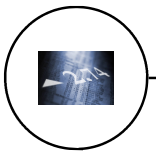

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The Investment Allocation Decision:

Evaluating Phasing-in Strategies

By Daniel R Wessels

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1. Introduction

Many investors are confronted with the following situation: You are about to receive the proceeds from your savings/retirement plan or sale of fixed property investments and have already made up your mind that you want to invest a significant part of the proceeds in the equity markets since you are convinced (or have been convinced) that the latter asset class provides the best real returns over investment holding periods extending over, say, 10 years and longer.

However, there is one niggling problem: Markets do move up and down, they seem volatile (as they always do) and you know very well if you invest all the proceeds today, chances are that markets may move considerably against you in the forthcoming months. Well, you know (or have been told) it is a long-term plan and today's market gyrations should not have any real effect on your portfolio's return in the long run.

While that is arguably true most of the times we also know markets are sometimes expensively priced, which in hindsight quite often proves nothing more than a market folly. *Alas*, the indisputable rule of investing is simple: the more you had to pay to acquire assets at a particular time, the fewer the chances of a decent return, even in the long run.

Investors could mitigate the risk of over-paying by gradually phasing in their investment into the market. A simple solution to the investment allocation problem? Not quite, as markets might also be rated relatively cheap against future ratings on average when in such a case the sooner the investment was made, the better. Again, the difference in returns between short phasing-in and longer term phasing-in strategies may be considerable.

Thus, investors need some easy-to-understand indicators to guide them in their allocation decision. This study endeavours to provide some perspectives on which phasing-in strategies did work the best in the past, but more importantly when they worked and whether it would have mattered that much had you perhaps followed less appropriate allocation strategies.

2. Methodology

The objective of the study was to assess the historical outcome of phasing in investments over different time spans into an investment plan compared with the return from a lump sum investment. Which strategy yielded on average the highest return? Under which market circumstances did particular strategies fare well?

Different phasing-in strategies, namely 3-months, 6-months, 9- months and 12-months were compared with the performance of a lump sum investment over 5-year, 7-year and 10-year periods.

Monthly data of the JSE ALSI (code J203) were used and the review period spanned January 1960 to April 2008 – in total 580 data points. Effectively, 520 rolling 5-year, 496 rolling 7-year and 460 rolling 10-year holding periods were identified.

To compare the outcome of the different strategies over time an investment of R100 was assumed at the start of each investment period. The non-allocated portion of each phasing-in strategy earned interest at the prevailing interest rate (prime rate less 4%, see chart 1) until the full balance of the investment was invested within the designated phasing-in period.

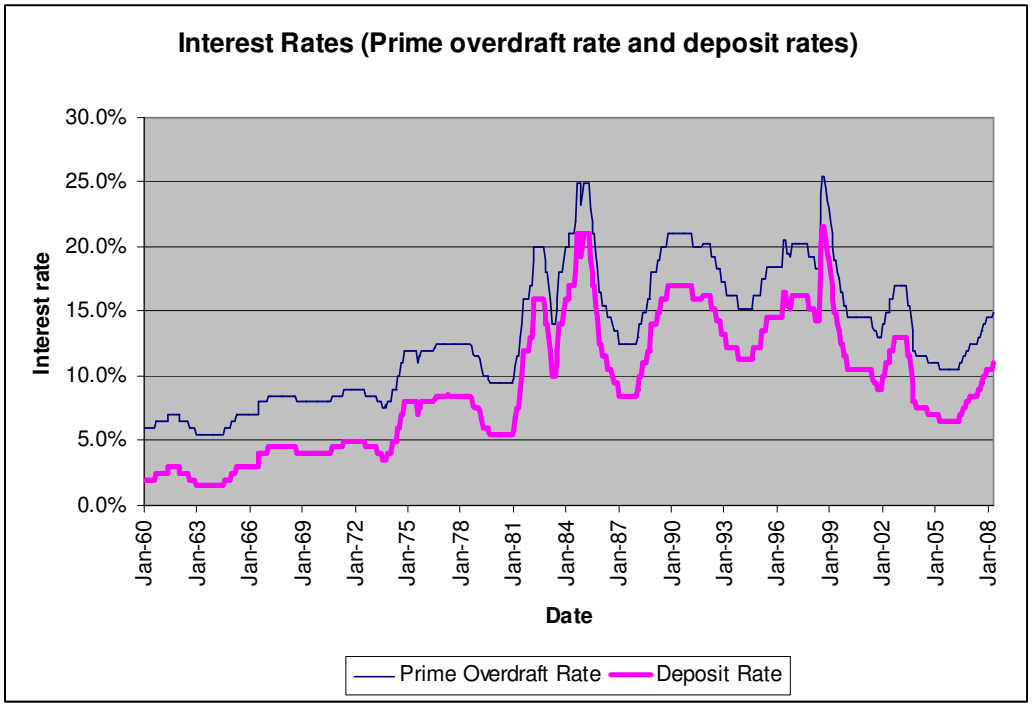


Chart 1: Prime interest rates and assumed deposit rates since 1960

In calculating each strategy's return for a specific holding period the following methodology was used: By using the month-end JSE index value the number of units for each rand amount invested could be determined for any particular month. The total number of units allocated during each phasing-in strategy was then used to determine the final value of the investment. See table 1 for a numerical explanation of this methodology.

Table 1: An example of the methodology used in determining the outcome of the different phasing-in strategies for an investment period

a) Phasing-in strategy and allocated units

Investment amount = R100

Month	Interest Rate	Index value	Rand amount invested	Capital not allocated	Interest	Capital + Interest	Units allocated
1	2.0%	85.53	8.33	91.67	0.15	91.82	0.10
2	2.0%	81.03	8.35	83.47	0.14	83.61	0.10
3	2.0%	70.23	8.36	75.25	0.13	75.38	0.12
4	2.0%	63.02	8.38	67.00	0.11	67.11	0.13
5	2.0%	63.92	8.39	58.72	0.10	58.82	0.13
6	2.0%	63.92	8.40	50.42	0.08	50.50	0.13
7	2.0%	61.22	8.42	42.09	0.07	42.16	0.14
8	2.5%	63.92	8.43	33.72	0.07	33.79	0.13
9	2.5%	69.33	8.45	25.35	0.05	25.40	0.12
10	2.5%	70.23	8.47	16.93	0.04	16.97	0.12
11	2.5%	71.13	8.48	8.48	0.02	8.50	0.12
12	2.5%	70.23	8.50	-	-	-	0.12
					TOTAL	UNITS	1.467

b) Total units acquired for each phasing-in strategy

Strategy	Lump sum	3-month	6-month	9-month	12-month
Units allocated	1.169	1.278	1.430	1.475	1.467

c) Calculation of final value = number of units x index value at end of holding period

Index value after 5-year holding period = 119.75

Strategy	Lump sum	3-month	6-month	9-month	12-month
Final value	R140.00	R153.03	R171.24	R176.62	R175.67
Annualised return	7.0%	8.9%	11.4%	12.0%	11.9%

The above steps were then repeated for each successive investment period. The outcome of each strategy was ranked in ascending order from best to worst. For example, the best outcome for a particular holding period was allocated a score of *one*, the second best a score of *two* and the strategy with the worst outcome a score of *five*. Hereby an aggregate ranking score for each phasing-in strategy measured over the successive investment periods could be established. The strategy with the lowest overall ranking score would then be considered on average the best allocation strategy.

3. Results

Tables 2 to 4 summarise the main findings of the analysis for the different investment holding periods.

"Average Rank" refers to the average ranking score that each strategy scored over the number of rolling investment periods. "Volatility" measures the dispersion around the average annualised return; the higher the volatility the less confidence one should have using the average as a reliable benchmark. "Q1 Return" is the return level at which 75% of the observations fall below, while "Q3 Return" is the return level at which 75% of the observations are above.

Table 2: Five-year holding periods (1960-)

Statistics	Lump	3-m	6-m	9-m	12-m
Average Rank	2.75	2.87	2.98	3.13	3.27
Average Annualised Return	13.3%	13.3%	13.3%	13.3%	13.2%
Volatility	8.2%	8.1%	8.1%	8.1%	8.1%
Best Return	38.8%	37.1%	35.0%	32.5%	32.8%
Q1 Return	18.1%	17.8%	17.5%	17.3%	17.4%
Median Return	13.1%	13.1%	13.2%	12.8%	12.7%
Q3 Return	7.4%	7.4%	7.8%	8.0%	8.1%
Worst Return	-3.6%	-3.8%	-4.4%	-4.9%	-4.7%

** Scale: 1 = best, 5 = worst*

Table 3: Seven-year holding periods (1960-)

Statistics	Lump	3-m	6-m	9-m	12-m
Average Rank	2.71	2.86	2.98	3.15	3.30
Average Annualised Return	13.1%	13.1%	13.1%	13.0%	13.0%
Volatility	6.7%	6.7%	6.5%	6.4%	6.3%
Best Return	28.6%	27.9%	27.4%	26.8%	26.9%
Q1 Return	18.3%	18.2%	18.1%	18.1%	17.8%
Median Return	13.0%	13.1%	13.0%	13.1%	13.4%
Q3 Return	8.9%	8.9%	8.7%	8.6%	8.5%
Worst Return	-6.0%	-6.2%	-4.8%	-3.5%	-2.6%

** Scale: 1 = best, 5 = worst*

Table 4: Ten-year holding periods (1960-)

Statistics	Lump	3-m	6-m	9-m	12-m
Average Rank	2.72	2.87	2.99	3.15	3.27
Average Annualised Return	12.9%	12.9%	12.8%	12.8%	12.8%
Volatility	5.7%	5.7%	5.7%	5.7%	5.7%
Best Return	29.1%	28.7%	28.4%	28.5%	28.2%
Q1 Return	16.6%	16.5%	16.6%	16.5%	16.4%
Median Return	12.7%	12.8%	13.0%	13.0%	13.1%
Q3 Return	9.3%	9.2%	9.1%	9.0%	8.9%
Worst Return	-0.1%	0.5%	0.5%	0.2%	0.0%

** Scale: 1 = best, 5 = worst*

Synopsis:

1) Lump sum investing attained *on average* the lowest ranking score over all investment holding periods; i.e. did the best of all strategies with the highest average annualised return. Thereafter, the 3-month phasing-in period did the best, followed by the 6-month, 9-month and 12-month phasing-in strategies.

2) The pattern that emerged from the analysis is that investors *on average* would have done best had they allocated investments sooner rather than later to their investment plans.

3) The volatility in the annualised returns attained by lump sum investing was marginally higher than for the other phasing-in strategies. This indicates that in some instances lump sum investing would have done particularly poorly relative to phasing-in strategies.

4) The return profiles (best, Q1, median, Q3 and worst return) of the different phasing-in strategies converged over the longer investment holding periods. That however, does not imply that the absolute value differences between the strategies converged in a similar manner. For example, a 2% return difference over a 5-year holding period is in nominal value equivalent to a 1% return difference over a 10-year holding period. Thus, a poor allocation strategy decision made today would not necessarily dissipate in absolute terms over time.

4. Analysis of Results

The results from the 5-year investment holding period were used as a proxy to identify under which market circumstances the various strategies would have done the best, or alternatively, the worse.

4.1 Which strategy when?

Chart 2 depicts the following information: First, for which percentage of all periods since 1960 to date was a particular strategy either the best or second-best allocation option (y-axis)? Second, in cases where such a strategy was ranked first or second, what was the average price/earnings ratio of the market at the time of the investment (x-axis)?

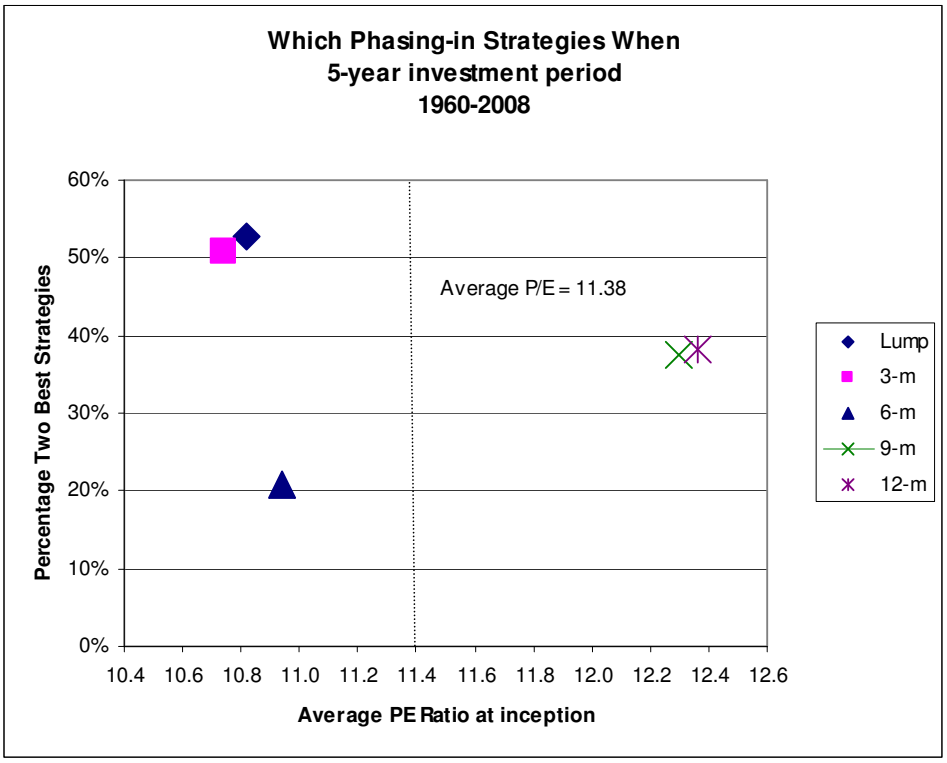


Chart 2: Success rate of phasing-in strategies and market rating (P/E)

For example, both the lump sum and 3-month phasing-in options were in more than 50% of all periods either the best or second-best allocation option. Notably, this occurred on average at times when markets were rated below average at the time the investment was made.

The long-term phasing-in strategies (9-month and 12-month) did either the best or second-best in about 40% of all periods, but on average when the market was rated above-average at the time of the investment.

Chart 3 illustrates the opposite scenario; which strategies did the worst or second-worst and when? The same pattern, but in reverse order was identified.

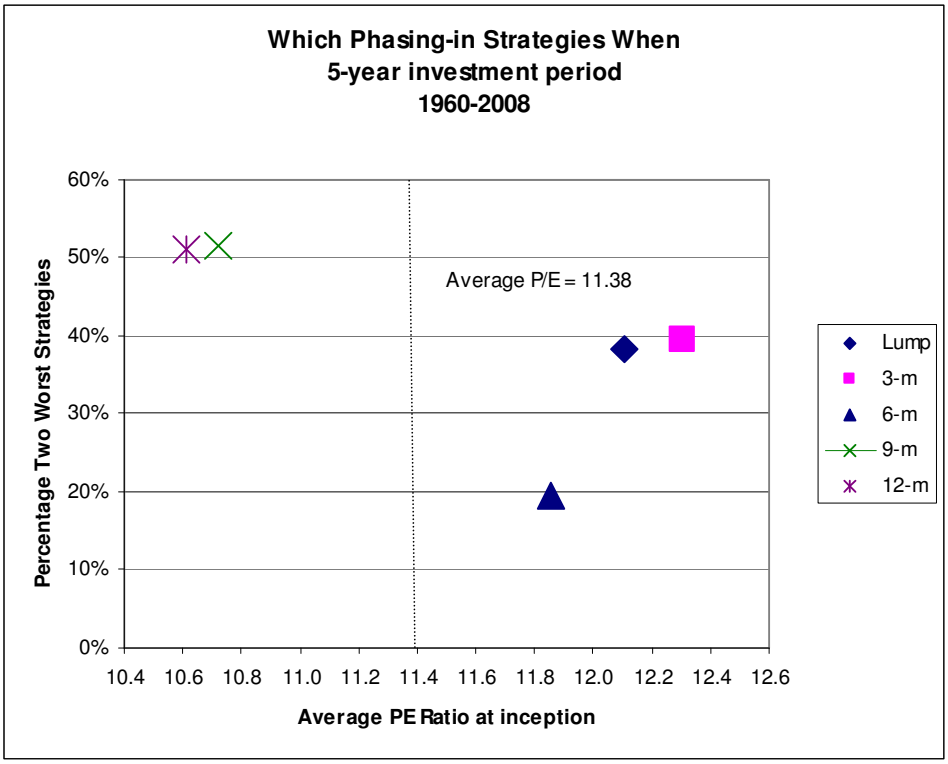


Chart 3: Failure rate of phasing-in strategies and market rating (P/E)

Note that the 6-month phasing-in option was only in 20% of all instances ranked among the best two or worst two options, which in itself may pose an attractive consensus strategy for some investors since one is unlikely to make gross allocation mistakes relative to other possible phasing-in strategies.

4.2 How much does it matter?

From the previous section it follows that a lump sum or short phasing-in strategy did the best in relative terms when it turned out that the market at a particular time was rated relatively cheap. Conversely, when the market turned out to be expensive at the time the investment was made longer-term phasing-in strategies yielded the best outcome.

By now probably the most important question is how much it really matters which strategy is to be used since it is basically impossible to gauge with absolute certainty whether the market at a particular time is relatively expensive or cheap. Thus, if it turns out that an investor selected the wrong phasing-in strategy at the time, how much worse would that investor have done compared with the best possible phasing-in strategy?

Chart 4 depicts the absolute differences in return between the best and worst phasing-in strategies (including the lump sum option) over 5-year investment holding periods since 1960. It seems that most of the return differences are clustered around 2-3% return difference; equivalent to a 10-15% cumulative return difference over a 5-year holding period.

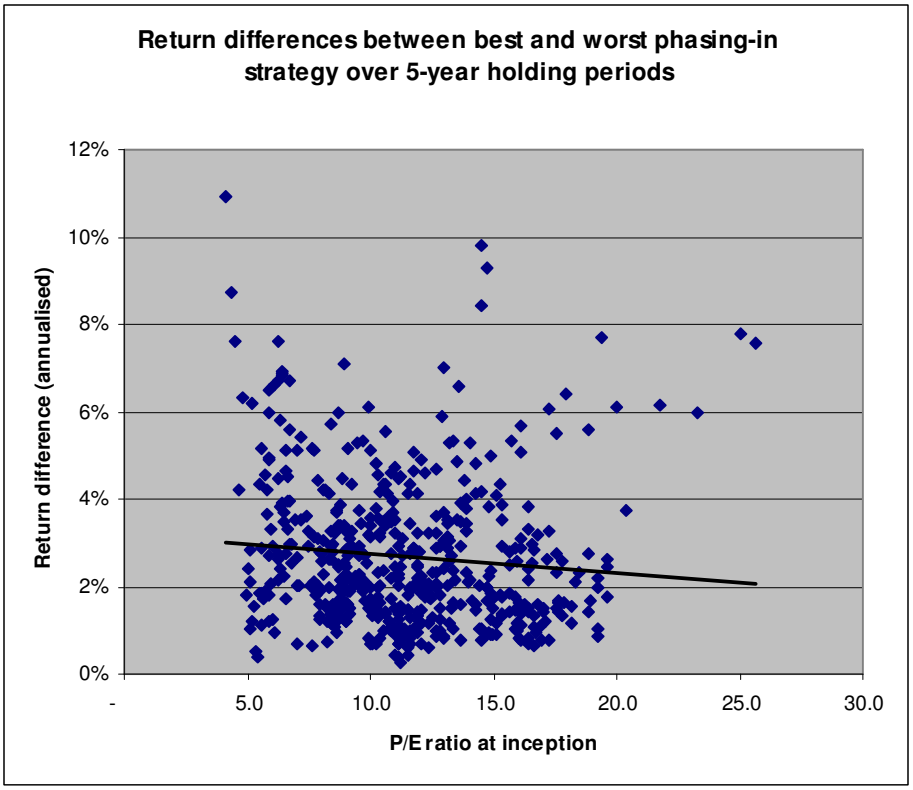


Chart 4: The difference in return between the worst and best phasing-in strategies

Chart 5 displays the frequency and cumulative percentages of the return differences between the best and worst phasing-in strategies. In about 50% of the cases the return differences are within 2% and the bulk of the return differences – about 80% – are within 4% annualised return range; meaning that over 5-year holding periods the cumulative return difference would have been less than about 20%.

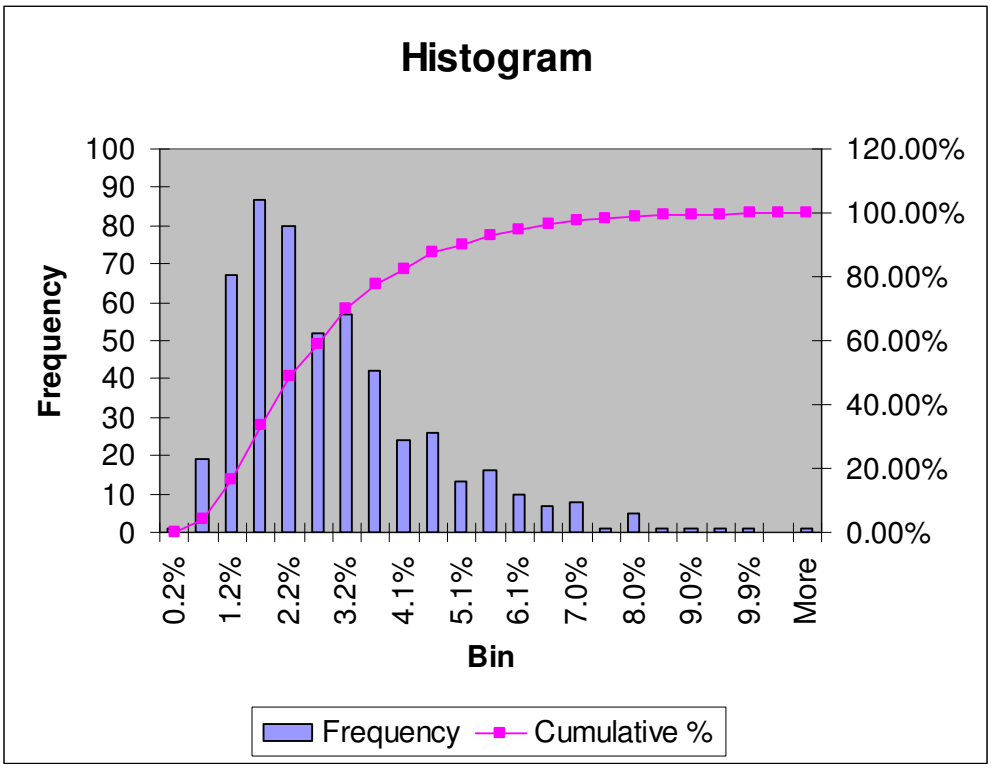


Chart 5: **Distribution of return differences between best and worst phasing-in strategies**

4.3 The Outliers Matter

In the analysis thus far it was noted that the major differences in return between the short-term phasing-in and longer-term phasing-in strategies arose from the relative market P/E rating at the time the investment was made. Chart 6 illustrates the difference in return yielded from a lump sum investment versus a phasing-in period of 12 months plotted against the market P/E rating at the time the investments were made relative to the average 5-year market P/E rating preceding the investment.

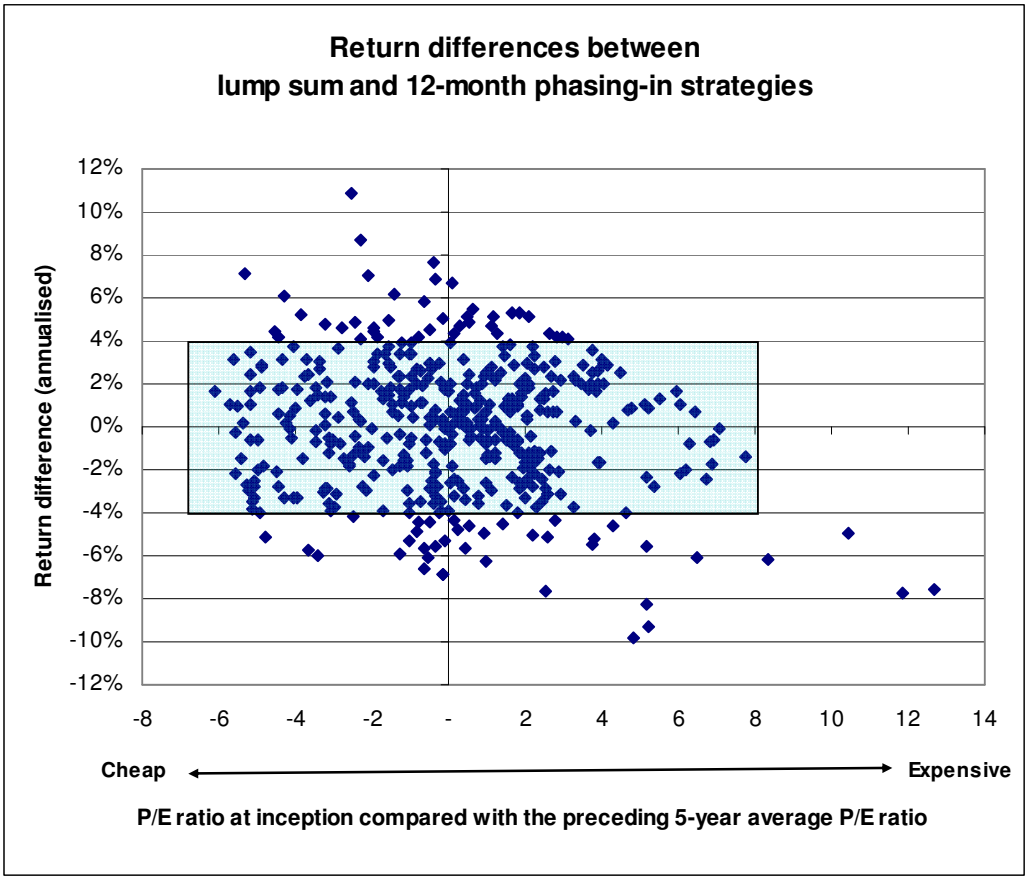


Chart 6: Return difference between lump sum investing and 12-month phasing-in

Positive return difference: Lump sum strategy outperformed 12-month phasing-in strategy
Negative return difference: 12-month phasing-in strategy outperformed lump sum strategy

Most of the return differences hovered between -4% and 4% annualised return, but with no overwhelming indication in terms of relative market rating as to which strategy would have yielded the best return. Thus, if the market at a particular point was rated below average it would not necessarily suggest that the lump sum strategy would lead to outperformance.

The outliers in return differences, as portrayed in charts 7 and 8, suggest though that if the market at a particular point was rated significantly cheap or expensive compared with the average rating in the preceding five years considerable differences in returns were possible. For example, an annualised return difference of 10% would imply a cumulative return difference of more than 60% over 5 years!

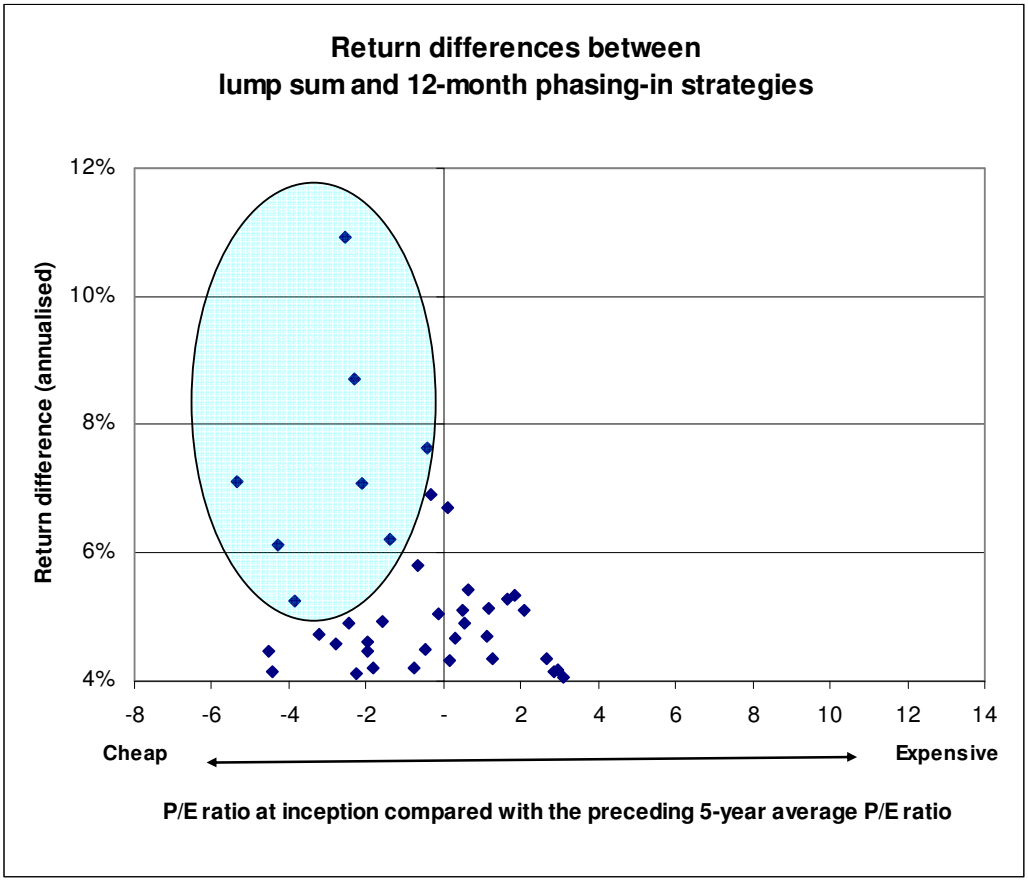


Chart 7: **Lump strategy outperforming 12-month phasing-in strategy over 5-year holding periods**

Positive return difference: Lump sum strategy outperformed 12-month phasing-in strategy

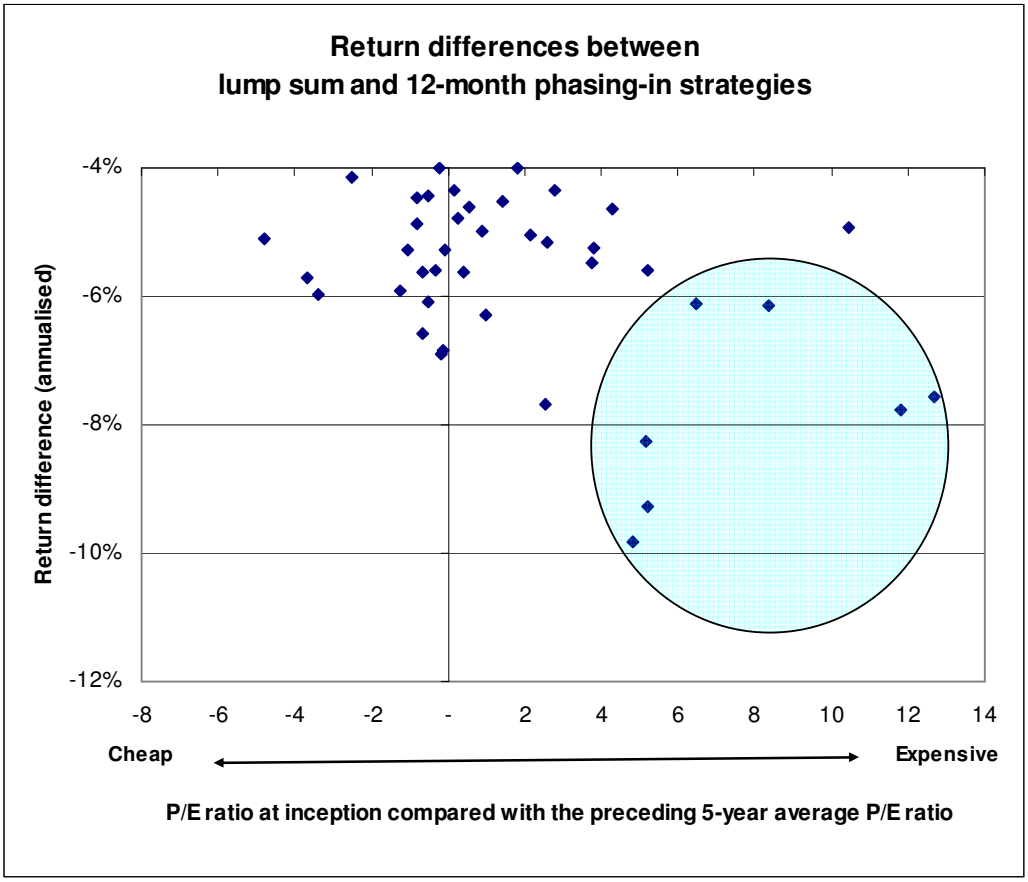


Chart 8: **12-Month phasing-in strategy outperforming lump sum strategy over 5-year holding periods**

Negative return difference: 12-month phasing-in strategy outperformed lump sum strategy

Perhaps the above charts show more definitely what is most likely not the correct strategy: When the market at a particular point was rated significantly expensive compared with the preceding 5-year P/E average, the return from a lump sum strategy significantly lagged a longer phasing-in strategy and *vice versa* when the market was rated relatively cheap.

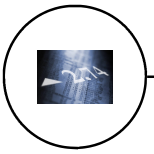
5. Conclusion

While a comparison of the outcome of the different phasing-in strategies over time will favour the lump sum or short phasing-in strategy on average a more detailed analysis shows that perhaps the actual allocation decision most of the time does not matter such a great deal. An investor should follow the strategy he or she is most comfortable with because there is no predictable or undisputed benefit arising from any of the short- or long-term phasing-in strategies.

The only exceptions to the above rule would be in cases where the market is deemed to be significantly cheap – typically a bear or depressed market – when lump sum investing or short-term phasing-in should be favoured, or when the market is deemed to be significantly expensive – typically in the midst of a strong bull market – when longer term phasing-in strategies should be considered instead of the short phasing-in periods.

Ironically, in both instances investors would most likely tend to do the opposite since investment decisions are often based on immediate experiences. Yet, the vast differences in returns between for example lump sum investing and 12-month phasing-in strategy when such situations occurred in the past, provide solid reasons why one should rather trust the corrective behaviour of markets (reversion to the mean) than the prevailing bullish or bearish market sentiments. The latter typically over- or underestimate future trends.

*At the time of writing the report the market was trading at a P/E rating of 15.5-16 which is above the market rating average of 14.6 over the past five years. While the market is not trading comprehensively above the 5-year average, a phasing-in strategy of 3-6 months would nonetheless be advisable.



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