An Investment Strategy for Financial Independence for the Unluckiest Person in the World

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This paper discusses how an investor can achieve financial independence even if the investor is what we refer to as the unluckiest person in the world. Using the S&P 500 Dividend Aristocrats Index, this investor makes a onetime selection of stocks for a select period of time. The investor then continues, on a quarterly basis for the entire select period of time, by investing a fixed dollar amount and reinvesting dividends in each of the stocks. But our investor has a problem in timing the market – all of the investments are made at the stocks' high point of the year.

INTRODUCTION

The economy is beginning to recover from the greatest financial and economic crisis since the Great Depression of the 1930's. For many people, the great recession which started in 2008 and continues into 2013 shattered the American Dream of obtaining success and financial security through hard work, discipline, and education. Unemployment rates soared across all occupations and demographics. At the same time, retirement plans such as the 401(k) and the IRA decreased by huge percentages. For the vast majority of people, their net worth (consisting of the equity in their home) all but disappeared. At one point, mortgages under water accounted for over 25% of the outstanding mortgages in the nation. In some localities, the rate of mortgages under water approached 50%. What has become of the American Dream? Has it died? And if so, can it be revived?

The purpose of this paper is to prove that one can become financially independent by incorporating the author's current research with the research of previous papers (Spaht & Rubin, 2007; Rubin & Spaht, 2010; Rubin & Spaht, 2011; Spaht & Rubin, 2012).

PERSPECTIVE

The Federal Reserve has stated its policy of keeping interest rates extremely low well into the year 2015. These lower interest rates will substantially reduce income to those who are dependent on investment results from fixed income instruments such as bonds. In particular, elderly people who are bond investors will be hard hit. Warren Buffett recently said, "Overwhelmingly, for people that can invest over time, equities are the best place to put their money. Bonds might be the worst place to put their

money. They are paying very, very little, and they're denominated in a currency that will probably decline in value" ("Charlie Rose Talks", 2012).

Because of new tax legislation affecting stock dividends and capital gains, there has been much discussion concerning the long-term investors avoiding stocks. However, according to an article in the September 6, 2012 issue of "Barron's", it is not time to abandon stocks. Duncan Richardson, Chief Investment Officer of Eaton Vance, stated, "Over the long run, dividend investing, with or without tax implications to investors, have outperformed the market in almost all periods and in almost all countries. A careful study of a company's dividend payouts and policy can tell you a lot about the quality and sustainability of a company's earnings. If a company can sustain a high dividend, its stock is often less volatile. So, one of the appeals of dividend-strategy investing has been that you can lower the risk of a portfolio" (Barron's, 2012). It may be concluded that over the long-run, regardless of tax policy, long-term investors who invest in dividend paying stocks outperform non-dividend paying stock investors.

In the study entitled "U.S. Equities: Light at the End of the Tunnel" by Dirk Hofschire, Senior Vice President of Asset Allocation Research, and Lisa Emsbo-Mattingly, Director of Asset Allocation Research, both of Fidelity Investments, the authors explained, "Now may be a particularly poor time for long-term investors to be avoiding. Not only can stocks play an important role in long-term wealth creation, inflation protection, and portfolio diversification, but stocks look relatively cheap by many measures, and progress on the fiscal front could lift a cloud that's been hanging over equity markets" (Hofschire and Emsbo-Mattingly, 2012). In additional studies, the authors make several points which have important ramifications for this paper: (1) stocks are in the cheapest quintile for the time period 1926 to 2012; (2) the P/E ratio of 13.8 at the end of the second quarter of 2012 is the second least expensive quintile for all market quarterly valuations since 1926; (3) over the last 30 years, equities have had an 8.1% real return versus a 6.1% real return for bonds; (4) United States companies have strong balance sheets with $1.8 trillion in cash and continue to generate substantial free cash flows (Federal Reserve Board, 2012); (5) companies continue to increase dividends and buybacks to the tune of $256 billion in dividends and $406 billion in buybacks in the last 12 months (Standard & Poor's, June 2012); and (6) over 50% of the S&P 500 have dividend yields greater than the 10-year Treasury bond yield while at the same time keeping low payout ratios (dividends as a percentage of earnings) which provide plenty of room for continued dividend increases in the future (Standard & Poor's, August 2012).

ANALYSIS

This paper utilizes a sample of 10 stocks from the *S&P Dividend Aristocrats Index* for 2010. In addition, each of the stocks (1) has a "strong buy" or "buy" recommendation from the S&P equity analysts and (2) has a record of consistently increasing dividends for the last 25 years. The time period 1993-2007 was selected because it contains almost equally good years and bad years in the stock market. This 15 year period represents both the bad years, beginning with the bursting of the Tech bubble at the end of the year 2000, and the good years, ending with the stock market highs in 2007. The *S&P 500 Dividend Aristocrats Index* was used as the basis for stock selection because it measures the performance of those companies within the S&P 500 that are heavily capitalized and financially strong and that have increased their dividends yearly for at least 25 consecutive years. Since a 25 year period of time contains the lowest of lows and the highest of highs in the stock market, these consecutive 25 year increasing dividend paying companies have succeeded in both good and bad years. Increasing dividends are usually reflected in price appreciation of stocks. The continuing increasing dividend stream occurs at stock price lows, stock price highs, and everywhere in between. Thus, the investment strategy of dollar cost averaging (investing equal monetary amounts at regular time intervals) is ideal for Dividend Aristocrat investing resulting in a mathematical truth that the average cost per share will be substantially below the absolute high point in the 15 year market. This is the case even given that the fixed amounts and dividends reinvested are at the periodic high point in the 15 year cycle.

Now let's assume that our unlucky investor made an initial investment of $5000 in each of the selected stocks at the high market price of the stock in 1993. Then, on a quarterly basis from 1993 – 2007,

he/she (1) reinvested the dividends and (2) invested a fixed amount of $125 (total of $500 per year or $7,500 for the 15 year period) in each of the 10 stocks also at the year's high market price of the stock. How much did the stock value of the portfolio and its dividend income grow over the 15 year period? And do the results indicate that investing in high-quality, dividend paying stocks provide a safe and long-term plan for financial security?

We begin our analysis by deriving a formula referred to as the DCA-QDRIP (Dollar Cost Averaging Quarterly Dividend Reinvestment Plan) formula which is used to determine the returns for the various stocks purchased over this 15 year period. Once the formula is established, we will use it to compute the accumulation of stock value and the dividend income during the 15th year. Output from these computations can be found in Tables 2 and 3.

DCA-QDRIP FORMULA

To derive the DCA-QDRIP (Dollar Cost Averaging Quarterly Dividend Reinvestment Plan) formula, the formula used to compute accumulations in stock value, consider an arbitrary stock and let:

P(n) = the highest price per share of stock during the n^{th} year,
D(n) = the declared dividend per share of the n^{th} year,
A(n) = the dollar amount invested to purchase additional shares of stock during the n^{th} year (this value is assumed to be $125 per quarter or $500 per year in this paper),
S = the number of shares initially purchased,
S_i = the number of shares owned at the end of the i^{th} quarter, and
S_{Pi} = the number of shares purchased during the i^{th} quarter.

Two assumptions are made in the derivation of the formula. First of all, since P(n) is the highest price per share of stock during the entire n^{th} year, it will remain constant and not fluctuate throughout the year. Secondly, since the dividend is normally declared annually and distributed quarterly, it also will remain constant throughout the year and not change until the first quarter of the following year. Note that since S_i is the number of shares owned at the end of the i^{th} quarter, then S_{i-1} represents the number of shares owned at the beginning of the i^{th} quarter.

Under the above assumptions, the amount of dividend (DIV(i)) generated by one share of stock and used by the investor to purchase additional shares of stock during the i^{th} quarter is:

$$\text{DIV(i)} = .25\text{D}\left(\left[\frac{\text{i-1}}{4}\right]+1\right),$$

where [ ] denotes the greatest integer function. Also, the price (PRICE(i)) per share of stock over this same time period is:

$$\text{PRICE(i)} = \text{P}\left(\left[\frac{\text{i-1}}{4}\right]+1\right).$$

Thus the quotient,

$$\frac{\text{DIV(i)}}{\text{PRICE(i)}} = \frac{.25\text{D}\left(\left[\frac{\text{i-1}}{4}\right]+1\right)}{\text{P}\left(\left[\frac{\text{i-1}}{4}\right]+1\right)},$$

represents the number of shares of stock purchased by the investor from the dividends of a single share of stock during the i^{th} quarter. This continuing process is illustrated in Table 1.

TABLE 1
SHARES PURCHASED FROM THE DIVIDENDS OF ONE SHARE OF STOCK

	Quarters			
Year	1	2	3	4
1	$\frac{.25D\left(\left[\frac{1-1}{4}\right]+1\right)}{P\left(\left[\frac{1-1}{4}\right]+1\right)}$	$\frac{.25D\left(\left[\frac{2-1}{4}\right]+1\right)}{P\left(\left[\frac{2-1}{4}\right]+1\right)}$	$\frac{.25D\left(\left[\frac{3-1}{4}\right]+1\right)}{P\left(\left[\frac{3-1}{4}\right]+1\right)}$	$\frac{.25D\left(\left[\frac{4-1}{4}\right]+1\right)}{P\left(\left[\frac{4-1}{4}\right]+1\right)}$
2	$\frac{.25D\left(\left[\frac{5-1}{4}\right]+1\right)}{P\left(\left[\frac{5-1}{4}\right]+1\right)}$	$\frac{.25D\left(\left[\frac{6-1}{4}\right]+1\right)}{P\left(\left[\frac{6-1}{4}\right]+1\right)}$	$\frac{.25D\left(\left[\frac{7-1}{4}\right]+1\right)}{P\left(\left[\frac{7-1}{4}\right]+1\right)}$	$\frac{.25D\left(\left[\frac{8-1}{4}\right]+1\right)}{P\left(\left[\frac{8-1}{4}\right]+1\right)}$
3	$\frac{.25D\left(\left[\frac{9-1}{4}\right]+1\right)}{P\left(\left[\frac{9-1}{4}\right]+1\right)}$	$\frac{.25D\left(\left[\frac{10-1}{4}\right]+1\right)}{P\left(\left[\frac{10-1}{4}\right]+1\right)}$	$\frac{.25D\left(\left[\frac{11-1}{4}\right]+1\right)}{P\left(\left[\frac{11-1}{4}\right]+1\right)}$	$\frac{.25D\left(\left[\frac{12-1}{4}\right]+1\right)}{P\left(\left[\frac{12-1}{4}\right]+1\right)}$
4	$\frac{.25D\left(\left[\frac{13-1}{4}\right]+1\right)}{P\left(\left[\frac{13-1}{4}\right]+1\right)}$	$\frac{.25D\left(\left[\frac{14-1}{4}\right]+1\right)}{P\left(\left[\frac{14-1}{4}\right]+1\right)}$	$\frac{.25D\left(\left[\frac{15-1}{4}\right]+1\right)}{P\left(\left[\frac{15-1}{4}\right]+1\right)}$	$\frac{.25D\left(\left[\frac{16-1}{4}\right]+1\right)}{P\left(\left[\frac{16-1}{4}\right]+1\right)}$
5	… … … …	… … … …	… … … …	… … … …

Also note that the number of shares S_i owned at the end of the i^{th} quarter is given by:

$$\begin{aligned} S_i &= S_{i-1} + S_{Pi} \\ &= S_{i-1} + S_{i-1} \bullet \frac{DIV(i)}{PRICE(i)} + \frac{.25A\left(\left[\frac{i-1}{4}\right]+1\right)}{PRICE(i)} \\ &= S_{i-1} + S_{i-1} \bullet \frac{.25D\left(\left[\frac{i-1}{4}\right]+1\right)}{P\left(\left[\frac{i-1}{4}\right]+1\right)} + \frac{.25A\left(\left[\frac{i-1}{4}\right]+1\right)}{P\left(\left[\frac{i-1}{4}\right]+1\right)}. \end{aligned}$$

For the purpose of this paper, since \$125 per quarter is used to purchase additional shares of stock, we have:

$$S_i = S_{i-1} + S_{i-1} \bullet \frac{.25D\left(\left[\frac{i-1}{4}\right]+1\right)}{P\left(\left[\frac{i-1}{4}\right]+1\right)} + \frac{125}{P\left(\left[\frac{i-1}{4}\right]+1\right)}. \qquad \text{(DCA-QDRIP Formula)}$$

Therefore, at the end of n years (or 4n quarters), the investor will have accumulated a value in stock of A dollars where:

$$\begin{aligned} A &= P(n) \bullet S_{4n} \\ &= P(n) \bullet \left[S_{4n-1} + S_{4n-1} \bullet \frac{.25D\left(\left[\frac{4n-1}{4}\right]+1\right)}{P\left(\left[\frac{4n-1}{4}\right]+1\right)} + \frac{125}{P\left(\left[\frac{4n-1}{4}\right]+1\right)} \right]. \end{aligned}$$

TABLE 2
STOCK VALUE GROWTH WITH DCA-QDRIP PLAN USING HIGH PRICES 1993-2007

Stocks Name	IIV	ICS	INS	FCS	FNS	FIV	% GAIN	ARR
Abbott Labs	5000	14.90	335.57	59.50	695.67	41,392.30	231.14	8.31
Aflac, Inc.	5000	5.20	961.54	63.90	1,613.43	103,098.00	724.78	15.10
Becton, D'son	5000	9.00	555.56	85.9	956.40	82,154.90	557.24	13.37
Coca-Cola	5000	22.30	224.22	64.30	456.45	29,349.50	134.80	5.86
Exxon Mobil	5000	17.30	289.02	95.30	682.54	65,045.60	420.37	11.62
Johnson & Johnson	5000	11.70	427.35	68.80	795.54	54,732.80	337.86	10.35
McDonald's Corp.	5000	14.50	344.83	63.70	690.91	44,011.10	252.09	8.75
PepsiCo, Inc.	5000	21.00	238.10	79.00	505.11	39,904.00	219.23	8.05
Procter & Gamble	5000	14.30	349.65	75.20	683.73	51,416.80	311.33	9.89
Wal-Mart Stores	5000	16.60	301.21	51.40	602.65	30,976.40	147.81	6.24
TOTAL	50,000					542,081.40	333.67	10.27

IIV = Initial investment value
ICS = Initial year's cost per share
INS = Initial number of shares purchased
FCS = Final year's cost per share
FNS = Final number of shares
FIV = Final investment value
% GAIN = Percentage total return (includes both reinvestment of dividends and investment of $125 per quarter per stock + initial $5,000 investment in each stock)
ARR = Annual rate of return in accumulations of stock value (includes both reinvestment of dividends and investment of $125 per quarter per stock + initial $5,000 investment in each stock)

TABLE 3
DIVIDEND GROWTH WITH DCA-QDRIP PLAN USING HIGH PRICES 1993-2007

Stocks Name	INS	IDS	IDI	FNS	FDS	FDI	% GAIN	ARI
Abbott Labs	335.57	0.34	122.90	695.67	1.30	904.37	635.85	15.32
Aflac, Inc.	961.54	0.06	61.73	1,613.43	0.80	1,290.74	1,991.09	24.25
Becton, D'son	555.56	0.17	101.50	956.40	0.98	937.27	823.47	17.21
Coca-Cola	224.22	0.34	81.75	456.45	1.36	620.77	659.39	15.58
Exxon Mobil	289.02	0.72	226.70	682.54	1.37	935.07	312.47	10.65
Johnson & Johnson	427.35	0.25	114.99	795.54	1.62	1,288.77	1,020.81	18.84
McDonald's Corp.	344.83	0.11	40.49	690.91	1.50	1,036.37	2,459.79	26.06
PepsiCo, Inc.	238.10	0.31	79.12	505.11	1.43	722.31	812.90	17.11
Procter & Gamble	349.65	0.28	105.26	683.73	1.28	875.18	731.48	16.33
Wal-Mart Stores	301.21	0.07	22.46	602.65	0.83	500.20	2,127.17	24.81
TOTAL			956.90			9,111.05	852.14	17.46

INS = Initial number of shares purchased
IDS = Initial declared dividend per share
IDI = Initial dividend income (beginning with end of first year)
FNS = Final number of shares
FDS = Final declared dividend per share
FDI = Final dividend income (last year)
% GAIN = Percentage return in dividend income growth (includes both reinvestment of dividends and investment of $125 per quarter per stock + initial $5,000 investment in each stock)
ARI = Annual rate of return in dividend income growth (includes both reinvestment of dividends and investment of $125 per quarter per stock + initial $5,000 investment in each stock)

APPLICATIONS OF Q-DRIP FORMULA

Referencing Table 2, if one had invested an initial $5,000 in each of the 10 stocks and reinvested the dividends while also investing an additional $125 in each stock quarterly (all investments made at the high point of the year in each stock's price), then the portfolio would have grown in value from $50,000 to $542,081 in 15 years. The result is a portfolio increase of 333.67% for the 15 years at an annual rate of 10.27%.

There are stocks that exhibited substantial growth above that of the average. AFLAC; Becton, D'son; and Exxon Mobil performed exceptionally well over the 15 year time frame which included the horrific market collapse of 2008 and 2009. AFLAC had over a 724% gain in stock value over the 15 years at an annual rate of growth of 15.10%. Becton, D'son had over a 557% gain in stock value over the 15 years at an annual rate of growth of 13.37%. Exxon Mobil had over a 420% gain in stock value over the 15 years at an annual rate of growth 11.62%. These representatives of the insurance, medical, and energy industries show broad diversification across industry sectors with the gains not being restricted to just one sector.

Potential value resulting from stock ownership also arises from the growth in dividends. The most important factor in investing in dividend paying stocks is not selecting the stock that has the highest current dividend yield, but rather investing in those stocks that over a period of time can consistently grow the dividend.

Referencing Table 3, even though all investments are made at the stock's high point thereby lowering the initial dividend yield, the stocks' ability to grow their dividends is electrifying. AFLAC had over a 1,991% dividend gain over the 15 years at an annual rate of return in dividend income growth of 24.25%. Johnson & Johnson had over a 1,020% dividend gain over the 15 years at an annual rate of return in dividend income growth of 18.84%. McDonald's had over a 2,459% dividend gain over the 15 years at an annual rate of return in dividend income growth of 26.06%. Wal-Mart had over a 2,127% dividend gain over the 15 years at an annual rate of return in dividend income growth of 24.81%. Diversification across industry lines – insurance, drug, food, and retail – shows that impressive dividend growth is not restricted to one industry.

This dividend growth far exceeds most if not all professional growth in salaried income. These stocks are ranked 1 (highest for relative safety) and A++ (highest) for company's financial strength by "Value Line Investment Survey" (January, 2013). Thus, these stocks are virtually United States Treasury substitutes for safety with a much higher capital and dividend growth rate.

CONCLUSION

The question arises: When is the best time to invest in the market? An investor likes to buy low and sell high, but in most cases this strategy is very difficult to implement. There are just too many variable factors that influence the rise and fall of the value of a stock. But this paper proves that, even with our unluckiest investor investing at the high points in the market, the strategy of combining dividend growth and the reinvestment of those dividends coupled with dollar cost averaging is efficacious and rewarding. The percentage total return as well as the annual rate of return in accumulations of stock value is substantial. In addition, the inordinate increase in dividend income generated using this strategy is exceptionally beneficial to anyone dependent upon rising income. The old adage "It's time in the market not the amount of money in the market that matters" may be amended to add "even if the investor is the unluckiest investor in the world always investing at the high points in the market."

REFERENCES

Barron's Staff. (2012, September 6) *Barron's,* New York: Dow Jones & Company, Inc.

"Charlie Rose Talks to Warren Buffett", *Bloomberg Business Week,* (December 3 – December 9, 2012). New York: Business Week.com.

Federal Reserve Board, Haver Analytics, Fidelity Investments (AART) through March 31, 2012.

Hofschire, D. and Emsbo-Mattingly, L. "The Case for U.S. Stocks," *Fidelity Viewpoints,* October 30, 2012. Boston, MA.: Fidelity Investments.

Rubin, H. and Spaht, C. (2010). Financial Independence: Attainable, Maintainable. *Journal of Applied Business and Economics,* 11, (3), 11-18.

Rubin, H. and Spaht, C. (2011). Financial Independence Through Dollar Cost Averaging and Dividend Reinvestments. *Journal of Applied Business and Economics,* 12, (4), 11-19.

Spaht, C. and Rubin, H. (2007). Projections in Accumulations of Stock Value at Different Dividend Tax Rates. *Journal of Applied Business and Economics,* 7, (1), 33-50.

Spaht, C. and Rubin, H. (2012). An Investment Strategy for Financial Independence. *Journal of Accounting and Finance,* 12, (3), 38-53.

Standard & Poor's Fidelity Investments (AART) through June 30, 2012.

Standard & Poor's Fidelity Investments (AART) through August 31, 2012.