The difference between pain and damage

Blog

During the Second World War, the Center for Naval Analyses performed a study showing the damage patterns of returning aircraft. Their goal was to identify ways to improve planes' armor, but they needed to be selective because added weight would reduce their range and effectiveness. After studying hundreds of planes, and mapping the areas that saw the most damage, they recommended adding armor to the plane’s wings, tail, and fuselage.

But a statistician named Abraham Wald—a member of the Statistical Research Group, brought in to help optimize how much armor to apply on each part of the plane—rejected this conclusion. Instead of adding armor where the bullets *are*, he argued, they should be looking at where the bullets *aren't*.

That's because, although the data showed fewer bullets on the planes' engines, this was due to survivorship bias. After all, the planes that they were studying were the ones that were able to limp back from combat, not the ones that were shot down. In fact, he noted, the fact that so many planes survived the return trip with injuries to their wings, tail, and fuselage suggested that they could improve safety by moving some of this armor to other, more vulnerable parts, such as the engines.

Risk is about "permanent loss"

The moral of this story is that we should always make sure that we're not ignoring hidden data or facts. Investors' definition of risk has evolved. Volatility—which measures the variance of returns—is increasingly being supplanted by a definition of "permanent portfolio losses," usually measured as the risk or size of a peak-to-trough drawdown.

But although portfolio selloffs are real, and painful, they aren't the only source or portfolio risk. As we consider how to manage risk while trying to meet our objectives, it's important to remember that opportunity cost—another way of saying foregone gains—can also produce permanent damage. That's because giving back gains is mathematically equivalent to forgoing those gains entirely by taking less risk. And the size of this 'permanent loss' can be much larger than you might expect, due to compounding. Missing out on 2% of annual growth is approximately the same as experiencing a 15% loss in year 10, a 30% loss in year 20, or a 40% loss in year 30. This surprising math helps explains why compounding has been called "the most powerful force in the universe." It could mean millions of dollars—and a significant difference the ability to maintain living standards—over the course of an investor's lifetime.

Pain and damage

Losses are painful. Due to what behavioral economists call *loss aversion*, we feel the pain of losses about twice as powerfully as we enjoy gains.

But even though we all bear the scars of past market corrections—and it's very difficult to be rational when we see our hard-earned money losing value—there's a difference between pain and damage. Portfolio losses are temporary, and it's possible to prevent their pain from turning into damage by staying the course. But taking too little risk—and thus taking less advantage of the power of compounding—does damage that's much harder to repair.

The sting of losing money is impossible to numb, and our fight-or-flight impulse to staunch the bleeding is difficult to override. But as we make decisions about managing the risk of short-term losses, we should always consider them alongside the opportunity cost of taking *too little* risk.

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Appendix

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