

THE DANGER OF LEVERAGE (Disney orig. 2004)

You have capital C to invest in a project where you expect to make an annual profit:

$$\Delta C = \frac{g}{100} \times C$$

But if you borrow an extra sum LC at annual interest rate of i %:

$$\Delta C = \frac{g}{100} [C + LC] - \frac{iLC}{100} = \frac{gC}{100} + \frac{g-i}{100} \times LC$$

Where the last term on the Right Hand Side (RHS) is the extra part associated with that loan so :

$$\frac{\Delta C}{C} = \frac{g-i}{100} \times L \quad (1)$$

and we can see why L is called “The Leverage” because it leverages one’s profit on the original investment C .

Take an example. An investment fund judges that an annual 5% profit ($g=5$) could be made by investing in oil-tankers say, which is a useful but not exciting return. However it finds it can borrow a large sum LC (where $L = 50$) from a big bank at only 3% interest per annum. Then, according to Equation (1):

$$\frac{\Delta C}{C} = \frac{5-3}{100} \times L$$

So with a leverage of $L = 50$:

$$\frac{\Delta C}{C} = \frac{2}{100} \times 50 = 1$$

i.e. it doubles its original investment in A SINGLE YEAR thanks to the high Leverage permitted i.e. 50 . Fantastic!

It seems like magic. But wait. If many investors do likewise , as they probably would do with so much money to be easily made, then the annual return would obviously fall to say $g = 1\%$. Then according to (1) again:

$$\frac{\Delta C}{C} = \frac{1-3}{100} \times 50 = -1$$

Investors would now *lose* their entire stake in just a year ! In other words high Leverage (= 50) is both exciting – and bloody dangerous.

In reality if the LHS becomes worse than minus 0.1 or 10% many investors would panic and try to sell off their shares on a falling market, driving g even lower, and possibly negative. This looks like a stock-market collapse, which could in turn lead to a banking crash because many of the leveraged loans would now be unpayable.

The only way to stabilize the market is to reduce the leverage L so that

$$\frac{-\Delta C}{c} = \frac{2L}{100} \text{ is less than } 0.1 \text{ (10\%)}$$

i.e. L must be less than about 5.

Almost the main job of Financial Regulators is to prevent Leveraging from becoming too high. Yet between 1995 and 2008 Alan Greenspan (US) and Gordon Brown (UK) , together with all their learned financial advisers, allowed leveraging to rise from below 25 (already far too high) to over 50. That made the banking crash *almost inevitable*.

As you can see, this is not rocket science, but obviously beyond the grasp of economists and bankers. How terrifying! The baboons are running the reactor.

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