

“Retirement Investing: Analyzing the ‘Roth’ Conversions and Re-characterization Options”

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Tax Environment

- “Conversion” option to pre-pay income tax, convert traditional IRA to Roth IRA
- “Income test” eliminated at start of 2010
 - New attention, especially by large accounts
- “Re-characterization” option through October 15th of following tax year
- No mandatory Roth IRA withdrawals during grantor’s lifetime (rather than after 70.5 years)
- Tax rates fluctuate—progressivity, income stochastic, life cycle structure, budgetary mess

When Does Conversion Pay?

- Timing of conversion
 - Low tax rate (income, tax law)
 - Taxable funds available to pay the tax
- Advantages of early conversion
 - Greater effective tax-deferred investment if taxable funds available to pay the tax
 - Roth: No required withdrawals during owner's lifetime
- Re-characterization as an option
 - Reversal valuable—option to reverse at the account level until October 15th of the next year
 - Optimal conversion isn't simply current vs. future tax

Basic ‘Roth’ Conversion

- Initially we ignore the re-characterization option and also treat the Roth conversion option as essentially a one-time (“now or never”) option.
- We compare the after-tax value of the traditional tax-deferred account at retirement, assuming that the accounts earns a pre-tax return, r , to the value at retirement assuming immediate conversion to a Roth.

After-tax Value of IRA Accounts

- After-tax value of traditional account =

$$[V_0(1+r)^N](1-T_{p,N})$$

- After-tax value of Roth conversion financed with IRA assets =

$$V_0[(1-T_{p,0} - q)/(1-q)](1+r)^N$$

Roth Conversion Tax Financed by Tax-deferred Assets

- Roth conversion is beneficial provided that

$$\frac{T_{p,N}}{T_{p,0}} > \frac{1}{1-q}$$

- The ratio of the expected future ordinary rate to the current rate must be greater than $1/(1-q)$ in order to optimally undertake a conversion financed by using current IRA assets.

More on Roth Conversion

- Notice that the condition is independent of the planned retirement date.
- It emphasizes the value of converting when the tax rate is low, though we focus on a “now or never” comparison.
- Then we consider the case in which the tax on the Roth conversion is financed from taxable assets

After-tax Value of Roth Conversion Financed with Non-IRA Assets

- After-tax value of Roth conversion financed with non-IRA assets =

$$V_0(1+r)^N - \left[\frac{V_0 T_{p,0}}{1 - g T_g} \right] [1 + r(1 - T_i)]^N$$

- Note: This doesn't adjust for the difference in tax basis from the sale of appreciated assets and we assume that the non-IRA assets sold to finance the tax payment are the same as in the tax-deferred account.

Roth Conversion Tax Financed by Taxable Assets

- Roth conversion when the tax is financed from non-IRA assets is optimal if

$$\frac{T_{p,N}}{T_{p,0}} > \left[\frac{1}{1 - gT_g} \right] \left[\frac{1 + r(1 - T_i)}{1 + r} \right]^N$$

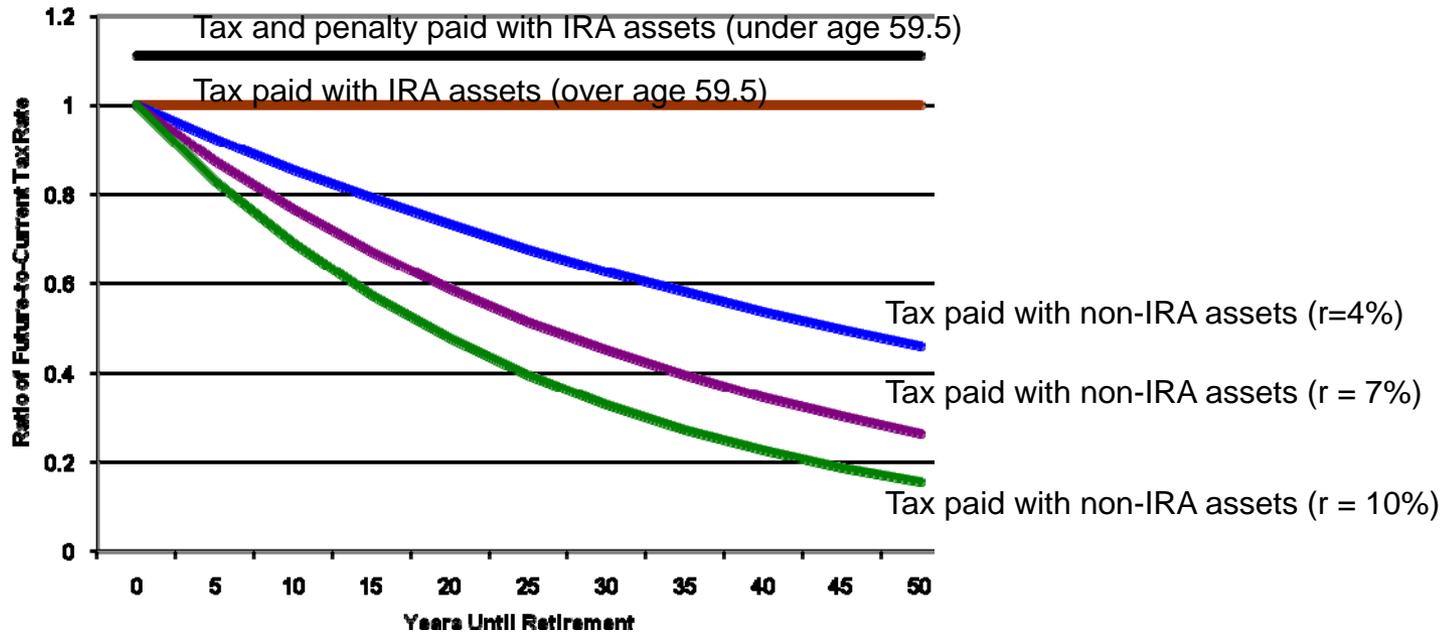
- Roth conversion makes sense when the tax is financed from non-IRA assets only if the future tax rate is above a critical value.

Critical Tax Rate when Conversion Tax Paid from Taxable Assets

- The critical tax rate ratio (future ordinary tax rate to current ordinary tax rate) is lower for a younger individual as the benefits of greater tax-deferred holdings extend over a longer interval.
- Similarly, the critical tax rate is lower when assets have higher expected returns and/or effective tax rates and when the individual can fund the tax liability without capital gains taxes.

Illustration of Tax Rates Justifying Roth Conversion

Figure 1: Critical Tax Ratios for Roth Conversion



Estate Taxes

- Estate taxes computed on the pre-tax value of an individual's estate.
- Roth conversion can reduce the size of an estate and reduce estate tax liability, but that's offset partially by greater income taxes.
- Income tax deduction for income in respect to a decedent (IRD)—reduces burden of double taxation, but also reduces value of Roth conversion.
- Roth conversion reduces the tax burden when it pushes the investor below the estate tax threshold.

Why a Re-characterization Option?

- After a Roth conversion there is great uncertainty about the value left in the Roth account when the tax return is due
 - even whether the taxpayer would have the resources to pay the tax
- The taxable income & tax--potentially large
 - there is great uncertainty about the effective tax rate facing the taxpayer on his conversion

The Optimality of Conversion and Re-characterization

- Option not only with respect to portfolio value, but also realized tax rates (e.g., due to income shocks) and also perspective tax rates
- At a specified time, it's *optimal to re-characterize* those accounts *below a critical threshold*
- If conversion can always be reversed costlessly, then ex ante *conversion always is optimal*; optimal to do so *ASAP* within the year

Predictability of Tax Rates

- *Lack of predictability and taxes:* The re-characterization option is enhanced by lack of predictability in tax rates and investor tax circumstance (in contrast, most tax planning strategies benefit from predictability).

Maximizing Volatility and Re-characterization

- Increasing exogenous asset price volatility increases the value of the re-characterization option—expands the states where re-characterization optimal
- Separate accounts optimal as option decisions distinct; apply Merton (*Bell Journal*, 1973)
- If accounts costless, then distinct account for each position not perfectly correlated with others
- Volatility in separate accounts advantageous (re-characterization and further conversion)

Correlation

- Diversification may be helpful across accounts, but not within an account, where volatility valued
- Negative correlation across strategies and accounts may be helpful, especially if progressive tax rates and limited capacity to convert at favorable tax rates in a given year.
- Contrast with asset location advice in Dammon, Spatt and Zhang (*Journal of Finance*, 2004)
 - Invest high yielding asset in tax-deferred account
 - Generic IRA advice applies to Roth accounts once re₁₇ characterization option expires.

The Re-characterization Boundary

- Exercise cutoff for re-characterization option depends upon returns, marginal tax function
- As investor ages, there is non-stationarity--- mandatory withdrawals in traditional tax-deferred account at 70.5+, conversion barred post-death and tax-deferred opportunity delayed
- Increasing mortality with age, required post 70.5+ draws implies re-characterize in fewer states with age
- Flat tax function, constant tax rate and infinite horizon—optimal cutoff is time independent

Early Exercise in a Conversion Year

- After re-characterizing on a fund, the investor can convert again in 30 days (or if later, on January 1st of the year following conversion).
- *Early exercise*: If the option to re-characterize is far in the money (so little remaining option value), it can be optimal to re-characterize to capture incremental option value on the subsequent conversion by lengthening its re-characterization option.

Time dependence of the re-characterization boundary

- *Monotone exercise boundary*: The critical re-characterization boundary below which current exercise is optimal increases monotonically over the year.
- Explanation--The set of states in which re-characterization occurs increases over the year, especially near the option expiration.

Volatility and Re-characterization

- Absent trading costs, volatility can be costlessly shifted among accounts and so prior account volatility does not influence which accounts should be re-characterized at a point in time.

Conversion and Government Revenue

- Conversion revenues *displace* future revenue.
- Introduction of a conversion option [for upper income taxpayers] would initially increase government revenue (“*pent-up*” demand for conversion), but that will not be sustained.
- Providing new options *to investors* will *increase* investors’ NPV, while *decreasing* the NPV of government revenue.
- Re-characterization option makes revenue highly *stochastic*.