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The National Golf Foundation Top 100 Businesses in Golf: Investigating the Portfolio Returns vs the Market Portfolio

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ABSTRACT

In early 2018, the National Golf Foundation (NGF) presented their inaugural list of the top 100 businesses in the approximately $70 billion golf industry. Six sectors of the U.S. Economy are represented by the following breakdown of companies: Equipment (22 firms); Turf and Course Supplies (18); Apparel and Accessories (13); Course Management (13); Media/Technology and Associations, Retail and Other (23). The purpose of our research is to determine if an investor could generate above-market returns by investing in a portfolio of the publicly traded firms that are part of this initial list. Our results, indicate that over the entire sample period, three golf related stocks outperformed the overall market index after adjusting for risk.

Keywords: Market returns, golf industry, market returns, NGF

Golf and golfers are important components in the worldwide recreation industry. The purpose of this study is to investigate the performance of five golf-related stocks versus the market returns of the S&P 500. The period of the study is from 12/31/09 to 12/31/17 (n=2,014 trading days). The study period is contained in the Bull Market that began in March 2009 and ended in January 2018 (n=3,245 total days). Four distinct correction periods, defined as a decline of ten percent or more in the S&P 500, occurred during the study period (n=295 trading days).

DATA AND MODEL SPECIFICATIONS

A description of the data used is contained in Table 1. We use the daily returns for the S&P 500, Dick's Sporting Goods, Callaway Golf, Drive Shack, EPR Properties and LaSalle Hotel Properties. The first three firms were chosen as direct golf industry stocks and the second firms were selected to measure indirect companies related to the golf industry. Three primary data resources were used: Yardeni Research, Inc. (www.yardeni.com), Yahoo Finance (https://finance.yahoo.com/) and the National Golf Foundation (NGF) (https://www.ngf.org/). The NGF compiled the top 100 firms in the golf industry in 2018 to "highlight the vitality, size and diversity of the industry" (http://ngf.org). At the time of introduction, the foundation estimates the economic impact of the golf industry was approximately $60 billion. As of 2020, estimates of the value of the golf industry from the NGF is $84 billion, a percentage change of forty (40) percent. The initial, and proposed) biennial list consists of equipment companies (22

firms), turf and course supplies (18 firms), apparel and accessories (13 firms), course management (13 firms) and additional companies based in four other sectors (34 firms). Additionally, sixty-four (64) of the firms are business-to-consumers and the thirty-six (36) remaining companies are business-to-facility.

From the initial list of firms, thirteen publicly traded firms were identified (Adidas, BASF, Bayer, Bridgestone, John Deere, Dick's Sporting Goods, Callaway, Eaton (Golf Pride club grips), Oakley, Mitsubishi, Nike, Textron and Under Armour). For direct golf firms, Dick's Sporting Goods and Callaway were selected due to their primary focus on golf equipment. Drive Shack, a competitor to non-publicly traded Top Golf, was added as a non-course golf experience company. Based on an article by Jim Cramer (https://www.cnbc.com/video/2017/10/20/cramer-stay-out-of-the-rough-with-these-2-golf-stocks.html), two indirect golf stocks of EPR Properties and LaSalle Hotel Properties were added to our analysis to capture other possible investments in the golf industry. The focus of our study is an investigation into the performance of five golf-related stocks versus the market returns of the S&P 500.

RESULTS AND DISCUSSION

The summary results for the daily returns for the entire period, the bull phase and the correction phase are presented in Tables 1, 2 and 3, respectively. Dick's Sporting Goods (DKS) had the highest amount of relative variability (62.45%), as measured by the coefficient of variation (CV), for the entire sample period. The CV, or risk-to-reward ratio, is defined as the average return of an asset divided by the standard deviation of returns for the asset. The minimum amount of relative variability, a CV of 18.17%, was found for Drive Shack (DS). For comparison, the CV for the S&P 500 Index for the same period was 19.41%. Over the bull market period, DKS had the maximum value for the CV of 25.91% and DS had the minimum value of 10.18%. The CV for the market index for the bull period was 9.03%. Table 3 contains the results for the correction period, with EPR Properties (EPR) having the highest negative variability, with a CV of -16.46%. The lowest variability during the correction phase of the market was Callaway Golf (ELY), with a CV of -11.22%. The CV for the market index was -7.93% for the sample size of 295 returns for the correction phase. As a result, all five golf related stocks had higher amount of relatively volatility than the market index over the three periods of study.

Table 4 shows the results from the linear relationship between the golf stock returns (dependent variable) and the market index returns (independent variable) plus any unexplained error. This method, commonly known as the Capital Asset Pricing Model (CAPM), developed by Treynor (1961 and 1962), Sharpe (1964), Lintner (1965a and 1965b) and Mossin (1966). In an efficient market, the returns generated are a function of the risk-free return, the stock's beta and the return on the market portfolio.

A comparison between the calculated Beta values for the five golf industry stocks and published beta coefficients from Value Line (V/L) is shown in Table 5. The results for this analysis were mixed. Three of the estimates are within ten percent of the published market sensitivity estimates (DKS, ELY and EPR), while Drive Shack (DS) and LaSalle Hotel Properties (LHO) estimates were approximately twenty-five percent higher than the published beta estimates. Differing betas are attributed to different frequencies for calculating the returns, different market indices and/or different time periods. The calculated betas are used in finding the risk-adjusted daily returns.

Table 6 shows the risk-adjusted daily returns for the market index and the five golf industry stocks. The raw average daily returns of a stock are divided by the beta of the stock to derive the risk-adjusted returns. These adjusted returns can be compared relative to the index risk-adjusted return over the three distinct periods to determine above average, average or below average relative performance versus the index risk-adjusted return. Over the total period of the study, three stocks (ELY, DS and EPR) outperformed the overall stock market on a risk-adjusted basis. Two stocks, DKS and LHO, underperformed the overall stock market index, leading to our finding, that over the entire period of 2,013 trading days, an investor would benefited by investing in a market index than the two stocks. For the bull market period, identical results with ELY, DS and EPR outperforming the market index were found. Similarly, the stock index would have generated higher returns over the bull market period than DKS and LHO. Over the correction period with 295 trading days, only EPR was able to provide lower risk-adjusted losses than the stock market index and/or the four other golf industry stocks. Results show three of the five stocks (ELY, DS and EPR) outperformed the overall stock market on a risk adjusted basis during the total study period and during bull markets. During periods of correction, none of the five stocks had a better risk adjusted performance than the overall market.

ADDITIONAL RESEARCH

Future plans to expand the sample firms to include foreign publicly traded firms and extend our analysis into the decline and very rapid recovery of the golf industry during the pandemic period of 2020. In a recent Wall Street Journal article, Lee and Jakab (https://www.wsj.com/articles/for-golf-covid-is-even-better-than-tiger-11611916201?mod=searchresults_pos1&page=1) state the outdoor golf industry was one of the bright spots in the U.S economy during periods of social distancing. To measure international activity in the golf industry, the NGF has announced plans to create an international version of the top 100 world-wide firms. These additional firms would supplement the results we found in this study.

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Table 1-Summary Return Statistics-Entire Period (n = 2,013 daily returns)					
Name (Ticker)	Mean (%)	Std. Error (%)	Coefficient of Variation (CV)	T-Statistic {Mean=0} (p-value)	Skewness {Sk=0} (p-value)
S&P 500 (^GSPC)	0.0478	0.9278	19.41	2.31 (0.0211)	-0.37 (0.0001)
Dick's Sporting Goods (DKS)	0.0328	2.0484	62.45	0.72 (0.4721)	-1.12 (0.0001)
Callaway Golf (ELY)	0.0562	2.1798	38.79	1.16 (0.2477)	0.33 (0.0001)
Drive Shack (DS)	0.1646	2.9908	18.17	2.47 (0.0136)	1.18 (0.0001)
EPR Properties (EPR)	0.0654	1.4303	21.87	2.05 (0.0403)	-0.24 (0.0001)
LaSalle Hotel Properties (LHO)	0.0493	1.9748	40.06	1.12 (0.2629)	-0.24 (0.0001)

Table 2-Summary Return Statistics-Bull Market Phase (n=1,718)					
	Mean (%)	Std. Error (%)	Coefficient of Variation (CV)	T-Statistic {Mean=0} (p-value)	Skewness {Sk=0} (p-value)
S&P 500	0.0878	0.7924	9.03	4.59 (0.0001)	-0.09 (0.1168)
DKS	0.0760	1.9688	25.91	1.60 (0.1099)	-1.41 (0.0001)
ELY	0.1268	2.0439	16.12	2.57 (0.0102)	0.65 (0.0001)
DS	0.2524	2.5705	10.18	4.07 (0.0001)	1.12 (0.0001)
EPR	0.0985	1.2806	13.01	3.19 (0.0015)	-0.02 (0.6873)
LHO	0.1156	1.7816	15.41	2.69 (0.0072)	-0.14 (0.0181)

Table 3- Summary Return Statistics-Correction Market Phase (n=295)					
	Mean (%)	Std. Error (%)	Coefficient of Variation (CV)	T-Statistic {Mean=0} (p-value)	Skewness {Sk=0} (p-value)
S&P 500	-0.1853	1.4697	-7.93	-2.17 (0.0311)	-0.22 (0.1264)
DKS	-0.2183	2.4499	-11.22	-1.53 (0.1271)	-0.13 (0.3746)
ELY	-0.3552	2.8145	-7.92	-2.17 (0.0309)	-0.19 (0.1687)
DS	-0.3468	4.7243	-13.62	-1.26 (0.2083)	1.23 (0.0001)
EPR	-0.1271	2.0925	-16.46	-1.04 (0.2977)	-0.32 (0.0278)
LHO	-0.3371	2.8242	-8.38	-2.05 (0.0413)	-0.11 (0.4844)

Table 4-Beta Estimates for Direct and Indirect Golf Stocks					
	DKS	ELY	DS	EPR	LHO
Constant (P-Value)	-0.01 (0.6444)	0.01 (0.9939)	0.01 (0.1191)	0.01 (0.4377)	-0.01 (0.4881)
S&P 500 Return (P-Value)	1.07 (0.0001)***	1.17 (0.0001)***	1.53 (0.0001)***	0.97 (0.0001)***	1.49 (0.0001)***
R^2	23.62%	24.75%	22.36%	39.17%	48.93%
Level of Significance: * = 0.05; ** = 0.01; *** = 0.001					

Table 5-Beta Estimates vs. Value Line (V/L) Betas		
	Estimated Beta	V/L Beta
S&P 500	1.00	1.00
DKS	1.07	1.00
ELY	1.17	1.05
DS	1.53	1.20
EPR	0.97	0.90
LHO	1.49	1.20

Table 6-Risk Adjusted Daily Returns (%)				
	Beta	Total (n=2,013)	Bull (n=1,718)	Correction (n=295)
S&P 500	1.00	0.0478	0.0878	-0.1853
DKS	1.07	0.0307*	0.0710*	-0.2040*
ELY	1.17	0.0480**	0.1084**	-0.3036*
DS	1.53	0.1076**	0.1650**	-0.2267*
EPR	0.97	0.0674**	0.1015**	-0.1310**
LHO	1.49	0.0331*	0.0776*	-0.2262*
Legend: ** = Above average relative performance; * = Below average relative performance				