



CAPITAL PERFORMANCE ADVISORS, LLC

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Think Twice Before Investing on Margin

Many investors, often encouraged by their brokers, use margin investing in an attempt to generate increased returns. The analysis that follows demonstrates why we believe the risks of such an approach simply outweigh the rewards, and thus why we caution investors to think twice before attempting to use margin to boost their returns.

Margin is the use of leverage (borrowed funds) to increase the amount available to invest. When borrowing from a brokerage firm to increase equity exposure, the firm will typically lend investors up to amounts equal to their initial equity investment. Let's look at an example of how margin (leverage) works.

If an investor owned \$100,000 of stock, a brokerage firm (or bank) might be willing to lend an additional \$100,000, assuming the funds were used to buy more equities (with the total equity holdings used as collateral for the debt). Using margin, the investor could have \$200,000 of equity holdings and \$100,000 (50 percent) margin. The firm would allow the investor to maintain that debt as long as margin did not exceed a certain percentage of the equity holdings. In this example, we'll use a threshold of 70 percent. Thus, in our example, the value of the equity holdings would have to be maintained at a minimum of about \$143,000 ($\$143,000 \times 70$ percent = \$100,000 debt owed). If the value were to fall below that level, the firm would make a "margin call." In response, the investor would have to either pay down the debt to bring it back to the 70 percent level (or whatever level was required for that particular holding), or put up more collateral.

Why would an investor use margin? The simple answer is to attempt to enhance total returns. "If I can make X percent investing Y dollars," so the logic goes, "I should be able to make slightly less than double that amount by investing twice as much, less the interest for borrowing the extra amount." Unfortunately the costs for borrowing combined with the risks accepted in taking such a loan, can in reality eat away any potential benefits. Two important points are as follows:

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- Keep in mind that investors are *not* able to borrow at the risk-free rate. Banks generally lend to each other at the LIBOR (London Interbank Offering Rate), which typically represents a 0.5 percent cost over one-month Treasury bill rates. Margin costs for investors are typically an additional 1.5 percent to 3.0 percent spread above the LIBOR. For our illustration, we will assume a typical spread of 2 percent, over LIBOR, or **2.5 percent** over risk-free Treasury bills.
- Brokerage firms love margin business, particularly when the spreads are high. First, it is almost (but not quite) riskless lending. The brokerage firm holds the collateral, and the loan is overcollateralized — i.e., the money the investor puts up to protect against loss is significantly higher than the amount actually being borrowed. Second, the firm stands to make ongoing profits from the commissions/markups it is likely to earn from the incremental investments made.

Let's now look at a typical margin investor's returns relative to the risk. From 1964 through 2000, the S&P 500 returned approximately 12 percent per annum. During the same time frame, one-month Treasury bills returned approximately 6 percent. Thus the equity risk premium that investors sought to capture was 6 percent (the difference between the S&P 500 and one-month Treasury bills, or $12 - 6 = 6$). During this time period, the standard deviation of the S&P 500 was about 16 percent. Thus the Sharpe ratio was $6/16$, or about 0.4. (The Sharpe ratio is a measure of how much return was earned above the Treasury bill rate relative to the risk taken, with risk defined as standard deviation of returns.)

We can now calculate the Sharpe ratio for funds invested using margin. The margin investor would still have earned 12 percent per annum and would still have experienced the same 16 percent volatility on his or her holdings. But adding the typical 2.5 percent cost of investing on margin would have dropped the premium an investor could seek to capture on the margined investments from 6 percent to just 3.5 percent ($12 - 8.5$). And the Sharpe ratio would have dropped from 0.4 ($6/16$) to just 0.2 ($3.5/16$). In other words, investing twice as much via margin cannot be expected to offer anywhere close to twice the rewards. While the investor was taking the same risk (with volatility being our measure of risk), he or she received much lower returns on the margined amount. Rational investors only accept lower returns if they are accompanied by lower risk.

In a taxable account, margin interest can be deducted against dividends and realized gains. While the deduction is at the higher ordinary income tax rate, a potential gain might be taxed at the lower long-term capital gains rate. In addition, the investor can deduct the interest expense currently, while the capital gains tax can be deferred until realized. However, even with the benefit of this "tax arbitrage," the Sharpe ratio of the margined portion of the investment is still lower than a non-margined investment. In addition, there is also the risk that a margin call might occur, with no long-term gain ever being achieved. Under these circumstances, the investor would lose the tax arbitrage.

Unfortunately, this is not the end of our tale. While non-leveraged investors can wait out bear markets without selling their holdings (assuming they have the discipline to do so), margin investors also accept the risk of a margin call that might force them to sell. If a fall in value causes the margin loan to exceed 70 percent of the collateral (or whatever level was required for that particular holding), the firm will call the loan. If the investor cannot come up with

incremental collateral, or pay down the debt to the required level, then the firm can (and likely will) sell collateral to pay the debt down to the required level. An investor might be forced to sell his or her holdings. Forced margin calls are a frequent occurrence in severe bear markets-like those we experienced in 2000 and 2001. Having their investments liquidated, margin investors would then forego the benefit from any future rise in value. They risk never earning the returns earned by the non-leveraged investor.

Thus we conclude that the use of margin for investing purposes is an inefficient use of one's capital. The rewards are simply not commensurate with the risk. If investors wish to increase expected returns, we advise that they instead increase their exposure to the riskier asset classes of small-cap and value stocks, where increased risk is accompanied by higher expected returns. There, investors do not run the risk of a forced margin call removing their ability to make decisions on when to sell and when to stay the course.

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