Refunding Tax-exempt Corporate Bonds in Advance of the Call

Andrew J. Kalotay, *Fordham University*
George O. Williams, *Andrew Kalotay Associates*
Andrew I. Pedvis, *Fordham University*

Although tax-exempt bonds are generally issued by state and local governments and municipal authorities, investor-owned corporations may also issue them under certain provisions. By far the largest corporate issuers of such bonds are electric utilities.

The management of these bonds is fraught with tax ramifications. Investors enjoy the interest income free of taxes, but corporations are able to deduct the interest expense in the usual manner. When the bonds are sold by an investor or repurchased by an issuer, the difference between price and tax basis is treated as a capital gain or loss by the investor and as an ordinary loss or income by the corporation.

Tax-exempt bonds typically become callable after ten years at a small premium to par. But even before the call protection expires, the issuer can utilize a variety of mechanisms to take advantage of lower interest rates. However, the refunding of tax-exempt bonds is complicated by regulatory matters. For example, any premium paid in excess of the accreted basis, usually close to par, may not be funded with tax-exempt debt.

In the early 1990's several electric utilities refunded their high-coupon not-yet-callable tax-exempt bonds. The bonds were often acquired via reverse Dutch auctions and replaced with new long-term issues. Ogelthorpe Power Corporation, a municipal power authority operating in Georgia, also conducted such a program.

In this article we examine the methods available to refund high-coupon tax-exempt debt, drawing distinctions between ordinary municipal debt and corporate tax-exempt debt. We review the general concept of refunding efficiency and its role in the refunding decision. A reverse Dutch auction executed by Florida Power & Light Company provides a concrete illustration of the use of refunding efficiency in determining the appropriate cutoff or "stopping" price.

I. INTRODUCTION

Tax-exempt bonds, issued by corporations and classified as Private Activity Bonds, provide significant financial benefits to borrowers that meet the requirements to issue them.

Qualifying corporations must engage in activities that serve the needs of the public, such as power or water supply, transportation, or education. The bonds are actually issued by a public revenue authority on behalf of a corporation, formally known as the obligor. The relationship between issuer and obligor can have a wide range. At one extreme, it can be a "back-to-back" fiduciary arrangement; at the other, the issuing municipality may lease plant and other physical property to the obligor.

Long-term tax-exempt bonds usually become callable

after ten years at a price of 102 or 103. Even prior to the call date, though, municipal issuers can lock in savings should interest rates decline. This is accomplished by issuing new tax-exempt debt and using the proceeds to defease the outstanding obligation. The new issue has a lower cost and roughly the same maturity. The defeasing portfolio consists of market-traded treasury securities and other government obligations, including customized State and Local Government Series bonds (SLGS). Once defeased, the original bonds effectively share the same rating as Treasuries, with a concomitant increase in market value. This process is commonly referred to as advance refunding.

Corporations, unlike municipalities, are precluded from advance refunding. Nevertheless, corporations may still be able to refund tax-exempt bonds prior to the initial call date by repurchasing them directly and issuing new tax-exempt obligations. These transactions produce savings because the market prices of the securities are somewhat depressed, reflecting the expectation of the bonds being called at the first opportunity.

The expected savings from an advance refunding of a municipal issue depend only on prevailing interest rates, so market prices are irrelevant. But the corporate transaction is driven by the market. Taxes are equally important, for they can markedly enhance the issuer's position. But legal restrictions on the structure of the refunding issue conspire against the issuer.

Falling interest rates in the mid-1980's and again in the early 1990's created refunding opportunities for borrowers and gave rise to innovative repurchase methods like reverse Dutch auctions and fixed-spread tenders which help to control the issuer's interest rate exposure during the repurchase period. At the same time, more precise option valuation techniques allowed the notion of refunding efficiency[1] to be extended to repurchase programs.

We will illustrate the financial and legal complexities peculiar to tax-exempt corporate bond refunding with a study of a successful reverse Dutch auction carried out in 1992 by Florida Power & Light Company, a prominent investor-owned electric utility. We will show how the notion of refunding efficiency was used to determine the stopping price for the repurchase and demonstrate the importance of taxes in achieving the desired economic benefits.

II. A BRIEF HISTORY OF TAX-EXEMPT BONDS

Tax-exempt securities found their way into the financial marketplace long before they came to be treasured by today's over-taxed investors. Their origin and continued proliferation are owed to two unrelated circumstances.[2]

The 1819 doctrine of "reciprocal immunity" was initially responsible for the exemption of state and municipal bond interest from federal taxation. A 1920 decision based on the principle that "the power to tax involves the power to destroy" ensured forbearance by both state and federal governments from imposing any tax upon the securities of the other.

Progressive tax systems create a special incentive to purchase tax-exempt securities. Progressive income and inheritance taxes were introduced from Europe in a desperate attempt to fund the Civil War and became permanent with the passage of the Sixteenth Amendment in 1913.

Public revenue authorities, responsible for the earliest issuances of corporate tax-exempt bonds, first appeared at the turn of the twentieth century. The creation of the Port Authority of New York and New Jersey in 1921 added a new dimension to the tax-exempt markets. Such public authorities issue tax-exempt bonds both on their own behalf and on behalf of private entities. Industrial development bonds were first issued in the late 1930's, although they remained rare until the 1960's when a demand was created by projects conducted on a local rather than a state level. It is these bonds that we consider here.

III. RESTRICTIONS ON THE REFUNDING OF TAX-EXEMPT BONDS

Regulatory restrictions apply to every aspect of tax-exempt bonds, and they differ for municipal and corporate borrowers. One must secure authorization to issue, and there are regulations governing the investment or other use of proceeds. A different set of regulations applies to bonds used to refund other bonds. While there may be other reasons for an issuer to refund, such as the removal of restrictive covenants, reduction of debt service is the only motivation considered here.

Municipal refundings are distinguished by whether they occur before or after the first call date. The former is referred to as an advance refunding, and the latter as a current refunding. In a current refunding the old issue is simply retired at a contractual call price met using the proceeds of a new issue. In an advance refunding, the old issue remains outstanding until the first call date. Its

[1]Boyce, William M , and Andrew J Kalotay, "Optimum Bond Calling and Refunding," *Interfaces*, November 1979, p 38, and Howard, C. Douglas, and Andrew J. Kalotay, "Embedded Call Options and Refunding Efficiency," *Advances in Futures and Options Research*, **3** (1988), pp 97–117

[2]Accounts of the legal history of tax-exempt securities can be found in Robert Lamb and Stephen P. Rappaport, *Municipal Bonds* (New York. McGraw-Hill, 1987), and Charles O. Hardy, *Tax-exempt Securities and the Surtax*, (New York Macmillan, 1926)

interest and principal payments to that date are met by a defeasing escrow portfolio of government obligations bought with the proceeds of a new issue. The attendant proliferation of tax-exempt securities results in a loss of revenue for the federal government, and it has sought to curb advance refundings in recent years. For example, a capital project may be advance-refunded no more than twice.

Another restriction placed on municipal advance refundings is one of arbitrage. The rate of return on the escrow portfolio is capped by the borrower's cost of debt. A more recent restriction is the exclusion of issuance expenses from the allowed return computation.

Corporate tax-exempt bonds, unlike their municipal cousins, may not be advance refunded through a defeasance. Nevertheless, corporations can still take advantage of lower interest rates prior to the first call date through an outright repurchase and simultaneous refunding of their bonds.

In the case of tax-exempt corporate bonds, various restrictions apply to the refunding issue. Its size is limited to that of the original issue, and its proceeds may not be applied to any premia paid or transaction expenses incurred in the transaction. These additional costs must be paid in cash or be funded in the taxable market. In either case, the opportunity or borrowing cost will exceed the tax-exempt rate. The maturity of the refunding issue is normally limited to that of the original issue, maintaining the tie between the financing and the project. In fact, when refunding is accomplished via a forward contract with delivery on the call date, the forward bond cannot extend beyond the maturity date of the refunded issue.

IV. RECENT DEVELOPMENTS IN DEBT REPURCHASE

There are practical limitations to the number of bonds that can be acquired at a reasonable price in any repurchase program, although an issuer is always free to try again. The techniques of repurchasing debt in large volumes and at acceptable prices have become more refined with every long-term trough in interest rates.

The first major repurchase program for high-coupon, not-yet-callable taxable debt was conducted in January 1977 by four Bell Telephone companies.[3] The bonds had been issued only three years earlier, in 1974, when rates had been much higher. The companies offered a fixed price for the bonds over a one-month tender period.

Interest rates reached record highs in 1981 and then sharply declined. In the mid 1980's many corporations tendered for their high-coupon not-yet-callable bonds which had been issued in 1981 or 1982. With the decline of rates in the early 1990's, tender activity escalated once again.

A fixed-price tender leaves the issuer at risk from rising interest rates during the tender period, which could force the issuer to pay well above fair value for the bonds. Two new methods have been added to the debt manager's arsenal to combat this risk: the reverse Dutch auction and the fixed-spread tender. The tender period for the former typically lasts a month, while for the latter it is much shorter, generally five business days.

The reverse Dutch auction was introduced in 1987 by Salomon Brothers to retire the debt of its parent, Salomon Inc. In a reverse Dutch auction, bondholders are requested to submit asking prices; this is usually done at the close of the tender period, to reflect prevailing interest rates. Afterwards, the issuer sets a cut-off or stopping price, and all offers at or below this level receive this price. The issuer is not obliged to make any purchases at all. The Salomon issue had a sinking fund provision, to which a reverse Dutch auction is particularly well-suited. But tender activity in general ebbed soon after the technique was pioneered, and the reverse Dutch auction saw little use until the early 1990's.

The latest repurchase method, introduced in 1990, is the fixed-spread tender. Here the price offered by the issuer is tied to the yield of a specific Treasury security maturing near the call date of the outstanding bonds. In the event that rates rise the tender price will automatically decrease, creating an effective hedging device.

High-coupon tax-exempt issues tend not to trade for at least two reasons, both related to taxes. First, investors who purchased near par would be liable for capital gains tax on the premium. Second, the amortization of the premium paid for a high-coupon tax-exempt bond does not produce a tax loss. Since tax-exempt bonds are generally held by taxable investors, they will demand a tender price significantly above the fair value of an otherwise identical newly issued bond. This price effect is less significant for taxable bonds because the largest institutional holders, pension funds, pay no taxes.

Although most high-coupon repurchase programs involve taxable bonds, they have also been carried out for tax-exempt bonds since the mid-1980's. The decline of interest rates in 1991 prompted a surge of tenders for corporate tax-exempt securities, often by reverse Dutch auctions. Exhibit 1 shows the largest programs from this period. Ogelthorpe Power Corporation, which is owned by several municipalities, is unique among these issuers in that it effectively is not a taxpayer, owing to a large tax loss carry-forward. However, as we demonstrate below, the benefits to an issuer from these transactions are enhanced by the current tax write-offs they produce.

[3]Boyce and Kalotay, op cit

Exhibit 1

Issuer	Amount Repurchased ($Thousands)	Percentage of Outstanding Amount Repurchased
Florida Power & Light	77,625	21.67%
Ogelthorpe Power Corporation	220,295	21.16%
Southern California Edison	104,460	43.71%
Illinois Power Company	84,710	26.79%
Philadelphia Electric Company	160,560	56.14%
Houston Lighting & Power	99,915	27.17%
San Diego Gas & Electric	118,615	29.65%
Central Power & Light Company	120,265	54.44%
Total	986,445	
Average		37.69%

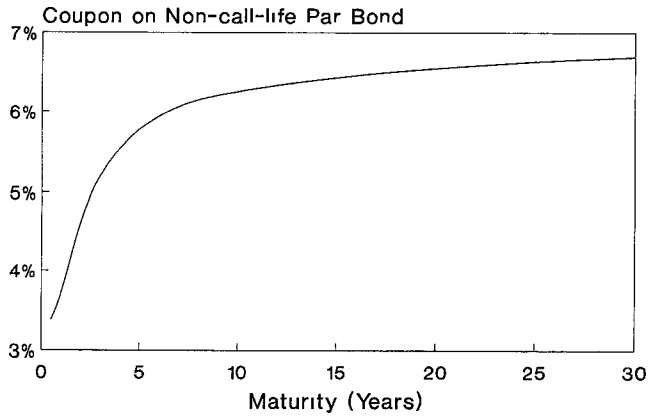

Exhibit 2. Florida Power & Light Tax-exempt Yield Curve—May 28, 1992

V. ANALYTICAL ASPECTS OF BOND REFUNDING

In general, the savings from a refunding transaction are determined by discounting the differential cash flows at the current borrowing rate. In particular, taxable corporations must discount after-tax cash flows at after-tax borrowing rates. The tax effect on the cash flows comes not just from the deductibility of the interest payments, but from the fact that any premium paid over the tax basis represents an immediate ordinary loss for tax purposes.

When a corporation repurchases bonds above their book value—which may not coincide with their tax basis—the difference is an accounting loss. Electric utilities are allowed to amortize this loss over the remaining life of the issue, mitigating the adverse earnings effect. In contrast, industrial corporations and telephone companies must immediately recognize the accounting loss. This difference in accounting treatment largely explains why electric utilities have been particularly active in premium debt repurchase.

But computing the savings is only half the story. When an issuer refunds a callable bond, it forfeits the right to call that bond in the future. This right is quantified by the value of the option embedded in the outstanding security. The option value depends on the maturity-matched refunding rate, the shape of the yield curve, the volatility of interest rates, and the borrower's tax rate. All of these are directly observable, except for the volatility; this can be estimated from observed market prices for actively-traded callable securities.

The degree to which a refunding captures the embedded call option value can be quantified by the so-called refunding efficiency, which is the fraction of the forfeited call option actually captured as savings by the refunding. In general, the higher the assumed volatility, the larger the option value, and the lower the efficiency.

Refunding efficiency provides the green light to a refunding. A manager who is risk-neutral will not refund below a refunding efficiency of 100%, while a more risk-averse executive may choose to act, say, at 90%. In choosing a target refunding efficiency, one balances the need to capture savings today against the possibility that a better opportunity will present itself tomorrow.

The exercise of a contractual option, like the call in a current refunding, can not lead to an efficiency in excess of 100%. The same holds true for advance refunding of municipal bonds, where the savings are independent of market prices. In contrast, repurchase programs can be hyper-efficient, as they depend on market prices.

Refunding efficiency and reverse Dutch auctions go hand-in-hand. The borrower can readily determine the price corresponding to any desired target efficiency level, and then accept all offers at or below that price.

VI. FLORIDA POWER & LIGHT: A CASE STUDY

Florida Power & Light Company, a major investor-owned electric utility, engaged in two refunding programs in 1992 and 1993. The 11 3/8's of 2019 were issued by the Jacksonville Port Authority in 1984 with Florida Power & Light as obligor. The company repurchased the bonds two years before their first call date and 27 years before maturity. The transaction is analyzed as of its closing date, May 28, 1992.

The company conducted a reverse Dutch auction, buying $14 million of the outstanding $60 million principal at a price of 118% of par. At the time, the company's 30-year tax-exempt rate was 6.6% and its theoretical 27-year rate was about 6.5%. This is the refinancing rate used in the analysis, although the company actually issued variable-rate debt. The prevailing yields at which Florida Power & Light could have issued optionless tax-exempt debt of various maturities (i.e., non-call-life "bullet" bonds) are shown in Exhibit 2.

Florida Power & Light Company's tax-exempt yield curve, which describes the coupon on new par optionless tax-exempt bonds of varying maturities.

Exhibit 3. Refunding the 11⅜'s of 2019: Sizing the Deal

	Pretax	After-tax	
Tender Price	118.000%	110.429%	$ 15,460,031
Accrued Interest	0.822	0.512	71,734
Tender Management Fee	1.000	0.624	87,318
Cost of Purchase	119.822%	111.565	$ 15,619,083
Underwriting Fee	0.950%		149,804
Size of New Issue		112.635	$ 15,768,888

Exhibit 4. Tender Prices, Savings, and Refunding Efficiencies

Refunding Efficiency	Tender Price	After-tax Cash flow Svings
70	132.01	27.8
75	128.76	29.8
80	125.50	31.8
85	122.24	33.7
90%	**118.99%**	**35.7%**
95	115.73	37.7
100	112.48	39.7
105	109.22	41.7
110	105.97	43.7

Exhibit 5. Refunding the 11⅜'s of 2019: Computing the Savings

Cost of leaving the bond outstanding:		$20,877,899
Cost of new tax-exempt debt:	$13,965,926	
Cost of new taxable debt:	2,129,001	
Cost of replacement:		16,094,927
Net present value after-tax savings:		$ 4,782,273
Forfeited option value:		5,271,140
Refunding efficiency:		90.7%

As indicated earlier, corporations may not use tax-exempt debt to fund premia over par or transaction costs, and we have assumed that these incremental costs were funded in the taxable market. At the time of the transaction, the company's long-term taxable rate was 8.5%, 2% above its tax-exempt rate.

To determine the full impact of this restriction, one must compute the after-tax cost of the purchase. At the time, the company's marginal income tax rate was roughly 38%, and the tax basis for the bonds was 97.88% of par. Thus the pretax purchase cost of 118% of par plus accrued interest translated to an after-tax cost of nearly 111% of par. With transaction expenses, the total cost of purchase came to 112.635%. The additional 2% in interest to be paid on the resulting 12.635% gross premium over the 27-year term reduces the savings from the transaction by 2.5% of the $14 million principal amount, or $360,000, on an after-tax present value basis. The sizing of the deal is summarized in Exhibit 3.

The refunding produced expected after-tax present value savings of approximately $4.8 million or 34.2% of face value. Since the forfeited call option's value was estimated to be 37.7% of face value, the transaction was completed at an efficiency in excess of 90%.[4] As shown in Exhibit 4, the company could have accepted offers up to 119%, while still achieving a 90% efficiency.

The $37.7 million estimate for the option value is based on a 9% yield volatility assumption. In general, higher volatilities result in larger option values and lower efficiencies. But the American option to call the 11 3/8's was so deep in the money that it can effectively be considered a deep-in-the-money one-time European option. Thus the option's value was roughly just the savings from calling and refunding at the fair forward rate on the first call date, discounted back to 1992, with all computations being done on an after-tax basis.

Were the company to wait until the first call date in May 1994, it would need to refund for 25 years at 7.20% to achieve the same $4.8 million savings reaped by this transaction.

Let us examine the cash flows seen by the Florida Power & Light in this refunding. If the company were not to transact, the after-tax semi-annual interest payment on the $14 million 11 3/8's, adjusted for the benefit from the accretion of the tax basis, would remain $494,500. The pretax cost of the repurchase, including the 18% premium and roughly 2% in transaction costs, amounted to $16.9 million. But the net after-tax cost to the company was only $15.8 million, $1.8 million of which could not be funded with tax-exempt debt.

At that time, the company could have issued 27-year non-call-life tax-exempt debt at 6.5% and 8.5% in the tax-exempt and taxable markets, respectively. Funding in this manner leads to after-tax semi-annual interest payments of $329,500.

The $4.8 million savings quoted above were obtained by discounting both the semi-annual $165,000 interest savings and the additional $1.8 million in principal due at maturity. All discounting was carried out at 2.446%, the after-tax equivalent of the company's tax-exempt rate of 6.5%. These results are summarized in Exhibit 5.

Taxes play a significant role in the economics of any corporate refunding. Corporations deduct interest payments and they also expend any premium paid over the tax basis in a debt repurchase. This transaction was facilitated by the immediate write-off of the more than 20% premium to the tax basis, so that on an after-tax basis, that premium was reduced to 12.5%.

In the absence of taxes, a stopping price of 116% would have been required to achieve a refunding effi-

[4]Determining the savings and refunding efficiency in a refunding transaction requires a contemporary valuation model For an example see Andrew J. Kalotay, George O. Williams, and Frank J. Fabozzi, "A Model for Valuing Bonds and Embedded Options," *Financial Analysts Journal*, May/June 1993

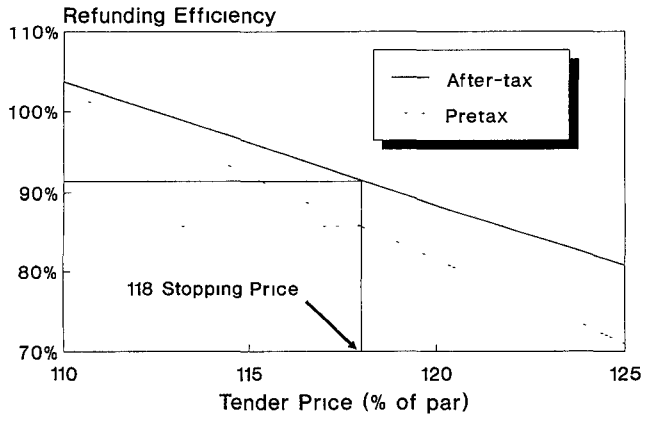

Exhibit 6. The Effect of Taxes on Efficiency Jacksonville Port Authority 11 3/8's

ciency of 90%. And at the actual price of 118%, the pretax refunding efficiency is only 85%. Exhibit 6 displays the influence the company's tax rate has on the refunding efficiency over a range of tender prices. Clearly the higher the price, the more taxes enhance the transaction

The issuer's tax-paying status can significantly enhance a refunding transaction, producing greater efficiency at a given price or equivalently allowing a higher price to be paid while still achieving a given efficiency.

VII. CONCLUSION

We have surveyed the complex regulatory landscape surrounding the refunding of tax-exempt debt in general and corporate tax-exempt debt in particular. We have extended the conventional after-tax refunding analysis to incorporate the special regulatory treatment of these securities.

As a case study, we have reviewed the application of these techniques to a reverse Dutch auction conducted by Florida Power & Light. In this study, we showed how the refunding efficiency measure was used to determine the stopping price in a reverse Dutch auction.

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ANDREW J. KALOTAY is Associate Professor of Finance at Fordham University and a Trustee of the Financial Management Association.

GEORGE O. WILLIAMS is a Principal of Andrew Kalotay Associates and Dean of Quantitative Analysis for the Fixed Income Analysts Society.

ANDRES I. PEDVIS holds a BA in Philosophy from McGill University and an MBA in Finance from Fordham University