

# White Paper

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## Why Daily Fantasy Sports Needs Regulation to Survive

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As the first glimpses of the 2015 NFL and college football seasons began to appear on the horizon, something else also began to cloud TV screens: A massive front of daily fantasy sports (“DFS”) advertising spots urging viewers to “pick your players and pick up your cash.”

The explosive growth of DFS, which did not exist at the time Congress exempted traditional season-long fantasy sports games from a federal ban on internet gambling payment processing, caught the eye of the American Gaming Association (“AGA”), the Nevada Gaming Commission (“NGC”), and legislators and regulators in other states.

In addition, in mid-September, Congressman Frank Pallone (D-NJ) formally requested the House Energy and Commerce Committee to hold a hearing on the legality of DFS. On September 23, 2015, the trade publication *GamblingCompliance* reported the committee’s chairman, Fred Upton (R-Mich), said such a hearing is likely to be held.

It will be interesting to see if Congress, the NGC, the AGA, or any other public officials examine in detail the lack of economic efficiency in the DFS market.

An efficient market is one in which prices incorporate all available information about value. In an efficient market, participants may be able to briefly take advantage of new

information, but the market quickly returns to an efficient state as knowledge of the new information spills over to others. Efficiency does not require that prices be equal to true value at every point in time. All efficiency requires is that deviations from true value be random. If deviations are random, then no individual participant or small group of participants will be able to dominate the market.

In other words, an efficient market is a *self-correcting mechanism*, where inefficiencies appear, but disappear quickly as participants find them and act on them.

“[We don’t] ask Warren Buffet to share his pearls of wisdom,” said John Cochrane, a Distinguished Senior Fellow at the University of Chicago Booth School of Business, about the study of market efficiency. “We study a survivor-bias-free sample ... sorted on some ex-ante visible characteristic, to separate skill from luck, and we correct for exposure to systemic risk.”

No peer-reviewed economic study of DFS that meets these criteria has ever been published.

However, both economic studies and empirical evidence indicate the traditional sports betting market in Nevada—e.g., bets against the point spread and bets on total

points in a game—is economically efficient with respect to the average participant in the market.

Efficiency in the Nevada sports betting market is easy to see because *both* the payout action *and* the price of the action are continuously liquid.

In 2015, UNLV’s Center for Gaming Research found that during the 30-year period between 1984 and 2014, Nevada sports books held onto 4.5% of over \$52.7 billion bet on football, basketball, and baseball.

The 4.5 percentage is equal to the theoretical hold percentage on a standard single game sports bet. On a standard single game sports bet, a participant risks \$110 to win \$100. When the casino’s action is balanced on the game, its sports book takes in \$220 (the “handle”), pays out \$210 to the winning side after the game, and keeps \$10 or 4.5 percent ( $\$10/\$210 = .045$ ) of the losing side’s \$110 as income (its commission, known as the “hold” or the “vigorish”).

In other words, over the past 30 years, Nevada sports book customers collectively have lost exactly—not more, and not less—what one would expect them to lose in light of odds that slightly favor the sports book. In this respect, the Nevada sports books operate like a typical exchange that matches buyers of a game (e.g., give me Browns +3 vs. Bengals) with sellers (give my friend Bengals -3) in exchange for a 4.5 percent commission.

The Nevada sports betting market is efficient because the inherent design of the market structure promotes continuous price liquidity which begets, to a certain extent, a spillover effect on the participant side of the counter that mimics, but does not perfectly copy, intentional collaboration.

Three informational cornerstones of the sports betting market promote a delicate “environmental balance” that makes the sports betting market efficient and more “consumer friendly” than the DFS market:

1. Like other centrally cleared exchanges, the sports book is the counterparty to every transaction, so participants are not competing head-to-head against other participants. Rather, *all* participants are competing against the sports book, albeit participants compete against the sports book severally, but not jointly.
2. The sports book’s “line” (i.e., the point spread and point totals) is liquid at all times so all participants can cut losses and get out of bad positions relatively cheaply if they obtain new information by simply betting the other side and forfeiting the commission. With the introduction of “in-game wagering” at some Nevada sports books, participants can cut losses even after the game has begun.
3. The development of superior technology and algorithms by an individual participant does not disadvantage any other participant; rather, technological advancement, if any, benefits all participants because, again, the line is continuously liquid. Consistent with the principles of economic growth theory, participants can exploit new information derived from technological innovation to at least some degree by tracking the sports book’s line movements, although the “knowledge spillovers” resulting from the new information and corresponding line movement is not as perfect as the knowledge of the original innovator that precipitated the movement.<sup>1</sup>

The DFS market structure is markedly different: The DFS market is inefficiently structured. Stated another way, the prices in the DFS market do not incorporate all information about value.

Three beacons illuminate the inherently inefficient structure of the DFS market.

First, the DFS platform usually charges a fixed 10 percent “rake”—the DFS platform’s commission—that is more than double the 4.5 percent commission Nevada sports books

<sup>1</sup>“Knowledge spillovers” have been studied by economists since Alfred Marshall took up the subject in 1890. Some of the greatest economists of the 20th Century (particularly Nobel Prize-winner Kenneth Arrow and Paul Romer at New York University) have devoted much attention to the subject. In general, knowledge spillovers are positive externalities that benefit the public good because the spillovers reduce the cost of information acquisition which in turn increases the probability of technological progress. In the sports betting context, the sports book has knowledge of every participant’s position. Thus, knowledge spillovers “level” the playing field to some extent to the benefit of every participant. It would be virtually impossible for the sports betting market (or any other market) to be efficient without spillovers because without spillovers the sports book-side of the counter could see prices that incorporate all information about the value of a sports wager, but the participant-side would not be able to see such prices.

have collected over the last 30 years. The super-sized DFS commission is just the tip of the iceberg.

Second, more importantly, the DFS platform does not utilize a liquid pricing mechanism like the line on an NFL game or the pari-mutuel odds at the horse track. Rather, DFS wagering is priced via a fixed “salary” for each player that comprises a component of a participant’s wager. As a result, while DFS payout action is liquid (i.e., participants get paid within 24 hours of the settling of the wager), the price of DFS action is illiquid (player salaries are not linked to participants’ selection of players and, as a result, are not moved by the selections).

In the July 27, 2015 edition of the *Sports Business Journal*, Ed Miller (a Massachusetts Institute of Technology engineer and game theorist) and Daniel Singer (the leader of McKinsey & Co.’s global sports and gaming practice) authored an article entitled, *For daily fantasy sports operators, the curse is too much skill*. In this article, Miller and Singer explain the liquid pricing in the sports betting market in comparison to the illiquid pricing in the DFS market:

Sports betting has thrived despite a large skill gap between the average sports fan and the sharp bettor. The reason is that the lines are set by a large, liquid market. You can walk up to a betting window in Las Vegas, select a team at random and still win almost 50 percent of the time. Betting randomly, you will lose money over time, but your average loss will be only slightly over the 4.5 percent vigorish.

When you create a DFS lineup, you get a fixed salary cap and buy players at prices set by the site. [Angels’ star outfielder Mike] Trout may cost you \$5,500 out of your \$50,000 salary cap, while [New York Mets’ outfielder Curtis] Granderson might cost just \$3,500. But these prices don’t reflect player values perfectly. For example, on some sites, they do not take into account the opposing starting pitcher or game-day lineup changes. Finding underpriced players among 800 active MLB options can be overwhelming to the novice, but sharks use sophisticated models to optimize their lineups.

In a September 24, 2015 article entitled *Daily Fantasy Sports and the Hidden Cost of America’s Weird Gambling Laws*, Neil Irwin and David Leonhardt of the *New York Times* succinctly described the disconnect that results from a platform providing liquid payout action and illiquid pricing of that action. To research the article, Irwin immersed himself in the DFS culture and wagered \$100 on NFL players using one of the most popular DFS platforms.

“The prices don’t change based on the latest news, which means entrants have to figure out on their own when there is a wild mispricing,” Irwin wrote. “As I was preparing my entries for last weekend, I had the option of spending \$8,500 on Dallas Cowboys receiver Dez Bryant, for example, even though he was out with an injury.”

Finally, as Miller and Singer accurately stated in their *Sports Business Journal* article, instead of centrally clearing transactions, DFS matches technologically sophisticated participants—known as “sharks”—against unsophisticated participants—known as “fish.”

In a July 15, 2015 blog post on *breakingvc.com*, Ezra Galston, who in 2007 was one of the first venture capitalists to invest in DFS after Congress opened the fantasy loophole in 2006, noted that the DFS platform is “comparable” to the online poker platform and described how “the sharks need to be able to earn a living to drive volume on the [DFS] platform.” Galston wrote:

As mentioned above, power players will drive your business. With that in mind, let’s explore some specific scenarios of how upstart (but failed) poker sites tried to attract player pools:

- **Prize Pools** – Large prize pools are important as they attract recreational players hoping for a score, which in turn attracts sharks. But remember – sharks care about profitability, the ability to earn a living. *A large prize pool is largely insignificant if the skill level gap is too small.*

The problem with artificially creating large prize pools prior to cultivating a healthy ecosystem is that the people paying closest attention to the industry advertising, or industry forums looking for new guaranteed tournaments are the sharks. But they are looking for expected value advantages. They will opportunistic[ly] cross platforms for large guaranteed tournaments, but will depart if the value isn't there. (Emphasis added).

In other words, according to Galston, "sharks" want to be fed "fish" by a DFS platform; they don't want to hunt other "sharks."

Recently reported evidence confirms Galston's view that, like poker, DFS is a platform upon which sharks seek to feed on fish. For example, on September 9, 2015, the *Wall Street Journal's* Kate O'Keefe reported Miller and Singer found that in the first half of the 2015 Major League Baseball season, just 1.3% of DFS participants won 91% of the profits.

In addition, *Bloomberg Business* writers Joshua Brustein and Ira Boudway found further evidence of a "DFS feeding frenzy" in their September 10, 2015 article, *You Aren't Good Enough to Win Money Playing Daily Fantasy Football*.

"Analysis from [the] Rotogrinders [web site] conducted for Bloomberg shows the top 100 ranked players enter 330 winning lineups per day, and the top 10 players combine to win an average of 873 times daily," Brustein and Boudway wrote. "The remaining field of approximately 20,000 players tracked by Rotogrinders wins just 13 times per day, on average."

"It's not what it pretends to be," Miller reportedly told O'Keefe of DFS.

Miller and Singer even have warned that it is possible the sharks will "wipe out" the fish.

Of course, DFS might disappear if such a "fantasy food chain apocalypse" comes to pass.

Yet, to date, the DFS industry appears to quixotically believe that amped up advertising and lobbying of state lawmakers can prevent business catastrophe and also enable DFS to "have its cake and eat it too," i.e., continue to grow the DFS business by taking money from the majority of participants and splitting that revenue with a tiny minority of participants.

On June 26, 2015, *GamblingCompliance* writer Tony Batt interviewed Fantasy Sports Trade Association ("FTSA") chairman Peter Schoenke and reported "[t]he largest part of the FTSA's budget is increasingly spent on lobbying, with a focus on state legislatures where Schoenke says 'the real action is.'"

"We will work with the [casino] industry and figure out ways to win, but not at the cost of admitting or having the connotations that [DFS] is gambling or has to be regulated as gambling because that's not how we feel the industry should develop," Schoenke said, according to Batt.

Like everything else about DFS, the FTSA's strategy is wildly risky.

At a minimum, advocating that the inefficient DFS platform should remain unregulated while the proven efficient sports betting platform is subject to not only regulation, but also prohibition outside Nevada, creates a cognitive dissonance that rational policymakers are likely to reject as absurd. In addition, fundamental business considerations indicate that regulation is more likely to benefit DFS than it is to harm DFS just as regulation has benefited traditional sports betting.

On the cost side of the business, DFS platforms reportedly are close to becoming a top-five spender on advertising, joining such established business categories like automotive, insurance, telecommunications, quick-service restaurants, and beer. According to a September 14, 2015 article in the *Sports Business Journal*, one network source pegged the two largest DFS platforms total 2015 advertising spend at a massive \$500 million.

On the revenue side, the two largest DFS platforms reportedly took in only a combined \$87 million in revenue in 2014. Moreover, according to the web site *superlobby.com*, even with spending \$31 million for 9,000 ads during the first week of the NFL season, guarantees paid out by the DFS industry on its NFL products during the first two weeks of the 2015 season exceeded entry fees by \$4.6 million. Entry fees exceeded payouts by a couple million dollars in week 4, but it is hard to see how unregulated DFS can become a cash cow if current advertising spending must be maintained to compete in an environment that has no standards governing entry.

If DFS is to ever become a profitable mass market, industry leaders will have to develop some entry standards and attract a lot more participants. The most promising potential customer pools are those who already participate in traditional, season-long fantasy sports and traditional sports betting. But, so far, those potential customers mostly have rejected the inefficient DFS market.

According to Miller and Singer, only 1.5 million Americans paid to play DFS in 2014, a figure more than an order of magnitude smaller than the 50 million people who play some form of traditional, season-long fantasy sports. While the massive advertising campaigns likely will cause some traditional fantasy participants to try DFS, it is unlikely that many traditional fantasy participants will become and remain regular DFS participants if the DFS platforms do not increase efficiency and consumer friendliness.

Further, at the annual G2E conference in Las Vegas, a DFS executive stated that only about 15% of DFS participants also participate in traditional sports betting. The reason traditional sports bettors are shunning DFS is obvious: Why would any rational risk-taker pay more than twice as much in commission to play an inefficient game that is more uncertain and more difficult to win than a traditional sports bet? There is no rational economic reason to do so.

In contrast, many economists have found that increased market efficiency correlates with increased economic growth. For example, in a 2005 paper, the Federal Reserve Bank of

San Francisco observed that firm-level, industry-level, and cross-country studies all suggest that a greater level of efficiency in a market “exerts a large, positive impact on economic growth.”

For these business reasons, DFS must solve its “sharks vs. fish” paradox, which also will go a long way to satisfying the concerns of legislators and regulators. Thus, “efficiency forcing” regulation that compels the entire DFS industry to become more consumer friendly should be welcomed by the DFS industry, even if the cost is license fees, reserve requirements, conflict of interest prohibitions, and taxes payable to the state.

DFS platforms will remain inefficient and unfriendly to average consumers as long as the sharks’ information and transactions costs are systematically less than the profits they expect from participating in DFS. And, as Galston has pointed out, no individual DFS platform *alone* can afford to increase sharks’ information and transaction costs or decrease sharks’ expected profits because any platform that does so will quickly lose its most valuable customers to a competing platform that does not do so.

Clearly, DFS needs efficiency forcing regulation because only regulation can create a level playing field by requiring all DFS platforms to provide the efficiency the entire industry needs.

This does not mean regulators should mandate DFS platforms reduce commissions to a level that matches sports betting commissions. It is common in the gaming industry for the “house edge” on different games to be different. For example, the house edge on roulette (over 5%) is much greater than the house edge on craps (less than 2%). Different gaming customers have different risk appetites. Simply mandating lower commissions would not increase efficiency.

To increase efficiency, regulators should focus on writing DFS rules that are calculated to create knowledge spillovers, which experts have found to be the best medicine for inefficiency.

For example, in discussing market efficiency, the Stern School of Business at New York University found that the speed with which an inefficiency is resolved will be directly related to how easily the scheme to exploit the inefficiency can be replicated by other participants:

The ease with which a scheme can be replicated is inversely related to the time, resources and information needed to execute it. Since very few investors single-handedly possess the resources to eliminate an inefficiency through trading, it is much more likely that an inefficiency will disappear quickly if the scheme used to exploit the inefficiency is transparent and can be copied by other investors.

So far, proposed DFS legislation has not included provisions that could force knowledge spillovers and increased market efficiency.

On September 21, 2015, Chris Krafcik of *GamblingCompliance* reported California Rep. Adam Gray introduced a bill to regulate DFS that contains regulatory practices commonly applied to Internet gambling businesses. While Gray's legislation is a first step in the right direction, the proposed law still lacks many of the fundamental regulatory provisions Nevada applies to more consumer friendly sports books in its Regulation 22, which governs the state's "Race Books and Sports Pools."

Moreover, Gray's bill does not contain provisions that would address the fundamental flaw underlying the DFS platform: Illiquid pricing of liquid action and a lack of knowledge spillovers that would level the playing field between sharks and fish and create an efficient DFS market.

Miller and Singer suggested potential fixes to this problem in their *Sports Business Journal* article, but it is hard to see how their suggested fixes would stimulate the kind of knowledge spillovers necessary to make DFS as consumer friendly as sports betting. Rather, some of their suggestions look like measures that might motivate a fish to try to play like a shark. But that is something different. While well-intended, such measures might have a counterproductive effect of

increasing the disparity in the marketplace and, at a minimum, are unlikely to produce the degree of field leveling that DFS will need to dramatically increase its consumer friendliness.

This much is clear: Under serious regulatory examination, it is doubtful that the DFS industry will be able to simply repeat the sound-byte "DFS is a game of skill" over and over and hope that sophisticated policymakers go away. Warren Buffet is extraordinarily skilled at successfully speculating on stocks, but this fact has never prompted Congress or the Securities Exchange Commission to deregulate the stock market. Moreover, even if DFS is a game of skill, state legislators and regulators have the power to develop a regulatory scheme for "skill games," such as those recently developed in Nevada and under development in Ohio, Pennsylvania and Iowa.

The stakes are high for investors in DFS.

Most investors in DFS appear to have little experience in the gaming business comparable to the experience of Nevada casinos and sports books. DFS investors will have to educate themselves quickly in order to determine if their business managers are really taking steps that are likely to solve the "sharks vs. fish" paradox or, in the alternative, merely counting on more investor money to fund more advertising to convince more fish to join an inefficient market.

If DFS investors' business managers or regulators cannot solve the "sharks vs. fish" paradox, then DFS might have to become a game that is made available only to sharks willing to enter to hunt other sharks. Commodity laws that limit sophisticated swaps transactions to sophisticated market participants who understand the risk being taken is one example of such a market.

While it is far too early in the business lifecycle of DFS to conclude DFS cannot develop knowledge spillovers or some substitute that provides sufficient consumer friendliness to unsophisticated participants, the difficulty of the task should not be underestimated by anyone. It is not easy to develop knowledge spillovers and efficient markets where

just one variable—the final score of a game—is the basis of highly liquid action. It is many times more difficult to develop knowledge spillovers and efficient markets when 6-to-12 variables—the statistical performances of multiple players in multiple different games—is the basis of such action.

As investors in DFS weigh whether their current business managers are capable of solving the “sharks vs. fish” paradox and bringing efficiency to the DFS market, those investors would be wise to remember that DFS was created by severing DFS from fantasy sports’ roots.

When Daniel Okrent invented fantasy sports in 1980 at the La Rotisserie Francais restaurant in New York City, he did not design fantasy sports to include liquid action. Rather, as this author wrote in 2013 in *Unsure Bet: The Future of Daily Fantasy Exchange Wagering*, Okrent and his friends wanted to act like “real general managers” of “real teams” and were content to put their money at risk on the opening day of the baseball season and wait 6 months to see if their roster moves during the season paid off in a return on the investment.

Like the Oakland A’s General Manager Billy Beane or any personnel director in any other real sport, a traditional fantasy sports participant cannot fire and replace the entire team every day.

Firing and replacing the entire team every day may in fact be the fantasy of a real general manager like Beane, particularly when his team is in last place like Oakland is this year.

But it was not the fantasy Congress was contemplating in 2006 when it exempted traditional, season-long fantasy sports from the federal ban on processing payments on gambling transactions.

If DFS investors cannot increase market efficiency—through regulation or some other industrywide mechanism—to recreate the grassroots consumer friendliness that is the signature characteristic of traditional, season-long fantasy sports, investors will be betting a \$500 million advertising bankroll on the longshot that the DFS market will grow despite its inefficiency.

One does not have to be the sharpest gambler at the table to see that is a risky bet.

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