

# DEBT TRAP

## LEVERAGING LEANS ON FICKLE FOUNDATIONS: LUCK, INTEREST RATES AND ALPHA.

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This is the second of two parts

Last month, we looked at some of the perils of leveraging, using actual market data starting in years 1990 and 1973.

Of course, plucking two years out of history can't reveal the entire picture, so let's look at a cost versus benefit calculation for all years since 1900, using a leveraging calculator based on market results (see "Leveraging Versus No Leveraging," page 29).

The figures show, starting in 1900, the cumulative profit/loss picture did not turn positive until 1938. I don't know of anyone rich enough, or dumb enough, to keep borrowing for 37 years and pay all that interest, only to break even at the end (or worse).

The statistics speak for themselves:

- › Number of winning years: 59
- › Number of losing years: 39
- › Average win amount: \$103,145
- › Average loss amount: \$47,790
- › Median profit due to leveraging: \$25,318
- › Lucky (top 10%) profit: \$189,572
- › Median profit: \$25,318
- › Unlucky (bottom 10%) loss: \$66,111
- › Worst-case loss: \$129,369

Traders use a concept called the profit factor,

which measures the ratio of dollars won to dollars lost over the entire period. It's calculated as:

$$\text{Profit Factor} = \text{PF} = \frac{\text{WY} \times \text{WA}}{\text{LY} \times \text{LA}}$$

WY = number of winning years  
WA = average win amount  
LY = number of losing years  
LA = average loss amount

In this case:

$$\text{Profit Factor} = \text{PF} = \frac{59 \times \$103,145}{39 \times \$47,790} = 3.27$$

If you're risking money, you want a profit factor larger than three—each dollar of potential loss must come with a \$3 potential gain. Here's the catch: We're talking about a 100-year span. Considering the average investing time horizon for an individual is between 20 and 30 years, this high profit factor doesn't necessarily mean an individual with a limited time horizon will see any gains.

**Own/Loan Ratio**—If an entire investment portfolio consists of borrowed money, the own/loan ratio is zero. If you have \$100,000 in your portfolio and you borrow \$100,000 to invest, your ratio is 1. Calculations of the profit factor for various own/loan ratios and various loan repayment methods indicate:

- If the own/loan ratio is one or more, the client is better off paying **continued on page 29**

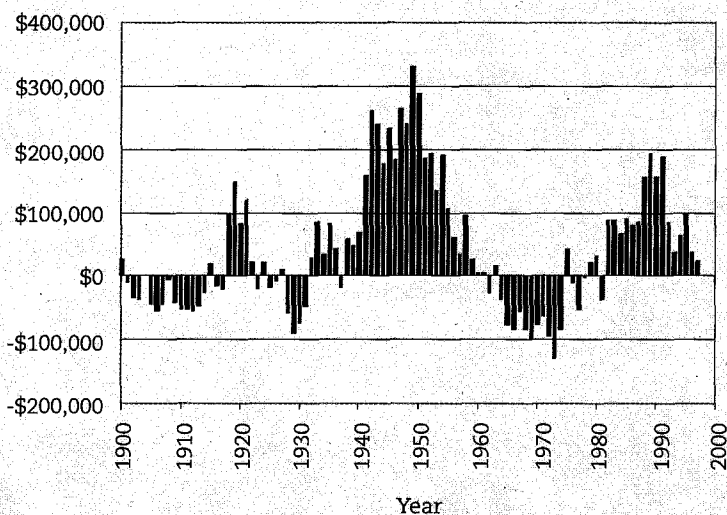
continued from page 27 interest only over the term and repaying the loan principal at the end of the term; and

- If the own/loan ratio is zero, the client is better off paying down at least 15% of the original loan amount each year until the end of the loan term, or until the loan is paid off or until the portfolio depletes.

**Depletion Stop**—A portfolio is considered depleted when its value becomes less than one year's loan repayment amount. If the portfolio depletes, the investor can either continue repaying the loan as if nothing happened, or liquidate the portfolio and pay the loan off. Paying interest after depletion means worst-case losses will be higher, especially if loan payments include principal and interest.

A client may feel more comfortable holding some fixed income or buying balanced funds in a leveraged portfolio. But, because the cost of borrowing is usually higher than the yield of a fixed income portfolio, it doesn't pay to borrow and then invest in fixed income. If the client is already taking a higher risk

## Leveraging Versus No Leveraging



by borrowing to invest, then be prepared to invest 100% in equities. Generally, the highest profit factor occurs when a portfolio is most aggressive.

**Margin Stop**—When the portfolio value goes below a certain percentage of the loan balance, clients risk a margin call. When that happens, either add cash to the account to improve the

margin ratio, or liquidate some or all of the investments to reduce or eliminate the loan (see "Margin Stop Level," this page). The numbers offer two tips:

- Never meet a margin call, and never add money. Liquidate the loan.
- The optimum stop is at around 80%. If portfolio value falls below 80% of the remaining loan balance, pay off the loan. Don't hope the markets will turn around and wipe out losses.

**Trailing Stop**—The trailing stop enables clients to pay off the loan on a high note if they're in a profitable position. In cases where the own/loan ratio is zero and 15% of the loan is paid down each year (the optimum), the client is better off not implementing any trailing stops. And, if the own/loan ratio is one or larger, the optimum trailing stop is when the portfolio value goes below 15% of its peak level. This trailing stop decision is made only once, at the end of the calendar year.

But, should a trailing stop be implemented immediately, starting with the first year, or after a few years of investing? An analysis of **continued on page 31**

## Margin Stop Level

Margin Stop Level	Loan Repayment Method		
	Paying interest only	Paying 10% of the initial loan amount annually	Paying 15% of the initial loan amount annually
	Profit Factor		
No Stop	2.85	2.53	3.04
60%	3.08	2.94	3.17
70%	3.32	3.13	3.20
80%	3.51	3.42	3.26
90%	2.93	2.89	2.89
100%	2.44	2.26	2.27

(Assume the borrowed money is invested 100% in S&P500 and nothing is invested in fixed income.)

