

Shareholder Value Destruction following the Tiger Woods Scandal

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Abstract

We estimate that in the days beginning with Tiger Woods' recent car accident and ending with his announced "indefinite leave" from golf, shareholders of companies that Mr. Woods endorses lost \$5-12 billion in wealth. We measure the losses relative to both the entire stock market and a set of competitor firms. Because most of the firms that Mr. Woods endorses are either large or owned by large parent companies, the losses are extremely widespread. Mr. Woods' top five sponsors (Accenture, Nike, Gillette, Electronic Arts and Gatorade) lost 2-3 percent of their aggregate market value after the accident, and his core sports-related sponsors EA, Nike and PepsiCo (Gatorade) lost over four percent. The pace of losses slowed by December 11, the date on which Mr. Woods announced his leave from golf, but as late as December 17 shareholders had not recovered their losses.

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1 Introduction

Professional golfer Eldrick ‘Tiger’ Woods earns roughly \$100 million annually in endorsement income, an amount far greater than that earned by any other athlete. On the evening of November 27, 2009, Mr. Woods was involved in a car crash outside his home. Following the crash, a series of news reports about both the crash and Mr. Woods’ personal life damaged his public reputation, and several endorsers either stopped featuring him in their advertisements or dropped him outright. Media accounts generally have focused on the damage that these events might cause to Mr. Woods’ future income-earning potential. In this short paper we estimate losses that may be larger, more widely felt, and more immediate: those incurred by shareholders of the firms paying Mr. Woods to endorse their products.

We estimate that between the car accident and Mr. Woods’ announcement of an ‘indefinite leave’ from golf on December 11, sponsors’ shareholders lost \$5-12 billion in wealth. The “event study” method that we employ measures losses *relative* to both the stock market as a whole and a set of competitor firms - in other words, relative to all firms that do not use Mr. Woods as an endorser. For example, we measure the losses for Nike shareholders considering both changes in the broader stock market, and changes in the value of Reebok. Event studies are commonly used in economics and finance to measure changes in shareholder value following unanticipated events.

Most of Mr. Woods’ endorsers are themselves subsidiaries of large parent companies, and because the stock prices we must use are those of the parent companies, the damages associated with these events accrue to *any* investor holding shares of the parent company. For example, Gillette is part of Procter and Gamble, a conglomerate with a market value near \$150 billion. That has two implications. First, it means that the set of shareholders affected by these events is very large; the parent companies of Mr. Woods’ largest endorsers are all among the largest corporations in the world, and by dint of their presence in the S&P 500 and other major stock indexes, they are owned directly and indirectly (via mutual funds) by millions of shareholders. A second implication, and one that is a downside for our purposes, is that because we must group each endorser with all other firms owned by its parent company, it is harder to get a precise estimate of shareholder losses than it would be if, for example, Gillette were itself a separate and publicly traded firm. Nonetheless, our results are ‘statistically significant,’ in that the overall pattern of losses at the parent companies is unlikely to stem from ordinary day-to-day variation in their stock prices.

While most media discussions of the economic impact of these events have focused on Mr. Woods' diminished earning prospects, our estimates suggest that the losses incurred by sponsors' shareholders are at least as great as those sustained by Mr. Woods, and may be much greater. The upper range of our shareholder loss estimates far exceeds the lifetime income that Mr. Woods could expect if one projects his 2009 endorsement income over the next few decades. The total economic losses to society from these events - the sum of Mr. Woods' losses and the losses to shareholders - could easily exceed several billion dollars.

2 The Endorsement Deals of Tiger Woods, and What Changed after November 27, 2009

Prior to November, Mr. Woods' total 2009 endorsement income was estimated to be roughly \$100 million, a figure roughly twice as large as that for any other athlete.¹ We are able to identify eight companies with which Tiger Woods has an endorsement deal and for which stock price data are available. We list those companies in Table 1.² While the details of most endorsement contracts are private, the five most valuable contracts are seemingly with Accenture, Gillette, Nike, PepsiCo (Gatorade) and Electronic Arts (EA).³ Those five deals generate approximately \$80-90 million in annual income for Tiger Woods.

The details of Mr. Woods' car crash on November 27 and the subsequent allegations that damaged his reputation are of little concern to us *per se*, and can be gotten easily enough from any reputable media source. What is germane for our purposes is assessing whether there is *prima facie* evidence that those events may have harmed the market value of Mr. Woods sponsors. We take two facts as suggestive. First is the announcement by Mr. Woods on December 11, 2009 that he is taking an 'indefinite leave' from golf. That announcement may have reduced Mr. Woods' current value to endorsers and increased uncertainty about his future value. Second is the fact that since the accident some endorsers have pulled advertisements featuring Mr. Woods, and some have

¹<http://sportsillustrated.cnn.com/more/specials/fortunate50/2009/>.

²See <http://web.tigerwoods.com/sponsors/sponsors> for a complete list. Some of the companies on that list are either privately held, or traded on foreign exchanges; we do not track those companies. Conde Nast owns Golf Digest, but is privately held. It recently formed a joint venture with News Corp. for digital content provision.

³See <http://industry.bnet.com/advertising/10005016/the-tiger-woods-sponsor-deathwatch-at-nike-digs-in-heels/> for details.

canceled their deals outright. It is difficult to infer anything specific about the market value of any one endorser from the decision to drop or retain him, because it may be best for an endorser to retain Mr. Woods even though his value (and the endorser's) has dropped markedly. What we do take from these decisions is that it seems plausible that the events beginning on November 27 materially affected shareholder value.

3 Estimated Shareholder Losses

To estimate shareholder losses following November 27, we estimate an event study. What an event study does is quite straightforward: after a discrete event (here, the accident), it compares stock market returns for affected firms (here, the sponsors' parent companies) to stock returns for a group of 'control' firms. Comparing to control firms is important because after any event, stock prices may move for reasons having nothing to do with the event. Presumably, those changes will be felt by both the affected firms and control firms. One therefore can view the *difference* between affected and control returns as measuring the effect of the event.

For example, suppose that on the first trading day after the accident, good economic news affecting all firms in the stock market were released. That news might lead to an increase in stock prices (shareholder wealth) of two percent. But if the stock prices of all other firms rise by two percent and the stock price of Nike rises by only one percent, then one can infer that the *net effect* of the accident was to reduce Nike's value by one percent, relative to every other firm in the market. For that reason, we measure shareholder losses relative to the rest of the stock market as a whole.

We also allow for the fact that Nike's stock price might not normally move one-for-one with the market. Suppose that Nike's stock price ordinarily rises by 1.5 percent when the stock market as a whole rises by two percent. If the market as a whole rises by two percent but Nike only rises by one percent (when we'd expect 1.5), we would conclude that the net effect of the accident was to reduce Nike's value by 0.5 percent. Finally, one might believe that Nike's direct competitors might provide better information about, say, changes in value for "sports apparel manufacturers" than would the overall change in the market. So, we also compare Nike's return to that of a close competitor (like Reebok).

To estimate how each sponsor's stock price moves with the broader stock market and competitor stock prices, we collect data on daily stock market returns for every sponsor (or its parent company),

the total stock market, and each sponsor’s closest competitor. Our daily returns go back to January 1, 2005, and end on December 17, 2009. We use daily returns for the period preceding the accident to estimate how each sponsor’s returns normally covary with market and competitor firms. Then, we use the actual total market and competitor returns following the accident to forecast “normal” returns for sponsors after the accident. Differences between those normal returns and the actual returns that we see are “abnormal returns” that we attribute to the accident and its aftermath. We refer interested readers to the Technical Appendix for details.

What our event studies yield are daily percentage changes in the aggregate market value of Tiger Woods’ sponsors, compared to the controls (the market as a whole, and close competitors): those are the daily abnormal returns. We sum those daily abnormal returns to get a *cumulative abnormal return* averaged across all sponsors, starting on the first trading day after the accident (November 30, the Monday after the crash, which occurred on a Friday night) and ending thirteen trading days after the accident (December 17, 2009). We weight the returns proportionally by the market value of each parent company (see Table 1). So, TLC Vision has only a small effect on the losses felt by shareholders because it is very small, while PepsiCo (Gatorade) has a very large effect because it is worth \$90 billion. If one weights the returns equally, the results are qualitatively similar.

Table 2 shows the cumulative abnormal returns (CARs) for the sponsors, collectively and also for sub-groups. We use two sub-groups. The first is the ‘Big Five’ mentioned earlier, which is the set of firms with the largest Tiger Woods endorsement contracts: Accenture, EA, Gatorade, Gillette and Nike. We also show results for a smaller group: EA, Gatorade and Nike. We separate the last sub-group (EA, Gatorade and Nike) because we believe that they stand to lose more than the other two sponsors in the big five (Gillette and Accenture). Sports-related sponsorships are critical to sports video games, sports drinks and sports apparel. They are less critical for the razor and consulting markets.

The figures in Table 2 are 10-day cumulative abnormal returns, in both percentage and dollar terms. For the full group of sponsors, there is an aggregate decline of 2.3%, which translates to a roughly \$12 billion decline in shareholder value. For the sub-groups, the percentage declines are bigger but the dollar losses are smaller. Considering just the Big Five, the decline is 2.4% (\$8.11 billion), and considering just EA, Gatorade and Nike the decline is 4.3% (\$5.71). The Technical Appendix contains confidence intervals (margins of error) for those values.

The pattern of percentage declines across the sub-groups makes sense. The full group number is the lowest, because it includes a set of firms with relatively small involvements with Mr. Woods. The Big Five have slightly greater involvements, and we see that they suffer more damage. And, the sports-related sponsors suffer the most.

Figure 1 provides more detail on the pattern of losses over time. It shows the cumulative abnormal returns for these groups over the entire period from November 30 to December 17. While the losses are small over time, they grow by the tenth trading day after the accident.⁴ After the announcement on December 11 of Mr. Woods' leave from golf, there is little change in the losses - they neither grow nor dissipate substantially.

4 Conclusion

We estimate that shareholders of Tiger Woods' sponsors lost \$5-12 billion after his car accident, relative to shareholders of firms that Mr. Woods does not endorse. The losses are both economically substantial and widespread across many millions of shareholders.

The losses that we measure are distinct from any personal losses suffered by Mr. Woods in the form of lower current and future endorsement income. The total economic loss associated with the scandal is the sum of the two: the direct losses to Mr. Woods and the spillover losses suffered by shareholders of his sponsors. Our estimates of the latter are a cost associated with Tiger Woods' actions that was likely ignored when he chose to make his "transgressions."

Mr. Woods' sports-related sponsors seem to suffer more than his other sponsors. That is to be expected. Economic theory predicts that Mr. Woods should be able to capture nearly all of the excess profit generated by his endorsement of a firm like Accenture. For Tiger Woods, having Accenture as a sponsor probably does not increase the overall value of 'the Tiger brand' all that much. Mr. Woods should therefore have a lot of bargaining power when negotiating that deal, and may be able to extract a payment very close to Accenture's incremental profit from the relationship. And if Accenture is paying Mr. Woods something very close to its extra profit from his endorsement, it is not much worse off without him than with him. Indeed, our estimates show no ill effect at all for Accenture after the accident.

⁴The interested reader can view a timeline of the events following the accident at <http://www.guardian.co.uk/sport/2009/dec/15/tiger-woods-timeline-golf-turmoil>.

On the other hand, Nike and other premier sports-related sponsors are special for an athlete like Tiger Woods, because they are themselves unique brands. It is likely that partnering with Nike adds a substantial premium to the value of the Tiger brand, and creates other financial opportunities for Mr. Woods. If so, then Nike should be have enough bargaining power to itself capture some of the profits generated by partnering with Tiger Woods. It is the decline in those profits measured by our event study.

Finally, we should caution that our estimates are statistically ‘noisy,’ in that they could be significantly higher or lower than the numbers we report. One must make that caveat in any statistical study like this, and in our case the statistical margin of error is particularly large in part because Mr. Woods’ sponsors are (with the exception of Nike and EA) subsidiaries of larger parent companies.

5 Technical Appendix

In this Technical Appendix we provide details of both the event study method and our findings.⁵

For the event study, we obtain daily percentage returns for our sponsor companies, one matched competitor for each sponsor, and a value-weighted total market index. Data are from CRSP and Yahoo! Finance, and cover the period 1/1/05 to 12/17/09. We use the data to estimate a sponsor-level market model with sponsor-specific alphas and betas:

$$R_{it} = \alpha_i + \beta_1 R_{mt} + \beta_2 R_{ct} + \sum_s \delta_s D_{st} + \epsilon_{it}, \quad (1)$$

where,

- R_{it} = the return on shares of sponsor i at time t ,
- R_{mt} = the return on the CRSP equally-weighted portfolio at time t ,
- R_{ct} = the return on shares of sponsor i 's competitor c at time t ,
- δ_s = the abnormal return for sponsor i from day s after the accident,
- D_{st} = a dummy variable equal to one during day s after the accident,
- ϵ_{it} = an error term.

We omit observations for the thirty trading days preceding November 27, 2009 (the day of the accident). Including them does not change the results, and we find no evidence of pre-event abnormal returns.

The cumulative abnormal return is the sum of the δ s. We use Salinger's (1992) procedure for calculating standard errors on the cumulative abnormal returns; that procedure accounts for the contemporaneous correlation of sponsor-specific errors on the same day.

Table A1 below shows the CARs and standard errors for each day after November 27. "Day one" is November 30 - the first trading day after the accident.

⁵See Mackinlay, Craig, "Event Studies in Economics and Finance," *Journal of Economic Literature* Volume 35 (1997) for a discussion of the method.

Table A1. Cumulative Abnormal Returns

Days after accident	All Firms			Big Five			EA, Pepsi, Nike		
	Estimate	Lower Bound	Upper Bound	Estimate	Lower Bound	Upper Bound	Estimate	Lower Bound	Upper Bound
One	0.0%	-0.8%	0.8%	-0.2%	-1.2%	0.7%	-0.3%	-1.6%	0.9%
Two	-0.3%	-1.4%	0.9%	0.2%	-1.2%	1.5%	0.7%	-1.2%	2.5%
Three	-0.3%	-1.7%	1.1%	0.2%	-1.4%	1.9%	0.3%	-1.9%	2.6%
Four	-0.5%	-2.1%	1.1%	-0.4%	-2.3%	1.5%	-0.2%	-2.8%	2.3%
Five	-0.5%	-2.3%	1.3%	-0.1%	-2.3%	2.0%	0.7%	-2.2%	3.6%
Six	-0.7%	-2.7%	1.3%	-0.6%	-2.9%	1.7%	0.1%	-3.1%	3.2%
Seven	-1.6%	-3.7%	0.6%	-1.6%	-4.1%	0.9%	-2.7%	-6.1%	0.7%
Eight	-2.0%	-4.3%	0.3%	-1.9%	-4.6%	0.8%	-3.0%	-6.6%	0.7%
Nine	-2.4%	-4.9%	0.0%	-2.4%	-5.3%	0.4%	-3.8%	-7.7%	0.1%
Ten	-2.3%	-4.9%	0.2%	-2.4%	-5.3%	0.6%	-4.3%	-8.4%	-0.2%
Eleven	-2.6%	-5.3%	0.1%	-2.9%	-6.0%	0.2%	-4.1%	-8.3%	0.2%
Twelve	-2.4%	-5.2%	0.4%	-2.9%	-6.2%	0.4%	-4.2%	-8.7%	0.3%
Thirteen	-2.4%	-5.4%	0.6%	-3.0%	-6.4%	0.4%	-4.0%	-8.7%	0.6%
Observations		8339			5861			3375	
R-squared		0.503			0.488			0.502	

Notes: This table reports the estimated cumulative abnormal returns, as well as the upper and lower bounds of the 95% confidence intervals of the estimates.

6 Tables

Table 1. Sponsors, Parent Companies, Endorsement Values and Market Capitalizations

Sponsor	Parent Company	Endorsement value	Market Cap
Accenture	Accenture	\$20 million	\$26 Billion
AT&T	AT&T	n/a	\$165 Billion
Tiger Woods PGA Tour Golf	Electronic Arts	\$8 million	\$5.76 Billion
Gillette	Procter and Gamble	\$15 million	\$179 Billion
Nike	Nike	\$20-30 million	\$32 Billion
Gatorade	Pepsico	\$20 million	\$95 Billion
TLC Laser Eye Centers	TLC	n/a	\$4.04 Million
Golf Digest	Conde Nast	n/a	\$35 Billion

Notes: We include all sponsors for which we can obtain stock price data. Market cap values are approximate as of mid-December 2009.

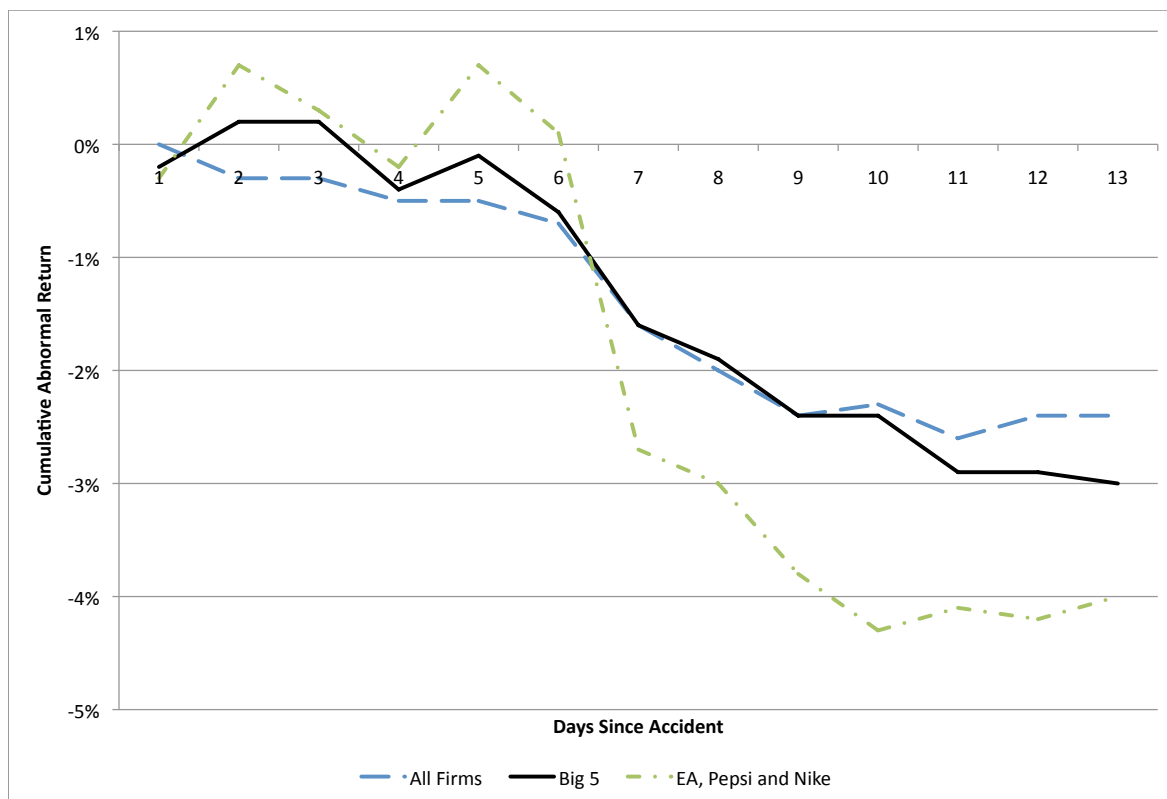
Table 2. Cumulative Abnormal Returns
(shareholder losses, percent).

Group of sponsors	Losses, ten days after accident	
	Percent	Dollar
All	-2.3%	\$12.37b
Big Five	-2.4%	\$8.11b
EA, Nike, Pepsi	-4.3%	\$5.71b

Notes: "All" includes full list in Table 1. "Big Five" includes Accenture, Nike, Gatorade, Gillette, EA sports." Numbers in bold type are statistically significant at the ten percent level.

7 Figures

Figure 1: Cumulative Abnormal Returns After November 27



Notes: This figure graphs the aggregate losses to shareholder value since the day of the accident separately for: (a) all sponsors, (b) Accenture, Gillette, EA, Nike and Pepsi, and (c) EA, Nike and Pepsi. For example, ten days after the accident, on 12/14, the aggregate losses of the shares of all sponsors averaged 2.3%, shares of the big five lost an average of 2.4% since the accident, while EA, Nike and Pepsi shares fell by over 4% since the accident.