A gaming machine and method provide electronic games to a player. A controller is configured to set a volatility factor to a first volatility value, set a number of plays to a first random number of games, and establish a counter of a number of games played. The controller is also configured to display a first instance of the game on a display device, randomly select an outcome of the first instance of the game, display the outcome on the display device, and award an award to the player as a function of the outcome of the first instance of the game and the volatility factor if the outcome of the first instance of the game is a winning outcome. The controller counts the number of games played and, if a predetermined number of games have been played, sets the volatility factor to another volatility value.
GAMING SYSTEM AND METHOD OF PROVIDING AN ELECTRONIC GAME WITH VARYING VOLATILITY

FIELD OF THE INVENTION

[0001] The present invention relates generally to video gaming machines and more particularly, to an apparatus and method for providing a video game with varying volatility.

BACKGROUND OF THE INVENTION

[0002] Gaming machines, such as slot machines, are a cornerstone of the gaming industry. Generally, the popularity of such machines with players is dependent on the perceived likelihood of winning money at the particular game and the intrinsic entertainment value of the game relative to other available gaming options. Where the available gaming options include a number of competing games and the expectation of winning each game is believed to be generally the same, players are most likely to be attracted to the most entertaining and exciting games. Thus, gaming operators strive to employ the most entertaining and exciting games available because such games attract frequent play and, hence, increase profitability to the operator.

[0003] Furthermore, one concept that has been successfully employed to enhance the entertainment value of the game is the addition of a bonus game that may be played in conjunction with the “primary” game. The bonus game may comprise any type of game, either similar to or completely different from the primary game. The bonus game is initiated upon the occurrence of a selected event or outcome of the primary game.

[0004] Because the excitement and entertainment value of the primary game provides increased player appeal relative to other gaming machines and the bonus game concept increases player appeal and excitement, thereby increasing the chance to win the potential pay-out amount, there is a continuing need to develop new features for primary and bonus games. New features are necessary to appeal to player interest and enhance excitement in order to entice longer play and satisfy demands of operators for interesting games and increased profitability.

[0005] The present invention is directed to satisfying these needs.

SUMMARY OF THE INVENTION

[0006] In a first aspect of the present invention, a method provides a game to a player. The method includes the steps of (a) providing a gaming machine having a display and a user interface, (b) setting a volatility factor to a first volatility value, (c) setting a number of plays to a first random number of games, and (d) establishing a counter of a number of games played. The method further includes the steps of (e) allowing the player to make a wager using the user interface, (f) displaying the game on a display device, (g) randomly selecting an outcome of the game and displaying the outcome on the display device, and (h) awarding an award to the player as a function of the outcome of the game and the volatility factor. The method also includes the steps of (i) incrementing the counter, (j) comparing the counter to the number of games played and, if the counter is equal to the number of games played, (1) resetting the counter, (2) setting the volatility factor to another volatility value, and (3) setting the number of plays to another random number of games played. Steps (c)-(j) are then repeated.

[0007] In a second aspect of the present invention, a method provides primary and secondary games to a player. The method includes the steps of (1) providing a gaming machine including a display and a user interface, (2) setting a volatility factor to a first volatility value, (3) setting a number of plays of the primary game to a first random number of games, and (4) establishing a counter of a number of games played of the primary game. The method further includes the steps of (5) allowing the player to make a wager on the primary game using the user interface, (6) randomly selecting an outcome of the primary game, (7) displaying the primary game on the display, (8) determining if the outcome of the primary game is a winning outcome, and (9) awarding the player a primary award as a function of the outcome, the wager made by the player, and a predetermined payable. The method also includes the step of (10) determining if a triggering condition occurred in the primary game and initiating a secondary game, and for the secondary game: (a) randomly selecting an outcome of the game and displaying the outcome on the display device, (b) awarding an award to the player as a function of the outcome of the game and the volatility factor, (c) incrementing the counter and (d) comparing the counter to the number of games played and, if the counter is equal to the number of games played, (1) resetting the counter, setting the volatility factor to another volatility value, and setting the number of plays to another random number of games. Steps (5)-(10) are then repeated.

[0008] In a third aspect of the present invention, a gaming machine provides electronic games to a player. The gaming machine includes a display, a user interface, and a controller. The controller is coupled to the display and the user interface. The controller is configured to set a volatility factor to a first volatility value, to set a number of plays to a first random number of games, and to establish a counter of a number of games played. The controller is also configured to allow the player to make a wager using the user interface, to display a first instance of the game on a display device, to randomly select an outcome of the first instance of the game, to display the outcome on the display device, and to award an award to the player as a function of the outcome of the first instance of the game and the volatility factor if the outcome of the first instance of the game is a winning outcome. The controller compares the counter to the number of games played and, if the counter is equal to the number played, resetting the counter, sets the volatility factor to another volatility value and the number of plays to another random number of games played. The controller is configured to allow the player to make a second wager using the user interface, to display a second instance of the game on the display device, to randomly select an outcome of the second instance of the game, to display the outcome of the second instance of the game on the display device, and to award a second award to the player as a function of the outcome of the second instance of the game and the volatility factor if the outcome of the second instance of the game is a winning outcome.

[0009] In a fourth aspect of the present invention, a gaming machine provides first and second games to a player. The gaming machine includes a display, a user interface, and a controller. The controller is coupled to the display and the user interface and is configured to set a volatility factor to a first volatility value, to set a number of plays of the primary game to a first random number of games, and to establish a counter of a number of primary games played. The controller is configured to allow the player to make a wager using the user interface, to display the primary game on a display device, to randomly select an outcome of the first instance of
the game, to display the outcome on the display device, and to award an award to the player as a function of the outcome of the primary game if the outcome of the primary game is a winning outcome. The controller is also configured to display the secondary game on the display device, to randomly select an outcome of the secondary game, to display the outcome of the secondary game on the display device, and to award a second award to the player as a function of the outcome of the secondary game and the volatility factor if the outcome of the second instance of the game is a winning outcome. The controller is further configured to increment the counter, to compare the counter to the number of games played and, if the counter is equal to the number of games played: resetting the counter, setting the volatility factor to another volatility value, and setting the number of plays to another random number of games played.

BRIEF DESCRIPTION OF THE DRAWINGS

[0010] Other advantages of the present invention will be readily appreciated as the same becomes better understood by reference to the following detailed description when considered in connection with the accompanying drawings wherein:
[0011] FIG. 1 is a perspective view of a gaming machine;
[0012] FIG. 2A is a diagram of a system for providing electronic games, according to an embodiment of the present invention;
[0013] FIG. 2B is a schematic representation of the video gaming machine of the present invention; and,
[0014] FIG. 3 is a diagrammatic illustration of a screen shot of a primary game and a secondary game, according to an embodiment of the present invention;
[0015] FIG. 4 is a diagrammatic illustration of a second screen shot of the secondary game of FIG. 3;
[0016] FIG. 5 is a diagrammatic illustration of a third screen shot of the secondary game of FIG. 3; and
[0017] FIG. 6 is a diagrammatic illustration of a fourth screen shot of the secondary game of FIG. 3.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0018] With reference to the drawings and in operation, the present invention provides a gaming system 10 which provides a primary (or base) game or a primary and secondary games to players on one or more gaming machines 14.
[0019] In one embodiment, the secondary game may be provided on a single gaming machine 14.
[0020] In another embodiment, the secondary game may be provided on a plurality of linked gaming machines 14. The secondary game may be a progressive game. Progressive games are well known in the art and are therefore not further discussed.
[0021] In one aspect of the present invention, the system 10 and method randomly change or modify the volatility of the primary and/or secondary games. The term volatility may be used in reference to any factor or parameter of the primary and/or secondary games.
[0022] In one aspect of the present invention, there may be multiple levels of volatility. In one embodiment, the present invention changes between at least two levels of volatility. In another embodiment, the present invention changes between at least three levels of volatility, e.g., low, medium, and high volatility.

[0023] In one aspect of the present invention, the volatility of a game is modified from a first state or value to a second random state of value. In one embodiment, the game maintains the current state of volatility for a random predetermined number of games (or cycles). The random predetermined number of games may have a minimum value, e.g., 10 or 50 games. In one embodiment, the volatility of a primary game (or game without a secondary game) is modified. In another embodiment the volatility of the secondary game is modified. In a third embodiment, the volatility of the primary and/or secondary game may be modified.

[0024] The volatility of a game may be modified by changing one or more features or parameters of the game (for a random predetermined number of games or cycles). The features or parameters of the game which may be modified may include, but are not limited to game rules, paytables, symbol distribution, number of free spins awarded, e.g., in a video slot game, hit frequency, e.g., (high hit frequency with low payouts; medium hit frequency with medium payout; low hit frequency with high payouts), win evaluation, multipliers applied to payout of the primary and/or secondary games, and the trigger condition for the secondary game (if required), e.g., the number of symbols appearing in the primary game to trigger the secondary game.

[0025] In one aspect of the present invention, the change in volatility does not affect the hold percentage of the gaming machine 14. In another aspect of the present invention, the change in volatility changes the hold percentage of the gaming machine 14.

[0026] For example, in one embodiment the present invention may utilize or one or more paytables. Two exemplary paytables are shown below:

<table>
<thead>
<tr>
<th>Paytable 1</th>
<th>Paytable 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Three As: 1,000</td>
<td>Three As: 3,000</td>
</tr>
<tr>
<td>Three Ks: 100</td>
<td>Three Ks: 180</td>
</tr>
<tr>
<td>Three Qs: 75</td>
<td>Three Qs: 120</td>
</tr>
<tr>
<td>Three Js: 50</td>
<td>Three Js: 60</td>
</tr>
<tr>
<td>Three 10s: 30</td>
<td>Three 10s: 50</td>
</tr>
<tr>
<td>Two 10s: 20</td>
<td>Two 10s: 10</td>
</tr>
<tr>
<td>One 10: 10</td>
<td>One 10: 6</td>
</tr>
</tbody>
</table>

[0027] In a second embodiment, a preliminary (or base award) is determined as a function a predetermined paytable and based on the outcome of the game. The base award is multiplied by a randomly determined multiplier. The randomly determined multiplier is randomly selected from a set or table of multipliers. Each set or table of multipliers provides a different level of volatility. In this example, there are three tables, as indicated below:

<table>
<thead>
<tr>
<th>Multiplier</th>
<th>Weight</th>
<th>P(x)</th>
<th>EV</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>50</td>
<td>0.14</td>
<td>0.71</td>
</tr>
<tr>
<td>4</td>
<td>50</td>
<td>0.14</td>
<td>0.57</td>
</tr>
<tr>
<td>3</td>
<td>100</td>
<td>0.29</td>
<td>0.86</td>
</tr>
<tr>
<td>2</td>
<td>150</td>
<td>0.43</td>
<td>0.86</td>
</tr>
</tbody>
</table>

| 350        | 3.00   |
TABLE B

<table>
<thead>
<tr>
<th>Multiplier</th>
<th>Weight</th>
<th>P(x)</th>
<th>EV</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>55</td>
<td>0.16</td>
<td>1.57</td>
</tr>
<tr>
<td>3</td>
<td>50</td>
<td>0.14</td>
<td>0.43</td>
</tr>
<tr>
<td>2</td>
<td>100</td>
<td>0.29</td>
<td>0.57</td>
</tr>
<tr>
<td>1</td>
<td>150</td>
<td>0.43</td>
<td>0.43</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>355</td>
</tr>
</tbody>
</table>

TABLE C

<table>
<thead>
<tr>
<th>Multiplier</th>
<th>Weight</th>
<th>P(x)</th>
<th>EV</th>
</tr>
</thead>
<tbody>
<tr>
<td>25</td>
<td>29</td>
<td>0.08</td>
<td>2.07</td>
</tr>
<tr>
<td>3</td>
<td>25</td>
<td>0.07</td>
<td>0.21</td>
</tr>
<tr>
<td>2</td>
<td>50</td>
<td>0.14</td>
<td>0.29</td>
</tr>
<tr>
<td>1</td>
<td>150</td>
<td>0.43</td>
<td>0.43</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>254</td>
</tr>
</tbody>
</table>

In this embodiment, upon machine reset or once the threshold number of games is hit, a new number of games is randomly determined. The number represents the number of games the gaming machine 14 will stay in its current state before switching over to a new state. For example, if the number of games is determined as 130, the current game state will stay active for the next 130 games or cycles.

The states are defined by one of the Tables. In one embodiment, the new state (or Table) is randomly determined. In another embodiment, the states are cycled through, e.g., Table A, followed by Table B, followed by Table C, then back to Table A. Once the state, i.e., table, is established, one of the multipliers in the table is randomly selected. The selected multiplier may be displayed. If there is a winning condition, then the award (normally) associated with the winning condition is multiplied by the selected multiplier and the product is awarded to the player. In this embodiment, the hold percentage across the three tables remains the same. The average value of the multiplier for all three states remains the same (3.0), but the states have increasing volatility from Table A to Table C.

Table A includes multipliers of 5, 4, 3, and 2 with respective weights of 50, 50, 100, and 150. Thus, when Table A is active, there is a 50/50/50/50+150)=14% of a multiplier of 5 being used. In contrast, Table B has a maximum multiplier of 10, while Table C has a maximum multiplier of 25.

With specific reference to FIG. 2A, in one embodiment, the system 10 includes a jackpot controller 12 and a plurality of gaming machines 14. In the illustrated embodiment, the system 10 includes four gaming machines 14A, 14B, 14C, 14D, which in one embodiment may be arranged in a bank, i.e., are arranged together, adjacently. It should be noted, however, that the gaming machines 14 may include any number of gaming machines 14, and may be arranged in any manner, such as in a circle or along a curved arc. Furthermore, additional groups of gaming machines 14 may be coupled to the jackpot controller 12.

It should also be noted that the secondary game may be provided and controlled by one of the gaming machines 14.

A selected embodiment of the present invention will now be explained with reference to the drawings. It will be apparent to those skilled in the art from this disclosure that the following description of the embodiment of the present invention is provided for illustration only and not for the purpose of limiting the invention as defined by the appended claims and their equivalents.

A preferred embodiment of the present invention is a video gaming machine preferably installed in a casino.

Referring to FIG. 1, in the illustrated embodiment, each gaming machine 14 comprises a box-shaped modular cabinet 16. One such cabinet is disclosed in a commonly owned US Patent Application Publication 20100087259 (Ser. No. 12/287,428), filed Oct. 8, 2008, which is hereby incorporated by reference.

The gaming machine 14 has a modular structure for a video gaming machine of an embodiment of the present invention. The gaming machine 14 is configured by a first cabinet 16A including a display 20A; a second cabinet 16B including a second display 20B; a third cabinet 16C including input devices for playing the game and a fourth cabinet 16D including a controller for controlling each section of the gaming machine 14. The gaming machine 14 is generally set up on a game stand 15 depending on a situation where the gaming machine 14 is setup.

As shown in FIG. 1, a part of the top surface of the third cabinet 16C facing to the player is designed to be slanted downward so that the player can easily operate input buttons and input devices 26 for the games displayed on the first display 20A and/or the second display 20B. With respect to the input buttons 26, there are provided BET switches 4, selection switches 5, a MAXBET switch 6 a PAYOUT switch 7, start buttons 21 and 21A. With respect to the input devices, there are provided a coin slot 22 and a coin acceptor 24. The BET switches 4 include five switches from 1BET to 5BET. The selection switches 5 include five switches from 1 (one) to 5 (five) selects of bet lines. A coin tray 30 is provided in the lower part of the third cabinet 16C. Further, there is provided an output device, for example, a printer 20 on a slanted surface 16E of the third cabinet 16C for outputting printed material pertaining to the game of the gaming machine 14.

The instruction for performing a primary game or a secondary game is normally displayed on the first display 20A. Indicia or symbols for use in the primary game, e.g., cards used by a card game, roulette used in a roulette game and reels used in a reel game, are displayed on the second display 20B.

The BET switches 4 are switches for inputting a bet on the game. The player can input a bet from 1BET to 5BET using the BET switches 4 one time for a game. A selection switch 5 is a switch for, for example, selecting a line on the reels and the card, which the player wants to set on the games.

The MAXBET switch 6 is a switch for inputting the maximum bet that a player can spend against one time of a game. The PAYOUT switch 7 is a switch for rewarding the amount of money to a player, which has been credited onto the gaming machine 14. The start buttons 21, 21A are buttons for starting game. The starting buttons 21, 21A may be arranged on the slanted surface 16E of the third cabinet 16C and sidewall of the third cabinet 16C so that the player can select the starting button for his or her preference in this embodiment. A coin slot 22 is a hole for a player to insert the coin to the gaming machine 14. A bill acceptor 24 is an input and output device to be used in order to feed a bill or a cash card into the gaming machine 14, or in order to repay the amount of money, which has been credited.
As is known in the art, the first and/or second displays 20A, 20B may be touchscreens to implement a portion of a user interface 13.

In one embodiment the displays 20A, 20B each include a flat panel display, such as an LCD, LED, plasma, or other suitable display.

In particular, the second display 20B displays a game screen, see for example, FIG. 3. The primary game is displayed on the game screen. The primary game may be any type of game, including, but not limited to a video slot game, a keno game, a blackjack game, a video poker game, or any type of game which allows a player to make a wager, plays a game, and potentially provides the player an award based on an outcome of the game and a payable.

One or more speakers 32 are installed inside the cabinet 16, and generates voice announcements and sound effects during game play.

With specific reference to FIGS. 2A and 2B, in the illustrated embodiment, each gaming machine 14 is controlled by a game controller 40. In one embodiment, the game controller 40 is within the cabinet 14. Alternatively, the game controller 40 may be separated from the cabinet 16, and connected through a network to the components of the cabinet 16.

In one embodiment, the jackpot controller 12 may be implemented by one of the game controllers 40. In still another embodiment, a single controller (not shown) which may be located remotely or within one of the cabinets 16 may perform all of the functions of the game controllers 40 for each gaming machine 14 and the jackpot controller 12.

In the illustrated embodiment, the game controller 40 includes a CPU 42, a ROM 44, a RAM 46, a credit controller 48, a console unit 50, a payout controller 52, a random-number generator 54, a lighting controller 56, a sound controller 58, and a display controller 60.

The CPU 42 executes various programs, and thereby controls other components of the game controller 40 according to instructions and data accepted by the console unit 50. The CPU 42 in particular executes a game program, and thereby conducts a game having normal and bonus modes. The ROM 44 stores programs and databases used by the CPU 42. The ROM 44 in particular stores image data for producing two game images and screens on the displays 20A, 20B. The RAM 46 temporarily stores variables, parameters, and the like that are used by the CPU 42.

The credit controller 48 manages the amount of player’s credits, which is equivalent to the amount of coins and bills counted and validated by the counter/acceptor 49. The console unit 50 monitors the input buttons 26 and accepts various instructions and data that a player enters through the input buttons 26. The payout controller 52 changes player’s credits to coins, bills, or other monetary data by using the coin tray 30 or the like.

The random-number generator (RNG) 54 generates and outputs random numbers to the CPU 42 preferably at the start of each round of game. The CPU 42 uses the random numbers to determine an outcome of the primary and secondary games.

For example, if the primary game is a video slot game, the CPU 42 uses the RNG 54 to randomly select an arrangement of symbols to be displayed on the video reels.

The CPU 42 generally uses the random numbers to play the primary and secondary games and to determine whether or not to provide an award to a player at random in the following manner. The CPU 42 retrieves the random numbers from a winning combination table stored in the ROM 44. The winning combination table represents a relationship between combinations of random numbers and types of awards.

The lighting controller 56 controls one or more lighting devices 62. The lighting controller 56 thereby causes the lighting devices 62 to blink and/or change brightness and color in specific patterns in order to produce lighting effects. In one embodiment, the lighting devices 62 include light devices 17, 18 and a Podium payline light 64.

The Podium payline light 64 which is, as shown in FIG. 1, located between the first and second displays 20A, 20B. In the secondary game 70, the first and second displays 20A, 20B, and the Podium payline light 64 is utilized as a large rotating selector device, the Podium payline light 64 serving as a selector for the rotating selector device. In one embodiment, the rotating selector device is a large reel which rotates vertically. In a second embodiment, the rotating selector device is a wheel. It should be noted that other designs of the rotating selector device may be used without departing from the spirit of the invention.

In another embodiment, the secondary game 70 is displayed only on the first display 20A.

The sound controller 58 controls the speakers 32 to output voice announcements and sound effects during game play.

The display controller 60 controls the displays 20A, 20B to display various images on screens preferably by using computer graphics and image data stored in the ROM 44. The display controller 60 in particular controls video reels in a game screen displayed on the second display 20B by using computer graphics and the image data.

The display controller 60 further controls video reels in different manners depending on whether a round of game is in a normal or bonus mode.

It should be noted that the above described gaming machine 14 is for exemplary purposes only. The present invention is not limited to any particular gaming machine 14 and/or game. The gaming machine 14 may also include other features. For example, the gaming machine 14 may include a player tracking device (not shown) which is connected to a player tracking system. The gaming machine 14 may also utilize a cashless wagering system (not shown), such as a ticket in ticket out (TITO) system (not shown) and may include a player tracking device (not shown).

In particular, the gaming machine 14 described includes first and second displays 20A, 20B. The second display 20B is generally used to display the primary game. The second display 20B or the first and second displays 20A, 20B may be used to display the secondary game. Alternatively, the gaming machine 14 may include a single display which is used to display both the primary and the secondary games.

The game controller 40 awards a regular payout in response to the outcome of the primary game.

The game controller 40 displays the primary game on the display 20A. In one embodiment, the primary game 76 is a video slot game, as shown in FIG. 3. However, it should be noted that the primary game 76 could be any type of game upon which a player could make a wager.

For example, in the case where the primary game 76 is a video slot game, the primary game 76 includes a plurality of elements in a grid having a plurality of cells defined by rows and/or columns. During play of the video slot game, the
The game controller 40 randomly selects the game elements to be displayed in the second display device 20B. The selected game elements are selected from a set of possible game elements. The game controller 40 is adapted to determine an outcome of each of the game based on the displayed game elements, the pay-table, a wager, and predetermined paytable.

Each video slot game is generally first played in a conventional manner. The player makes a wager, which may be based on a predetermined denomination and a selected number of paylines. The reels are spun and game symbols or elements are randomly chosen for each cell. If a predetermined pattern of elements are randomly chosen for each cell on a payline, the player is awarded a payout based on the payline, the wager, and a predetermined payable. Many variations to the above described general play of a video slot game fall within the scope of the present invention. Such video slot games are well-known in the art, and are therefore not further discussed.

After the outcome of the primary game 76 is determined, the secondary game 70 may be played. In one embodiment, the secondary game 70 is played automatically after primary game 76. In other words, after each play of the primary game 76, one or more plays of the secondary game 70 occur automatically. In another embodiment, the play of the secondary game 70 is dependent upon the occurrence of a triggering condition. If the triggering condition is detected then the secondary game 70 is initiated.

In one aspect of the present invention, the secondary game 70 is a progressive game in which multiple players may be eligible in to win, a generally large, jackpot or payout. The jackpot or payout is generally funded from a pool which is added to through contributions from the wagers made by a plurality of players. The triggering condition for the progressive award may be the appearance of a triggering symbol within the primary game 76 of one of the gaming machines 14, or may be based on a separate random event. The triggering condition may be determined at the jackpot controller 12 or the game controller 40.

Alternatively, the secondary game 70 is a bonus game in which only the player who has triggered the secondary game 70 may win and the secondary jackpot or bonus is funded from the associated gaming machine 14. With respect to the bonus game, a plurality of the gaming machines 14 may be used to display the bonus game so that all of the players may share in the excitement of the bonus game. In one embodiment, the triggering condition is winning outcome condition. For example, in FIG. 3, if the primary game 76 has a winning condition, then the bonus award would be awarded in addition to the award for the winning condition of the primary game 76. Alternatively, the triggering condition could be a losing outcome.

With specific reference to FIGS. 2-3, in one embodiment, the gaming system 10 includes a plurality of linked gaming machines 14 and a jackpot controller 12. Each gaming machine 14 includes display 20A, 20B and a game controller 40. The controller 40 allows a player to make a wager on a primary game 76, randomly selects an outcome of the primary game 76 and determines if the outcome of the primary game 76 is a winning outcome. If the outcome of the primary game 76 is a winning outcome, the controller 40 awards the player a primary award as a function of the outcome, the wager made by the player, and a predetermined payable.

The jackpot controller 12 determines if a triggering condition occurred in one of the primary games 76 and initiates the secondary game 70. The outcome of the secondary game 70 is displayed using a rotating selector device 72.

The jackpot controller 12 randomly selects an outcome of the secondary game 70, spins a rotating selector device 72, and awards one or more of the players a secondary award as a function of the outcome of the secondary game 70.

As discussed more fully below, in one embodiment the secondary game 70 is a progressive game. The secondary award may be either a set amount or a progressive award or amount. In one embodiment the progressive award may be one of a plurality of progressive award levels.

Alternatively, the secondary game 70 is one or more free spins of a video slot game. The secondary video slot game may be a variation of the underlying primary game 76.

With reference to the drawings, and in operation, the present invention provides a method and gaming system/ machine 10, 14 which provides a primary or a primary and secondary games 76, 70 to one or more players. As discussed above, each gaming machine 14 includes a game controller 40. The game controller 40 controls the primary game 76. The game controller 40 may also control the secondary game 70. Alternatively, the jackpot controller 12 may control the secondary game 70. In the discussion below, the term “controller” may refer to the (a) game controller 40 or (b) the game controller 40 and the jackpot controller 12.

In a first embodiment, the gaming machine 14 includes a display 20A, 20B, a user interface 13, and a controller 40. The controller is coupled to the display 20A, 20B and the user interface 13.

The controller 40 sets a volatility factor to a first volatility value. As discussed above, the volatility factor may be any parameter associated with the (primary or secondary) game 76, 70. The controller 40 also sets a number of players to a first random number of games. The number of plays of games defines how many plays of the game will be played using the current volatility value. A counter is used to count the number of games played.

The controller 40 allows the player to place a wager using the user interface 13. A first instance of the game is played and displayed on the display 20A, 20B. The controller 40 randomly selects an outcome of the first instance of the game, displays the outcome on the display device 20A, 20B, and award an award to the player as a function of the outcome of the first instance of the game and the volatility factor if the outcome of the first instance of the game is a winning outcome.

The counter is incremented and its value is compared against the number of games to be played and if the counter is equal to the number of games, the counter is reset and the volatility factor is set to another volatility value.

The number of plays of the game is set to another random of games played and a next instance of the game is played.

As discussed above, the volatility factor may be a payable. For example, the first volatility factor may be a first payable and the second volatility factor may be a second payable.

In another embodiment, the volatility factor may be a multiplier which is applied to an award amount. For example, if the outcome of the game is a winning outcome and a base award is determined as a function of the outcome of the game and a payable, the base award is multiplied by the multiplier and awarded to the player.
In another embodiment, volatility factor is a table of multipliers. For example, the first volatility factor may be a first table of multipliers and the second volatility factor may be a second table of multipliers. Each multiplier in a table has a weight and corresponding odds of being used. One table of multipliers has been set as the volatility factor, one of the multipliers in the table is randomly chosen. The randomly chosen multiplier is then. Generally, a new multiplier is randomly chosen each play of the game.

In one embodiment the game is a primary game 76. In another embodiment the game is a secondary game 70.

The base award may be a set amount, a progressive award, a number of free spins or any other type of award.

In a second embodiment, the controller 40 sets the volatility factor to a first volatility value and sets a number of plays of the primary game 76 to a first random number of games. A counter is used to count the number of plays of the primary game 76 played.

The controller 40 allows the player to make a wager using the user interface 13 and displays the primary game 76 on the display device 20A, 20B. An outcome of the primary game 76 is randomly selected and displayed. An award is a public offer to the player if the an outcome of the first instance of the game, to display the outcome on the display device 20A, 20B, and to award an award to the player as a function of the outcome of the primary game 76 if the outcome of the primary game 76 is a winning outcome.

The controller displays the secondary game 70 on the display device. An outcome of the secondary game 70 is randomly selected and displayed. A second award is awarded to the player if the outcome of the secondary game 70 is a winning outcome. The second award is a function of the volatility factor.

The counter is incremented. If the counter is equal to the number of games played, the counter is reset, the volatility factor is set to another volatility value, the number of plays is set to another random number of games played.

In another aspect of the present invention, a method of provides a game to a player. The method includes the steps of (a) providing a gaming machine 14 having a display 20A, 20B and a user interface 13, (b) setting a volatility factor to a first volatility value, (c) setting a number of plays to a first random number of games, and (d) establishing a counter of a number of games played. The player is allowed to place or make a wager (step (f)).

The game is displayed (step(f)), an outcome of the game is randomly selected (step(g)) and an award is awarded to the player as a function of the outcome of the game and the volatility factor (step(h)).

The method also includes the steps of (i) incrementing the counter, (j) comparing the counter to the number of games played and, if the counter is equal to the number of games played: (1) resetting the counter, (2) setting the volatility factor to another volatility value, and (3) setting the number of plays to another random number of games played. Steps (e)-(j) may be repeated.

In a fourth aspect of the present invention, a method provides primary and secondary games 76, 70 to a player. The method includes the steps of (1) providing a gaming machine 14 including a display 20A, 20B and a user interface 13, (2) setting a volatility factor to a first volatility value, (3) setting a number of plays of the primary game 76 to a first random number of games, and (4) establishing a counter of a number of games played of the primary game 76. The player is allowed player to make a wager on the primary game 76 using the user interface 13 (step (5)). An outcome of the primary game 76 is randomly selected (step (6)) and displayed (step (7)).

If the outcome of the primary game 76 is a winning outcome (step (8)), the player is awarded a primary award 76 as a function of the outcome, the wager made by the player, and a predetermined paytable (step (9)). If a triggering condition has occurred in the primary game 76, a secondary game 70 is initiated (step (10)). The secondary game 70 includes the steps of (a) randomly selecting an outcome of the game and displaying the outcome on the display device 20A, 20B, (b) awarding an award to the player as a function of the outcome of the game and the volatility factor, and (c) incrementing the counter. The counter is compared to the number of game played and if the counter is equal to the number of games played (step (d)), the counter is reset, the volatility factor is set to another volatility value and the number of plays is set for another random number of games.

Steps (5)-(10) may be repeated.

INDUSTRIAL APPLICABILITY

With reference to FIGS. 3-6, the present invention is used to implement a game titled “Rock Around the Clock”. In the Rock around the Clock game, the player advances to bonus time, with every bought game, i.e., the primary game 76.

With specific reference to FIG. 3, when the clock 72 strikes BONUS TIME, a feature game, 76 is awarded. All feature games are multiplied by the current bonus time multiplier (indicated by the arrow on the clock). During primary game 76 play the Mascot 74 may randomly increase the multiplier to a higher value. Different multiplier tables are used based on the number of games played. Each table has the same Expected Value (EV) but different volatility. Two examples are shown in Tables 1 and 2. Table 1 is used for a first random number of games, e.g., game number 1-49 and Table 2 is used for a random number of games thereafter.

The game number is reset back to 0 once bonus time is triggered.

<table>
<thead>
<tr>
<th>Multiplier</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>40x</td>
<td>0</td>
</tr>
<tr>
<td>20x</td>
<td>0</td>
</tr>
<tr>
<td>8x</td>
<td>0</td>
</tr>
<tr>
<td>3x</td>
<td>200</td>
</tr>
<tr>
<td>2x</td>
<td>400</td>
</tr>
<tr>
<td>1x</td>
<td>200</td>
</tr>
</tbody>
</table>

Bonus Multiplier Table (EV = 2, α = 3.32)

<table>
<thead>
<tr>
<th>Multiplier</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>40x</td>
<td>4</td>
</tr>
<tr>
<td>20x</td>
<td>10</td>
</tr>
<tr>
<td>8x</td>
<td>50</td>
</tr>
<tr>
<td>3x</td>
<td>200</td>
</tr>
<tr>
<td>2x</td>
<td>400</td>
</tr>
<tr>
<td>1x</td>
<td>832</td>
</tr>
</tbody>
</table>

Bonus Multiplier Table (EV = 2, α = 15.21)
Both tables have an average multiplier value of 2x. Table 2 has greater volatility (more dispersion in multiplier award). The idea is that as the player invests more money by playing more games, the chance for a large multiplier increases once 50 games have been played.

When the number of games played has reached this random number of games played, the Mascot 74 changes the multiplier, e.g., from 2x to 8x (see Figs. 4-6).

Other aspect and features of the present invention can be obtained from a study of the drawings, the disclosure, and the appended claims.

What is claimed is:

1. A method of providing a game to a player, comprising the steps of:
   (a) providing a gaming machine having a display and a user interface;
   (b) setting a volatility factor to a first volatility value;
   (c) setting a number of plays to a first random number of games
   (d) establishing a counter of a number of games played;
   (e) allowing the player to make a wager using the user interface;
   (f) displaying the game on a display device;
   (g) randomly selecting an outcome of the game and displaying the outcome on the display device;
   (h) awarding an award to the player as a function of the outcome of the game and the volatility factor;
   (i) incrementing the counter;
   (j) comparing the counter to the number of games played and, if the counter is equal to the number of games played:
      (1) resetting the counter;
      (2) setting the volatility factor to another volatility value;
      (3) setting the number of plays to another random number of games played; and,
   (k) repeating steps (e)-(j).

2. A method, as set forth in claim 1, the volatility factor being a paytable.

3. A method, as set forth in claim 1, the volatility factor being a number of free spins.

4. A method, as set forth in claim 2, the first volatility factor being a first paytable and the another volatility factor is a second paytable.

5. A method, as set forth in claim 1, the volatility factor being a multiplier.

6. A method, as set forth in claim 1, the volatility factor being a table of multiplier values, the method including the step of random selecting one of the multiplier values in the table of multiplier values, the award being a function of the outcome of the game and the randomly selected one of the multiplier values.

7. A method, as set forth in claim 1, wherein the game is a secondary game, the secondary game being triggered during a primary game.

8. A method, as set forth in claim 1, the award being one of a set amount and a progressive award.

9. A method, as set forth in claim 8, the progressive award being one of a plurality of progressive award levels.

10. A method, as set forth in claim 8, the award being one of a set amount, a progressive award, and a number of free spins.

11. A method of providing primary and secondary games to a player, including the steps of:
   (1) providing a gaming machine including a display and a user interface;
   (2) setting a volatility factor to a first volatility value;
   (3) setting a number of plays of the primary game to a first random number of games;
   (4) establishing a counter of a number of games played of the primary game;
   (5) allowing the player to make a wager on the primary game using the user interface;
   (6) randomly selecting an outcome of the primary game;
   (7) displaying the primary game on the display;
   (8) determining if the outcome of the primary game is a winning outcome and;
   (9) awarding the player a primary award as a function of the outcome, the wager made by the player, and a predetermined paytable; and,
   (10) determining if a triggering condition occurred in the primary game and initiating a secondary game, for the secondary game:
      (a) randomly selecting an outcome of the game and displaying the outcome on the display device;
      (b) awarding an award to the player as a function of the outcome of the game and the volatility factor;
      (c) incrementing the counter;
      (d) comparing the counter to the number of games played and, if the counter is equal to the number of games played:
         (i) resetting the counter;
         (ii) setting the volatility factor to another volatility value;
         (iii) setting the number of plays to another random number of games; and,
      (11) repeating steps (5)-(10).

12. A method, as set forth in claim 11, the volatility factor being a paytable.

13. A method, as set forth in claim 12, the first volatility factor being a first paytable and the another volatility factor is a second paytable.

14. A method, as set forth in claim 11, the volatility factor being a number of free spins.

15. A method, as set forth in claim 11, the volatility factor being a multiplier.

16. A method, as set forth in claim 11, the volatility factor being a table of multiplier values, the method including the step of random selecting one of the multiplier values in the table of multiplier values, the award being a function of the outcome of the game and the randomly selected one of the multiplier values.

17. A method, as set forth in claim 11, the award being one of a set amount and a progressive award.

18. A method, as set forth in claim 17, the progressive award being one of a plurality of progressive award levels.

19. A method, as set forth in claim 11, the outcome of the secondary game being one of a set amount, a progressive award, and a number of free spins.

20. A method, as set forth in claim 11, the triggering condition being the appearance of one or more triggering symbols in the outcome of the primary game.

21. A method, as set forth in claim 11, the triggering condition being the play of the primary game.
22. A gaming machine, comprising:
   a display;
   a user interface; and
   a controller coupled to the display and the user interface, the controller configured to set a volatility factor to a first volatility value, to set a number of plays to a first random number of games, and to establish a counter of a number of games played, the controller configured to allow the player to make a wager using the user interface, to display a first instance of the game on a display device, to randomly select an outcome of the first instance of the game, to display the outcome on the display device, and to award an amount to the player as a function of the outcome of the first instance of the game and the volatility factor if the outcome of the first instance of the game is a winning outcome, and the controller configured to increment the counter, to compare the counter to the number of games played and, if the counter is equal to the number of games played: resetting the counter, setting the volatility factor to another volatility value, and setting the number of plays to another random number of games played, the controller being configured to configured to allow the player to make a second wager using the user interface, to display a second instance of the game on the display device, to randomly select an outcome of the second instance of the game, to display the outcome of the second instance of the game on the display device, and to award a second award to the player as a function of the outcome of the second instance of the game and the volatility factor if the outcome of the second instance of the game is a winning outcome.

23. A gaming machine, as set forth in claim 22, the volatility factor being a payable.

24. A gaming machine, as set forth in claim 23, the first volatility factor being a first payable and the another volatility factor is a second payable.

25. A gaming machine, as set forth in claim 22, the volatility factor being a number of free spins.

26. A gaming machine, as set forth in claim 22, the volatility factor being a multiplier.

27. A gaming machine, as set forth in claim 22, the volatility factor being a table of multiplier values, the method including the step of random selecting one of the multiplier values in the table of multiplier values, the award being a function of the outcome of the game and the randomly selected one of the multiplier values.

28. A gaming machine, as set forth in claim 22, wherein the game is a secondary game, the secondary game being triggered during a primary game.

29. A gaming machine, as set forth in claim 22, the award being one of a set amount and a progressive award.

30. A gaming machine, as set forth in claim 29, the progressive award being one of a plurality of progressive award levels.

31. A gaming machine, as set forth in claim 29, the award being one of a set amount, a progressive award, and a number of free spins.

32. A gaming machine for providing primary and secondary games to a player, comprising:
   a display;
   a user interface; and
   a controller coupled to the display and the user interface, the controller configured to set a volatility factor to a first volatility value, to set a number of plays of the primary game to a first random number of games, and to establish a counter of a number of primary games played, the controller configured to allow the player to make a wager using the user interface, to display the primary game on a display device, to randomly select an outcome of the first instance of the game, to display the outcome on the display device, and to award an amount to the player as a function of the outcome of the primary game and the volatility factor if the outcome of the primary game is a winning outcome, the controller configured to increment the counter, to display the secondary game on the display device, to randomly select an outcome of the secondary game, to display the outcome of the secondary game on the display device, and to award a second award to the player as a function of the outcome of the secondary game and the volatility factor if the outcome of the secondary instance of the game is a winning outcome, the controller configured to compare the counter to the number of games played and, if the counter is equal to the number of games played: resetting the counter, setting the volatility factor to another volatility value, and setting the number of plays to another random number of games played.

33. A gaming machine, as set forth in claim 32, the volatility factor being a payable.

34. A gaming machine, as set forth in claim 33, the first volatility factor being a first payable and the another volatility factor is a second payable.

35. A gaming machine, as set forth in claim 32, the volatility factor being a number of free spins.

36. A gaming machine, as set forth in claim 32, the volatility factor being a multiplier.

37. A gaming machine, as set forth in claim 32, the volatility factor being a table of multiplier values, the method including the step of random selecting one of the multiplier values in the table of multiplier values, the award being a function of the outcome of the game and the randomly selected one of the multiplier values.

38. A gaming machine, as set forth in claim 32, the award being one of a set amount and a progressive award.

39. A gaming machine, as set forth in claim 38, the progressive award being one of a plurality of progressive award levels.

40. A gaming machine, as set forth in claim 32, the outcome of the secondary game being one of a set amount, a progressive award, and a number of free spins.