Seed Weekly

24 April 2019

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Why Volatility Matters

"Why does the choppiness of investment returns matter if an investor plans to invest for the long term?"

There are two reasons:

- Volatility diminishes compounded returns in comparison to average returns, and
- The quality of the ride makes a difference, as it often drives investors out of the market, with the effect that they experience most of the decline and not the recovery.

Today we'll focus on the first reason:

A simple return is the mathematical average of a set of numbers, for example, the simple return of 10% and 20% is 15%. The compounded return would be 32%, a number greater than the sum of 10% and 20%, and the return that grows to 32% over 2 periods is 14.9% - slightly less than the average of 15%. The difference between the average return and the compounded return is the result of two effects that we will call "volatility gremlins".

These two gremlins are:

- Negative numbers
- Dispersion of returns around the average.

Negative Numbers

If we invest over 2 years and make 20% in the first year and lose 20% in the second year. Your average return would be 0% (20% - 20%)/2 = 0%.

Your actual return is lower than that quoted above! If you invest R100 000 and gain 20%, you will have R120 000 after year 1. You then lose 20% of R120 000 = R24 000 in year 2. With the result of R120 000 - R24 000 = R96 000 after year 2.

Likewise, if you lose the 20% in year 1 you will have R100 000 less 20% (R20 000) = R80 000. You then gain 20% in year 2 with the result of 20% of R80 000 (R16 000) = R80 000 + R16 000 = R96 000 after year 2.

To break even you need to offset the loss with a greater positive number. For -20% return your investment needs to grow by 25% to break even.

Dispersion of Returns

When the returns in a series are more dispersed from the average, the compounded return declines as shown - The compounded return from 3 periods of 5% returns is greater than any other sequence that averages 5%.

Table 1 (below), illustrates this mathematical phenomenon, with **Chart 1** (below) showing it graphically.

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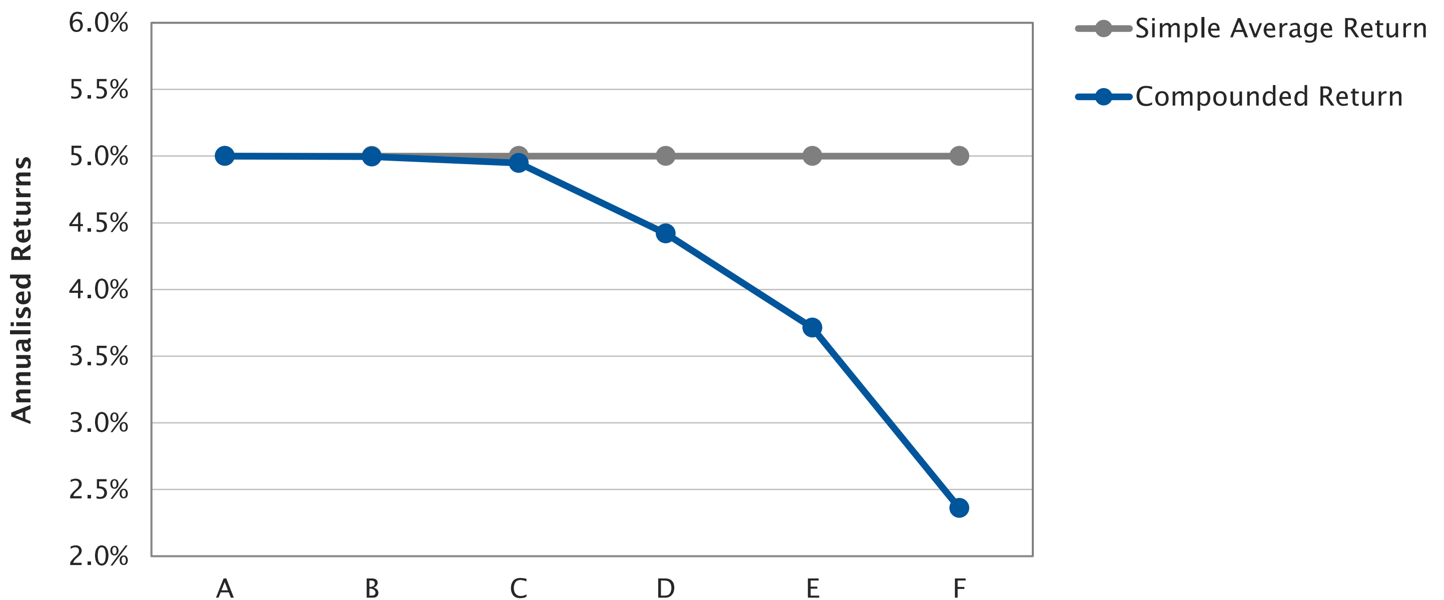
Table 1: Impact of Volatility on Compounded Returns

Scenario	A	B	C	D	E	F
Year 1	5%	4%	9%	15%	25%	30%
Year 2	5%	5%	5%	-10%	-15%	-25%
Year 3	5%	6%	1%	10%	5%	10%
Simple Average Return	**5%**	**5%**	**5%**	**5%**	**5%**	**5%**
Compounded Return	**5.000%**	**4.997%**	**4.949%**	**4.419%**	**3.714%**	**2.361%**

Source: Reference to Crestmont Research (www.CrestmontResearch.com) / Copyright 2004

Chart 1: Impact of Volatility on Compounded Returns



Source: Reference to Crestmont Research (www.CrestmontResearch.com) / Copyright 2004

If your return is 5% pa for 3 years, you will have an average return of 5% and your compounded return is also 5% pa. If you earn 4% in year 1, then 5% in year 2, and 6% return in year 3, you will still have an average return of 5%, but your compounded return drops to 4.997% pa. This isn't a big difference, but as the volatility of returns increases the compounded return drops drastically.

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Take a look at Scenario F where you earn 30% in year 1, lose 25% in year 2, then subsequently return 10% in year 3. You still have an average return of 5%, but now your compounded return drops to 2.361% pa!

Bear in mind that half of the local market's annual returns fall outside the 32% range from -16% to +16%. This increased level of dispersion results in lower compounded returns.

The simple answer to our initial question is *"Yes"*, all else equal, choppiness or volatility of investment returns does matter as we have seen clearly above in that it leads to lower compounded returns. Investors must, however, not sacrifice higher (more volatile) returns for lower (less volatile) returns purely to reduce volatility.

At Seed, when we construct your investment portfolio, we strive to minimize volatility per unit of return, in order to maximize compounded returns.

Kind regards,

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Article Reference: Ed Easterling – Unexpected Returns, Understanding Secular Stock Market Cycles

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ADDITIONAL INFORMATION (where applicable)

Performance has been calculated using net NAV to NAV numbers with income reinvested. Full performance calculations are available from the manager on request.

DEFINITIONS (where applicable)

Annualised Return	Annualised return shows longer term performance rescaled to a 1-year period. Annualised return is the average return per year over the period. Actual annual figures are available to the investor on request.
Highest and Lowest Annual Return	The highest and lowest returns, since launch, for any rolling 1-year period have been shown.