STANDARDIZATION AND MANAGEMENT OF OVER-THE-COUNTER FINANCIAL INSTRUMENTS

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ABSTRACT
A method of managing over-the-counter financial products is disclosed. The method includes receiving transaction parameters associated with an over-the-counter financial product, determining a standardized financial product that reflects the transaction parameters associated with the over-the-counter financial product; calculating a net position based on the difference between the standardized financial product and the over-the-counter financial product, and clearing the net position through a clearing party.
FIG. 1

10

20

RECEIVE OTC TRANSACTIONS

100

STANDARDIZATION PROCESS

200

NETTING PROCESS

300

CLEARING PROCESS

FIG. 2
FIG. 3

A

ESTABLISH A CLEARING COUNTERPARTY

202

DETERMINE STANDARDIZED START DATE

204

CALCULATE NET PRESENT VALUE

206

B

200
FIG. 4

PROCESS CASH FLOW

MAINTAIN BOOK OF STANDARDIZED OVER-THE-COUNTER PRODUCTS

END
FIG. 5
<p>| | |</p>
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>1 y</td>
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**FIG. 6**
FIG. 7
FIG. 8
STANDARDIZATION AND MANAGEMENT OF OVER-THE-COUNTER FINANCIAL INSTRUMENTS

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a divisional of U.S. application Ser. No. 11/852,445, filed Sep. 10, 2007, which claims the benefit of priority from U.S. Provisional Application No. 60/825,351, filed Sep. 12, 2006. The content of each of these applications is incorporated herein by reference for all purposes.

TECHNICAL FIELD

[0002] This patent generally relates to processes and methods of managing and clearing financial instruments, and more specifically to standardizing, managing and clearing over-the-counter products such as interest rate swaps.

BACKGROUND

[0003] Over-the-counter (OTC) derivative products, such as negotiable financial instruments, generally refer to custom-tailored, negotiated contracts such as, for example, derivatives of stocks, commodities, securities, interest rates, indices, futures and forwards, options and foreign currencies which are bought and sold directly between parties. Transactions related to these financial instruments may be considered over the counter since they are not exchange traded and the instruments are not generally exchange listed. Over-the-counter OTC financial products may be negotiated or otherwise defined to address the needs and desires of the parties in an attempt to mitigate their individual exposure or liability to risk, or in an effort to maximize or control their individual cash-flows.

[0004] Regardless of the objective, an exchange of the over-the-counter products, like entrance into any contract, processing of the transaction, and post-transaction administration, may require the parties to expend substantial effort and resources to monitor and ensure compliance throughout the life term of the contract or product. Depending upon the duration, complexity and number of contracts or over-the-counter products within a party’s portfolio, this monitoring may be complicated and require a great deal of substantial effort.

[0005] It would be desirable to provide processes and methods for monitoring, managing and clearing custom-tailored contracts or over-the-counter financial products.

SUMMARY

[0006] Processes and methods for monitoring, managing and servicing over-the-counter products such as, for example, interest rate swap (IRS) transactions are disclosed. The disclosed processes and methods are not limited to IRS transactions or any particular over-the-counter financial products or instruments. Instead, the processes and methods may be generally applied to any wide variety of negotiable financial instruments and investment vehicles. In one exemplary embodiment, innovations for efficient post-trade service including contract standardization, centralized netting and clearing of over-the-counter products are disclosed. For example, one embodiment provides for desirable efficiencies and management of IRS transactions and may be broadly categorized to include (i) a standardization process; (ii) a netting process and (iii) a clearing process.

[0007] The standardization process involves establishing terms of an instrument or contract that cannot be negotiated during a trade of the instrument. Standardization increases transparency and efficiency of the price discovery process. The netting process allows market participants to reduce or eliminate open positions. In the OTC market offsetting transactions do not result in a reduction in open positions because the trades are often conducted with multiple counterparties with different credit qualities. The netting process may utilize a central clearing counterparty such as, for example, the Chicago Mercantile Exchange, Inc. located at 20 South Wacker Drive, Chicago, Ill. 60606. The clearing process entails market-to-market and daily marging with offsets against other exchange traded products. Clearing greatly reduces the risk of default and non-performance of the contract.

[0008] In one embodiment, a method of managing over-the-counter financial products is disclosed. The method includes receiving transaction parameters associated with an over-the-counter financial product, determining a standardized financial product that reflects the transaction parameters associated with the over-the-counter financial product, calculating a net position based on the difference between the standardized financial product and the over-the-counter financial product, and clearing the net position through a clearing party.

[0009] In another embodiment, a method of standardizing an over-the-counter financial instrument is disclosed. The method includes defining an over-the-counter financial instrument including a plurality of transaction parameters, defining a standardized financial instrument associated with the negotiated over-the-counter financial instrument, and establishing a fixing date associated with the standardized financial instrument such that the fixing date is related to at least one of the plurality of transaction parameters.

[0010] In another embodiment, a method of managing financial instruments is disclosed. The method includes determining a standardized financial instrument that includes a plurality of transaction parameters representative of an over-the-counter financial instrument, calculating a net position associated with the standardized financial instrument as a function of a fixing date, and clearing the calculated net position through a clearing party.

[0011] In another embodiment, a method of managing financial instruments is disclosed. The method includes defining a standardized financial instrument associated with an over-the-counter financial instrument such that the standardized financial instrument includes a fixing date and a maturity period, calculating a net position associated with the standardized financial instrument such that the net position is a function of the fixing date, clearing the calculated net position through a clearing party, and utilizing the standardized financial instrument into a second standardized financial instrument as the maturity period decays into a second maturity period associated with the second standardized financial instrument.

[0012] Other embodiments are disclosed, and each of the embodiments can be used alone or together in combination. Additional features and advantages of the disclosed embodiments are described in, and will be apparent from, the following Detailed Description and the figures.

BRIEF DESCRIPTION OF THE FIGURES

[0013] FIG. 1 illustrates one embodiment of a post-trade service and management method implemented in accordance with the teaching disclosed herein;
FIG. 2 illustrates one embodiment of a standardization process that may be implemented by the method shown in FIG. 1;

FIG. 3 illustrates one embodiment of a netting process that may be implemented by the method shown in FIG. 1;

FIG. 4 illustrates one embodiment of a clearing process that may be implemented by the method shown in FIG. 1;

FIG. 5 illustrates another embodiment of the clearing and post-trade service method disclosed herein;

FIG. 6 illustrates an example of netting notional amounts for an interest rate swap;

FIG. 7 illustrates an example of a rolling process that can be performed periodically throughout the duration of the financial transaction; and

FIG. 8 illustrates an example of the clearing and post-trade service method utilized in connection with an exemplary hedge fund.

DETAILED DESCRIPTION

I. Exchange Traded Over-the-Counter Products

Exchange traded over-the-counter (OTC) derivative products, investment vehicles, and/or transactions are generally bi-lateral contracts based on known OTC derivative products in which two parties agree on how a particular trade or agreement is to be settled. The OTC derivative product may be a financial instrument or investment vehicle that is bought, sold, traded, exchanged, and/or swapped between counterparties. The OTC derivative product may have a term and may be settled at some point in the future. Exchange traded over-the-counter derivative products may include a wide variety of transaction parameters designed and tailored to the particular requirements or specifications of the individual parties. OTC derivatives in general, and exchange traded OTC derivative products specifically, exist to fill a wide range of needs for counterparties, including limiting or mitigating exposure to risks and/or maximizing cash flow. These contracts can include a variety of provisions or transaction parameters ranging from delivery locations, quality specifications, settlement and alternatives and can be structured to correlate as closely as possible to the customer’s price, volume, pricing, borrowing rate, transportation and/or other requirements.

A. Interest Rate Swaps

One specific example of an OTC derivative product is an interest rate swap (IRS) transaction. With an interest rate swap, parties agree to exchange streams of future interest payments based on a specified principal or notional amount. Types of IRS transactions or contracts include: an exchange of interest streams where one stream is based on a floating rate and the other interest stream is based on a fixed rate and/or an exchange of two interest streams based floating rates having different underlying indices. Each stream may be referred to as a leg. Swaps are often used to hedge certain risks, for instance, interest rate risk. They can also be used for speculative purposes.

An example of a swap includes a plain fixed-to-floating, or “vanilla,” interest rate swap. The “vanilla” or exemplary interest rate swap includes an exchange of interest streams where one stream is based on a floating rate and the other interest stream is based on a fixed rate in the same currency. In the exemplary swap, one party makes periodic interest payments to the other based on a variable interest rate. The variable rate may be linked to a periodically known or agreed upon rate for the term of the swap such as the London Interbank Offered Rate (LIBOR). In return for the stream of payments based on the variable rate, the other party may receive periodic interest payments based on a fixed rate. The payments are calculated over the notional amount. The first rate is called variable, because it is reset at the beginning of each interest calculation period to the then current reference rate, such as the LIBOR published rate. Often, at least one of the legs to a swap has a variable rate which may be based on any agreed upon factors such as a reference rate, the total return of a swap, an economic statistic, etc.

The parties to an IRS transaction generally utilize these exchanges to limit, or manage, exposure to fluctuations in interest rates, or to obtain lower interest rates than would be otherwise obtainable without the exchange. The interest rate utilized within as a part of an IRS transaction may be linked to a known or agreed upon rate such as, for example, the rate associated with an agreed upon commercial paper, the rate associated with Treasury bills, etc. While it may be difficult to predict the agreed upon rate associated with any IRS transaction or other forward looking contract, large amounts of historical data is available that allows the relationship between interest rates and time to be plotted as a yield curve. The yield curve allows the parties to accurately estimate future interest rates for a period of time, e.g., six months, one year, 5 years, etc.

By way of example, given identical terms and conditions, a party having an excellent credit rating will likely pay less to secure or raise funds than another party having an incrementally lower credit rating. Thus, in the floating rate for fixed interest rate swap mentioned above, one party could secure funds at a floating rate and the other could secure funds at a fixed rate based on the notional amount of the secured funds or loan. The two parties, in turn, could agree or contract to exchange their two interest rates. The first party can utilize the floating to fixed interest rate swap to fix the net interest expense of their floating rate loans by making fixed rate payments and receiving floating rate payments, from the second party, that can be used to offset the floating interest expense on the notional amount of their loan. Conversely, the second party can utilize the fixed to floating interest rate swap (e.g., the opposite of the first party’s transaction), to secure access to a presumably lower floating rate in order to achieve immediate interest savings or a better asset and liability match. It will be understood, that different types of interest rate swap transactions or other over-the-counter financial instruments may be entered into or contracted by the parties without departing from the teachings disclosed and discussed herein.

B. Other Over-the-Counter Products

Another example of a swap is a total return swap (also known as total rate of return swap, or TRORS). A total return swap is a swap in which one party receives interest payments based on an underlying asset (plus any capital gains/losses) over the payment period, while the other receives a specified fixed or floating cash flow. The total return is the capital gain or loss, plus any interest or dividend payments. The specified fixed or floating cash flow is typically unrelated to the credit worthiness of the reference asset. The underlying asset may be any asset, index, or collection of assets. The parties gain exposure to the return of the underlying asset, without having to actually hold the asset. That is, one party gains the economic benefit of owning an asset without having to actually hold the asset on its balance sheet, while the other (which does retain that asset on its balance sheet) has protection against a potential decline in its value. An equity swap is a variation of a total return swap. The underlying asset in an equity swap may be a stock, a basket of stocks, or a stock index.
Regardless of the type of transaction, over-the-counter financial product or instrument contracted by the parties, the expiration or maturity of the future streams of interest payments may occur well in the future. Thus, each of the parties or counterparties may have a book or portfolio containing multiple transactions, IRS transactions, etc., having a variety of maturity dates. This large and complex book or portfolio of transactions can require the parties to expend substantial resources tracking and managing the contracted products. Moreover, for each of transactions within the portfolio, each of the parties maintains an element of risk that one of its counterparties from a previous transaction will default on a payment.

II. Standardization of Over-the-Counter Products

A. General Overview

Exemplary embodiments of methods, apparatuses, systems and financial products that provide for efficient clearing and/or post-trade service of over-the-counter (OTC) financial derivative products and transactions such as, for example, IRS products and transactions are disclosed and discussed below. The post-trade service of OTC financial transactions provides a unified system and means of managing multiple OTC financial transactions and limiting the risks of dealing with other parties to the contract or transaction. FIG. 1 illustrates an exemplary embodiment for method of clearing and post-trade servicing 10 for an exchange traded OTC financial product which includes: (i) a standardization process 100; (ii) a netting process 200; and (iii) a clearing process 300. At block 20, the post-trade service and clearing method 10 provides for receiving data associated with transactions for OTC financial instruments. For example, a trader may place an order related to one or more OTC financial instruments via a web-based or other electronic order interface. The order, in turn, may be match by an electronic matching engine or module with another order having similar terms, transaction parameters, etc. Examples of electronic trading interfaces or front-end trading applications that enable access to the electronic trading platforms are offered by Independent Software Vendors (ISVs), brokerage firms and other application providers. A list of some such platforms is available at http://www.cme.com/trading/gt/isvapp.html. An example of an electronic matching engine or module includes the CME Globex® platform, provided by the Chicago Mercantile Exchange (CME) Inc., located at 20 S. Wacker Drive, Chicago, Ill. 60606.

Alternatively, or in addition to, a trader may send a request for quote to one or more potential counterparties. The trader may transmit the request using an electronic messaging broker system or request for quote system. The potential counterparties may respond to the request by supplying proposed terms and transactions parameters. The trader may, in turn, negotiate with the respondent and/or agree or accept the terms of the proposal. The terms, transaction parameters, etc., relate to one or more transactions for interest rate swaps, the positions of the parties, the notional value and the interest rate swaps among other data related to the interest rate swap. A party, in this exemplary embodiment, may enter into over-the-counter transactions with a counterparty at a negotiated interest rate, either a fixed or floating rate. The principal or notional amount of the swap may be utilized to calculate the interest stream which is the subject of the transaction.

Block 100 indicates the standardization process, which may be simply referred to as standardization, and which generally includes converting a negotiated OTC financial product into a standard or predefined contract. In a standardized contract, the terms such as payment calendars, reset calendars, reference assets or entities, indices, contract activation and expiry dates, and other terms (excluding price, interest rate or quantity) are pre-defined and cannot be negotiated during a trade of the contract. The standardized contract or transaction may, for example, be offered by the central clearing counterparty and may be identified by the matching engine or module. Alternatively, the clearing counterparty or a clearing module may receive the match information provided by the matching engine or module and may, in turn, identify the appropriate standardized contract.

Other standardized transactions may be defined by one or more transaction parameters. For example, a standard transaction may include transaction parameters such as, for example, contract duration, fixed interest rates, floating interest rates, payment calendars, start dates, reset frequencies, day-count conventions for fixed and floating rates, etc. The transaction parameters may be further categorized to include (a) negotiable or negotiated parameters such as, for example, notional amounts, interest rates (both fixed and/or floating), which are agreed upon by each party to the transaction, and (b) standardized or pre-defined transactions such as, contract duration, reset frequency, day-count conventions, etc. It will be understood that overlap may exist between the (a) negotiated parameters and the (b) standardized parameters. For example, the OTC product described above may be defined with a first interest rate and first duration, and the corresponding standardized financial product may include a different, but related, second interest rate and second duration. Moreover, these standardized financial products or contacts may be entered into and/or based upon a standard or agreed-upon day such as the beginning of the month, quarter, etc. The definitions for these standardized financial products are typically established by a neutral third party such as an exchange and the contracts are listed with descriptive symbols to facilitate easy price discovery and trade.

Block 200 indicates the netting process. The netting process generally includes unwinding or closing out the OTC derivative products that had been converted to a standardized IRS transaction and determining a net or net present value position that accounts for all of these standardized contracts. The netting process may include unwinding each of the OTC derivative products and determining a net position that accounts for all or substantially all of the standardized contracts. The netting process may be performed by the clearing counterparty and/or by a netting engine or module configured to determine the net position between both of the OTC products and the corresponding standardized transaction. The individual netted positions determined by the netting engine or module may, in turn, be consolidated based on, for example, the fixing or starting date on which the standardized financial products or contacts were entered.

Block 300 indicates a central clearing of the standardized and netted positions. In an embodiment, a clearing process may be performed by a central counterparty, clearinghouse and/or a clearing module or engine for the standardized and netted IRS transactions. The clearing counterparty or clearing engine may receive the standardized and netted positions of each participant. The clearing counterparty may track each position and may determine profits and losses for each holder of a position to the IRS transaction according to, among other things, notional value, net-present value of IRS transaction, and changes to the interest rate. The profits and losses may be determined periodically, such as a periodic mark-to-market process for determining an open interest or value in an open position.
FIG. 2 illustrates an exemplary detailed view of the standardization process 100 shown in FIG. 1. At block 102, the negotiable parameters of the OTC derivative product, such as an IRS transaction, or any other financial instrument to be standardized, are identified and catalogued. For instance, if the financial instrument is an IRS transaction, the negotiable parameters may include, for example, an interest rate and a notional amount.

At block 104, the standardized parameters associated with the standardized financial instrument are identified and correlated. For example, the standardized parameters or terms of the standardized financial instrument or IRS transaction may include a start date, fixed rate payment calendar, floating rate payment calendar, floating rate reset calendar, reference index and a duration.

At block 106, the predefined or standardized financial instrument having an agreed upon a maturity or duration that corresponds to the duration(s) identified as a standardized or negotiable parameter or term may be selected. The predefined financial instrument such as a standardized IRS transaction represents a financial instrument suitable for trading on an exchange.

FIG. 3 illustrates an exemplary detailed view of the netting process 200 shown in FIG. 1. The netting process 200 includes harmonizing the negotiated OTC derivative product or financial instrument with the standardized financial instrument identified and defined during the standardization process 100. The netting process 200 may identify and account for differences between the financial instrument negotiated between two parties and the standardized or predefined financial instrument.

At block 202, a clearing counterparty (CCP), such as a clearing house, is identified. The CCP may stand between the two (or more) parties associated with the negotiated OTC financial instrument. The CCP, in one exemplary embodiment, receives orders related to the negotiated OTC product. The CCP standardizes these orders with a predefined financial instrument or standardized OTC derivative product. Alternatively, or in addition to, the CCP may receive orders which simply relate to one or more of the predefined financial instruments or standardized OTC derivative products. The CCP, in turn, may match the orders received from multiple parties based on, for example, a comparison of the negotiated or standardized parameters, industry, credit rating, agreements or status with the CCP, or other criteria.

At block 204, the standardized start or fixing date of the standardized IRS transaction is identified. At this standardized start date, the net present value of the standardized IRS transaction may be calculated as a function of the standardized interest or fixing rate associated with the start date.

At block 206, the difference between the negotiated OTC derivative product and the standardized financial instrument may be calculated by the CCP. For example, in the case of IRS transactions the net present value of the negotiated IRS contract or financial instrument is determined, at least, as a function of the negotiated interest rate, the notional amount and the duration. The difference between the net present values of the two financial instruments can be compared and evaluated to determine a cash flow difference between the standardized IRS transaction and the negotiated IRS transaction.

FIG. 4 illustrates a detailed view of the clearing process 300 shown in FIG. 1. At block 302, the cash flow difference between the net present values of the two financial instruments can be settled by the CCP. For example, the CCP will pay and/or receive the calculated difference between the net present values of the two instruments. In this way, the CCP can ensure completion or satisfaction of any contract involving one or more parties and/or financial instruments.

At block 304, once the cash flows or net present value differences are processed by the clearing process 300, the standardized financial instruments such as the standardized IRS transaction may be maintained and monitored by the CCP throughout the duration of the transaction.

B. Illustrative Examples

1. Standardization Process

FIG. 5 illustrates an example of the standardization process 100 and the netting process 200 for the disclosed method of post-trade service and management 10. In the example, four parties, C, C, C, and C, have entered into agreements for an OTC derivative product which may be an IRS having the same maturity. That is, the four parties, C, C, C, and C, in turn, contract and enter into individual IRS transactions with one or more of the other parties. For the sake of simplicity, the length, duration or maturity of all of these contracts is assumed to be ten (10) years. Each of the IRS transactions in the present example is entered into by the parties during a trading period, and is to be standardized to begin on the first day of the next calendar period. The trading period may be any trading period, including a day, week, month, bi-monthly, quarter, semi-annual or year. In the example of FIG. 5, the trading period is a month (i.e., the month of August) and the next calendar period is the following month (i.e., September).

On August 2nd, C agrees to pay the fixed rate interest stream at 3.50% on € 150 million to C. The payment may be tendered in any agreed upon currency or arrangement, which in the example of FIG. 5 is in Euros (€). On August 7th, C agrees to pay the fixed rate interest stream at 3.50% on € 150 million to C. On August 15th, C agrees to pay the fixed rate interest stream at 3.53% on € 100 million to C and on August 25th, C agrees to pay the fixed rate interest stream at 3.57% on € 300 million to C. These dates, amounts and interest rates are utilized solely as an example and are not intended to limit the scope of this example or disclosure in any manner. Moreover, while the contracts in this example are to be standardized to the beginning of a month (September 1st in this example), other starting points could have been defined such as, for example, the beginning of a week, a bi-monthly period, once a quarter, a semi-annual period, or any other desired time interval.

The four transactions between C, C, C, and C are, in turn, unwound and standardized into three transactions between the individual parties and the clearing counterparty (CCP). The CCP may be, for example, the Chicago Mercantile Exchange (CME), Inc. located at 20 South Wacker Drive, Chicago, Ill. 60606. The CCP stands between each of the parties and assumes the financial obligations of each side of the standardized transaction with respect to the other side in order to ensure performance. For example, if the daily fixed interest rate e.g., the LIBOR rate, on the first day of September (September 1st) is assumed to be 3.6%, then the various transactions or contracts between the parties can be standardized based on the daily fixing rate at the beginning of the next calendar or fixing date. The positions of each parties C, C, C, and C may be standardized at the fixing rate for the net of the notional values of the swaps that are being standardized. In the example set forth above, the standardization process can be described as: C agrees to pay CCP an amount equal to the fixed interest stream at 3.6% on € 50 million (the difference between the notional amount of € 150 million to C and the notional amount of € 100 million received from C); C agrees to pay CCP an amount equal to the fixed rate interest stream at 3.6% on € 250 million (the difference
between the notional amount of € 400 million–€ 100 million paid to $C_p$ and the notional amount of € 150 million received from $C_d$; CCP pays $C_d$ an amount equal to the interest stream at 3.6% on € 300 million (the amount received from $C_d$).

[0051] To standardize the contracts, the transactions for the OTC derivatives are unwound. Table 1 below illustrates the position of a central counterparty to the position of each party $C_a$, $C_p$, $C_f$, and $C_d$ to unwind the transactions during the trading period.

### TABLE 1

<table>
<thead>
<tr>
<th></th>
<th>$C_a$</th>
<th>$C_p$</th>
<th>$C_f$</th>
<th>$C_d$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transactions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>that unwind</td>
<td>Pay</td>
<td>Pay</td>
<td>Pay</td>
<td>Pay</td>
</tr>
<tr>
<td>original OTC</td>
<td>NPV (3.5%, 150)</td>
<td>NPV (3.5%, 150)</td>
<td>NPV (3.55%, 150)</td>
<td>NPV (3.57%, 300)</td>
</tr>
<tr>
<td>positions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Standard IRS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>positions that</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>replace OTC</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>positions</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net NPV</td>
<td>$-ve$</td>
<td>$+ve$</td>
<td>$-ve$</td>
<td>$+ve$</td>
</tr>
<tr>
<td></td>
<td>$&lt;\text{CCP pays}&gt;$</td>
<td>$&lt;\text{C_p pays}&gt;$</td>
<td>$&lt;\text{CCP pays}&gt;$</td>
<td>$&lt;\text{C_d pays}&gt;$</td>
</tr>
</tbody>
</table>

TABLE 2 illustrates the notional amounts, independent of the interest rates, of each of the original IRS transactions in tabular form.

### TABLE 2

<table>
<thead>
<tr>
<th></th>
<th>$C_a$</th>
<th>$C_p$</th>
<th>$C_f$</th>
<th>$C_d$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>P/R</td>
<td>Notional</td>
<td>R</td>
<td>Notional</td>
</tr>
<tr>
<td>$2^{nd}$</td>
<td>P</td>
<td>150</td>
<td>R</td>
<td>150</td>
</tr>
<tr>
<td>$15^{th}$</td>
<td>R</td>
<td>(100)</td>
<td>P</td>
<td>(150)</td>
</tr>
<tr>
<td>$25^{th}$</td>
<td>P</td>
<td>300</td>
<td>R</td>
<td>300</td>
</tr>
</tbody>
</table>

[0052] 2. Netting Process

Transactions for OTC derivative products often occur at different times, with different parameters, such as notional amounts and interest rates. As shown in FIG. 5, each of these transactions occurred on a different day in the trading period (i.e., August) ranging from the $2^{nd}$ to the $25^{th}$. The interest rates in the example of FIG. 5 range from 3.50% to 3.57%, but the interests may be within any range. To completely standardize and net the positions on the contracts, the differences in the individual times/durations and interest rates are accounted for and reconciled. To reconcile the transactions, the net present value (post initiation of swap) of each of the original transactions and the standardized transactions are calculated. For example, the net present value (NPV) of each original swap (post-initiation) may be calculated for each transaction using the formula:

\[
NPV = \sum_{i=1}^{n} (c_i \times df_j) - \sum_{i=1}^{n} (\theta_i \times df_j)
\]

Where: $n$ is the number of coupon payments; $c_i$ is the fixed cash flow calculated using the fixed coupon, actual number of days between coupon dates and the notional amount; $\theta_i$ is the floating cash flow calculated using the anticipated floating rates, actual number of days between coupon dates and the notional amount; and $df_j$ is the discount factor for each of the payment dates. In calculating the NPV for each of these transactions, the monetary variations attributable to, for example, the differences in starting dates, the difference between the negotiated interest rate and the standardized or fixing rate and/or the maturity may be accounted for and quantified.

[0054] For example, Table 2 shows that party $C_a$ entered into an IRS transaction(s) to pay € 150 million on the $2^{nd}$ and received € 100 million on the $15^{th}$. When then contracts are standardized on September 1st, these notional amounts net out to equal € 50 million. Utilizing these principles: the nominal amount for $C_a$ is zero; the notional amount for $C_p$ is € 250 million and the notional amount for $C_d$ is € 300.

[0055] The NPV amounts associated with each of the original negotiated IRS transactions, or contracts, and the new standardized IRS transaction in tabular form may be determined. As shown in Table 1 above, each of the August IRS transactions may be unwound and normalized to the IRS transaction and standardization date. For example, party $C_a$ has two net present values NPV1 and NPV2 associated with the transactions conducted in the example period of August. NPV1 might represent the present value of the amount paid on an IRS transaction entered into on the August $2^{nd}$, e.g., 29 days from August $2^{nd}$ to September 1st when the standardized
contract is enacted, at fixed interest rate of 3.50% on € 150 million. NPV2 might represent the present value of the amount received on an IRS transaction entered into on the August 15th, e.g., 16 days from August 15th to September 1st when the standardized contract is enacted, at an interest rate of 3.53% on € 100 million. The net present value cash flows NPV1 and NPV2 can then be netted with the standardized IRS transaction entered into by the C, with CCP which, in this example, is standing in for C and C.

In this example, the NPV(s) associated with the August IRS transactions between C, C, C, and C, are given the opposite signs, for example, pay becomes receive and vice versa, to represent a cash flow from the perspective of the CCP to unwind of the non-standardized IRS transactions. Thus, as discussed above, a negative net NPV indicates a cash flow from the CCP to the party and a positive net NPV indicates a cash flow from the party to the CCP. In this way, the cash flows to and from the CCP are balanced upon standardization regardless of when in the given period the contract was initiated or at what interest rate was initially agreed upon. Thus, in the example provided above, the netted cash flows and transactions for party C, results in a negative cash flow, e.g., a cash flow from the CCP to C.

3. Clearing Process

A clearing process 300 may be initiated to process or direct the cash flows. For example the cash flows generated during the standardization process 100 and netting process 200 may be cleared.

Following the initial cash flow processing, the clearing process 300 maintains the standardized IRS transactions, now-guaranteed by the CCP, for its lifespan (e.g., 10 years) as shown in the embodiment from FIG. 1. The number of standardized IRS trades in this exemplary method is significantly smaller. The number of standardized contracts may be predefined according to the standardization periods. In an embodiment, the standardization period is monthly. That is, every month, the transactions are standardized and netted. In an example including thirty (30) maturities, the result would be three-hundred sixty (360) standard OTC contracts (thirty (30) maturities by twelve (12) monthly standardizations for each). The maximum number of positions that a holder may have would be limited to or capped at three-hundred sixty (360). As will be understood, this efficiency comes from standardizing and netting each of the individual IRS transactions entered into in a period into a single standard contact beginning on an agreed upon date.

4. Floating Rate Reset and Payment Processing

As the OTC derivatives products, transactions, contracts, positions and orders for parties are standardized; the floating rate reset and payment processing may be managed because there is a single floating rate reset and cash flow calendar per currency. The International Swaps and Derivatives Association (ISDA) day-count conventions, affect of holidays and other cash flow and reset related parameters may also be pre-selected.

5. Margining and Mark-to-Market

FIG. 6 illustrates the portfolio, e.g., standardized IRS positions and orders held by the CCP such as, e.g., CME, of party C, across multiple periods or maturities. The arrow “—” indicates that the CCP is the payer, while the arrow “—” indicates that the CCP is the receiver of the fixed rate cash flows related to the OTC derivatives transaction. Standardization of each of these interest rate swaps allows the CCP to net or aggregate the net present values of each IRS for a given year with all of the other net present values for the given. Thus, FIG. 6 shows that the netted net present values for the party C across multiple maturities.

The mark-to-market or assignment of value can be done using a specific yield curve known as a Zero Coupon Yield Curve (ZCYN) to ensure that the margin or collateral requirements for each party, C, etc., are satisfied. The ZCYN, as with other yield curves, can be built using industry sources, historical data, etc., or by relying on a set of liquid maturities and ISDA Swap Fixing rates.

The post-trade servicing may minimize a number or volume of outstanding or active IRS transaction, orders or contracts for a portfolio with the passage of time.

FIG. 7 illustrates an example of a possible rolling opportunity available for party C. For example, on September 1, year one, C, has a net position on a ten (10) year maturity IRS at 3.6% for € 50 MM. On September 1, year 2, the position will age or decay one year to a nine (9) year maturity IRS. In the example, the decayed nine (9) year maturity is at 3.6% for € 50 MM. If C, has a new position for a nine (9) year maturity for September of year 2 at 3.5% for € 100 MM, the two nine (9) year maturity positions may be rolled together. That is, the CCP now may roll the pay nine (9) year 3.6% for € 50 MM into pay nine (9) year, 3.5% for € 100 MM to generate pay a new standardized and netted position for C, at nine (9) year, 3.5% for € 150 MM and a net NPV cash flow. The rolling affect is similar to the netting affect described in connection with the standardization process 100 and the netting process 200 including the calculations of the total NPV to determine the cash flow affect of the roll.

With a manageable size of the IRS portfolio for the counterparties, the CCP has opportunities to provide other services such as assignments, e.g., one counterparty to the CCP may choose to assign its positions with the CCP to a different counterparty, and substitutions into futures, e.g., one counterparty to the CCP can choose to replace the IRS position with a strip of futures that simulate the cash flow affect of the IRS.

Until the standardization process 100 triggers on the pre-defined start date such as, for example, the beginning of a month, quarter, etc., there may be counterparty risk associated with the negotiated IRS transactions. Thus, the exemplary method 10 minimizes the roles of users for risk adverse parties while affording other parties operational efficiencies by collapsing their positions into fixed number of positions managed via the CCP. Moreover, because the standardization process 100 and the netting process 200 are performed regularly or on predefined periodic basis, users may leverage their credit processes for financing the pending OTC products until the standardization process 100 is activated. Furthermore the CCP can select the banks and institutions that can leverage their existing or new clearing relationships to implement the concepts explained. As the method 10 expands, the CCP may increase the frequency in which the standardization process 100 and the netting process 200 are utilized (monthly versus quarterly) or may increase the target user group capable of leveraging this service.

FIG. 8 illustrates an example that includes two transactions for an exemplary hedge fund HF in a trading period (e.g., August) and the result of the standardization process 100 and the netting process 200 on the next calendar period (e.g., September 1). The method 10 allows the various positions and interest rates negotiated by the hedge fund HF
and the parties PA, PB to be standardized and consolidated via the standardization process 100 and the netting process 200 discussed above. For example, during the standardization process 100 and the netting process 200 the cash flows associated with PA will be netted out and consolidated by the CCP. The remaining cash flows between the hedge fund HF and the party PB which include the difference between the 3.50% interest steam on € 150 M/M and the 3.53% interest stream on € 150 MM are netted out to a neutral position with a resulting cash flow from the netting process. The benefits and cash flow may, in turn, be passed on to the clients, etc. of the party PB. [0072] The steps, elements and processes discussed herein may be encoded as program logic, computer readable code and/or instructions. These encoded elements, in turn, may be stored or embedded on a computer readable medium such as, for example, a hard disk drive, a solid state drive or other storage medium. The computer readable medium may be in communication with a processor which, in response to an appropriate input or command, may execute the program logic stored on the computer readable medium. The execution of this program logic may result in the execution of the step, elements and processes embodied and discussed herein. [0073] It should be understood that various changes and modifications to the presently preferred embodiments described herein will be apparent to those skilled in the art. Such changes and modifications can be made without departing from the teachings of the present invention and without diminishing its intended advantages. It is therefore intended that such changes and modifications be covered by the appended claims.

What is claimed is:
1. A method of managing financial instruments, the method comprising:
   defining a standardized financial instrument associated with an over-the-counter financial instrument, wherein the standardized financial instrument includes a fixing date and a maturity period;
   calculating a net position associated with the standardized financial instrument, wherein the net position is a function of the fixing date;
   clearing the calculated net position through a clearing party; and
   rolling the standardized financial instrument into a second standardized financial instrument as the maturity period decays into a second maturity period associated with the second standardized financial instrument.
2. The method of claim 1, wherein the standardized financial instrument is a standardized interest rate swap.
3. The method of claim 1, wherein calculating the net position further comprises calculating the net position as a function of a fixing rate determined as of the fixing date.
4. The method of claim 1, wherein calculating the net position comprises calculating the difference between a net present value associated with the over-the-counter financial instrument and a net present value associated with the standardized financial instrument.

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