HYAS GROUP

(Over) Thinking Roth

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SUMMARY

- Designated Roth Accounts (Roth) provide a valuable means for participants, particularly those with longer time horizons or rising incomes, to reduce taxes.
- This paper provides plan sponsors with details, analyses, and perspective about the value of Roth; to inform their consideration, discussions, and communications on the subject.

INTRODUCTION

In contrast to the traditional pre-tax approach where distributions are subject to income taxes, Designated Roth Accounts (Roth) apply taxes upon contribution, allowing distributions of principal and earnings to be excluded from taxable income. Roth's intuitive value is very simple: use Roth if your tax rate is expected to go up. This paper seeks to elaborate on this basic intuition to provide plan sponsors with a more detailed understanding of Roth and the factors influencing its value versus pre-tax.

ROTH DETAILS

Roth was introduced by Delaware Senator William Roth via the Taxpayer Relief Act of 1997 and was originally limited to Individual Retirement Accounts[1]. Although viewed with skepticism at first by some as a means to increase current tax revenues, recognition of Roth's potential value caused it to gradually be extended to most individual account plans[2]. Contributions to (qualified distributions from[3]) Roth are part of (excluded from) the account-holder's annual gross income. Only participant contributions (not employer contributions or profit-sharing) may be allocated to Roth. Vested pre-tax dollars and earnings thereon from salary deferrals as well as various employer contributions that have originally been placed in a pre-tax account however can be irreversibly rolled over into a Roth; causing the amount transferred to be added to the participant's gross income for that year, but not subject to the extra 10% tax rate for early withdrawals.

To enable Roth, the plan document must be modified (pre-tax must remain offered), after which point the record keeper will treat the Roth and pre-tax dollars as separate accounts within the same plan[4]. Operationally, Roth holds several features in common with pre-tax accounts, such as potential use in automatic enrollment, plan loans, and serving as a basis for employer-matching contributions. Roth and pre-tax contributions count in aggregate towards IRS annual contribution limits. Roth is also subject to the same distribution restrictions, nondiscrimination testing, and required minimum distributions as pre-tax accounts. Roth's functional similarity with pre-tax allows it, where adopted, to largely be used interchangeably with a pre-tax account, making comparison of the value of Roth to pre-tax a valid subject to consider.

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[1] A comparison between Designated Roth Accounts and Roth Individual Retirement Accounts is included as an appendix.

[2] The Economic Growth and Tax Relief Reconciliation Act of 2001 expanded Roth to 401(k) and 403(b) plans. The Small Business Jobs Act of 2010 allowed Roth utilization in governmental 457(b) plans. Governmental 401(a) plans are not eligible to use Roth.

[3] A distribution generally is qualified if it occurs at least five years after the initial Roth contribution and the account holder is over fifty-nine and one-half years old, dies, or becomes disabled.

[4] If asset allocations differ between Roth and pre-tax accounts, participants may wish to estimate what their combined asset allocation is on an after-tax basis. For example, an 50/50 asset allocation between Roth/pre-tax is 57/43 assuming a 25% tax rate on pre-tax; altering the realized risk and return profile if the investments differ between accounts.

FACTORS INFLUENCING THE RELATIVE VALUE OF ROTH VS. PRE-TAX

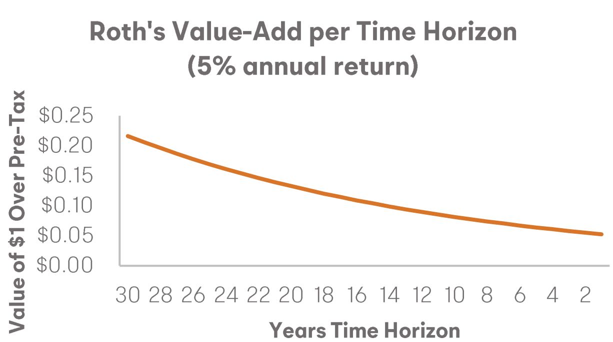
Participants with a Roth option may wish to consider what factors may cause it to be of greater financial value than a pre-tax account. The table below provides such factors and how an increase in any one of them, all else held equal, impacts the value of a given amount of money in Roth relative to pre-tax.

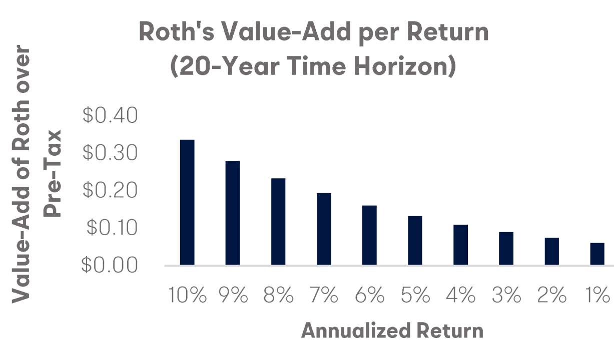
Factor	Impact on Roth's Relative Value	Comments
Remaining time in workforce	Positive	Longer time for savings to compound to a larger, tax-exempt balance.
Life expectancy in retirement	Negative	Assets withdrawn over longer periods equate to less annual income and a lower tax rate.
Positive investment returns	Positive	Savings grow to a larger amount and income-base.
Increase in tax rates	Positive	Distributions are taxed at a higher rate than contributions.

Roth and pre-tax provide the same accumulated value if tax rates, savings rates, time horizon, and investment return are identical[5]. However, the progressive nature of income tax brackets and the assumption of growing wages over a participant's career argue for the relative value of Roth, since near- or in-retirement income is likely to have higher tax rates than that of an early career. The extent to which a participant's income increases over time constitutes a tax headwind, albeit from fortunate circumstances, that Roth avoids. All else held equal, Roth should be viewed as a more "tax- friendly" option since it is taxed only on the principal (paid up-front) and not the earnings component of distributions whereas distributions from pre-tax accounts incorporate both. As such, in the case of Roth, the participant assumes the risk and reward associated with investment gains and progressive tax rates. An income taxing authority with a long-term view will view this prospect in reverse.

COMPUTING DIFFERENCES BETWEEN PRE-TAX AND ROTH

As the preceding section's table states, Roth will be of increasing value for participants with a longer working time horizon, higher investment return, and greater increase in tax rates. The charts on the following page provide simple illustrations of this concept, showing the value of $1 invested via Roth over pre-tax for a participant with a starting (ending) tax rate of 0% (5%). Both charts show how the dollar value increases exponentially per incremental increase in time horizon or investment return. These charts illustrate the broadly held intuition that younger participants stand to benefit most from Roth due to having higher expected returns (i.e. more aggressive portfolios), longer time horizons, and the greatest potential increase in tax rates. Employers seeking to further attract talented workers may take this into consideration in plan design.





[5] A contribution's at-retirement value for Roth being (Contribution x (1 - Tax Rate)) x ((1+ Investment Return) ^ (Years to Retirement)) whereas the at-retirement value for a pre-tax contribution is (Contribution x ((1+ Investment Return) ^ (Years to Retirement)) x (1 - Tax Rate).

While it is generally intuititive that Roth is beneficial for participants with rising tax rates, a point of occasional misconsideration is when Roth's benefits per tax rate increase as evaluated in terms of percentage returns rather than as dollars gained. Roth's dollar value over pre-tax does not change, regardless of the level of tax rates increase. However, the percentage return on a participant's assets increases with the tax base,[6] as the dollar amount gained (the numerator) remains the same while the starting tax base (the denominator) decreases. Though most participants are unlikely to think themselves into this dilemna, overly-analytical minds may weigh Roth as increasingly beneficial relative to other priorities for a given tax rate increase as their starting tax rate increases, when in fact they should not. The appropriate treatment of this situation reflects a general rule-of-thumb in financial anlaysis: when rate of return and dollar value of an investment give conflicting rankings, the dollar value's benefit is a better gauge. The tables below illustrate this occurrence for a variety of 10% tax increases.

Roth Benefit Per Tax Rate Change

	Cumulative Percentage Gain				**Dollar Gain**			
Starting Tax Rate/Ending Tax Rate	0%	10%	20%	30%	0%	10%	20%	30%
10%	11%	0%	-	-	$0.27	$0.00	-	-
20%	25%	13%	0%	-	$0.53	$0.27	$0.00	-
30%	43%	29%	14%	0%	$0.80	$0.53	$0.27	$0.00
40%	67%	50%	33%	17%	$1.06	$0.80	$0.53	$0.27

	Annualized Gain			
Starting Tax Rate/Ending Tax Rate	0%	10%	20%	30%
10%	0.5%	0.0%	-	-
20%	1.1%	0.6%	0.0%	-
30%	1.8%	1.3%	0.7%	0.0%
40%	2.6%	2.0%	1.4%	0.8%

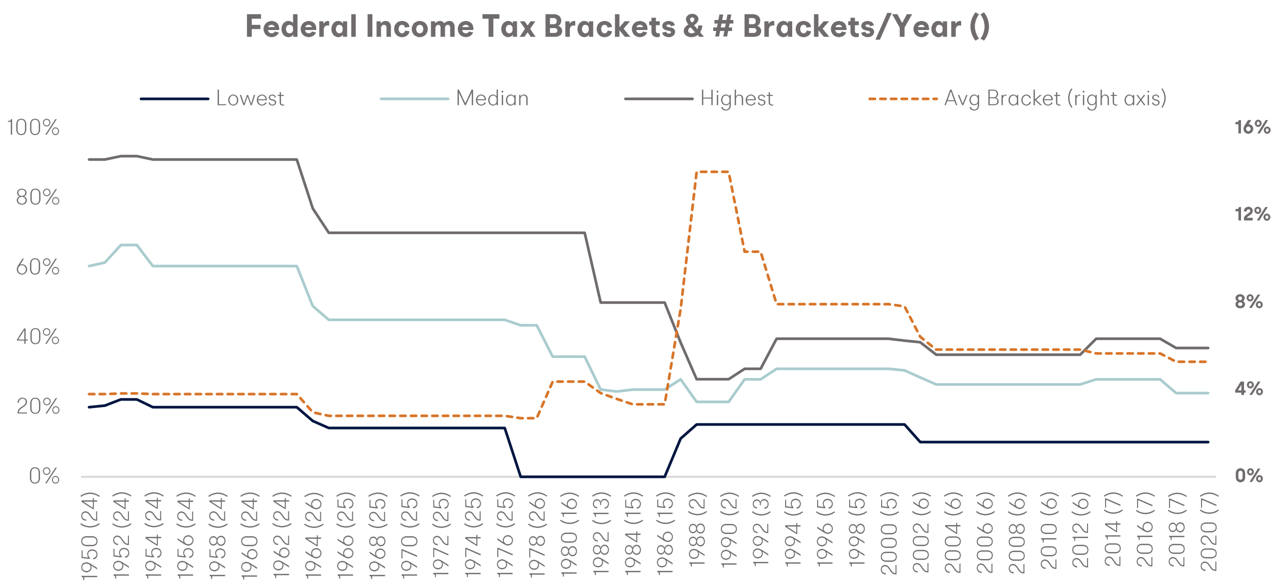
Participants should think of the benefits of Roth versus pre-tax in terms of dollars gained, rather than as percentage return. Not doing so can cause higher (lower) tax bracket participants to over (under) estimate Roth's value.

Assumes $1 invested, a twenty-year holding period, and a 5% annual return.

HISTORICAL TAX RATES

The preceding section assumed a participant's tax-rate increased by 5% from the time of contribution to that of distribution, which appears to be a reasonable expectation under current tax brackets. To illustrate; a single, younger participant earning a net taxable income of $40,125 in 2020 (the cut-off for the second tax bracket) would have an effective tax rate of 11.51%. Under the same tax bracket, if their retirement salary is $85,525 (the cut-off for the third bracket and equivalent to a salary growth rate of 2.5% over a thirty-year career), their effective tax rate is 17.08%. This results in approximately a 5.57% tax rate reduction for every dollar invested in Roth. To provide historical context, the "Federal Income Tax Brackets" chart below shows the lowest, median, and highest tax brackets per year going back to 1950, as well as the average length of a given year's tax bracket. While income taxes as well as the number of tax brackets are substantially lower than in decades past, there remains enough brackets for Roth to be of meaningful financial effect to some participants. Under current circumstances, the number of brackets and average spacing between them suggest that participants with even moderate expectations for income growth may find value in Roth. Looking forward, the plausibility of higher future tax rates, be it inferred from historical precedent, elevated levels of Federal debt, or a general sense of caution again argues for the value of Roth.

[6] The percentage return for Roth is approximately (1-starting tax rate)/ (1-ending tax rate)-1.



CONCLUSION

A plan with diverse age and income demographics is likely to be comprised of participants who may benefit from using Roth. This paper provides plan sponsors with information pertainting to the operation of Roth, as well as qualitative and quantiative anlaysis on what may cause it to be of greater value than a pre-tax account. Plan sponsors facing questions such as whether Roth should be enabled, should participants be targeted for Roth education, and what other perspective might be useful can refer to this paper to supplement their knowledge on the subject. While the basic intuition that Roth is valuable as a hedge on tax rates as they rise is still largely reason enough, absent further consideration, to utilize Roth; the additional considerations illustrated in this paper may help participants move from more abstract to specific and actionable stages of analysis and financial planning.

APPENDIX: DESIGNATED ROTH VS. INDIVIDUAL RETIREMENT ACCOUNT (2021)

	Designated Roth Account	Roth Individual Retirement Account
Availability	**401(k), 403(b), 457**	**Individual**
Contributions		
Maximum Contributions	Normal Limit (above $19,500) $19,500 Age 50 Catch-Up: $6,500 ($26,000 total) **OR** Pre-Retirement Catch-Up (457 only): $19,500 ($39,000 total)	$6,000 Age 50 Catch-Up: $1,000 ($7,000 total) Pre-Retirement Catch-Up: N/A
Contributions Reduce Taxable Income	No	No
Income Limits	None. Participation is not limited by your annual income.	Modified Adjusted Gross Income must be less than $208,000 (married filing jointly) or $140,000 (single or head of household)
Withdrawals		
Taxation of Withdrawals	Withdrawals are tax-free if the requirements for a qualified distribution are met. Distributions of Roth assets are qualified if a period of five years has passed since January 1 of the year of your first Roth contribution (including rollovers), and you are at least 59½ years old (or disabled or deceased).	Same as Retirement Plan Roth, except Roth IRAs **also** permit qualified distributions for a “first time” home purchase.
Withdrawal Eligibility	Upon separation from service with the plan sponsor. In-service withdrawal options (e.g., after age 59½ (if authorized by Plan, emergency withdrawals) may also be available.	Withdrawals can be taken at any time. Contributions are always withdrawn first tax and penalty-free.
Required Minimum Distributions (RMDs)	After age 70½ if born prior to 07/01/1949 or age 72 if born after 06/30/1949, or separation from service, whichever is later.	None
10% Early Withdrawal Penalty Tax	Plan contributions and associated earnings are not subject to the early withdrawal penalty tax. However, if you roll assets into your Plan from another type of account, the rolled-in assets are subject to the 10% early withdrawal penalty tax if withdrawn prior to age 59½, unless an exception to the penalty applies.	Yes, the penalty may apply to the earnings portion of the withdrawal unless certain criteria are met.