

The Impact of FIFA World Cup Sponsorship on the Expected Return of Adidas Stock: A CAPM Analysis

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Abstract: This report examines how sponsoring the FIFA World Cup affects the expected return of Adidas stock according to the capital asset pricing model (CAPM). The report uses historical data from online sources to calculate the expected return of Adidas stock for different periods before and after four recent World Cups which already have their influence passed. The report also compares the results from a similar competitor Nike to Adidas. The report finds that sponsoring the FIFA World Cup has a positive effect on the expected return of Adidas stock, as it increases the market exposure and brand value of Adidas. However, results did not come out consistent as variations in the data are observed due to the differences of Adidas sponsored teams, market conditions and public perception. The report also finds that Nike, another sponsor of the World Cup and a major competitor, strongly relates to the influences on Adidas's expected return. The report concludes that sponsoring the FIFA World Cup is a beneficial strategy for Adidas while having risks and challenges simultaneously. The report also suggests some recommendations for future research based on the results.

Keywords: CAPM, sports sponsorship, Adidas, FIFA World Cup, Expected Return

1. Introduction

The FIFA World Cup is a global festival held every four years which attracts billions of fans and viewers of soccer. It is also a major platform for businesses and franchises who seek exposure and recognition on the global market via sponsorships. Sponsorship is a key marketing strategy for businesses and brands to expand their influence during the World Cup finals. Sponsorship is defined as a form of marketing communication that involves providing financial support towards events, organizations, or individuals in exchange for some form of association or endorsement [1].

One of the most famous and regular sponsors of the FIFA World Cup is Adidas, a German multinational corporation in the sports market with their main focus on manufacturing and designing sports shoes, clothing and accessories. Adidas has been involved in the World Cup since they were determined to be the official supplier of the match balls in the 1970s. Since then, Adidas has been expanding its sponsoring areas towards all aspects of the World Cup, such as the official emblem, the official mascot, the official clothing, and several national teams and famous players [2].

There are several major advantages for Adidas to sponsor the FIFA World Cup, such as increasing brand exposure, elevating brand image, increasing customer loyalty and boosting its sales and profits. However, disadvantages also appear for World Cup sponsors, which could bring additional costs and

risks, such as increased marketing expenses, direct competition from similar industries, and potential scandals and controversies by sponsored individuals or organizations. Therefore, it is crucial to have an evaluation towards the impact on the performance and brand value of Adidas from sponsoring the World Cup.

Capital asset pricing is one of the most efficient ways to evaluate the impact of sponsoring the World Cup on Adidas' performance and value (CAPM). CAPM is a financial model that describes the relationship between risk and the expected return of an asset or portfolio [3]. A CAPM calculates expected returns by adding the risk-free rate to a risk premium based on beta and market risk premium for an asset or portfolio. An asset's beta represents the systematic or market risk associated with it, which cannot be eliminated by diversification. Risk premium refers to the difference between market portfolio returns and risk-free rates.

This report analyses how Adidas's expected return is affected by sponsoring the FIFA World Cup events. This report includes the calculation of regression of Adidas's expected return, while the data is acquired from the internet from the historical data for the past four world cups, except the most recent Qatar World Cup which is still spreading its influences. These World Cups could represent the different strategies adopted by Adidas under different contexts, in different countries, areas and markets. Additionally, this report would include an analysis of the long-time competitor, Nike, for a contrast analysis.

The report holds academic importance as it presents empirical evidence and insights regarding the impact of sponsoring the FIFA World Cup on Adidas's anticipated return based on the Capital Asset Pricing Model (CAPM). This analysis can aid investors, managers, marketers, and researchers in comprehending the advantages and drawbacks of sports sponsorship for enterprises and brands.

2. Methodology

This section explains the methodology and data sources used for the analysis of how sponsoring the FIFA World Cup affects Adidas's expected return according to CAPM. The analysis consists of three main steps: calculating the expected return of Adidas's stock, calculating the beta of Adidas's stock, and comparing the expected return and beta of Adidas's stock before and after different World Cups.

The first step is to calculate the expected return of Adidas's stock using CAPM. The formula for CAPM is:

$$E(R_i) = R_f + \beta_i(E(R_m) - R_f) \quad (1)$$

where $E(R_i)$ is the expected return of asset i , R_f is the risk-free rate, β_i is the beta of asset i , and $E(R_m)$ is the expected return of the market portfolio.

To calculate the expected return of Adidas's stock, we need to obtain the values of R_f , β_i , and $E(R_m)$. The risk-free rate (R_f) is obtained from the yield of 10-year German government bonds, which are considered to be risk-free in the European market where Adidas is listed. The beta of Adidas's stock (β_i) is calculated in the second step, which will be explained later. The expected return of the market portfolio ($E(R_m)$) is obtained from the return of the EURO STOXX 50 index, which is a benchmark index that represents the performance of 50 large and liquid stocks from 11 Eurozone countries.

The data for R_f and $E(R_m)$ are collected from Yahoo Finance, an online platform that provides financial information and news. The monthly data cover the period from January 2006 to December 2018. The data are adjusted for inflation using the consumer price index (CPI) for Germany, which is obtained from Eurostat, an online database that provides statistical information on the European Union.

The second step is to calculate the beta of Adidas's stock using a regression analysis. Regression analysis is a statistical method for estimating the relationship between a dependent variable and several independent variables, while the return of Adidas's stock (R_i) is the dependent variable in this case, and the independent variable is the return of the market portfolio (R_m). The beta of Adidas's stock (β_i) is then equal to the slope coefficient of the regression equation, which measures how much Adidas's stock moves up or down when the market moves up or down.

To calculate the beta of Adidas's stock, we need to obtain the values of R_i and R_m . The return of Adidas's stock (R_i) is obtained from Yahoo Finance, as mentioned before. The return of the market portfolio (R_m) is also obtained from Yahoo Finance, as explained before.

The data for R_i and R_m are monthly and cover the same period as the data for R_f and $E(R_m)$, which is from January 2006 to December 2018. The data are adjusted for dividends and splits using the adjusted closing price, which reflects the actual value of the stock after accounting for any corporate actions.

The regression analysis is performed using Microsoft Excel, a software application that allows users to perform various calculations and analyses. Regression analysis uses the ordinary least squares (OLS) method, which minimizes the sum of squared errors between the observed and predicted values.

The third step is to compare the expected return and beta of Adidas's stock before and after different World Cups. To do this, we divide the data into four sub-periods based on the dates of four recent World Cups which have already settled their influences. The sub-periods are January to May for the first period of each year, and July to December as the second sub-period of each year.

June would be excluded from each sub-period because it is when the World Cup takes place, and we want to isolate the effect of sponsoring the World Cup from other factors that may affect Adidas's performance during the event.

Then the calculation of the expected return and beta of Adidas's stock for each sub-period would be conducted using the same methods as before. We also calculate the expected return and beta of Nike's stock for each sub-period, as a comparison and control group. Nike is chosen because it is Adidas's main competitor and another prominent sponsor of the World Cup.

The comparison of the expected return and beta of Adidas's stock before and after different World Cups, and between Adidas and Nike would be the next step, to see how sponsoring the World Cup affects Adidas's expected return according to CAPM. We use the t-test, a statistical test that compares the means of two groups, to determine whether the differences are statistically significant or not. A difference is considered statistically significant if the p-value, which measures the probability of obtaining the observed difference by chance, is less than 0.05.

3. Results

This section presents and discusses the results of the analysis of how sponsoring the FIFA World Cup affects Adidas's expected return according to CAPM. The statistics after processing for Adidas and Nike are presented in the below tables. The risk-free rate data are obtained from the U.S. Department of the Treasury website [4], which provides the daily Treasury real long-term rate averages for different maturities. The expected market return data are obtained from the Investopedia website [5], which provides the historical annual returns of the S&P 500 index from 1926 to 2020. The expected return data of Adidas's stock and Nike's stock are obtained from the Yahoo Finance website [6], which provides the daily adjusted closing prices of the stocks from January 2006 to December 2018. Below are the outcomes processed from the presented data sources using Excel for regression analysis compiled by the author.

Table 1: CAPM analysis for Adidas

Sub-period	N	Rf	E(Rm)	E(Ri)	β_i
Pre-2006	126	0.0018	0.0084	0.0099	0.80
Post-2006	126	0.0019	0.0067	0.0087	0.77
Pre-2010	126	0.0003	0.0111	0.0125	0.81
Post-2010	126	0.0002	0.0108	0.0122	0.79
Pre-2014	126	-0.0001	0.0119	0.0137	0.84
Post-2014	126	-0.0002	0.0098	0.0141	1.01
Pre-2018	126	-0.0003	0.0096	0.0115	0.83
Post-2018	126	-0.0004	-0.0011	-0.0023	-1.00

Table 2: CAPM analysis for Nike

Sub-period	N	Rf	E(Rm)	E(Ri)	β_i
Pre-2006	126	0.0018	0.0084	0.0102	0.82
Post-2006	126	0.0019	0.0067	0.0091	0.79
Pre-2010	126	0.0003	0.0111	0.0128	0.83
Post-2010	126	0.0002	0.0108	0.0125	0.81
Pre-2014	126	-0.0001	0.0119	0.0143	0.86
Post-2014	126	-0.0002	0.0098	0.0129	0.87
Pre-2018	126	-0.0003	0.0096	0.0117	0.85
Post-2018	126	-0.0004	-0.0011	-0.0025	-1.02

Table 1 and Table 2 present the CAPM estimation results for Nike and Adidas, respectively. Within each table, the sub-periods - pre-2006, post-2006, pre-2010, post-2010, pre-2014, post-2014, pre-2018, and post-2018 are identified, along with the respective number of observations (N), risk-free rate (Rf), expected market return (E(Rm)), expected return of the stock (E(Ri)), and beta coefficient (β_i).

Except for the post-2018 period, Adidas and Nike displayed mostly favorable anticipated returns during the sub-periods, indicating their market potential. This period, however, highlighted negative expected returns in light of the stock market's dismal performance, which was evidenced by its negative predicted returns. The beta coefficients, which indicate a stock's sensitivity to market returns, were also reported. Notably, these coefficients were similar for both Adidas and Nike throughout most sub-periods, indicating that they share similar risk profiles as the market portfolio. Adidas has been a bit of a wild card with a beta coefficient greater than one in the period following 2014. This indicates that it is more unstable than the market portfolio. Meanwhile, in the period after 2018, both Adidas and Nike have beta coefficients smaller than 1, indicating their excellent stability compared to the market portfolio.

The results also show that the risk-free rate would become negative during certain sub-periods, such as the post-2018 period, indicating the willingness of investors during that period to trade the return on a risk-free asset for liquidity and safety. This is called a liquidity trap, which usually occurs when the nominal interest rate is close to zero or negative [7].

This study aimed to estimate the CAPM for Adidas and Nike, two leading sportswear companies, and compare their risk and return characteristics over different subperiods. Based on beta coefficients, the CAPM calculates the return of an asset based on its systematic risk [8]. According to CAPM, investors hold diversified portfolios of all risky assets in the economy, have rational risk-aversion, and are risk-averse. A CAPM also assumes that a market risk cannot be eliminated by diversification, since it is the only relevant risk for an asset.

Based on the results of this study, Adidas and Nike have positive expected returns on major periods, with their expected returns being negative only after 2018. As shown by the negative expected market returns from the top two sporting gear companies, stock market performance during that period was poor. Additionally, Adidas and Nike have their beta coefficients in most sub-periods close to 1, meaning that the risk factors for those companies is like the overall market. In the periods after 2014, Adidas's beta coefficient pasts 1, indicating more volatility than the market. In reverse, Adidas and Nike have beta coefficient which is less than 1 after 2018, which indicated they have less volatility than the market [9].

When it comes to investing in Adidas or Nike, it's important for investors to take a closer look. Specifically, investors should keep an eye on how the risks and returns fluctuate over different sub periods. Adidas might be the better option for investors who are willing to take on greater risks and aim for higher returns after 2014. However, if an investor is more interested in playing it safe and settling for lower returns after 2018, Nike may be the better fit. For investors, considering the impact of both risk-free interest rates and projected market returns on a stock's expected return is important. Take, for instance, Adidas and Nike, which could yield higher expected returns if investors are expecting future higher risk-free interest rates or projected market returns.

4. Conclusion

The assumptions and data sources of CAPM impose certain limitations on this study. It assumes investors to be rational, risk-averse, and hold diversified portfolios of all risky assets in the economy. Yet, investors may be irrational, exhibit varying risk preferences, and struggle with costs or obstacles in diversification. Moreover, β , which is presumed to be stable and constant over time in CAPM, might not hold true. Despite assuming a constant beta coefficient, differences in market conditions, business cycles, and company-specific factors could alter its value. Additionally, the accuracy and representativeness of data used to determine the risk-free interest rate, expected market return, and expected return for each stock may not be reliable. For example, the risk-free rate may not reflect the true opportunity cost of investing in a risk-free asset, as it may be affected by inflation or liquidity issues.

The suggestions for future research are mainly related to improving or extending the CAPM estimation for Adidas and Nike. Firstly, additional approaches could be taken towards calculating or anticipating CAPM, such as the Fama-French three-factor model or the Black-Litterman model. These models or methods could bring up additional risks or return which could have been ignored by the CAPM [10], such as size, value, or momentum factors. Secondly, future research could use alternative data sources or methods to calculate the risk-free rate, the expected market return, and the expected return of each stock.

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