June 20, 2005

Note

RE: *The Leverage Effect*

Recently, Sherrie had a TDW prospect ask for a more aggressive investment approach. I suggest adding margin when asked this, as we're already investing for maximum return. This introduces a direct cost in the form of margin interest, added risk in the form of increased portfolio volatility, and if one uses too much, the potential for disaster in the form of a margin call. Yev conducted a project to determine how this all works out through time, which the following tables summarize.

To keep this simple, we assumed a margin interest rate of 6% with the margin balance reset to the target whenever the margin balance fell five percentage points below the target. The period is the Master's inception through Mar05, so it includes all the big market blows of the past 30 years. This provides a good stress test to determine how close various levels of margin take us to a margin call.

Margin Target (Percent Borrowed)

S&P 500	0%	5%	10%	15%	20%	25%	30%	35%
Annual Return	13.1%	13.2%	13.6%	13.9%	14.2%	14.5%	14.9%	15.2%
Annual StDev	17.3%	17.5%	18.8%	20.0%	21.1%	22.4%	23.5%	24.8%
Max Margin	0.0%	5.4%	14.3%	21.8%	37.2%	56.8%	61.5%	81.2%

Russell 2000	0%	5%	10%	15%	20%	25%	30%	35%
Annual Return	16.3%	16.4%	17.0%	17.5%	18.0%	18.4%	18.9%	19.4%
Annual StDev	23.8%	24.1%	26.0%	27.7%	29.2%	31.3%	33.0%	34.7%
Max Margin	0.0%	5.7%	12.8%	26.1%	31.4%	47.5%	59.8%	73.4%

Master	0%	5%	10%	15%	20%	25%	30%	35%
Annual Return	17.9%	18.0%	18.7%	19.3%	19.9%	20.5%	21.1%	21.6%
Annual StDev	19.6%	19.8%	21.4%	22.8%	24.3%	25.6%	26.8%	28.5%
Max Margin	0.0%	5.2%	13.1%	22.9%	33.4%	40.7%	49.2%	68.6%

As can be seen, the use of margin increases both return and volatility, which is the definition of a more aggressive investment approach. Current regulations require a margin call when *equity* drops below 30% (70% margin), so it's not until one hits the 35% margin threshold in the tables above that the disaster scenario of a margin call comes into play.

Examine these tables carefully and you'll find an unexpected result. Though SmlCap stocks have greater volatility than LrgCap stocks - the classic academic definition of riskier - at margin levels beyond 15% the supposedly safer LrgCap stocks take bigger dips toward the margin call threshold (compare the Max Margin lines). Thus, LrgCap stocks are actually riskier when it comes to the heavy use of margin.

Based on the above, 25% margin for highly aggressive clients gives them the additional risk and return they seek while staying clear of the potential of a margin call. Is this additional return worth the added risk? Over this 30-year period, the growth of $1 in the S&P 500 becomes $63 instead of $44, so it creates almost half-again as much ending wealth. The Master bumps a neat two-fold, with $1 growing to $300 instead of $150.

Well, is it enough?

Lowell & Yev