

## The Efficiency of Tax-Exemption

PRESENTATION FOR:

National Association of Health and Educational Facilities Financing  
Authorities

October 3, 2011

*from* NUVEEN INVESTMENTS

PRESENTED BY:

*Cadmus Hicks, CFA, PhD*  
Managing Director  
312-917-7865  
[Cadmus.Hicks@Nuveen.com](mailto:Cadmus.Hicks@Nuveen.com)

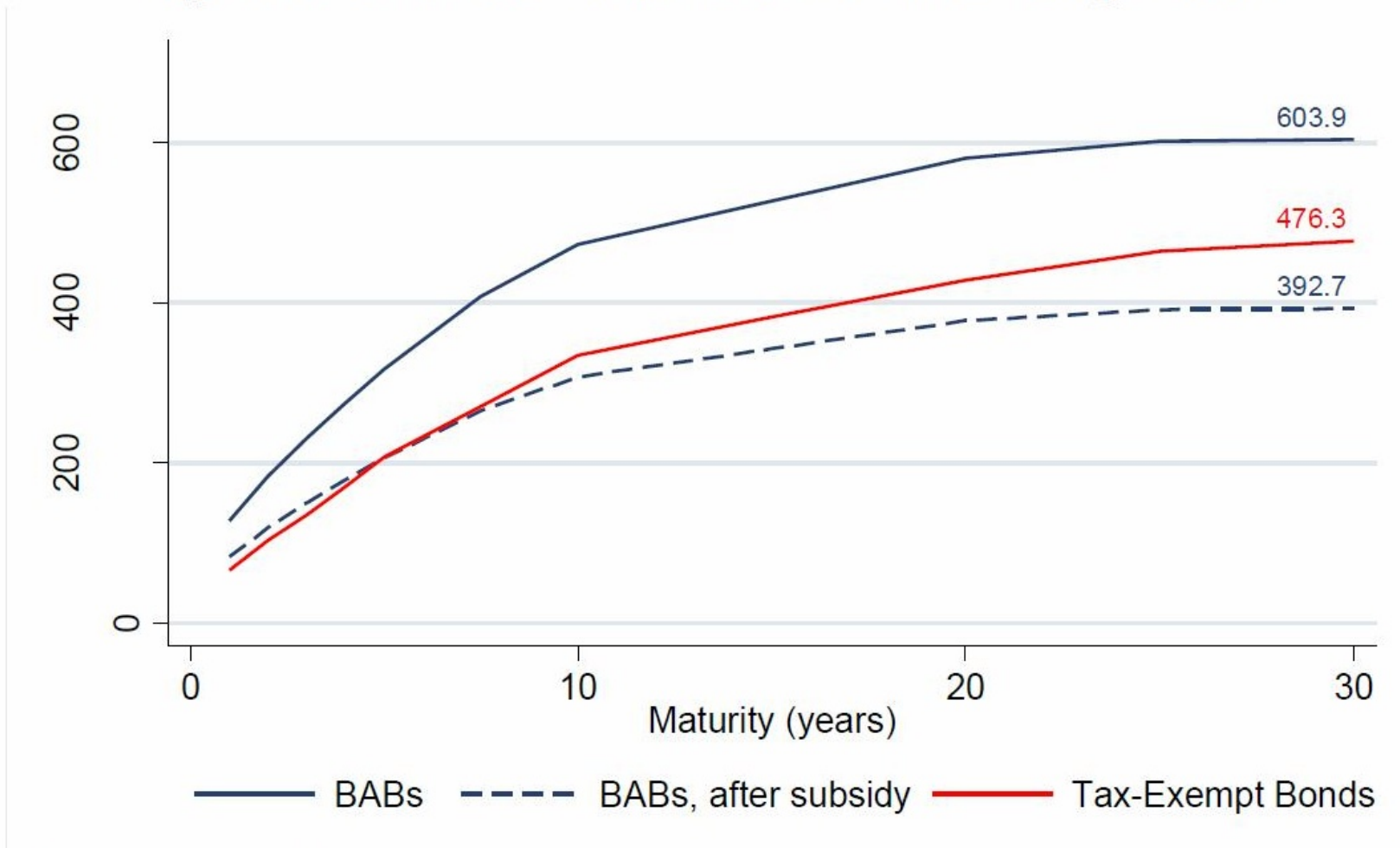
## Treasury Analysis of BABs, 5/16/2011

- \$181 billion of BABs sold in 2,275 issues.
- Average maturity of BABs = 14.3 years
- Average maturity of tax-exempt bonds = 8.2 years.
- Issuers “saved, on average, 0.84% on interest costs for 30-year bonds.”
  
- Tax-Exempt yield = 4.77%
- BAB = 6.04%, 65% of 6.04% = 3.93%  
0.84%

# Treasury Analysis of BABs, 5/16/2011

Select & Zoom

## Figure 3: Predicted Yields: BABs v Tax-Exempt Bonds



## Treasury Analysis of BABs, 5/16/2011

- Issuers “saved \$20 billion in borrowing costs, on a present value basis, as compared to tax-exempt bonds.”
- The savings “is considerably greater than the net cost to the federal government of the BABs program.”

## Treasury Analysis of BABs,5/16/2011

Gross Cost of subsidy on 30-year bonds yielding 6.04% =

$$0.35 * 6.04\% = 2.11\%$$

$$\text{Less Savings } \underline{-0.83\%}$$

$$\text{Net Cost } 1.28\%$$

Required tax rate for Treasury's tax revenue to equal cost net of benefit received by issuer =

$$1.28\% / 6.04\% = 21.2\%$$

## Changing the Subsidy Rate

Savings and Costs on 30-year BABs yielding:				6.04%
Subsidy Rate	Savings in net yield	Cost to Treasury	Cost - Savings	Needed Tax Rate
35%	0.83%	2.11%	1.28%	21.2%
28%	0.41%	1.69%	1.28%	21.2%
25%	0.23%	1.51%	1.28%	21.2%
15%	-0.37%	0.91%	1.28%	21.2%

## James Poterba and Arturo Verdugo Study\*

Tax expenditures do not equal potential tax revenues.

Assumptions:

- Tax-exemption revoked retroactively.
- Interest rates raised to taxable rates.
- Current holders retain bonds.

## James Poterba and Arturo Verdugo Study\*

### Asset Allocation of Investors in Tax-Exempt Bonds

29% Direct equity

15% Equity via mutual funds

18% Tax-exempt bonds

13% Tax-deferred investments

8.5% bonds

4.5% equity

9% Interest bearing accounts

6% Taxable bonds

10% Other

\* "Portfolio Substitution and the Revenue Cost of the Federal Income Tax Exemption for State and Local Government Bonds," National Tax Journal, June 2011

## James M. Poterba and Arturo R. Verdugo Study

Increase in Federal Tax Revenue if investors replace tax-exempt bonds with:

Taxable bonds:	\$14.0 billion
Equities:	\$ 8.9 billion
Existing asset allocation:	\$ 8.2 billion

Joint Committee on Taxation, 12/15/2010

Estimates of Tax Expenditures, 2010 to 2014:

\$199 billion, or \$39.8 billion / year.

## The Benefit of Tax-Deferral

\$100,000 invested for 30 years, earning 6% per year, which is reinvested.

At end of 30 years:

\$100,000 original principal

\$474,349 interest earned

\$574,349

-\$166,022 taxes (0.35 x \$474,349)

\$408,327 after-tax value

Rate of Return = 4.80%

$$(\$408,327 / 100,000)^{(1/30)} = 1.0480$$

## The Benefit of Tax-Deferral

4.80% after-tax return is

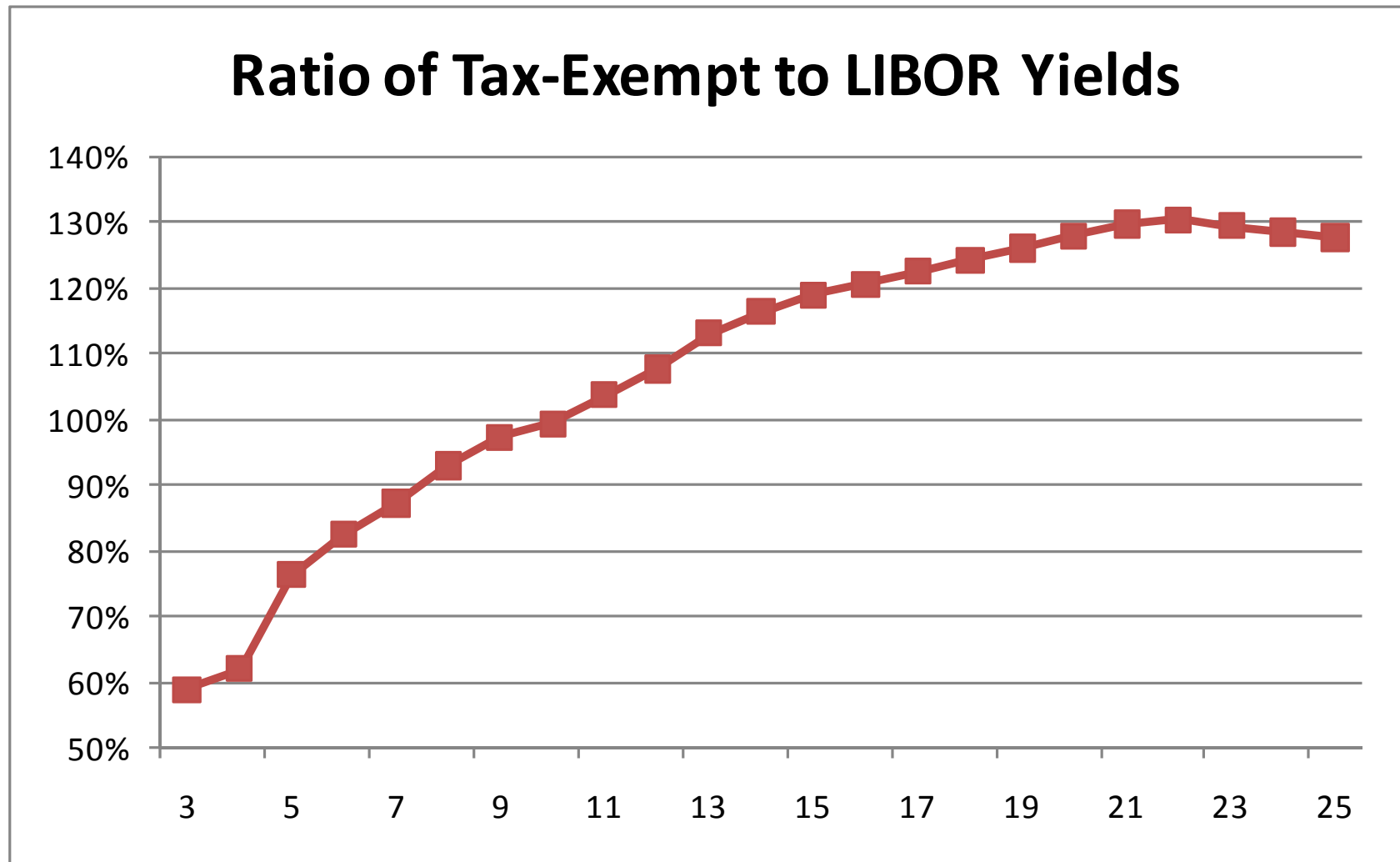
80.0% of pretax return of 6.00% ( $4.80 / 6.00 = 0.800$ )

Implied effective tax rate: 20.0% ( $100.0\% - 80.0\%$ )

## The Benefit of Tax-Deferral

Taxable Rate	Number of Years	Ending Value	Tax Liability	After-Tax Value	After-Tax Rate	After-Tax Ratio
6.00%	1	106,000	2,100	103,900	3.90%	65.0%
6.00%	2	112,360	4,326	108,034	3.94%	65.7%
6.00%	5	133,823	11,838	121,985	4.05%	67.6%
6.00%	10	179,085	27,680	151,405	4.24%	70.6%
6.00%	15	239,656	48,880	190,776	4.40%	73.3%
6.00%	20	320,714	77,250	243,464	4.55%	75.8%
6.00%	25	429,187	115,215	313,972	4.68%	78.0%
6.00%	30	574,349	166,022	408,327	4.80%	80.0%

## The Benefit of Tax-Deferral



## Corporate Bonds in Tax-Deferred Accounts

Percentage of corporate and U.S.-owned foreign bonds held by:

Life Insurance Companies:	18.1%
Rest of the World:	21.6%
Mutual Funds:	11.7%
Pension Plans:	7.2%

CBO says that tax expenditures from life insurance and annuities total \$117 billion 2012 to 2016.

Mutual funds account for 49.7% of all assets in IRAs and 401(k) accounts.

## No Tax-Exempts, Just BABs

BABs helped lower borrowing costs of tax-exempts by reducing supply of tax-exempts.  
No such collateral benefit if only BABs can be issued.

## No Tax-Exempts, Just Tax Credit Bonds

With 25% tax credit (included in income),

Yield must equal 80% of taxable yield.

On \$100,000, 6.00% taxable, 4.80% tax credit.

Tax credit = \$1,200 (25% of \$4,800)

Savings = \$1,200 (\$6,000 - \$4,800)

IRS study: average tax-exempt yield = 4.76%

Average taxable yield = 6.04%

Tax credit yield =  $0.80 \times 6.04\% = 4.83\%$

## Proposed Jobs Bill

Tax liability increases when Adjusted Gross Income exceeds:

\$250,000 for married couples filing jointly,

\$225,000 for heads of households

\$125,000 for married individuals filing separately, or

\$200,000 for all others filing personal income tax returns

Then add deductions and exclusions (e.g. tax-exempt income) to taxable income for Adjustable Taxable Income

## Proposed Jobs Bill

Tax on Adjusted Taxable Income (ATI)

-Tax on Regular Taxable Income (RTI)

-28% of deductions and exclusions

Increase in tax liability

Assume:

\$400,000 RTI

\$100,000 Deductions and Exclusions

\$500,000 ATI

## Proposed Jobs Bill

$$\text{Tax on RTI} = \$101,086 + (0.35 \times (\$400,000 - \$373,650))$$

$$\text{Tax on ATI} = \$101,086 + (0.35 \times (\$500,000 - \$373,650))$$

$$\begin{array}{r} \$145,308 \text{ Tax on ATI of } \$500,000 \\ -101,308 \text{ Tax on RTI of } \$400,000 \\ \hline - 28,000 \text{ } 0.28 \times (\$500,000 - \$400,000) \\ \$ 7,000 \end{array}$$

Effective tax rate on “tax-exempt” income is 7% (35% - 28% = \$7,000 / \$100,000)

## Proposed Jobs Bill

Taxable equivalent yield:

$$0.93 \times \text{tax-exempt yield} = 0.65 \times \text{taxable yield}$$

$$\text{tax-exempt yield} = (0.65 \times \text{taxable yield}) / 0.93$$

$$\text{tax-exempt yield} = 0.6989 \times \text{taxable yield.}$$

$$\text{Tax-exempt yield} / 0.6989 = \text{taxable equivalent yield.}$$

$$3.25\% / 0.6989 = 4.65\%.$$

$$3.25\% / 0.6500 = 5.00\%.$$

## Proposed Jobs Bill

Of \$4,179,050 returns with tax-exempt income  
1,177,019 (28%) had AGI > \$200,000,  
Which accounted for  
\$35.9 billion (58%) of  
\$61.6 billion of tax-exempt income.

## South Carolina v. Baker, 1988

“In sum then, under current intergovernmental tax immunity doctrine, the States can never tax the United States directly, but can tax any private parties with whom it does business, even though the financial burden falls on the United States, as long as the tax does not discriminate against the United States or those with whom it deals.”

# Sources

Description of Revenue Provisions Contained in  
the President's Fiscal Year 2012 Budget Proposal,  
Joint Committee on Taxation  
<http://www.jct.gov/publications.html?func=startdown&id=3796>

Budget Options, March 2011, Congressional  
Budget Office,  
<http://www.cbo.gov/ftpdocs/120xx/doc12085/03-10-ReducingTheDeficit.pdf>

"Portfolio Substitution and the Revenue Cost of the  
Federal Income Tax Exemption For State and Local  
Government Bonds," National Tax Journal, June 2011,  
James M. Poterba and Arturo Ramirez Verdugo.  
<http://ideas.repec.org/p/nbr/nberwo/14439.html>

Estimates of Federal Tax Expenditures for Fiscal  
Years 2010-2014, Joint Committee on Taxation  
<http://www.jct.gov/publications.html?func=startdown&id=3718>

Flow of Funds Report, <http://www.federalreserve.gov/releases/Z1/>

Investment Company Institute's 2011 Fact Book, [http://www.ici.org/pdf/2011\\_factbook.pdf](http://www.ici.org/pdf/2011_factbook.pdf)

# RISKS AND OTHER IMPORTANT CONSIDERATIONS

This report provides general information only. Neither the information nor any opinion expressed constitutes an offer or an invitation to make an offer, to buy or sell any investments or related securities. The analysis contained herein is based on the data available at the time of publication and the opinions of Nuveen Research. Information is current or relevant as of the date indicated and such information may become outdated or otherwise superseded at any time without notice. This analysis is based on numerous assumptions. Different assumptions could result in materially different outcomes.

Past performance is no guarantee of future results. The report should not be regarded by the recipients as a substitute for the exercise of their own judgment. The examples shown in this report are hypothetical and intended for illustrative purposes only. They do not represent the past or future performance of any bond or investment product. There are risks inherent in any investment including the possible loss of principal. Bonds and other fixed-income investments are subject to various risks including, but not limited to interest rate risk or the risk that interest rates will rise, causing bond prices to fall; and credit risk, which is the risk that an issuer will be unable to make interest and principal payments when due.

Nuveen does not offer tax advice and the preceding discussion is not intended to be used for the purpose of avoiding United States federal or state tax liabilities.