

Roth IRA Conversion and Estate Planning

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Abstract

The option to convert the deductible IRA to the Roth IRA is now available to everyone. Income levels are not barriers any more. This paper analyzes the conversion decision using the concept of breakeven tax rate, defined as the tax rate at the time of withdrawal of the IRA funds that would make the investor indifferent between conversion to Roth IRA and maintaining the deductible IRA as is. When the investor has funds available outside the IRA to pay the taxes due on conversion, the breakeven tax rate is lower than the investor's tax rate at the time of conversion. The breakeven tax rate is a decreasing function of the investment horizon and the rates of return as well as the tax rate at which the taxable investment of the tax savings (when not converting) is taxed during the investment period. The fact that Roth IRA does not have any required minimum distribution during the investor's life time makes the conversion choice attractive to high income investors who may not need all or most of the IRA funds during their life time.

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I. Introduction

The Tax Relief Act of 1997 (TRA) made more choices available for retirement investments and created a new and very attractive tax-advantaged avenue in the form of the Roth individual retirement account (IRA). The Roth IRA, however, was subject to income limits and was not an available option for individuals with high income levels. Individuals with income levels starting at \$105,000 (or couples filing tax returns jointly with income levels at \$167,000) are fully or partially excluded from investing in the Roth IRA. The year 2010 has brought Roth IRA within reach of everyone regardless of income limits. While contributions are still subject to income limits, anyone can now convert his/her traditional, tax deductible IRA or non-deductible IRA to the Roth IRAs. The conversion would, of course, attract immediate taxation of the converted IRA amount. Many financial services providers are advertising this as a great opportunity and have web sites showing the benefits of such conversion. This paper analyzes the conversion decision by looking at the tax implications, the after-tax future values and some advantages available with the Roth IRA.

The conversion decision is typically analyzed by financial planners and advisors as a trade-off between paying tax now on the converted amount against future tax savings on all withdrawals from the Roth IRA. This approach involves computing the after-tax future value of the investment dollars (or equivalent annuities) for the two options. Some financial services providers offer simulation runs on their web sites for different scenarios of assumed values of current and future tax rates and other relevant inputs. The choice is far from simple or obvious

because of the number of factors involved in the trade-off and the uncertainties surrounding them. Further, the simple trade-off approach often ignores the several flexible features available with the Roth IRA.

This paper analyzes the conversion decision using the framework developed by Krishnan and Lawrence (2001) and Horan and Peterson (2001). The after-tax future value of the unconverted deductible IRA is compared to the after-tax future value of the Roth IRA. The decision metric computed is the *break-even tax rate* for withdrawals from the traditional IRA. This is the tax rate at the time of withdrawal that would leave the investor indifferent between the choices. If the investor's tax rate at the time of withdrawal is *less* than the breakeven tax rate she/he would find that she/he would be better off not converting.

The paper is organized as follows. Section II provides a brief overview of the extant literature on retirement investment avenues with differential tax treatment. Section III describes the analytical framework and analyzes the conversion decision. We calculate the break-even tax rates for a range of scenarios. The section also discusses the features that are available for the Roth but not the traditional IRA. These features may, at the margin, tip the decision in favor of conversion. The following section discusses the estate planning implications of conversion. The final section provides a summary of the findings of the paper and offers some concluding comments.

II. Overview of Literature

Tax-deferred investments for retirement have attracted considerable research interest in the past. Early works include Burgess and Madeo (1980) who analyzed the impact of the

withdrawal penalty on premature withdrawals from IRAs and compute break-even investment horizons for optimal withdrawals using simulation. O'Neil, Saftner and Dillway (1983) incorporate the tax law changes of 1981 into their analysis of withdrawals from IRAs and found the impact of the premature withdrawal penalty made non-IRA investments better for short-time investors. Randolph (1994) compares the non-deductible IRA with open, taxable investments and finds that the former dominates the latter. Randolph, however, did not allow for possible lower taxation of the open investments with capital gains. Scholes and Wolfson (1992) use lower capital gains tax rates and find that optimal choice is a function of investment horizon and percentage of return that is taxed at the lower rate.

The Tax Relief Act (1997) created the Roth IRA and expanded the choices available for retirement savings. Roth IRA provided no up-front tax deduction but offered fully tax-free withdrawal of all accumulated gains. New research evaluated the benefits of Roth IRA vis-à-vis the traditional tax-deductible IRA. Examples include work by Crain and Austin (1997), Horan, Peterson and McLeod (1997), Shanney-Saborsky (1999), Butterfield, Jacobs and Larkins (2000), and Kutner, Doney and Trebby (2001).

Crain and Austin (1997) evaluate deductible IRAs, Roth IRAs, non-deductible IRAs, and open taxable investments assuming the applicable tax treatment of mutual funds. The authors assume equal before-tax investments in the different investment vehicles and show that deductible IRAs and the Roth IRAs would produce identical future values if the investor's tax-rate does not change. The investor would be better off with a deductible IRA if he expected to see a lower tax rate in the future. Conversely, a Roth IRA would be better if the investor expected an increase in his tax rate. Their results show that the Roth IRA and deductible IRA

will dominate non-deductible IRA and taxable investments. The choice between non-deductible IRAs and taxable investments will depend on the rate of return and the percentage of income taxed at a lower capital gains rate.

Butterfield, Jacobs and Larkins (2000) use an approach very similar to that Crain and Austin (1997) and come up similar results. Kutner, Doney, and Trebby (2001) use equal after-tax investment to compare the investment performance of the deductible IRA with that of the Roth IRA and conclude that the investor's marginal tax rates at the time of investment and at the time of withdrawal affect the relative performance of the two types of IRAs. Krishnan and Lawrence (2001) extended the prior research and compare one dollar invested in the Roth IRA with one dollar invested in the deductible IRA after fully accounting for the tax savings from the latter. This approach, in effect, compares equal after-tax investments and allows the investor to use the full potential of the tax advantages of the different investment avenues up to the limit permitted by the tax laws. This framework involves three tax rates: the tax rate at the time of investment, the tax rate at the time of withdrawals, and the tax rate at which the taxable investments are taxed. The last rate may change during the investment period and may also be two different rates – one for income treated as capital gains and the other for income treated as ordinary income. Krishnan and Lawrence assume a uniform tax rate. The authors develop the concept of break-even tax rate for withdrawals, which is defined as the tax rate at the time of withdrawal of funds for which alternate modes of investment will give exactly the same future value for a given investment horizon and rate of return. Horan and Peterson (2001) modify the uniform tax rate for taxable investments assumption. They use the mutual funds return approach developed by Crain and Austin (1997) and apply separate tax rates for the capital gains and

ordinary income and prorate the return into capital gains and ordinary income. Thus, their derived formula for the break-even tax rate involves more terms. The results of Horan and Peterson (2001) are qualitatively similar to that of Krishnan and Lawrence (2001). In essence, the break-even tax rate tells the investor how low her tax rate has to be at the time of withdrawal of funds in order for her to benefit from investment in the deductible IRA in preference to the Roth IRA. The Roth IRA becomes more attractive at higher rates of return and longer investment horizons.

Horan and Zaman (2009) incorporate extensions of the above analysis and consider all sources of retirement income as well as progressive tax rates for a range of incomes and contributions to IRAs and 401k plans. They also consider employer contributions to 401k plans. They run simulations for a wide range of scenarios and compare the investment choices between the tax-deductible IRA and Roth IRA. They find that high-income and high saving individuals may find Roth IRA more attractive.

While most of the above cited research deal with investing in deductible and Roth IRAs and not converting a deductible IRA into a Roth IRA, the principles, models and trade-offs involved can be easily extended to the conversion problem. As mentioned earlier, many financial services providers have pamphlets and web articles explaining the advantages of conversion. Spiegelman (2009) give hypothetical examples of the advantages of conversion and comes to the qualified conclusion that conversion is beneficial if the expected future tax rate is higher or equal than the investor's current tax rate. Spiegelman suggests that investors most likely to benefit are the ones in the \$100,000 to \$250,000 income levels because investors in the higher income levels may not benefit because their tax rates are less likely to go up.

III. Analysis of Conversion Decision

We extend the analytical framework developed by Krishnan and Lawrence (2001) to evaluate the conversion. We use the after-tax accumulated future value of the tax deductible IRA and the converted Roth IRA for the evaluation of the optimal choice. The individual invests in the same type of investments for all investment modes and earns the same before-tax annual rate of return. The decision will be affected by a number of factors. We use the following notations:

k = Rate of return (before tax) on investment, assumed to be same for all investments.

t_0 = Marginal tax rate of the investor at the time of conversion

t_1 = Marginal tax rate for the investor on all taxable investments

t_2 = Marginal tax rate of the investor at the time of withdrawal of funds from the deductible IRA

t^* = The breakeven tax rate or the tax rate at the time of withdrawal of funds for which the accumulated after-tax value is equal for the deductible IRA plus the investments of the initial tax savings and the Roth IRA.

n = number of years for which the funds remain in the IRA

Before considering conversion, the investor has to decide how she would pay the taxes owed that would be due on conversion. For the sake of simplicity, we are ignoring the special advantage of converting in the year 2010, namely the ability to pay the taxes owed over a 2 year period instead of paying all the taxes in 2010. If the investor has to pay the taxes due from the funds in the deductible IRA, the amount available for conversion for each dollar converted will be reduced to $1-t_0$. The after-tax future value of the Roth IRA would then be: $(1-t_0)(1+k)^n$. This should be compared to the after-tax future value of the deductible IRA that remains unconverted: $(1+k)^n(1-t_2)$. The break-even tax rate in this case would obviously be t_0 . In other words, the investor will benefit from conversion only if he expects his future tax rate is *higher* than his tax rate at the time of conversion. This conclusion, which is also the conventional wisdom in some

quarters, is identical to what Crain and Austin (1997) found when they compared equal *pre-tax* investment in deductible IRA and Roth IRA. It should also be mentioned that conversion may also involve additional cost in the form of a pre-mature withdrawal penalty if the investor is less than $59\frac{1}{2}$ years old.

The more interesting and worthwhile case to consider is when the investor has funds available outside the IRA to pay the taxes due. If the investor decides against conversion, she will have for each dollar the deductible IRA additional amount equal to t_0 (the tax saved). Thus, the IRA and the taxable investment of t_0 would accumulate to an after-tax value of:

$$(1+k)^n (1-t_2) + t_0 (1+k(1-t_1))^n$$

This should be compared to the converted Roth IRA accumulation, which would simply be:

$$(1+k)^n$$

Equating the two and solving for t_2 gives the break-even the tax rate.

$$t^* = \text{Break-even tax rate} = \frac{t_0 (1 + k(1 - t_1))^n}{(1 + k)^n}$$

If the investor expects her tax rate at the time of withdrawal to be lower than the break-even rate she would be better off not converting. If she expects it to be higher than the breakeven tax rate, she would be better off converting her deductible IRA to Roth IRA. It can be seen that the break-even tax rate will always be lower than t_0 , the investor's current tax rate. In other words, the investor *has to have* a lower tax rate at the time of withdrawal for the deductible IRA to perform better than the Roth IRA. It can also be seen that the break-even rate decreases with higher rates of return, longer investment horizon, and higher values for t_1 . Of course, t_1 can be lower than t_0 .

This happens when the taxable investment is in the form of long-term capital gains.

Krishnan and Lawrence (2001) discuss the special case of the entire investment return from the taxable investment is in the form of long-term capital gain realized only at the time of withdrawal of the IRA. The break-even tax rate in this case would be:

$$t^* = t_0(1 - t_g) + \frac{t_0 t_g}{(1 + k)^n}$$

This would approximate to $t_0(1 - t_g)$ when n is large.

We compute the break-even tax rates for a number of scenarios. These are presented in tables 1 through 5. We use tax rates at the time of conversion (t_0) from 15 percent to 39.6 percent. This should cover most possible tax rates even if the tax rates increase in 2011 as is feared by some. In all cases, we assume t_1 , the tax rate on the taxable investment, to equal the long-term capital gains rate 15 percent (10 percent for the lowest bracket). This is a more favorable assumption for maintaining the deductible IRA (or against conversion). We also assume that the entire IRA is taxable (that there is no after-tax contribution in the IRA). Again, this favors the status quo and biases against conversion. The breakeven tax rate decreases as the investment horizon increases. This has serious implications for anyone considering conversion. The investment horizon or time to withdrawal from the IRA may be the most predictable of the variables involved. We calculated for horizons up to 50 years, a possibility for someone who is in his 30s. The breakeven rate also decreases as the rate of return increases.

A summary of the breakeven tax rates for a set of scenarios selected from the tables is given below. We also show breakeven tax rates with the most favorable assumption against conversion where the taxable investment returns are taxed only at the end of the investment

horizon and at the capital gains tax rate of 15 percent (10 percent for the lowest bracket). As stated before, in all cases, the breakeven tax rate is below the tax rate at the time of conversion. Thus, the conventional wisdom need to be modified to say: “Conversion is likely to be beneficial unless your expected tax rate at the time of withdrawal is several percentage points lower than your current tax rate.”

Summary of Breakeven Tax rates for Selected tax rates and Rates of Return

Years	Initial tax rate (t ₀)	Breakeven tax rate for rates of return ^{@@}		Breakeven tax rate for rates of return ^{##}	
		6%	8%	6%	8%
35	15%	12.3%	11.6%	13.7%	13.6%
25	28%	22.6%	21.2%	24.78%	24.41
35	28%	20.8%	18.9%	24.35%	24.08
25	33%	26.7%	25.0%	29.20%	28.77%
35	33%	24.5%	22.3%	28.69%	28.38%
25	35%	28.3%	26.0%	30.97%	30.52%
35	35%	26.0%	23.7%	30.43%	30.11%
25	39.6%	32.0%	29.9%	35.04%	34.53%
35	39.6%	29.4%	26.8%	34.43	34.06%

^{@@} Taxable investments taxed each year at the lowest capital gains tax rate.

^{##} Taxable investments taxed at the end investment horizon at the capital gains tax rate.

Other factors in favor of Roth: Roth IRA has all the features of the deductible IRA, except the current tax deduction and has far greater flexibility and options than the deductible IRA. One is allowed tax-free withdrawals of all contributions anytime and converted amount 5 years after conversion. First-time homebuyers are permitted tax-free withdrawals of earnings after 5 years. A major plus for Roth IRA is that it does not require any minimum distribution from the age of

70½. This allows one to pass on the entire Roth IRA to ones heirs. This feature is particularly attractive to investors who require estate planning or anyone who considers leaving an inheritance.

IV. The Roth IRA and Estate Planning

IRAs in general can be very useful and efficient estate planning tools. Schmidt (1999) and Lederman and Cole (1999) discuss a number of issues relating to the use of IRAs as estate planning tools. The main point made by the above papers is that the traditional IRA is a great estate-planning tool. We suggest that the Roth IRA is an even better tool because it can do pretty much everything the deductible IRA does and actually enjoys more options and flexibility as mentioned above. These options and flexibility should make the Roth IRA more attractive than the deductible IRA for many investors. (Slesnick and Suttle (2000)).

The traditional tax-deductible IRAs and 401(k) plans require a minimum distribution once the participant turns 70½ years. The distribution rules for most 401(k) plans are much more restrictive than that of IRAs. Therefore, participants are generally better off to convert the 401(k) plan accumulations into one or more IRAs (IRA rollover) and then to Roth, if found more attractive based on tax rates, investment horizons, rates of returns. The Internal Revenue code, which governs IRAs, defines the required minimum distribution (RMD) as a function of the accumulated IRA balance, the participant's choice for life expectancy, and the method designated to apply the life expectancy. The participant's beneficiary designation is crucial to maximizing wealth transfer. Most married participants select their spouse as the primary beneficiary. The designation of one's spouse provides several advantages. Distribution rules with respect to

inherited IRAs for spouses are not restrictive. The spouse can rollover the accumulations into his (her) own new IRA with new beneficiary designations. However, this choice has its drawbacks and may not be optimal if the participant wants to pass on part or all of any remaining accumulations to intended heirs.

The Roth IRA has no minimum distribution requirement during the participant's lifetime and thus there is no required beginning date. This makes it a very useful planning tool for intergenerational wealth transfer in certain cases. An investor can pass on the entire IRA, if she so chooses, to her heirs. The inherited IRA can then enjoy tax-free growth in the heirs' life time. The heirs are required to make annual withdrawals based on their life expectancy. On the other hand, with the deductible IRA the investor is forced to withdraw during on her own life time. This effectively reduces the investment horizon, the amount available to pass on and thus the tax free growth potential. .

V. Summary and Conclusion

The year 2010 may end up being known as the Year of Roth as virtually anyone can get access to the Roth IRA by converting an existing deductible (or non-deductible) IRA into the Roth IRA. This paper analyzes the conversion decision using the concept of the breakeven tax rate, the tax rate at the time of withdrawal of funds that would make the investor indifferent between the choices. The optimal decision is a function of the individual's investment horizon, rate of return for the investment and three different marginal tax rates. We assume that the investor has funds available outside the IRA to pay the taxes due on conversion. We find that the break-even tax rate is always less than the investor's tax rate at the time of investment. This means that the

investor has to have a lower tax rate at the time of withdrawal lower than the tax rate at the time of conversion in order to benefit from the deductible IRA. The break-even rate is a decreasing function of: i) the rate of return on the investment, ii) the investment horizon, and iii) the rate at which the taxable investment generated by the savings in initial taxes is taxed. Most investors with long investment horizons would probably be better off converting. This would be even truer for individuals who want to pass on all or most of their IRA to their heirs. Roth IRA would make a better estate planning tool than the traditional, deductible IRA.

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TABLE 1

Conversion of Deductible IRA to Roth IRA: Break Even Tax rate

Marginal tax rate at the time of conversion= 15%

Tax rate on taxable investments = 10%

Years to Withdrawal	Rates of Return				
	3%	6%	8%	10%	12%
5	14.8%	14.6%	14.5%	14.3%	14.2%
10	14.6%	14.2%	13.9%	13.7%	13.5%
15	14.4%	13.8%	13.4%	13.1%	12.8%
20	14.1%	13.4%	12.9%	12.5%	12.1%
25	13.9%	13.0%	12.5%	11.9%	11.5%
30	13.7%	12.7%	12.0%	11.4%	10.9%
35	13.5%	12.3%	11.6%	10.9%	10.3%
40	13.3%	12.0%	11.1%	10.4%	9.7%
45	13.2%	11.6%	10.7%	9.9%	9.2%
50	13.0%	11.3%	10.3%	9.5%	8.8%

TABLE 2

Conversion of Deductible IRA to Roth IRA: Break Even Tax rate

Marginal tax rate at the time of conversion= 28%

Tax rate on taxable investments = 15%

Years to Withdrawal	Rates of Return				
	3%	6%	8%	10%	12%
5	27.4%	26.8%	26.5%	26.1%	25.8%
10	26.8%	25.7%	25.0%	24.4%	23.8%
15	26.2%	24.6%	23.7%	22.8%	22.0%
20	25.7%	23.6%	22.4%	21.3%	20.3%
25	25.1%	22.6%	21.2%	19.9%	18.7%
30	24.6%	21.7%	20.0%	18.5%	17.2%
35	24.0%	20.8%	18.9%	17.3%	15.9%
40	23.5%	19.9%	17.9%	16.2%	14.6%
45	23.0%	19.1%	16.9%	15.1%	13.5%
50	22.5%	18.3%	16.0%	14.1%	12.5%

TABLE 3
Conversion of Deductible IRA to Roth IRA: Break Even Tax rate

Marginal tax rate at the time of conversion= 33%
 Tax rate on taxable investments = 15%

Years to Withdrawal	Rates of Return				
	3%	6%	8%	10%	12%
5	32.3%	31.6%	31.2%	30.8%	30.4%
10	31.6%	30.3%	29.5%	28.8%	28.1%
15	30.9%	29.0%	27.9%	26.9%	25.9%
20	30.2%	27.8%	26.4%	25.1%	23.9%
25	29.6%	26.7%	25.0%	23.4%	22.0%
30	28.9%	25.6%	23.6%	21.9%	20.3%
35	28.3%	24.5%	22.3%	20.4%	18.7%
40	27.7%	23.5%	21.1%	19.1%	17.3%
45	27.1%	22.5%	20.0%	17.8%	15.9%
50	26.5%	21.5%	18.9%	16.6%	14.7%

TABLE 4
Conversion of Deductible IRA to Roth IRA: Break Even Tax rate

Marginal tax rate at the time of conversion = 35%
 Tax rate on taxable investments = 15%

Years to Withdrawal	Rates of Return				
	3%	6%	8%	10%	12%
5	34.2%	33.5%	33.1%	32.7%	32.3%
10	33.5%	32.1%	31.3%	30.5%	29.8%
15	32.8%	30.8%	29.6%	28.5%	27.4%
20	32.1%	29.5%	28.0%	26.6%	25.3%
25	31.4%	28.3%	26.5%	24.8%	23.3%
30	30.7%	27.1%	25.0%	23.2%	21.5%
35	30.0%	26.0%	23.7%	21.6%	19.9%
40	29.4%	24.9%	22.4%	20.2%	18.3%
45	28.7%	23.8%	21.2%	18.9%	16.9%
50	28.1%	22.9%	20.0%	17.6%	15.6%

TABLE 5
Conversion of Deductible IRA to Roth IRA: Break Even Tax rate

Marginal tax rate at the time of conversion= 39.6%

Tax rate on taxable investments = 15%

Years to Withdrawal	Rates of Return				
	3%	6%	8%	10%	12%
5	38.7%	37.9%	37.4%	37.0%	36.5%
10	37.9%	36.4%	35.4%	34.5%	33.7%
15	37.1%	34.8%	33.5%	32.2%	31.1%
20	36.3%	33.4%	31.7%	30.1%	28.6%
25	35.5%	32.0%	29.9%	28.1%	26.4%
30	34.7%	30.7%	28.3%	26.2%	24.4%
35	34.0%	29.4%	26.8%	24.5%	22.5%
40	33.2%	28.2%	25.3%	22.9%	20.7%
45	32.5%	27.0%	24.0%	21.3%	19.1%
50	31.8%	25.9%	22.7%	19.9%	17.6%