

Traditional versus Roth: Which Retirement Account Maximizes Portfolio Value

A common question among investors is, “Should I contribute money to a Traditional or Roth retirement account?” If the investor isn’t constrained by contribution or tax-deductibility limits, the correct answer is strictly determined by which marginal income tax bracket they’re in now and which tax bracket they expect to be in when making future withdrawals from the account. If the investor believes their marginal tax rate will be lower in the future than it is today, they should contribute to a traditional retirement account and benefit from the immediate tax deduction the contribution affords. Conversely, if they think their marginal tax rate will be higher in the future, they should forgo the current tax deduction and contribute to a Roth account so their future withdrawals will be tax-free. However, if they think their tax rate will be the same in both time periods, it doesn’t matter to which account they contribute—the future after-tax value of their contribution will be the same in either type of account.

Here’s why the above statements are true.

The equation for the future after-tax value of a tax-exempt investment is $(1+r)^n$, where r is the rate of return and n is the number of years invested. Compare that to the formula for the future after-tax value of a tax-deferred investment, which is $(1+r)^n(1-t_n)$, where t_n is the tax rate applicable at the end of the investment period. You can see that if the variables r and n are the same for both investments, the tax-exempt investment will, unsurprisingly, result in a higher after-tax value. We can apply the above formulas to traditional and Roth retirement accounts in the context of pre-tax money.

When a portion of an investor’s wage/salary is deducted from their paycheck and contributed to a traditional 401(k), the money isn’t subject to income withholding taxes—it is pre-tax money. Likewise, when an investor makes a contribution to a traditional IRA, they receive a deduction when filing their tax return for that year. That contribution, too, is with pre-tax money. Therefore, the after-tax future value of a contribution to a traditional (tax-deferred) retirement account is $(1+r)^n(1-t_n)$.

On the other hand, when an investor makes a contribution to either a Roth 401(k) or Roth IRA, they must first pay income tax on that money. Therefore, the after-tax future value of a contribution to a Roth (tax-exempt) retirement account is not $(1+r)^n$ as previously stated but, rather, $(1-t_0)(1+r)^n$, where t_0 is the tax rate applicable at the time the contribution is made.

As you can see, the only difference between the last two equations is the tax rate. The traditional contribution is taxed upon withdrawal at the investor’s future marginal income tax rate, while the Roth contribution is taxed immediately at the investor’s current marginal income tax rate. Thus, the investor’s expectation about which tax rate will be greater determines which account is most optimal.

Before deciding which account may be best for you, please consult with your tax advisor on your eligibility to contribute to a Roth account or deduct your contributions to a traditional account, as any limitation will have an impact on the decision-making process.

We’ll end with a caveat about contribution limits. As long as an investor isn’t constrained by contribution limits (e.g., \$6,000 in an IRA for someone under age 50), and the tax rates, time horizons, and rates of returns are the same for both types of accounts, the conclusion holds: It doesn’t matter to which account the investor contributes—the future after-tax value will be the same in either case. However, if an investor plans to contribute the maximum amount allowed, and all other variables are the same, the investor will accumulate more future after-tax wealth with a Roth account than they will with a traditional account.

Using our previous formulas, if an investor wants to contribute \$2,000 of pre-tax money to a retirement account, the traditional account will receive the full \$2,000, but the Roth account will receive the smaller amount of $\$2,000(1-t_0)$. Even though the Roth account starts with less money, assuming the current and future tax rates will be the same, it makes up for it in the end because it is not taxed, whereas the traditional account is taxed. The same is true if the investor contributes \$6,000 to a traditional account and $\$6,000(1-t_0)$ to a Roth account.

But, what if the investor wants to contribute the full \$6,000—as opposed to $\$6,000(1-t_0)$ —to the Roth account? For the traditional account to remain equivalent, the investor would need to contribute more than \$6,000. Specifically, they would need to contribute $\$6,000/(1-t_0)$. But, they wouldn't be able to do that if their retirement account contribution limit is \$6,000. The best they would be able to do is contribute \$6,000 to a traditional account and invest the remaining money in a less efficient taxable account. That would produce a good outcome, since the investor would be saving more than \$6,000, rather than spending the excess, but it still wouldn't result in as much future after-tax income as would a \$6,000 contribution to the Roth account.

That concludes this very focused discussion on Traditional and Roth retirement accounts. We hope you've found it useful and encourage you to contact us if you have any questions about this topic and would like to continue the conversation.