The Educated Investor

Certificates of Dwindle

Certificates of deposit, or bank CDs, are popular investments, particularly for conservative investors. CDs are readily understandable and widely promoted by the banks that issue them. Unfortunately, for anyone with an investment horizon longer than a few years, they are a poor long-term investment choice. The net investment return on CDs is essentially zero, once taxes and inflation are taken into account. The following discussion will reveal why this is true.

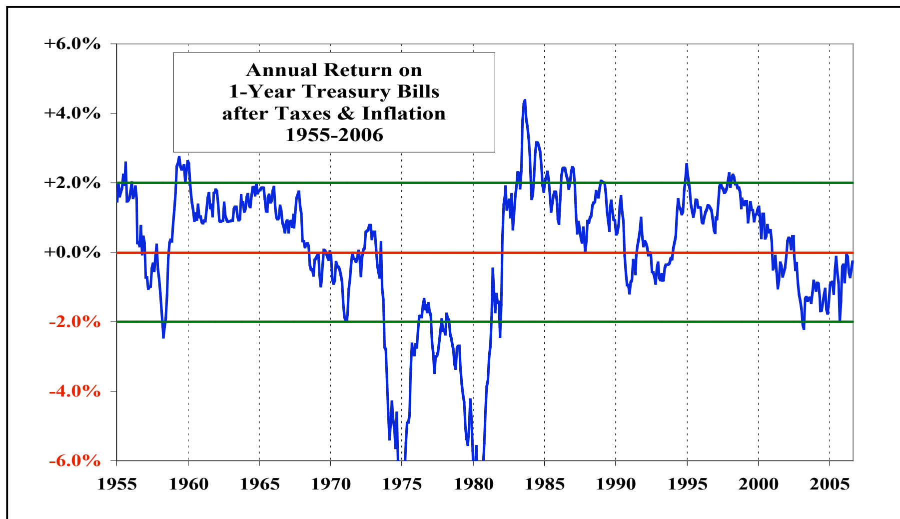
What is that graph over there?
Analyzing bank CDs directly is difficult, because there are literally thousands of variations issued by thousands of different banks. However, we can analyze Treasury bills, issued by the federal government, which are closely related to CDs. From there, we can work our way back to CDs.

As everyone knows, the federal government borrows money – lots of money. In order to borrow, the government sells bonds that investors buy. These bonds have a variety of maturities, ranging from 30-year bonds down to short-term Treasury bills. Let's start by examining short-term, 1-year Treasury bills. These are bonds issued by the government that have a 1-year life span.

The graph below shows the after-tax, real return on 1-year Treasury bills. Fortunately, this isn't as complicated as is sounds. Let's look closer.

On the graph, we have plotted the annual interest rate (i.e. yield) for 1-year Treasury bills over the past 60 years (the blue line). We could have plotted the simple annual yield of 1-year Treasury bills, but that wouldn't be right. Interest paid on Treasury bills is subject to federal income tax (but not state taxes). The federal government takes back some of your interest as taxes. So, the actual return is the yield after subtracting taxes. The net after-tax yield is what we need to plot on the graph.

But wait, there's more. We also need to take into account inflation. If an investor can earn 3% on an investment, but inflation is running 3%, then at the end of the year the investment only breaks even. Inflation has consumed everything that was



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earned. So, for the graph of Treasury bill yields, we also need to subtract inflation. This will give us the "real" return available to the investor. In the end, the graph shows the after-tax, real return on 1-year Treasury bills since 1955.

What does the graph reveal?
The graph shows the adjusted yield on 1-year Treasuries hovering near zero. Except for a period in the late 1970's, when inflation got wildly out of control, the yield has oscillated between +2% and –2%, with a long-term average of ZERO.

That's right. The average yield is zero. Why is that? Treasury bills are guaranteed by the full faith and credit of the U.S. government. They are the closest thing available to a truly "no risk" investment. The market isn't going to let an investor make money on an investment that carries no risk. No risk means no return.

The graph isn't a straight line, but wobbles around, because the Treasury market isn't perfect. The market strives to keep the yield at zero, but has to deal with changing tax rates and changing expectations of inflation (and other factors). The market does the best it can. On the whole, it does a good job, keeping the long-term average near zero.

What does this mean?
This means that investors with 1-year Treasury bills don't make any money. Their net return after taxes and inflation is zero. Investors might believe they are making money. The value of their investment account is going up. But, after allowing for income taxes (which are usually paid from a different account) and inflation, there is no net long-term gain.

Okay, but 1-year Treasury bills are typically the lowest yielding of the Treasury spectrum. What happens if we plot the same graph using the 5-year Treasuries instead of 1-year? We get a very similar result. The graph gyrates up and down, centered on a long-term average return of 1/2%. One-half percent is better than zero, but you can't build an empire on it.

Back to Bank CDs
How do bank CDs compare? We get a very similar result. Bank CDs are structurally very similar to Treasury bills. CDs generally offer an interest rate that is comparable to the Treasury security with the same maturity (i.e. 1-year to 1-year, and 5-year to 5-year). However, investors in bank CDs often pay state and federal income taxes on the interest (unlike Treasury bills that pay only federal tax). This means that bank CDs, after accounting for income taxes and inflation, can offer a net return that is actually lower than the comparable Treasury security. In fact, depending on an investor's particular state tax rate, the long-run net return can be negative.

Bank CDs, after accounting for income taxes and inflation, offer a net return of about … zero

Investments like bank CDs or Treasury bills make a poor choice for long-term investors. After accounting for taxes and inflation, the long-run average return is at best around 1/2%, and more likely to be zero or even negative. This is particularly unfortunate for conservative investors who invest in bank CDs or Treasuries to minimize their risk. In truth, they are taking on the ultimate risk: That their investments will fall short of their long-range goals, or actually dwindle in value over time due to the effects of taxes and inflation. In effect, CDs can become "Certificates of Dwindle" rather than Certificates of Deposit. If the time horizon for an investment – even for a conservative investor – is more than a few years, a different investment choice is desirable.

Finally, compare these results to a more active investment like the stock market. Over the past 75 years or so, the average after-tax, real return of the stock market has been around 5 to 6%, much higher than CDs or Treasuries.

Stock investments have yet another advantage: deferring taxes. Interest on Treasuries and bank CDs are taxed year-to-year, as the interest is earned. However, for active investments, like stocks, tax on the gains isn't paid until the investment is sold. The investor can let the investment grow, defer the tax payments, and continue to compound investment returns on the untaxed investment.

For readers interested in more detailed information on this topic, or other investment topics and strategies, please feel free to visit our website at www.rollinscapital.com, or call or drop me an email.

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Sources
U.S. Treasury Department
U.S. Department Of Labor
Tax Policy Center

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