

Economic Value of Celebrity Endorsement: Tiger Woods' Impact on Sales of Nike Golf Balls

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Executive Summary

In the endorsement business, golf has been the leading sports industry to have endorsers.[11] “The Fortunate 50”, a list of the 50 top earning American athletes in salary, endorsement and appearance fees compiled by *Sports Illustrated*, ranked Tiger Woods and Phil Mickelson 1st and 2nd, respectively in their 2008 and 2009 rankings.[4] It is documented that Tiger Woods has consistently earned significantly more off the course than on the course by a variety of endorsers. Thus, this begs the question of just how profitable are the endorsements for the firms sponsoring these athletes?

The objective of this paper is to study the effect of endorsement in terms of profit by looking at Nike and its endorser, Tiger Woods. Studying Tiger Woods is fitting because it was believed in 2008 that Tiger Woods was on his way to becoming the first \$1 billion athlete. In 2007, his earnings from on the course were \$23 million while his endorsement deals totaled \$100 million.[12] In addition, with the recent revelation of the golfer's infidelity, we are in a position to quantify not only the positive effect, but also the potential negative effects of endorsement contracts on profits.

We develop and estimate a consumer demand model for golf balls by using a rich data set made available by **Golf Datatech** LLC. Taking into account Tiger Woods' inherent quality as a player, Nike's advertisement expenditures, and other PGA tour players, we find that not only did Tiger Woods' Nike endorsement result in a significant number of existing customers switching toward Nike products, but it also had a positive effect on the golf ball industry as a whole with increases in primary demand.

By sponsoring Tiger Woods for 10 years, we find that the Nike golf ball division reaped additional profits of \$60 million through the acquisition of 4.5 million customers who switched as a result of Tiger Woods' endorsement. In fact, as a result of Tiger Woods switching away from Titleist to Nike in 2000, we estimate that the Titleist golf ball division experienced a decline of revenue of 7.48% (-8.11% in profit). We also find that the recent scandal regarding Tiger Woods' infidelity had a negative impact, resulting in Nike losing approximately \$1.3 million in profit with a loss of 105,000 customers. Meanwhile, it cost the rest of the golf industry a loss of \$6.2 million in profit. However, we conclude that Nike's decision to stand by Tiger Woods was the right decision because even in the midst of the scandal, the overall profit was greater by \$1.6 million for Nike with Tiger Woods than without him. This finding may be of interest to firms that use endorsements as a marketing strategy to promote its products. Lastly, we find that the endorsement business in general has a primary demand effect where the overall number of consumers increases in the golf market. This suggests that endorsements are beneficial for the golf ball industry, which may be of interest for business policy makers.

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Estimation of Endorsement Effect on Sales

We estimate a consumer demand model using advanced econometric techniques to isolate the endorsement effect on consumer preference. While previous studies have attempted to study the endorsement effect, they were able to do so only indirectly by looking at the fluctuation in stock prices immediately after the announcement of endorsement. For example, Knittel and Stango (2009) studied the negative impact of Tiger Woods' scandal. They find that after November 2009, shareholders lost \$5-12 billion relative to those firms that Tiger Woods did not endorse.

With the rich dataset containing data for years 1997 to 2010 provided by **Golf Datatech** LLC, we are able to study the effect by studying consumers' behavior as opposed to investors' behavior. In fact, our results suggest something contrary to what was found previously; we find that Nike's decision to stand by the golfer was the correct decision.

To isolate the endorsement effect from other effects that may cause the same increase in sales, we must control for confounding variables. These variables include brand level advertisement variables and the effect of other PGA tour players' endorsements. After controlling for this, we find that Tiger Woods' endorsement had a significant positive effect on consumer's preference. We also find that for both Nike and non Nike products, the scandal had a negative impact on consumers. (see appendix for output)

Findings

One of the main advantages of econometrically estimating the consumer demand model is the flexibility it gives us to conduct a myriad of "experiments". By modeling consumer preference on golf balls, we are able to experiment with different market conditions. As we will show below, we are able to construct an environment where Tiger Woods decides not to switch from the Titleist brand to the Nike brand in 2000 and we can assess the overall profit for Nike. By doing so, we can compare the change in profit for Nike, with and without Tiger Woods, allowing us to isolate the effect Tiger Woods' endorsement. Similarly, for the scandal, we are able to construct an environment where there was no scandal post November 2009 or an environment where Nike decides to cut its ties with the golfer immediately after the scandal as Accenture, Gatorade and AT&T did. This allows us to compute the profit earned in the new environment and compare it with the realized profit. Thus, we can determine the effect of either Tiger Woods' scandal or Nike's decision to stand by the golfer. Lastly, we study Tiger Woods' effect on both non Nike products and the entire golf industry.

Tiger Woods' effect on Golf Ball sales

Our demand estimates suggest that Tiger Woods had a significantly positive effect on Nike products during the endorsement period. Given this finding, we ask the following question: what would have been the share of Nike's product if Nike elected to forgo endorsing Tiger Woods for the past 10 years? In 2000, Tiger Woods reportedly signed a 5 year \$100 million dollar renewal contract with Nike, agreeing to endorse both apparel and golf balls, a golf segment that Nike entered as recently as 1999.¹ In 2005, he was reported to have signed a 5 year \$100 million extension. We would like to assess whether Tiger Woods' endorsement translates into sales and whether such sizable contracts were profitable.

¹The first contract was in 1996, a 5 year \$40 million apparel contract when he turned professional while he had a \$20 million contract with Titleist for ball and clubs.

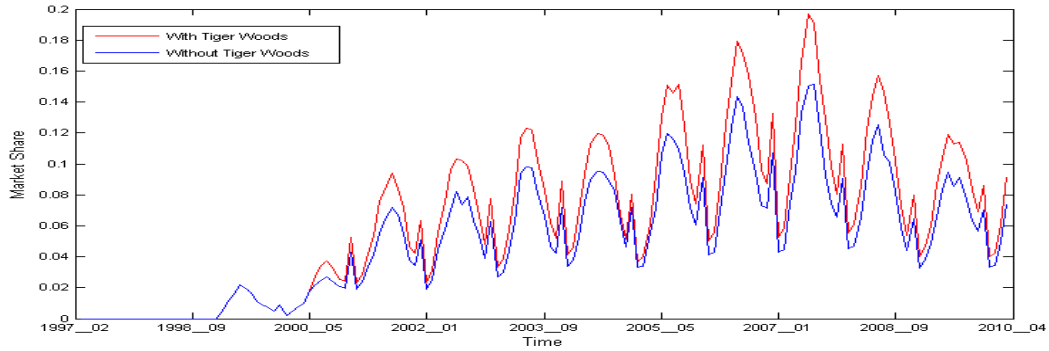


Figure 1: Share of the Nike Products for on & off course shops combined

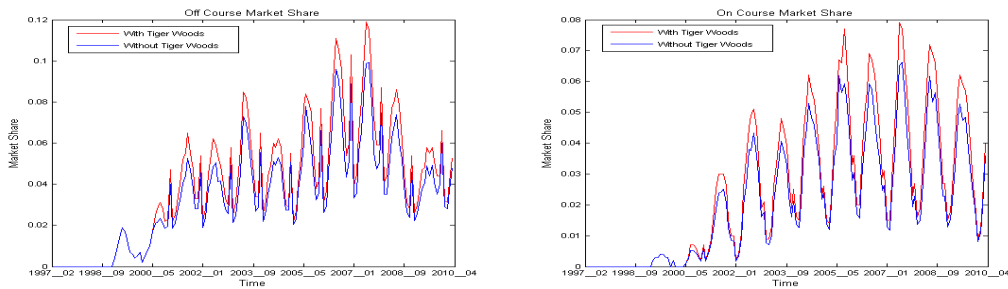


Figure 2: Share of the Nike Products for each retail channels (off, on)

Above are the aggregated market shares for Nike golf balls for all time periods for both on and off course combined/separated. We can readily see that the market share is larger during the time that Tiger Woods was under Nike’s sponsorship. What this suggests is that for some consumers, the endorsement effect is large enough that they switch their choice of brand.

Having shown that there is a general increase in the market share for Nike products over the time when Tiger Woods was under Nike’s endorsement, we would like to calculate the economic impact for Nike in terms of additional revenue, profit and customer acquisition.

	Off course	On course	Both Retail
Revenue Gain	\$48,947,368	\$42,074,695	\$91,022,063
Profit Gain	\$36,149,238	\$23,778,872	\$59,928,110
Customer Acquisition	2,706,732	1,806,609	4,513,340

Table 1: Economic Value of Tiger Woods’ Endorsement (2000-2010)

We find that during the endorsement period, Nike earned approximately \$91 million in extra revenue from both on and off course combined. Furthermore, we estimate that the total additional profit earned by Nike golf ball division was approximately \$60 million for the 10 year endorsement period. More importantly, for the Nike golf division, we find that the company acquired approximately 4.5 million additional customers during the endorsement period. We believe that, at least in the first half of the decade, this was pivotal for Nike as they were trying to launch their nascent golf division with the help of Tiger Woods as its primary endorser.[8] Through the endorsement of Tiger Woods, Nike was able to induce a significant portion of the population to switch to using their golf ball as a result of the extra utility attached to Nike golf balls. In fact, as a result of Tiger Woods switching away from Titleist to Nike in 2000, we estimate that the Titleist ball division experienced a decline of revenue of 7.48% (-8.11% in profit).

As mentioned above, Tiger Woods signed two 5 year \$100 million contracts. Therefore, given that he was paid a total of \$200 million (\$181 million in 1997 price) for ten years, our estimates show that, just in golf ball sales in the United States alone, approximately 33% of its investment on endorsement was recovered by Nike. Given that the sport of golf is also widely popular outside the United States, we conjecture that Nike would have recovered the majority, if not all, of its endorsement investment through golf ball sales alone. Considering sales in apparel and other equipment that Tiger Woods also endorsed as part of the contract agreement, we believe that Tiger Woods could have commanded an even larger contract from Nike.

Tiger Woods’ Negative Publicity

Starting with a small car accident in November 2009, the revelation of Tiger Woods’ infidelity marked the beginning of the golfer’s scandal. Since then, fearing the negative impact, endorsers began to cut ties with Tiger Woods. The earnings he made off the course- an estimated \$100 million a year- dwindled as a result of endorsers like Accenture, AT&T and Gatorade terminating its contracts. In the midst of all this however, Nike announced that it would stand by Tiger Woods.

Having shown that Tiger Woods’ scandal has had a negative impact on the Nike products alone, we assess the economic consequences for Nike standing by Tiger Woods.

	Off course	On course	Both Retail
Revenue Gain	-\$934,049	-\$720,944	-\$1,654,993
Profit Gain	-\$848,720	-\$454,999	-\$1,303,719
Customer Acquisition	-68,095	-36,622	-104,717

Table 2: Economic Value of Scandal on Nike (11.09~04.10)

We find that Nike lost approximately \$1.7 million in revenue which we estimate to be a profit loss of \$1.3 million. The number of customers lost due to the scandal is estimated at approximately 105,000. This suggests that without the negative publicity of Tiger Woods, Nike would have, *ceteris paribus*, earned \$1.3 million more in profit.

We also find that the rest of the golf ball industry felt the negative effect of Tiger Woods’ scandal. We estimate that non Nike products incurred a loss of \$6.2 million in profit with a loss of approximately 441,000 customers relative to the environment if there were no scandal.

	Off course	On course	Both Retail
Revenue Gain	-\$4,928,207	-\$5,289,902	-\$10,218,109
Profit Gain	-\$3,181,958	-\$3,028,099	-\$6,210,057
Customer Acquisition	-241,898	-199,325	-441,223

Table 3: Economic Value of Scandal on Non Nike (11.09~04.10)

This finding suggests that Tiger Woods’ scandal cost the golf ball industry \$7.5 million in profit with approximately 446,000 customers who would have otherwise participated in the golf ball market.

Nike’s Decision to stand by Tiger Woods

We assess Nike’s decision to stand by Tiger Woods after the infamous incident in November 2009. While we have shown that the negative publicity of Tiger Woods generated relative loss in terms of revenue, profit and customer acquisition, our result indicates that even with the scandal, Nike made positive revenue, profit and customer acquisition overall.

	Off course	On course	Both Retail
Revenue Gain	\$1,149,955	\$815,412	\$1,965,367
Profit Gain	\$1,038,587	\$513,353	\$1,551,940
Customer Acquisition	84,275	41,531	125,806

Table 4: Overall Economic Value of Tiger Woods during the Scandal Period (11.09~04.10)

We find that Nike still benefited from Tiger Woods despite the negative impact of the scandal because the large endorsement effect that is attached to Nike products was significant enough to generate an overall gain. In fact, from November 2009 to April 2010, we find that Nike made an extra revenue of \$2.0 million from Tiger Woods' endorsement effect which we estimate as additional \$1.6 million in profit. From this, we conclude Nike's decision not to join the likes of Accenture, AT&T and Gatorade was the correct decision. Furthermore, this finding corroborates industry reports that documents that Tiger Woods' brand merchandise was not affected by the scandal. In fact, Golfsmith International Holding Inc, is said to have sold 8% more Woods-branded hats, shirts and belts from October 2009 to March 2010 compared to the previous year. [3] This finding is interesting especially given that a previous event study analysis by Knittel and Stango (2009) finds that sports related sponsors suffered more than the non sports related sponsors. Based on our finding, we find that even in the midst of the scandal, Nike was actually better off with Tiger Woods than without.

Endorsement Business in Golf

We also analyze how the endorsement business as a whole affected the golf ball industry.

	Change in Share
Nike	0.008
Titleist	0.003
Callaway	-0.001
Others	-0.005
Outside Option	-0.005

Table 5: Change in Share with the presence of endorsement

As shown, we see that with the presence of endorsement in the industry, Nike and Titleist benefited. On the other hand, we find that both Callaway and the rest of the market suffered in market share due to endorsements. It is interesting to note that the endorsement effect not only increases the share for the company with effective endorsers, but the presence of endorsement in the golf market increases the overall demand. This suggests that the endorsement effect is large enough that those who would have otherwise not purchased a product now do when there is celebrity endorsement in the industry. This makes it clear that indeed the endorsement effect is large enough to create product differentiation and shift market share within the market but is also characterized as having a "primary demand" component where it attract customers who would have otherwise not purchased a product in the absence of a celebrity endorsement.

Conclusion

With the size of endorsements reaching the heights of tens to hundreds of millions of dollar in recent years, we have quantified the benefit of endorsement and the appropriateness of the size of endorsement contracts. The objective of this paper was to study the effect of endorsement contracts by looking at Nike and its endorser, Tiger Woods. By developing and estimating the consumer demand model for the golf ball market we find that by sponsoring Tiger Woods for 10 years, in golf balls alone, the Nike golf ball division reaped additional profits of \$60 million through the acquisition of 4.5 million customers who switched as a result of Tiger Woods' endorsement. In fact,

as a result of Tiger Woods switching away from Titleist to Nike in 2000, we estimate that the Titleist ball division experienced a decline of revenue of 7.48% (-8.11% in profit). We also find that the recent scandal regarding Tiger Woods' infidelity had a negative impact resulting in Nike losing approximately \$1.3 million in profit with a loss of 105,000 customers while costing the rest of the golf industry \$6.2 million in profit. However, we conclude that Nike's decision to stand by Tiger Woods was the right decision because even in the midst of the scandal, the overall profit was greater by \$1.6 million for Nike with Tiger Woods than without him. This finding would interest many firms who use endorsement as part of their marketing strategy. We also found that the endorsement business in golf generates a primary demand effect where there is an overall increase in the consumer base. This finding may be of importance not only for the firms who use endorsement strategies to promote their products but also for the governing body of PGATour that may be considering policies regarding endorsements in golf.

Appendix

Nike	Titleist	Callaway
Tiger Woods	Tiger Woods	Phil Mickelson
David Duval	Phil Mickelson	Ernie Els
Stewart Cink	David Duval	
KJ Choi	Vijay Singh	
Trevor Immelman	Ernie Els	
Anthony Kim	Davis Love III	
Paul Casey	David Toms	
	Steve Stricker	
	Padraig Harrington	
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Table 6: PGA winning as a proxy for advertisement variable

Consumer Model Estimation		
Tiger Woods' & Nike Endorsement/Advertisement	Estimate	SE
Woods Scandal Non Nike Products	-0.068 *	0.042
Woods Scandal Nike Products	-0.104 *	0.068
Woods Nike Endorsement	0.140 ***	0.073
Nike Advertisement	0.066 ***	0.017
Others' Brand/Player Endorsement/Advertisement		
Duval Nike Endorsement	-0.108	0.218
Mickelson Callaway Endorsement	-0.009	0.163
Els Callaway Endorsement	-0.229	0.232
Woods Titleist Endorsement	0.143 ***	0.061
Mickelson Titleist Endorsement	-0.640 ***	0.165
Duval Titleist Endorsement	0.444 ***	0.096
Singh Titleist Endorsement	-0.137 *	0.085
Els Titleist Endorsement	0.275 ***	0.118
Callaway Advertisement	-0.008	0.037
Titleist Advertisement	0.005	0.010

*** Significant at 0.05 ** Significant at 0.10 *Significant at 0.15

Table 7: Estimate of the Random Coefficient Model

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