

Investment Basics: XXXV. Do averaging strategies add value?

Averaging strategies are frequently proposed by financial advisors, the press and some finance texts as a means of simultaneously reducing risk and increasing the return on a new investment. This flies in the face of financial theory which postulates that risk and return should be positively correlated. Such strategies therefore warrant further investigation.

The rationale behind averaging strategies is that, by phasing in an investment over a period of time rather than committing the full amount immediately, the investor will not be fully exposed to the market should it fall soon after the start of the investment period. However, the (unmentioned) downside of such strategies is that the investor will not have the benefit of being fully exposed to the market just prior to a market rise.

The most commonly advocated averaging strategy is rand cost averaging. This involves splitting the total amount available for investment into a number of equal portions and investing these at regular intervals in a risky asset, while holding the remainder in a risk-free asset, usually cash. The result is that the number of units purchased increases when the prices are falling and decreases when prices are rising. This occurs passively as a function of the fixed investment amount and the changes in prices.

An alternative averaging strategy is value averaging. The fundamentals of the strategy are similar to those of rand cost averaging. The only difference is that the amounts invested at each of the regular intervals are not necessarily equal. Instead the amount invested is varied in order to achieve a predetermined increase in the value of the risky asset from one period to another. The value of the risky asset will change as a result of the capital gain or loss and any income earned for the period. The investment amount is varied from period to period to make up the difference between the predetermined desired increase in the value of the risky asset and the increase actually achieved. As a result, when prices are increasing the actual amount invested is actively decreased and vice versa. As in the rand cost averaging strategy, the remainder is held in a risk-free asset until invested in the risky asset.

Following the approach of Thorley (1994) we investigate the consequences of such averaging strategies using a hypothetical scenario. Prices of a risky asset can follow one of four patterns over a two period time horizon:

- A price decrease followed by a further decrease (↓↓).
- A price decrease followed by a price increase (↓↑).
- A price increase followed by a further increase (↑↑).
- A price increase followed by a price decrease (↑↓).

We assume that

- this hypothetical asset is currently priced at R20,00 per unit,
- the risk-free rate is zero,
- the price changes are limited to either an increase of 10% or a decrease of 5% , and
- in each time period, there are equal probabilities of the price increasing or decreasing.

The use of these return values results in a positive risk premium in each period.

The pattern of possible asset prices over the two period horizon is shown below.

Table 1

	Price at time 0	Price at time 1	Average Price ¹	Price at time 2
Price pattern 1 (↓↓)	20	19	19,5	18,05
Price pattern 2 (↓↑)	20	19	19,5	20,9
Price pattern 3 (↑↑)	20	22	21	24,2
Price pattern 4 (↑↓)	20	22	21	20,9

An investor with R1000 to invest faces a choice between three options – rand cost averaging, value averaging or a simple buy-and-hold strategy.

In order to implement the rand cost averaging strategy, the investor will make equal rand value investments in the asset in each period, regardless of the price. Therefore, as is illustrated in Table 2, using the rand cost averaging strategy, an initial investment of R500 will result in the purchase of 25 units for each price pattern. Although the subsequent investment remains

¹Note that in the scenario proposed the investor purchases units at time 0 and time 1. Therefore, the average cost (calculated by dividing the total amount invested by the number of shares purchased) is compared to the average price over time 0 and time 1 and to the actual price at which the units can be sold at time 2.

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Table 2:

Rand Cost Averaging (i.e. invest R500 per time period)										
Time	0					1				
Price pattern	Rand Investment	# Shares	Rand Investment	# Shares	Total Investment	Total # Shares	Ave Cost of Shares	Equity Value Time Period 2	Return	
1	R 500	25	R 500	26,32	R 1 000	51,32	R 19,49	R 926,25	-7,38%	
2	R 500	25	R 500	26,32	R 1 000	51,32	R 19,49	R 1 072,50	7,25%	
3	R 500	25	R 500	22,73	R 1 000	47,73	R 20,95	R 1 155,00	15,50%	
4	R 500	25	R 500	22,73	R 1 000	47,73	R 20,95	R 997,50	-0,25%	
Mean Return										
Standard Deviation										
9,83%										

Value Averaging (i.e. invest incrementally to achieve multiples of a R500 per time period)										
Time	0					1				
Price pattern	Rand Investment	# Shares	Rand Investment	# Shares	Total Investment	Total # Shares	Ave Cost of Shares	Equity Value Time Period 2	Return	
1	R 500	25	R 525,00	27,63	R 1 025,00	52,63	R 19,48	R 950,00	-7,32%	
2	R 500	25	R 525,00	27,63	R 1 025,00	52,63	R 19,48	R 1 100,00	7,32%	
3	R 500	25	R 450,00	20,45	R 950,00	45,45	R 20,90	R 1 100,00	15,79%	
4	R 500	25	R 450,00	20,45	R 950,00	45,45	R 20,90	R 950,00	0,00%	
Mean Return										
Standard Deviation										
3,95%										
9,90%										

Buy and Hold (i.e. invest the full R1000 in time period 0)					
Time	0				
Price pattern	Rand Investment	# Shares	Ave Cost of Shares	Equity Value Time Period 2	Return
1	R 1 000	50	R 20	R 902,50	-9,75%
2	R 1 000	50	R 20	R 1 045,00	4,50%
3	R 1 000	50	R 20	R 1 210,00	21,00%
4	R 1 000	50	R 20	R 1 045,00	4,50%
Mean Return					
Standard Deviation					
12,57%					

unchanged in rand terms, it results in the purchase of either a lesser or greater quantity of units, depending on the direction of the price change. In patterns one and two, where the price decreases from time period 0 to time period 1, 26,32 units are purchased in time period 1. Conversely, in patterns three and four, the price increases from time period 0 to time period 1 and only 22,73 units are purchased in time period 1.

If we compare the average cost of the units bought under each price pattern to the average price we see that our experiment confirms the widely publicised comment that rand cost averaging "protects investors against the risk of bad timing and enables them to pay a lower price for their units". It in fact suggests that this may always be true. For example, in the first price pattern the average cost is R19,49 and the average price R19,50. However, this property, which proponents of rand cost averaging tout as the most significant advantage of the strategy, is a mathematical certainty – and also turns out to be irrelevant to the investor. It is a mathematical certainty because the average cost is a weighted average of the prices paid for units and the lower priced units have a higher weighting, since the fixed investment amount results in the purchase of more of these lower priced units. This will always result in a lower figure than a simple average of the same prices. However, this is irrelevant because investors can only sell their units at the current price and are, thus, unable to take advantage of the observed difference between the average cost and the average historical price.

Value averaging, the more active of the two strategies, results in even lower average costs of the units purchased.

Despite this being a hypothetical exercise, the measures of risk and return for each strategy warrant a brief comment. We note that both of the averaging strategies earn comparable returns (3,78% for rand cost averaging and 3,95% for value averaging) with almost identical amounts of variability (9,83% for rand cost averaging and 9,90% for value averaging). Therefore, on the basis of this simplistic analysis, neither averaging strategy appears to have an advantage over the other. However, if these are compared to a straightforward buy-and-hold strategy, where the full R1000 is invested at time 0, the average return earned (5,06%) is noticeably higher than that of the averaging strategies. As expected the standard deviation is also appreciably higher at 12,57%.

Having looked a little more closely at the consequences of averaging strategies, we observe that the traditional relationship between risk and return appears to hold true and that neither of the averaging strategies yield higher returns than a simple buy and hold strategy, in keeping with their lower risk exposure. In addition, the function of the averaging strategies in achieving an average cost lower than that of the average historical price proves to be true but irrelevant to the

investor, who is bound to sell at the current price rather than the average historical price.

A last word: none of the above discussion negates the practical value of the averaging strategies for those investors who do not have a lump sum available to invest in a buy-and-hold strategy and are therefore forced to place their funds piecemeal as they become available.

REFERENCES

Thorley S. 1994. The fallacy of dollar cost averaging. *Financial Practice and Education*, Fall/Winter:138-143.