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A "No-Sin" Option for the High Dividend/Low Beta Strategy

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Executive Summary

Dividends are an important part of a stock's total return. In a recent study, Cloutier and Xu (2015) developed a high dividend/low beta strategy by exploiting documented market anomalies. However, because the strategy includes "sin stocks," for some investors the prospect to invest in the strategy is not available. In this paper, we advance that original research and present an option that combines high yielding stocks with low beta stocks while excluding sin stocks. For the entire study period, from January 1, 1994 through June 30, 2016, this strategy option provided higher yield, better returns, and lower systematic risk than the S&P 500. In addition, this no sin stock strategy's returns were statistically the same as the original high dividend/low beta strategy's return.

Overview / Objective

Through the years dividend income has declined as a percentage of total return, but as Jeremy Siegel pointed out in *The Future for Investors*, dividend income continues to play a vital role in a stock's performance. With the baby-boomer generation aging, the demand for income should only increase. As a result, we (Cloutier, 2015) developed the high dividend/low beta strategy. However, we have had demand for the strategy exclusive of sin stocks.

While the term sin stock varies, it generally refers to companies that make money by exploiting human weaknesses. As a result, investors who do not want to profit from human frailties refrain from investing in these stocks. Commonly, companies in alcohol, tobacco, gambling, and sex-related industries are considered sin stocks. Some investors also include weapons manufacturers and military related industries. For our purposes we did not exclude defense contractors from our list.

The biggest impact on our strategy comes from the exclusion of tobacco stocks. Tobacco stocks generally have high dividend yields, and in our research they would have accounted for nearly 90% of the consumer staples sector exposure through the study.

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To create this dividend income strategy we exploited three long-term market anomalies:

1. Low beta stocks outperform high beta stocks;
2. Rebalancing a portfolio outperforms a portfolio whose positions are allowed to drift;
3. Equally weighting stocks in a portfolio, instead of market capitalization weighting, generally outperforms.

The evidence of low beta stocks outperforming high beta stocks is substantial and includes research from: Black, Jensen and Scholes (1972); Gibbons (1982); Kandel (1984); Shanken (1985); Fama and French (1992); and Ang, Hodrick, Xing, and Zhang (2006) to name a few.

The research documenting the outperformance due to rebalancing includes: Stein, Bouchey, Atwill, Nemtchinov, (2011); Plyakha, Uppal, Vilkov, (2012); and Willenbrock, (2011).

Research by DeMiguel, Garluppi, Nogales, and Uppal (2009) documents the outperformance of equally weighting stocks versus market capitalization weighting. DeMiguel, Garluppi, and Uppal (2009) extend the discussion of equally weighting investments to other asset classes. There is an ongoing debate as to whether this anomaly is actually an anomaly or a combination of two anomalies, the value and small cap stock anomalies, but for our purposes the point is moot. Whether it is a true anomaly or the combination of two anomalies is not important to us; we exploit it either way.

Study

To test the viability of a no sin stock option, we designed a study to compare the performance of the no sin stock option to the preliminary research. We broke down the stocks of the S&P 500 into its ten economic sectors: Basic Materials, Consumer Durables, Consumer Staples, Energy, Finance, Health, Industrials, Technology, Telecommunications, and Utilities (the new REIT sector was not present through our study period) to ensure diversity. For each sector, we ranked the stocks by beta. From this list, to account for the first anomaly we eliminated all stocks with a beta at or above the S&P 500's beta of one. We then invested in the three highest yielding stocks that remained in each sector to produce high income.

We weighted each stock equally to exploit the third anomaly. The end result was a portfolio of 30 securities with equivalent dollar values. Finally, to benefit from the second anomaly, we rebalanced the portfolio annually.

To test if there were a statistical difference, we tested the no sin stock high dividend/low beta strategy from January 1, 1994 to June 30, 2016. This period of time takes into account

good and bad years for stocks and is a large enough sample of the original research (tested through 1968) to have statistical power.

Our sample included all the common stocks of the S&P 500, and the data were obtained from Morningstar Direct's database. To assess the performance, we used return, beta, and the Treynor ratio.

Results

Table 1 below reports the annual returns for the high dividend/low beta strategy with no sin stocks, the high dividend/low beta strategy, and the S&P 500.

Table 1 Annual returns (%)

	High Div/Low Beta, no sin stocks	*High Div/Low Beta*	*S&P 500*
1994	10.47	1.65	1.32
1995	22.01	26.73	37.58
1996	17.78	17.93	22.96
1997	18.96	19.57	33.36
1998	13.55	13.25	28.58
1999	13.27	13.19	21.04
2000	-1.75	2.01	-9.10
2001	17.41	20.79	-11.89
2002	-17.34	-15.53	-22.10
2003	29.02	28.65	28.68
2004	21.78	23.94	10.88
2005	10.40	13.87	4.91
2006	26.46	27.94	15.79
2007	3.00	2.80	5.49
2008	-35.43	-34.80	-37.00
2009	27.54	23.78	26.46
2010	18.18	18.23	15.06
2011	8.93	9.55	2.11
2012	11.91	11.25	16.00
2013	26.46	24.51	32.39
2014	18.65	19.45	13.69
2015	1.00	-0.33	1.38
Jan-Jun 2016	20.38	21.86	3.84
Annualized	**11.39**	**11.74**	**9.02**

Table 2 illustrates the difference in yield for the high dividend/low beta strategy with no sin stocks, the high dividend/low beta strategy, and the S&P 500.

Table 2 Dividend yield (%)

	High Div/Low Beta, no sin stocks	*High Div/Low Beta*	*S&P 500*
1994	6.1	6.1	2.9
1995	4.9	4.9	2.3
1996	4.7	4.7	2.0
1997	4.1	4.1	1.6
1998	3.9	3.9	1.3
1999	3.7	3.8	1.1
2000	5.0	5.1	1.2
2001	4.3	4.4	1.4
2002	4.3	4.4	1.8
2003	5.6	5.8	1.6
2004	3.6	3.8	1.6
2005	3.1	3.3	1.8
2006	4.1	4.2	1.8
2007	3.3	3.3	1.9
2008	7.9	8.0	3.1
2009	6.9	7.1	2.0
2010	7.4	7.5	1.8
2011	4.8	5.0	2.1
2012	4.9	5.0	2.1
2013	5.3	5.5	2.0
2014	4.5	4.7	1.9
2015	3.8	4.0	2.1
Jan-Jun 2016	4.7	4.8	2.0
Average	**4.8**	**4.9**	**1.9**

Table 3 highlights the average annual return, the beta, and the Treynor ratio for the high dividend/low beta strategy with no sin stocks, the high dividend/low beta strategy, and the S&P 500.

Table 3

	High Div/Low Beta, no sin stocks	*High Div/Low Beta*	*S&P 500*
Annualized Return	11.39	11.74	9.02
Beta	0.91	0.88	1.00
Treynor Ratio	9.61	10.33	6.37

As you can see from the tables, the performance of the high dividend/low beta strategy with no sin stocks is very close to the performance of the high dividend/low beta strategy. However, both strategies have better returns, lower betas, and higher Treynor ratios than the S&P 500.

Finally, in Table 4, we conducted a two sample t-test to see if there were a statistical difference in the returns of the strategies.

Table 4 t-Test: Paired Two Sample for Means

	High Div/Low Beta, no sin stocks	*High Div/Low Beta*
Mean	1.0086	1.0276
Variance	20.9922	19.5278
Observations	270	270
Pearson Correlation	0.9836	
Hypothesized Mean Difference	0	
df	269	
t Stat	-0.3750	
P(T<=t) one-tail	0.3540	
t Critical one-tail	1.6505	
P(T<=t) two-tail	0.7079	
t Critical two-tail	1.9688	

As you can see, the t-stat is well below the t-critical, which means there is no statistical difference in the returns of the high dividend/low beta strategy with no sin stocks and the high dividend/low beta strategy. Given the original test was conducted from 1968-2014, the data obtained from this 22.5 year sample gives us confidence at the 95% level that the results would be statistically equivalent for the entire period through 1968, with a margin of error of ±5% (Banerjee, 2010).

The results prove that a high dividend/low beta strategy that excludes sin stocks will provide similar benefits to the high dividend/low beta strategy developed in (Cloutier, 2015) and that both strategies can provide better long-term returns with lower risk and significantly higher income than a passive strategy that invests in the S&P 500.

Conclusions

As the research demonstrates, when investing in stocks, dividends cannot be ignored. By exploiting well known market anomalies—1) low beta stocks outperform high beta stocks; 2) rebalancing a portfolio outperforms a portfolio whose positions are allowed to drift; and 3) equally weighting stocks in a portfolio, instead of market capitalization weighting, generally outperforms—we were able to build a no sin stock option to the high dividend/low beta strategy that outperforms the S&P 500.

References

Ang, A., R. Hodrick, Y. Xing, and X. Zhang (2006). 'The Cross-Section of Volatility and Expected Returns,' Journal of Finance, Vol 61, pp.259-299.

Black, F., M. C. Jensen, and M. Scholes (1972). 'The Capital Asset Pricing Model: Some Empirical Tests,' pp. 79-121 in M. Jensen ed., Studies in the Theory of Capital Markets. New York: Praeger Publishers.

Banerjee, A., & Chaudhury, S. (2010). Statistics without tears: Populations and samples. Industrial Psychiatry Journal, 19(1), 60.

Cloutier, R., & Xu, D. (2015). 'Creating a high dividend stock strategy while exploiting the low beta anomaly.' International Journal of Revenue Management, 8(3/4), 324.

DeMiguel, V., Garlappi, L., Nogales, F., Uppal, R., (2009). 'A Generalized Approach to Portfolio Optimization: Improving Performance by Constraining Portfolio Norms' Management Science. Informs, Vol. 55, No. 5, pp. 798-812.

DeMiguel, V., Garlappi, L., Uppal, R., (2009). 'Optimal Versus Naïve Diversification: How Inefficient is the 1/N Portfolio Strategy?' The Society for Financial Studies. Oxford University Press, Vol 22, No. 5, pp 1915-1953.

Fama, E. F., and K. R. French (1992). 'The Cross-Section of Expected Stock Returns,' Journal of Finance, Vol 47, pp.427-465.

Gibbons, M. (1982). 'Multivariate tests of financial models: A new approach,' Journal of Financial Economics, Vol 10, pp.3-27.

Kandel, S. (1984). 'The likelihood ratio test statistic of mean-variance efficiency without a riskless asset,' Journal of Financial Economics, Vol 13, pp.575-592.

Plyakha, Y., Uppal, R., Vilkov, G. (2012). 'Why Does an Equal-Weighted Portfolio Outperform Value- and Price-Weighted Portfolios?' Working Paper, EDHEC Business School.

Shanken, J. (1985). 'Multivariate Tests of the Zero-beta CAPM,' Journal of Financial Economics, Vol 14, pp.327-348.

Siegel, J., (2005). 'The Future for Investors: Why the Tried and the True Triumph Over the Bold and the New.' New York, NY: Crown Business.

Stein, D., Bouchey, P., Atwill, T., Nemtchinov, V. (2011). 'Structured Active Portfolio Management: Why does diversifying and rebalancing create alpha?' Parametric White Paper.