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Clients occasionally ask us the following question: "Why in the world would you buy a bond that pays 0% interest?" It's a fair question – especially with the advent of negative interest rates in Europe – but rest assured, we aren't locking up money for nothing.

Assume we have two bonds, both issued by the United States Treasury. Both bonds come due two years from today. The first bond is purchased for $100 and pays an interest rate of 4% annually. The second bond pays an interest rate of 0%, **however** its purchase price is only $92.46. How will these bonds perform over the next two years? The following table provides the answer:

Bond	Money Paid Today	Interest Paid at End of Year 1	Interest Paid at End of Year 2	Principal Paid at end of Year 2	Return on Initial Investment
Bond 1	$100.00	$4.00	$4.00	$100.00	8.2%
Bond 2	$92.46	$0.00	$0.00	$100.00	8.2%

* This analysis assumes that the interest paid on Bond 1 at the end of year 1 is reinvested for one more year at a 4% interest rate. If interest rates change during our holding period, the analysis will change, but not too much – we will still expect to receive a roughly equivalent return on the two bonds. Bond 2 has a slightly higher "duration," which means the bond's interim price will be more sensitive to changes in interest rates, but the difference won't be too great in this case.

Even though Bond 2 paid no interest during the holding period, its return is the same as Bond 1. This is because we purchased Bond 2 at a discount to its eventual redemption price. In this specific case, we paid roughly $0.92 on the dollar. We get the same return, it's just that our return comes via appreciation in the bond's price over our holding period as opposed to interest payments. Both bonds returned around 8% over our holding period, or 4% per year.

How dependable is the return from the increase in Bond 2's price? It is so dependable that the federal government actually requires taxpayers to calculate how much the bond's price will go up every year, on average, and pay taxes on it! In essence, instead of charging an annual interest rate and collecting an annual coupon, we lent $0.92 to the federal government and they promised to pay us back $1.00 two years from now. (And we trust that the government is good for the money.)

So rest assured – when we purchase a bond paying 0% interest, we aren't expecting to earn a 0% return on our investment. The ultimate return on any bond we purchase will be determined by **two factors**:

1. The annual interest payments, if any, that we receive on the bond.
2. The price that we pay for the bond relative to the redemption amount that we will receive when the bond matures.

We are relatively agnostic about which factor generates our return as long as the aggregate duration of our bond portfolio is in-line with our targets and we are confident that the bond will be repaid (i.e. the credit is good). So be sure not to assume certain things about a bond that we purchase in your account based solely on the interest rate or the price that we pay. It takes a little more work to determine our expected return!