financial exposure) for a particular type of instrument, for a particular period, for a particular trader or group of traders, or an entity.

[0010] Furthermore, an individual trade has multiple characteristics that allow it to be classified into many different groups. For example, a request from a particular trader at a certain firm to purchase a Q4 2012 forward contract for delivery of electricity at 500 units may implicated multiple different limits that are placed on the trader, the firm, the product class, overall financial exposure during the contract (or portion of the contract) for the product class, and/or total financial exposure.

[0011] The system may be implemented as a remote service, in that trades are routed to a central location and the results are transmitted back to a trading entity for execution, locally at an individual trading desk or as a combination of a centralized risk gateway server and a plurality of local compliance engines that implement the risk management limits against local trading activities.

[0012] Accordingly, one aspect of the invention provides a method for determining whether a trade order having a temporal component is permitted according to a predefined exposure limitation. The method includes storing a set of instrument data that represents both an actual and a permitted maximum number of instrument units for each of a first plurality of corresponding first units of time. A request to execute a trade for one or more strips of financial instruments is received, where the strips include one or more instrument units, each of which is associated with a second unit of time that temporally overlaps at least a portion of a second plurality of the corresponding first units of time. A stepped graph is constructed for the financial instrument based on the stored instrument data, wherein one axis of the stepped graph represents a plurality of time periods covering any of the strips and another axis represents a total exposure to the financial instrument for each respective time period. The received request is compared to the quantity of the units of the financial instrument from the stepped graph to determine whether the maximum permitted number of instrument units would be violated for each of the first units of time temporally overlapped by the second unit of time should the requested trade execute. The trade is then allowed to execute if no violation is determined, and blocked otherwise.

[0013] In some embodiments, the financial instruments comprise one or more of swaps for delivery of electricity, megawatt delivery hours or long-term power purchase agreements. The strip of contracts may span a non-contiguous block of time, and in some instances the second unit of time comprises a plurality of the first unit of time, e.g., the first unit may be a day and the second unit an hour (or block of hours), or, in other cases the second unit of time comprises a quarter-year and the first unit of time comprises a month. The instrument data representing a

permitted maximum number of instrument units permitted per a first unit of time may include user-specified limits on overall exposure to a particular position for a current year, current season, current quarter, and current month, or, in some cases, may include default values at any level of granularity. The actual number of instrument units may be a total number of contracts owned that cover a particular time period or a total financial exposure during a particular time period. In some implementations, the set of instrument data may comprise limitations on trading positions applied by a prime broker, general clearing member, futures commission merchant or other credit provider across a plurality of trading entities wherein the credit provider provides the trading entities with access to an exchange, inter-dealer broker platform, swap execution facility or other trade execution venue on which the financial instrument is traded. In other instances, the set of instrument data representing a maximum number of instrument units permitted per a first unit of time includes individual limitations on trading positions for individual trading entities for which the credit provider provides access to a trade execution venue on which the financial instrument can be traded.

[0014] In another aspect, a system for determining whether a trade order is permitted according to a predefined exposure limitation includes a data storage server for storing a set of instrument data representing an actual and a permitted maximum number of instrument units for each of a first plurality of corresponding first units of time, a communications server for receiving a request to execute a trade for one or more strips of financial instruments, the strips including one or more instrument units, each of which is associated with a second unit of time that temporally overlaps at least a portion of a second plurality of the corresponding first units of time, memory for storing computer-executable instructions, and a processor for executing the instructions stored in the memory. Execution of the instructions by the processor implements a trade risk management application which constructs a stepped graph for the financial instrument based on the stored instrument data. One axis of the stepped graph represents a plurality of time periods covering any of the strips and another axis represents a quantity of the units of the financial instrument for each respective time period. The application also compares the received request to the quantity of the units of the financial instrument from the stepped graph to determine whether the maximum permitted number of instrument units would be violated for each of the first units of time temporally overlapped by the second unit of time should the requested trade execute, allows the trade to execute if no violation is determined, and rejects the trade if a violation is determined.

[0015] In some implementations, the data storage server, communications server, memory and processor are hosted by a single entity at a central facility servicing a plurality of credit providers, each credit provider providing a plurality of trading entities access to an trade

execution venue on which the financial instruments are traded. The data storage server, communications server, memory and at least one processor may be provided to each of a plurality of trading entities. Execution of the instructions in some cases further implements a fail-safe monitor for halting, or, in some cases, disallowing, all requested trades for the financial instrument should the set of instrument data representing a maximum number of instrument units become unavailable. In other implementations, the data storage server, communications server, memory and processor are hosted by a single entity at a central facility servicing a plurality of credit providers, each credit provider providing a plurality of trading entities access to an trade execution venue on which the financial instruments are traded.

[0016] In another aspect, the invention provides an article of manufacture having computer-readable program portions embedded thereon for determining the executability of a proposed trade within a market. The program portions comprise instructions for storing a set of instrument data representing an actual and a permitted maximum number of instrument units for each of a first plurality of corresponding first units of time; receiving a request to execute a trade for one or more strips of financial instruments, wherein the strips include one or more instrument units, each of which is associated with a second unit of time; constructing a stepped graph for the financial instrument based on stored instrument data wherein one axis of the stepped graph represents a plurality of time periods covering any of the strips and another axis represents a quantity of the units of the financial instrument for each respective time period, and compraing the received request to the quantity of the units of the financial instrument from the stepped graph to determine whether the maximum permitted number of instrument units would be violated for each of the first units of time temporally overlapped by the second unit of time should the requested trade execute. The trade is allowed to execute if no violation is determined, and not allowed if a violation is determined.

Brief Description of Figures

[0017] In the drawings, like reference characters generally refer to the same parts throughout the different views. Also, the drawings are not necessarily to scale, emphasis instead generally being placed upon illustrating the principles of the invention.

[0018] FIG. 1 illustrates a general arrangement of parties and functions within a trading environment in which various aspects of the invention operate.

[0019] FIG. 2 is a schematic illustration of a system for implementing the analysis and execution of trades in accordance with one embodiment of the invention.

CLAIMS

1. A method of determining whether a trade order having a temporal component is permitted according to a predefined exposure limitation, the method comprising the steps of:

storing a set of instrument data representing an actual and a maximum permitted number of instrument units for each of a first plurality of corresponding first units of time;

receiving a request to execute a trade for one or more strips of financial instruments, the strips including one or more instrument units, each of which is associated with a second unit of time that temporally overlaps at least a portion of a second plurality of the corresponding first units of time;

constructing a stepped graph for the financial instrument based on the stored instrument data wherein one axis of the stepped graph represents a plurality of time periods covering any of the strips and another axis represents a quantity of the units of the financial instrument for each respective time period;

comparing the received request to the quantity of the units of the financial instrument from the stepped graph to determine whether the maximum permitted number of instrument units would be violated for each of the first units of time temporally overlapped by the second unit of time should the requested trade execute; and

allowing the trade to execute if no violation is determined, and not allowing the trade to execute if a violation is determined.

2. The method of claim 1 wherein the financial instruments comprise swaps for delivery of electricity.

3. The method of claim 1 wherein the financial instruments comprise long-term power purchase agreements.

4. The method of claim 1 wherein the strips of financial instruments comprise a non-contiguous block of time.

5. The method of claim 1 wherein the instrument units comprise megawatt delivery hours.

6. The method of claim 1 wherein the second unit of time comprises a plurality of the first units of time.

7. The method of claim 6 wherein the second unit of time comprises a quarter-year and the first unit of time comprises a month.

8. The method of claim 1 wherein the instrument data representing a maximum permitted number of instrument units for each of a first plurality of corresponding first units of time comprise user-specified limits for at least one of a current year, a current season, a current quarter, and a current month.

9. The method of claim 8 wherein the instrument data representing a maximum permitted number of instrument units for each of a first plurality of corresponding first units of time further comprise default limits for non-current time periods.

10. The method of claim 1 wherein:

(i) the set of instrument data representing a maximum permitted number of instrument units for a first plurality of first units of time comprises limitations on trading positions for a credit provider across a plurality of trading entities; and

(ii) the credit provider provides the trading entities with access to a trade execution venue on which the financial instrument is traded.

11. The method of claim 1 wherein the set of instrument data representing a maximum permitted number of instrument units for a first plurality of first units of time comprises individual limitations on trading positions for each of a plurality of trading entities for which a credit provider provides access to a trade execution venue on which the financial instrument is traded.

12. A system for determining whether a trade order is permitted according to a predefined exposure limitation, the system comprising:

a data storage server for storing a set of instrument data representing an actual and a permitted maximum number of instrument units for each of a first plurality of corresponding first units of time;

a communications server for receiving a request to execute a trade for one or more strips of financial instruments, the strips including one or more instrument units, each of which is associated with a second unit of time that temporally overlaps at least a portion of a second plurality of the corresponding first units of time;

memory for storing computer-executable instructions; and

at least one processor for executing the instructions stored in the memory, wherein execution of the instructions implements a trade risk management application for:

constructing a stepped graph for the financial instrument based on the stored instrument data wherein one axis of the stepped graph represents a plurality of time periods covering any of the strips and another axis represents a quantity of the units of the financial instrument for each respective time period;

comparing the received request to the quantity of the units of the financial instrument from the stepped graph to determine whether the maximum permitted number of instrument units would be violated for each of the first units of time temporally overlapped by the second unit of time should the requested trade execute; and

allowing the trade to execute if no violation is determined, and not allowing the trade to execute if a violation is determined.

13. The system of claim 12 wherein the data storage server, communications server, memory and at least one processor are hosted by a single entity at a central facility servicing a plurality of credit providers, each credit provider providing a plurality of trading entities access to a trade execution venue on which the financial instruments are traded.

14. The system of claim 12 wherein the data storage server, communications server, memory and at least one processor are provided to each of a plurality of trading entities.

15. The system of claim 12 wherein execution of the instructions further implements a fail-safe monitor for halting all requested trades for the financial instrument should the set of instrument data representing a maximum permitted number of instrument units become unavailable.

16. The system of claim 15 wherein execution of the instructions further implements a fail-safe monitor that disallows all requested trades for the financial instrument should the set of instrument data representing a maximum permitted number of instrument units become unavailable.

17. An article of manufacture having computer-readable program portions embedded thereon for determining the executability of a proposed trade within a market, the program portions comprising instructions for:

storing a set of instrument data representing an actual and a permitted maximum number of instrument units for each of a first plurality of corresponding first units of time;

receiving a request to execute a trade for one or more strips of financial instruments, the strips including one or more instrument units, each of which is associated with a second unit of time;

constructing a stepped graph for the financial instrument based on stored instrument data wherein one axis of the stepped graph represents a plurality of time periods covering any of the strips and another axis represents a quantity of the units of the financial instrument for each respective time period;

comparing the received request to the quantity of the units of the financial instrument from the stepped graph to determine whether the maximum permitted number of instrument units would be violated for each of the first units of time temporally overlapped by the second unit of time should the requested trade execute; and

allowing the trade to execute if no violation is determined, and not allowing the trade to execute if a violation is determined.

18. The article of manufacture of claim 17 wherein the program portions further comprise instructions for transmitting the trade to a trade execution system for execution of the trade thereon.