1986	0.11	0.11	0.10	0.10	0.09

POC for December 31, 1984 by Coupon (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
36	13.750	5	1992	*	*	*	0.36	1.78
63	13.750	8	2004	*	*	*	*	*
33	13.750	7	1991	*	*	0.03	0.10	0.89
17	14.000	5	1987	*	*	*	*	0.09
10	14.125	12	1985	0.26	0.23	0.20	0.17	0.14
56	14.250	2	2002	*	*	*	*	*
35	14.625	2	1992	0.11	0.13	0.15	0.38	1.62
23	14.625	1	1989	*	*	*	0.14	0.63
34	14.875	8	1991	*	*	*	0.04	1.04
22	15.375	10	1988	*	*	*	0.15	0.66
55	15.750	11	2001	0.42	0.33	0.26	0.23	0.29
5	15.875	9	1985	0.18	0.16	0.14	0.12	0.10
14	16.125	11	1986	*	*	*	*	0.01

POC for April 30, 1985 by Maturity

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
1	9.750	11	1985	0.04	0.04	0.03	0.03	0.02	0.02
2	11.750	11	1985	*	*	*	*	*	*
3	10.875	12	1985	0.13	0.12	0.11	0.09	0.08	0.07
4	14.125	12	1985	0.21	0.19	0.17	0.15	0.13	0.11
5	10.625	1	1986	0.09	0.09	0.08	0.07	0.06	0.05
6	9.875	2	1986	0.01	0.02	0.01	0.01	*	*
7	10.875	2	1986	0.10	0.10	0.08	0.07	0.06	0.05
8	13.500	2	1986	0.09	0.09	0.08	0.07	0.05	0.04
9	14.000	3	1986	0.47	0.43	0.38	0.33	0.28	0.23
10	11.750	4	1986	0.33	0.31	0.26	0.22	0.18	0.15
11	9.375	5	1986	0.28	0.28	0.25	0.22	0.19	0.16
12	6.125	11	1986	1.76	1.57	1.36	1.15	0.94	0.72
13	16.125	11	1986	*	0.01	*	*	*	*
14	10.875	2	1987	0.12	0.10	0.06	0.03	0.01	*
15	12.500	5	1987	0.32	0.29	0.24	0.20	0.17	0.14
16	14.000	5	1987	0.33	0.30	0.25	0.21	0.18	0.14
17	7.625	11	1987	1.18	1.00	0.80	0.61	0.43	0.24
18	13.250	4	1988	0.21	0.14	0.05	0.01	*	*
19	8.125	5	1988	1.06	0.89	0.70	0.54	0.39	0.23
20	10.500	8	1988	0.34	0.29	0.22	0.20	0.19	0.17
21	15.375	10	1988	0.13	0.07	0.01	*	*	*
22	14.625	1	1989	*	*	*	*	*	*
23	9.250	5	1989	0.84	0.82	0.78	0.71	0.63	0.53
24	11.875	10	1989	*	*	*	*	*	*
25	10.750	11	1989	0.82	0.80	0.80	0.79	0.75	0.69

POC for April 30, 1985 by Maturity (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
26	3.500	2	1990	23.04	20.84	18.63	16.39	14.07	11.68
27	10.500	4	1990	0.23	0.03	*	*	*	*
28	8.250	5	1990	2.84	2.34	1.89	1.45	1.01	0.54
29	13.000	11	1990	*	*	*	0.03	0.09	0.17
30	11.750	1	1991	0.10	0.01	*	*	*	*
31	12.375	4	1991	0.33	0.18	0.05	*	*	*
32	13.750	7	1991	*	*	*	*	*	0.28
33	14.875	8	1991	0.22	0.17	0.13	0.11	0.17	0.53
34	14.625	2	1992	0.16	0.08	0.08	0.26	0.79	1.57
35	13.750	5	1992	*	*	0.08	0.46	1.29	2.29
36	7.250	8	1992	*	*	*	*	*	*
37	10.500	11	1992	0.07	0.56	1.14	1.88	2.99	4.15
38	6.750	2	1993	0.20	*	*	*	*	*
39	10.125	5	1993	0.91	0.51	1.04	1.67	2.52	3.50
40	8.625	8	1993	*	*	*	*	*	*
41	11.875	8	1993	*	0.02	0.63	1.32	2.14	3.13
42	13.125	5	1994	*	*	0.42	1.19	1.99	2.92
43	8.750	8	1994	*	*	*	*	*	*
44	10.125	11	1994	0.43	0.73	1.17	1.60	2.02	2.42
45	11.625	11	1994	*	0.22	0.94	1.68	2.38	3.08
46	3.000	2	1995	31.45	27.92	24.15	21.34	18.82	16.14
47	10.500	2	1995	0.32	0.29	0.38	0.47	0.57	0.66
48	10.375	5	1995	*	*	*	*	*	*
49	12.625	5	1995	0.02	0.09	0.35	0.63	0.91	1.19
50	3.500	11	1998	29.18	25.74	21.78	18.05	14.22	9.98

POC for April 30, 1985 by Maturity (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
51	11.750	2	2001	*	*	*	*	*	*
52	13.125	5	2001	*	*	*	*	0.04	0.10
53	13.375	8	2001	*	*	*	*	*	*
54	15.750	11	2001	0.91	0.70	0.53	0.40	0.29	0.20
55	14.250	2	2002	*	*	*	*	*	*
56	11.625	11	2002	*	*	*	*	*	*
57	10.750	2	2003	*	*	*	*	*	*
58	10.750	5	2003	*	*	*	*	*	0.14
59	11.125	8	2003	*	*	*	*	*	*
60	11.875	11	2003	*	*	0.12	0.28	0.44	0.57
61	12.375	5	2004	*	*	*	*	0.06	0.12
62	13.750	8	2004	*	*	*	*	*	*
63	12.000	5	2005	*	*	*	*	*	*

POC for April 30, 1985 by Coupon

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
46	3.000	2	1995	31.45	27.92	24.15	21.34	18.82	16.14
26	3.500	2	1990	23.04	20.84	18.63	16.39	14.07	11.68
50	3.500	11	1998	29.18	25.74	21.78	18.05	14.22	9.98
12	6.125	11	1986	1.76	1.57	1.36	1.15	0.94	0.72
38	6.750	2	1993	0.20	*	*	*	*	*
36	7.250	8	1992	*	*	*	*	*	*
17	7.625	11	1987	1.18	1.00	0.80	0.61	0.43	0.24
19	8.125	5	1988	1.06	0.89	0.70	0.54	0.39	0.23
28	8.250	5	1990	2.84	2.34	1.89	1.45	1.01	0.54
40	8.625	8	1993	*	*	*	*	*	*
43	8.750	8	1994	*	*	*	*	*	*
23	9.250	5	1989	0.84	0.82	0.78	0.71	0.63	0.53
11	9.375	5	1986	0.28	0.28	0.25	0.22	0.19	0.16
1	9.750	11	1985	0.04	0.04	0.03	0.03	0.02	0.02
6	9.875	2	1986	0.01	0.02	0.01	0.01	*	*
39	10.125	5	1993	0.91	0.51	1.04	1.67	2.52	3.50
44	10.125	11	1994	0.43	0.73	1.17	1.60	2.02	2.42
48	10.375	5	1995	*	*	*	*	*	*
20	10.500	8	1988	0.34	0.29	0.22	0.20	0.19	0.17
47	10.500	2	1995	0.32	0.29	0.38	0.47	0.57	0.66
27	10.500	4	1990	0.23	0.03	*	*	*	*
37	10.500	11	1992	0.07	0.56	1.14	1.88	2.99	4.15
5	10.625	1	1986	0.09	0.09	0.08	0.07	0.06	0.05
58	10.750	5	2003	*	*	*	*	*	0.14
25	10.750	11	1989	0.82	0.80	0.80	0.79	0.75	0.69

POC for April 30, 1985 by Coupon (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
57	10.750	2	2003	*	*	*	*	*	*
3	10.875	12	1985	0.13	0.12	0.11	0.09	0.08	0.07
7	10.875	2	1986	0.10	0.10	0.08	0.07	0.06	0.05
14	10.875	2	1987	0.12	0.10	0.06	0.03	0.01	*
59	11.125	8	2003	*	*	*	*	*	*
56	11.625	11	2002	*	*	*	*	*	*
45	11.625	11	1994	*	0.22	0.94	1.68	2.38	3.08
10	11.750	4	1986	0.33	0.31	0.26	0.22	0.18	0.15
2	11.750	11	1985	*	*	*	*	*	*
30	11.750	1	1991	0.10	0.01	*	*	*	*
51	11.750	2	2001	*	*	*	*	*	*
24	11.875	10	1989	*	*	*	*	*	*
60	11.875	11	2003	*	*	0.12	0.28	0.44	0.57
41	11.875	8	1993	*	0.02	0.63	1.32	2.14	3.13
63	12.000	5	2005	*	*	*	*	*	*
61	12.375	5	2004	*	*	*	*	0.06	0.12
31	12.375	4	1991	0.33	0.18	0.05	*	*	*
15	12.500	5	1987	0.32	0.29	0.24	0.20	0.17	0.14
49	12.625	5	1995	0.02	0.09	0.35	0.63	0.91	1.19
29	13.000	11	1990	*	*	*	0.03	0.09	0.17
42	13.125	5	1994	*	*	0.42	1.19	1.99	2.92
52	13.125	5	2001	*	*	*	*	0.04	0.10
18	13.250	4	1988	0.21	0.14	0.05	0.01	*	*
53	13.375	8	2001	*	*	*	*	*	*
8	13.500	2	1986	0.09	0.09	0.08	0.07	0.05	0.04

POC for April 30, 1985 by Coupon (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
35	13.750	5	1992	*	*	0.08	0.46	1.29	2.29
32	13.750	7	1991	*	*	*	*	*	0.28
62	13.750	8	2004	*	*	*	*	*	*
9	14.000	3	1986	0.47	0.43	0.38	0.33	0.28	0.23
16	14.000	5	1987	0.33	0.30	0.25	0.21	0.18	0.14
4	14.125	12	1985	0.21	0.19	0.17	0.15	0.13	0.11
55	14.250	2	2002	*	*	*	*	*	*
34	14.625	2	1992	0.16	0.08	0.08	0.26	0.79	1.57
22	14.625	1	1989	*	*	*	*	*	*
33	14.875	8	1991	0.22	0.17	0.13	0.11	0.17	0.53
21	15.375	10	1988	0.13	0.07	0.01	*	*	*
54	15.750	11	2001	0.91	0.70	0.53	0.40	0.29	0.20
13	16.125	11	1986	*	0.01	*	*	*	*

POC for April 30, 1985 by Maturity

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
1	9.750	11	1985	0.04	0.03	0.03	0.02	0.02
2	11.750	11	1985	*	*	*	*	*
3	10.875	12	1985	0.12	0.11	0.09	0.08	0.07
4	14.125	12	1985	0.19	0.17	0.15	0.13	0.11
5	10.625	1	1986	0.09	0.08	0.07	0.06	0.05
6	9.875	2	1986	0.02	0.01	0.01	*	*
7	10.875	2	1986	0.10	0.08	0.07	0.06	0.05
8	13.500	2	1986	0.09	0.08	0.07	0.05	0.04
9	14.000	3	1986	0.43	0.38	0.33	0.28	0.23
10	11.750	4	1986	0.31	0.26	0.22	0.18	0.15
11	9.375	5	1986	0.28	0.25	0.22	0.19	0.16
12	6.125	11	1986	1.60	1.43	1.24	1.01	0.77
13	16.125	11	1986	0.01	*	*	*	*
14	10.875	2	1987	0.10	0.06	0.03	0.01	*
15	12.500	5	1987	0.29	0.24	0.20	0.17	0.14
16	14.000	5	1987	0.30	0.25	0.21	0.18	0.14
17	7.625	11	1987	1.06	0.92	0.77	0.56	0.33
18	13.250	4	1988	0.14	0.05	0.01	*	*
19	8.125	5	1988	0.95	0.83	0.71	0.52	0.32
20	10.500	8	1988	0.29	0.22	0.20	0.19	0.17
21	15.375	10	1988	0.07	0.01	*	*	*
22	14.625	1	1989	*	*	*	*	*
23	9.250	5	1989	0.82	0.78	0.74	0.63	0.53
24	11.875	10	1989	*	*	*	*	*
25	10.750	11	1989	0.80	0.79	0.76	0.73	0.68

POC for April 30, 1985 by Maturity (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
26	3.500	2	1990	21.01	18.95	16.82	14.41	11.91
27	10.500	4	1990	0.07	*	*	*	*
28	8.250	5	1990	2.49	2.16	1.82	1.30	0.74
29	13.000	11	1990	*	*	*	0.06	0.13
30	11.750	1	1991	0.01	*	*	*	*
31	12.375	4	1991	0.18	0.05	*	*	*
32	13.750	7	1991	*	*	*	*	0.10
33	14.875	8	1991	0.17	0.12	0.09	0.07	0.28
34	14.625	2	1992	0.08	0.01	*	0.20	1.02
35	13.750	5	1992	*	*	*	0.44	1.60
36	7.250	8	1992	*	*	*	*	*
37	10.500	11	1992	0.26	0.44	0.74	1.74	3.23
38	6.750	2	1993	0.05	*	*	*	*
39	10.125	5	1993	0.02	0.46	0.74	1.59	2.71
40	8.625	8	1993	*	*	*	*	*
41	11.875	8	1993	*	*	0.29	1.21	2.35
42	13.125	5	1994	*	*	0.15	1.14	2.23
43	8.750	8	1994	*	*	*	*	*
44	10.125	11	1994	0.52	0.71	0.27	1.48	2.03
45	11.625	11	1994	*	0.24	0.62	1.53	2.47
46	3.000	2	1995	28.08	24.49	21.79	19.17	16.39
47	10.500	2	1995	0.20	0.18	0.19	0.35	0.51
48	10.375	5	1995	*	*	*	*	*
49	12.625	5	1995	*	0.04	0.16	0.53	0.92
50	3.500	11	1998	25.87	22.05	18.40	14.51	10.19

POC for April 30, 1985 by Maturity (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
51	11.750	2	2001	*	*	*	*	*
52	13.125	5	2001	*	*	*	0.02	0.08
53	13.375	8	2001	*	*	*	*	*
54	15.750	11	2001	0.70	0.49	0.32	0.22	0.14
55	14.250	2	2002	*	*	*	*	*
56	11.625	11	2002	*	*	*	*	*
57	10.750	2	2003	*	*	*	*	*
58	10.750	5	2003	*	*	*	*	0.06
59	11.125	8	2003	*	*	*	*	2.03
60	11.875	11	2003	*	0.09	0.23	0.39	0.53
61	12.375	5	2004	*	*	*	0.03	0.10
62	13.750	8	2004	*	*	*	*	*
63	12.000	5	2005	*	*	*	*	*

POC for April 30, 1985 by Coupon

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
46	3.000	2	1995	28.08	24.49	21.79	19.17	16.39
26	3.500	2	1990	21.01	18.95	16.82	14.41	11.91
50	3.500	11	1998	25.87	22.05	18.40	14.51	10.19
12	6.125	11	1986	1.60	1.43	1.24	1.01	0.77
38	6.750	2	1993	0.05	*	*	*	*
36	7.250	8	1992	*	*	*	*	*
17	7.625	11	1987	1.06	0.92	0.77	0.56	0.33
19	8.125	5	1988	0.95	0.83	0.71	0.52	0.32
28	8.250	5	1990	2.49	2.16	1.82	1.30	0.74
40	8.625	8	1993	*	*	*	*	*
43	8.750	8	1994	*	*	*	*	*
23	9.250	5	1989	0.82	0.78	0.74	0.63	0.53
11	9.375	5	1986	0.28	0.25	0.22	0.19	0.16
1	9.750	11	1985	0.04	0.03	0.03	0.02	0.02
6	9.875	2	1986	0.02	0.01	0.01	*	*
39	10.125	5	1993	0.02	0.46	0.74	1.59	2.71
44	10.125	11	1994	0.52	0.71	0.27	1.48	2.03
48	10.375	5	1995	*	*	*	*	*
20	10.500	8	1988	0.29	0.22	0.20	0.19	0.17
47	10.500	2	1995	0.20	0.18	0.19	0.35	0.51
27	10.500	4	1990	0.07	*	*	*	*
37	10.500	11	1992	0.26	0.44	0.74	1.74	3.23
5	10.625	1	1986	0.09	0.08	0.07	0.06	0.05
58	10.750	5	2003	*	*	*	*	0.06
25	10.750	11	1989	0.80	0.79	0.76	0.73	0.68

POC for April 30, 1985 by Coupon (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
57	10.750	2	2003	*	*	*	*	*
3	10.875	12	1985	0.12	0.11	0.09	0.08	0.07
7	10.875	2	1986	0.10	0.08	0.07	0.06	0.05
14	10.875	2	1987	0.10	0.06	0.03	0.01	*
59	11.125	8	2003	*	*	*	*	2.03
56	11.625	11	2002	*	*	*	*	*
45	11.625	11	1994	*	0.24	0.62	1.53	2.47
10	11.750	4	1986	0.31	0.26	0.22	0.18	0.15
2	11.750	11	1985	*	*	*	*	*
30	11.750	1	1991	0.01	*	*	*	*
51	11.750	2	2001	*	*	*	*	*
24	11.875	10	1989	*	*	*	*	*
60	11.875	11	2003	*	0.09	0.23	0.39	0.53
41	11.875	8	1993	*	*	0.29	1.21	2.35
63	12.000	5	2005	*	*	*	*	*
61	12.375	5	2004	*	*	*	0.03	0.10
31	12.375	4	1991	0.18	0.05	*	*	*
15	12.500	5	1987	0.29	0.24	0.20	0.17	0.14
49	12.625	5	1995	*	0.04	0.16	0.53	0.92
29	13.000	11	1990	*	*	*	0.06	0.13
42	13.125	5	1994	*	*	0.15	1.14	2.23
52	13.125	5	2001	*	*	*	0.02	0.08
18	13.250	4	1988	0.14	0.05	0.01	*	*
53	13.375	8	2001	*	*	*	*	*
8	13.500	2	1986	0.09	0.08	0.07	0.05	0.04

POC for April 30, 1985 by Coupon (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
35	13.750	5	1992	*	*	*	0.44	1.60
32	13.750	7	1991	*	*	*	*	0.10
62	13.750	8	2004	*	*	*	*	*
9	14.000	3	1986	0.43	0.38	0.33	0.28	0.23
16	14.000	5	1987	0.30	0.25	0.21	0.18	0.14
4	14.125	12	1985	0.19	0.17	0.15	0.13	0.11
55	14.250	2	2002	*	*	*	*	*
34	14.625	2	1992	0.08	0.01	*	0.20	1.02
22	14.625	1	1989	*	*	*	*	*
33	14.875	8	1991	0.17	0.12	0.09	0.07	0.28
21	15.375	10	1988	0.07	0.01	*	*	*
54	15.750	11	2001	0.70	0.49	0.32	0.22	0.14
13	16.125	11	1986	0.01	*	*	*	*

POC for August 30, 1985 by Maturity

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
1	11.500	3	1986	0.10	0.09	0.07	0.05	0.03	0.01
2	14.000	3	1986	0.23	0.20	0.17	0.14	0.11	0.08
3	11.750	4	1986	0.12	0.11	0.09	0.07	0.05	0.03
4	7.875	5	1986	0.10	0.09	0.08	0.07	0.06	0.05
5	9.375	5	1986	*	*	*	*	*	*
6	13.000	6	1986	0.26	0.24	0.21	0.18	0.16	0.13
7	14.875	6	1986	0.94	0.85	0.76	0.66	0.57	0.48
8	8.000	8	1986	0.15	0.14	0.12	0.11	0.09	0.08
9	11.375	8	1986	*	*	*	*	*	*
10	12.375	8	1986	0.06	0.05	0.05	0.04	0.04	0.03
11	6.125	11	1986	1.36	1.23	1.10	0.97	0.83	0.70
12	11.000	11	1986	*	*	*	*	*	0.01
13	16.125	11	1986	0.45	0.40	0.36	0.32	0.28	0.24
14	10.875	2	1987	0.01	*	*	*	*	*
15	12.500	5	1987	0.93	0.84	0.75	0.66	0.57	0.48
16	14.000	5	1987	*	*	*	*	*	*
17	7.625	11	1987	0.92	0.83	0.74	0.64	0.54	0.43
18	13.250	4	1988	0.13	0.11	0.10	0.07	0.05	0.02
19	8.125	5	1988	1.39	1.26	1.12	0.98	2.70	0.68
20	10.500	8	1988	0.58	0.49	0.41	0.34	0.26	0.19
21	15.375	10	1988	*	*	*	*	*	*
22	14.625	1	1989	*	*	*	*	*	*
23	9.250	5	1989	1.39	1.27	1.14	1.00	0.85	0.69
24	11.875	10	1989	*	*	*	*	*	*
25	10.750	11	1989	0.28	0.24	0.20	0.16	0.12	0.08

POC for August 30, 1985 by Maturity (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
26	3.500	2	1990	15.35	13.54	11.68	9.77	7.79	5.76
27	10.500	4	1990	*	*	*	*	*	*
28	8.250	5	1990	3.89	3.53	3.16	2.78	2.37	1.94
29	13.000	11	1990	0.68	0.62	0.57	0.52	0.46	0.40
30	11.750	1	1991	0.02	*	*	*	*	*
31	12.375	4	1991	0.95	0.89	0.83	0.75	0.67	0.58
32	13.750	7	1991	*	*	*	*	*	*
33	14.875	8	1991	0.06	0.02	*	*	*	0.05
34	14.625	2	1992	0.31	0.23	0.16	0.10	0.37	0.76
35	13.750	5	1992	*	*	*	*	0.48	1.13
36	7.250	8	1992	*	*	*	*	*	*
37	10.500	11	1992	0.04	0.40	0.78	1.19	1.97	2.95
38	6.750	2	1993	*	*	*	*	*	*
39	10.125	5	1993	0.28	0.62	0.99	1.37	2.06	3.15
40	8.625	8	1993	*	*	*	*	*	0.47
41	11.875	8	1993	0.02	0.14	0.29	0.59	1.16	2.21
42	13.125	5	1994	*	*	*	0.05	0.64	1.46
43	8.750	8	1994	*	*	*	*	*	*
44	10.125	11	1994	1.19	1.39	1.59	1.78	1.97	2.20
45	11.625	11	1994	*	*	0.10	0.49	0.96	1.44
46	3.000	2	1995	24.45	21.35	18.08	14.69	11.26	8.94
47	10.500	2	1995	0.16	0.18	0.22	0.27	0.34	0.46
48	10.375	5	1995	*	*	*	*	*	*
49	12.625	5	1995	*	*	*	*	*	*
50	3.500	11	1998	21.63	18.27	14.43	10.03	4.93	0.94

POC for August 30, 1985 by Maturity (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
51	11.750	2	2001	*	*	*	*	*	*
52	13.125	5	2001	*	*	*	0.03	0.12	0.18
53	13.375	8	2001	0.12	0.04	*	*	*	*
54	15.750	11	2001	*	*	*	*	*	*
55	14.250	2	2002	*	*	*	*	*	*
56	11.625	11	2002	*	*	*	*	*	*
57	10.750	2	2003	*	*	*	*	*	*
58	10.750	5	2003	*	*	*	*	*	0.10
59	11.125	8	2003	*	*	*	*	*	*
60	11.875	11	2003	*	*	*	0.06	0.15	0.22
61	12.375	5	2004	*	*	*	*	*	*
62	13.750	8	2004	*	*	*	*	*	*
63	12.000	5	2005	*	*	*	*	*	*

POC for August 30, 1985 by Coupon

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
46	3.000	2	1995	24.45	21.35	18.08	14.69	11.26	8.94
26	3.500	2	1990	15.35	13.54	11.68	9.77	7.79	5.76
50	3.500	11	1998	21.63	18.27	14.43	10.03	4.93	0.94
11	6.125	11	1986	1.36	1.23	1.10	0.97	0.83	0.70
38	6.750	2	1993	*	*	*	*	*	*
36	7.250	8	1992	*	*	*	*	*	*
17	7.625	11	1987	0.92	0.83	0.74	0.64	0.54	0.43
4	7.875	5	1986	0.10	0.09	0.08	0.07	0.06	0.05
8	8.000	8	1986	0.15	0.14	0.12	0.11	0.09	0.08
19	8.125	5	1988	1.39	1.26	1.12	0.98	2.70	0.68
28	8.250	5	1990	3.89	3.53	3.16	2.78	2.37	1.94
40	8.625	8	1993	*	*	*	*	*	0.47
43	8.750	8	1994	*	*	*	*	*	*
23	9.250	5	1989	1.39	1.27	1.14	1.00	0.85	0.69
5	9.375	5	1986	*	*	*	*	*	*
39	10.125	5	1993	0.28	0.62	0.99	1.37	2.06	3.15
44	10.125	11	1994	1.19	1.39	1.59	1.78	1.97	2.20
48	10.375	5	1995	*	*	*	*	*	*
47	10.500	2	1995	0.16	0.18	0.22	0.27	0.34	0.46
37	10.500	11	1992	0.04	0.40	0.78	1.19	1.97	2.95
27	10.500	4	1990	*	*	*	*	*	*
20	10.500	8	1988	0.58	0.49	0.41	0.34	0.26	0.19
25	10.750	11	1989	0.28	0.24	0.20	0.16	0.12	0.08
58	10.750	5	2003	*	*	*	*	*	0.10
57	10.750	2	2003	*	*	*	*	*	*

POC for August 30, 1985 by Coupon (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
14	10.875	2	1987	0.01	*	*	*	*	*
12	11.000	11	1986	*	*	*	*	*	0.01
59	11.125	8	2003	*	*	*	*	*	*
9	11.375	8	1986	*	*	*	*	*	*
1	11.500	3	1986	0.10	0.09	0.07	0.05	0.03	0.01
56	11.625	11	2002	*	*	*	*	*	*
45	11.625	11	1994	*	*	0.10	0.49	0.96	1.44
30	11.750	1	1991	0.02	*	*	*	*	*
3	11.750	4	1986	0.12	0.11	0.09	0.07	0.05	0.03
51	11.750	2	2001	*	*	*	*	*	*
24	11.875	10	1989	*	*	*	*	*	*
60	11.875	11	2003	*	*	*	0.06	0.15	0.22
41	11.875	8	1993	0.02	0.14	0.29	0.59	1.16	2.21
63	12.000	5	2005	*	*	*	*	*	*
10	12.375	8	1986	0.06	0.05	0.05	0.04	0.04	0.03
31	12.375	4	1991	0.95	0.89	0.83	0.75	0.67	0.58
61	12.375	5	2004	*	*	*	*	*	*
15	12.500	5	1987	0.93	0.84	0.75	0.66	0.57	0.48
49	12.625	5	1995	*	*	*	*	*	*
6	13.000	6	1986	0.26	0.24	0.21	0.18	0.16	0.13
29	13.000	11	1990	0.68	0.62	0.57	0.52	0.46	0.40
52	13.125	5	2001	*	*	*	0.03	0.12	0.18
42	13.125	5	1994	*	*	*	0.05	0.64	1.46
18	13.250	4	1988	0.13	0.11	0.10	0.07	0.05	0.02
53	13.375	8	2001	0.12	0.04	*	*	*	*

POC for August 30, 1985 by Coupon (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
32	13.750	7	1991	*	*	*	*	*	*
35	13.750	5	1992	*	*	*	*	0.48	1.13
62	13.750	8	2004	*	*	*	*	*	*
2	14.000	3	1986	0.23	0.20	0.17	0.14	0.11	0.08
16	14.000	5	1987	*	*	*	*	*	*
55	14.250	2	2002	*	*	*	*	*	*
22	14.625	1	1989	*	*	*	*	*	*
34	14.625	2	1992	0.31	0.23	0.16	0.10	0.37	0.76
7	14.875	6	1986	0.94	0.85	0.76	0.66	0.57	0.48
33	14.875	8	1991	0.06	0.02	*	*	*	0.05
21	15.375	10	1988	*	*	*	*	*	*
54	15.750	11	2001	*	*	*	*	*	*
13	16.125	11	1986	0.45	0.40	0.36	0.32	0.28	0.24

POC for August 30, 1985 by Maturity

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
1	11.500	3	1986	0.09	0.07	0.05	0.03	0.01
2	14.000	3	1986	0.20	0.17	0.14	0.11	0.08
3	11.750	4	1986	0.11	0.09	0.07	0.05	0.03
4	7.875	5	1986	0.09	0.08	0.07	0.06	0.05
5	9.375	5	1986	*	*	*	*	*
6	13.000	6	1986	0.24	0.21	0.18	0.16	0.13
7	14.875	6	1986	0.85	0.76	0.76	0.57	0.48
8	8.000	8	1986	0.14	0.12	0.12	0.09	0.08
9	11.375	8	1986	*	*	*	*	*
10	12.375	8	1986	0.05	0.05	0.04	0.04	0.03
11	6.125	11	1986	1.23	1.10	0.97	0.83	0.70
12	11.000	11	1986	*	*	*	*	0.01
13	16.125	11	1986	0.40	0.36	0.32	0.28	0.24
14	10.875	2	1987	*	*	*	*	*
15	12.500	5	1987	0.84	0.75	0.66	0.57	0.48
16	14.000	5	1987	*	*	*	*	*
17	7.625	11	1987	0.83	0.74	0.64	0.54	0.43
18	13.250	4	1988	0.11	0.10	0.07	0.05	0.02
19	8.125	5	1988	1.26	1.12	0.98	0.83	0.68
20	10.500	8	1988	0.49	0.41	0.34	0.26	0.19
21	15.375	10	1988	*	*	*	*	*
22	14.625	1	1989	*	*	*	*	*
23	9.250	5	1989	1.27	1.14	1.00	0.85	0.69
24	11.875	10	1989	*	*	*	*	*
25	10.750	11	1989	0.24	0.20	0.16	0.12	0.08

POC for August 30, 1985 by Maturity (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
26	3.500	2	1990	13.90	12.44	10.81	8.61	6.33
27	10.500	4	1990	*	*	*	*	*
28	8.250	5	1990	3.53	3.16	2.78	2.37	1.94
29	13.000	11	1990	0.62	0.57	0.52	0.46	0.40
30	11.750	1	1991	*	*	*	*	*
31	12.375	4	1991	0.89	0.83	0.75	0.67	0.58
32	13.750	7	1991	*	*	*	*	*
33	14.875	8	1991	0.02	*	*	*	*
34	14.625	2	1992	0.23	0.16	0.10	0.06	0.46
35	13.750	5	1992	*	*	*	*	0.68
36	7.250	8	1992	*	*	*	*	*
37	10.500	11	1992	0.16	0.27	0.46	1.05	2.19
38	6.750	2	1993	*	*	*	*	*
39	10.125	5	1993	0.41	0.52	0.70	1.24	2.32
40	8.625	8	1993	*	*	*	*	0.14
41	11.875	8	1993	0.02	0.03	0.09	0.50	1.44
42	13.125	5	1994	*	*	*	0.06	0.92
43	8.750	8	1994	*	*	*	*	*
44	10.125	11	1994	1.24	1.26	1.31	1.81	1.89
45	11.625	11	1994	*	*	0.04	0.46	1.08
46	3.000	2	1995	21.68	18.80	15.73	12.10	9.52
47	10.500	2	1995	0.11	0.06	0.04	0.16	0.31
48	10.375	5	1995	*	*	*	*	*
49	12.625	5	1995	*	*	*	*	*
50	3.500	11	1998	18.53	15.01	10.86	5.61	1.43

POC for August 30, 1985 by Maturity (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
51	11.750	2	2001	*	*	*	*	*
52	13.125	5	2001	*	*	0.02	0.11	0.18
53	13.375	8	2001	0.04	*	*	*	*
54	15.750	11	2001	*	*	*	*	*
55	14.250	2	2002	*	*	*	*	*
56	11.625	11	2002	*	*	*	*	*
57	10.750	2	2003	*	*	*	*	*
58	10.750	5	2003	*	*	*	*	0.10
59	11.125	8	2003	*	*	*	*	*
60	11.875	11	2003	*	*	0.06	0.15	0.22
61	12.375	5	2004	*	*	*	*	*
62	13.750	8	2004	*	*	*	*	*
63	12.000	5	2005	*	*	*	*	*

POC for August 30, 1985 by Coupon

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
46	3.000	2	1995	21.68	18.80	15.73	12.10	9.52
26	3.500	2	1990	13.90	12.44	10.81	8.61	6.33
50	3.500	11	1998	18.53	15.01	10.86	5.61	1.43
11	6.125	11	1986	1.23	1.10	0.97	0.83	0.70
38	6.750	2	1993	*	*	*	*	*
36	7.250	8	1992	*	*	*	*	*
17	7.625	11	1987	0.83	0.74	0.64	0.54	0.43
4	7.875	5	1986	0.09	0.08	0.07	0.06	0.05
8	8.000	8	1986	0.14	0.12	0.12	0.09	0.08
19	8.125	5	1988	1.26	1.12	0.98	0.83	0.68
28	8.250	5	1990	3.53	3.16	2.78	2.37	1.94
40	8.625	8	1993	*	*	*	*	0.14
43	8.750	8	1994	*	*	*	*	*
23	9.250	5	1989	1.27	1.14	1.00	0.85	0.69
5	9.375	5	1986	*	*	*	*	*
39	10.125	5	1993	0.41	0.52	0.70	1.24	2.32
44	10.125	11	1994	1.24	1.26	1.31	1.81	1.89
48	10.375	5	1995	*	*	*	*	*
47	10.500	2	1995	0.11	0.06	0.04	0.16	0.31
37	10.500	11	1992	0.16	0.27	0.46	1.05	2.19
27	10.500	4	1990	*	*	*	*	*
20	10.500	8	1988	0.49	0.41	0.34	0.26	0.19
25	10.750	11	1989	0.24	0.20	0.16	0.12	0.08
58	10.750	5	2003	*	*	*	*	0.10
57	10.750	2	2003	*	*	*	*	*

POC for August 30, 1985 by Coupon (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
14	10.875	2	1987	*	*	*	*	*
12	11.000	11	1986	*	*	*	*	0.01
59	11.125	8	2003	*	*	*	*	*
9	11.375	8	1986	*	*	*	*	*
1	11.500	3	1986	0.09	0.07	0.05	0.03	0.01
56	11.625	11	2002	*	*	*	*	*
45	11.625	11	1994	*	*	0.04	0.46	1.08
30	11.750	1	1991	*	*	*	*	*
3	11.750	4	1986	0.11	0.09	0.07	0.05	0.03
51	11.750	2	2001	*	*	*	*	*
24	11.875	10	1989	*	*	*	*	*
60	11.875	11	2003	*	*	0.06	0.15	0.22
41	11.875	8	1993	0.02	0.03	0.09	0.50	1.44
63	12.000	5	2005	*	*	*	*	*
10	12.375	8	1986	0.05	0.05	0.04	0.04	0.03
31	12.375	4	1991	0.89	0.83	0.75	0.67	0.58
61	12.375	5	2004	*	*	*	*	*
15	12.500	5	1987	0.84	0.75	0.66	0.57	0.48
49	12.625	5	1995	*	*	*	*	*
6	13.000	6	1986	0.24	0.21	0.18	0.16	0.13
29	13.000	11	1990	0.62	0.57	0.52	0.46	0.40
52	13.125	5	2001	*	*	0.02	0.11	0.18
42	13.125	5	1994	*	*	*	0.06	0.92
18	13.250	4	1988	0.11	0.10	0.07	0.05	0.02
53	13.375	8	2001	0.04	*	*	*	*

POC for August 30, 1985 by Coupon (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
32	13.750	7	1991	*	*	*	*	*
35	13.750	5	1992	*	*	*	*	0.68
62	13.750	8	2004	*	*	*	*	*
2	14.000	3	1986	0.20	0.17	0.14	0.11	0.08
16	14.000	5	1987	*	*	*	*	*
55	14.250	2	2002	*	*	*	*	*
22	14.625	1	1989	*	*	*	*	*
34	14.625	2	1992	0.23	0.16	0.10	0.06	0.46
7	14.875	6	1986	0.85	0.76	0.76	0.57	0.48
33	14.875	8	1991	0.02	*	*	*	*
21	15.375	10	1988	*	*	*	*	*
54	15.750	11	2001	*	*	*	*	*
13	16.125	11	1986	0.40	0.36	0.32	0.28	0.24

POC for December 31, 1985 by Maturity

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
1	8.000	8	1986	*	*	*	*	*	*
2	11.375	8	1986	0.05	0.05	0.04	0.04	0.03	0.03
3	12.375	8	1986	0.16	0.15	0.13	0.12	0.10	0.08
4	12.250	9	1986	0.11	0.10	0.09	0.08	0.07	0.05
5	11.625	10	1986	0.12	0.11	0.10	*	0.07	0.06
6	6.125	11	1986	1.59	1.44	1.28	1.13	0.97	0.81
7	11.000	11	1986	*	*	*	*	*	*
8	13.875	11	1986	0.02	0.02	0.02	0.01	0.01	0.01
9	16.125	11	1986	0.06	0.05	0.05	0.04	0.03	0.03
10	9.875	12	1986	0.20	0.18	0.16	0.14	0.12	0.10
11	10.875	2	1987	0.10	0.09	0.09	0.08	0.07	0.06
12	10.750	3	1987	0.19	0.18	0.16	0.14	0.12	0.10
13	12.500	5	1987	0.28	0.25	0.21	0.18	0.15	0.12
14	14.000	5	1987	0.32	0.28	0.25	0.21	0.17	0.14
15	13.750	8	1987	0.19	0.17	0.15	0.12	0.10	0.08
16	7.625	11	1987	0.38	0.33	0.27	0.22	0.17	0.13
17	7.875	12	1987	0.23	0.19	0.14	0.09	0.06	0.04
18	13.250	4	1988	0.12	0.08	0.05	0.01	*	*
19	8.125	5	1988	0.75	0.65	0.56	0.46	0.38	0.32
20	10.500	8	1988	0.11	0.09	0.06	0.04	0.03	0.03
21	15.375	10	1988	0.09	0.06	0.03	*	*	*
22	14.625	1	1989	*	*	*	*	*	*
23	9.250	5	1989	0.60	0.52	0.44	0.37	0.29	0.21
24	11.875	10	1989	*	*	*	*	*	*
25	10.750	11	1989	0.22	0.19	0.16	0.13	0.10	0.07

POC for December 31, 1985 by Maturity (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
26	3.500	2	1990	10.20	8.94	7.65	6.32	4.94	3.51
27	10.500	4	1990	*	*	*	*	*	*
28	8.250	5	1990	3.49	3.17	2.85	2.50	2.15	1.78
29	13.000	11	1990	*	*	*	*	*	*
30	11.750	1	1991	0.06	0.08	0.08	0.08	0.07	0.05
31	12.375	4	1991	*	*	*	*	*	*
32	13.750	7	1991	*	*	*	*	*	*
33	14.875	8	1991	0.06	0.04	0.02	0.01	0.01	0.02
34	14.625	2	1992	0.05	0.06	0.07	0.07	0.08	0.08
35	13.750	5	1992	*	*	*	*	*	*
36	7.250	8	1992	*	*	*	*	*	*
37	10.500	11	1992	*	*	*	0.10	0.33	0.60
38	6.750	2	1993	*	*	*	*	*	*
39	10.125	5	1993	*	*	*	0.05	0.30	0.65
40	8.625	8	1993	0.18	0.39	0.59	0.79	1.01	1.22
41	11.875	8	1993	*	*	*	*	0.15	0.39
42	13.125	5	1994	*	*	*	*	*	*
43	8.750	8	1994	*	*	*	*	*	*
44	10.125	11	1994	0.71	0.60	0.51	0.41	0.33	0.25
45	11.625	11	1994	*	*	*	*	*	*
46	3.000	2	1995	18.47	15.96	13.34	10.63	7.88	5.98
47	10.500	2	1995	*	*	*	*	*	*
48	10.375	5	1995	*	*	*	*	*	*
49	12.625	5	1995	*	*	*	*	*	*
50	3.500	11	1998	13.90	10.49	6.70	*	*	*

POC for December 31, 1985 by Maturity (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
51	11.750	2	2001	*	*	*	*	*	*
52	13.125	5	2001	*	*	*	*	*	*
53	13.375	8	2001	*	*	*	*	*	*
54	15.750	11	2001	0.27	0.20	0.17	0.13	0.10	0.06
55	14.250	2	2002	0.40	0.32	0.24	0.17	0.12	0.08
56	11.625	11	2002	*	*	*	*	*	*
57	10.750	2	2003	*	*	*	*	*	*
58	10.750	5	2003	*	*	*	*	*	*
59	11.125	8	2003	*	*	*	*	0.01	0.10
60	11.875	11	2003	*	*	*	*	*	*
61	12.375	5	2004	*	*	*	*	*	*
62	13.750	8	2004	*	*	*	*	*	*
63	12.000	5	2005	*	*	*	*	*	*

POC for December 31, 1985 by Coupon

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
46	3.000	2	1995	18.47	15.96	13.34	10.63	7.88	5.98
26	3.500	2	1990	10.20	8.94	7.65	6.32	4.94	3.51
50	3.500	11	1998	13.90	10.49	6.70	*	*	*
6	6.125	11	1986	1.59	1.44	1.28	1.13	0.97	0.81
38	6.750	2	1993	*	*	*	*	*	*
36	7.250	8	1992	*	*	*	*	*	*
16	7.625	11	1987	0.38	0.33	0.27	0.22	0.17	0.13
17	7.875	12	1987	0.23	0.19	0.14	0.09	0.06	0.04
1	8.000	8	1986	*	*	*	*	*	*
19	8.125	5	1988	0.75	0.65	0.56	0.46	0.38	0.32
28	8.250	5	1990	3.49	3.17	2.85	2.50	2.15	1.78
40	8.625	8	1993	0.18	0.39	0.59	0.79	1.01	1.22
43	8.750	8	1994	*	*	*	*	*	*
23	9.250	5	1989	0.60	0.52	0.44	0.37	0.29	0.21
10	9.875	12	1986	0.20	0.18	0.16	0.14	0.12	0.10
44	10.125	11	1994	0.71	0.60	0.51	0.41	0.33	0.25
39	10.125	5	1993	*	*	*	0.05	0.30	0.65
48	10.375	5	1995	*	*	*	*	*	*
20	10.500	8	1988	0.11	0.09	0.06	0.04	0.03	0.03
37	10.500	11	1992	*	*	*	0.10	0.33	0.60
27	10.500	4	1990	*	*	*	*	*	*
47	10.500	2	1995	*	*	*	*	*	*
57	10.750	2	2003	*	*	*	*	*	*
25	10.750	11	1989	0.22	0.19	0.16	0.13	0.10	0.07
12	10.750	3	1987	0.19	0.18	0.16	0.14	0.12	0.10

POC for December 31, 1985 by Coupon (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
58	10.750	5	2003	*	*	*	*	*	*
11	10.875	2	1987	0.10	0.09	0.09	0.08	0.07	0.06
7	11.000	11	1986	*	*	*	*	*	*
59	11.125	8	2003	*	*	*	*	0.01	0.10
2	11.375	8	1986	0.05	0.05	0.04	0.04	0.03	0.03
56	11.625	11	2002	*	*	*	*	*	*
45	11.625	11	1994	*	*	*	*	*	*
5	11.625	10	1986	0.12	0.11	0.10	*	0.07	0.06
30	11.750	1	1991	0.06	0.08	0.08	0.08	0.07	0.05
51	11.750	2	2001	*	*	*	*	*	*
60	11.875	11	2003	*	*	*	*	*	*
24	11.875	10	1989	*	*	*	*	*	*
41	11.875	8	1993	*	*	*	*	0.15	0.39
63	12.000	5	2005	*	*	*	*	*	*
4	12.250	9	1986	0.11	0.10	0.09	0.08	0.07	0.05
3	12.375	8	1986	0.16	0.15	0.13	0.12	0.10	0.08
31	12.375	4	1991	*	*	*	*	*	*
61	12.375	5	2004	*	*	*	*	*	*
13	12.500	5	1987	0.28	0.25	0.21	0.18	0.15	0.12
49	12.625	5	1995	*	*	*	*	*	*
29	13.000	11	1990	*	*	*	*	*	*
42	13.125	5	1994	*	*	*	*	*	*
52	13.125	5	2001	*	*	*	*	*	*
18	13.250	4	1988	0.12	0.08	0.05	0.01	*	*
53	13.375	8	2001	*	*	*	*	*	*

POC for December 31, 1985 by Coupon (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
15	13.750	8	1987	0.19	0.17	0.15	0.12	0.10	0.08
32	13.750	7	1991	*	*	*	*	*	*
35	13.750	5	1992	*	*	*	*	*	*
62	13.750	8	2004	*	*	*	*	*	*
8	13.875	11	1986	0.02	0.02	0.02	0.01	0.01	0.01
14	14.000	5	1987	0.32	0.28	0.25	0.21	0.17	0.14
55	14.250	2	2002	0.40	0.32	0.24	0.17	0.12	0.08
34	14.625	2	1992	0.05	0.06	0.07	0.07	0.08	0.08
22	14.625	1	1989	*	*	*	*	*	*
33	14.875	8	1991	0.06	0.04	0.02	0.01	0.01	0.02
21	15.375	10	1988	0.09	0.06	0.03	*	*	*
54	15.750	11	2001	0.27	0.20	0.17	0.13	0.10	0.06
9	16.125	11	1986	0.06	0.05	0.05	0.04	0.03	0.03

POC for December 31, 1985 by Maturity

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
1	8.000	8	1986	*	*	*	*	*
2	11.375	8	1986	0.05	0.04	0.04	0.31	0.03
3	12.375	8	1986	0.15	0.13	0.12	0.10	0.08
4	12.250	9	1986	0.10	0.09	0.08	0.07	0.05
5	11.625	10	1986	0.11	0.10	0.08	0.07	0.06
6	6.125	11	1986	1.44	1.28	1.13	0.97	0.81
7	11.000	11	1986	*	*	*	*	*
8	13.875	11	1986	0.02	0.02	0.01	0.01	0.01
9	16.125	11	1986	0.05	0.05	0.04	0.03	0.03
10	9.875	12	1986	0.18	0.16	0.14	0.12	0.10
11	10.875	2	1987	0.09	0.09	0.08	0.07	0.06
12	10.750	3	1987	0.18	0.16	0.14	0.12	0.10
13	12.500	5	1987	0.25	0.21	0.18	0.15	0.12
14	14.000	5	1987	0.28	0.25	0.21	0.17	0.14
15	13.750	8	1987	0.17	0.15	0.12	0.10	0.08
16	7.625	11	1987	0.33	0.27	0.22	0.17	0.13
17	7.875	12	1987	0.19	0.14	0.09	0.06	0.04
18	13.250	4	1988	0.08	0.05	0.01	*	*
19	8.125	5	1988	0.65	0.56	0.46	0.38	0.32
20	10.500	8	1988	0.09	0.06	0.04	0.03	0.03
21	15.375	10	1988	0.06	0.03	*	*	*
22	14.625	1	1989	*	*	*	*	*
23	9.250	5	1989	0.52	0.44	0.37	0.29	0.21
24	11.875	10	1989	*	*	*	*	*
25	10.750	11	1989	0.19	0.16	0.13	0.10	0.07

POC for December 31, 1985 by Maturity (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
26	3.500	2	1990	9.25	8.28	7.19	5.62	3.98
27	10.500	4	1990	*	*	*	*	*
28	8.250	5	1990	3.17	2.85	2.50	2.15	1.78
29	13.000	11	1990	*	*	*	*	*
30	11.750	1	1991	0.08	0.08	0.08	0.07	0.05
31	12.375	4	1991	*	*	*	*	*
32	13.750	7	1991	*	*	*	*	*
33	14.875	8	1991	0.04	0.02	0.01	0.01	0.02
34	14.625	2	1992	0.06	0.07	0.07	0.08	0.08
35	13.750	5	1992	*	*	*	*	*
36	7.250	8	1992	*	*	*	*	*
37	10.500	11	1992	*	*	*	0.02	0.38
38	6.750	2	1993	*	*	*	*	*
39	10.125	5	1993	*	*	0.07	*	0.35
40	8.625	8	1993	0.20	0.19	0.24	0.57	0.92
41	11.875	8	1993	*	*	*	*	0.19
42	13.125	5	1994	*	*	*	*	*
43	8.750	8	1994	*	*	*	*	*
44	10.125	11	1994	0.60	0.50	0.41	0.32	0.24
45	11.625	11	1994	*	*	*	*	*
46	3.000	2	1995	16.24	13.93	11.47	8.55	6.38
47	10.500	2	1995	*	*	*	*	*
48	10.375	5	1995	*	*	*	*	*
49	12.625	5	1995	*	*	*	*	*
50	3.500	11	1998	10.80	7.35	3.38	*	*

POC for December 31, 1985 by Maturity (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
51	11.750	2	2001	*	*	*	*	*
52	13.125	5	2001	*	*	*	*	*
53	13.375	8	2001	*	*	*	*	*
54	15.750	11	2001	0.20	0.17	0.13	0.10	0.06
55	14.250	2	2002	0.32	0.24	0.17	0.12	0.08
56	11.625	11	2002	*	*	*	*	*
57	10.750	2	2003	*	*	*	*	*
58	10.750	5	2003	*	*	*	*	*
59	11.125	8	2003	*	*	*	0.01	0.10
60	11.875	11	2003	*	*	*	*	*
61	12.375	5	2004	*	*	*	*	*
62	13.750	8	2004	*	*	*	*	*
63	12.000	5	2005	*	*	*	*	*

POC for December 31, 1985 by Coupon

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
46	3.000	2	1995	16.24	13.93	11.47	8.55	6.38
26	3.500	2	1990	9.25	8.28	7.19	5.62	3.98
50	3.500	11	1998	10.80	7.35	3.38	*	*
6	6.125	11	1986	1.44	1.28	1.13	0.97	0.81
38	6.750	2	1993	*	*	*	*	*
36	7.250	8	1992	*	*	*	*	*
16	7.625	11	1987	0.33	0.27	0.22	0.17	0.13
17	7.875	12	1987	0.19	0.14	0.09	0.06	0.04
1	8.000	8	1986	*	*	*	*	*
19	8.125	5	1988	0.65	0.56	0.46	0.38	0.32
28	8.250	5	1990	3.17	2.85	2.50	2.15	1.78
40	8.625	8	1993	0.20	0.19	0.24	0.57	0.92
43	8.750	8	1994	*	*	*	*	*
23	9.250	5	1989	0.52	0.44	0.37	0.29	0.21
10	9.875	12	1986	0.18	0.16	0.14	0.12	0.10
44	10.125	11	1994	0.60	0.50	0.41	0.32	0.24
39	10.125	5	1993	*	*	0.07	*	0.35
48	10.375	5	1995	*	*	*	*	*
20	10.500	8	1988	0.09	0.06	0.04	0.03	0.03
37	10.500	11	1992	*	*	*	0.02	0.38
27	10.500	4	1990	*	*	*	*	*
47	10.500	2	1995	*	*	*	*	*
57	10.750	2	2003	*	*	*	*	*
25	10.750	11	1989	0.19	0.16	0.13	0.10	0.07
12	10.750	3	1987	0.18	0.16	0.14	0.12	0.10

POC for December 31, 1985 by Coupon (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
58	10.750	5	2003	*	*	*	*	*
11	10.875	2	1987	0.09	0.09	0.08	0.07	0.06
7	11.000	11	1986	*	*	*	*	*
59	11.125	8	2003	*	*	*	0.01	0.10
2	11.375	8	1986	0.05	0.04	0.04	0.31	0.03
56	11.625	11	2002	*	*	*	*	*
45	11.625	11	1994	*	*	*	*	*
5	11.625	10	1986	0.11	0.10	0.08	0.07	0.06
30	11.750	1	1991	0.08	0.08	0.08	0.07	0.05
51	11.750	2	2001	*	*	*	*	*
60	11.875	11	2003	*	*	*	*	*
24	11.875	10	1989	*	*	*	*	*
41	11.875	8	1993	*	*	*	*	0.19
63	12.000	5	2005	*	*	*	*	*
4	12.250	9	1986	0.10	0.09	0.08	0.07	0.05
3	12.375	8	1986	0.15	0.13	0.12	0.10	0.08
31	12.375	4	1991	*	*	*	*	*
61	12.375	5	2004	*	*	*	*	*
13	12.500	5	1987	0.25	0.21	0.18	0.15	0.12
49	12.625	5	1995	*	*	*	*	*
29	13.000	11	1990	*	*	*	*	*
42	13.125	5	1994	*	*	*	*	*
52	13.125	5	2001	*	*	*	*	*
18	13.250	4	1988	0.08	0.05	0.01	*	*
53	13.375	8	2001	*	*	*	*	*

POC for December 31, 1985 by Coupon (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
15	13.750	8	1987	0.17	0.15	0.12	0.10	0.08
32	13.750	7	1991	*	*	*	*	*
35	13.750	5	1992	*	*	*	*	*
62	13.750	8	2004	*	*	*	*	*
8	13.875	11	1986	0.02	0.02	0.01	0.01	0.01
14	14.000	5	1987	0.28	0.25	0.21	0.17	0.14
55	14.250	2	2002	0.32	0.24	0.17	0.12	0.08
34	14.625	2	1992	0.06	0.07	0.07	0.08	0.08
22	14.625	1	1989	*	*	*	*	*
33	14.875	8	1991	0.04	0.02	0.01	0.01	0.02
21	15.375	10	1988	0.06	0.03	*	*	*
54	15.750	11	2001	0.20	0.17	0.13	0.10	0.06
9	16.125	11	1986	0.05	0.05	0.04	0.03	0.03

POC for April 30, 1986 by Maturity

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
1	6.125	11	1986	1.12	1.01	0.90	0.79	0.68	0.56
2	10.375	11	1986	0.13	0.12	0.11	0.09	0.08	0.07
3	11.000	11	1986	*	*	*	*	*	*
4	13.875	11	1986	0.04	0.04	0.03	0.03	0.03	0.02
5	16.125	11	1986	0.29	0.26	0.24	0.21	0.18	0.15
6	9.875	12	1986	0.20	0.18	0.16	0.14	0.12	0.07
7	9.000	2	1987	0.10	0.08	0.07	0.06	0.05	*
8	10.875	2	1987	0.10	0.09	0.08	0.07	0.05	*
9	12.750	2	1987	0.11	0.09	0.08	0.07	0.06	0.01
10	10.750	3	1987	0.37	0.33	0.29	0.25	0.21	0.10
11	12.500	5	1987	0.20	0.19	0.17	0.15	0.12	*
12	14.000	5	1987	0.29	0.26	0.24	0.21	0.18	0.05
13	13.750	8	1987	0.28	0.25	0.21	0.18	0.15	*
14	7.625	11	1987	0.41	0.37	0.32	0.28	0.23	0.07
15	7.875	12	1987	0.26	0.23	0.20	0.16	0.13	*
16	13.250	4	1988	0.30	0.25	0.20	0.15	0.11	0.01
17	8.125	5	1988	0.68	0.61	0.54	0.47	0.39	0.26
18	10.500	8	1988	0.07	0.05	0.03	0.01	*	*
19	15.375	10	1988	0.12	0.09	0.06	0.03	0.01	*
20	14.625	1	1989	*	*	*	*	*	*
21	9.250	5	1989	0.38	0.36	0.33	0.30	0.26	0.20
22	11.875	10	1989	*	*	*	*	*	*
23	10.750	11	1989	*	*	0.01	0.03	0.04	0.05
24	3.500	2	1990	5.80	4.90	4.00	3.07	2.13	1.13
25	10.500	4	1990	0.03	*	*	*	*	*

POC for April 30, 1986 by Maturity (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
26	8.250	5	1990	1.18	1.08	0.98	0.87	0.75	0.62
27	13.000	11	1990	*	*	*	*	*	*
28	11.750	1	1991	*	*	*	*	*	*
29	12.375	4	1991	*	*	*	*	*	*
30	13.750	7	1991	*	*	*	*	*	*
31	14.875	8	1991	0.02	0.01	*	*	*	*
32	14.625	2	1992	*	*	*	*	*	*
33	13.750	5	1992	*	*	*	*	*	*
34	7.250	8	1992	*	*	*	*	*	*
35	10.500	11	1992	*	*	*	*	*	*
36	6.750	2	1993	*	*	*	*	*	*
37	10.125	5	1993	*	*	*	*	*	*
38	8.625	8	1993	*	*	*	*	*	*
39	11.875	8	1993	0.15	0.09	0.04	*	*	*
40	13.125	5	1994	*	*	*	*	*	*
41	8.750	8	1994	*	*	*	*	*	*
42	10.125	11	1994	*	0.03	0.05	0.07	0.08	0.09
43	11.625	11	1994	*	*	*	*	*	*
44	3.000	2	1995	13.25	11.53	9.72	7.83	5.84	3.74
45	10.500	2	1995	*	*	*	*	*	*
46	10.375	5	1995	*	*	*	*	*	*
47	12.625	5	1995	*	*	*	*	*	*
48	8.875	2	1996	*	*	*	*	*	*
49	3.500	11	1998	1.00	*	*	*	*	*
50	11.750	2	2001	*	*	*	*	*	*

POC for April 30, 1986 by Maturity (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
51	13.125	5	2001	0.22	0.27	0.31	0.33	0.35	0.34
52	13.375	8	2001	*	*	*	*	*	*
53	15.750	11	2001	*	*	*	*	*	*
54	14.250	2	2002	*	*	*	*	*	*
55	11.625	11	2002	*	*	*	*	*	*
56	10.750	2	2003	*	*	*	*	*	*
57	10.750	5	2003	*	*	*	*	*	*
58	11.125	8	2003	*	*	*	*	*	*
59	11.875	11	2003	*	*	*	0.03	0.07	0.10
60	12.375	5	2004	*	*	*	*	*	*
61	13.750	8	2004	*	*	*	*	*	*
62	12.000	5	2005	*	*	*	*	*	*
63	9.375	5	2006	*	*	*	*	*	*

POC for April 30, 1986 by Coupon

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
44	3.000	2	1995	13.25	11.53	9.72	7.83	5.84	3.74
24	3.500	2	1990	5.80	4.90	4.00	3.07	2.13	1.13
49	3.500	11	1998	1.00	*	*	*	*	*
1	6.125	11	1986	1.12	1.01	0.90	0.79	0.68	0.56
36	6.750	2	1993	*	*	*	*	*	*
34	7.250	8	1992	*	*	*	*	*	*
14	7.625	11	1987	0.41	0.37	0.32	0.28	0.23	0.07
15	7.875	12	1987	0.26	0.23	0.20	0.16	0.13	*
17	8.125	5	1988	0.68	0.61	0.54	0.47	0.39	0.26
26	8.250	5	1990	1.18	1.08	0.98	0.87	0.75	0.62
38	8.625	8	1993	*	*	*	*	*	*
41	8.750	8	1994	*	*	*	*	*	*
48	8.875	2	1996	*	*	*	*	*	*
7	9.000	2	1987	0.10	0.08	0.07	0.06	0.05	*
21	9.250	5	1989	0.38	0.36	0.33	0.30	0.26	0.20
63	9.375	5	2006	*	*	*	*	*	*
6	9.875	12	1986	0.20	0.18	0.16	0.14	0.12	0.07
42	10.125	11	1994	*	0.03	0.05	0.07	0.08	0.09
37	10.125	5	1993	*	*	*	*	*	*
2	10.375	11	1986	0.13	0.12	0.11	0.09	0.08	0.07
46	10.375	5	1995	*	*	*	*	*	*
45	10.500	2	1995	*	*	*	*	*	*
18	10.500	8	1988	0.07	0.05	0.03	0.01	*	*
35	10.500	11	1992	*	*	*	*	*	*
25	10.500	4	1990	0.03	*	*	*	*	*

POC for April 30, 1986 by Coupon (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
23	10.750	11	1989	*	*	0.01	0.03	0.04	0.05
57	10.750	5	2003	*	*	*	*	*	*
56	10.750	2	2003	*	*	*	*	*	*
10	10.750	3	1987	0.37	0.33	0.29	0.25	0.21	0.10
8	10.875	2	1987	0.10	0.09	0.08	0.07	0.05	*
3	11.000	11	1986	*	*	*	*	*	*
58	11.125	8	2003	*	*	*	*	*	*
43	11.625	11	1994	*	*	*	*	*	*
55	11.625	11	2002	*	*	*	*	*	*
28	11.750	1	1991	*	*	*	*	*	*
50	11.750	2	2001	*	*	*	*	*	*
59	11.875	11	2003	*	*	*	0.03	0.07	0.10
39	11.875	8	1993	0.15	0.09	0.04	*	*	*
22	11.875	10	1989	*	*	*	*	*	*
62	12.000	5	2005	*	*	*	*	*	*
60	12.375	5	2004	*	*	*	*	*	*
29	12.375	4	1991	*	*	*	*	*	*
11	12.500	5	1987	0.20	0.19	0.17	0.15	0.12	*
47	12.625	5	1995	*	*	*	*	*	*
9	12.750	2	1987	0.11	0.09	0.08	0.07	0.06	0.01
27	13.000	11	1990	*	*	*	*	*	*
51	13.125	5	2001	0.22	0.27	0.31	0.33	0.35	0.34
40	13.125	5	1994	*	*	*	*	*	*
16	13.250	4	1988	0.30	0.25	0.20	0.15	0.11	0.01
52	13.375	8	2001	*	*	*	*	*	*

POC for April 30, 1986 by Coupon (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
30	13.750	7	1991	*	*	*	*	*	*
61	13.750	8	2004	*	*	*	*	*	*
13	13.750	8	1987	0.28	0.25	0.21	0.18	0.15	*
33	13.750	5	1992	*	*	*	*	*	*
4	13.875	11	1986	0.04	0.04	0.03	0.03	0.03	0.02
12	14.000	5	1987	0.29	0.26	0.24	0.21	0.18	0.05
54	14.250	2	2002	*	*	*	*	*	*
32	14.625	2	1992	*	*	*	*	*	*
20	14.625	1	1989	*	*	*	*	*	*
31	14.875	8	1991	0.02	0.01	*	*	*	*
19	15.375	10	1988	0.12	0.09	0.06	0.03	0.01	*
53	15.750	11	2001	*	*	*	*	*	*
5	16.125	11	1986	0.29	0.26	0.24	0.21	0.18	0.15

POC for April 30, 1986 by Maturity

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
1	6.125	11	1986	1.01	0.90	0.79	0.68	0.57
2	10.375	11	1986	0.12	0.11	0.09	0.08	0.07
3	11.000	11	1986	*	*	*	*	*
4	13.875	11	1986	0.04	0.03	0.03	0.03	0.02
5	16.125	11	1986	0.26	0.24	0.21	0.18	0.15
6	9.875	12	1986	0.15	0.16	0.14	0.12	0.10
7	9.000	2	1987	*	0.07	0.06	0.05	0.04
8	10.875	2	1987	0.01	0.08	0.07	0.05	0.04
9	12.750	2	1987	0.01	0.08	0.07	0.06	0.05
10	10.750	3	1987	0.20	0.29	0.25	0.21	0.18
11	12.500	5	1987	*	0.17	0.15	0.12	0.10
12	14.000	5	1987	0.08	0.24	0.21	0.18	0.15
13	13.750	8	1987	*	0.21	0.18	0.15	0.12
14	7.625	11	1987	0.12	0.32	0.28	0.23	0.19
15	7.875	12	1987	*	0.20	0.16	0.13	0.10
16	13.250	4	1988	0.07	0.20	0.15	0.11	0.08
17	8.125	5	1988	0.46	0.54	0.47	0.39	0.33
18	10.500	8	1988	*	0.03	0.01	*	*
19	15.375	10	1988	0.05	0.06	0.03	0.01	*
20	14.625	1	1989	*	*	*	*	*
21	9.250	5	1989	0.34	0.33	0.30	0.26	0.21
22	11.875	10	1989	*	*	*	*	*
23	10.750	11	1989	*	0.01	0.03	0.04	0.05
24	3.500	2	1990	5.19	4.64	3.95	2.80	1.61
25	10.500	4	1990	*	*	*	*	*

POC for April 30, 1986 by Maturity (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
26	8.250	5	1990	1.07	0.98	0.87	0.75	0.63
27	13.000	11	1990	*	*	*	*	*
28	11.750	1	1991	*	*	*	*	*
29	12.375	4	1991	*	*	*	*	*
30	13.750	7	1991	*	*	*	*	*
31	14.875	8	1991	0.01	*	*	*	*
32	14.625	2	1992	*	*	*	*	*
33	13.750	5	1992	*	*	*	*	*
34	7.250	8	1992	*	*	*	*	*
35	10.500	11	1992	*	*	*	*	*
36	6.750	2	1993	*	*	*	*	*
37	10.125	5	1993	*	*	*	*	*
38	8.625	8	1993	*	*	*	*	*
39	11.875	8	1993	0.09	0.04	*	*	*
40	13.125	5	1994	*	*	*	*	*
41	8.750	8	1994	*	*	*	*	*
42	10.125	11	1994	0.03	0.05	0.07	0.08	*
43	11.625	11	1994	*	*	*	*	*
44	3.000	2	1995	11.80	10.32	8.67	6.50	4.21
45	10.500	2	1995	*	*	*	*	*
46	10.375	5	1995	*	*	*	*	*
47	12.625	5	1995	*	*	*	*	*
48	8.875	2	1996	*	*	*	*	*
49	3.500	11	1998	*	*	*	*	*
50	11.750	2	2001	*	*	*	*	*

POC for April 30, 1986 by Maturity (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
51	13.125	5	2001	0.27	0.31	0.33	0.35	0.34
52	13.375	8	2001	*	*	*	*	*
53	15.750	11	2001	*	*	*	*	*
54	14.250	2	2002	*	*	*	*	*
55	11.625	11	2002	*	*	*	*	*
56	10.750	2	2003	*	*	*	*	*
57	10.750	5	2003	*	*	*	*	*
58	11.125	8	2003	*	*	*	*	*
59	11.875	11	2003	*	*	0.03	0.07	0.10
60	12.375	5	2004	*	*	*	*	*
61	13.750	8	2004	*	*	*	*	*
62	12.000	5	2005	*	*	*	*	*
63	9.375	5	2006	*	*	*	*	*

POC for April 30, 1986 by Coupon

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
44	3.000	2	1995	11.80	10.32	8.67	6.50	4.21
24	3.500	2	1990	5.19	4.64	3.95	2.80	1.61
49	3.500	11	1998	*	*	*	*	*
1	6.125	11	1986	1.01	0.90	0.79	0.68	0.57
36	6.750	2	1993	*	*	*	*	*
34	7.250	8	1992	*	*	*	*	*
14	7.625	11	1987	0.12	0.32	0.28	0.23	0.19
15	7.875	12	1987	*	0.20	0.16	0.13	0.10
17	8.125	5	1988	0.46	0.54	0.47	0.39	0.33
26	8.250	5	1990	1.07	0.98	0.87	0.75	0.63
38	8.625	8	1993	*	*	*	*	*
41	8.750	8	1994	*	*	*	*	*
48	8.875	2	1996	*	*	*	*	*
7	9.000	2	1987	*	0.07	0.06	0.05	0.04
21	9.250	5	1989	0.34	0.33	0.30	0.26	0.21
63	9.375	5	2006	*	*	*	*	*
6	9.875	12	1986	0.15	0.16	0.14	0.12	0.10
42	10.125	11	1994	0.03	0.05	0.07	0.08	*
37	10.125	5	1993	*	*	*	*	*
2	10.375	11	1986	0.12	0.11	0.09	0.08	0.07
46	10.375	5	1995	*	*	*	*	*
45	10.500	2	1995	*	*	*	*	*
18	10.500	8	1988	*	0.03	0.01	*	*
35	10.500	11	1992	*	*	*	*	*
25	10.500	4	1990	*	*	*	*	*

POC for April 30, 1986 by Coupon (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
23	10.750	11	1989	*	0.01	0.03	0.04	0.05
57	10.750	5	2003	*	*	*	*	*
56	10.750	2	2003	*	*	*	*	*
10	10.750	3	1987	0.20	0.29	0.25	0.21	0.18
8	10.875	2	1987	0.01	0.08	0.07	0.05	0.04
3	11.000	11	1986	*	*	*	*	*
58	11.125	8	2003	*	*	*	*	*
43	11.625	11	1994	*	*	*	*	*
55	11.625	11	2002	*	*	*	*	*
28	11.750	1	1991	*	*	*	*	*
50	11.750	2	2001	*	*	*	*	*
59	11.875	11	2003	*	*	0.03	0.07	0.10
39	11.875	8	1993	0.09	0.04	*	*	*
22	11.875	10	1989	*	*	*	*	*
62	12.000	5	2005	*	*	*	*	*
60	12.375	5	2004	*	*	*	*	*
29	12.375	4	1991	*	*	*	*	*
11	12.500	5	1987	*	0.17	0.15	0.12	0.10
47	12.625	5	1995	*	*	*	*	*
9	12.750	2	1987	0.01	0.08	0.07	0.06	0.05
27	13.000	11	1990	*	*	*	*	*
51	13.125	5	2001	0.27	0.31	0.33	0.35	0.34
40	13.125	5	1994	*	*	*	*	*
16	13.250	4	1988	0.07	0.20	0.15	0.11	0.08
52	13.375	8	2001	*	*	*	*	*

POC for April 30, 1986 by Coupon (cont.)

Corporate Rates

No.	Coupon	Month	Year	10%	20%	30%	40%	50%
30	13.750	7	1991	*	*	*	*	*
61	13.750	8	2004	*	*	*	*	*
13	13.750	8	1987	*	0.21	0.18	0.15	0.12
33	13.750	5	1992	*	*	*	*	*
4	13.875	11	1986	0.04	0.03	0.03	0.03	0.02
12	14.000	5	1987	0.08	0.24	0.21	0.18	0.15
54	14.250	2	2002	*	*	*	*	*
32	14.625	2	1992	*	*	*	*	*
20	14.625	1	1989	*	*	*	*	*
31	14.875	8	1991	0.01	*	*	*	*
19	15.375	10	1988	0.05	0.06	0.03	0.01	*
53	15.750	11	2001	*	*	*	*	*
5	16.125	11	1986	0.26	0.24	0.21	0.18	0.15

POC for August 29, 1986 by Maturity

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
1	10.250	3	1987	0.20	0.17	0.14	0.12	0.09	0.06
2	10.750	3	1987	0.16	0.13	0.11	0.09	0.06	0.04
3	9.125	5	1987	0.12	0.11	0.10	0.08	0.07	0.06
4	12.000	5	1987	0.03	0.03	0.02	0.02	0.02	0.01
5	12.500	5	1987	*	*	*	*	*	*
6	14.000	5	1987	0.03	0.03	0.03	0.02	0.02	0.02
7	8.500	6	1987	0.12	0.11	0.10	0.09	0.07	0.06
8	10.500	6	1987	0.18	0.16	0.14	0.13	0.11	0.09
9	12.375	8	1987	0.11	0.10	0.08	0.07	0.06	0.05
10	13.750	8	1987	0.23	0.21	0.18	0.16	0.14	0.11
11	7.625	11	1987	0.13	0.12	0.11	0.09	0.08	0.07
12	12.625	11	1987	*	*	*	*	*	*
13	7.875	12	1987	0.10	0.09	0.08	0.07	0.05	0.04
14	8.000	2	1988	0.11	0.09	0.07	0.06	0.05	0.04
15	13.250	4	1988	*	*	*	*	*	*
16	8.125	5	1988	0.46	0.41	0.37	0.32	0.27	0.23
17	10.500	8	1988	0.15	0.12	0.09	0.07	0.05	0.04
18	15.375	10	1988	0.25	0.21	0.18	0.15	0.13	0.11
19	14.625	1	1989	0.06	0.03	0.01	*	*	*
20	9.250	5	1989	0.22	0.19	0.15	0.12	0.10	0.07
21	11.875	10	1989	*	*	*	*	*	*
22	10.750	11	1989	0.05	0.03	0.02	0.02	0.01	*
23	3.500	2	1990	5.26	4.53	3.80	3.05	2.28	1.51
24	10.500	4	1990	*	*	*	*	*	*
25	8.250	5	1990	0.79	0.71	0.62	0.54	0.45	0.35

POC for August 29, 1986 by Maturity (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
26	13.000	11	1990	0.05	0.05	0.04	0.03	0.02	0.01
27	11.750	1	1991	*	*	*	*	*	*
28	12.375	4	1991	*	*	*	*	*	*
29	13.750	7	1991	*	*	*	*	*	*
30	14.875	8	1991	0.12	0.10	0.08	0.06	0.04	0.03
31	14.625	2	1992	0.27	0.21	0.15	0.09	0.03	*
32	13.750	5	1992	*	*	*	*	*	*
33	7.250	8	1992	*	*	*	*	*	*
34	10.500	11	1992	*	*	*	*	*	*
35	6.750	2	1993	0.63	0.28	*	*	*	*
36	10.125	5	1993	*	*	*	*	*	*
37	8.625	8	1993	*	*	*	*	*	*
38	11.875	8	1993	*	*	*	*	*	*
39	13.125	5	1994	*	*	*	*	*	*
40	8.750	8	1994	*	*	*	*	*	*
41	10.125	11	1994	*	*	0.01	0.03	0.05	0.06
42	11.625	11	1994	0.16	0.16	0.17	0.16	0.15	0.13
43	3.000	2	1995	13.64	12.02	10.33	8.56	6.72	4.79
44	10.500	2	1995	*	*	*	*	*	*
45	10.375	5	1995	*	*	*	*	*	*
46	12.625	5	1995	*	*	*	*	*	*
47	8.875	2	1996	*	*	*	*	*	*
48	7.375	5	1996	*	*	*	*	*	*
49	3.500	11	1998	3.76	1.07	*	*	*	*
50	11.750	2	2001	*	*	*	*	*	*

POC for August 29, 1986 by Maturity (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
51	13.125	5	2001	*	*	*	*	*	*
52	13.375	8	2001	*	*	*	*	*	*
53	15.750	11	2001	*	*	*	*	*	*
54	14.250	2	2002	*	*	*	*	*	*
55	11.625	11	2002	*	*	0.01	0.04	0.06	0.06
56	10.750	2	2003	*	*	*	*	*	*
57	10.750	5	2003	*	*	*	*	*	*
58	11.125	8	2003	*	*	*	*	*	*
59	11.875	11	2003	*	*	0.03	0.05	0.08	0.10
60	12.375	5	2004	*	*	*	*	*	*
61	13.750	8	2004	0.13	0.01	*	*	*	*
62	12.000	5	2005	*	*	*	*	*	*
63	9.375	5	2006	*	*	*	*	*	*

POC for August 29, 1986 by Coupon

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
43	3.000	2	1995	13.64	12.02	10.33	8.56	6.72	4.79
23	3.500	2	1990	5.26	4.53	3.80	3.05	2.28	1.51
49	3.500	11	1998	3.76	1.07	*	*	*	*
35	6.750	2	1993	0.63	0.28	*	*	*	*
33	7.250	8	1992	*	*	*	*	*	*
48	7.375	5	1996	*	*	*	*	*	*
11	7.625	11	1987	0.13	0.12	0.11	0.09	0.08	0.07
13	7.875	12	1987	0.10	0.09	0.08	0.07	0.05	0.04
14	8.000	2	1988	0.11	0.09	0.07	0.06	0.05	0.04
16	8.125	5	1988	0.46	0.41	0.37	0.32	0.27	0.23
25	8.250	5	1990	0.79	0.71	0.62	0.54	0.45	0.35
7	8.500	6	1987	0.12	0.11	0.10	0.09	0.07	0.06
37	8.625	8	1993	*	*	*	*	*	*
40	8.750	8	1994	*	*	*	*	*	*
47	8.875	2	1996	*	*	*	*	*	*
3	9.125	5	1987	0.12	0.11	0.10	0.08	0.07	0.06
20	9.250	5	1989	0.22	0.19	0.15	0.12	0.10	0.07
63	9.375	5	2006	*	*	*	*	*	*
36	10.125	5	1993	*	*	*	*	*	*
41	10.125	11	1994	*	*	0.01	0.03	0.05	0.06
1	10.250	3	1987	0.20	0.17	0.14	0.12	0.09	0.06
45	10.375	5	1995	*	*	*	*	*	*
24	10.500	4	1990	*	*	*	*	*	*
17	10.500	8	1988	0.15	0.12	0.09	0.07	0.05	0.04
44	10.500	2	1995	*	*	*	*	*	*

POC for August 29, 1986 by Coupon (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
8	10.500	6	1987	0.18	0.16	0.14	0.13	0.11	0.09
34	10.500	11	1992	*	*	*	*	*	*
56	10.750	2	2003	*	*	*	*	*	*
2	10.750	3	1987	0.16	0.13	0.11	0.09	0.06	0.04
57	10.750	5	2003	*	*	*	*	*	*
22	10.750	11	1989	0.05	0.03	0.02	0.02	0.01	*
58	11.125	8	2003	*	*	*	*	*	*
42	11.625	11	1994	0.16	0.16	0.17	0.16	0.15	0.13
55	11.625	11	2002	*	*	0.01	0.04	0.06	0.06
50	11.750	2	2001	*	*	*	*	*	*
27	11.750	1	1991	*	*	*	*	*	*
59	11.875	11	2003	*	*	0.03	0.05	0.08	0.10
38	11.875	8	1993	*	*	*	*	*	*
21	11.875	10	1989	*	*	*	*	*	*
4	12.000	5	1987	0.03	0.03	0.02	0.02	0.02	0.01
62	12.000	5	2005	*	*	*	*	*	*
9	12.375	8	1987	0.11	0.10	0.08	0.07	0.06	0.05
60	12.375	5	2004	*	*	*	*	*	*
28	12.375	4	1991	*	*	*	*	*	*
5	12.500	5	1987	*	*	*	*	*	*
46	12.625	5	1995	*	*	*	*	*	*
12	12.625	11	1987	*	*	*	*	*	*
26	13.000	11	1990	0.05	0.05	0.04	0.03	0.02	0.01
39	13.125	5	1994	*	*	*	*	*	*
51	13.125	5	2001	*	*	*	*	*	*

POC for August 29, 1986 by Coupon (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
15	13.250	4	1988	*	*	*	*	*	*
52	13.375	8	2001	*	*	*	*	*	*
29	13.750	7	1991	*	*	*	*	*	*
10	13.750	8	1987	0.23	0.21	0.18	0.16	0.14	0.11
32	13.750	5	1992	*	*	*	*	*	*
61	13.750	8	2004	0.13	0.01	*	*	*	*
6	14.000	5	1987	0.03	0.03	0.03	0.02	0.02	0.02
54	14.250	2	2002	*	*	*	*	*	*
19	14.625	1	1989	0.06	0.03	0.01	*	*	*
31	14.625	2	1992	0.27	0.21	0.15	0.09	0.03	*
30	14.875	8	1991	0.12	0.10	0.08	0.06	0.04	0.03
18	15.375	10	1988	0.25	0.21	0.18	0.15	0.13	0.11
53	15.750	11	2001	*	*	*	*	*	*

POC for December 31, 1986 by Maturity

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
1	8.875	8	1987	0.10	0.09	0.08	0.07	0.06	0.05
2	12.375	8	1987	*	*	*	*	*	*
3	13.750	8	1987	0.19	0.17	0.15	0.13	0.11	0.09
4	9.000	9	1987	0.05	0.04	0.04	0.03	0.03	0.02
5	7.625	11	1987	0.31	0.28	0.25	0.22	0.19	0.16
6	8.500	11	1987	0.14	0.13	0.11	0.10	0.09	0.07
7	11.000	11	1987	0.02	0.02	0.01	0.01	0.01	0.01
8	12.625	11	1987	*	*	*	*	*	*
9	7.875	12	1987	0.17	0.15	0.13	0.12	0.10	0.08
10	11.250	12	1987	0.23	0.20	0.18	0.16	0.14	0.11
11	12.375	1	1988	0.22	0.21	0.19	0.17	0.15	0.13
12	8.000	2	1988	0.16	0.15	0.14	0.12	0.11	0.09
13	6.625	4	1988	0.04	0.04	0.04	0.03	0.03	0.03
14	13.250	4	1988	0.27	0.25	0.22	0.20	0.17	0.14
15	8.125	5	1988	0.32	0.29	0.26	0.23	0.20	0.16
16	9.875	5	1988	*	*	*	*	*	*
17	10.500	8	1988	0.05	0.05	0.04	0.04	0.03	0.02
18	15.375	10	1988	0.08	0.07	0.06	0.04	0.03	0.01
19	14.625	1	1989	0.13	0.12	0.11	0.09	0.07	0.05
20	9.250	5	1989	0.11	0.09	0.07	0.05	0.02	*
21	11.875	10	1989	*	*	*	*	*	*
22	10.750	11	1989	0.09	0.07	0.06	0.05	0.04	0.03
23	3.500	2	1990	5.38	4.76	4.12	3.46	2.80	2.11
24	10.500	4	1990	*	*	*	*	*	*
25	8.250	5	1990	0.61	0.55	0.49	0.42	0.35	0.29

POC for December 31, 1986 by Maturity (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
26	13.000	11	1990	*	*	*	*	*	*
27	11.750	1	1991	*	*	0.01	0.02	0.02	0.02
28	12.375	4	1991	*	*	*	*	*	*
29	13.750	7	1991	*	*	*	*	*	*
30	14.875	8	1991	0.31	0.27	0.24	0.21	0.17	0.14
31	14.625	2	1992	0.32	0.29	0.25	0.20	0.16	0.10
32	13.750	5	1992	*	*	*	*	*	*
33	7.250	8	1992	0.15	0.01	*	*	*	*
34	10.500	11	1992	*	*	*	*	*	*
35	6.750	2	1993	0.21	*	*	*	*	*
36	10.125	5	1993	*	*	*	*	*	*
37	8.625	8	1993	*	*	*	*	*	*
38	11.875	8	1993	*	0.02	0.04	0.05	0.05	0.05
39	13.125	5	1994	*	*	*	*	*	*
40	8.750	8	1994	*	*	*	*	*	*
41	10.125	11	1994	*	*	*	*	*	*
42	11.625	11	1994	*	*	*	*	*	*
43	3.000	2	1995	14.40	12.81	11.15	9.40	7.58	5.66
44	10.500	2	1995	0.06	0.09	0.12	0.13	0.14	0.14
45	10.375	5	1995	*	*	*	*	*	*
46	12.625	5	1995	*	*	*	*	*	*
47	8.875	2	1996	*	*	*	*	*	*
48	7.375	5	1996	*	*	*	*	*	*
49	3.500	11	1998	6.15	3.37	0.34	*	*	*
50	11.750	2	2001	*	*	*	*	*	*

POC for December 31, 1986 by Maturity (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
51	13.125	5	2001	*	*	*	*	*	*
52	13.375	8	2001	*	*	0.03	0.05	0.07	0.07
53	15.750	11	2001	0.17	0.14	0.12	0.10	0.07	0.05
54	14.250	2	2002	*	*	*	*	*	*
55	11.625	11	2002	*	*	*	*	*	*
56	10.750	2	2003	*	*	*	*	*	*
57	10.750	5	2003	*	*	*	*	*	*
58	11.125	8	2003	*	*	*	*	*	*
59	11.875	11	2003	*	*	*	*	*	*
60	12.375	5	2004	*	*	*	*	*	*
61	13.750	8	2004	0.25	0.24	0.23	0.21	0.19	0.17
62	12.000	5	2005	*	*	*	*	*	*
63	9.375	5	2006	*	*	*	*	*	*

POC for December 31, 1986 by Coupon

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
43	3.000	2	1995	14.40	12.81	11.15	9.40	7.58	5.66
23	3.500	2	1990	5.38	4.76	4.12	3.46	2.80	2.11
49	3.500	11	1998	6.15	3.37	0.34	*	*	*
13	6.625	4	1988	0.04	0.04	0.04	0.03	0.03	0.03
35	6.750	2	1993	0.21	*	*	*	*	*
33	7.250	8	1992	0.15	0.01	*	*	*	*
48	7.375	5	1996	*	*	*	*	*	*
5	7.625	11	1987	0.31	0.28	0.25	0.22	0.19	0.16
9	7.875	12	1987	0.17	0.15	0.13	0.12	0.10	0.08
12	8.000	2	1988	0.16	0.15	0.14	0.12	0.11	0.09
15	8.125	5	1988	0.32	0.29	0.26	0.23	0.20	0.16
25	8.250	5	1990	0.61	0.55	0.49	0.42	0.35	0.29
6	8.500	11	1987	0.14	0.13	0.11	0.10	0.09	0.07
37	8.625	8	1993	*	*	*	*	*	*
40	8.750	8	1994	*	*	*	*	*	*
1	8.875	8	1987	0.10	0.09	0.08	0.07	0.06	0.05
47	8.875	2	1996	*	*	*	*	*	*
4	9.000	9	1987	0.05	0.04	0.04	0.03	0.03	0.02
20	9.250	5	1989	0.11	0.09	0.07	0.05	0.02	*
63	9.375	5	2006	*	*	*	*	*	*
16	9.875	5	1988	*	*	*	*	*	*
36	10.125	5	1993	*	*	*	*	*	*
41	10.125	11	1994	*	*	*	*	*	*
45	10.375	5	1995	*	*	*	*	*	*
24	10.500	4	1990	*	*	*	*	*	*

POC for December 31, 1986 by Coupon (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
44	10.500	2	1995	0.06	0.09	0.12	0.13	0.14	0.14
17	10.500	8	1988	0.05	0.05	0.04	0.04	0.03	0.02
34	10.500	11	1992	*	*	*	*	*	*
22	10.750	11	1989	0.09	0.07	0.06	0.05	0.04	0.03
56	10.750	2	2003	*	*	*	*	*	*
57	10.750	5	2003	*	*	*	*	*	*
7	11.000	11	1987	0.02	0.02	0.01	0.01	0.01	0.01
58	11.125	8	2003	*	*	*	*	*	*
10	11.250	12	1987	0.23	0.20	0.18	0.16	0.14	0.11
42	11.625	11	1994	*	*	*	*	*	*
55	11.625	11	2002	*	*	*	*	*	*
27	11.750	1	1991	*	*	0.01	0.02	0.02	0.02
50	11.750	2	2001	*	*	*	*	*	*
59	11.875	11	2003	*	*	*	*	*	*
38	11.875	8	1993	*	0.02	0.04	0.05	0.05	0.05
21	11.875	10	1989	*	*	*	*	*	*
62	12.000	5	2005	*	*	*	*	*	*
2	12.375	8	1987	*	*	*	*	*	*
28	12.375	4	1991	*	*	*	*	*	*
11	12.375	1	1988	0.22	0.21	0.19	0.17	0.15	0.13
60	12.375	5	2004	*	*	*	*	*	*
46	12.625	5	1995	*	*	*	*	*	*
8	12.625	11	1987	*	*	*	*	*	*
26	13.000	11	1990	*	*	*	*	*	*
39	13.125	5	1994	*	*	*	*	*	*

POC for December 31, 1986 by Coupon (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%	50%
51	13.125	5	2001	*	*	*	*	*	*
14	13.250	4	1988	0.27	0.25	0.22	0.20	0.17	0.14
52	13.375	8	2001	*	*	0.03	0.05	0.07	0.07
29	13.750	7	1991	*	*	*	*	*	*
32	13.750	5	1992	*	*	*	*	*	*
3	13.750	8	1987	0.19	0.17	0.15	0.13	0.11	0.09
61	13.750	8	2004	0.25	0.24	0.23	0.21	0.19	0.17
54	14.250	2	2002	*	*	*	*	*	*
19	14.625	1	1989	0.13	0.12	0.11	0.09	0.07	0.05
31	14.625	2	1992	0.32	0.29	0.25	0.20	0.16	0.10
30	14.875	8	1991	0.31	0.27	0.24	0.21	0.17	0.14
18	15.375	10	1988	0.08	0.07	0.06	0.04	0.03	0.01
53	15.750	11	2001	0.17	0.14	0.12	0.10	0.07	0.05

POC for April 30, 1987 by Maturity

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%
1	7.625	11	1987	0.10	0.09	0.08	0.07	0.06
2	8.500	11	1987	0.16	0.15	0.13	0.12	0.10
3	11.000	11	1987	0.04	0.04	0.03	0.03	0.02
4	12.625	11	1987	*	*	*	*	*
5	7.875	12	1987	0.23	0.21	0.18	0.16	0.14
6	11.250	12	1987	0.31	0.27	0.24	0.21	0.18
7	12.375	1	1988	0.44	0.39	0.35	0.30	0.26
8	8.000	2	1988	0.40	0.36	0.31	0.27	0.23
9	6.625	4	1988	0.65	0.58	0.50	0.43	0.36
10	13.250	4	1988	0.85	0.75	0.66	0.57	0.48
11	8.125	5	1988	0.77	0.69	0.61	0.53	0.45
12	9.875	5	1988	0.60	0.53	0.47	0.41	0.34
13	10.500	8	1988	0.87	0.77	0.67	0.57	0.46
14	6.125	8	1988	0.89	0.79	0.68	0.58	0.47
15	15.375	10	1988	1.13	0.99	0.85	0.71	0.58
16	14.625	1	1989	1.00	0.88	0.75	0.61	0.48
17	9.250	5	1989	1.11	0.96	0.81	0.66	0.50
18	11.875	10	1989	0.88	0.72	0.56	0.41	0.25
19	10.750	11	1989	0.77	0.64	0.52	0.38	0.25
20	3.500	2	1990	4.87	4.32	3.77	3.11	2.03
21	10.500	4	1990	0.68	0.54	0.40	0.26	0.13
22	8.250	5	1990	2.28	2.03	1.78	1.51	1.23
23	13.000	11	1990	0.14	0.12	0.10	0.07	0.04
24	11.750	1	1991	*	*	*	*	*
25	12.375	4	1991	0.09	0.05	0.02	*	*

POC for April 30, 1987 by Maturity (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%
26	13.750	7	1991	*	*	*	*	*
27	14.875	8	1991	0.15	0.12	0.10	0.08	0.06
28	14.625	2	1992	0.05	*	*	*	*
29	13.750	5	1992	*	*	*	*	*
30	7.250	8	1992	1.49	1.25	1.00	0.75	0.48
31	10.500	11	1992	*	*	*	*	*
32	6.750	2	1993	0.79	0.50	0.21	*	*
33	10.125	5	1993	*	*	*	*	*
34	8.625	8	1993	*	*	*	*	*
35	11.875	8	1993	*	*	*	*	*
36	13.125	5	1994	0.19	0.20	0.19	0.18	0.16
37	8.750	8	1994	*	*	*	*	*
38	10.125	11	1994	0.33	0.35	0.36	0.36	0.34
39	11.625	11	1994	0.18	0.20	0.21	0.20	0.19
40	3.000	2	1995	16.16	14.60	12.98	11.22	9.05
41	10.500	2	1995	*	*	*	*	*
42	10.375	5	1995	*	*	*	*	0.01
43	12.625	5	1995	0.48	0.44	0.40	0.37	0.34
44	8.875	2	1996	*	*	*	*	*
45	7.375	5	1996	*	*	*	*	*
46	7.250	11	1996	*	*	*	*	*
47	3.500	11	1998	10.12	7.73	5.11	2.15	*
48	11.750	2	2001	*	*	*	*	*
49	13.125	5	2001	*	*	0.04	0.09	0.13
50	13.375	8	2001	0.01	*	*	*	*

POC for April 30, 1987 by Maturity (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%
51	15.750	11	2001	0.13	0.02	*	*	*
52	14.250	2	2002	*	*	*	*	*
53	11.625	11	2002	*	*	0.06	0.10	0.12
54	10.750	2	2003	*	*	*	*	*
55	10.750	5	2003	*	*	*	*	*
56	11.125	8	2003	*	*	*	*	*
57	11.875	11	2003	*	*	0.03	0.08	0.11
58	12.375	5	2004	*	*	*	*	*
59	13.750	8	2004	0.07	*	*	*	*
60	11.625	11	2004	*	*	*	*	*
61	12.000	5	2005	*	*	*	*	*
62	10.750	8	2005	*	*	*	*	*
63	9.375	5	2006	*	*	*	*	*

POC for April 30, 1987 by Coupon

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%
40	3.000	2	1995	16.16	14.60	12.98	11.22	9.05
47	3.500	11	1998	10.12	7.73	5.11	2.15	*
20	3.500	2	1990	4.87	4.32	3.77	3.11	2.03
14	6.125	8	1988	0.89	0.79	0.68	0.58	0.47
9	6.625	4	1988	0.65	0.58	0.50	0.43	0.36
32	6.750	2	1993	0.79	0.50	0.21	*	*
30	7.250	8	1992	1.49	1.25	1.00	0.75	0.48
46	7.250	11	1996	*	*	*	*	*
45	7.375	5	1996	*	*	*	*	*
1	7.625	11	1987	0.10	0.09	0.08	0.07	0.06
5	7.875	12	1987	0.23	0.21	0.18	0.16	0.14
8	8.000	2	1988	0.40	0.36	0.31	0.27	0.23
11	8.125	5	1988	0.77	0.69	0.61	0.53	0.45
22	8.250	5	1990	2.28	2.03	1.78	1.51	1.23
2	8.500	11	1987	0.16	0.15	0.13	0.12	0.10
34	8.625	8	1993	*	*	*	*	*
37	8.750	8	1994	*	*	*	*	*
44	8.875	2	1996	*	*	*	*	*
17	9.250	5	1989	1.11	0.96	0.81	0.66	0.50
63	9.375	5	2006	*	*	*	*	*
12	9.875	5	1988	0.60	0.53	0.47	0.41	0.34
33	10.125	5	1993	*	*	*	*	*
38	10.125	11	1994	0.33	0.35	0.36	0.36	0.34
42	10.375	5	1995	*	*	*	*	0.01
41	10.500	2	1995	*	*	*	*	*

POC for April 30, 1987 by Coupon (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%
13	10.500	8	1988	0.87	0.77	0.67	0.57	0.46
21	10.500	4	1990	0.68	0.54	0.40	0.26	0.13
31	10.500	11	1992	*	*	*	*	*
62	10.750	8	2005	*	*	*	*	*
54	10.750	2	2003	*	*	*	*	*
19	10.750	11	1989	0.77	0.64	0.52	0.38	0.25
55	10.750	5	2003	*	*	*	*	*
3	11.000	11	1987	0.04	0.04	0.03	0.03	0.02
56	11.125	8	2003	*	*	*	*	*
6	11.250	12	1987	0.31	0.27	0.24	0.21	0.18
39	11.625	11	1994	0.18	0.20	0.21	0.20	0.19
60	11.625	11	2004	*	*	*	*	*
53	11.625	11	2002	*	*	0.06	0.10	0.12
48	11.750	2	2001	*	*	*	*	*
24	11.750	1	1991	*	*	*	*	*
18	11.875	10	1989	0.88	0.72	0.56	0.41	0.25
35	11.875	8	1993	*	*	*	*	*
57	11.875	11	2003	*	*	0.03	0.08	0.11
61	12.000	5	2005	*	*	*	*	*
25	12.375	4	1991	0.09	0.05	0.02	*	*
58	12.375	5	2004	*	*	*	*	*
7	12.375	1	1988	0.44	0.39	0.35	0.30	0.26
43	12.625	5	1995	0.48	0.44	0.40	0.37	0.34
4	12.625	11	1987	*	*	*	*	*
23	13.000	11	1990	0.14	0.12	0.10	0.07	0.04

POC for April 30, 1987 by Coupon (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%
36	13.125	5	1994	0.19	0.20	0.19	0.18	0.16
49	13.125	5	2001	*	*	0.04	0.09	0.13
10	13.250	4	1988	0.85	0.75	0.66	0.57	0.48
50	13.375	8	2001	0.01	*	*	*	*
59	13.750	8	2004	0.07	*	*	*	*
26	13.750	7	1991	*	*	*	*	*
29	13.750	5	1992	*	*	*	*	*
52	14.250	2	2002	*	*	*	*	*
28	14.625	2	1992	0.05	*	*	*	*
16	14.625	1	1989	1.00	0.88	0.75	0.61	0.48
27	14.875	8	1991	0.15	0.12	0.10	0.08	0.06
15	15.375	10	1988	1.13	0.99	0.85	0.71	0.58
51	15.750	11	2001	0.13	0.02	*	*	*

POC for August 31, 1987 by Maturity

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%
1	12.000	3	1988	0.23	0.23	0.18	0.15	0.12
2	6.625	4	1988	*	*	*	*	*
3	13.250	4	1988	0.24	0.24	0.19	0.17	0.15
4	8.125	5	1988	0.23	0.23	0.18	0.16	0.14
5	9.875	5	1988	0.09	0.09	0.07	0.06	0.05
6	6.625	7	1988	0.19	0.19	0.14	0.12	0.10
7	14.000	7	1988	0.54	0.54	0.43	0.37	0.31
8	6.125	8	1988	0.26	0.26	0.19	0.14	0.03
9	9.500	8	1988	0.25	0.25	0.19	0.16	0.13
10	10.500	8	1988	0.31	0.31	0.24	0.20	0.17
11	15.375	10	1988	0.48	0.48	0.38	0.33	0.28
12	10.625	12	1988	0.42	0.42	0.32	0.27	0.22
13	6.125	1	1989	0.35	0.35	0.24	0.17	0.02
14	14.625	1	1989	0.55	0.55	0.41	0.35	0.29
15	9.250	5	1989	0.42	0.42	0.31	0.25	0.20
16	11.875	10	1989	0.19	0.19	0.11	0.06	0.04
17	10.750	11	1989	0.28	0.28	0.18	0.12	0.08
18	3.500	2	1990	4.19	4.19	3.26	2.68	1.68
19	10.500	4	1990	0.10	0.10	0.04	*	*
20	8.250	5	1990	1.11	1.11	0.86	0.72	0.62
21	13.000	11	1990	0.04	0.04	0.03	0.01	0.01
22	11.750	1	1991	*	*	*	*	*
23	12.375	4	1991	*	*	*	*	*
24	13.750	7	1991	0.06	0.06	*	*	*
25	14.875	8	1991	0.12	0.12	0.03	0.02	0.01

POC for August 31, 1987 by Maturity (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%
26	14.625	2	1992	0.11	0.11	*	*	*
27	13.750	5	1992	*	*	*	*	*
28	7.250	8	1992	2.10	2.10	1.53	1.20	0.84
29	10.500	11	1992	*	*	*	*	0.14
30	6.750	2	1993	0.45	0.45	*	*	*
31	10.125	5	1993	*	*	*	0.05	0.36
32	8.625	8	1993	*	*	*	*	*
33	11.875	8	1993	*	*	*	*	*
34	13.125	5	1994	*	*	*	*	*
35	8.750	8	1994	*	*	*	*	*
36	10.125	11	1994	*	*	*	*	0.01
37	11.625	11	1994	*	*	*	0.01	0.03
38	3.000	2	1995	18.84	18.84	15.45	13.58	11.37
39	10.500	2	1995	0.05	0.05	*	*	*
40	10.375	5	1995	0.18	0.18	0.21	0.25	0.34
41	12.625	5	1995	0.12	0.12	0.11	0.13	0.29
42	8.875	2	1996	0.02	0.02	0.12	0.23	0.65
43	7.375	5	1996	*	*	*	*	*
44	7.250	11	1996	*	*	*	*	*
45	8.500	5	1997	*	*	0.08	0.20	0.48
46	8.625	8	1997	*	*	*	*	*
47	3.500	11	1998	16.19	16.19	11.28	8.37	4.84
48	11.750	2	2001	*	*	*	*	*
49	13.125	5	2001	*	*	*	0.01	0.06
50	13.375	8	2001	*	*	*	*	*

POC for August 31, 1987 by Maturity (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%
51	15.750	11	2001	0.85	0.85	0.61	0.50	0.41
52	14.250	2	2002	0.77	0.77	0.54	0.43	0.33
53	11.625	11	2002	0.13	0.13	0.21	0.23	0.23
54	10.750	2	2003	*	*	*	*	*
55	10.750	5	2003	*	*	*	*	*
56	11.125	8	2003	*	*	*	*	*
57	11.875	11	2003	*	*	*	0.04	0.09
58	12.375	5	2004	*	*	*	*	*
59	13.750	8	2004	0.02	0.02	*	*	*
60	11.625	11	2004	*	*	*	*	*
61	12.000	5	2005	*	*	*	0.05	0.10
62	10.750	8	2005	*	*	*	*	*
63	9.375	5	2006	*	*	*	*	*

POC for August 31, 1987 by Coupon

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%
38	3.000	2	1995	18.84	18.84	15.45	13.58	11.37
18	3.500	2	1990	4.19	4.19	3.26	2.68	1.68
47	3.500	11	1998	16.19	16.19	11.28	8.37	4.84
8	6.125	8	1988	0.26	0.26	0.19	0.14	0.03
13	6.125	1	1989	0.35	0.35	0.24	0.17	0.02
2	6.625	4	1988	*	*	*	*	*
6	6.625	7	1988	0.19	0.19	0.14	0.12	0.10
30	6.750	2	1993	0.45	0.45	*	*	*
44	7.250	11	1996	*	*	*	*	*
28	7.250	8	1992	2.10	2.10	1.53	1.20	0.84
43	7.375	5	1996	*	*	*	*	*
4	8.125	5	1988	0.23	0.23	0.18	0.16	0.14
20	8.250	5	1990	1.11	1.11	0.86	0.72	0.62
45	8.500	5	1997	*	*	0.08	0.20	0.48
46	8.625	8	1997	*	*	*	*	*
32	8.625	8	1993	*	*	*	*	*
35	8.750	8	1994	*	*	*	*	*
42	8.875	2	1996	0.02	0.02	0.12	0.23	0.65
15	9.250	5	1989	0.42	0.42	0.31	0.25	0.20
63	9.375	5	2006	*	*	*	*	*
9	9.500	8	1988	0.25	0.25	0.19	0.16	0.13
5	9.875	5	1988	0.09	0.09	0.07	0.06	0.05
31	10.125	5	1993	*	*	*	0.05	0.36
36	10.125	11	1994	*	*	*	*	0.01
40	10.375	5	1995	0.18	0.18	0.21	0.25	0.34

POC for August 31, 1987 by Coupon (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%
19	10.500	4	1990	0.10	0.10	0.04	*	*
29	10.500	11	1992	*	*	*	*	0.14
10	10.500	8	1988	0.31	0.31	0.24	0.20	0.17
39	10.500	2	1995	0.05	0.05	*	*	*
12	10.625	12	1988	0.42	0.42	0.32	0.27	0.22
55	10.750	5	2003	*	*	*	*	*
62	10.750	8	2005	*	*	*	*	*
54	10.750	2	2003	*	*	*	*	*
17	10.750	11	1989	0.28	0.28	0.18	0.12	0.08
56	11.125	8	2003	*	*	*	*	*
53	11.625	11	2002	0.13	0.13	0.21	0.23	0.23
60	11.625	11	2004	*	*	*	*	*
37	11.625	11	1994	*	*	*	0.01	0.03
48	11.750	2	2001	*	*	*	*	*
22	11.750	1	1991	*	*	*	*	*
57	11.875	11	2003	*	*	*	0.04	0.09
16	11.875	10	1989	0.19	0.19	0.11	0.06	0.04
33	11.875	8	1993	*	*	*	*	*
1	12.000	3	1988	0.23	0.23	0.18	0.15	0.12
61	12.000	5	2005	*	*	*	0.05	0.10
23	12.375	4	1991	*	*	*	*	*
58	12.375	5	2004	*	*	*	*	*
41	12.625	5	1995	0.12	0.12	0.11	0.13	0.29
21	13.000	11	1990	0.04	0.04	0.03	0.01	0.01
34	13.125	5	1994	*	*	*	*	*

POC for August 31, 1987 by Coupon (cont.)

Individual Rates

No.	Coupon	Month	Year	0%	10%	20%	30%	40%
49	13.125	5	2001	*	*	*	0.01	0.06
3	13.250	4	1988	0.24	0.24	0.19	0.17	0.15
50	13.375	8	2001	*	*	*	*	*
24	13.750	7	1991	0.06	0.06	*	*	*
27	13.750	5	1992	*	*	*	*	*
59	13.750	8	2004	0.02	0.02	*	*	*
7	14.000	7	1988	0.54	0.54	0.43	0.37	0.31
52	14.250	2	2002	0.77	0.77	0.54	0.43	0.33
14	14.625	1	1989	0.55	0.55	0.41	0.35	0.29
26	14.625	2	1992	0.11	0.11	*	*	*
25	14.875	8	1991	0.12	0.12	0.03	0.02	0.01
11	15.375	10	1988	0.48	0.48	0.38	0.33	0.28
51	15.750	11	2001	0.85	0.85	0.61	0.50	0.41