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DOLLAR-COST AVERAGING: THE CLAIM AND THE REALITY

by John M. Boermeester

Dollar-Cost Averaging (DCA) means investing a constant amount at regular intervals into a single stock or mutual fund. This is in contrast to Unit Purchase (UP), which denotes buying a constant number of shares at each interval. DCA advocates claim that, regardless of market movements, DCA always fares better than UP, provided purchase and selling (or valuation) dates are identical.

These advocates base this claim on the observation that the Average Market Cost (AMC) per share acquired under DCA will always be lower than that under UP. It is easily shown by algebraic logic that this observation is justified. But this article aims to show that their claim is not supportable under a yield rate analysis: DCA is sometimes the winner, sometimes the loser. Two additional relevant factors must also be taken into account under a yield rate comparison: (1) dividend payments and (2) the reinvestment interest that can be realized on these dividends when they are placed in, say, a savings account, until the valuation date. Results will be expressed here in terms of yield rates of the kind familiar to actuaries.

Examples Comparing DCA with UP: In these examples, we assume an opening investment in a no-load mutual fund of $1,000, buying 10 shares at $100. Four quarterly purchases are made. Shares are sold at the end of one year, the valuation date. Dividends are paid in cash at a quarterly rate of $1.50 per share, commencing at the end of the first quarter. and are reinvested upon receipt at an effective rate of 6% to the end of the year.

Example 1: The market price climbs erratically during the first nine months. Three selling prices are considered: $100, $120, $140.

Duration (years)	*Price Per Share*	*Shares Purchased By $1,000*
0	$100	10.00000
.25	110	9.09091
.50	105	9.52381
.75	115	8.69565
Total	430	37.31037

Case	*Selling Price Per Share*	*Yield Rate* DCA	*Yield Rate* UP
1	$100	-4.9%	-5.6%
2	120	25.6	25.5
3	140	58.0	58.6

From the totals shown above, we find that the AMC for the DCA plan is $107.21, lower than $107.50 for the UP plan. The yield rate for the DCA plan is slightly better for Case 1, about the same for Case 2 and slightly poorer for Case 3.

Example 2: The market price drops erratically during the first nine months. Selling prices at $60, $80 and $100 are considered.

Duration (years)	*Price Per Share*	*Shares Purchased By $1,000*
0	$100	10.00000
.25	90	11.11111
.50	95	10.52632
.75	85	11.76471
Total	370	43.40214

Case	*Selling Price Per Share*	*Yield Rate* DCA	*Yield Rate* UP
1	$60	—45.9%	—45.3%
2	80	—14.4	—14.5
3	100	20.5	19.6

The AMC for the DCA plan is again lower, i.e. $92.16 versus $92.50 for the UP plan. The yield rate for the DCA plan is slightly poorer for Case 1, about the same for Case 2 and slightly better for Case 3.

LETTERS

AERF to the Rescue

Sir:

Charles Siegfried's reflections in the Guest Editorial (September) are stimulating and challenging. Are not some of the broad questions he raises proper topics for work under The Actuarial Education and Research Fund?

Robert P. Coates

A Glutton For Punishment

Sir:

For reasons described in a footnote (omitted—Ed.), I have just read in one session 14 of your issues and am now amply informed on Manhart, Social Security and your change of editors. Permit me now to salute Andrew Webster's farewell editorial and the tributes to him, both the stately and the whimsical.

The *Actuarial Review* came along in 1974, seven years later than *The Actuary*. My first step upon becoming editor of AR was to talk to Andy Webster. He told me (and I agreed) that without a wry sense of humor, the editor of a newsletter for actuaries would be in for some tough moments. Andy laughs—he makes others laugh, gently (the best way)—and he advised me to be sure to laugh. I'm glad, and relieved, that his successor, Jack Moorhead, laughs.

I gather from the pages of *The Actuary* that the Society of Actuaries is proud of Andy Webster. This little segment, at least, of the Casualty Actuarial Society is proud of him, too.

Matthew Rodermund

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