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Dynamic Interest Conversion Under the Current U.S. Income Tax

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Abstract

Under U.S. federal tax rules, a wash sale of an appreciated bond results in a current capital gain and a corresponding decrease in future interest income. Similarly, a sale of a loss position and a repurchase satisfying the requirements of the wash sale rule gives rise to a current capital loss and a corresponding increase in future interest income. We analyze the historical performance of ongoing gain harvesting versus loss harvesting strategies for 10-year U.S. Treasury bonds. The difference in the conversion ratio, i.e., the proportion of transformation from interest to capital, for the two strategies had a mean of 39.4% (sd=13.6%) for bonds issued from 1953 through 2011. From the time of the Tax Reform Act of 1986 through 2011, the mean was 49.0% (sd=14.2%). For bonds issued from 2011 through 2021, the mean so far has been 76.0% (sd=20.9%). A taxpayer with an effective capital gains tax rate of zero, due, e.g., to equity loss harvesting, can result in non-taxation of converted interest. Accordingly, current tax rules may not burden interest income as much as common wisdom might suggest, and taxpayers who harvest gains may obtain better tax treatment than those who simply buy and hold, and even better still than those who harvest losses.

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Contents

1 Introduction

The intricacies of the Internal Revenue Code create pitfalls and opportunities for taxable investors. One important but understudied area is the taxation of fixed income assets. We analyze the historical performance of gain harvesting versus loss harvesting strategies for 10-year U.S. Treasury bonds. The former converts interest income into capital gains and the latter increases future interest in exchange for capital losses.

We measure the conversion ratio of each strategy, i.e., the proportion by which a strategy decreases overall interest on a bond, with negative ratios corresponding to an increase in interest. We find that the difference in conversion ratios for gain harvesting relative to loss harvesting had a mean of 39.4% (sd=13.6%) for bonds issued from 1953 through 2011. From the time of the Tax Reform Act of 1986 through 2011, the mean was 49.0% (sd=14.2%). For bonds issued from 2011 through 2021, the mean so far has been 76.0% (sd=20.9%).

The conversion between interest and capital items is possible because of special tax rules applicable to debt instruments. A wash sale of an appreciated bond reduces future interest income by the amount of the current gain. The bond's basis is increased to the new purchase price, and the excess over the par value is amortized to reduce interest over the remaining life of the bond. Conversely, an approximate wash sale of a depreciated bond increases future interest income by the amount of the current loss.[1] The bond's basis is decreased to the new purchase price, and the shortfall below par value is eventually taxed as interest at or before maturity. This results in a tax-based incentive for bondholders to realize gains and lock in losses, assuming capital income is taxed at a preferential rate and timing differences are ignored.

An example helps provide intuition. Suppose a taxpayer purchased a $1,000 10-year Treasury paying a 3% annual coupon in September 2018. Three years later, the price has increased to $1,125 as a result of a drop in prevailing interest rates.[2] A sale and repurchase of the bond results in current capital gain of $125 and an offsetting reduction in interest income. Thus, although $210 more in interest payments will be made on the bond, only $85 will be taxed.[3]

In a similar way, a holder of bond that has fallen in value can sell to create a capital loss in exchange for higher future interest payments. If capital gains rates are effectively zero but ordinary interest rates are high, then gain harvesting is preferable to loss harvesting, because it corresponds to an ordinary income reduction, and not an increase.

These tax-based incentives are diametrically opposed to those along the more familiar timing margin, which favor loss harvesting and gain deferral. As demonstrated in Constantinides (1983), loss acceleration is preferred if the tax rate applicable to gains and losses is the same as that on interest income. If the tax rate on gains and losses is lower than that on ordinary income, then incentives along the timing and character margin compete, and the optimal strategy for wash sales can be complex. Depending upon the size of the potential

[1] The qualification "approximate" is used because under IRC § 1091 a loss on sale is only allowed if the taxpayer waits more than 30 days before repurchase of a "substantially identical" position. A similar rule does not apply to a sale generating gains.

[2] The coupon on a new 7-year bond is only 1.16% in September 2021.

[3] The remaining coupon payments are calculated as $\$210 = 7 \times 3\% \times \$1,000$. The amount of interest after the wash sale is calculated as $\$85 = \$210 - \$125$.

gains and losses and the present value of deferral, it may be best to trigger some losses and some gains over the life of an instrument.

Our focus on the character margin follows an assumption laid out in Strnad (1995) that the tax rate applicable to capital gains is effectively zero.[4] This assumption may be realistic particularly for sophisticated taxpayers who engage in other tax planning unrelated to debt positions. Such taxpayers may harvest losses with respect to equity positions, for example, and have a reservoir of capital losses to deploy.[5] Under this assumption, a wash sale of a gain reduces future ordinary interest income but does not incur an up-front penalty of a tax due on the gain. Similarly, locking in a loss position prevents increase in future ordinary interest income, but there is no detriment from failing to harvest a current capital loss.

Our results build on the work of Strnad (1995), who studied the effects of tax rules on bond prices using an extension of the bond pricing model developed by Constantinides and Ingersol (1984). Our contribution is to provide empirical results to complement the prior model-based analysis.

We focus on U.S. Treasury bonds because it is straightforward to estimate their prices with readily available historical yield data. This tracks how hypothetical bonds trading with those yields would have performed, but it does not reflect prices of actual bonds. In addition, because the market is highly liquid, we make the idealized assumptions that desired trades can always occur and transaction costs are zero.

Our application of current tax rules to historical bonds is anachronistic for times when the current tax rules did not apply. We nevertheless analyze a lengthy historical period to provide insight into how strategies based on current law would perform if rates follow patterns observed in the past.

Our results are also conservative inasmuch as they focus only on U.S. Treasury bonds that exhibit relatively small amounts of price fluctuation. Corporate bonds may be more volatile and give rise to greater opportunities to harvest gains or losses. We leave the analysis of such bonds to future work.

The remainder of the paper proceeds as follows. We review the literature on the taxation of bond trading in Section 2. We describe our data and our calculation of estimated bond prices in Section 3. We report our main results in Section 4. We discuss policy implications and reform possibilities in Section 5. We conclude in Section 6.

2 Literature Review

Constantinides and Ingersol (1984) were the first to describe and value the tax timing option embedded in bonds, outlining several tax considerations governing the optimal trading of bonds for different marginal bondholder classes subject to different tax rates. By failing to account for such tax trading they write that econometric estimates of the yield curve and the tax bracket of the marginal investor are biased. This theoretical foundation is expanded by Sims (1992) and notably Strnad (1995) who applies the strategy to discount and premium bonds, more precisely detailing the tax mechanisms to identify the value of a bond's tax

[4] Professor Strnad calls this the "Zero Rate" case. He also considers other configurations for rates.

[5] Note that loss harvesting with respect to equities can be a useful strategy notwithstanding our results because equities do not give rise to interest income and are subject to different tax rules than bonds.

trading option. Constantinides and Ingersoll and Strnad run simulations to estimate the effect of tax trading on the yield curve.

Empirical work analyzing the tax trading dimension of bonds is generally split into two branches. The first branch aims to determine the embedded value of tax trading options and the optimality of yearly wash sale strategies. Some studies are based on Merton (1973) and construct two portfolios of identical cash flows, the first comprised of medium-coupon bonds, and the second of low and high coupon bonds, to find evidence of and to value the tax trading option. A representative sample includes work by Litzenberger and Rolfo (1984a), Heuson and Lasser (1990), Jordan and Jordan (1991), Ehrhardt et al. (1995), and Elton and Green (1998), which find evidence of the existence of a tax trading option given the portfolios composed of low and high coupon bonds commanded a higher price compared to the medium coupon bond. However, the tax option is too small (amounting to no more than a few basis points) to give rise to serious arbitrage opportunities, with minimal impact on yield curve estimates. Prisman et al. (1996) find similar results using Government of Canada bonds.

A second branch of studies examines the capitalization of taxes in bond prices to try and determine clientele effects and the status of the marginal investor. Empirical studies based on Treasury empirical studies find that a break occurred following the reduction in asymmetries in the taxation of bonds by the 1986 tax reform. Prior to the reform, McCulloch (1975), Litzenberger and Rolfo (1984b), Heuson and Lasser (1990), among others, find that taxes played an important role in the pricing of treasuries, with capitalized tax rates being between 20-30%. However, studies on post-1986 Treasuries such as Liu et al. (2007) find no evidence that taxes have any effect on bond pricing, indicating that the marginal investor was tax-exempt. Green and Ødegaard (1997) examines both pre and 1986 Treasury data, finding evidence of a clear break following 1986. These findings are consistent with the proposition that taxes do not affect Treasury yield curve estimates.

Municipal and corporate bond markets present a different story. Poterba (1986), Wang et al. (2008), Ang et al. (2010), Longstaff (2011), Kalotay and Howard (2014), Ang et al. (2014), and Kalotay (2016) all find evidence of tax pricing in the municipal bond market. Municipal bond pricing likewise includes expectations of future changes in tax rates (see e.g., Poterba (1986), Fortune (1996)). Similarly, Qi et al. (2010) and Liu et al. (2007) find that personal taxes are capitalised into corporate bond pricing. The differences between Treasury, municipal, and corporate bond markets point towards a clientele effect segmenting the bond market.

3 Historical Data

We obtained historical monthly average interest rate data for U.S. Treasury debt from the Federal Reserve. These data included rates for maturities of 1, 3, 5, and 10 years from April, 1953 through December, 2020. [6] Rates for maturities of 6 months and 2, 7, 20, and 30 years

[6] Board of Governors of the Federal Reserve System (US), 1-Year, 3-Year, 5-Year, and 10-Year Constant Maturity Rates [DGS1, DGS3, DGS5, and DGS10], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/DGS1, DGS3, DGS5, and DGS10.

were available for subsets of this date range.[7] Table 1 summarizes the range of dates in the data for each maturity and also indicates the mean and standard deviation for each rate during selected historical time periods.

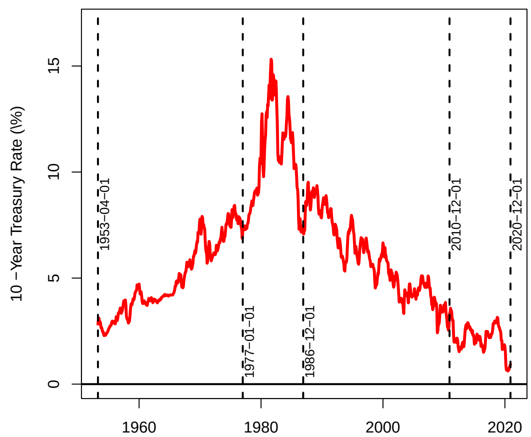
Term	Available Data	4/53–1/77 ($n = 286$)	2/77–12/86 ($n = 119$)	1/87–12/10 ($n = 288$)	1/11–12/20 ($n = 120$)
1-Month	7/01–12/20				0.57 (0.79)
3-Month	1/82–12/20			4.12 (2.28)	0.60 (0.81)
6-Month	1/82–12/20			4.29 (2.31)	0.67 (0.82)
1-Year	4/53–12/20	4.49 (1.91)	9.99 (2.88)	4.46 (2.30)	0.75 (0.82)
2-Year	6/76–12/20		10.24 (2.68)	4.81 (2.27)	0.93 (0.78)
3-Year	4/53–12/20	4.79 (1.79)	10.30 (2.58)	5.03 (2.17)	1.12 (0.73)
5-Year	4/53–12/20	4.91 (1.76)	10.43 (2.46)	5.38 (1.99)	1.51 (0.66)
7-Year	7/69–12/20		10.54 (2.36)	5.65 (1.87)	1.86 (0.63)
10-Year	4/53–12/20	4.99 (1.69)	10.58 (2.28)	5.84 (1.76)	2.17 (0.64)
20-Year	4/53–12/86; 10/93–12/20	4.99 (1.69)	10.64 (2.18)		2.66 (0.67)
30-Year	2/77–2/02; 2/06–12/20		10.54 (2.09)		2.92 (0.67)

Table 1: Summary of yield curve data used in the analysis. The mean value of the yield for each maturity is reported for each period, with the standard deviation in parentheses. Yields are from the Federal Reserve and are monthly averages of constant maturity market yields for U.S. Treasury securities, quoted on an investment basis. Entries are blank for maturities with incomplete data for a period. The figures based on partially available data for the first period are: 2-year yield of 6.25 (0.58) and 7-year yield of 7.09 (0.73). The figures based on partially available data for the second period are: 3-month yield of 8.77 (2.11) and 6-month yield of 9.18 (2.27). The figures based on partially available data for the third period are: 1-month yield of 1.99 (1.66), 20-year yield of 5.55 (1.07), and 6-month yield of 6.49 (1.59).

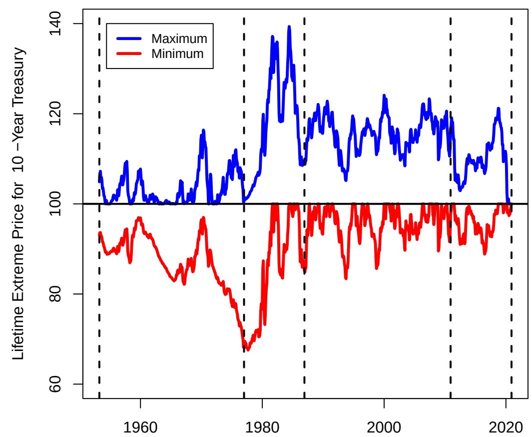
We analyzed bonds issued during four historical time periods. The first spans April, 1953 through January, 1977. This interval of nearly 25 years was an era during which interest rates were generally rising. The second period spans February, 1977 through December, 1986. In this approximately 10-year period, interest rates were at particularly high levels. There were also significant changes to the tax law impacting debt taxation, including the Tax Reform Act of 1986. The third period spans January, 1987 through December, 2010. In this era of nearly 25-years, interest rates were generally falling. The fourth period spans January, 2011 through December, 2020. Interest rates have been particularly low during this 10-year period. In addition, 10-year bonds issued during this period have not yet matured at the time of the writing of this paper, and such bonds are the basis for much of our analysis. Figure 1 shows the 10-year rate over time and indicates the divisions between the historical

[7]Board of Governors of the Federal Reserve System (US), 6-Month, 2-Year, 7-Year, 20-Year, and 30-Year Constant Maturity Rates [DGS6MO, DGS2, DGS7, DGS20, and DGS30], retrieved from FRED, Federal Reserve Bank of St. Louis; https://fred.stlouisfed.org/series/DGS6MO, DGS2, DGS7, DGS20 and DGS30.

periods.



(a) 10-Year Bond Yields



(b) Extreme Prices for 10-Year Bonds

Figure 1: The figure on the left illustrates the values of the 10-year Treasury rate from 1953 to 2020. The figure on the right shows the lifetime maximum and minimum of a 10-year Treasury bond issued at each date in the same historical period. For bonds issued after 2010, the maximum and minimum are taken from issuance until the end of 2020.

We used cubic spline interpolation to estimate yield curves. We present results derived using Nelson-Siegel and Svensson estimation models in the Appendix as robustness checks. Our preferred method is spline interpolation for two reasons. First, there is insufficient data for the Nelson-Siegel and Svensson models to give accurate results for years prior to 1983. This problem is especially pronounced for shorter maturities. Second, both Nelson-Siegel and Svensson approximations replace actual yields used to construct the curves with estimates using their respective parameters. This causes several issues, notably that 10-year bonds do not have face value at first issuance. Nevertheless we find our conclusions to be robust, with Nelson-Siegel and Svensson-derived yield curve estimates presenting similar results to the cubic spline method.

Write $r_{t,m}$ for the U.S. Treasury rate, stated with semi-annual compounding, for a bond with maturity m issued at month t. For each month t, we used cubic spline interpolation to extend from the rates in our data set to computed proxy rates for maturities at six-month intervals, starting with the six-month maturity and ending with either 20 or 30 years, whichever was the largest maturity available in our original data for the particular value of t.

We calculated discount factors using our expanded set of computed rates. We define $d_{t,0} = 1$ and

$$d_{t,0.5} = \frac{1}{1 + r_{t,0.5}/2}. \tag{1}$$

For $m > 1$, we defined $d_{t,m/2}$ in terms of values of $d_{t,j/2}$ for $j < m$ using the formula for the price of a bond with principal amount 1 and maturity m, namely,

$$1 = \frac{1}{2} r_{t,m} \sum_{j=1}^{2m} d_{t,j/2} + d_{t,m}. \tag{2}$$

We used the discount factors to determine proxy prices of bonds at 6-month intervals from issuance to maturity and having principal amount 1. Write $p_{t,m}(s)$ for the price at month s of an m-year bond issued at time t. We calculate this price for $t \leq s < t+m$ as

$$p_{t,m}(s) = \frac{1}{2} r_{t,m} \sum_{j=1}^{2(m+t-s)} d_{s,j/2} + d_{s,2(m+t-s)}.$$

When $s = t+m$, we define $p_{t,m}(t+m) = 1$.

These prices $p_{t,m}(s)$ do not come from actual trades observed in the market, but they provide a general indication of how Treasury bond prices changed over time.

Table 2 reports several price statistics for bonds with a 10-year maturity during each of the four historical periods we study. The table reports the mean and standard deviation for each of the average price of the bond over its life, its high price, its low price, and the range between its high and its low. The table also reports statistica about total variation. For a bond of maturity m issued at time t, we define the semi-annual total variation as

$$1/2 - \text{Semi-annual Total Variation} = \frac{1}{2} \sum_{j=1}^{2m} |p_{t,m}(j/2) - p_{t,m}((j-1)/2)|,$$

and we define the annual total variation as

$$1/2 - \text{Annual Total Variation} = \frac{1}{2} \sum_{j=1}^{m} |p_{t,m}(j) - p_{t,m}(j-1)|.$$

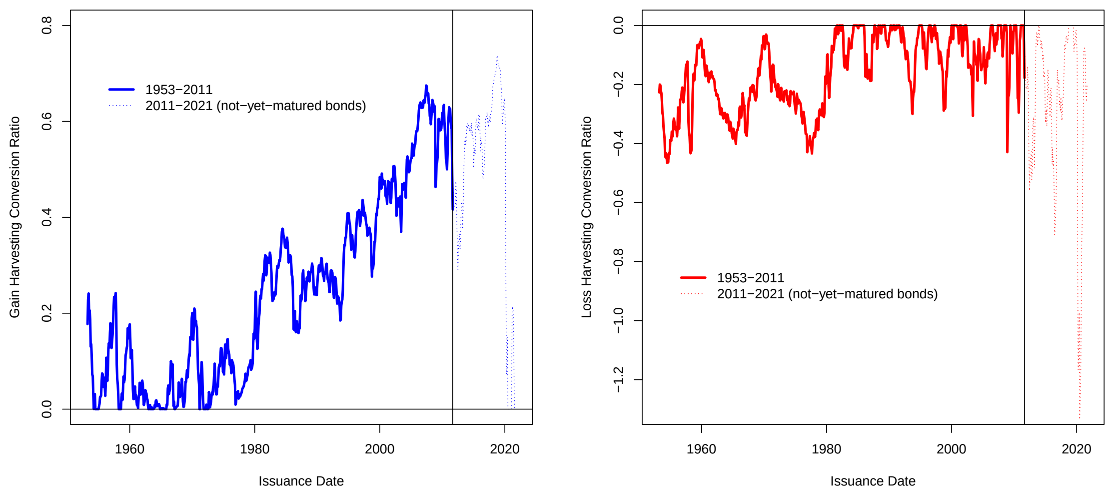
The total variation figures provide a measure of the total fluctuation in value the bond experiences over its life.

	4/53–1/77 ($n = 286$)	2/77–12/86 ($n = 119$)	1/87–12/10 ($n = 288$)	1/11–12/20 ($n = 120$)
High Price	103.30 (3.61)	117.90 (11.47)	115.72 (3.84)	109.83 (5.30)
Low Price	87.35 (5.89)	85.51 (11.49)	95.74 (3.75)	96.10 (3.10)
Average Price	96.29 (2.55)	103.60 (9.28)	105.52 (2.90)	102.85 (3.74)

Table 2: The first row reports the mean and standard deviation of the highest monthly price obtained by 10-year bonds issued in a period. The second row reports the figures for the lowest monthly price obtained. The third row reports the figures for the average monthly price over the life of the bond. Bonds entering into the computation for the final column had not matured at the end of the time covered by our data. For such bonds, we reported statistics based on the life up to the end of 2020.

4 Results

[In this section we present our main results. The graphs below show our findings. More discussion and analysis to be included.]



(a) Gain Harvesting

(b) Loss Harvesting

Figure 2: Conversion ratios for interest on 10-year U.S. Treasury bonds resulting from ongoing gain harvesting (left subfigure) and ongoing loss harvesting (right subfigure). For bonds issued within the past 10 years, the results are indicated with a dotted line and show the conversion ratio with wash sales occuring to date, as well as projected future wash sales based on market forward rates.

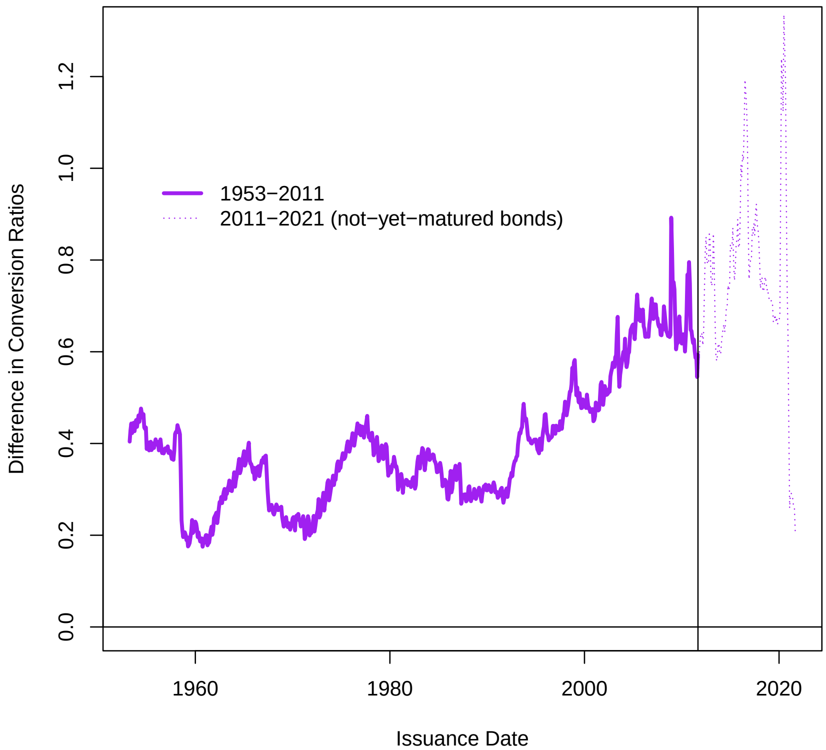


Figure 3: Difference in conversion ratios for gain harvesting and loss harvesting strategies with respect to 10-year U.S. Treasury bonds. For bonds issued within the past 10 years, the results are indicated with a dotted line and show the conversion ratio with wash sales occuring to date, as well as projected future wash sales based on market forward rates.

5 Discussion of Results

Our results confirm the theoretical findings of Strnad (1995) and Constantinides and Ingersol (1984) that tax trading is a valuable strategy, especially for 0% rate taxpayers. Taking a 40% ordinary deduction offset by a 0% gain is quite valuable. The difference in the conversion ratio between the gain harvesting and loss harvesting strategies was significant, with a mean of 39.4% for bonds issued from 1953 through 2011, 49% for bonds issued from 1986 through 2011, and 76.0% (so far) for bonds issued between 2011 through 2021. Robustness checks using the Svensson and Nelson-Siegel approximation methods further confirm our findings and are presented in the Appendix.

More generally, if capital gains rates are greater than zero but below the ordinary rate then there would still be a net benefit before taking timing considerations into account. Since the capital gains tax is paid immediately while the ordinary deductions come later, timing considerations require that the net present value of the after-tax results of the wash sale be positive, which may not always be true. Under our chosen assumptions we avoid this complexity and the conversion strategy has non-negative value to the taxpayer. Under slightly relaxed assumptions, such as taking a statutory rate taxpayer, then it depends. Conversion will typically have greater value as the life of the bond shortens and the applicable capital gains tax rate falls.

The rules that allow interest income to be transformed into capital gains, and realized capital losses to generate additional interest income, are unique to bonds. This distinction happens due to bonds being ordinary income (interest) generating instruments while still being capital assets subject to the capital gains regime. Despite Treasuries being taken as riskless assets, stochastic interest rates lead to fluctuations in pricing, hence there is some element of risk. There are no analogous provisions for transforming dividends into capital gains for equity. A wash sale of appreciated equity would generate a capital gain, and the extent to which subsequent distributions would be treated as dividends would remain unchanged. Only in exceptional circumstances, such as the liquidation of a corporation, would future potential dividends be cut off and transformed instead into current capital gains.

The conversion strategy creates a misalignment between interest inclusion and deduction. Interest is theoretically deducted by a corporation at the same time it is included by the taxpayer. Converting interest into capital gains coupled with the amortization of bond premium through secondary trades ensures reduced inclusion by the bondholder while the issuing entity receives a full deduction. This creates a lopsided effect on tax receipts.

Extending the analysis to corporate bonds would provide deeper insight into the magnitude of tax trading on taxable bondholders. Since corporate bond yields are greater than Treasury yields, and since corporate bonds are subject to additional creditworthiness risks which Treasuries are not, the embedded tax trading should be greater for corporate bonds. This should be true for both zero rate and statutory rate taxpayers. Likewise, additional empirical research into discount, zero-coupon, and inflation-indexed bonds may prove fruitful into exploring the extent to which tax trading benefits extend into other domestic bond markets.

The tax trading literature has not addressed the impact of conversion and tax trading more broadly on derivatives. The benefit of such strategies can be magnified through notional principal contracts whose pricing fluctuates based on changes in interest rates, without there being any underlying principal amount. In this regard, fixed-for-floating swaps seem like they would be particularly lucrative tax arbitrage instruments. A further benefit of some classes of derivatives, like swaps, is that they benefit from lower transaction costs than bonds. These types of transactions were the focus of Revenue Ruling 2002-71 and IRS Chief Counsel Memoranda 201028039.

Two additional issues not addressed here are the impact of state and local taxes and inflation. State and local taxes often replicate the federal rules, but occasionally differ. This can either partially mitigate or further increase the benefits of conversion. In terms of inflation, the Internal Revenue Code taxes nominal rather than real returns. This means that despite bonds potentially being in a loss position, with negative real yields, a buy-and-hold strategy can result in a relatively hefty tax bill. Conversion can at least partially mitigate the distortionary effect of nominal taxation, but it is at best a very imperfect solution. The impact of conversion and other tax trading strategy on bonds that provide an inflation adjusted yield, like Treasury Inflation Protect Securities (TIPS), is thus an important question.

Additionally, relatively high inflation is an ongoing phenomenon which will likely continue for some time. As such, the conversion strategy may become an increasingly useful tool for taxpayers. We identify the impact of state and local taxes on conversion or tax trading more broadly, not to mention inflation, as two important areas for future research. The revenue impact of the tax trading of bonds would likewise be an interesting point of future research in order to determine the magnitude of the problem.

The current policy rationales for the taxation of debt are founded on treating interest income differently from capital gains. As documented by Sims (1992) there is certainly some level of anti-avoidance behind the OID rules. Discount on bonds was initially classified as capital gains prior to 1954, and over time, the rules crystallized to require current inclusion of discount using the constant yield method precisely to prevent the conversion of interest as capital gains. There is probably some form of equity grounding the policy rationales as well, aiming to not punish less sophisticated taxpayers who do not think to trade or purchase discount bonds and to not be unfair to taxpayers who must sell their bonds in a liquidity crunch.

The rules regarding the taxation of debt instruments are special and because of this generate unique trading opportunities. Our analysis, and that of Strnad (1995) and Constantinides and Ingersol (1984) make it clear that the boundaries between a bond's interest income and capital gains derived from trading said bond can be circumvented by strategic trading. Without endorsing the underlying policy distinction between ordinary and capital income with respect to debt instruments, we assume it is a desired policy goal. We further assume that it is a desired policy goal to minimize the sensitivity of interest rate taxation to trading strategies. Whether or not the problem is widespread enough to warrant fixing is a separate issue which we do not address, though it is a question of first-degree importance.

We suggest a reform proposal in furtherance of these goals: define the amount of interest income in each period as the short-term risk-free return to all capital invested in bonds at the start of the period. This "short-term interest" taxation makes the amount of interest independent of trading strategies. Any returns not taxed by this scheme can then be taxed as capital income at whatever rate and time is desired. These other amounts represent returns to risky positions that have zero cost from the perspective of the start of the period. As a result, taxing their returns as capital rather than interest seems reasonable, if the distinction between ordinary and capital income is to be maintained.

Another proposal that would remove the dependence of tax results on trading is mark-to-market taxation. If implemented at a uniform rate on all returns, the Domar and Musgrave (1944) result shows that this method would accomplish the same results as our short-term interest proposal. Mark-to-market may be preferable if the returns include unpriced rents because a mark-to-market tax would capture these, though only once these rents become reflected in market prices. Replacing the current taxes on debt and equity with a wealth tax would likewise solve the issue. If rents are not a concern, however, the short-term interest proposal may be preferable because it provides the appearance of taxing a quantity that seems to comport with conventional notions of "interest".

6 Conclusion

Our empirical results support the prior findings of Strnad (1995) and Constantinides and Ingersol (1984). We further find that the common wisdom to engage in wash sales to harvest losses may be overly simplistic when it comes to bonds. Most taxpayers have huge banks of accumulated harvested losses which make gain harvesting, not loss harvesting, far more valuable. This is only the case because of the unique rules in place for the taxation of debt.

In the present economic climate the conversion strategy is especially valuable. This is because bond yields fell dramatically following the start of the Covid-19 crisis in 2020 and have not (yet) recovered. Taxpayers who purchased bonds in prior years, where yields were higher, have seen the value of those bonds rise. For taxpayers with accumulated losses it is the perfect time to engage in the conversion strategy, especially given the high rate of inflation.

From the taxpayer's perspective, the tax trading of bonds provides clear value. Strnad (1995) and Constantinides and Ingersol (1984) showed that, regardless of the way yields fluctuate, bond trading is valuable to taxpayers. Our results show that this value can be a very substantial percentage of the total interest that would be paid out by a riskless Treasury bond issued at par. The value of trading for corporate bonds is likely much higher. However, it is unclear whether the problem is big enough to warrant legislative or regulatory intervention.

Our results can be interpreted as showing the significance of the risk component embedded within riskless assets. While taxpayers can obtain a riskless return by buying and holding Treasuries, the value of those securities is subject to economic and financial risk, just not in the way one might think. At a conceptual level this causes a breakdown of the distinction between debt and equity, which is reflected in the ability of taxpayers to engage in conversion and deferral strategies even for riskless debt instruments like Treasuries. For risky debt this difficulty becomes magnified, especially considering high yield junk bonds. This is why our preferred reform proposal is to separate a bond's income into a short-term riskless component, to be taxed as interest, and a risky component (everything else) to be taxed as equity. After all, the same risk which causes bond price fluctuations is the same that causes changes in equity values.

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Appendix: Robustness Checks

[Robustness checks using Nelson-Siegel and Svensson models to be inserted]