The Commonwealth of Massachusetts

Office of the Inspector General

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The Honorable Steven Grossman
State Treasurer
State House, Room 227
Boston, MA 02133

Dear Treasurer Grossman:

At your request, my office conducted a review of the Massachusetts State Lottery's Cash WinFall game and issues involving high-volume betting by syndicates or betting clubs. In particular, you asked us to examine whether Lottery personnel took actions to give advantages to these organizations, either by providing internal information to select players about betting patterns or by withholding information from the public about estimated jackpots, and to otherwise review the administration of the game by the Lottery. Our review found no evidence of misuse of information by Lottery officials.

My staff reviewed thousands of documents and interviewed relevant Lottery employees. We also interviewed principal members of the most active high-volume betting groups.

This review found that:

- high-volume betting began in 2005, the year after the game was introduced;
- high-volume bettors recognized and took advantage of the unique pay-out structure of the game, making about two-thirds of all bets in advance of drawings when the Cash WinFall jackpot would hit $2 million;
- the Lottery failed at the outset of Cash WinFall to establish an adequate set of rules tailored to the unique characteristics of the game and aimed at managing high-volume betting;
- the Lottery was inconsistent about enforcing the rules it did have on the books;
- the Lottery was slow in responding to enforcement challenges linked to episodic high-volume betting;
- Lottery officials were aware in 2010 and possibly earlier that bettors were operating Lottery terminals, players were not present during transactions and some agents were processing bets when those agents' businesses were closed to the public. These practices facilitated some – but not all – of the high-volume

betting undertaken by a handful of syndicates and individuals, beginning in 2005. During most of the game's history, many of these practices were not identified as violating the Lottery's rules or regulations.

Then, in 2011, the *Boston Globe* started investigating Cash WinFall and its high-volume bettors. Paul Sternburg, the Lottery's executive director, said that as the Globe was preparing its story, his instructions from Treasurer Grossman were simple, "Do everything by the book."

As a result, Lottery officials promulgated new interpretations of existing rules and stepped up enforcement with the intent of shutting down the high-volume bettors. That marked an about-face for the Lottery, which for years had benefited from high-volume betting on Cash WinFall.

This review will explain in detail below how the high-volume betting was conducted and how the Lottery profited from it.

Our analysis of the Cash WinFall game found:

- high-volume betting was allowed and encouraged because it provided a financial benefit to the state;
- the high-volume betting did not adversely affect other players' odds of having a winning ticket;
- no evidence that any Lottery officials engaged in collusion with respect to Cash WinFall.

Cash WinFall had a unique feature: if the jackpot hit $2 million and no one matched all six numbers, the money in the jackpot was distributed to lower tier prize winners in what the Lottery called a "roll-down." The Lottery publicizes jackpot estimates for its games. As detailed below, predicting when Cash WinFall's jackpot would hit the roll-down threshold was more of an art than a science.

Our review of the 44 roll-downs only found one instance during which the Lottery failed to correctly forecast that the jackpot would reach $2 million before the next drawing, to the detriment of ordinary bettors. This failure enabled one high-volume betting syndicate to virtually monopolize the prizes paid out during one 2010 drawing; however, our review concludes that this event did not involve malfeasance by Lottery officials. Instead, a high-volume syndicate took advantage of a perceived vulnerability in the Lottery's system of calculating and reporting estimated jackpots. Following this instance, the Lottery instituted changes that successfully prevented it from reoccurring. This episode will be explained in detail below.

<u>Background</u>

The Massachusetts Lottery launched Cash WinFall in September 2004. Cash WinFall was an "on-line" game, as distinct from "instant games" featuring scratch tickets. The game was exclusive to Massachusetts, meaning it was not one of the multi-state games such as Powerball. Tickets were sold at thousands of in-state retail locations through terminals connected to the Lottery's computer system. Each $2 bet entitled a Cash WinFall customer to pick six numbers between 1 and 46, hoping to match the six numbers selected randomly during Monday and Thursday night drawings.

The game was created in-house by Lottery personnel and modeled on a Michigan State Lottery game called Winfall. The Michigan game had high-volume betting syndicates, one of which became active in Massachusetts' Cash WinFall game after the Michigan game ended.

The Lottery designed Cash WinFall to pay out 60 cents of every dollar wagered, leaving 40 cents for the Lottery to run its own operations and distribute to cities and towns in the form of local aid. Like all Lottery games, Cash WinFall was designed to make money and the more Cash WinFall tickets the Lottery sold, the more money the Lottery made.

Cash WinFall had a minimum jackpot of $500,000. In order to win the jackpot, a customer needed all six numbers on his ticket to match all six of the numbered balls that drop out of the bin during a drawing. (The probability of matching all six numbers was one in 9,366,819.) The game also offered smaller prizes: $4,000 for matching five out of six numbers; $150 for matching four out of six; $5 for matching three of six; and a free $2 bet for matching two of the drawn numbers.

Like all Lottery games, the odds of matching some – rather than all – of the winning numbers were much better. For instance, odds of matching five of the six numbers was about 39,000 to one, according to the odds published on the Lottery's website during the game. That's still a long shot on a single $2 ticket but within reach if you're able to buy in bulk.

Because the probability of matching all six numbers is one in 9,366,819, the jackpot was rarely claimed. It happened only 10 times in 769 drawings. In most on-line games, when there are no winners of the jackpot, the jackpot is carried over to the next drawing, with a portion of the new wagers being added to it. As long as no one matches all six numbers, the jackpot prize continues to grow.

However, Cash WinFall had a feature that distinguished it from other on-line games: the jackpot was capped at $2 million. If the jackpot reached $2 million and no one matched all six numbers, the money in the jackpot was distributed among the lower tier prizes for that drawing. The Lottery referred to this as a "roll-down" and it dramatically boosted payouts for lower tier prizes.

Cash WinFall replaced Mass Millions, a game that lost players when it didn't produce a single jackpot winner in 2003. The Cash WinFall roll-downs were designed to generate excitement and ticket sales even if no one ever won the jackpot, and it worked. The roll-downs were a topic of conversation on online forums like lotterypost.com and players flocked to Cash WinFall whenever the Lottery predicted a roll-down. With Cash WinFall, the Lottery replaced the disappointment of a drawing with no jackpot winner with the excitement of lots of mini-jackpots.

Here's how a typical roll-down worked. The drawing held at 11:20 p.m. on Feb. 4, 2010 had a jackpot of $1,631,236. No one matched all six numbers so the jackpot pool was carried over for the next drawing. By 6:06 the next morning the Lottery had estimated the Cash WinFall jackpot for the Feb. 8 drawing at $2 million, meaning bettors could expect a roll-down provided no one matched all six numbers and claimed the entire jackpot.

As was typical for drawings with anticipated roll-downs, wagering was heavy – more than $2.5 million in sales over four days. By the time betting stopped at 10:45 p.m. on Feb. 8, the jackpot easily topped $2 million. And like 98.6 percent of the drawings, no one hit the jackpot. As a result, that money rolled down to the next three lower prize levels using a formula developed by the Lottery when it created the game in 2004.

Of the $2.4 million in the Feb. 8 jackpot, 26 percent – about $633,383 – went to boost the payout for those matching five out of six numbers. Instead of receiving the standard $4,000 prize, holders of the 35 tickets matching five out of six numbers received $22,096 – the $4,000 standard payout plus a 1/35th share of the $633,383 in roll-down money dedicated to this tier.

Similarly, 47 percent of the $2.4 million – about $1,158,000 – was used to enhance the prize for those matching four out of six numbers. Holders of the 1,761 tickets matching four of six numbers received $807.52, instead of the standard payout of $150. For those matching three out of six numbers, about 27 percent of the jackpot – $652,000 – rolled down to increase the payout. Lottery records show there were 29,832 tickets matching three of six numbers. Each one was worth $26.85 instead of the standard $5 prize. Lottery records also indicate that just over 209,000 tickets matched two of the six numbers drawn, entitling the holder to a free $2 bet.

Because of the enhanced prizes, a Cash WinFall wager during a roll-down drawing became, in a statistical sense, a good bet. Here's why: the rules of Cash WinFall guaranteed that every time the jackpot reached $2 million the jackpot would be paid out to that drawing's bettors. For instance, on Feb. 8, no one won the jackpot but $2,970,119 was paid out in lower tier prizes. By design the big payouts make a roll-down drawing the best time to play Cash WinFall.

In every roll-down drawing in the game's history, for every $1 wagered, there was $1.15 (or usually more) sitting in the Cash WinFall prize pool to be shared among that drawing's ticket holders. In that sense, every ticket was worth more than it cost. A person could make $1.15 for every $1 he bet – a 15 percent profit – simply by getting what the statistical probabilities say should be the average share. The most practical way to do that is to buy a large number of tickets. The chart below illustrates how the change in prize amounts affects the statistical value of a ticket. For the sake of illustration, the chart includes columns showing projected outcomes for someone who bought 200,000 tickets.

Match	Probability	Standard Prize	Roll-down Prize on Feb. 8, 2010	Number (rounded) of winning tickets expected out of 200,000 purchased	Expected winnings out of 200,000 tickets purchased
5 of 6	1 in 39,028.41	$4,000	$22,096	5	$110,480
4 of 6	1 in 800.58	$150	$807.52	250	$201,880
3 of 6	1 in 47.40	$5	$26.85	4219	$113,280
2 of 6	1 in 6.83	Free bet	--	29,283	--
					Total = $425,640

Taking the figures from the chart, a person who spent $400,000 to buy 200,000 Cash WinFall tickets for the Feb. 8, 2010 drawing could reasonably expect to have cash winnings of $425,640, based on statistical probabilities. The actual outcome could be quite different, but statistically this person has a 50 percent chance of winning $425,640 or more in cash prizes from this drawing.

In addition, this person could expect to win 29,283 free $2 bets. (Lottery rules prohibit an agent from paying a player in cash rather than providing a free bet; however, these free bets could save the bettor $58,566 on a future roll-down.) In short, a bettor whose results exactly matched the odds would show a cash profit of 12.8 percent on this drawing and have 29,283 free bets for the next drawing. If the bettor used those free bets for the next roll-down drawing, he would have to spend only $341,434 for 200,000 tickets. Assuming the next drawing had the same payouts, his or her cash profit would be $84,206 – almost 25 percent – with 29,283 in free bets to use in the future.

Of course, there was always a risk that someone else will match all six numbers, claiming the jackpot, pre-empting the roll-down and leaving the lower tier prize levels unchanged. In that case, the $400,000 bettor could reasonably expect to win $78,595 in cash along with 29,283 free $2 bets – losing about two-thirds of his wager. In the game’s history, the jackpot reached $2 million 45 times. Only once – on July 10, 2008 – did someone match all six numbers and win the $2 million jackpot. Every other time, the $2 million jackpot rolled down into the lower tier prizes.

Predicting a Roll-down

The Lottery’s IT department regularly predicts an estimated jackpot for each of its on-line games. The estimates combine the actual jackpot money rolled over from the previous drawing and the expected sales for the next drawing. The need to predict expected sales over several days that might include a sales-dampening snowstorm or hurricane makes estimating jackpots more of an art than a science.

For most Lottery games precise estimates just aren't that important. No one is going to complain if the estimated jackpot for MegaBucks is $1.6 million but the actual jackpot is $2.1 million. For Cash WinFall, getting the estimate right is crucial.

In addition, since a $2 million jackpot changes the structure of the game, every time the Lottery predicted a roll-down sales jumped.

The Lottery was well aware of the trickiness of predicting Cash WinFall jackpots. When the game debuted in September 2004, they did not publicize their internal jackpot estimates. Instead, they gave every Lottery agent a Cash WinFall jackpot alert sign with an arrow that could point to Low, Medium or High chances of a roll-down.

If internal protections estimated a jackpot between $500,000 and $900,000, the Lottery sent a bulletin to agents telling them to set the pointer to Low; $1 million to $1.4 million was Medium. If the Lottery's IT department expected a jackpot of $1.5 million or more, agents were told to set the pointer to High.

But both players and agents wanted more information, so soon the Lottery started posting Cash WinFall jackpot estimates on its website. Some of the work was done by computer. For instance, the IT department quickly developed a spreadsheet, the Cash WinFall Estimated Jackpot Calculator, to do the basic math. Later, in December 2005, they started using the share_calc computer program to develop the estimates. But there was always a human element.

For instance, on Friday, Feb. 4, 2005, the IT department posted a $2 million jackpot estimate on the Lottery website for the drawing on Monday, Feb. 7, 2005. Then it sent an email to the promotions department, "Whatever you can do to get the word out, would be a good idea. Although the estimated jackpot is 2 million, it's VERY close – close enough so that it actually might not make it…."

The Lottery didn't know that high-volume bettors were about to jump into Cash WinFall and all but guarantee that a $2 million estimated jackpot would trigger a roll-down.

High-volume bettors

Despite the risk of someone claiming the jackpot, when the game was poised for a roll-down Cash WinFall became a game in which the odds and prospective payouts combined to make each ticket's potential value slightly more than its $2 price. People around the state – and as far away as Michigan – took advantage of this feature and found ways to profit from it.

The OIG interviewed the principals of four betting groups that collectively were responsible for wagering more than $40 million on Cash WinFall tickets – and generating $16 million in Lottery revenue. The core of their strategies was essentially to purchase a large enough number of tickets so that the overall results could be counted on to approximate the game's probabilities.

The MIT Group

In January 2005, James M. Harvey was about to start his final semester at the Massachusetts Institute of Technology. Looking for an interesting independent study project for his last term, he considered a project evaluating the Lottery games Powerball and MegaMillions to determine which was more advantageous from the player's perspective. While researching Powerball and MegaMillions, he also reviewed other Lottery games for comparison. That was when he began looking at Cash WinFall and noticed its unique "roll-down" feature.

In an interview, Mr. Harvey said that it took him only a few days to determine that it was possible to make a profit playing Cash WinFall. He did research, ran calculations and talked to friends in his MIT dorm, Random Hall.

Among other things, Mr. Harvey went to Lottery headquarters in Braintree and asked for the agency's administrative bulletins for Cash WinFall. Although no one could locate the administrative bulletins, he was able to meet with a Lottery official who was very familiar with the technical aspects of the game. That conversation bolstered Mr. Harvey's own analysis: during a roll-down, each ticket is worth more than it costs.

Back at Random Hall, Mr. Harvey embarked on two projects: drumming up interest in a party to watch the Feb. 6 Super Bowl and organizing a betting pool to play the next Cash WinFall roll-down, which he expected to occur the next day – Feb. 7. He didn't generate much enthusiasm for watching the New England Patriots play for the championship, but his analysis of Cash WinFall had broader appeal. About 50 people each put $20 into Mr. Harvey's lottery pool for the Feb. 7, 2005 roll-down.

Mr. Harvey and members of the MIT group bought 500 tickets at nearby retailers. One of those tickets matched four of the six winning numbers, paying $2,364. Together with some three out of six matches, Mr. Harvey's group had turned $1,000 into about $3,000.

When Mr. Harvey and a fellow MIT alumnus, Yuran Lu, incorporated their betting enterprise in 2010, they named it Random Strategies Investments LLC in honor of the dorm where the Cash WinFall plan was launched.

According to Mr. Harvey, word circulated on the MIT campus about Cash WinFall and others formed similar betting pools that semester, as many as six. Other than Mr. Harvey's, none of the MIT groups seems to have lasted very long or grown very large.

The $3,000 in winnings from the Feb. 7, 2005 roll-down drawing remained invested in the pool for future roll-downs. Upon graduation, some members of the MIT group invested additional money in the pool. Mr. Harvey and his colleagues ramped up their ticket purchases as quickly as funds allowed, to the point where they could buy 300,000 tickets for each roll-down drawing.

Mr. Harvey said his calculations determined that in general buying about 300,000 tickets was the best strategy. However, he varied the number of tickets purchased for particular roll-downs based on several factors: the amount required to push the jackpot up to $2 million, estimates of how much other groups would bet, and even weather forecasts. As long as the sets of numbers were chosen so that winning combinations were well distributed across the range of possible outcomes – and as long as no one hit the jackpot – Mr. Harvey could be virtually certain he and his investors would make a profit.

Even when the MIT group had enough money to purchase 300,000 tickets for a drawing, its ticket buying was limited by other factors. One constraint was simply getting enough ticket slips filled out. Mr. Harvey developed a computer program that would generate sets of numbers that would provide an optimal distribution across the range of possible drawing results. Under Lottery rules, betting slips can't be computer generated so the group had to fill out betting slips by hand – oval by oval – to match each set of numbers generated by Mr. Harvey's computer program. Simply filling out the betting slips was time-consuming. However, the betting slips could be reused so that once the slips had been created, Mr. Harvey and his friends did not have to repeat that part of the operation.

Another constraint was locating stores that would handle large volume purchases. Many retail outlets balked at processing tickets on the scale that the MIT group and other high-volume bettors were seeking. Handling 10,000 tickets, including scanning in the slip with the requested numbers, could easily take several hours. Many store managers objected to having a staff member monopolized for long stretches. Although retail stores make a 5 percent commission on Lottery sales, tying up a clerk for hours at the lottery terminal could interfere with other store operations.

In addition, the MIT group, like other high-volume bettors, invariably had thousands of "free bets" to redeem from prior drawings. The store clerk is required to do twice as much work to process a free bet. First, the agent must scan the earlier ticket to redeem the free bet and then scan the betting slip. In addition, the store only gets a 1 percent commission – 2 cents – on a free bet redemption because it is considered a claimed prize, not a new sale. In Mr. Harvey's words, "it was really a grind."

Over time, Mr. Harvey said the group found a handful of retail Lottery agents – a Texaco station and a White Hen Pantry in Belmont, a convenience store in Back Bay across the Charles River from MIT, and a Mobil station in Amesbury – that would process the group's large orders accurately. The MIT group used these four locations over and over again.

Other factors could also slow Random Strategies down. If the weather was humid, the ticket machines were more likely to jam. If a terminal was running low on ink, it could take several tries to redeem a winning ticket. Once, a power outage in the Belmont and Cambridge area interrupted the group's pre-roll-down ticket buying.

Identifying the winning tickets was also time-consuming. Mr. Harvey wouldn't describe his ticket-sorting operation in detail, saying his system was proprietary. He did reveal that he kept records showing the panels of six-number sets played in each drawing so that as soon as the numbers were announced he could quickly know how many winners the group held at each prize level. He also said he has storage boxes filled with millions of losing Cash WinFall tickets to present to auditors. Mr. Harvey said state and federal tax authorities have audited his group almost every year since they started playing Cash WinFall.

Tax compliance was also a headache for high-volume bettors. Every time Random Strategies turned in a batch of winning tickets, the Lottery generated a W-2G for every member of the group. Even small investors in the MIT group – for example, someone who won $800 over the course of a year – would get dozens of W-2Gs every year and have to spend hours accounting for their winnings on their tax returns. The hassle prompted some people to cash out and leave the investment pool, Mr. Harvey said. The tax hassle was one reason that the MIT group, which began with 40 to 50 people, dropped to a couple dozen participants in the years after graduation and ended with 10 members at the conclusion of Cash WinFall earlier this year.

For Mr. Harvey, operating the Cash WinFall investment pool was a nearly full-time occupation during the group's seven-year participation in the game. It also involved substantial time commitments from two or three other members of the MIT group. Mr. Harvey did other engineering projects on the side when his schedule permitted, but refining the calculations, filling out betting slips, organizing ticket purchases, claiming prizes and keeping track of the group's business records was time-consuming work.

It was also a lucrative enterprise. Mr. Harvey said the MIT group wagered between $17 million and $18 million on Cash WinFall. He declined to disclose what its profits were. The OIG estimated that the MIT group made at least $3.5 million before taxes, assuming that it had profits before taxes of a minimum of 20 percent during its seven-year participation in the game.

The rewards of his participation in Cash WinFall have not dramatically changed Mr. Harvey's lifestyle. Mr. Harvey said that when he began playing Cash WinFall, his car was a 1995 Chevrolet Corsica which he had purchased for $500 at a government auction. As the MIT group became successful at Cash WinFall, he upgraded his ride to a high-mileage 1999 Nissan Altima.

The Michigan Group

Gerald Selbee is the principal of another group of bettors that wagered heavily in anticipation of roll-down drawings. Mr. Selbee is a longtime resident in Michigan, attending college and graduate school there, studying business and mathematics. Following school, he went into business and for about 17 years operated a retail store, which was an outlet for the Michigan lottery.

In January 2003, the Michigan lottery kicked off a game called Winfall, the inspiration for Massachusetts' Cash WinFall. The Michigan game had the same roll-down feature once the jackpot reached $5 million. Mr. Selbee said using his mathematics training he determined that the payouts during drawings with a roll-down gave players a statistical likelihood of making a profit. As a result, he formed an investment club to take advantage of this.

In a telephone interview, Mr. Selbee said his lottery betting group, operating under the name of G S Investment Strategies, included 32 people, 20 of whom were relatives. The group played the Michigan game for about two years. After Michigan officials ended the game in May 2005, one of the members of Mr. Selbee's group, a former Bay State resident living in northern Michigan, told Mr. Selbee that the Massachusetts Lottery had launched a similar game. Mr. Selbee said he did some calculations to account for differences between the games. (Michigan's game involved picking six numbers out of 49 with a $5 million jackpot, Massachusetts' was six out of 46 with $2 million jackpot.) Mr. Selbee said he calculated that the probability of someone hitting the jackpot was less than 10 percent and that roll-down payouts more than offset that risk.

Mr. Selbee and his wife, Marjorie, drove to Massachusetts to find stores where they could buy Cash WinFall tickets in large numbers. They looked for stores doing very little Lottery business because when other customers wanted to bet, they would have to interrupt their purchases. They found two stores in the Pioneer Valley that met their needs – Billy's Beverage in Sunderland and Jerry's Place in Deerfield. The owners became members of G S Investment Strategies, Mr. Selbee said.

On August 29, 2005, GS Investment Strategies played Cash WinFall for the first time. The Selbees bought 60,000 tickets for that drawing and made a 45 percent profit from their $120,000 wager, Mr. Selbee said. The Michigan group put their winnings back into the game and over the next few roll-down drawings increased their pool until they were able to consistently place 312,000 bets, made up of new wagers and redeemed "free bets" from prior drawings. Mr. Selbee considered 312,000 a statistical sweet spot for the game. On July 14, 2011, the Mighigan group placed their largest bet ever $720,000 – or 360,000 tickets. After that, the *Boston Globe* published a story about the high-volume Cash WinFall bettors. In the wake of the story, the Lottery made it harder to buy tickets in large numbers.

Unlike the MIT group and other high-volume bettors, Mr. Selbee's Michigan group relied on Quic Pics, a system that allows the Lottery's computer to randomly choose the numbers on each betting slip.

Mr. Selbee said using Quic Pics saved time by allowing him to skip two steps – filling out each bet slip and scanning each one through the machine. In exchange for speed, Mr. Selbee's system had two weaknesses: he wasn't sure of a broad distribution across the range of possible combinations and he invariably played duplicates.

These weaknesses showed in his results. For example, because the odds of matching five out of six numbers in Cash WinFall are one in 39,000, every time Mr. Selbee bought 312,000 tickets, he could expect to have eight tickets matching five of the six numbers drawn. However, for one drawing he had only three match-fives. For another drawing, he had 13. (Unfortunately for Mr. Selbee's group, the drawing for which he had 13 match-fives – July 10, 2008 – was the only instance in which a bettor matched all six numbers when the jackpot hit $2 million, pre-empting a roll-down. The MIT group and the Michigan group lost hundreds of thousands of dollars on this drawing. The jackpot was won by a third high-volume betting group, which will be described below.)

While Mr. Selbee's use of Quic Pics saved some time, he did not have shortcuts when it came to collecting his group's winnings. Mr. Selbee said he and his wife sorted the tickets by hand into winners and losers. This process – visually inspecting approximately 60,000 paper betting slips, each with five panels of six-number bets printed on them – took days. Mr. Selbee said he and his wife would cull the winning tickets while still in Massachusetts and then drive the losing tickets back to Michigan where they would sort through the losing tickets again because they invariably missed some winners. He said he and his wife spent 10 hours per day for 10 days examining the losing tickets a second time.

Like Random Strategies, G S Investment Strategies has been audited several times – at least twice by the Internal Revenue Service and at least three times by the Massachusetts Department of Revenue. Although none of the auditors has asked to examine the losing tickets, Mr. Selbee has bins full of millions of losing tickets sitting in storage just in case.

Although publicity about the large betting groups has been negative and encouraged the Lottery to shut down Cash WinFall, Mr. Selbee believes he was playing the game the way the Lottery intended it to be played.

Cash WinFall "was an invitation for large clubs to form," because the odds on a roll-down drawing made buying large numbers of tickets profitable.

The Lottery benefited substantially from the large betting groups. Nearly every time the jackpot reached $1.7 million, the high-volume bettors would come in and buy hundreds of thousands of tickets. Net sales of Cash WinFall tickets would typically be more than $2 million for a projected roll-down drawing, most of it from betting clubs like Mr. Selbee's. The Lottery takes its 40 percent cut from each ticket, leaving the rest for prizes. Mr. Selbee estimated that the Lottery made $18 million from the high-volume bettors on Cash WinFall.

He also said that for about six years, the jackpot would go up about $75,000 from one drawing to the next, until the jackpot reached about $1.7 million. Then heavy wagering by the betting clubs pushed the jackpot over the $2 million threshold in three or four days. Without the high-volume bettors, the Lottery would have had one or two fewer roll-downs every year and a corresponding drop in income, he said.

The Boston University/Northeastern Groups

Dr. Ying Zhang earned a Ph.D. in 2003 from the Boston University School of Medicine and was a biomedical researcher in Boston in 2005 when he started wagering on Cash WinFall. In telephone interviews, Dr. Zhang said that he became a high-volume bettor by accident.

In 2005, Dr. Zhang was having an ongoing discussion with friends about the Lottery, with Dr. Zhang taking the view that it offered poor odds and was a tax mainly on poor people. To bolster his argument, he began analyzing the Massachusetts Lottery's various games. But when he got to Cash WinFall, he was shocked to find that during roll-down drawings the odds were in the bettor's favor.

"I told everyone I met, 'You should put more money into this game'," Dr. Zhang said. He talked to several friends about forming a betting club. While some weren't interested, others were and the Doctor Zhang Lottery Club Limited Partnership was formed.

The group's first roll-down drawing was in 2005 when it wagered $100,000. Dr. Zhang said it took two months to fill in the ovals on all of the group's betting slips. Dr. Zhang said his group quickly ramped up its purchases to about $300,000 per roll-down drawing. He later went as high as $500,000. Most of the ticket purchases were made at S & A Convenience on Hancock Street in Quincy, close to where Dr. Zhang lived at the time.

Dr. Zhang said the group made steady profits from Cash WinFall from the beginning, just as his calculations had suggested. In 2006, he left his biomedical research job and did not pursue full-time work again until recently. He focused mainly on Cash WinFall, refining his analysis and updating his data with each new drawing.

Dr. Zhang said that as other betting groups formed and established ones increased their purchases, profit margins shrank. In 2004 and 2005, the number of tickets purchased for a roll-down never exceeded 950,000 and was often under 600,000. That generally meant fewer match-threes, -fours, and -fives sharing the roll-down. That, in turn, meant higher payouts to the winners. For example, for the Feb. 7, 2005 drawing, there were only 470,000 tickets sold. Only seven of them matched five of six numbers. With so few people splitting the portion of the pool set aside for match-fives, each ticket holder won $83,604. A match-four paid $2,364 and a match-three paid $77.

By 2007, the Lottery sold between 1.2 million and 1.4 million tickets for nearly every roll-down drawing, with Dr. Zhang and other high-volume bettors making the bulk of the wagers. At that point, the payouts on roll-downs were split among a larger number of winning tickets. As a result, the payouts dropped to about one-third the size they had been during the game's first year of operation. From 2007 on, with few exceptions, a match-five paid between $19,000 and $28,000, a match-four paid around $900 and a match-three paid about $27. The game had settled into a pattern in which the profit margin for roll-down drawings was about 15 percent by Dr. Zhang's calculations. (Mr. Selbee put the margin slightly higher, at between 17 and 21 percent before taxes.) With the risk of someone hitting the jackpot at 12 percent and the profit margin down to 15 percent, Dr. Zhang made some changes in 2007. He shut down the betting club and, operating solo, began scaling back his purchases. He stopped buying tickets altogether last year.

However, some people who had been in Dr. Zhang's lottery group until he shut it down simply carried on without him and made up for his reduced ticket buying.

Wennan Xiong, a woman who had been part of Dr. Zhang's betting group until he shut it down, also talked to the OIG. Like Dr. Zhang, she has a biomedical background and she worked as a research scientist at Northeastern University. Ms. Xiong said that when Dr. Zhang shut down his pool, members of the group decided to continue. The group then had to find new stores that would handle ticket purchases in large numbers during roll-downs. "Some stores won't do it," she said. Lottery records show the group placed most of its wagers at Lee's 1 Market in Brighton, Lee's 2 Market in Allston, and Dyer Discount Liquors in Watertown. Ms. Xiong said the member of the group who was most knowledgeable about mathematics and strategy was in China and difficult to contact.

On July 10, 2008, the group to which Ms. Xiong belonged and which was a successor of sorts to Dr. Zhang's Lottery Club, won the $2 million jackpot in what would have been a roll-down drawing. It was the only instance in the game's seven year history when someone matched all six numbers in a drawing when the jackpot reached $2 million. Mr. Harvey, Mr. Selbee and Dr. Zhang all lost hundreds of thousands of dollars because the roll-down never materialized.

Like Mr. Harvey and Mr. Selbee, Dr. Zhang said he has held onto his losing tickets, which number in the millions. He had first stored them in boxes in his attic. But when his ceiling started to crack under the weight of his growing ticket collection, he promptly moved the ticket boxes to the garage. He said he has been audited at least twice by the state Department of Revenue.

Like Mr. Selbee, Dr. Zhang said the high volume bettors helped the Lottery. He said that Cash WinFall's design encourages even the biggest winners – the high-volume bettors – to keep plowing their money back into the game in future drawings, with the Lottery taking its 40 percent cut. Winners of Powerball or MegaMillions jackpots, by contrast, do not recycle the bulk of their winnings back into Lottery games, he said. "The Lottery is the largest winner from Cash WinFall," he said.

Dr. Zhang also said that if Cash WinFall had been allowed to continue, eventually high-volume betting groups would have disappeared. In the game's last years, the number of tickets sold in the run-up to a projected roll-down was so high that the payouts had to be shared more widely. As a result, the statistical profit margin was typically about 15 percent or so, meaning someone who bet $200,000 on a roll-down could expect to have $230,000 in prize winnings. Balanced against the prospect of making a $30,000 profit is the risk of someone else hitting the jackpot, in which case the $200,000 bettor stood to lose two-thirds of his money.

Dr. Zhang said this is what led him to reduce his Cash WinFall wagering and eventually stop participating completely. By his reckoning, if ticket buying increased a modest amount, the profit margin would drop below the risk. At that point, Cash WinFall would become unattractive as an “investment,” which is how high-volume bettors looked at the game. If the game maintained this low-profit or no profit profile for a few drawings, betting groups would respond by either dropping out or reducing their buying. Replacing their ticket sales would be smaller scale customers attracted by the fact that Cash WinFall is the most bettor-friendly Lottery game in the country. He added that the attention focused on the game by the *Boston Globe* articles last year would have hastened this process.

Controversial drawings

The *Boston Globe* articles described anomalies with and controversies over two particular drawings. The OIG examined the circumstances of each one.

August 16, 2010 Drawing

The August 16, 2010 drawing was a one-of-a-kind event in the history of Cash WinFall when a single high-volume betting syndicate, the MIT group, took the Lottery, the other syndicates and everyone else by surprise. They single-handedly bought enough tickets to push the jackpot to $2 million, triggering a roll-down that no one else was expecting and that was never announced to bettors on the Lottery website. As a result, the MIT group virtually monopolized the winnings from this drawing.

Mr. Harvey told the OIG he and his partners had been preparing for this for a long time. In 2008, the Lottery finally provided Mr. Harvey with the “administrative bulletins” on Cash WinFall, documents he requested back in 2005. These provided him with more detailed technical information about the game, its rules and its payout formulas. This data didn’t alter the group’s operations but it did give them a higher degree of confidence in their decision-making.

Having studied the game intently for years, the MIT group knew that if a jackpot hit $1.6 million without a winner, the Lottery’s website almost always posted a $2 million estimated jackpot for the next drawing. That’s when the high-volume bettors jumped in, anticipating a roll-down. But if the jackpot was under $1.6 million, the Lottery’s estimated jackpot for the next drawing was well under $2 million almost every time, so the big bettors held off wagering. Mr. Harvey and his group were looking for a jackpot that was under $1.6 million so that the Lottery didn’t project a roll-down for the following drawing, but still high enough that they could buy enough tickets to trigger a roll-down.

For the plan to work, the MIT group also needed something else: several hundred thousand more betting slips. To single-handedly push a $1.6 million jackpot over the $2 million threshold, the MIT group would have to double the amount it wagered. Instead of buying 300,000 tickets or so, Mr. Harvey said they needed about 700,000 tickets. That in turn meant filling in about 2 million ovals on another 400,000 betting slips. “It took us about a year to ramp up to it,” Mr. Harvey said.

No one won the $1,592,432 jackpot for the drawing on Aug. 12, 2010. The next morning, the Lottery posted its estimated jackpot for the Aug. 16 drawing: $1,675,000. That amount was calculated based on a number of factors, a primary one being historical betting patterns. Estimated jackpots are generated on an automated basis by the Lottery’s computer although they can be overridden by the agency’s technical staff.

This was the opportunity the MIT group had been planning for. With the other high-volume bettors on the sidelines believing Cash WinFall was still one or two drawings away from a roll-down, Mr. Harvey and his partners went into action. Over the next three-and-a-half days, they bought about 700,000 tickets from their usual retailers. The group was placing a big bet, but Mr. Harvey said he wasn’t very worried about someone hitting the jackpot. Of every eight tickets sold for the Aug. 16 drawing, the MIT group would be sitting on seven of them. Mr. Harvey said his primary fear had been that the Lottery would change the estimated jackpot posted on its website, alerting other groups that a roll-down was expected in time for them to jump in. “We had no idea if the Lottery would update their projection,” he said. The Lottery didn’t change their estimate and the drawing proceeded as the MIT group had expected. Shortly after the drawing, the Lottery posted the results. No one won the jackpot so $2,128,979 rolled down.

Lottery records show that the MIT group claimed 18 of the 21 match-five $30,282 prizes, or $545,076. Of the 1,002 tickets sold that matched four of the numbers, the MIT group cashed in 868 of them, or $1,003,408. Because match-threes and match-twos can be redeemed at any Lottery agent, it’s impossible to say how many the MIT group had. Based on its winning percentages in the higher tiers, it’s likely that the MIT group had at least 15,000 match-three winners, each worth $37, as well as 105,000 match-twos, worth about $210,000 in future free bets. In total, on its $1.4 million wager, the MIT group made a $700,000 cash profit.

Mr. Selbee, in his interview with the OIG and in comments reported in the *Boston Globe*, said that Lottery officials must have known in the days leading up to the Aug. 16, 2010 drawing that large numbers of tickets were being bought. He added that Lottery officials should have detected the MIT group’s heavy betting and informed the public by changing its estimated jackpot to signal a likely roll-down. By not doing so, Mr. Selbee said, the Lottery aided the MIT group at the expense of all other prospective bettors.

The OIG interviewed Lottery personnel and reviewed internal Lottery records in light of Mr. Selbee’s comments. It is true that people at the Lottery had access to information that four retail outlets – the four typically used by the MIT group – were selling huge numbers of tickets. In fact, certain Lottery personnel would have been notified in advance of unusually heavy wagering activity. Lottery rules state that in order to exceed $5,000 in wagers per day, retailers must contact the Lottery to obtain a waiver of the limit. The limit is in place to keep agents – often small convenience stores – from racking up huge debts to the Lottery. Often, before granting the waiver, officials required the store to prove it has sufficient funds in the bank to pay the Lottery. Stores patronized by high-volume bettors often complied by producing a copy of the cashier's check with which the high-volume bettor is paying the store.

In the case of the Aug. 16, 2010 drawing, the four agents where the MIT group was buying its tickets contacted the Lottery's Finance Department for waivers, which were granted. One store provided a facsimile of a $100,000 cashier's check to the Lottery's Operations Department. However, that information stayed in the Finance Department, which at that point in the game's history had no role in predicting games' estimated jackpots. The Lottery's information technology division runs the website and generates the jackpot estimates. The IT department was not notified about the waivers or the cashier's check. As a result, staff in the technology division never adjusted the estimate and they were just as surprised as Mr. Selbee to see a roll-down.

Based on our review of internal emails provided by the Lottery, there is nothing to suggest anyone at the Lottery was helping the MIT group. Every indication is that the Lottery was institutionally surprised by the roll-down and there was no effort or intent to withhold information from the public.

In the aftermath of the unexpected Aug. 16, 2010 roll-down, there was a flurry of internal emails as Lottery staff took stock of what happened. The information technology department immediately installed new software programming to prevent a repeat of the surprise roll-down. The following is an email between two top technology department managers on Aug. 18:

> *FYI. Michigan guys decided last Friday to push CW jackpot over $2 mill. They started buying Friday. Finance upped limits for 4 terminals, but told no one. Ops got a copy of $100K cashier's check (?) but told no one. So…$2mill was reached and jackpot not hit so rolled down Monday night. BUT, public never knew jackpot was going to roll – estimated jackpot stayed at $1,675,000 for public. Payouts slightly higher for Michigan guys. So, new script will notify us if high sales…so jackpot alert can be sent to agents for all players to have chance.*

The author of the email was incorrect about who had pushed the roll-down, mistakenly attributing it to Mr. Selbee's group. But the email does illustrate why the high-volume betting, while known to some inside the Lottery, failed to prompt an update to Cash WinFall's estimated jackpot.

In fact, in 2005 when IT department was developing the share_calc computer program it used for Cash Winfall jackpot estimates, they thought about the possibility of a forced roll-down. They did a risk analysis and determined that $1.7 million was the tipping point. In order to increase the jackpot from $1.7 million to $2 million, a player would have to buy $1 million worth of tickets. Assuming that player was using Quic Pics, he could spend $10 for five bets in three seconds or $200 a minute. That would require a minimum of 83 hours to buy 500,000 tickets and spend the $1 million needed to force a roll-down. The IT department concluded that that couldn’t be done.

The MIT group did the same analysis regarding the time, effort and operational logistics of forcing a roll-down. They concluded that it could be done, and that the potential reward was worth the risk of trying.

Dec. 27, 2010 Drawing

In the run-up to the Dec. 27, 2010 drawing, the MIT group attempted to repeat their strategy and again began buying tickets in huge numbers, apparently hoping to generate a surprise roll-down as the group had done four months earlier. In this instance, they were unsuccessful because the Lottery had put in place an early warning system; however, Mr. Selbee voiced complaints in the *Boston Globe* and to the OIG that the Lottery was slow in responding to the MIT group’s actions.

No one had won the $1,586,207 jackpot for the Dec. 23, 2010 drawing. Early the next morning, the Lottery posted its estimated jackpot – $1,675,000 – for the drawing to be held on Dec. 27. This was a reasonable estimate. The $1,585,207 jackpot being carried over to the next drawing was below the level at which the high-volume bettors usually jumped in. Also, one of the days leading up to the Dec. 27 drawing was Christmas, a time when many retailers, including Lottery agents, are closed for business. That factor could keep Cash WinFall sales down.

While the Lottery’s estimate fell short of the roll-down threshold, the Michigan group was determined not to be caught by surprise again. Mr. Selbee said, “Our agents would call the Lottery and inquire whether retailers had substantially increased” their sales limits. If they had, that would indicate someone was trying to push the jackpot over the $2 million mark. In the case of the Dec. 27 drawing, “we were ready if we had to be,” Mr. Selbee said. Paul Mardas, the owner of Billy’s Beverage and a member of the Michigan betting group, called Lottery headquarters on Dec. 24 to find out if anyone was selling large numbers of tickets. Mr. Selbee said he is not sure to whom Mr. Mardas spoke, but he learned five retailers had substantially increased their sales limits. The Michigan group immediately kicked off their own effort. Mr. Selbee said that he was disadvantaged by being several hours behind whoever started buying tickets that morning.

Records show that at 11:36 a.m. on Dec. 24, Lottery chief of staff Alfred J. Grazioso Jr. received an email from his administrative assistant stating “Cash WinFall guys are trying to make it roll again.” It appears she was passing along a message received from Paul

Mandeville, a top official in the Lottery's technology department. The Lottery did not immediately raise its estimated jackpot until the early morning hours of Dec. 25. However, it was reasonable for the Lottery to wait to make the change. When Mr. Mandeville alerted Mr. Grazioso to the potential problem, he only knew that several Lottery agents had asked the Finance Department to increase their sales limits; he didn't know whether the agents would actually sell the tickets and wanted to wait until the Lottery's calculations could be based one day's worth of actual sales. (Several years earlier, the Lottery posted an estimated jackpot of $2 million when officials knew it might not reach that threshold. Sales for that drawing in 2006 were heavy but fell short of triggering a roll-down, a mistake Lottery officials wanted to avoid.) The Lottery updated its estimated jackpot as part of its end of day processing, which begins after the last Keno drawing at 1 a.m. – even on Christmas Day.

Once the change was posted on the Lottery's website, messages were sent to all retailers every three hours alerting them to the new estimated jackpot. Messages were also posted on all Keno monitors.

Lottery records show that the two stores that participated in Mr. Selbee's betting operation each sold about 155,000 Cash WinFall tickets for the Dec. 27, 2010 drawing, including about 30,000 each on Dec. 24. The Michigan group was able to buy the number of tickets it customarily bought for an expected roll-down drawing. It does not appear that Mr. Selbee's group was at a measurable disadvantage for this drawing. Others appear not to have begun betting until after the Lottery changed the estimate. S&A Convenience, where Dr. Zhang typically bought his tickets, only recorded about 22,000 tickets sold while the stores used by Ms. Xiong's group recorded about 100,000 in ticket sales. While their betting activity might have been affected, neither individual complained about the Dec. 27, 2010 drawing.

In comments to a Lottery investigator as well as interviews with the OIG and the *Boston Globe,* Mr. Selbee raised another issue related to this drawing. He said that a man he believed to be one of Mr. Harvey's partners, Yuran Lu, knocked on the door of Jerry's Place on Christmas Day. The store was closed but Mr. Selbee was busy at the Lottery terminal buying some of the 45,000 tickets he purchased that day. Mr. Selbee said the conversation was very brief but he got the impression Mr. Lu wanted the two groups to "collude" in some way, possibly by taking turns on participating in roll-downs. Mr. Selbee said he quickly rebuffed Mr. Lu, so quickly in fact that Mr. Lu never got a chance to explain the purpose of his Christmas Day visit.

The OIG asked Mr. Harvey about this episode. Mr. Harvey said that Mr. Lu did go to Jerry's Place on Christmas Day. He said he did not know exactly what Mr. Lu's intent was in making the trip. Mr. Harvey said the two groups had a mutual interest in ensuring there would be a roll-down while avoiding excessive betting that would put the jackpot well over $2 million. He said his group would not have been interested in taking turns on roll-downs.

Violations of Lottery rules

As the *Boston Globe* was reporting its first story on Cash WinFall, the Lottery suspended the licenses of the seven agents most often used by the MIT, Michigan and Boston University/Northeastern betting clubs. Lottery officials told the *Boston Globe* that the stores were suspended for violating game rules and Lottery policy. The Inspector General's examination of the Lottery's internal documents tells a slightly different story.

That story, like the high-volume betting clubs, begins in 2005. By May 2005, the IT department had noticed that on roll-down weeks certain stores were selling a disproportionate number of Cash WinFall tickets and that their customers were claiming many of the winners. The Lottery began tracking the activity of those stores.

Then, on July 12, 2005, a manager at the Star Market in Cambridge called the Lottery with an odd question. An MIT student had asked permission to buy $28,000 worth of Cash WinFall tickets for the July 14, 2005 drawing and she didn't know what to tell him. The question went to the Lottery's Compliance Unit. A compliance officer told the Star Market manager that as long as the student bought Quic Pics or filled out the bet slips by hand, there was no problem with accepting a big bet. However, he said, "Lottery regulations specifically prohibited the use of mechanical, computer generated or any other method of marking betting slips."

That regulation is clearly stated in 961 CMR 2.52 (2)(a)(2), which says that all bets must be placed using official Lottery betting slips.

The jackpot estimate for July 14, 2005 was $2 million and MIT wasn't the only group making bulk buys in anticipation of a roll-down. The same week, the Finance Department alerted the Compliance Unit to the fact that a dozen Lottery agents had requested substantial increases in their Cash WinFall limits for the Thursday drawing. Oddly, the stores requesting waivers included three in Quincy within walking distance of each other and a fourth a stone's throw away in Weymouth.

The Lottery sent compliance officers to the four South Shore stores, where they found Lottery agents scanning stacks of computerized betting slips into the ISYS Lottery terminal. This was a clear violation of 961 CMR 2.52 (2)(a)(2), the same regulation the Compliance officer relied on in his conversation with the manager at Star Market.

At S&A Convenience in Quincy the compliance officers found the "most concerning" situation "because unlike the other three locations visited, the player left the betting slips with the clerk to be scanned into the ISYS terminal ***before*** he had paid for them." The agent told the compliance officers that she expected the player to come back later in the evening to pick up and pay for his bets.

"We advised the clerk to cease processing the bets immediately and provided her with a copy of the regulations," the compliance officers wrote in a memo to Brian Taylor, the chief of compliance, Mr. Mandeville, the head of the IT department, and the Lottery's general counsel, Charles McIntyre.

The compliance officers' advice relied on an existing Lottery regulation, 961 CMR 2.52 (1)(b), that says that in order for a bet to be valid it must be "Paid for in full at the time and place the bet is placed." And, according to their memo, they handed the Lottery agent at S&A a copy of the Lottery regulations before they left the store.

In the wake of the South Shore store visits, Mr. McIntryre wrote a memo that was distributed to any Lottery agent that sought an increase in their Cash WinFall limits, which read, in part, "Be advised that you are required to adhere to the following rules and regulations if you are to process a large number of transactions."

The memo highlighted the two rules the compliance officers relied on in their dealings with S&A Convenience and the other South Shore agents. First, agents are not allowed to extend credit to any player, and second, betting slips that are filled out electronically are not valid.

The memo also added a third requirement, specifically targeted at the high-volume bettors, "You are not allowed to keep another player waiting more than three (3) minutes during the processing of a large number of wagers."

The 3-minute-rule was an outgrowth of 961 CMR 2.35, which allowed the Lottery to set betting limits "in order to provide each Lottery customer with an equal opportunity to place bet(s)."

Mr. McIntyre's letter added a corollary to the requirement that players use only official Lottery betting slips: "the party placing the large wager must be present during all MSLC transactions." Although this requirement does not specifically appear in the Lottery's regulations, Lottery officials told the Inspector General that requiring the player to be present was a common-sense extension of the other regulations governing valid bets at 961 CMR 2.52.

It is worth noting that although all four South Shore agents were violating at least one of these rules, none of the four had their licenses suspended. They were simply reminded of the rules and told they needed to follow them.

Also worth noting is that in November 2005 – after a reader sent a complaint saying MIT students were using computer-generated betting slips to play Cash WinFall at a White Hen Pantry in Belmont to the Boston Herald news tip email address – the Lottery sent a letter saying it intended to revoke White Hen Pantry's license for violating 961 CMR 2.61(2)(a)(2), which prohibits the use of computerized betting slips. However, the Lottery never moved forward with a suspension or revocation.

In the fall of 2005, the Lottery learned of another Cash WinFall problem: 23 Lottery agents were paying out $2 in cash to their customers who won free bets. The Cash

WinFall free bet prize was designed to keep players involved in the game. By handing out cash in place of a free bet, those agents were costing the Lottery money.

"As a result of violating the Cash WinFall rules and regulations, each agent was visited and giving [sic] a warning that any future activity of paying cash for "frees bets" [sic] would result in their Lottery account being charged for the full amount of the cash value of the violation," read a memo describing the problem and its solution.

Again, none of the 23 agents was suspended for violating the written rules of the game.

All along the Lottery was keeping an eye on the high-volume bettors and the agents they frequented. In April 2010, compliance officer John Marino visited Billy's Beverage and Jerry's Place, the two agents preferred by the Michigan Group.

"I spent some time observing the wagering routine" at the two stores, Mr. Marino wrote in an April 14, 2010 email to Mr. Taylor. "Everything is very organized and runs smoothly."

Mr. Marino wrote that three days before a roll-down, both Billy's and Jerry's start wagering at 5 a.m. and continue until 12:30 a.m. The Michigan Group's schedule is the same the next day and the Cash Winfall betting usually ends around 3:30 p.m. the day of the drawing. Mr. Marino also wrote that if another customer wants to place a bet, the process is interrupted and the customer is served.

"I expressed my concern to the agents of the image that this high volume wagering projects to customers in the store. The answer that customers are given (if anyone asks) is that these bets are from a club of many people and if a customer gets too inquisitive I was told that the wagering stops for a while," Mr. Marino wrote. He also noted that both Lottery agents are members of the Michigan Club.

Mr. Taylor forwarded Mr. Marino's email to Mark Cavanagh, the Lottery's then executive director, Mr. Grazioso, Mr. McIntyre, Mr. Mandeville, and Mr. Mandeville's top deputy, Guy Calabrese, with the note, "Thanks, John, nice job as usual."

The Lottery provided the Inspector General with an electronic database of all the emails mentioning Cash WinFall in 2010 and 2011. There was no substantive emailed response to Marino's description of the wagering routine at Billy's and Jerry's. In fact, the only response was a joke, "How do I become a member of the club when I retire?" one recipient asked Mr. Taylor.

In February 2011, the Lottery installed a second ISYS betting terminal at Billy's. In March 2011, Jerry's, too, got a second machine. Both agents, according to Marino's April 2010 email had relatively low Lottery traffic – other than the Michigan Club.

The Lottery's attitude towards the betting clubs and the agents that facilitated them changed once the *Boston Globe* started asking questions.

On July 11, 2011, just as a *Boston Globe* reporter was preparing to visit Billy's and Jerry's, the Lottery sent a letter to the agents who had requested Cash WinFall waivers: "Be advised that you are required to adhere to the following rules and regulations if you are to process a large number of transactions." The letter, signed by the new general counsel, William J. Egan, Jr., spelled out the same rules identified as crucial back in 2005: 1) players must pay for their tickets up front; 2) players can't use computer-generated betting slips; 3) a player placing a large wager can't keep another customer waiting for more than three minutes, and 4) the player must be present during all Lottery transactions.

The Lottery also sent compliance officers out to the stores that had requested waiver increases. On July 12, 2011, Kevin Carroll went to Town Convenience in Westford, the White Hen Pantry in Belmont, Dyer Quik Mart in Watertown and S&A Convenience in Quincy. At each one, he found agents scanning in Cash WinFall tickets without a player present. He told each agent to stop processing the tickets and handed each a copy of Mr. Egan's letter.

Mr. Carroll went back to the same stores on July 14. This time the picture was more complicated. At the White Hen Panty, when Mr. Carroll found a Lottery agent redeeming free bets for an absent customer, he had to call Lottery headquarters to find out whether the rules for redeeming free bets were any different from the rules for placing wagers. Mr. Carroll was told that the customer had to be present in both cases and Carroll passed that information along.

At Dyer Quik Mart, the Lottery agent asked Mr. Carroll if it was okay to open early and close late to process Cash WinFall tickets. Mr. Carroll said he didn't know but would get the answer for the agent.

The same week, Mr. Marino, who had given Billy's Beverage and Jerry's Place a glowing review in 2010 returned to those outlets to drop off Mr. Egan's letter. Mr. Marino's July 2011 report includes much of the same information he provided in April 2010. The owners of Billy's and Jerry's are both members of the Michigan Club. The Cash WinFall play is interrupted when another customer wants to place a bet. The agents sometimes open solely for the benefit of the Michigan Club. Mr. Marino also added the new information that the Selbees were allowed to operate the ISYS betting terminals. Mr. Marino's 2011 report does not describe Billy's or Jerry's violating any of the four rules in Mr. Egan's letter.

Mr. Marino also visited Wheeler's Convenience, a Western Massachusetts agent with a relationship with another out-of-state high-volume bettor who was not part of a club. There he found the agent placing wagers while the player was "up the street at Firestone getting his car fixed." Mr. Marino gave the agent Mr. Egan's letter and told him to stop placing wagers for the absent customer.

On Friday, July 15, 2011, the Lottery sent all seven stores notices that their Lottery licenses were going to be revoked pursuant to 961 CMR 2.13. The Lottery was within its rights since that regulation reads in part, “a Sales Agent’s license may be revoked, suspended or an application may be denied… (3) If, in the discretion of the Director, such denial, revocation, suspension or rejection of renewal is in the best interests of the Lottery, the public welfare, or the Commonwealth of Massachusetts.”

On the following Thursday, the Lottery held suspension hearings for Billy’s Beverage, Jerry’s Place and Wheeler’s Convenience. The same day, Mr. Egan signed a Dear Massachusetts Lottery Sales Agent letter, reminding them of the rules for all on-line and instant games. The letter spells out many of the rules put in place in 2005. It also lays out two rules for the first time: 1) customers cannot operate the Lottery terminal and 2) agents cannot operate outside their normal business hours solely to sell Lottery tickets.

In a series of interviews and emails to the Inspector General, Mr. Egan said these newly enumerated prohibitions followed from the spirit of both the Lottery regulations and the agents’ licensing agreement.

On July 22, 2011, the Lottery held suspension hearings for S& A Convenience, Dyer Liquor, Towne Convenience and the White Hen Pantry in Belmont. On July 28, 2011, the Lottery sent letters to the five stores that had been caught scanning tickets for absent buyers, saying that they had been suspended for 12 days for the offense. Their suspensions were all lifted on July 27, 2011.

But Billy’s Beverage and Jerry’s Place, which had been featured in the *Boston Globe*’s front page article on July 31, 2011, had to wait a little longer. On Aug. 10, the Lottery sent letters to Billy’s and Jerry’s saying they had been suspended for 26 days for allowing a customer to operate the Lottery terminal and for being members of the Michigan Club. Their suspensions were lifted the same day the letters went out.

It is worth noting that the Lottery didn’t tell its agents that customers couldn’t operate the ISYS terminal until July 21 – six days after Billy’s and Jerry’s had their licenses suspended. In addition, Lottery officials – all the way up to the then executive director – had known since April 2010 that the two agents were members of the Michigan Club. However, the Lottery did not give them written notice of the violation until their 26-day suspension was over.

Mr. Egan pointed to the Lottery Agent’s Code of Conduct as the basis for that prohibition. Mr. Egan said the code is given to Lottery agents when they sign their license. Its addendum reads, “PLEASE NOTE: The Lottery strongly discourages agents and their employees from playing Lottery games, including instant tickets, at their locations.”

However, the record is clear that the Lottery had been aware of but had not disapproved of these vendors’ actions for many years as the money had come rolling in.

Following the negative publicity, Lottery officials promptly took actions that made high-volume betting nearly impossible. In August 2011, the Lottery lowered the cap on a retailer's Lottery sales to $5,000 per day. In October, the Lottery limited each agent's Cash WinFall sales to $2,500 per drawing per terminal. Each redemption of a free bet was included in the sales limit. These changes were effective in reducing the volume of tickets sold during the days prior to an expected roll-down. In October 2011, the jackpot was above $1.6 million for four consecutive drawings. Prior to the changes, once the jackpot hit $1.6 million, the big bettors jumped in triggering a roll-down. The same was true in January. Cash WinFall had five consecutive drawings in which the jackpot exceeded $1.6 million.

It is the Lottery's duty to create rules for its agents and customers and to enforce those rules fairly. I have seen no indication that Lottery personnel took any action for the purpose of benefiting a particular high-volume bettor over any other high-volume bettor or over any other customer. In fact, after the *Boston Globe* started asking questions about the betting clubs, the Lottery effectively shut them down. Until then, the Lottery welcomed the clubs because they boosted the Lottery's profits – and they caused no real harm to other players. There is no evidence to suggest Lottery staff granted or withheld waivers to stores in order to favor one group or individual.

The OIG also examined Lottery records to determine whether jackpot estimates were manipulated in order to benefit certain bettors. We did not find any indication that Lottery officials gave out internal information to high-volume bettors that affected other players. Nor did we see any evidence that Lottery staff knowingly or unreasonably withheld relevant information from the public. The Lottery's basis for posting estimates was reasonable. With one exception, the public was notified of an impending roll-down in each instance when one occurred during the game's history. That exception occurred, as previously detailed, as a result of one syndicate recognizing a possible vulnerability in the Lottery's jackpot estimating system and then making preparations over the course of more than a year to take advantage of it. As explained above, the group placed an unprecedented number of bets in order to push the jackpot into the roll-down, surprising everyone. After that event occurred, the Lottery instituted effective safeguards in the jackpot estimation system that prevented a reoccurrence of a "surprise roll-down."

Conclusion

Based on the documents reviewed by the OIG and the interviews described above, I have concluded that Cash WinFall was a financial success for the Lottery. It generated about $300 million in ticket sales, with nearly $120 million of that going to Lottery operations and the pool of funds distributed to cities and towns. The high-volume bettors were a financial boon to the Lottery, collectively buying roughly $2 million in tickets for a typical roll-down drawing – 40 percent of which the Lottery would keep to redistribute to cities and towns.

Cash WinFall was designed to attract a huge influx of betting by distributing a windfall to bettors whenever the jackpot reached $2 million. The emergence of individuals and groups buying large volumes of tickets was legal and financially advantageous to the Lottery. As long as the Lottery announced to the public an impending $2 million jackpot that would likely trigger a roll-down, an ordinary bettor buying a single ticket or any number of tickets was not disadvantaged by high-volume betting. In short, no one's odds of having a winning ticket were affected by high-volume betting. Small bettors enjoyed the same odds as high-volume bettors. When the jackpot hit the roll-down threshold, Cash WinFall became a good bet for everyone, not just the big-time bettors. However, the unique structure of the game created unprecedented enforcement challenges for the Lottery.

The activity of Cash WinFall's high-volume bettors understandably attracted a lot of attention when it was described in the *Boston Globe* last year. The stories gave broad circulation to something the Lottery had known for years: Cash WinFall was different than the Lottery's other games. A small number of people had figured out how to profit from Cash WinFall because they realized that when the jackpot reached $2 million, each $2 ticket was, statistically speaking, worth more than it cost. (Beyond a certain high number of tickets, this would no longer be true but that threshold was never met.) They also knew that the more tickets one had, the more likely it was that one's actual results would reflect the statistical probabilities. Anyone who put these two facts together would see an obvious way to make money: sit on the sidelines while other players build the jackpot up close to $2 million, and then jump in.

Please feel free to contact me if my office can be of further assistance.

Sincerely,

Gregory W. Sullivan

Gregory W. Sullivan
Inspector General