FIRM TRADE PROCESSING SYSTEM AND METHOD

TECHNICAL FIELD

[0001] This disclosure is generally related to processing, clearing and recording firm trades between clearing participants, and more particularly to computer systems and methods for identifying and clearing firm trades generated by a price discovery process.

BACKGROUND

[0002] Recent developments in derivatives trading markets have created a need to trade a wide variety of financial instruments and derivatives that are not traded on traditional exchanges. In particular, a large number of finical instruments are currently traded in Over-The-Counter (OTC) markets. These trades need to comply with current legislation and financial regulations, especially those that are currently booked as bilateral trades. Consequently, it is highly desirable to have a new type of a trading system that is capable of identifying and processing firm trades in a way that avoids processing any of these trades as a bilateral trade between two clearing participants.

SUMMARY

[0003] The present disclosure relates generally to a method and a system for processing trades. In one embodiment, an at least one computer may generate a firm trade between clearing participants. The at least one computer may then transmit a firm trade enrichment request to the clearing participants, and receive enriched firm data in response. The at least one computer may then process the firm trade as a cleared trade using the enriched firm data, and submit the trade to a trade reporting repository.

[0004] In another embodiment, a clearinghouse server may be configured to generate a firm trade between clearing participants. The clearinghouse server may further be configured to

transmit a firm trade enrichment request to the clearing participants, and receive enriched firm data in response. The clearinghouse server may also be configured to process the firm trade as a cleared trade using the enriched firm data, and submit the trade to a trade reporting repository.

BRIEF DESCRIPTION OF THE DRAWINGS

[0005] The foregoing summary and the following detailed description are better understood when read in conjunction with the appended drawings. Exemplary embodiments are shown in the drawings, however, it is understood that the embodiments are not limited to the specific methods and instrumentalities depicted herein. In the drawings:

[0006] FIG. 1 is a block diagram illustrating an exemplary system and method for processing a trade.

DETAILED DESCRIPTION

[0007] The present disclosure relates generally to systems and methods of generating and processing trades as cleared trades. After a firm trade is generated, a request to enrich the trade may be sent to the trade counterparties. Once the firm trade enrichment data is received, the trade may be processed as a cleared trade with each counterpart facing a clearinghouse entity directly. The firm trades may then be submitted to trade reporting repository.

[0008] For purposes of this disclosure, a firm trade shall refer to any actual trade between two or more clearing participants or other trade participants that is subject to being executed and cleared. The firm trade may also refer to an actual trade between a clearing participant and a clearinghouse entity. In one embodiment, a firm trade may refer to a trade that is generated as a result of a price discovery process. In another embodiment, a firm trade may be generated based on one or more trade submissions from clearing participants.

[0009] For purposes of this disclosure, price discovery process shall refer to any manner of

determining a price of a financial instrument based on proposed trade submissions by trading parties. In one embodiment, clearing participants may be required to submit hypothetical trade proposals for certain OTC financial instruments. The hypothetical trade proposals may then be processed to determine the price of these OTC financial instruments. In one embodiment, the price is determined by using a mathematical algorithm. Additionally, to ascertain that no misleading hypothetical trade proposals are submitted, the clearing participants may occasionally be required to execute some of the submitted hypothetical trades as firm trades.

[0010] For purposes of this disclosure, the clearing participant shall refer to any organization or entity that is authorized to clear trades. The clearing participant may be authorized to clear trades from its own accounts and/or trades that were conducted on behalf of its clients. The clearing participant may also refer to any entity such as a broker, dealer, or other trade participant that may submit trade proposals (e.g. bids or offers) that may result in actual trades that may ultimately be processed as cleared trades according to this disclosure.

[0011] For purposes of this disclosure, the trade participant shall refer to any person, organization or entity that can submit trade proposals or otherwise engage in trading of financial instruments. In one embodiment, the trade participant may be a clearing participant.

[0012] The term clearinghouse server refers to any type of a computing device. The clearinghouse server may comprise one or more processors configured to execute instructions stored on a non-transitory memory configured to provide any type of clearing, trading or other services. A clearinghouse server may be embodied on a single computing device, while in other embodiments, a clearinghouse server device may refer to a plurality of computing devices housed in one or more facilities that are configured to jointly provide local or remote computing services to one or more users or user devices. The clearinghouse server may send and receive

data from trade participant computing devices, clearing participant computer devices, dealer computing devices, trade reporting repositories, or any other type of computing device or entity over the Internet, over a Wi-Fi connection, over a cellular network or via any other wired or wireless connection or network known in the art.

[0013] The term computer refers to any type of a computing device. The computer may comprise one or more processors configured to execute instructions stored on a non-transitory memory configured to provide any type of computing services. A computer may be embodied on a single computing device, while in other embodiments, a computer may refer to a plurality of computing devices housed in one or more facilities that are configured to jointly provide local or remote computing services to one or more users or user devices.

Trade Processing Method

[0014] In a first exemplary implementation, the present disclosure relates to a method of processing a trade by a computer. In one embodiment, the computer may be a clearinghouse server. As an initial step, the method includes the computer generating an at least one firm trade involving one or more trade participants. In one embodiment, the one or more trade participants associated with the firm trade are clearing participants. In another embodiment, the computer may generate a firm trade based on the results of a price discovery process. For example, the price discovery process may involve receiving theoretical trade submissions from multiple clearing participants that reflect their views on the price of a particular financial instrument. The financial instrument may be a Credit Default Swap (CDS), a swap, an option, an option chain, a future, a forward or any other financial instrument traded in OTC markets or other markets. Some of the theoretical trade submissions may then be converted to firm trades. In one embodiment, the trades may be selected for conversion randomly by crossing and locking

matching theoretical bids and offers received from the clearing participants. However, other methods may be also used to identify the firm trade. In yet another embodiment, the theoretical trade submissions may be used to calculate a theoretical price for a given financial instrument. The theoretical price may be calculated using a mathematical algorithm with theoretical trade submissions used as inputs. The theoretical price may then be used to asses risk associated with trading a given financial instrument and/or to determine appropriate margins for parties that wish to trade this financial instrument.

[0015] Once the computer generates a firm trade, the computer may generate and transmit a firm trade notification to the trade participant counterparties associated with the firm trade. The firm trade notification may be straight-through processed to the trade participants using an Application Programming Interface (API) associated with the computer. In another embodiment, the firm trade notification may be send in a Comma-Separated Format (CSV) format, or anther suitable format. The firm trade notification may include a request for firm trade enrichment data.

[0016] The trade participants may then respond by providing the firm trade enrichment data. The firm trade may be enriched by a trading participant using a graphical user interface (GUI). In another embodiment, the firm trade may be enriched automatically by a trade participant's computing device using the API provided by the computer or associated with the computer. The enriched firm trade data may then be transmitted to the computer. In one embodiment the enriched firm data may comprise trade identification data and desk identification data associated with the trade participant. In other embodiments, other data may also be included in the enriched firm trade data.

[0017] Once the computer receives the enriched firm trade data, the computer may process the firm trade as a cleared trade using the received enriched firm trade data. In another

embodiment, if the enriched firm trade data is not received by a certain time (e.g. 6PM of the trade day), the computer may generate and/or use default values as enriched firm trade data. In one embodiment, the firm trade is processed as a cleared trade by sending appropriate messages to dealers associated with the trade participants. However, other methods of processing a firm trade as a cleared trade known in the art may also be used.

[0018] Once the firm trade is processed as a cleared trade, the computer may submit the firm trade to a trade reporting repository on behalf of the trade participants. In one embodiment, the firm trade is submitted via an Automated New Trade process. However, other methods of submitting the firm trade known in the art may also be used.

[0019] In one embodiment, the firm trade is processed by a clearinghouse server with each of the trade participants facing the clearinghouse entity directly as a respective counterparty. In this embodiment, the firm trade is not processed as a bilateral trade between the two trade participants. Instead, the firm trade may be processed as one trade between a first trading participant and the clearinghouse entity and a second trade between a second trading participant and the clearinghouse entity. This embodiment may be particularly useful for trade participants who are Futures Commission Merchants (FCMs) that are defined as Derivative Clearing Organizations (DCOs) to comply with financial legislation and regulations. In case the clearinghouse server rejects the firm trade, the firm trade may be considered null and void for all parties.

Clearinghouse Server

[0020] In a second exemplary implementation, a clearinghouse server may be configured to process a firm trade. The clearinghouse server may comprise one or more processors configured to execute instructions stored on a non-transitory memory. Execution of these instructions may

cause the clearinghouse server to perform any of the features described below.

[0021] The clearinghouse server may be configured to generate at least one firm trade involving one or more trade participants. In one embodiment, the one or more trade participants are clearing participants. In another embodiment, the clearinghouse server may be configured to generate a firm trade based on the results of a price discovery process. For example, the clearinghouse server may be configured to conduct a price discovery process by receiving theoretical trade submissions from multiple clearing participants that reflect their views on the price of a particular financial instrument. The clearinghouse server may be configured to convert some of the theoretical trade submissions to firm trades. In one embodiment, the clearinghouse server may be configured to selected trades for conversion randomly by crossing and locking matching theoretical bids and offers received from the clearing participants. In yet another embodiment, the clearinghouse server may be configured to use theoretical trade submissions to calculate a theoretical price for a given financial instrument. The theoretical price may then be used to asses risk associated with trading a given financial instrument and/or to determine appropriate margins for parties that wish to trade this financial instrument.

[0022] The clearinghouse server may be configured to generate and transmit a firm trade notification to the trade participant counterparties associated with the firm trade after converting a trade submissions to a firm trade. The clearinghouse server may also be configured to straight-through process the firm trade notification to the trade participants using an API associated with the clearinghouse server. In another embodiment, the clearinghouse server may be configured to send the firm trade notification in a Comma-Separated Format (CSV) format, or another suitable format. The firm trade notification may include a request for firm trade enrichment data.

[0023] One or more user computing devices associated with the trade participants may be

configured to respond by proving the enriched firm trade data. The trade may be enriched by a user computing device though a graphical user interface (GUI) provided by the clearinghouse server. In one embodiment, the graphical user interface may be configured to display the economic details of the firm trade and the identities of the firm trade counterparties. In another embodiment, the GUI may be configured to display the clearinghouse entity as the counterparty, and not to display the identity of the crossed and locked counterparty. In yet another embodiment, a user computing device may be configured to enrich the firm automatically using an API provided by the clearinghouse server. The user computing device may be configured to transmit the enriched trade data to the clearinghouse server. In one embodiment, the enriched trade data may comprise trade identification data and desk identification associated with the trade party.

[0024] The clearinghouse server may be configured to receive the enriched trade data and process the firm trade as a cleared trade using the received enriched firm trade data. In another embodiment, the clearinghouse server may be configured to generate and/or use default values as enriched firm trade data if the enriched firm trade data is not received by a certain time (e.g. 6PM of the trade day). In one embodiment, the clearinghouse server may be configured to process the firm trade as a cleared trade by sending appropriate messages to dealers associated with the trade participants. However, other method of processing a firm trade as a cleared trade known in the art may also be used.

[0025] In one embodiment, the clearinghouse server is configured to processed the firm trade with each of the trade participants facing the clearinghouse entity directly as a respective counterparty. In this embodiment, the clearinghouse server is not configured to process the firm trade as a bilateral trade between the two trade participants. Instead, the clearinghouse server is

configured to process the firm trade as one trade between a first trading participant and the clearinghouse entity and a second trade between a second trading participant and the clearinghouse entity. This embodiment may be particularly useful for trade participants who are Futures Commission Merchants (FCMs) that are defined as Derivative Clearing Organizations (DCOs). In case the clearinghouse server rejects the firm trade, the firm trade may be considered null and void for all parties.

[0026] Once the firm trade is processed as a cleared trade, the clearinghouse server may be configured to submit the firm trade to a trade reporting repository on behalf of the trade participants. In one embodiment, the clearinghouse server may be configured to submit the firm trade an Automated New Trade process. However, other methods of submitting the firm trade known in the art may also be used.

Trading System

[0027] Turning now to Fig. 1, an exemplary system 100 for processing a trade is shown. The system 100 comprises a clearinghouse server 110, a first clearinghouse participant 105, a second clearinghouse participant 115, a first dealer 130, a second dealer 140 and a trade reporting repository 150. Each of the clearinghouse server 110, the clearinghouse participants 105 and 115, the dealers 130 and 140 and the trade reporting repository 150 may comprise one or more computing devices that include a non-transitory memory for storing instructions and a processor for executing the instructions. The clearinghouse server 110 may send and receive data from clearing participants 105 and 110, dealers 130 and 140, and trade reporting repository 150 over the Internet, over a Wi-Fi connection, over a cellular network or via any other wired or wireless connection or network known in the art.

[0028] The clearinghouse server 110 may comprise a clearing module 160 and a trading link

module 155. The clearing module 160 and the trading link module 155 may be embodied on separate computing devices housed in separate facilities. In another embodiment, the modules 155 and 160 may be embodied on a single computing device that comprises one or more processors configured to execute instructions stored on a non-transitory memory. Execution of these instructions may cause the clearinghouse server 110 to perform the functions of the clearing module 160 and the trading link module 155. The modules 160 and 155 may communicate with one another over the Internet, over a Wi-Fi connection, over a cellular network or via any other wired or wireless connection or network known in the art. Alternatively, the modules 160 and 155 may communicate with one another using internal capabilities of a single computing device.

[0029] The clearing module 160 may be configured to generate a firm trade with the first clearing participant 105 and the second clearing participant 115 being crossed and locked counterparties. The clearing module 160 may be configured to generate this firm trade as a result of a price discovery process discussed above. In other embodiments, the clearing module 160 may be configured to generate the firm trade using other methods or techniques known in the art. The clearing module 160 may also be configured to transmit the firm trade to other modules of the clearinghouse server 110 or to other elements of the system 100. In one embodiment, the clearing module 160 may be configured to request and receive firm trade enrichment data from the trade link module 155. In another embodiment, the firm trade enrichment data may comprise desk identification data and trade identification data provided by the first clearing participant 105 and/or the second clearing participant 115. In yet another embodiment, the clearing module 160 may be configured to generate default values for the firm trade enrichment data, if the firm trade enrichment data is not received from the clearing participants 105 and 115 by designated time.

[0030] The clearing module 160 may also be configured to process the firm trade as a cleared trade. In one embodiment, the clearing module 160 is configured to process the firm trade in two sub-steps. In the first sub-step, the clearing module 160 may be configured to process the firm trade with the first clearing participant 105 and the clearinghouse as the respective counterparties. In the second sub-step, the clearing module 160 may be configured to process the firm trade with the second clearing participant 115 and the clearinghouse as the respective counterparties. In this embodiment, the firm trade is not processed as a bilateral trade between the first clearing participant 105 and the second clearing participant 115.

[0031] In one embodiment, the clearing module 160 may process the firm trade as a cleared trade by transmitting appropriate data to the first dealer 130 and the second dealer 140, where the dealers 130 and 140 comprise the accounts associated with the clearing participants 105 and 155. In other embodiments, the clearing module 160 may process the firm trade as a cleared trade by other methods or techniques known in the art. The clearing module 160 may also be configured to submit the firm trade to the trade reporting repository 150 once the firm trade is processed as a cleared trade.

[0032] The trading link module 155 may be configured to receive the firm trade data from the clearing module 160. The trading link module 155 may further be configured to transmit the firm trade data to the first clearing participant 105 and the second clearing participant 115, where the clearing participants 105 and 115 are counterparties in the firm trade. The trading link module 155 may be configured to straight-through process the firm trade data to the first clearing participant 105. The link module 155 may be also be configured to transmit the data to be displayed on the graphical user interface (GUI) 120 of the second clearing participant 115. The trading link module 155 may further be configured to request firm trade enrichment data from

the clearing participants 105 and 115. In one embodiment, the trading link module 155 may be configured to receive firm trade enrichment data from the first clearing participant 105 via an API provided by the clearinghouse server 110. In another embodiment, the trading link module 155 may be configured to receive firm trade enrichment data from the second clearing participant 115 via a web GUI 120. The trading link module 155 may further be configured to transmit the firm trade enrichment data to the clearing module 160.

[0033] The first clearing participant 105 may comprise a computing device that comprises a trade capture module 125. The trade capture module may be embodied in instructions stored on a non-transitory memory of the computing device of the first clearing participant 105. The trade capture module 125 may be configured to receive firm trade data and firm trade enrichment request from the clearinghouse server 110. The trade capture module 125 may further be configured to automatically provide the firm trade enrichment data to the clearinghouse server 110 via an API associated with the clearinghouse server 110.

[0034] The second clearing participant 115 may comprise a computing device that is configured to execute instructions stored on a non-transitory memory. Execution of these instructions may cause that computing device to display a GUI 120. The GUI 120 may be configured to display the firm trade data. In one embodiment, the GUI 120 may be configured to display the firm trade counterparty information. In another embodiment, the GUI 120 may display the clearinghouse as the firm trade counterparty. The second clearing participant 115 may comprise a computing device configured to receive firm trade data and firm trade enrichment request from the clearinghouse server 110. The GUI 120 may be configured to display the firm trade enrichment request and to receive the firm trade enrichment data. The second clearing participant 115 may comprise a computing device configured to transmit the

firm trade enrichment data to the clearinghouse server 110.

[0035] The first dealer 130 may comprise an account associated with the first clearing participant 105. The first dealer 130 may be configured to receive data associated with the first clearing participant 105 as a part of processing the firm trade as a cleared trade. The second dealer 140 may comprise an account associated with the second clearing participant 115. The second dealer 140 may be configured to receive data associated with the second clearing participant 115 as a part of processing the firm trade as a cleared trade.

[0036] The trade reporting repository 150 may be configured to receive the submission associated with the firm trade, once the firm trade is processed as a cleared trade. In one embodiment, the trade reporting repository 150 may be configured to receive the firm trade data via Automated New Trade submission process.

[0037] In one embodiment, the trade processing system 100 may operate in the following manner to process trades. The clearing module 160 may be configured to generate a firm trade between clearing participants counterparties 105 and 115. The clearing module 160 may then request firm trade enrichment data 180. The trading link module 155 may then request firm trade enrichment data 181a from the first clearing participant 105. The trading link module 155 may also request firm trade enrichment data 181b from the second clearing participant 115.

[0038] The first clearing participant 105 may then provide firm trade enrichment data 182a. via an API using the trade capture module 125. The second clearing participant 115 may provide firm trade enrichment data 182b via a GUI 120. The firm trade enrichment data may then be transmitted 183 to the clearing module 160. The clearing module 160 may be configured to process the firm trade as a cleared trade by sending appropriate messages 184a and 184b to the first dealer 130 and the second dealer 140. The clearing module 160 may be configured to

process the firm trade with each of the clearing participants 105 and 115 facing the clearinghouse directly as respective counterparties. The clearing module 160 may also be configured to submit the cleared firm trade 185 to the trade reporting repository 150.

[0039] The foregoing examples are provided merely for the purpose of explanation and are in no way to be construed as limiting. While reference to various embodiments are shown, the words used herein are words of description and illustration, rather than words of limitation. Further, although reference to particular means, materials, and embodiments are shown, there is no limitation to the particulars disclosed herein. Rather, the embodiments extend to all functionally equivalent structures, methods, and uses, such as are within the scope of the appended claims.

CLAIMS

1. A method for trade processing, the method comprising:

generating, by at least one computer, at least one firm trade involving one or more clearing participants;

transmitting a firm trade enrichment request to the one or more clearing participants;

receiving enriched firm trade data from the one or more clearing participants;

processing, by the at least one computer, the at least one firm trade as at least one cleared trade using the enriched firm trade data; and

submitting, by the at least one computer, the at least one firm trade to a trade reporting repository.

2. The method of claim 1, wherein the at least one firm trade is generated as a result of a price discovery process.

3. The method of claim 1, wherein generating the at least one firm trade further comprises:

generating one or more hypothetical trades based on trade submissions from the one or more clearing participants;

generating at least one representative price based on the one or more hypothetical trades; and

converting at least one of the hypothetical trades into at least one actual trade involving the at least one clearing participant as a counterparty, said actual trade comprising the at least one firm trade.

4. The method of claim 1, wherein the at least one actual trade also involves at least one of a clearinghouse entity or another clearing participant as another counterparty.

5. The method of claim 1, wherein the at least one firm trade is straight-through processed (STP'ed) to the one or more clearing participants.

6. The method of claim 1, wherein the enriched firm trade data is provided via one or more of a clearing services Application Programming Interface (API) and a clearing services Graphical User Interface (GUI).

7. The method of claim 1, further comprising:

generating, by the at least one computer, the enriched firm trade data using default values if the enriched firm trade data is not received from the one or more clearing participants.

8. The method of claim 1, wherein the at least one firm trade is processed by a clearinghouse entity, and wherein each of the one or more clearing participants faces the clearinghouse entity directly as a respective counterparty.

9. The method of claim 8, wherein the at least one firm trade is not processed as a bilateral trade.

10. The method of claim 8, wherein the at least one firm trade is considered null and void if a clearinghouse entity rejects the at least one firm trade.

11. The method of claim 1, wherein the enriched firm trade data comprises at least one of desk identification data and trade identification data.

12. A clearinghouse server, embodied in a non-transient computer readable medium, the clearinghouse server being configured to:

generate at least one firm trade involving one or more clearing participants;

transmit a firm trade enrichment request to the one or more clearing participants;

receive enriched firm trade data from the one or more clearing participants;

process the at least one firm trade as an at least one cleared trade using the enriched firm trade data; and

submit the at least one firm trade to a trade reporting repository.

13. The clearinghouse server of claim 12, wherein the clearinghouse server is further configured to generate the at least one firm trade as a result of a price discovery process.

14. The clearinghouse server of claim 12, wherein the clearinghouse server, in order to generate the at least one firm trade, is further configured to:

generate one or more hypothetical trades based on trade submissions from the one or more clearing participants;

generate at least one representative price based on the one or more hypothetical trades; and

convert that at least one of the hypothetical trade into at least one actual trade involving the at least one clearing participant as a counterparty, said actual trade comprising the at least one firm trade.

15. The clearinghouse server of claim 12, wherein the at least one actual trade also involves at least one of a clearinghouse entity or another clearing participant as another counterparty.

16. The clearinghouse server of claim 12, wherein the clearinghouse server is further configured to straight-through process (STP) the at least one firm trade to the one or more clearing participants.

17. The clearinghouse server of claim 11, wherein the clearinghouse server is further configured to receive the enriched firm trade data provided via one or more of a clearing services Application Programming Interface (API) and a clearing services Graphical User Interface (GUI).

18. The clearinghouse server of claim 12, wherein the clearinghouse server is further configured to:

generate the enriched firm trade data using default values if the enriched firm trade data is not received from the one or more clearing participants.

19. The clearinghouse server of claim 12, wherein the clearinghouse server is further configured to process the at least one firm trade with each of the one or more clearing participants facing the clearinghouse entity directly as a respective counterparty.

20. The clearinghouse server of claim 19, wherein the clearinghouse server is further configured to generate a graphical user interface (GUI) that displays the at least one firm trade data, said data indicating that one of the one or more clearing participants and the clearinghouse entity are respective trade counterparties.

21. The clearinghouse server of claim 19, wherein the clearinghouse server is further configured to avoid processing the at least one firm trade as a bilateral trade.

22. The clearinghouse server of claim 19, wherein the at least one firm trade is considered null and void if the clearinghouse server rejects the at least one firm trade.

23. The clearinghouse server of claim 12, wherein the enriched firm trade data comprises at least one of desk identification data and trade identification data.