TESTING DOLLAR COST AVERAGING: SINGAPORE

By Daryl Guppy

In falling markets traders often end up with stocks they should have sold at higher prices. For a variety of reasons, these weren't sold and traders hang onto them. With this comes the temptation to average up, or shift into a dollar cost averaging strategy. It's an appealing idea, but the hard mathematics don't support the idea.

Dollar cost Averaging (DCA) is an investment strategy frequently recommended by fund managers. It encourages people to add the same amount of cash each month to a portfolio, a fund, or an individual stock. By doing this the investor is supposed to overcome the difficulties of timing the market. In good times his cash buys less, and in bad times it buys more. The dollar cost of each purchase is averaged out. Although appealing, this strategy carries unforeseen risk as market volatility has a severe impact on the profitability depending on timing. Regular payments are time based, even though the timing is independent of market activity. Investors lucky enough to select the low days fairly consistently can do well. Select the high days - a matter of chance - and the final results are not good. Timed entry at random points without a stop loss strategy turns investments into brokerage commissions.

Many claims are made for Dollar Cost Averaging. Some of these claims of outperformance are based on actvities which are not dollar cost averaging.

DCA theory requires the investor to allocate the same amount of cash on a regular basis at a consistent time interval. Its primary purpose is to avoid the need for market timing and for asset allocation – picking the best sectors.

DCA is not:

- Comparing the returns from entry at the worst point and the highest point in the year
- Rebalancing a portfolio on a regular basis to attempt to drop losers and pick winners

DCA is critically dependant upon the time you start the DCA process. DCA is sensitive to the time you select to enter the market on a regular basis. The results can be substantially different particularly over the 10 and 20 years longer time frames typically advocated by DCA investors. We have been asked to put this to the test.

DCA makes several key claims. They are

- DCA is independent of market timing so results are much the same no matter what time the market is entered.
- DCA delivers at least market performance

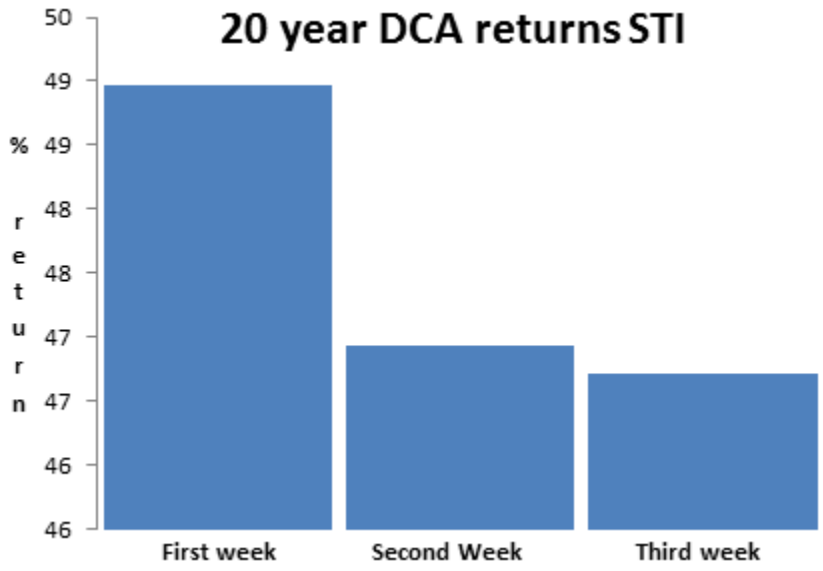
Here are our assumptions.

- The investor adds a $10,000 position once every quarter over a 20 year period ending December 2014. Sounds unfair? Try telling this to people who used this method over the past 20 years and who are now approaching retirement and wondering why the results are lack luster

and often so different. . We also test this on the first 10 years, the last 10 years and the last 15 years.

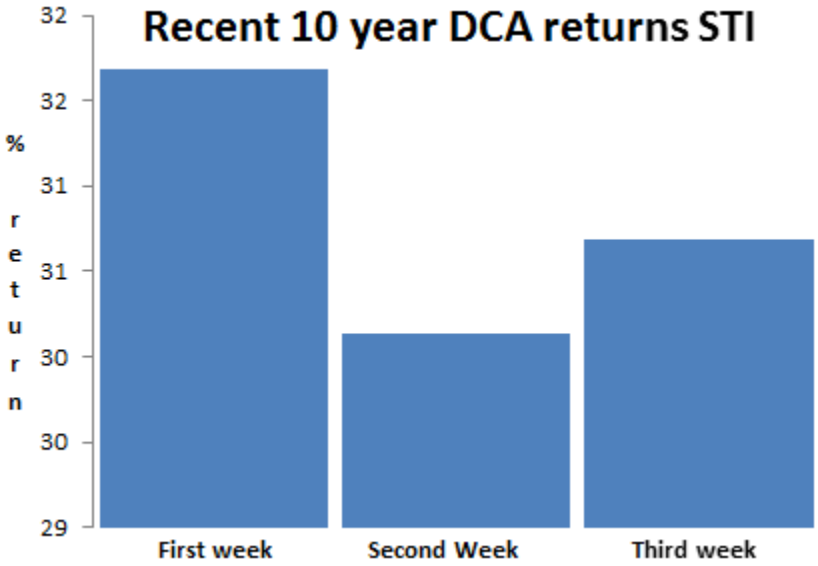
- Entry is based on the open price for the period.
- The Straits Times index is used as the investment instrument.
- This is raw return, not an accumulation return. All investors during this period would receive essentially the same level of dividends so we eliminate this for the ease of calculation.
- The comparison point is the marked to market value of the 'investment' at the end of 2014. This delivers a return on capital figure.
- Investor A invest on the open index price of the first week of the first month in the quarter.
- Investor B invest on the open index price of the first week of the second month in the quarter.
- Investor C invest on the open index price of the first week of the third month in the quarter.
- No fees are included so results can be accurately compared.
- There are a total of 84 entries, all at $10,000 each so total capital invested in $840,000.

We start with the 20 year returns on the STI. If your investment point was the first week of the first month in each quarter then you achieved a 49% return. Your outperformed the alternative DCA entry points by 2.26%. Over the 20 year period you collected $411,399 in profit for a total expenditure of $840,000. If you chose to enter on the first week of the second or third month in every quarter your return was reduced to 47%. This is a difference of $18,989 over the 20 year period.

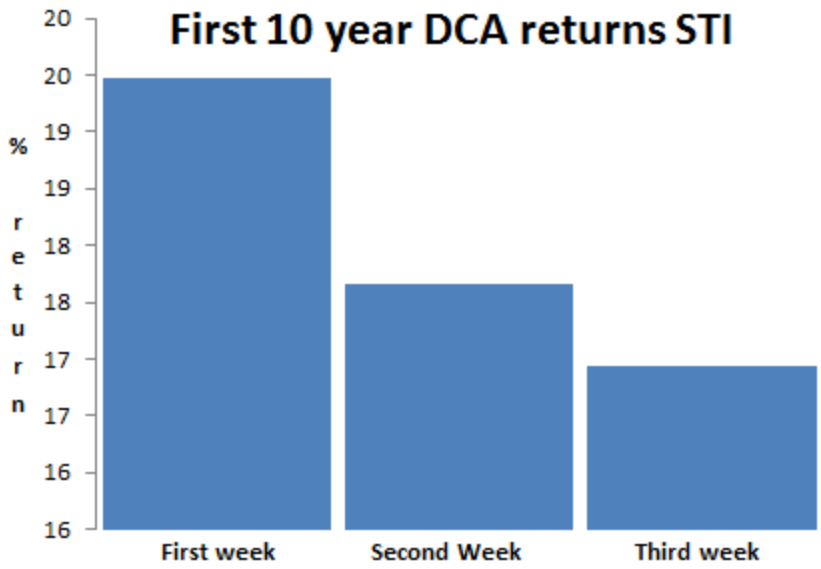


The last 10 year returns on the STI show similar volatility, even though the market was much more volatile in this period. If your investment

point was the first week of the first month in each quarter then you achieved a 32% return. You outperformed the alternative DCA entry points by 1%. Over the 10 year period you collected $133,092 in profit for a total expenditure of $420,000. If you chose to enter on the first week of the third month in every quarter your return was reduced to 31%. You did worse if you entered in the first week of the second month of the quarter with a return of 30%. This is a difference of $4,190 over the 10 year period.

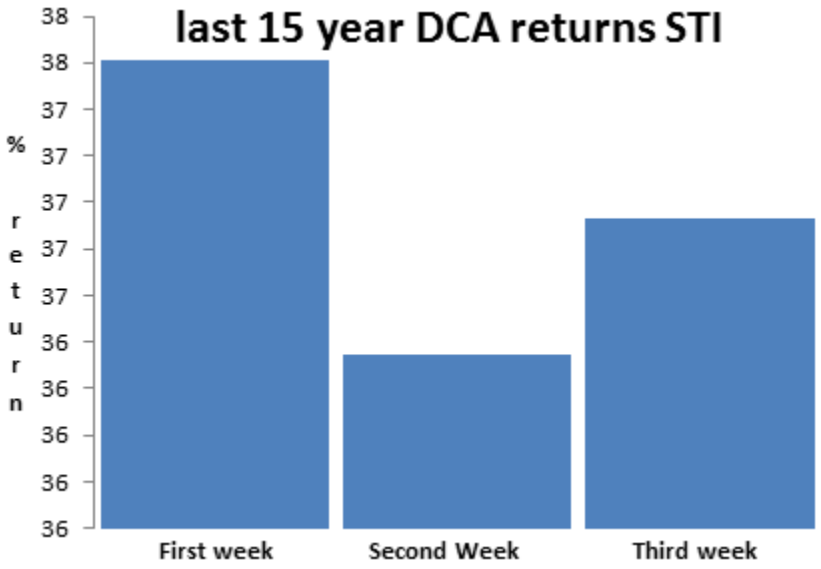


The first 10 year period returns on the STI show similar volatility, even though the market was much less volatile in this period. If your investment point was the first week of the first month in each quarter then you achieved a 19% return. Your outperformed the alternative DCA entry points by 2.5%. Over the 10 year period you collected $81,761 in profit for a total expenditure of $420,000. If you chose to enter on the first week of the third month in every quarter your return was reduced to 17%. This is a difference of $10,633 over the 10 year period.



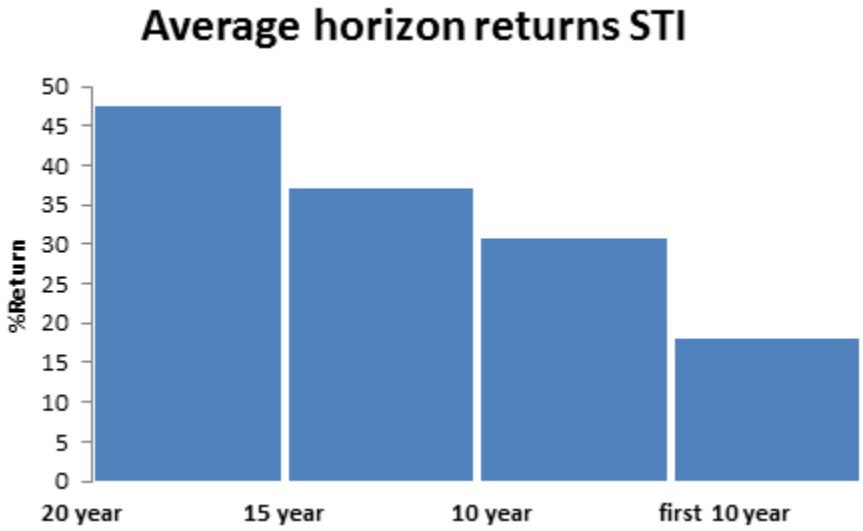
One of the key claims for DCA is that time in the market smoothes out any problems with the time of entry into the market. Multiple entries at regular intervals is consistent with this idea of smoothing out volatility.

DCA is more sensitive to the time of entry – first, middle or last month of the quarter – than the proponents would have us believe. However significant differences also come from the starting time of the entry. For convenience we tested a 20 year return a return for the first 10 years and a return for the most recent 10 year period. No great surprises. When we tested the return for the past 15 year period the result confirmed this time sensitivity.



The investors who made his start to the DCA method in the first quarter of 1996 have low returns on a marked to market basis on 30/12/2014 of around 38%. The variation in the range of losses based on the month of entry when DCA

starts is essentially zero in this period. At a range of 0.7 this range shows significant variation from previous years.



Individual DCA results based on month of entry have a variation range from 0.07% to 2.26%. Just bad luck if your choice of entry month puts you at the lower return levels. These are much smaller ranges than shown in the DOW. Individual results based on the year where DCA starts are much more time sensitive. Pick the right starting year and you can collect 47.54% portfolio growth. Select the wrong starting year and returns plummet to 18.02%. This is not bad luck.

The entire DCA concept is time sensitive and that can negate all of the assumed benefits of DCA.

These results confirm the conclusions seen with the DOW.

- Markets with low volatility, such as the first 10 years in this test, delivered better overall results when measured as return in capital.
- Markets with low volatility have the highest range of difference based on the time of entry
- On a 20 year time frame the difference between the best and the worst remains a very high 40%. DCA does not remove the risk of the time of entry from the investment decision.
- The starting year for DCA is very time sensitive and it is the largest contributing factor to the variably of returns.
- The DCA remains an effective strategy because it relies entirely on the benefits of survivor bias in the index. Only winners remain in the index. Index replication is best achieved using an ETF, but these were not available 20 years ago.

Investors who apply this strategy will consistently get better results if they buy on the open in the first week of the first month of each quarter.