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CAGR vs. Average Annual Return: Why Your Advisor Is Quoting the Wrong Number

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Many investors count on compounding, called the greatest mathematical discovery of all time, to help them achieve financial independence. Yet many people confuse it for "average return." Brokers, who often quote the latter, aren't helping the matter much either. So why all the confusion?

The best way to explain it is to start with an example. Imagine you have $10,000. This year, your $10,000 grows 100%, leaving you with $20,000. The following year, your investment falls 50%, taking you back to your original amount, $10,000.

So over the two years, your annualized gain is zero (basically, you've neither made, nor lost any money). The zero percent you received is known in the financial world as the Compound Annual Growth Rate (CAGR).

But an advisor eager to put some positive spin on the situation may tell you that your return is actually 25%. That number is called the average annual return, and is actually very misleading. Hey, if you had made 25%, wouldn't your portfolio be bigger than when it started? In real life, you only realize the CAGR, not the average annual return many brokers and fund managers claim.

#-ad_banner-#The culprit is market volatility. Markets and the returns investors expect from them do not just go up in a nice even pattern. The impact of negative returns and the distribution of returns have significant negative effects on the realized returns investors experience. The more volatility experienced by the market, the larger the drop in the compound return.

It turns out there are two factors that contribute to volatility, negative returns and the distribution of the returns.

Negative Returns

Let's first look at the impact negative returns have on your portfolio. You have worked hard to

save $100,000 and you want to invest it in the market. In the first year, you earn 15% on your $100,000 increasing the value of your portfolio to $115,000. Makes you feel good, right?

In the second year, the market drops and your portfolio falls 15%. So how much is your portfolio worth now? If you guessed $100,000, then you've just fallen for compounding's revenge. Sure, your average annual return is only 0.0% -- breaking even -- but if you actually stop and do the math, you'll find you've lost money. After the 15% fall, your portfolio is worth $97,750. Your compound annual return is -1.13%.

What if you reverse the gain and loss on your portfolio? In the first year, you lose 15%, reducing your portfolio from $100,000 to $85,000. In the second year, you realize a gain of 15% on your $85,000. Now your portfolio is worth $97,750.00. You still enjoy a -1.13% compound annual return.

So what's going on? Whenever you lose money, it takes a greater return to just break even. If you lose 20%, you must earn 25% to get back to where you began. The more you lose, the worse the situation gets. Lose 50% and you must double your money (grow by 100%) to get back to even.

Most investors focus on what they can gain from their investment in the market -- the positive affect of compounding. The investors that consistently beat the market recognize that they must first protect their capital and not lose money. Once they have their plan in place to lower their down side risk, they can focus on generating positive returns that can be compounded over time.

This is the reason Warren Buffett's first rule of investing is never lose money. He fully understands the negative effect that losing money has on your portfolio.

Distribution of Returns

Now we'll look at the second reason why average annual returns are so misleading -- distribution of returns. For each illustration, the average return over the three years is 10%. As the distribution of returns widened, the compound returns shrink.

The first scenario is very basic -- each year, your portfolio grows 10%. At the end of the three years, both your compound return and your average annual return are 10%.

But look at the second, third, and fourth scenarios. Your average annual return is still 10%, but the actual value of each portfolio is lower.

In the second scenario you still have an average annual return of 10%, but the value of the portfolio is lower. That's because there's a wider distribution of returns. When you add scenarios 3 and 4 to the picture, a trend emerges: The greater the distribution of returns, the lower the compound returns you receive.

Impact of Distribution of Returns								
	Scenario 1		Scenario 2		Scenario 3		Scenario 4	
Start		$100,000		$100,000		$100,000		$100,000
Year 1	10%	$110,000	15%	$115,000	20%	$120,000	30%	$130,000
Year 2	10%	$121,000	10%	$126,500	10%	$132,000	0%	$130,000
Year 3	10%	$133,100	5%	$132,825	0%	$132,000	0%	$130,000

Average Annual Return	10%		10%		10%		10%	
Compound Annual Return	10%		9.92%		9.70%		9.14%	

Combined Effect

When you combine the effect of negative returns with the impact of distribution of returns, the blow to your portfolio can be devastating. In each of the cases below, our investor experienced two good years followed by one bad year. As the scenarios progress, the good years get better and the bad year is even worse. As you can see, the effect of the distribution of the returns and the negative return caused the compound return to be much lower than you might expect.

Impact of Negative Returns AND Distribution of Returns								
	Scenario 1		Scenario 2		Scenario 3		Scenario 4	
Start		$100,000		$100,000		$100,000		$100,000
Year 1	10%	$110,000	10%	$110,000	25%	$125,000	40%	$140,000
Year 2	10%	$121,000	20%	$132,500	5%	$131,250	20%	$168,000
Year 3	-1%	$119,790	-10%	$118,800	-10%	$118,125	-40%	$100,800

Average Annual Return	7.00%		6.67%		6.67%		6.67%	
Compound Annual Return	6.20%		5.91%		5.71%		0.27%	

Historically, the market is either up or down by 15% or more about half of the time. This means that you should expect negative returns and a wide distribution of returns each year. If you want to do well in the market, any action you can take to minimize compound's negative effects will do a lot to enhance your portfolio's returns.

Dealing with Compounding's Revenge

As you might suspect by now, the best way to deal with compounding's revenge is to follow Warren Buffett's first rule: Do not lose money. Instead of asking yourself "What are the hottest

stocks I should buy?" get your portfolio off to a good start by focusing on what you can do to reduce your risk.

When the market is struggling and the effect of negative compounding has its greatest consequence, be sure to employ proven capital management techniques. Properly-sized positions, trailing stops and protective puts are three great methods that help lower your risk of losses.

Greater volatility in the stock market indicates that the odds of a losing year are higher. When volatility increases, the risk of negative returns rises alongside it. When you see higher volatility in the market, it is telling you to take additional precautions and protect your portfolio. Be ready to quickly close out positions. Frequently rebalance your portfolio to capitalize on the short-term cycles of a more volatile market. If you have a nice gain, sell half of that position to capture some profit and free capital for other low risk investments. Be sure to move your stop up to above your entry so you lock in the remaining profit.

Recognizing compounding's revenge is the first step to reducing your risk and enhancing your returns. Step up to the table and take control. After all, it is your money.

[Our easy to use CAGR Calculator can help you project the CAGR needed to achieve your investment goals or measure the return on existing investments.]

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