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Declining Field Size: A Global Issue

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Ms. Jennifer Owen: Biggest challenge facing British racing in recent years. Not only are they unattractive to punters and customers, but they also reflect badly on British racing when compared with other jurisdictions at a time when racing is becoming increasingly an international sport. UK races are being run with fewer horses. In 2004, 50 percent of races had 10 or fewer starters. In 2012 this had risen to 65 percent.

Initiatives outlined by the British Horse Racing Authority in October were a reduction of 170. In the number of races to be run next year, that's a two percent decline over the prior year. No more than seven races per fixture. A trial of the removal of class 4 or below races where four or less runners have been declared. If less than ten entries have been received, races will be nominated at risk. Also, a review of the entry and declarations process to better reduce the frequency of non-runners.

A similar view was recently expressed by Martin Panza, Senior Vice-President of Racing Operations of the New York Racing Association in his address to the annual US Jockey Club Round Table in August of this year. Mr. Panza also highlighted that all of us realize that declining fall crops affect field size, decreasing field size, in turn it negatively impacts handle.

Racing secretaries strive to achieve maximum field size in every race they card. They want to offer playable races. Small fields are unattractive to horse players. Every day racing secretaries walk that fine line of field sizes versus the need to run certain races that may always produce small fields, but are required to sustain the racing program. Mr. Panza outlined several initiatives the New York Racing Association is looking to trial, but I notice he is also a speaker at this forum, so I won't go through them in detail. One of the initiatives he did indicate was better matching the number of races to runners to increase field sizes.

In Australia, John Messara, Chairman of New South Wales Racing on the question of small field sizes in the Australian market flagged a number of factors at work, including more attractive prize money in Asia, local programing conflicts and an overall reduction in racehorse registrations, among a number of other issues. However, some nations are not experiencing this crisis. Let's look at the global picture.

At 2013 measured by turnover, the most important nations from a betting perspective were Japan, Great Britain, Australia, France, the US and Hong Kong, who together accounted for 80 percent of all wagering turnover globally. The trends in these six nations are very different over recent years. In local currency terms since 2006, Hong Kong turnover has increased by 47 percent. Australia and France has risen by 27 and 11 percent respectively. Japan has fallen slightly by three percent. Great Britain and the US have dropped by 13 and 12 percent respectively.

The changes in turnover can partly be explained by economic forces with certain nations more impacted by the GFC than others. Asia and Australia fared fairly well through this period, but France also grew despite a very weak economic backdrop in Europe. It's not just economics driving these trends.

Some nations have simply reigned in the number of races being run. Japan is an example. Others have increased the number of races, Great Britain and France. Although in Great Britain's case, despite falling turnover. This has recently been addressed by Great Britain as outlined earlier. Australia has managed an increase in turnover despite a very slight reduction in field sizes and races run. The Australian market is undergoing a dramatic shift to a more open market. We've seen a massive migration from high takeout pari-mutuel pools to lower takeout fixed out odds bookmaking, and that's partly been driving the turnover growth.

Small and falling fields are correlated with declining betting turnover. Hong Kong has the highest average field sizes of the major racing nations, and has seen spectacular turnover growth since 2006. The US and Great Britain have the smallest average field size and the numbers have declined steadily. The turnover in Great Britain and US has also declined dramatically.

So let's look at the bottom line of the impact of small field sizes. The intention to make a profit drives every stakeholder in the industry, but it is the betting that

provides this opportunity. The punter funds every participant to differing degrees in each market.

Liquidity is critical to attracting betting interest, excluding Hong Kong whose turnover per race is a spectacular US 11 million. Other important racing nations' turnover per race from 2006 to '13 is shown in this chart. It can be seen that turnover per race in the US is the lowest of all major racing nations. Without depth in each pool large punters are deterred from betting.

Reduced betting interests results in lower turnover, thus, and ultimately the attractiveness to punters of betting and owners of investing further in breeding foals for racing. The impact of small fields on turnover is three folds. Small fields affect the win bet, the place bet and exotic bets.

Firstly, the impact on win betting. Analysis undertaken by an Australian researcher covering 196,000 races showed a clear trend of the favorite's chance of winning a race increasing as field sizes fell. In a field of six horses, the favorite's chance of winning was 41 percent. Current data is more difficult to source at this granular level in the US.

However, Arlington Park Race Course very helpfully does have an extensive database on their website. Data analyzed from this course of all races from 2007 to '14 shows similar results, although field sizes of as low as three have been seen at this race course providing an even more dramatic snapshot of the impact of low fields on the favorite's chance to win. With the favorite winning 60 percent of three horse races.

Another Australian researcher analyzed over 20,000 Australian races and also found that there is a clear inverse relationship between win rates and field sizes. He looked at both the impact of handicapping races and the impact of pricing of races. The official handicapping order of a race aims to achieve an even chance for each horse over the race distance by adding weight to the favored runners to equalize the odds. Accordingly, in a field of six runners, the true handicap chance of winning should be 16.7 percent. As the field size increases to say, 15, the theoretical chance of each horse winning falls to 6.7 percent.

However, it was evident from the analysis undertaken by this researcher that the long term win rates for higher weighted horses compared to the official handicapping order were very different. In a field of six, the horse carrying the highest weight still won 24 percent of races, well above the theoretical of 16.7. As a result, the highest weighted horse wins more frequently than expected or than it should.

Further analysis by the same author evaluated the market order. That is how bookmakers and punters rated the likelihood of the top six favored horses against the actual outcome of events of the same number of races. Once again, the evidence was that in a field of six, the favorite wins 42 percent of events, and the

top three rated horses win 89 percent of the time. With the longshots only winning 11 percent of races.

As fields expand the variability of outcomes improves. In a field of 15, the longshots won 32 percent of events. Bigger fields create more betting options and winning chances for punters. We've seen that smaller field sizes significantly increase the win rate of the favorites. The event is less interesting for punters as the profit outcome is lower. Given the increased ease with which favorites are likely to win the event. Low interest in betting results in small win pools, a further disincentive to the large punter who provides liquidity into pools.

Secondly, the impact on place betting. Small fields also result in fewer betting options with bets at times return to punters. In a small field a third placing in a field less than eight is returned at face value to—of the bet resulting in a lost opportunity to the punter of at least a place win, and a lost margin on that place bet to the wagering operator. In Australia, place bets account for 15 percent of all wagering pools.

An example of this is evident in the table shown. Two race meetings are shown with the prices paid from the super tab pool in Australia. In the UK race meeting, no third place was awarded in five of the seven races in the meeting. In addition, the favorite placed third in two races. However, no dividend was paid out given the small field. Similarly disappointing outcomes were seen the US race meeting shown. When punters see small fields lining up for races they are unlikely to bet, given the increased likelihood of the favorite winning, a liquid totalize out of pools, unattractive pricing offered by bookmakers and the odds of their money being returned on place getters.

Thirdly, the impact on exotic betting. We've again analyzed the data available from Arlington Park of all races at that track—or at that course from 2007 to '14. The population is over 7,000 races. In the case of exacta betting, there is a clear linear relationship between field size and payout. Similarly in case of trifecta betting, a clear linear relationship exists.

Further support for the relationship is evident when analyzing collected by the Horse Players Association of North America. This group provides data across all race tracks showing average field size and average pool sizes for each track each year. We've shown the 2013 data. As we are examining the total number of races at each track, the impact of averaging of the data does suppress some underlying trends. However, it is again clear that there is a relationship between pool size and field size for both the standard bet and the exotic bet.

Then using this relationship of field size and pools for both standard and exotic bets in 2013 we were able to undertake a linear regression. This resulted in a total handle of US 11 billion, which is very close to the reported number of 10.9 for last year. This we have some confidence in the regression in that it can be used for simple prediction. Using the regression and holding stats constant at 2013 numbers of 339,490, as we must, as obviously the horse population is the one

thing that can't quickly be changed. We've undertaken a what-if, of increasing or reducing field sizes per race to estimate the impact on handle, given the regression equations.

The 2013 base case is a field size of 7.86, some 43,000 races run and an industry handle of 11 billion. Consolidation of starters into fewer races with the upper band of 10 horses per field indicates an uplift of handle could be possible of the magnitude of 43 percent. Should field sizes contract further to say, six per race, the regression indicates potential downside of 58 percent to industry handle.

The direction, and to some extent, the magnitude of the regression is also supported by evidence of the recent past. The effect of consolidation was also assessed using 2006 data. In that year US turnover was 14.7 billion, some 32 percent above last years. There were 421,000 stats. Dividing these stats into the 43,000 races run last year, field size would have been nine. This data shows the industry position — the industry handle at 2006 at current race numbers, so slightly above our regression line, but certainly consistent with it.

Hence the size of the betting market and the implications for turnover of small fields is clear. The declining fall crop is ominous for field sizes into the future, particularly in the US where the most dramatic declines are being witnessed. As we've seen, turnover declines have been dramatic, and racing needs to respond to improve the competitiveness of the product against a better value and less complex entertainment options.

It is clear that the industry needs to look at a better balance of field sizes, and supply of race horses in order to improve demand for betting. The initiatives which are being evaluated in the UK and suggested by the New York Racing Association appear to be timely. Thank you very much for listening.

[Clapping]

Mr. Jay Privman: Thank you Jennifer very much. As you saw we had a nice overview of whole international scope of things. To now bring things a little more locally to North America. I am going to bring up Ian Tapp who is Managing Editor of the Blood-Horse MarketWatch, and he has a look at foal crops and how that may be impacting things down the line. As well as some other very germane aspects of this topic. Ian.

Mr. Ian Tapp: Alright, so I was asked to come and talk about a lot of the data that's involved with field size and the relating industry metrics and to kinda give a primer from North American perspective, similar to what Jennifer did. At the MarketWatch we have access to data through the Jockey Club, so a lot of the data that you're gonna see — actually, all the data you'll see is sourced from Equineline or the Jockey Club Information Systems. I'll talk about some historical trends over the last several decades and some of the metrics that relate to field size that affect them or are affected by it.

This is a multiyear chart here. You can't really see the top, but this is from 1977 to 2013. The reason we start at 1977 is because that's when the Jockey Club started recording per race data, not just graded stakes, not just stakes. They have—every start is what I looked at. The first metric is full crop, which is the driver of all of these numbers. You see the big — or the shape there tells the story. The big hump there is the boom in the 80s. Then all the way down to where we are today.

There's some important events that happened during this curve. You see the far left there after the rapid increase and during the 70s, Spinthra Farm went public and was traded on the New York Stock Exchange. They had their IPO in December of 1983. Then you see right there at the peak happens to correspond with when Seattle Dancer sold for 13 million dollars at Keeneland, July. Then you have the rapid drop.

A little more recently you see the little divot there around 2002, that's mare reproductive loss syndrome. There was a five percent cut in foal crop to mare abortions. Then of course the global financial crisis of '08 and '09 that's caused this sudden drop in foal crop. We've actually had a declining foal crop in North America for the last nine years.

Also put on that chart the number of unique starters during that time. You notice that that shape of the curve is very similar, it's just a little bit offset. Because the unique starters come from the foals obviously. What's interesting about this is if you look at the MRLS in 2002, that divot, you'll see the same divot, if you will, four years later. When those foals grow up, when they're about three, four, five-years-old, that's when they're really affecting the horse population, the available starters that there are to run in races. Given that four year interval, you can see what we're heading towards in the next several years.

Now following a similar shape, but much more dramatic recently is races. The green line is the number of races run in US and Canada. It tracks the unique starters pretty closely up until the 90s. Then it falls away, and as we'll talk about, that's because horses are making fewer starts each. This is number of race days, so obviously very similar to races. It hasn't declined quite as much cuz it's a bit more insulated due to the fact that it's easier to cancel a race than it is a race day.

The next number is the total starts made by all horses. It's another one that kinda tracks the number of races and race days. The steady decline since 1977 has been the number of starts made per starter. That's actually declined all the way until recently when we've hit this horse shortage, that's finally forced that number back up.

All these metrics, I'm also gonna show you field size. You can guess what kinda trend that's gonna be. When you plot it on this percentage course, you see it's pretty benign looking. It's the flattest of all them. Its percentage changed over the last 37 years has been the least dramatic. As I'll show you later that it's not a benign statistic.

Just to look at a snapshot of 30, 20, 10 years ago. You see that the races per card has decreased, but most of that — actually all that reduction was seen by 2003. We've actually maintained that number. The big factor that's changed is field size. Field size is down 10 percent. You see on the far right its effect on the number of starters per card.

What's interesting, as Jennifer mentioned with her regression analysis, we did some similar regression modeling, and found that if horses were running as frequently as they were running in 1983, 30 years ago, then field size would be roughly nine starters per race or even higher. Of course that's very theoretical, if we fix all of those metrics. Of course, if we suddenly had a field size average above nine, I have a feeling that more races would be written that would cause field size to go back down a little bit.

This is to look at specifically field size. This is since 1990. This is the orange line that looked innocent in the last graph. What's happened over the last 23 years is we've gone from 8.9 starters per race to 7.9 starters per race. We've dropped one horse, which sounds not too bad. Look what happens when you lose one starter in terms of exact permutations. There's an exponential effect going on here, trifectas and superfectas, and you can imagine super high five and pick six and all that. If you lose one horse like that you see that — even within the super, you've lost nearly 50 percent of your possible tickets.

As the last presentation mentioned, this is gonna increase turnover or handle. Look at handle over this same time period there in green. What's interesting about that is that there's really no correlation up until about the year 2000. From 2000 onward there is. That's pretty strongly correlated, about 7.5 is the correlation. What happened around 1999, 2000 was the rise of the ADWs. It's interesting how the correlation kinda picks up right around there.

I mentioned the frequency that horses start. This is — back to 1977 to present. This is the change in the interval or the layoff between races. A horse starts and he — when do we see that horse again. Back in 1977 the average horse started 15 days later. Today, it's 26. The change is even more extreme for specifically the graded stakes horses. Our best horses, back in the late 70s they were on par with the average horse, about 16 days between starts. Today graded stakes horses are taking 35 days on average between starts. That's a five week break on average. This is for horses only that are running back 90 days or less. The Hoss isn't in here, but it's a pretty staggering increase.

Another number we can put in there is given that time between starts is the number of training days. You see how if horses take more time between starts, they require more training. Even if horses are taking fewer starts on average per year. The number of training days is still increased by about 12 percent. I view this as on the left side of the graph, the 30, 25 years ago was when trainers had to rely more on running horses and earning their portion of the purse. Now with more training days, I think there's a shift of the revenue source where now day rate occupies a larger proportion of a trainer's revenue than it did previously.

Here's another snapshot at just the rate 10, 20 and 30 years ago of how starts for starters have changed. That number is pretty low, cuz what I'm doing there is I'm averaging all starters, that includes two-year-olds and horses that mighta just started one time. It's meant to illustrate the declines. You see the 25 percent reduction in the number of starts the average horse makes in a year. A 50 percent increase in the time between starts. Then as we saw in our last graph, the 12 percent increase in training days, despite the fact that they're making fewer starts.

This graph is showing what training looked like in the late 70s and early 80s. What you're looking at is the blue line is non graded stakes horses and when they run back off a layoff. The red line is specifically graded stakes horses. That first blue peak represents non graded stakes horses tended to run back in seven days. That was the mood. Some of them waited an extra week and ran back two weeks or three weeks. The graded stakes horses meanwhile, tended to run back in two weeks, some waited for three weeks.

Now if you look at win percentage, you see across the board the peak in win percentage was for horses that came back in five to seven days. This tells me that late 70s and early 80s in North America, horses that were in racing form that were fit, you wheel them back they're likely to run really well. The farther removed those horses are from their previous race, the lower that win percentage goes. You'll notice around the 35 day mark there's a little increase, so you'll see that in a little bit.

Now flash forward to the most recently completed five years, 2009 to 2013. You see that the horses in blue, that's the non-graded stakes horses, they've moved out to two, three, four weeks. Whereas the graded stakes horses are now peaking at four weeks, five weeks and then six weeks.

Now look at the win percentage for these guys. Other than a few freaks that come back after two or three days and run well, you've got that peak is out there at 35 to 40 days. What's happened here, if you think about some of the top trainers are doing, horse runs in a race. They come back in 9 or 10 days after the race with a breeze. Then the trainer gives 'em two strong works in each of the next two weeks. Then they have a maintenance move about five to seven days before the next start. If you add those up, it's about 35 days. That's the new training program. That's how getting horses to deliver a peak performance off a five-week layoff.

This is the combination of all years, 1977 to 2013. You can see it's a blend of what you just saw. The win percentage shows the fact that horses can wheel back pretty quick and come back in five to seven days. Win percentage goes down until it starts to come back up around that 35 to 40 days mark.

Just going back to that first chart that I showed you. What I think was happening here in the front half of that graph in the 80s is when you had this huge commercial breeding boom, and this glut of horses. What happened is it caused the number of

available horses to go up, so the horse supply increased, which brought races, race days up with it. What's interesting about that is that was to accommodate the higher amount of horses. What was happening during that time is field size went up, but starts per starter went down. That tells me that trainers wanted to run those horses, but they couldn't get into the race cuz the races were full. They were maximizing the field size. It's not like we were at Steeplechase racing and you can run 15 horses in every race. I mean the starting gate has a limit.

I think what happened during that time is trainers started to figure out, "If I'm gonna miss a week, if I'm gonna miss a race, what am I gonna do with my horse? I'm gonna have to train my horse and get him ready to run big the next chance I get." I think this was a shift in how trainers thought about training and racing. This was, I think the motivation to prepare horses for longer periods of time to deliver top efforts. Whereas earlier in the late 70s and 80s the idea was to keep a horse racing and to keep 'em in racing fitness.

Then what happens in the early 90s, when you see the charts for races and race days and total starts start to diverge. Well that's when all those starts kinda came back down to earth. The horse supply returned to normal, and the trainers were now faced with the previous scenario. Trainers have been over the previous ten years, programed to get a horse to deliver their top effort off a little bit of a layoff. Their win percentage had gone up. The number of training days and the day rate is increasing. There was really not much of an incentive for them to go back to the old school ways.

Then you see kinda the reverse of what happened in the 80s in the last five years where field size is moving down, but starts per starter is moving back up. That seems to indicate what's going on with the horse shortage. There comes a point where there's more incentive to run that horse when you've got maybe a race that won't fill and needs that fifth, sixth, seventh horse, and the trainer now has a higher likelihood of picking up a piece of the purse.

This is just to kind of extrapolate a little bit. Like Jennifer said with foal crop, we know what those numbers are. There is nine years of decline. The 2015 foal crop should be slightly larger, the number of mares bred was up by one percent. It appears that we're gonna be plateauing. If you look at this chart, and we can assume or let's imagine that foal crop remains constant and field size remains constant, what would happen? Well the races are gonna down. Race days will have to go down. Total starts will go down until about 2020 when they level off.

Now that's not a forgone conclusion because what can happen of course is field size can change and so can starts per starter. If trainers suddenly decide to continue to run horses more frequently, then that's one of those factors that can cause this curve to turn back upwards. If things remain status quo, this is what we're looking at for the future. It really depends on how trainers are willing to change what they do to get horses to the races. That's it.

[Clapping]

Mr. Jay Privman: Now you've seen what some of the statistical models show for international racing, and also in terms of foal crops in North America going forward. What happens when you're sort of in the trenches trying to get fields up and keep a racing program going? Steve Koch who's the Vice-President of racing at Woodbine is here. Not only does he have the job of getting the racing going every day at Woodbine, but he happens to be kind of a statistical nerd, and in a good way. Because you're gonna see some really interesting data that he's put together on the relationship of field size and handle. I think you'll find it very, very interesting. Steve.

[Clapping]

Mr. Steve Koch: Good morning. It's truly a pleasure to be here today. My task, as I understand it is to share with you the bottom line effects of field size from the viewpoint of the race track executive. I think we can all agree field size enormous impacts on wagering totals, both in the immediate, which race the market today will play, and in the long term, a product's reputation affecting its pricing and distribution opportunities.

Today I concentrate on the more immediate affects, particularly per race wagering total and per race — other per race aspects that coordinated with field size can impact our total wagering returns. We'll begin with what is probably obvious to most of us here today. We know that as field size, the number of separate betting interests in a race increases. The customers will wager more on those races.

This chart indicates an upward moving average in median per race wager as the fields at Woodbine get larger. And at Woodbine, as we add horses to the races, then of course the average of the win odds across all of those horses increases. The total pool is increased. Betters potential for higher returns on their bet increases. I think that's all well and simple, and it's generally accepted as horse race wagering fact.

As Jay said, "Leave it to the academic in me to," to search for more complicated aspects of the field size to the wagering relationship. For years now at Woodbine we've been applying advanced econometric approaches to empirically dissect: why are various races behave as they do when we offer them into the marketplace? I'll spend a bit of time discussing with the room here some analysis on the 2012 full year of racing product at Woodbine.

We apply a multivariate regression approach to statistically model what race input variables do or do not drive wagering on a per race basis. Of those input variables, what magnitude is their impact on per race wagering, especially once we mathematically control for intertwine relationships, or as I like to call it, all else held constant.

Our basic econometric model is per race wagering handle is a function of field size, quality of the runners, surface conditions, various elements of the race conditions,

market timing and some market distribution variables. The data itself has more than its share of structural complications, creating statistical modeling complications, but they're all manageable.

Our leading insight from the regression model for today's discussion is that field size and wagering is not a linear relationship. Every runner we add is indeed a positive, but less of a positive than the one added just prior. To illustrate this, I'll take us back to that original slide. We're increasing fields, yield increasing average handle per race. Then we add this red trend line. This trend line implies a linear relationship where every additional runner has an equal added value to total wagering.

But our more sophisticated analysis clearly yields that the percentage gained from each added horse in Woodbine at 2012 looked more like this. Adding for example, an 8th horse to a seven horse field drives wagering up 10.1 percent on that same race, all else held constant. Adding a 9th horse to an 8 horse field is a slightly lesser, but still wonderful contribution of 8.9 percent more wagering.

I take those percentage values in blue from this chart and I graph them separately here. Hopefully you can visualize now the diminishing marginal yet positive returns of hustling more horses into the races. All else held constant, the race office can yield more of a return on investment for hustling that 7th or 8th horse than for filling out a 14th horse field. That said, again, every horse in the field, every horse is a wagering gain.

I next should acknowledge the accumulative impact that each horse on total wagering. For example, beginning with a field size of eight, and we had a ninth horse for an 8.9 percent gain in wager, that's that red column. Then we add a 10th horse where we gain the diminishing marginal gain of the yellow column, 7.7 percent. A 10 horse field adds 8.9 plus 7.7 percent, totaling to a 16.6 percent gain in handle for having added those two betting interest to the eight horse field. Again, all else held constant.

Here's an alternate view of that same idea. Where I color code the value gains for those two horses, so green plus red, all within that black box yields a 16.6 percent handle gain. All else held constant.

Now that we hopefully understand the idea of diminishing marginal returns per added entry, and we've combined with the evermore valuable cumulative effects of added entries, let's try to realize our foregone wagering opportunities at Woodbine in 2014 due to our short fields. This chart pinpoints a number of races we've run in 2014 at the respective field sizes. I add a quadratic trend line to indicate the rough bell curve of field size distribution through our product this year. Where the average field size lays at the apex of that curve at 8.4 horses per race.

The question we ask is, what did those races run with less than eight horses collectively short us in theoretical wagering? Collectively, if we could go back and add an 8th horse to every 7 horse race, and a 7th plus an 8th for every 6 horse field,

and a 6th and a 7th and a 8th for every 5 horse field and so forth, for all the races run at Woodbine this year. We could theoretically have combined for a total wagering benefit. Or to state it alternatively, our short fields left some theoretical wagering on the table.

It's not all bad news. We also at Woodbine are very fortunate to have plenty of races that run with more than eight horses in a race. Again, if we now back out the diminishing and cumulative returns of all these above average runners, then we can anticipate a combined value add to handle from our above average races.

The diminishing marginal returns indicates an interesting value add opportunity. If we smooth horse supply, so that every race runs at the field size average, so in Woodbine's case, 1,253 horse races run in 2014 would have all run with exactly eight horses. Then we could have theoretically gained on our total wager with the same number of runners.

Now we're gonna shift gears a little bit here. A discussion that many of us have had before is that the competitiveness of a race certainly matters to total wagering. It's an interesting topic, and it's definitely subject to statistically modeling. Our efforts at Woodbine point out that increasing field size statistically accounts for this affect. Now that said, I'd acknowledge that adding a 99 to 1 shot to a field certainly contributes less value than having added a more competitive runner.

Field size, I think we agree is an enormous leading contributor to per race wagering, but it's not everything. The betters clearly reward us for fielding quality runners. Our regression model results indicate that for every $10,000.00 we move up or down the Woodbine purse scale, our wagering on average grows 2.6 percent, all else held constant.

This awareness of the value of quality combined with our better understanding of the field size impacts gives us this very unusual chart. This heat map, if you will, illustrates the quantity versus quality trade-off in Woodbine's overnights race product. We produced this matrix by setting the average field size at the median overnight race condition as our root observation. We then apply the benefits and losses of 2.6 percent per $10,000.00 of purse scale, plus the diminishing marginal returns of field size to all of the respective racing condition combinations. The coloration is somewhat arbitrary, but the idea is that races with similar quality and quantity scores are colored alike.

The daily overriding objective at the race office at Woodbine is to exist in the red as much as possible. Big fields of high quality horses, and exist in the blue almost never, very short fields of low quality horses.

Now here I digress for just a slide, but since we do all this work I figured I'd throw these three points in just very quickly. These are insights taken from our regression models. Off the turf races cost us 10 percent in wagering, even after controlling for all other factors, particularly even after controlling for the lost field size. Betters obviously dislike having to adjust their handicapping and having to

make guesses at how turfers will take to the main track. Staying on the turf saves us 10 percent, plus the field size impact.

Restricted races. In our case the Ontario-Sired restricted conditions. Cost wagering 5.3 percent, all us held constant. The good news with those races is they tend to bring lots of horses out of the barns, so they make up for it a little bit with field size. Quickly, there are very clear market rewards for coordinating post-times for our simulcast partners. Or as this quick chart indicates, it's more about market punishment for when we overlap with post-times.

Finally, I conclude with field size and other factors matter tremendously. We're running low on horses as an industry and the question is what to do? As an industry we have not been quick to historically race-less horses in order to prop up average race quality for out betting customers. Are there solutions available? Yeah, asking our horses to run more often. One reason owners and trainers choose their spots to run so judiciously is that losing a race is very, very expensive, or to put it another way, not winning a race is very expensive.

Perhaps we could adjust win percentages and offer better rewards to the also ran's. Restricted conditions hold us back when those horses can't or won't converge with the open horses to make quality open races go with full bettable fields. At Woodbine we've had some success with purse bonusing those Ontario-Sired runners when they compete in an open race. Then a favorite question of mine is, how can we, the race tracks, actually start partnering to maximize on our respective, but limited horse supplies?

I'm gonna close with a metaphor that I borrowed from an industry mentor of mine. It's like elephants at the watering hole. The elephants are the race track and the watering hole is running dry, that's horse supply. I think us race track elephants are kinda looking at each other a little funny right now, a little cockeyed, wondering who's gonna get that last drink of water. I think we all agree that field size matters. I'll leave us with, what are we going to do about it? Thank you.

[Clapping]

Mr. Jay Privman: Steve, thanks very much. You've heard from three different people on their views of international and national, even, race track issues that people have to deal with in terms of field size and gambling. Let's talk now — or hear from, I should say an end user. Christopher Larmey is the president or Chairman, I should say of the National Handicapping Championship Players Committee. Next month he'll be competing in the NHC for the tenth time. He is a terrific, terrific player. I think it'll be very illustrative to hear what it's like to be an end user, having heard all these other issues. Chris.

[Clapping]

Mr. Christopher Larmey: Thanks. I'm really excited to represent horse players at this gathering of leaders from across the racing industry and from all over the

world. I've met people from New Zealand, Australia, it's really interesting. I'm here to represent the horse players. I thought I'd start out by giving you a little bit of a taste of the horse player and what they're all about.

Have any of you ever seen the movie, *The Color of Money,* starring Paul Newman? Raise your hand if you've seen that movie. If you haven't seen it, it's a great movie. It's about pool players, not horse players, but there's a lot of similarities. Paul Newman plays a character in that movie, Fast Eddie Felson. He has a quote in that movie that I think really sums up the horse player. That quote is—if I can get this to work is, "Money won is twice as sweet as money earned." And ain't that the truth?

If you understand that, you get a lot of insight into the horse player. When I found out I was gonna have this opportunity to talk to you from across the racing industry the first thing I said to myself was, "I need to take my blinkers off and get out of this little world of horse player, and really think bit about the whole industry, so that I could better communicate with you." I'm a math systems kind of guy, and so the easy way for me to do that was to build a model.

That's what I did. I built a simple model of the entire racing industry. I did that by focusing in on the value chain. By the value chain, I mean the places within the industry gets created. All that value eventually gets captured and monetized in some sort of product that gets sold to customers. I built this, and I thought it really helped me establish some context, and I wanna share that with you. Hopefully all of you will see yourself somewhere within this model, and maybe even get a little bit better insight about where you fit into the big picture as well.

I wanted to try to do this—and I don't know if it's gonna be the easiest in this room, but kinda do this together, interactively, build this model. If you can help me out. Feel free to volunteer, suggest what goes into this model. I wanna start in the middle of the model with kinda the foundation of the industry. We wouldn't have an industry without this. What is the foundation of the racing industry, anybody?

Audience Member: The horse.

Mr. Christopher Larmey: Did I hear the horse? Okay, well great. Oh, wow, I love that answer. We're not quite there yet. Really without a horse we wouldn't have anything to bet on. Kinda in the middle of that value chain is the horse. That beautiful creature that we all love. That doesn't really kickoff the value chain. How do we really kick it off for the racing industry, where do those horses come from? Who really kicks the value chain off?

Audience Member: The breeders.

Mr. Christopher Larmey: The breeders, right. They're the ones who make that initial investment. They breed the horses. They raise those horses. Do we have any breeders in the audience or past breeders? Congratulations, you're kicking off

the value chain, you get things going. What comes next? Breeders breed these horses. Who makes that next big investment in the value chain? The owners, right, they're the ones who buy the horses with these dreams of riches and glory.

Do we have any owners or previous owners out there? Great. You're creating a value in the racing industry. You buy these horses and it's really a raw talent. What do you do next? What's the next step? The next thing you're gonna do with this raw talent?

Audience Member: Hire a trainer.

Mr. Christopher Larmey: You're gonna hire an expert we call a trainer who takes that raw talent. They develop it into a tremendous running machine. It's that incredible athlete that we just love to watch perform, the racehorse. Do we have trainers, any trainers or former trainers? Wow, great. You're creating value for the racing industry. Now we've got these running machines. They're expertly trained. We have big investment. Now, what do we need to make them go? What's the next link in the chain? Our racetrack, before that? Who operates this running machine?

Audience Member: Jockey.

Mr. Christopher Larmey: The jockeys, right. We hire these skilled athletes to operate these tremendous running machines. Do we have any jockeys or ex-jockeys in the audience? No. Well they're probably all busy riding horses. They're definitely creating value within the industry. Here we've got these running machines that are expertly trained, expertly operated. They're all revved up, no place to go. What's next in the value chain, what do we need?

Audience Member: The racetrack.

Mr. Christopher Larmey: This is easy. Right, the racetracks. They make that big investment in the storefront of the industry in terms of bricks and mortar tracks and in today's modern world it's an online presence, ADWs. We've got this—this room is full of people involved in managing and operating tracks and ADWs. All of you again, you're creating value for the industry.

Here's where it gets interesting. Remember, all that value, all these stakeholders are creating this value. We've gotta monetize it. We have to capture that in a product. What is the primary product of the racing industry, where do we capture that value? Any ideas, what's the primary product?

Audience Member: The race.

Mr. Christopher Larmey: A race. Anything else? Any other ideas, that's a good one, a race. Let's talk about a race. Who in the audience has ever bought a race? Raise your hand if you've ever bought a race? I don't see any—if I were to go to the track and ask somebody, "Where do I go to buy the fifth race?" What sort of

response would I get? They would probably think I'm crazy, call security or something. I don't think a race is really the primary product. Think about it, what is it that's being bought and sold right now as we speak all over the world at tracks and ADWs, what's being bought and sold?

Audience Member: Betting opportunities.

Mr. Christopher Larmey: Right, it's a wager. A wager is the primary product. That's where we have to capture that value. It has to be value as perceived by the primary customer. Who's that primary customer? Anybody?

Audience Member: The horse player.

Mr. Chris Larmey: The horse player. That's why I'm here. Horse players. They're the primary customer of all this value. It's captured in that wager. It makes sense that all these stakeholders would benefit from a better understanding of what value is perceived by the horse player. That's what I'm gonna talk about now, is horse players and what they value. I'm supposed to represent all horse players, that's really hard to do. Just like it would be hard to represent every owner or every track operator. I mean horse players come in every shape, color, size imaginable.

I'm gonna simplify it and divide them into two basic groups and types. I think most horse players fall into one or the other, some straddle both. If you have insight into what motivates both types, I think you'll have some real insight into the horse player.

The first type I'm gonna start with is recreational player, and by the title you can guess for these folks it's a hobby, it's entertainment. What really attracts to them to racing is the challenge of handicapping a race. I know that's what brought me into the game initially. It's looking at every race as a handicapping puzzle that you wanna solve. Once you solve it you back it up with a bet. When you're right you cash it in. That's fun. It's addictive. As Harvey Pack once famously said, "It's the most fun you can have with the lights on."

The most fun of all is when you figure out a really challenging handicapping puzzle. One that maybe nobody else or few others solve, and you back your opinion up with a wager and you make a big score. The kind that you can brag about over a beer with your friends after the races, maybe for years, sometimes for the rest of your life. I mean that's what the recreational horse player is in it for.

Let's kinda contrast that with the other type, I'm calling the professional. By that title you can kinda guess for them it's a job. Believe it or not they actually make their living betting on horse races. They do that using sophisticated ways of uncovering inefficiencies in betting pools. That's in economics term, in gambling lingo, they're looking for the edge. They wanna leverage that edge as much as they can with big wagers. Even though they're just a small fraction of the horse playing population, they're a big part of the wagering pools.

They're really out to grind out a long-term profit. That's what they're all about. They're more like a hedge fund manager than a racing fan. You can see the two types very different motivations, very different motivations. Now the question is how does field size play into this?

That's right, I'm finally get to the topic of this panel session. Some of you were probably wondering if I was ever going to get to it. I'm ready to do it. I wanted to set some context before I jumped right in. Let's talk about that. Some of the other panel members have already hinted at that and kinda showed you some actual data to back it up. I wanna kinda talk to you why, why is that horse players are affected by field size.

Let's look at first of all, the recreational player. It's really two main reasons. One is that small fields are just boring races to handicap. They're not a very challenging puzzle. How many of you have ever done any kind of puzzle, crossword puzzle, Sudoku or like my wife, she plays those brain teaser games on her iPhone that supposedly make you smarter. I mean how many of you have ever played—done any kinda puzzle like that? Raise your hand if you've done that. Most of you have. You understand when you first start out, you start out at the beginning level and you play a few of those. Pretty soon they get pretty boring. You're ready to move onto something more challenging.

It's the same in handicapping horse races. Those six horse fields are beginning level puzzles. Once you've done a few of those, you're bored. You're gonna skip right over those and look for something more interesting. On top of that, the smaller fields, they tend to lead to smaller payouts. We saw some dramatic examples of that earlier. You don't have much of a chance for a big score on a small field.

I think the best way to understand the horse player here, Andrew Byer, the famous horse player wrote several books on racing. Has anybody ever heard of Andrew Beyer, read his books? In fact, he may have been a speaker at one of these symposiums in the past. He had a book called *The Winning Horseplayer*. He talks about in that book those moments when he has just solved a really complicated handicapping puzzle, one that very few others solved. He backed it up with a bet. Then he made that big score. He says in those moments he just wants to raise his fists up and just shut out, "I'm kind of the world." It's that king of the world feeling that the recreational horse player craves. That's what brings them to the races. That's what they really are looking for.

I have a little bit of math to back that up. I think you've seen enough charts, and we've talked about how mathematically you can see the complexity goes up as field size goes up. That's the recreational horse player.

What about the pros? Their motivations were very different. Do they care about field size? Well you bet. It's for different reasons. There really are two main reasons. First of all, the smaller fields for them, they tend to generate the smaller

wagering pools. Again, we saw charts showing that. The wagering pools are smaller in those smaller field sizes. Why do the pros care about that? Well it's because of the pari-mutuel nature of betting.

Remember, they're looking — where they come up with these betting edges and they wanna leverage 'em with a big bet. Well in peri-mutuel wagering, every dollar you bet into your edge reduces your edge. If you're on a big wagering pool with a big field, every dollar you bet only reduces your edge by a little bit, so you can get a lot of profit from that race. In a smaller field, every dollar you bet has a lot bigger effect on the amount of the edge going away. You can make less profit on those races.

On top of that, the smaller fields also tend to produce fewer inefficiencies, the public makes fewer mistakes. When you look at a smaller field, they may not even be able to find any sort of betting edge. If they do, it tends to be small. In the bigger fields they have a better chance of finding those inefficiencies and they tend to be bigger. They can make a lot more money on those bigger fields.

Probably the best way to think about the professional player is they've got a toolbox, and their biggest tool—their favorite tool is a big bet, big wager. That's their hammer. They're going around lookin for something to hammer. What do you wanna hammer? You wanna hammer a nail. What's the nail to a pro, it's that betting edge. In a small field, small pool race, they might find some little—tiny little nail, and they-they gotta be careful cuz they gotta just tap on that because if they hit it too hard they end up smashing their own thumb. The edge is gone. On a big field they might find all kinds of nails, they can just hammer away and pound out a big profit. For the pros, even though the motivation is different, field size really matters to them as well.

Just to quickly summarize, to wrap it up. The primary product from that value chain that gets created, it gets captured in a wager. The primary customer is the horse player. Really, for long-term, sustainable success in the industry, we need to understand really what is value as it's captured in that wager, what's the value to the horse player? In that value equation, size matters. It really makes a difference for the recreational players, that handicapping challenge, the chance for a big score. Field size has a big impact.

For the pros who are really trying to get that long-term profit and hammer out with big wagers, hammer out profits, that field size really matters. We saw dramatically what the impact is on the bottom line. This hopefully gave you a little insight as to why, and maybe some ideas about how you can make a difference in terms of appealing to the horse player. We're running short, and I'll just finish up right there.

Mr. Jay Privman: Thank you.

[Clapping]

Doug, do we have time to field some question from the audience for a few minutes? We do have a little bit of extra time, so there are a couple of microphones as you can see in the center aisle here. If you have questions for our four panelists, please come up and identify yourself and ask them. You've heard a lot of diverging views, and I think a lot of interesting stuff here. There's certainly, I think, things that can be followed up on if you wish, so don't be bashful. Bueller, Bueller, anyone? Here we go. Yes, a brave soul.

Mr. Dan Fick: I — I think I understood all the metrics that I heard, but is there the end result possible — excuse me, if we reduce the number of races and race days and increase field size with the same pool of horses, that we can actually increase the handle?

Mr. Jay Privman: Dan, who would you like to have come up and address that?

Mr. Dan Fick: Whoever feels best, maybe Steve with what you're seeing in Woodbine.

Mr. Jay Privman: Steve, would you come up here? Steve.

Mr. Steve Koch: Don't go far, cuz I wanna make sure I understood the question. The question is if we reduce the number of races, we can bolster field size with fewer races. Finish that question for me, I'm sorry.

Mr. Dan Fick: The question is we've got a limited pool of horses.

Mr. Steve Koch: Yes sir.

Mr. Dan Fick: Instead of running 10 races with 8 horses, we ran 8 races with 10 horses or if we limited — I think I heard they're doing in England, no more than a certain number of horses per race. If we tried to maximize our field sizes with the existing pool of horses, can we actually increase wagering?

Mr. Steve Koch: Yeah, it's a benefit cost. Somewhere you move along the curve, and you reach a breaking point where you go too far or not far enough. If you're adding horses and you know what — if you can anticipate what percentage gain you have in your wager, then if you know that percentage gain is going to be enough then there are races that you can give up and therefore have a net positive outcome. I'd have to go back and do some figuring to come up with some scenarios. Theoretically, yes.

Mr. Jay Privman: Any other follow-ups please?

Audience Member: This question is for Chris. Can you speak to Steve's point from the handicappers perspective on what's going through your head when you see a lower purse or a lower quality race, and how there might not be as much edge there as in a graded stakes or a higher quality race?

Mr. Christopher Larmey: Can you repeat it just for a second? You said what's the difference with the higher quality race? I didn't quite —

Audience Member: From the handicappers perspective. I mean it's pretty true that lower quality races, lower purse amounts, you're gonna expect lower handle there. I was just wondering from the handicapper's perspective what's going through your head when you see these races with lower purses and why is that turning you off?

Mr. Chris Larmey: I think for most horse players that play on a regular basis, that isn't as big of a deal. I think what is probably driving that, and this is purely speculation, is that the bigger races like the Woodbine Mile, the big day they have at Woodbine. That brings in more casual fans. That's what jacks the handle up more than horse players playing the higher quality races.

Although, I do think there are certain races where the runners, and I don't wanna pick on any horses, but like a restricted maiden claiming low bottom rung race where all the horses in the race have run 20 times and have never won, where the handicapping appeal diminishes a little bit.

I think it's more of the real high end races pull in casual fans and help the handle. The really bad races probably turn off even the regular horse players. That's kinda what I think is driving that. I'm just guessing though. For me, I don't look at the purse at all. That really doesn't factor into it. I'm more interested just in the size of the field and how competitive the race is. Even if it's cheap horses, if it's a competitive race, a handicapping challenge, that's just as interesting for the most part as a higher class race. I think it's more of you bring in more of the casual fans in the higher tier races. I might be wrong.

Mr. Steve Koch: No, no, I'm not here to argue. The first thing I should make very clear, cuz that was the danger in that slide. We're just using purse at Woodbine. Across the period where this particular model is looking, it's a period of static purses, they're not moving. We were able to use purses as the proxy for upward or downward moving race quality per race. We are looking at the quality of the horses, meaning a 10,000 claim versus a 25 or 50,000 claimer versus some allowance horse moving up into the stakes.

First of all, just remember that we are trying to proxy quality of horses. Then just to add to — I agree with what was just said. That's absolutely true. There's enormous benefits there when you're truly on your game as a racetrack and we're running our Woodbine Mile and everybody's paying attention and it's a great day and we blow the handle numbers right through the roof.

As you go down through the pyramid of horse supply and the types of races you run, there is, to my mind a certain form-fullness of the horses. I think we get rewarded for that, at least at Woodbine. That's what you're seeing as I'm talking about that 2.6 percent of wagering as you move up $10,000.00 on the purse scale.

Audience Member: Steve, don't go anywhere. Two questions. One, you talk about a 10 percent decline in handle when a race goes from the — is off the turf. How much of that is saved in your estimation at Woodbine by moving to a synthetic surface, and have you had any numbers to compare to when you're going — if it's grained off from the turf to a dirt surface?

Mr. Steve Koch: That question, we can sit here and talk about that one 'til noon tomorrow. Let's go about it like this. At Woodbine since 2006 we've had the poly track, and I can say that we've had wonderful results with the conversion of turf runners to the main track. That's been a great benefit for us. There's financial return on that.

Audience Member: Second question would be along the lines of when you're hustling a race to either go 6 to 7, 7 to 8, have you done the data to determine the horse that you hustle, if he's 80 to 1 or higher or pick an odds versus a real contender in the race? Obviously, if you're hustling a horse, maybe he wasn't gonna — his connections didn't feel he was gonna be a contender in the race anyway, and while you're increasing the number, he may not be a contender or she may not be a contender?

Mr. Steve Koch: What happens is the smaller your field size is, the more likely you are to have — well what you really have is a prohibitive favorite, which can therefore on the other end cause the — perhaps a longer shot. It would be true, we can agree with each other. That's kind of a different approach in that model, and there's ways to go about it. Doing it on a per race basis like I was approaching it, it's really just captured in that field size variable statistically. There would be ways to go about that, but I don't have that model to speak to today.

Audience Member: Thanks.

Mr. Jay Privman: I think we have time for one more before we wrap things up. Yes sir, please?

Mr. Nathan Hyland: I was born into a racing family, so I kinda know the training side of it. When is the purse structure and the cost of ownership brought into how the — you brought up the value chain, there is a chain of value. How do we show the value that the racetracks bring cuz trainers have to figure out, what track do I bring my horses to to provide the best value for my owners? You have to factor that in as well. Where does the cost of ownership and the purse structure — has the purse structure raised over the years based on the cost of ownership?

Another thing too is, now we're facing where trainers are — they're the face of the industry. They're the ones running the horses. They get the fault if anything goes wrong with those horses and their training schedule. Do you think that has a factor in the number of starts per horse in their barns as well?

Mr. Jay Privman: Who would you like to answer this question please?

Mr. Nathan Hyland: Anyone.

Mr. Jay Privman: I think you're up again Steve.

[Laughter]

Mr. Steve Koch: Okay, so that's a lotta question. Let's back up and go one at a time. Hit me with your first one again?

Mr. Nathan Hyland: You have the value chain. Trainers have to go where there's the most value, where their horses are gonna be competitive, which provides the most value for their owners. Also, there's the cost of ownership, have they rose based on the cost of ownership for the owners so that they find value in actually having horses?

Mr. Steve Koch: As a racetrack manager, I'm always hoping to raise purses because I'm gonna use that as a recruiting tool to get you and your horses at my racetrack. Have the increased? Sometimes they increase, sometimes bad things happen in the industry and they go down also. Increasing purses is always a good thing, but we don't just — purses aren't a unilateral or arbitrary device. There's business realities that drive purses. That outcome is what sets you're racing for on a daily basis.

Are purses set with respect to, oh, there's a higher cost of operating here versus there? Ideally, but really it's a number of other factors that are causing purses.

Mr. Nathan Hyland: Also the image question, trainers are the image and the owners and the jockeys. Does that factor in now more so than it used to when — they're training and their performance schedule?

Mr. Steve Koch: Yeah, you're kinda getting in — perhaps what the next panel might get into. You're talking about ways to get me to run my horse more often.

Mr. Nathan Hyland: You have a certain image. If your horse breaks down, it's on that trainer, on that owner, on that one person. It's not on the racetrack, it's not on —

Mr. Steve Koch: Well to be fair, they love — we as the industry we blame the track, we blame everything else too.

Mr. Nathan Hyland: Well yeah, but I mean when you're the trainer you're the face of that horse. You have to take — you take the most of it because they're in your care. I'm wondering is that more so now, now you have more of a public eye, social media, all those things, that it can spread across the news faster? Do trainers feel the pressure on their training schedule of their horses because of that?

Mr. Steve Koch: At Woodbine we put enormous effort into running — and I'm talking about across our industry and Ontario, it's the horsemen, it's the regulators,

it's the racetrack. All of us cohesively and combined are putting enough effort into make sure that horses don't break down. The trick is the Achilles heel for the whole industry. Now we're getting into a whole new area of issues here. The Achilles heel for the whole industry is every time that horse breaks down, and rightfully so perhaps.

The trick is we need to make those breakdowns go away as a factor at the industry. Yeah, absolutely, when a horse breaks down that can put us out of business long-term. We at Woodbine, I'm sure at any other track wants that to be minimized.

Mr. Jay Privman: Thanks Steve again, very much. Thank you for paying attention. Please again show your appreciation for Jennifer, Ian, Steve and Chris.

[Clapping]

We're gonna have a very brief break right now just to reset the state for our next panel, which is gonna be more of a round table, so don't wander off too far cuz we're gonna start pretty quickly. Thank you again.

[Music playing]