A METHOD AND A SYSTEM FOR TRADING STRIPPED BONDS

TECHNICAL FIELD

The present invention relates to an automated trading system, and in particular to an automated trading system designed to trade bonds including so-called stripped bonds (STRIPS).

BACKGROUND OF THE INVENTION AND PRIOR ART

A bond is a written unconditional promise to pay a specific principal sum at a determined future date, and interest at a fixed or determinable rate on fixed dates. Bonds are issued by governments to finance their budget, but also by other entities having a high credibility such as banks and large companies. Thus, a bond is a debt instrument meaning that it is a loan payable to the holder of the bond for some fixed amount known as the bond's face value. Attached to the bond is a so-called coupon. Named for its historical similarity to actual coupons you would clip for grocery shopping, the coupon is usually a fixed interest payment made to the bondholders' semi-annually or some other periodicity.

Bonds can also be bought and sold on the secondary market at current market prices; in that case you get interest for as long as you own the bond. Bonds are conventionally traded either manually, e.g. over the phone or using an automated matching system.

In addition to conventional bonds, there also exist a market for so-called stripped bonds. A stripped bond is a bond that can be subdivided into a series of zero-coupon

bonds. The only difference between a strip bond and a regular bond is that some financial institution removes the coupon payments and sells both the face value and the coupon payments separately. Thus, rather than receiving the face value of the bond plus coupons, a bondholder of a stripped bond will only receive the par value. The profit investors make from purchasing stripped bonds surface through the spread between the discounted purchase price and the maturing value.

When a Treasury fixed-principal or inflation-indexed note or bond is stripped, each interest payment and the principal payment becomes a separate zero-coupon security. Each component has its own identifying number and can be held or traded separately. For example, a Treasury note with 10 years remaining to maturity consists of a single principal payment at maturity and 20 coupon payments, one every six months for 10 years. When this note is converted to a stripped form, each of the 20 coupon payments and the principal payment becomes a separate security.

The Treasury does not normally issue or sell stripped bonds directly to investors. Thus, stripped bonds can normally be purchased and held only through financial institutions and government securities brokers and dealers.

Stripped bonds are traded with increased popularity among investors who want to receive a known payment at a specific future date. For example, some State lotteries invest the present value of large lottery prizes in stripped bonds to be sure that funds are available when needed to meet annual payment obligations that result from the prizes. Pension funds invest in stripped bonds to match the payment flows

of their assets with those of their liabilities to make benefit payments. Stripped bonds are also popular investments for individual retirement accounts.

In the process of stripping a bond, a financial institution, government securities broker, or government securities dealer can convert an eligible Treasury security into interest and principal components through the commercial book-entry system. Generally, an eligible security can be stripped at any time from its issue date until its call or maturity date.

However, at present, the bond market and stripped bond market are two separate markets although the traders trading in the two markets are in general the same people. This in turn result in that liquidity on the two markets suffers.

Also, since the same traders trade both in the conventional bond market and in the stripped bond market, those traders need to cover two markets simultaneously, which is difficult and is also associated with an additional risk.

SUMMARY

It is an object of the present invention to provide a method and a system wherein the bond market and the stripped bond market are linked to each other.

It is an additional object of the present invention to provide a trading system, which provide a single user interface for trading in the bond market and the stripped bond market.

It is yet another object of the present invention to provide a method and a system that supports generation of derived orders in a combined market for bonds and stripped bonds.

It is a further object of the present invention to provide a method and a system supporting combined orders in a market for bonds and stripped bonds.

These objects and others are obtained in a system and a method as set out in the appended claims.

Thus, in accordance with the present invention an automated trading system is provided for matching bids and offers entered into the system by a number of traders connected to the system. The system preferably comprises a server hosting a matching processor and an associated memory forming an orderbook of the system and wherein both fixed-income instruments paying a coupon (i.e. bonds) and fixed-income instruments not paying a coupon (zero-coupon - i.e. stripped bonds) are traded. The system is additionally designed to derive prices for bonds using information from stripped bonds and/or vice versa.

Using such a system it will be possible to make use of the relationship existing between a bond and a stripped bond to generate prices for a bond from a number of stripped bonds as well as generate prices for a stripped bond from prices of conventional bonds. In addition the system can use the relationship between bonds and stripped bonds to generate derived orders (baits) in the stripped bond market using the existing price on bonds. The linked markets of bonds

and stripped bonds will create a more liquid market both for the bond market as well as the stripped bond market.

Furthermore the use of such a system will integrate the trading of bonds and stripped bonds into a common market place where the prices for stripped bonds are directly reflected in the pricing of bonds thereby creating more liquidity in the two markets. This in turn will eliminate any arbitrage pricing between the two markets. Moreover, a user-friendly interface will be created, providing direct benefits to the user.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will now be described in more detail by way of non-limiting examples and with reference to the accompanying drawings, in which:

- Fig. 1 illustrates payments for an imaginary bond
- Figs. 2a - 2f illustrates a number of different imaginary stripped bonds
- Fig. 3 is a view of an automated exchange system for combined trading of bonds and stripped bonds
- Fig. 4 is a flow chart illustrating different steps performed in the system of Fig. 3 in accordance with a first exemplary trading sequence.
- Fig. 5 is a flow chart illustrating different steps performed in the system of Fig. 3 in accordance with a second exemplary trading sequence

DETAILED DESCRIPTION

In fig 1, payments for an imaginary bond are illustrated. The bond payments as illustrated in Fig. 1 are only for purposes of illustration and are not intended to correspond

to a real bond. Also, in this context the term "bond" is used for all fixed-income instruments paying a coupon, such as bonds, notes etc. The bond as depicted in Fig. 1 is a three-year bond having semi-annual coupon payments. Thus, the first coupon is paid after 6 months; the next coupon is paid after one year etc. The last coupon is paid after three years when the interest-earning amount, the face value, also is paid. This exemplary imaginary bond has a face value of $ 5 and pays a coupon of $ 1 semi-annually.

The bond depicted in Fig. 1 can be converted into a number of stripped bonds or zero-coupon bonds. The payments for these stripped bonds are depicted in Figs. 2a - 2f. Since the last payment for the bond depicted in Fig.1 also pays the face value of that bond the result of such a conversion will be six stripped bonds as depicted in Fig. 2f and one each for the stripped bonds as depicted in Figs. 2a - 2e.

In Fig. 3, a general view of an automated trading system 100 is shown. The system 100 provides a market for a number of different financial instruments and in particular fixed-income instruments including but not limited to bonds, notes, bills, stripped bonds, etc. The system comprises a number of remote terminals 101 all connected to a central computer server 103 comprising a matching unit 109 including a computer processor, and an order book (memory) 111 associated therewith. The central computer server 103 is loaded with suitable software, such as the CLICK TM software sold by OM Technology AB, Sweden, and forms an automated exchange having all features and functionality of a conventional automated exchange. The remote terminals 101 are designed to send data to and receive data from the central computer server 103. The terminals 101 are further

designed to provide an interface for investors, such as broker firms etc., trading contracts including combination contracts at the automated exchange. The matching of orders input in such a system is performed in the central computer server by the unit 13 designed for this task.

The system of Fig. 3 is further designed to link the trading in bonds with trading in stripped bonds. Thus, the system will make use of the relationship existing between a bond and a stripped bond to generate prices for a bond from a number of stripped bonds and/or vice versa. In addition the system can use the relationship between bonds and stripped bonds to generate derived orders (baits) in the stripped bond market using the existing price on bonds. The linked markets of bonds and stripped bonds will create a more liquid market both for the bond market as well as the stripped bond market.

Although the embodiment of Fig. 3 indicates that the terminals 101 are parts of the system 100, it is evident that other embodiments are viable, for instance a system only comprising the central computer server 103 to which external terminals 101 are connectible.

In Fig. 4, a block diagram illustrating a trade where a buyer wants to buy a bond in the system depicted in Fig. 3. It is further assumed that the buyer wants to buy the bond depicted in Fig. 1 and that there is a market for stripped bonds including the stripped bonds as depicted in Figs. 2a - 2f integrated in the system of Fig. 3.

First, in a step 401 the buyer sends in his bid. The bid is received by the matching system, step 403. Next the

matching system tries to match the newly received order with a corresponding order stored in the orderbook, step 405. In other words in step 405 the matching process of the matching system tries to match the order to buy a bond with a corresponding order to sell such a bond. If the match is successful the process jumps to a step 417 where a deal is formed and later to a step 419 where the deal is reported back to the market.

If however there is no match between the newly received order in step 405, the process proceeds to a step 407. In the step 407 the process collects sell prices for all stripped bonds required to form the bond the buyer has placed an order. Next, in a step 409 the system checks if there exist prices for all required stripped bonds. If there exist prices for all such stripped bonds, the matching process tries to match that combination of stripped bonds against the received bond order. If the match is successful, the procedure proceeds to step 417 and later step 419 as described above. If the order still cannot be matched the procedure proceeds to a step 415 where the order is stored in the orderbook of the system for matching against future orders received by the system. The step 415 is of course skipped if the order type is such that it does not allow storing in an orderbook.

If in the step 409, it is found that there exist prices for all required stripped bonds but one, the matching process proceeds to a step 411. In step 411 the system generates a derived order (bait) in the stripped bond market for the missing stripped bond at a price such that the combination of stripped bonds including the derived order matches the

order. The matching process then proceeds to step 415 as described above.

If in the step 409 it is found that there exist no prices in more than one stripped bond the matching process proceeds directly to the step 415.

In Fig. 5, another exemplary trading sequence is depicted. In the example of fig 5 it is assumed that a trader wants to sell a stripped bond in the system as depicted in Fig. 3. It is further assumed that the stripped bond is the stripped bond depicted in Fig. 2a.

First, in a step 501, a trader transmits an offer to sell a stripped bond. The order to sell the stripped bond is then received by the matching system, step 503. Next in a step 505 the matching process tries to match the sell order with a corresponding buy order. The buy order can be a regular buy order, but may also be a derived order (bait) as described above in conjunction with Fig. 4 step 411. If there is no match the matching process proceeds to a step 507 where the order is placed in the orderbook of the system, if the order type allows for this.

If the matching process finds a match in step 505 and the matching order is a regular order to buy a stripped bond the process proceeds to a step 509 where a deal is formed between the seller and the buyer. The deal is subsequently reported to the market in a step 511.

If the matching process finds a match in step 505 and the matching order is a derived order to buy a stripped bond the process proceeds to a step 513 where a deal is formed.

The deal formed in step 513 will be a combination deal involving the selling of a number of stripped bonds and buying a bond. The combined deal is subsequently reported to the market, step 515.

The method and system as described herein will hence integrate the trading of bonds and stripped bonds into a common market place where the prices for stripped bonds are directly reflected in the pricing of bonds thereby creating more liquidity in the two markets. This in turn will eliminate any arbitrage pricing between the two markets. Furthermore, a user-friendly interface will be created, thus improving adaptability and flexibility for the user.

CLAIMS

1. An automated trading system for matching bids and offers entered by a number of traders in connection with the system, the system further being associated with a matching processor having an associated memory forming an orderbook wherein both bonds and stripped bonds are traded, the system includes a data processing module for deriving prices for bonds using information from stripped bonds.

2. An automated trading system for matching bids and offers entered by a number of traders in connection with the system, the system further being associated with a matching processor having an associated memory forming an orderbook wherein both bonds and stripped bonds are traded, the system includes a data processing module for deriving prices for stripped bonds using information from bonds.

3. In an automated trading system a method of matching bids and offers for bonds entered by a number of traders connectable to the system, the method comprising the steps of:

- receiving from a trader an order to buy or sell a bond, and
- matching the order against a number of stripped bonds that aggregated forms a bond corresponding to the bond order.

4. A method according to claim 3, wherein the received order is also matched against bids or offers for conventional bonds.

5. A method according to claim 3, wherein before the bond order is matched against a number of aggregated stripped bonds it is checked if there is a current price for all required stripped bonds.

6. A method according to claim 5, wherein if a price exists for all required stripped bonds but one, a derived order for the missing stripped bond is generated.

7. In an automated trading system a method of trading stripped bonds, the method comprising the steps of:

- receiving a first order to buy or sell a stripped bond,
- matching the first order against existing bids or offers, and
- when said matching occurs for a pending bid or offer being the result of a derived order generated in response to an order for a bond trying to match against a number of stripped bonds forming a combination trade between all stripped bonds required for a match against the bond order, including the first order, and the stripped bond into the bond order.

8. An automated trading system for matching bids and offers for bonds entered into the system by a number of traders connected to the system, the system comprising:

- means for receiving from a trader an order to buy or sell a bond, and
- means for matching the order against a number of stripped bonds that aggregated forms a bond corresponding to the bond order.

9. A system according to claim 8, wherein the received order is also matched against bids or offers for conventional bonds.

10. A system according to claim 8, wherein before the bond order is matched against a number of aggregated stripped bonds it is checked if there is a current price for all required stripped bonds.

11. A system according to claim 10, wherein if a price exists for all required stripped bonds but one, a derived order for the missing stripped bond is generated.

12. An automated trading system for trading stripped bonds, the system comprising:

- means for receiving a first order to buy or sell a stripped bond,

- means for matching the first order against existing bids or offers such that when the matching occurs for a pending bid or offer being the result of a derived order generated in response to an order for a bond trying to match against a number of stripped bonds forming a combination trade between all stripped bonds required for a match against the bond order, the first order is included into the bond order.