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**Buchalter**

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(54) **AUTOMATED FIXED INCOME TRADING**

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(51) **Int. Cl.**<sup>7</sup> ..... **G06F 17/60**

(52) **U.S. Cl.** ..... **705/37**

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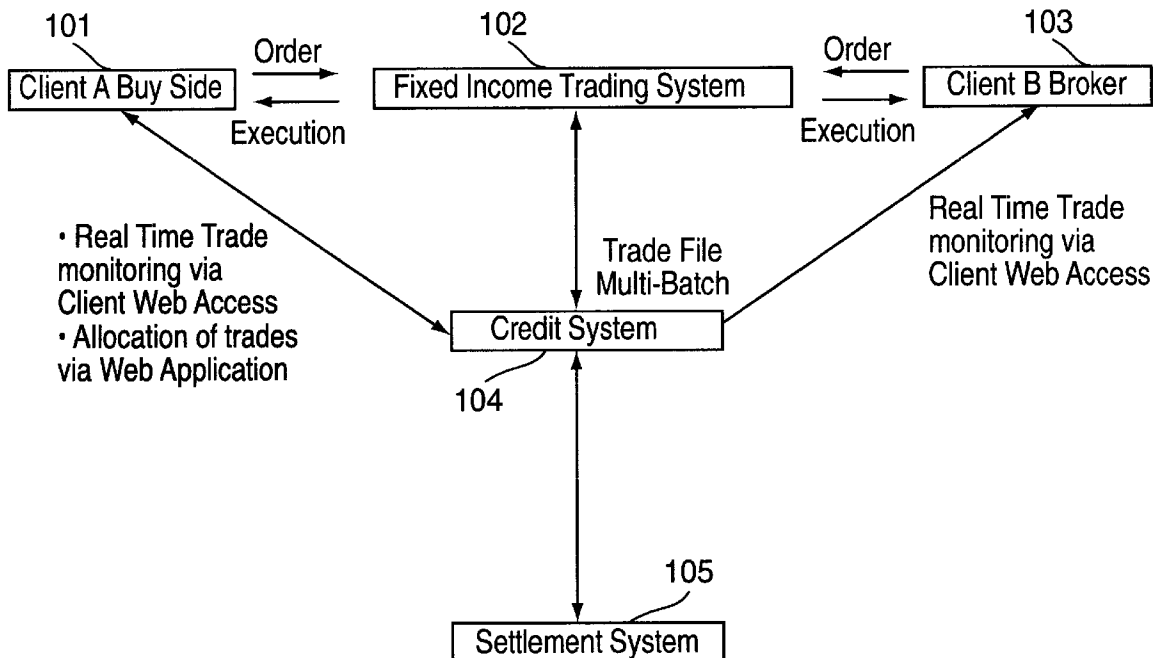
(57) **ABSTRACT**

A method and system is provided for automated trading of fixed income securities which enables institutional investors, broker dealers and others, to transact directly and anonymously for the purpose of trading investment grade, high yield corporate bonds, municipal bonds or other fixed income securities. A financial institution acting as a Fixed Income Securities system sponsor can act as counterparty to transactions, from trade execution through settlement, and can also serve as a credit intermediary. Computer systems are utilized in conjunction with an electronic communications network to facilitate such fixed income security trading activities. Software routines can direct a trader to various fixed income securities available according to specific cri-

teria put forth by the trader. Software routines can also provide information and services related to the automated trading of fixed income securities. Data relating to trading a fixed income security is transmitted from a Fixed Income Trading (FIT) system and information relating to the sale of a fixed income security is received. A live order, based upon the sale information received, can then be executed or transmitted to a point of execution. The live order provides that the FIT system acts as counterparty to each transaction such that a client trader can remain anonymous to a party on the other side of a trade. In this manner, a first trade can be executed between a party selling a fixed income security and the FIT system, and a second trade can be executed between the FIT system and a party purchasing the fixed income security. In addition, the FIT system operators can commit to market liquidity for the fixed income security traded. Numerous types of fixed income securities can be traded, including investment grade, high yield corporate bonds, municipal bonds or other types of securities.

**25 Claims, 35 Drawing Sheets**

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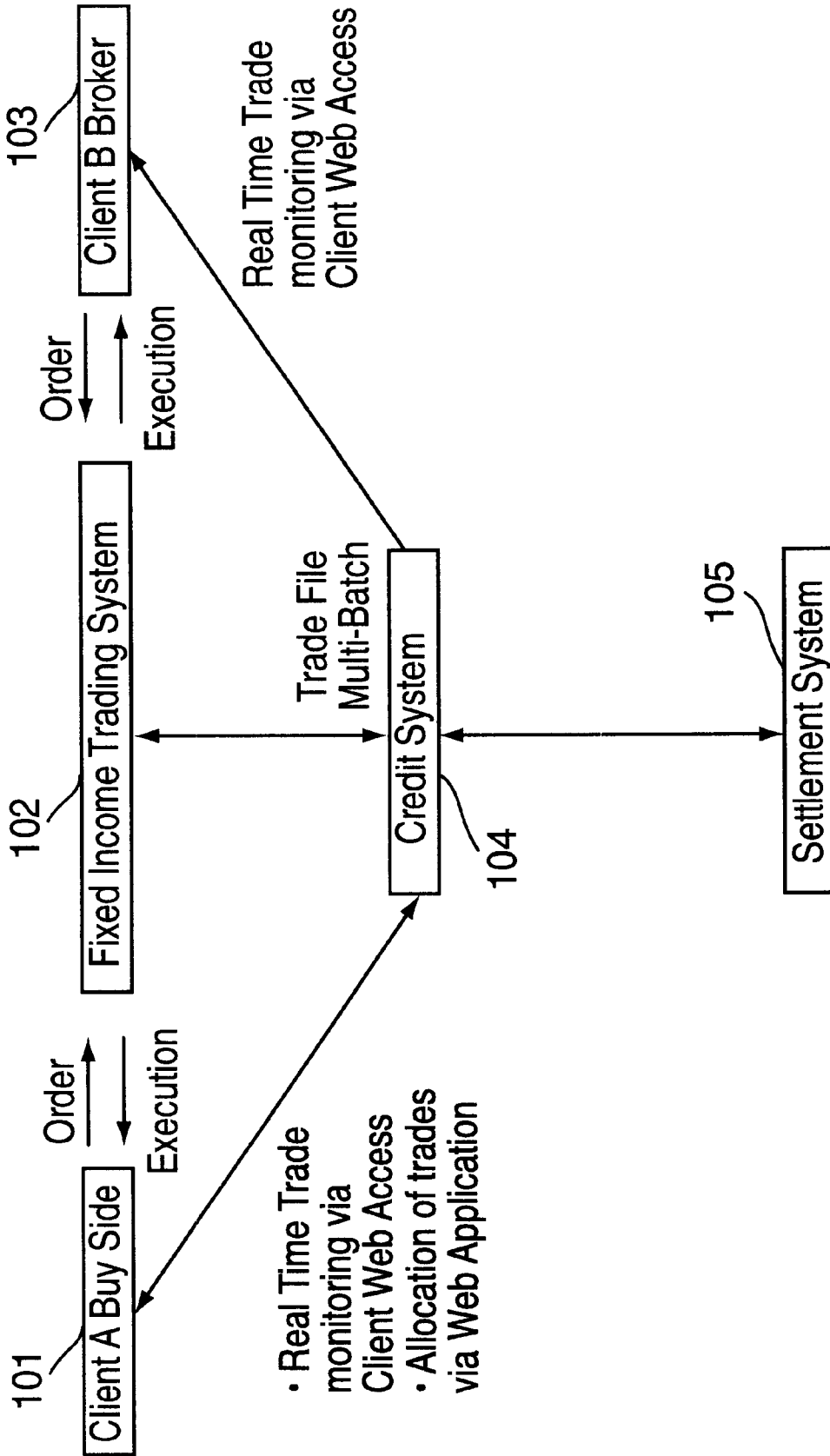


FIG. 1

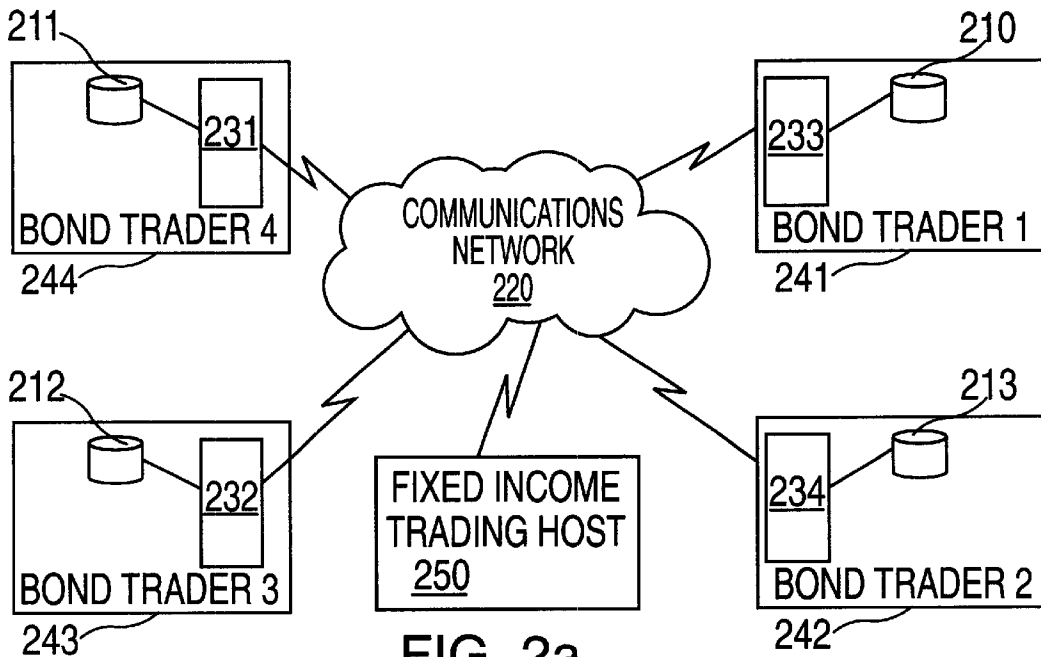


FIG. 2a

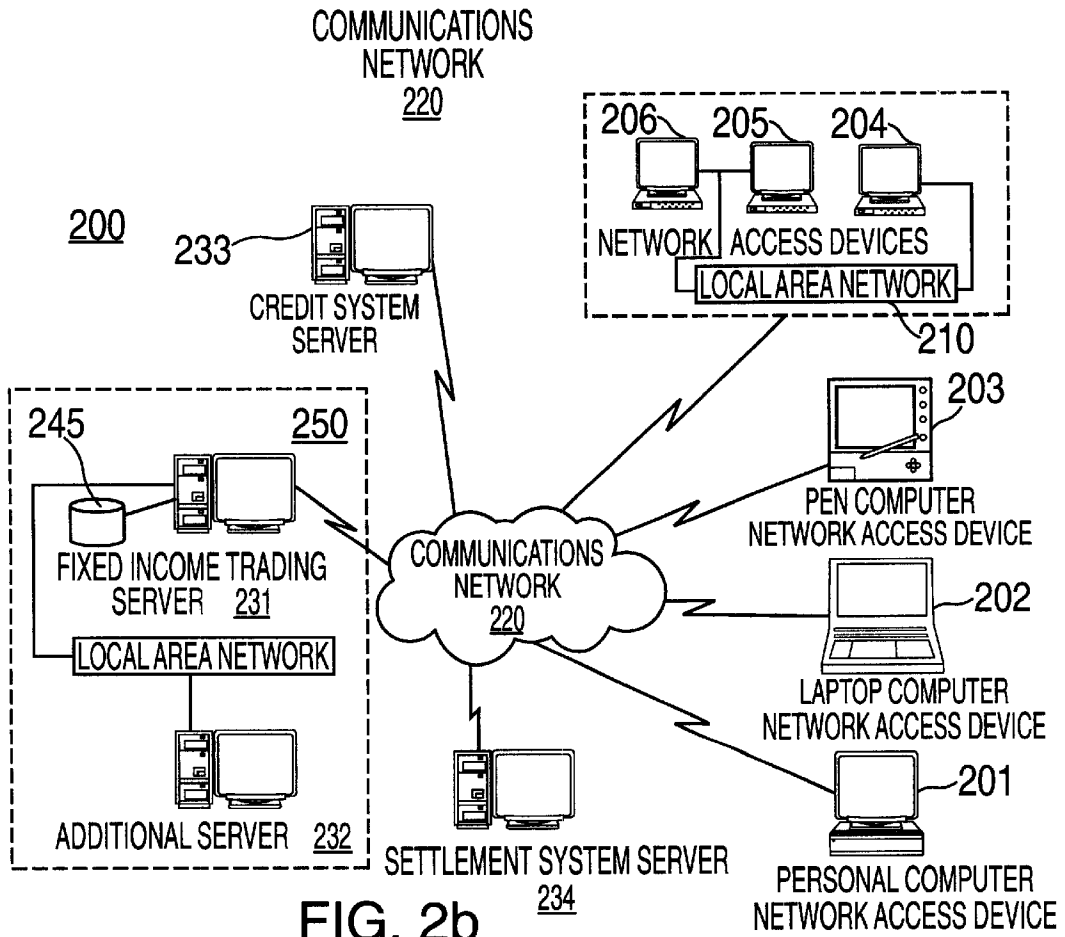


FIG. 2b

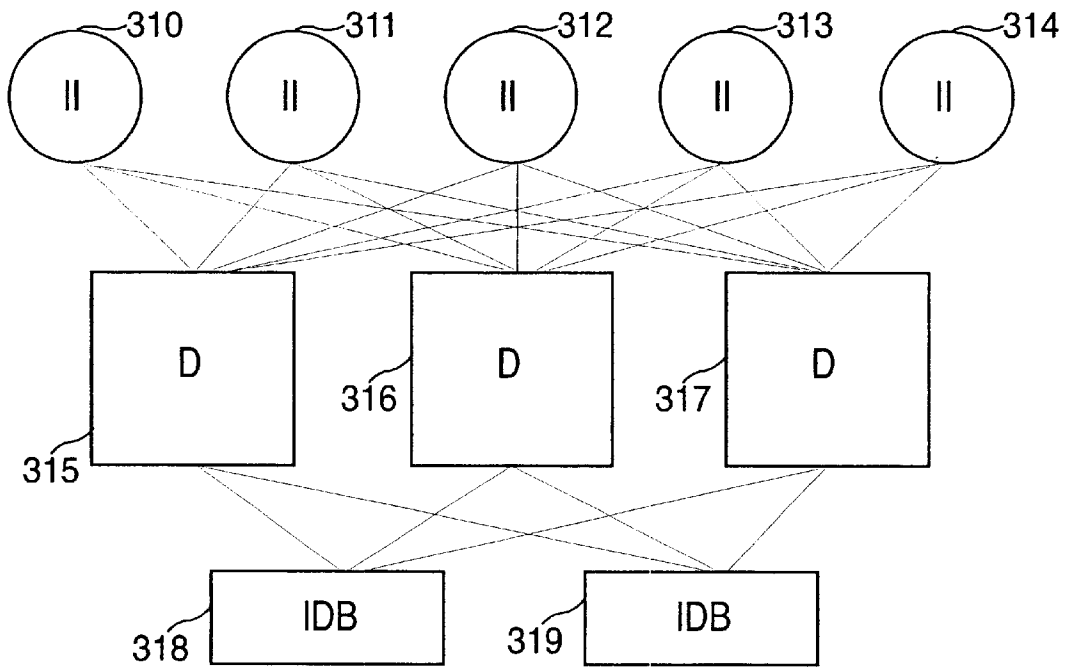


FIG. 3  
PRIOR ART

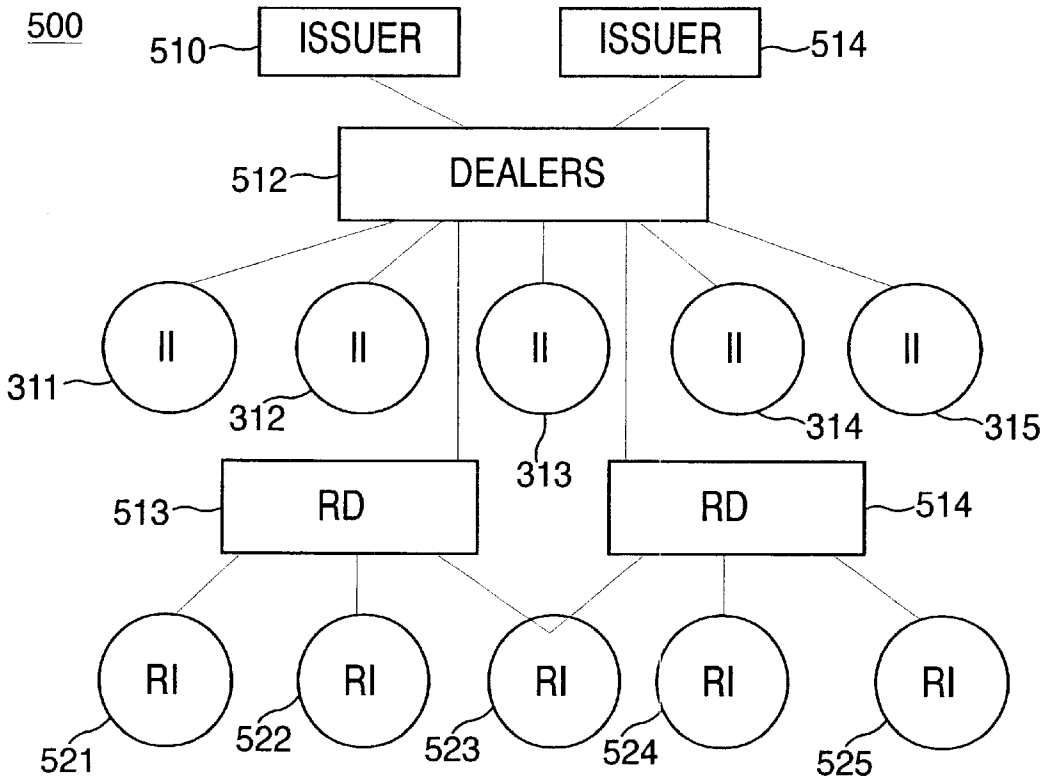
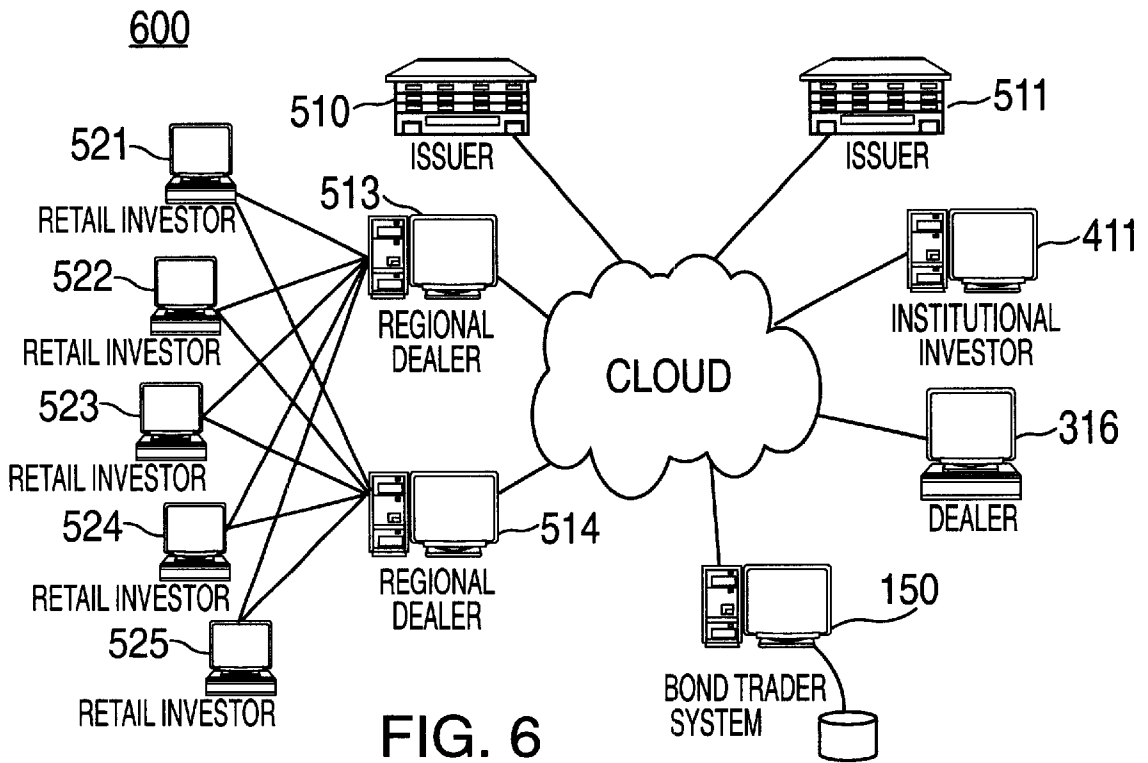
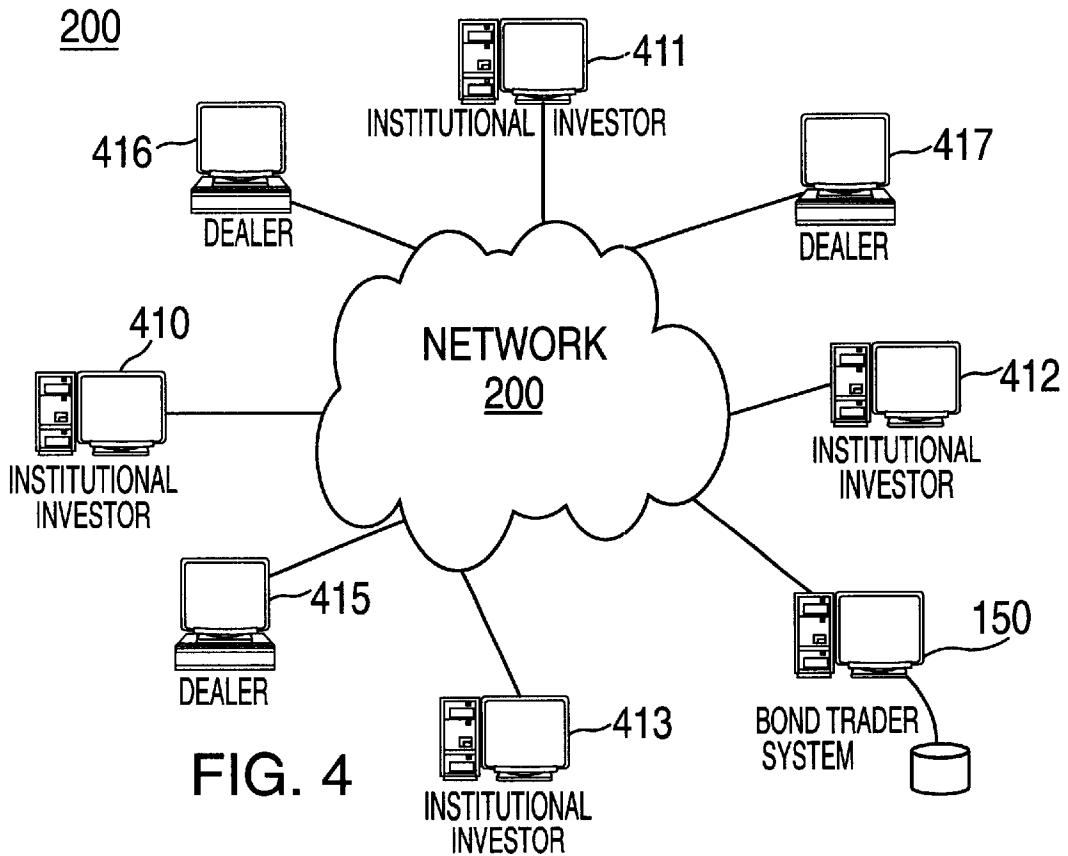


FIG. 5  
PRIOR ART



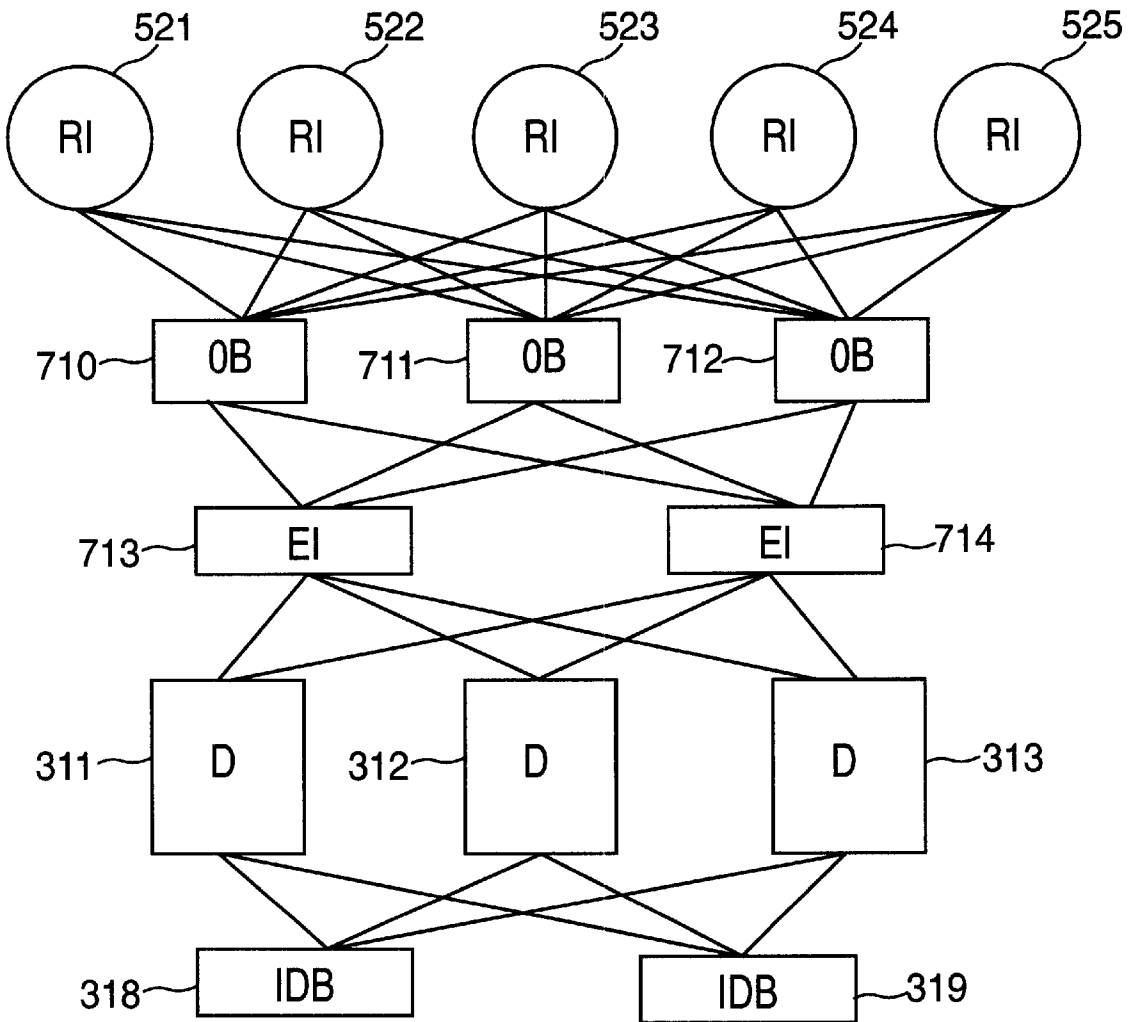


FIG. 7  
PRIOR ART

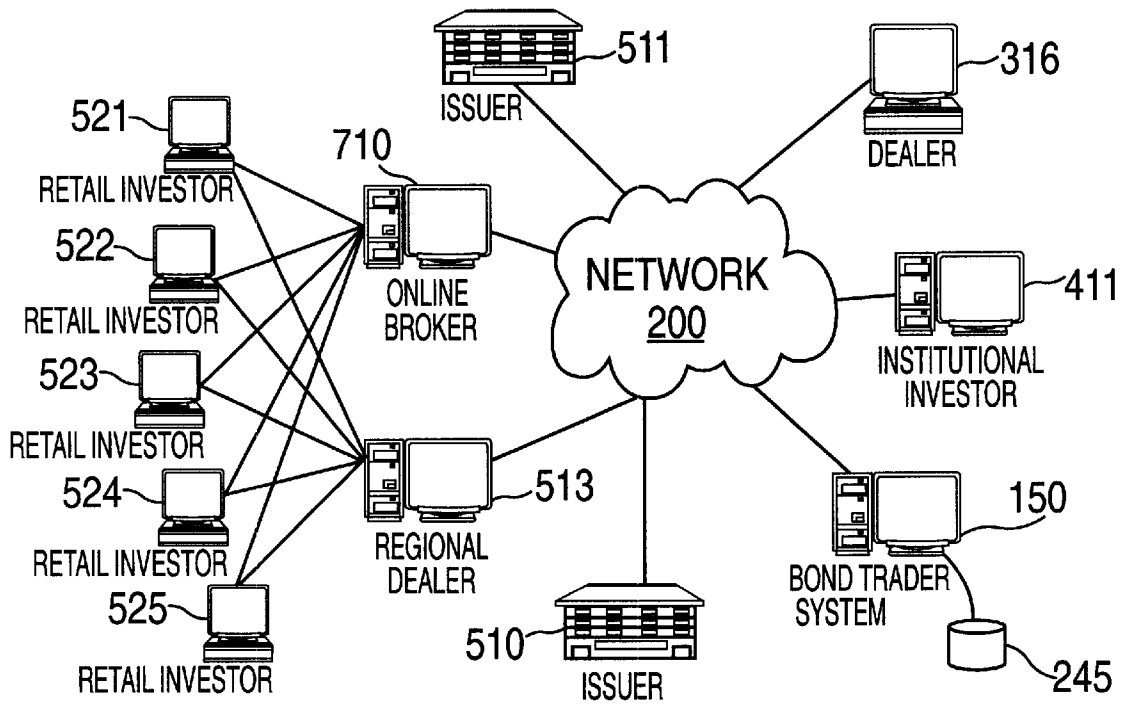
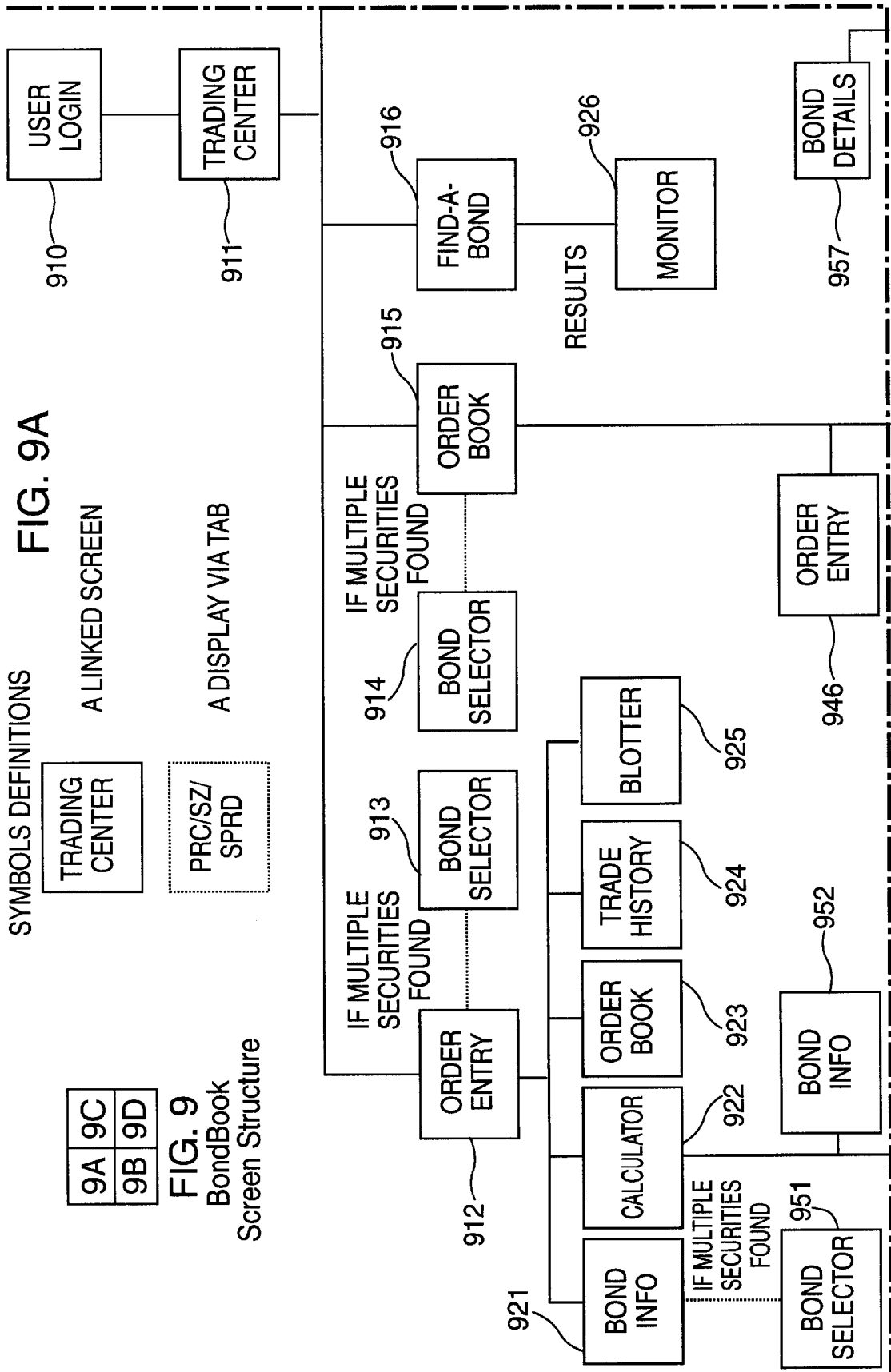


FIG. 8





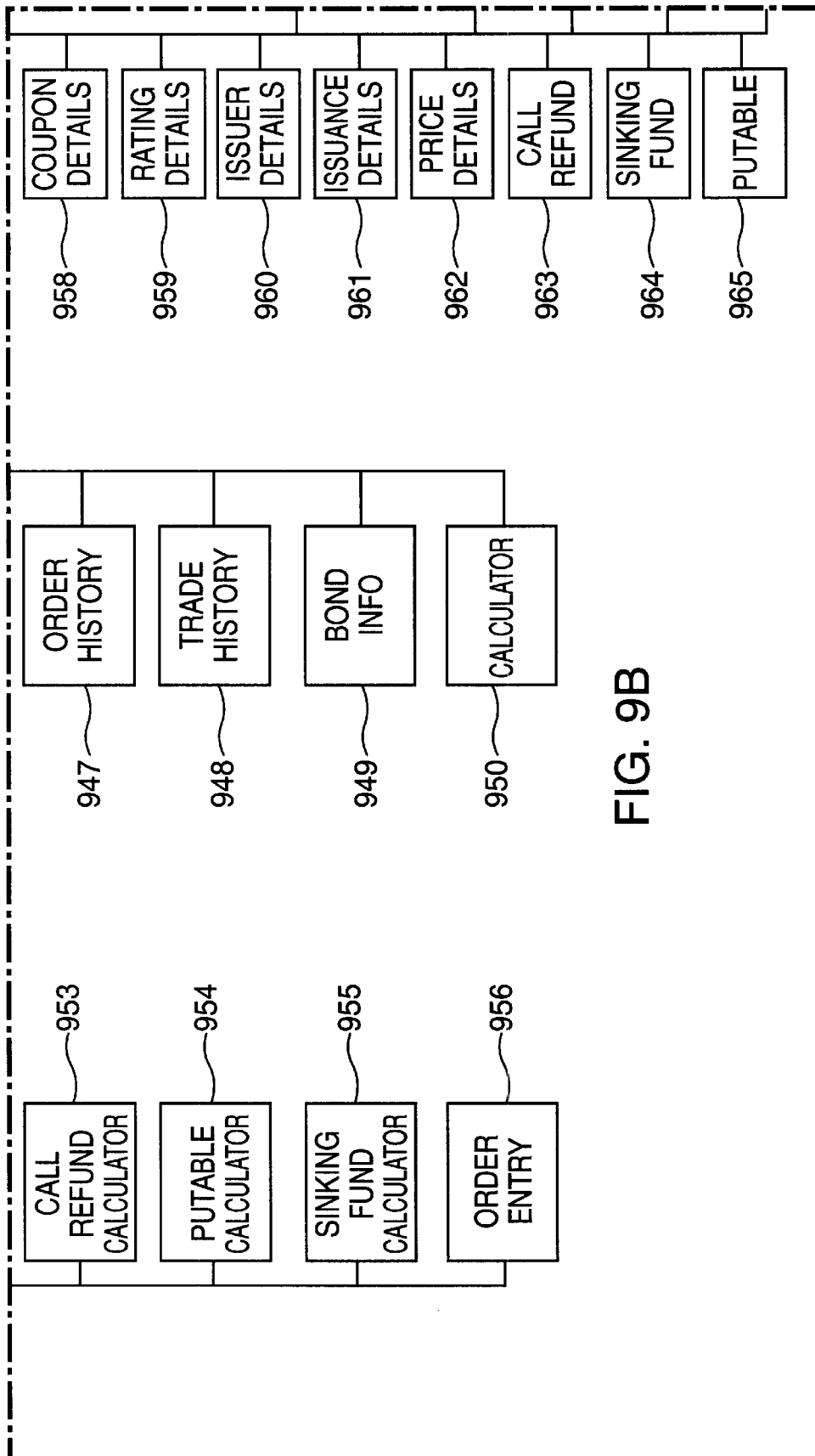
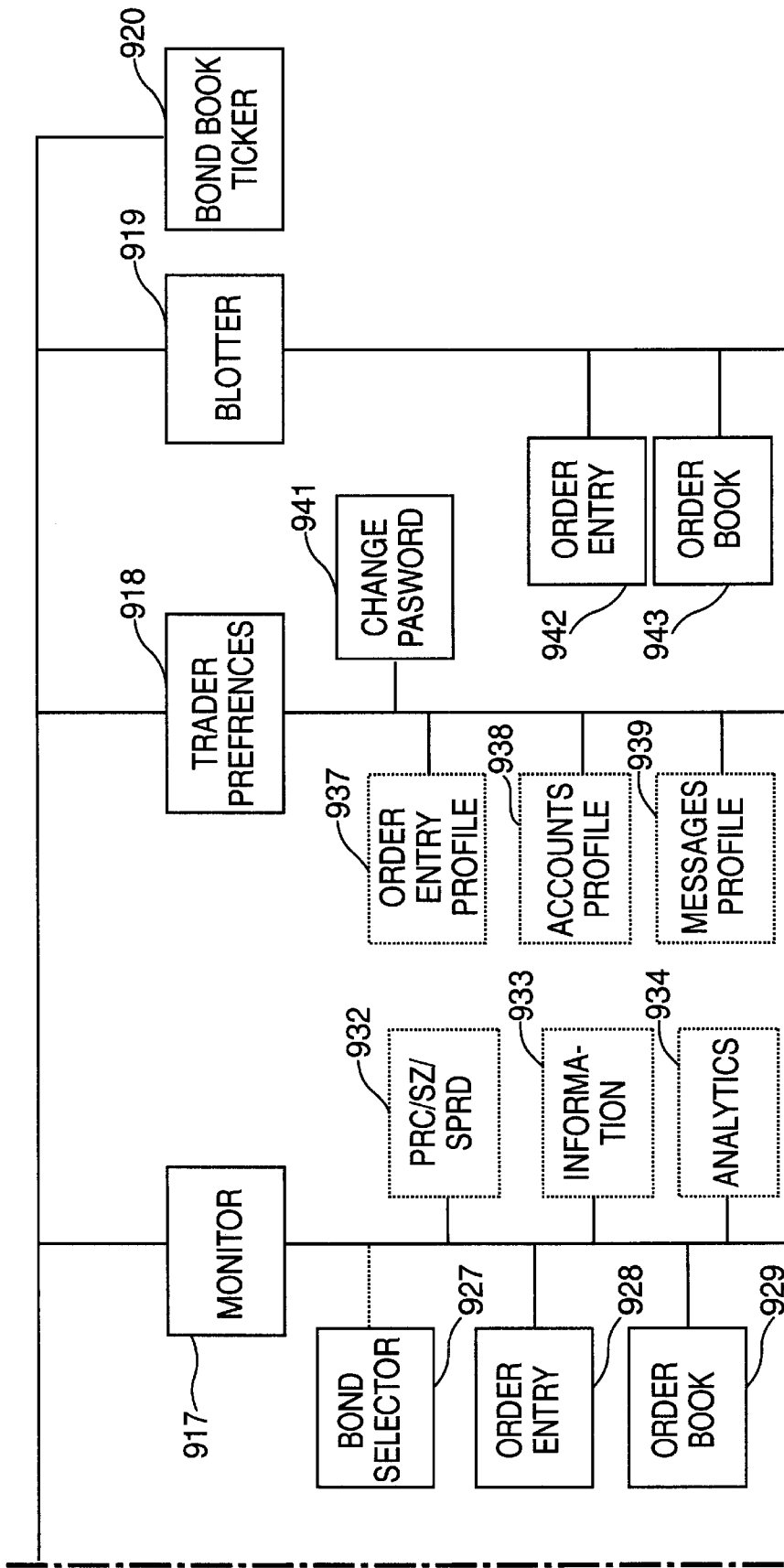
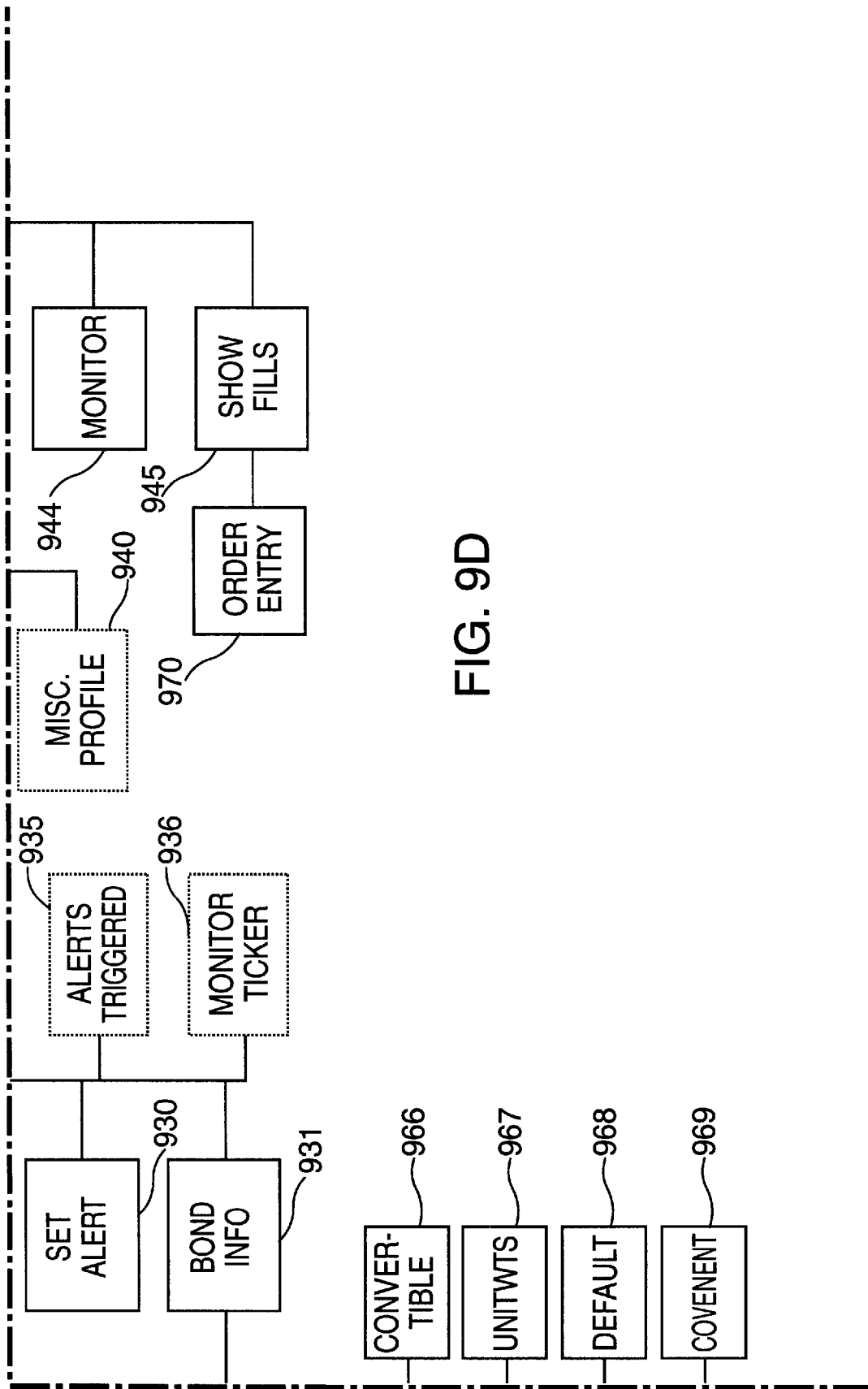


FIG. 9B

FIG. 9C





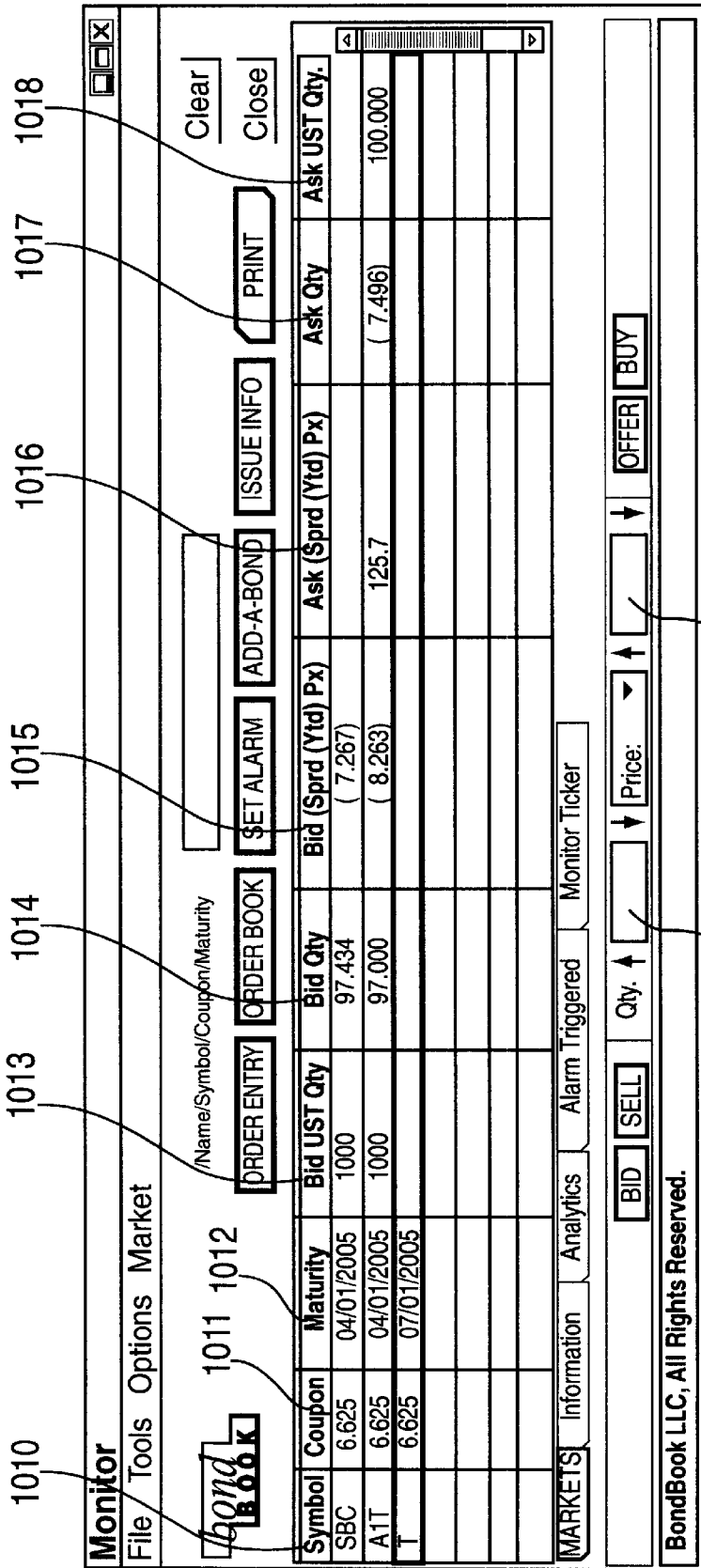


FIG. 10



Order Entry

1210  BUY    1212 Quantity     1213 Leaves

1211  SELL    1214 Price     1215 Yield     1216 Spread over bid

Treasury Hedge

AON     Lots     Min     Show

Symbol 1218  Coupon 1219  Maturity 1220

Name:

Benchmark

Bid	Offer	Last	
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text" value="1224"/>

Status  Order #

DAY      FILL OR KILL      IMMEDIATE OR CANCEL

Time Stamp     Account:

Bucket:

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FIG. 12

**Calculator**

CALL REFUND  
CALCULATOR

PUTTABLE  
CALCULATOR

B/S TICKET

RECALCULATE

SINKING FUND  
CALCULATOR

INFORMATION

ISSUE:

<input checked="" type="radio"/> Price	100.10004000	
<input type="radio"/> YTW	6.74743	
<input type="radio"/> Spread	77.343	

<input type="radio"/> Bid	1314	<input type="radio"/> Ask	1315	<input type="radio"/> Last	1316
---------------------------	------	---------------------------	------	----------------------------	------

Benchmark					
Bid	1317	Offer	1318	Last	1319

Macaulay Duration	1320	0.000
Adj./Mod Duration	1321	0.077
Convexity	1322	0.000

Price Value Of	1323	1	bps	0.070
Yield Value Of	1324	1	/32	0.005

DayCount Type	1325	30/360	▽
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Trade Date	08/02/2000
Settlement Date	08/07/2000
PayOff Date	08/01/2009

Quantity	100
Par Amount (\$)	1000.000
PayOff Price	100.000

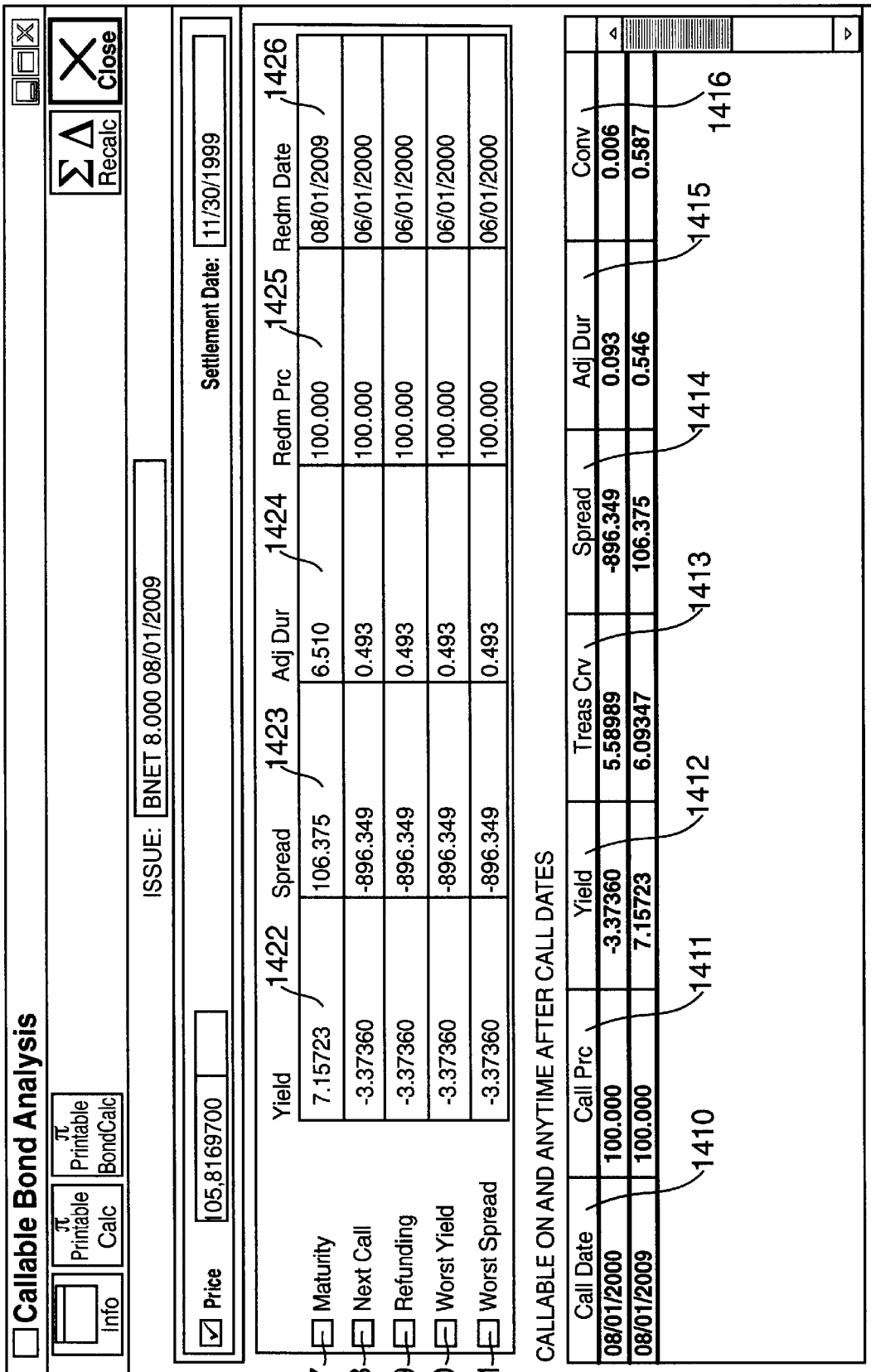
Principal (\$)	100100.04
Accrued (\$)	1466.67
Total Payment (\$)	101566.71

Redemption	100000.00
Total Coupon (\$)	73333.33
Reinvestment (\$)	25942.80
At Rate (%)	6.747
Total Return (\$)	199276.13

Gross Profit	97709.43
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FIG. 13





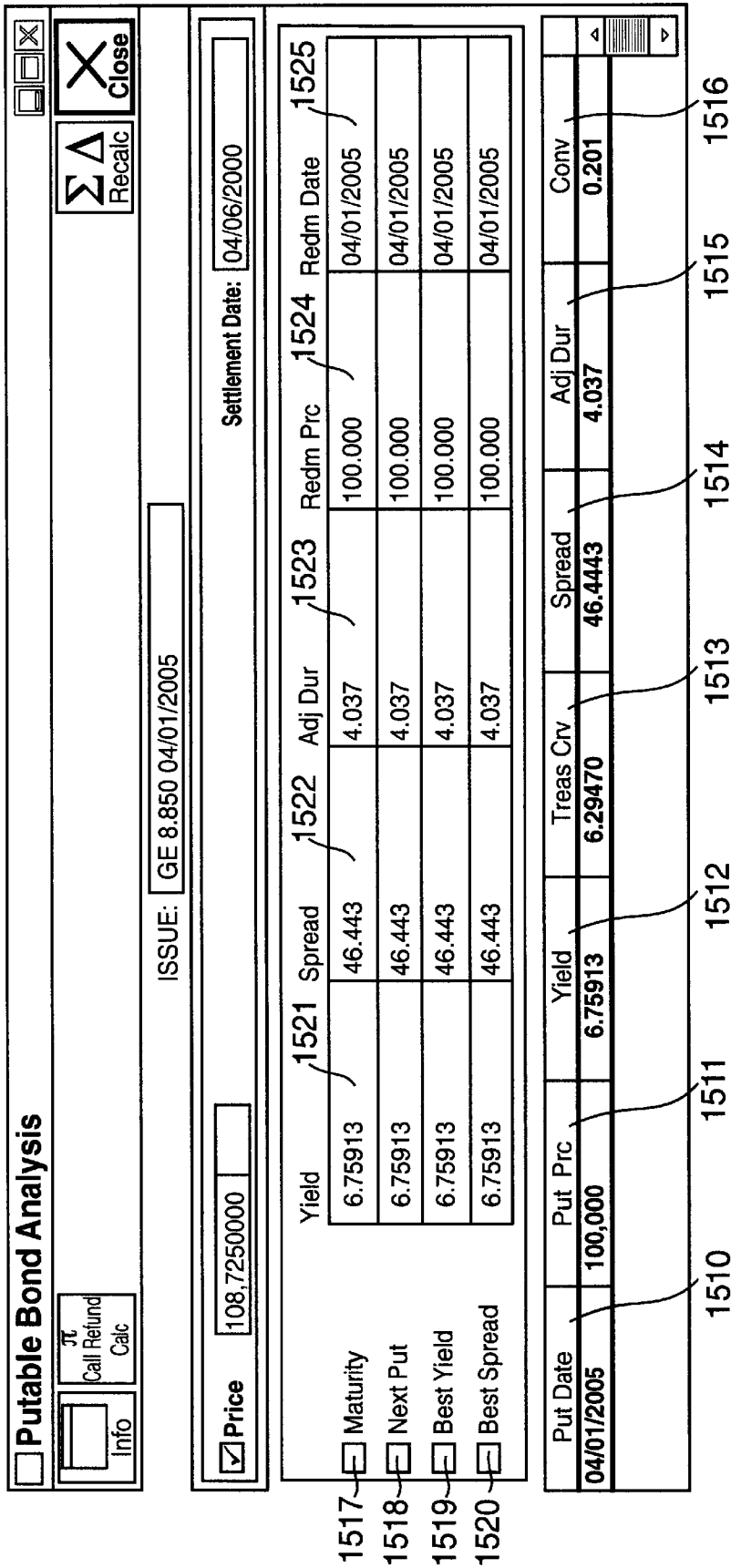


FIG. 15

Close
Recalc

Info
Call Refund Calc

Sinking Fund

ISSUE:

Issue  On  Par Amount (\$)

Outstanding  Mandatory  Over Fund

0.000  X Voluntary Sinks Taken From  of Sink Schedule

Price  Settlement Date:

	Yield	Redm Prc	Redm Date	Adj Dur	Conv
<input type="checkbox"/> Maturity	8.49921	100.000	12/29/2006	4.912	0.318
<input type="checkbox"/> Next Sink	8.118875	100.000	06/29/2002	1.952	0.051
<input type="checkbox"/> Longest Avg Life	8.42004	100.000	12/27/2004	3.731	0.180
<input type="checkbox"/> Shortest Avg Life	8.42004	100.000	12/27/2004	3.731	0.180

Next Mandatory Sinking Fund Date  Amount

Next Voluntary Sinking Fund Date  Amount

Sinking Fund Footnote

1610  
1611  
1612  
1613

1616

FIG. 16

1618

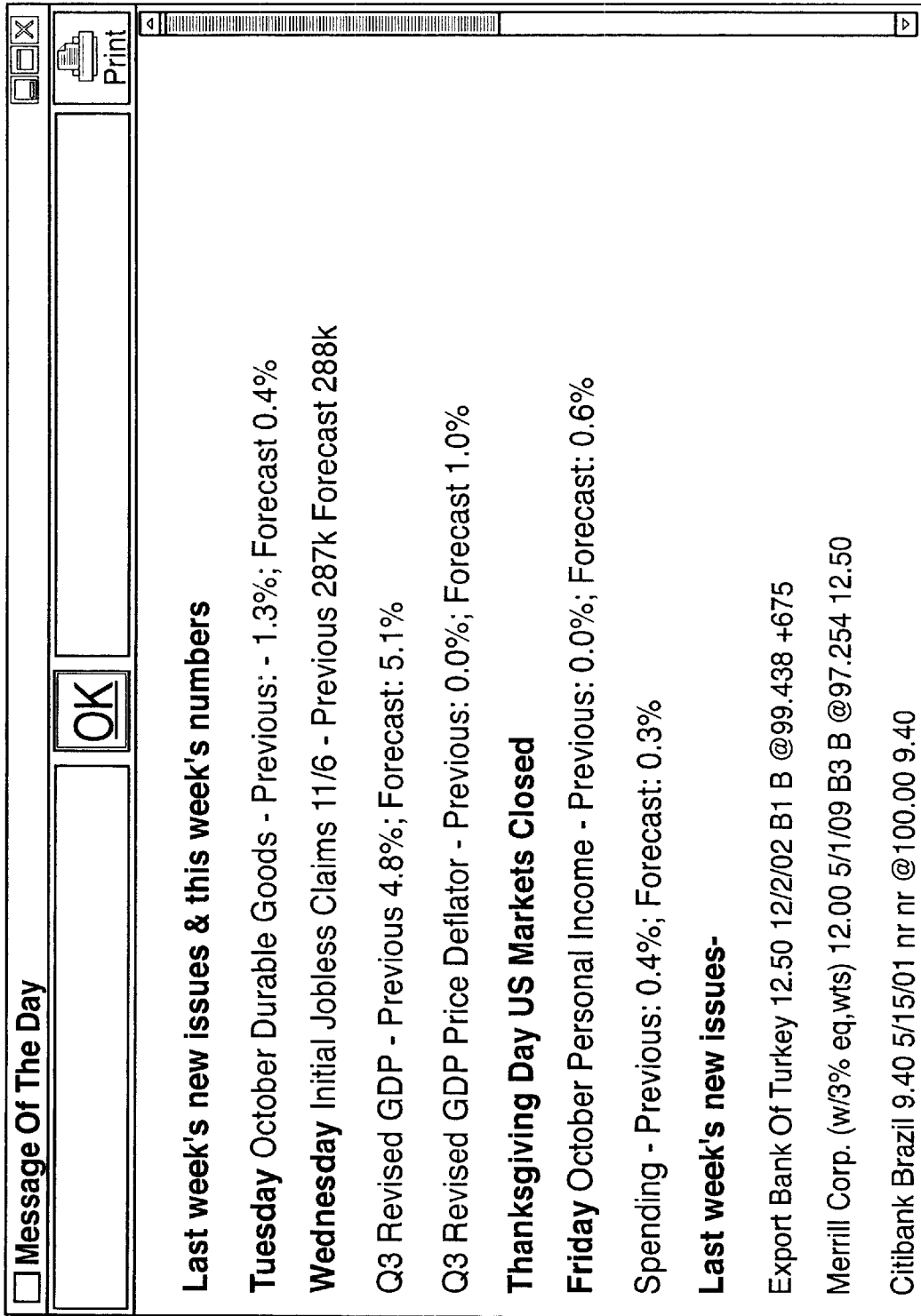


FIG. 17

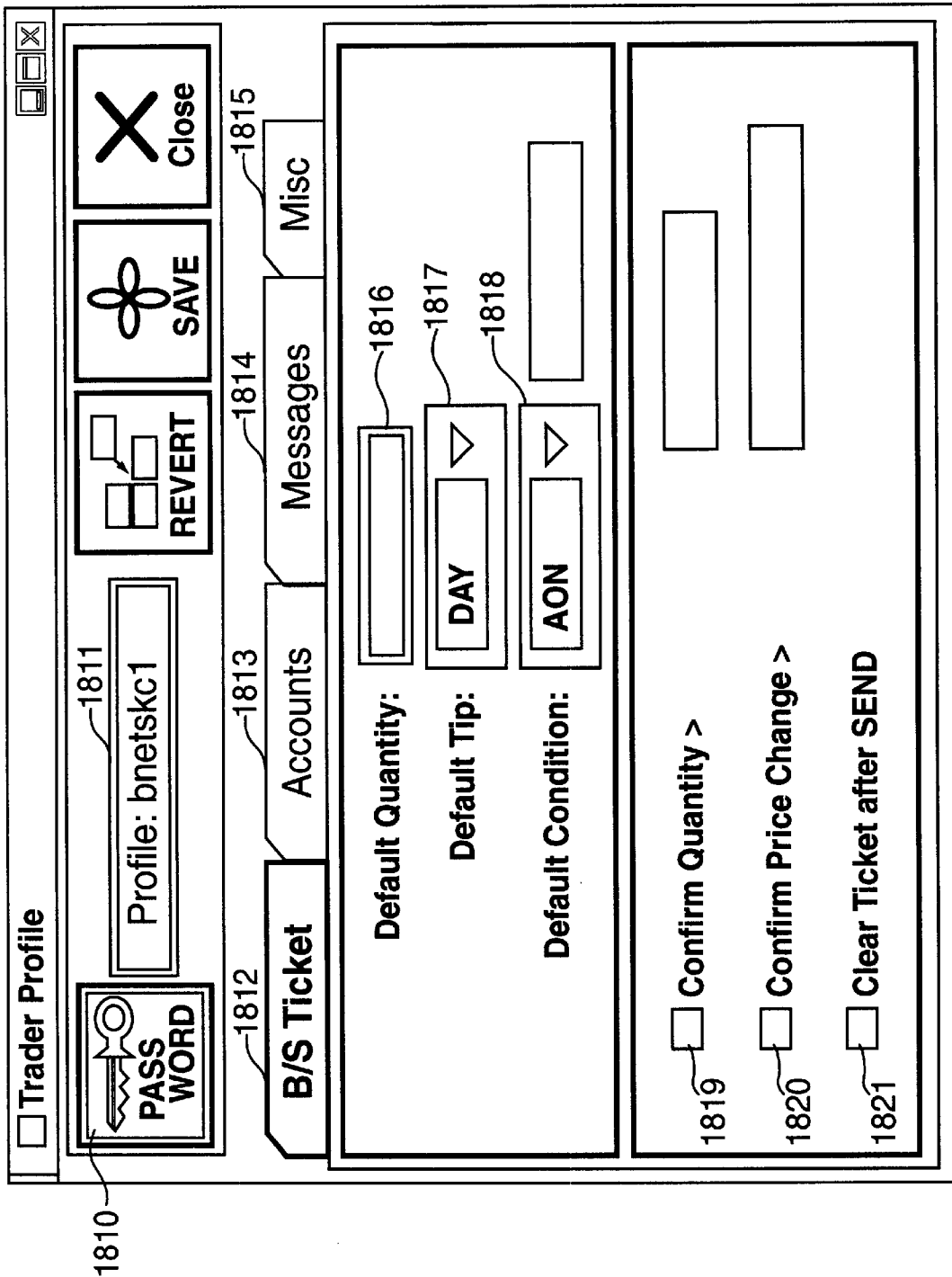


FIG. 18

Find-A Bond

Bonds Funds:

Rating:    From To

Coupon:

Price

Mat/Dur:

1922 Bid   And    Or  Tight Mkts. <=  bps

All Industry Sectors

- Industrials
- Electric Utilities
- Gas Utilities
- Water Utilities
- Telecommunications
- Banks
- Financial
- Transportation/RR's
- Agencies
- Foreign Treas/Agn
- Supranational
- Miscellaneous
- Treasuries

All Structures

- Bullet Bonds
- Putable
- Callable
- Sinking Fund
- Refundable
- Extendable
- Monthly Pay
- Convertible
- When Issued

Only  1912 Exclude

- Emerging Market
- Yankee/Foreign Devel
- Canadians
- Medium Term Note
- Asset Backed
- Title XI's
- In Default
- OID
- Non-Fixed Rate
- Pay in Kind
- Mortgage Backed
- ESOPS
- SLOB

FIG. 19

2010
2012 2013

OK

Offer

REPLY

Print

Message 3 of 3,2 unacknowledged

PREV

NEXT

**FILLED TRADE REPORT**

Trade Date: 11/24/1999    Execution Time: 11:31:38

RE: Order #24 To SELL 100M BNET 8.000 08/01/2009

Spread 117.0 vs US 6 08/15/2009

For Firm: bnet Trader: skcl Account: BNETSHARE Bucket:

SLD 100M BNET 8.000 08/01/2009 CUSIP: 123456AA1

@ 105.050233 YTM:7.265 Trade Id#49373

Leaves=0

For Settlement 11/30/1999

PRINCIPAL:	\$	105050.23		(NET PRICE: 105.050233)
COMMISSION:	\$	-0.00		(NET YTM: 7.265 )
AGRD INT:	\$	3977.78		
NETMONEY:	\$	109028.01		
CONTRA PARTY:		BNET DTC#5279		

FIG. 20

Quick Bond Info

Ticket

Order Book

Print

Calc

Clear

Close

---

Symbol: 2110 Coupon: 2111 Maturity: 2112

F 5.800 01/12/2009

Name: FORD MOTOR CREDIT COMPANY

GLOB SR NT 345397SG9

Default Benchmark: 10Y < 6.000 08/15/2009

Used Benchmark: 10Y < 6.000 08/15/2009

Moody's: A1 2115 S&P: A 2117 Fitch: A+

\$ 2300000 2116 Issued On 01/05/1999

\$ 2800000 Outstanding On 01/08/1999

Int. paid: semi-annually On JJ12

Industry Credit/Financing OID? No

**Bond**

**Coupon**

**Rating**

**Issuer**

**Issuance**

**Price**

**Call Refund**

**Sinking Fund**

**Putable**

**Convertible**

**Unit/WTS**

**Default**

**Covenants**

**Comments**

**Fixed Coupon**

2118

FIG. 21

Bond Detail

Bond

Form of ownership  2210

Minimum/Multiple Denomination   2211

DTC Eligible:   2213

Exchange:  2214

Trustee:  2215

Fiscal Agent:  2216

Comments:

FIG. 22



Coupon Detail

**Bond**

Type  Coupon

Interest is paid  on  <sup>2310</sup>

Dated   First Interest paid  <sup>2311</sup>

Current Coupon   As Of

Accr. int. per bond:   to

**Comments**

FIG. 23

<b>Rating Detail</b>	
<b>Bond</b> <b>AME 9.750 03/15/2004</b>	
<b>Close</b>	
Rating Service:	Moody's
Current Rating:	Ba3
Date Rated:	03/11/1994
Change Was:	2416
Outlook/Trend:	2419
Watch/Alert:	2422
Date Announced:	2425
Indication:	2428
<b>Comments</b>	
2431	

Moody's	2410
S&P	2411
Fitch	2412
Current Rating:	NR
Date Rated:	06/23/1998
Change Was:	2417
Outlook/Trend:	2420
Watch/Alert:	2423
Date Announced:	2426
Indication:	2429
Date Rated:	3/11/1994
Change Was:	2418
Outlook/Trend:	2421
Watch/Alert:	2424
Date Announced:	2427
Indication:	2430

FIG. 24

<b>Issuer Detail</b>	
<b>Bond</b> [AME 9.750 03/15/2004]	<b>Close</b>
AMETEK INCORPORATED STATION SQUARE PAOLI PA 19301	
2510	
Phone: [610 647-2121]	Fax: [ ]
Contact: [ ]	
Department: [ ]	
Position: [ ]	
<b>Comments</b>	
[FORMERLY AMETEK AEROSPACE PRODUCTS INC, DATE 04/15/1997]	
2511	

FIG. 25

<input type="checkbox"/> Issuance Detail	
<b>Bond</b> <u>AME 9.750 03/15/2004</u>	
\$ <u>150000</u> <u>2610</u> M issue priced at <u>100.00000</u> <u>2611</u> to yeild <u>9.750</u> <u>2612</u>	
New issue spread was <u>2613</u> Versus <u>2614</u>	
Offered <u>03/11/1994</u> Delivery <u>03/21/1994</u> Dated <u>03/21/1994</u>	
Lead Underwriter <u>GOLDMAN, SACHS &amp; COMPANY</u> <u>2615</u> Type <u>Negotiated</u> <u>2616</u>	
Gross Spr. <u>25.000</u> <u>2617</u> Selling Conc. <u>10.000</u> <u>2618</u> Re. <u>2.500</u> <u>2619</u>	
Registration Type <u>S-3</u> Prospectus <u>No</u> OID? <u>No</u>	
Terms at Call <u>NC 03/15/99</u>	
<b>Comments</b>	<u>2620</u>

FIG. 26

<input type="checkbox"/> Putable Detail	<input type="button" value="X"/> Close
Bond <input type="text" value="WMI 8.000 04/30/2004"/>	
Comments	
<input type="text" value="04/30/1997 100.00000"/>	<input type="text" value="2710"/>
Notice of intention to put the bonds must be given between <input type="text" value="03/01"/> and <input type="text" value="04/01"/> day's prior (or dates) If a poison put exists on these bonds, the Information is displayed under Covenants.	
<input type="text" value="2711"/>	

FIG. 27

**CallRefund Detail** [Close]

Bond **AME 9.750 03/15/2004**

Announced Call [ ] M at [ ] on [ ] 2810

Leaves **150000** M outstanding from **150000** M Issued

Call Schedule:

03/15/1999 104.87500	03/15/2000 102.43750
03/15/2001 100.00000	03/15/2002 100.00000
03/15/2003 100.00000	2811

Refunding protection until [ ] at [ ] Fitch Analysis

[ ] Fitch Analysis

Maintenance and Replacement Details:

2812
------

Announced Call History:

2813
------

FIG. 28

SinkingFund Detail

Bond

M outstanding from

Sinking Fund Schedule:

01/02/2007	100.00000	3766
01/02/2008	100.00000	3826
01/02/2009	100.00000	1857
01/02/2012	100.00000	190
01/02/2013	100.00000	4902
		<u>2910</u>

2000-01-02 100.00000 728

Sinking Fund Footnotes:

2911

FIG. 29

<input type="checkbox"/> <b>Default Detail</b>	
Bond <b>AWA 10.750 09/01/2005</b> <input type="button" value="Close"/>	
Issue In Default as of <input type="text"/>	
<b>Default Status:</b>	
<input type="text" value="3010"/>	<input type="text" value="Phone"/>
<input type="text" value="Trustee: 3011"/>	<input type="text" value="Phone"/>
<input type="text" value="Exchange Agent: 3012"/>	<input type="text" value="Phone"/>
<input text"="" type="text" value="In Bankruptcy? &lt;input type="/> Date filled: <input type="text"/>	
<b>Bankruptcy Status:</b> <input type="text" value="3013"/>	
<input type="text" value="3014"/>	
<b>Reorganization Status:</b>	
7.20% FROM 03/23/97 THROUGH 03/23/98 8.20% FROM 03/23/98 THROUGH 03/23/99 CALLABLE ONLY AS A WHOLE BUT NOT IN PART REDEEMABLE BY ISSUER ON INTEREST PAYMENT DATES ONLY.	
<input type="text" value="3015"/>	

FIG. 30



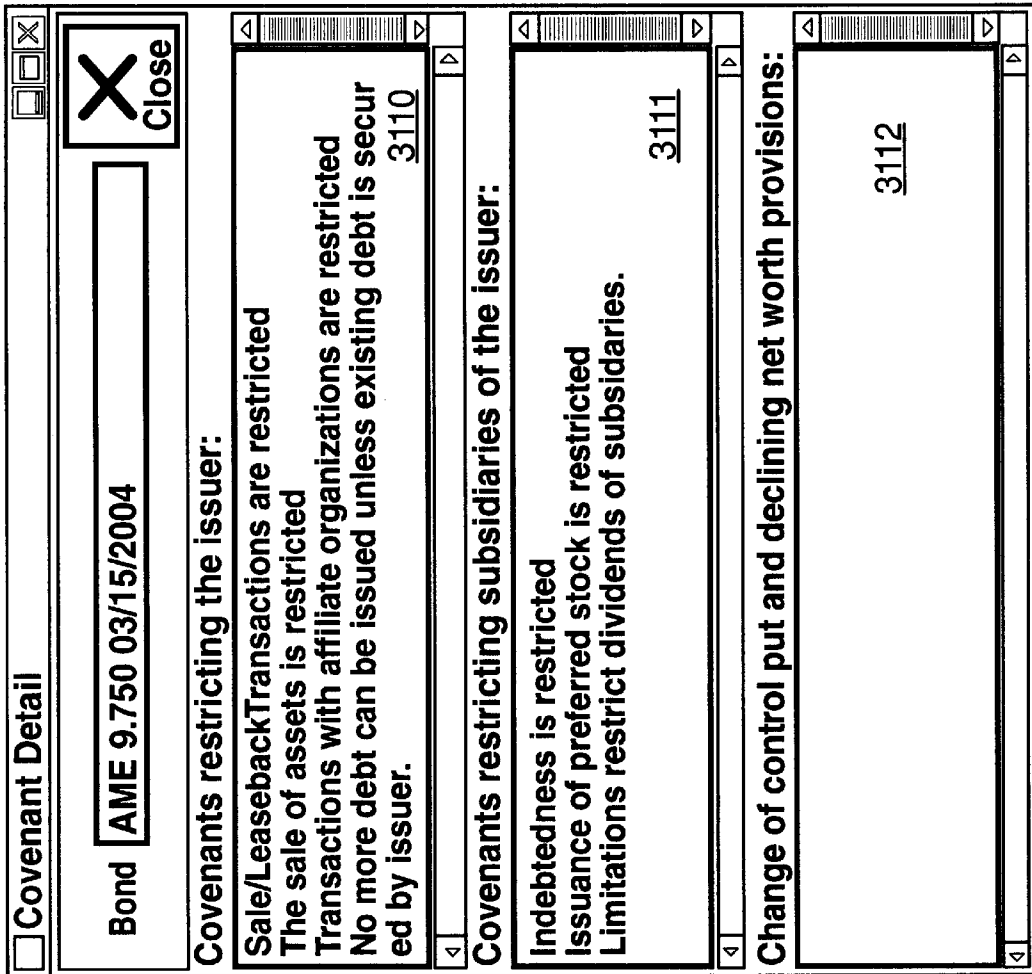


FIG. 31

Order History <BNET 8.000 08/01/2009>											
From: 10/19/1999		3210		3215		3216		3217		3218	
To: 11/24/1999		3211		3214		3215		3216		3218	
		3213									
Ent Dt	Dir	Qty	Price	Yld	Sprd	Benchmark					
10/19/1999	BY	5000			115.0	10Y < 6.000 08/15/2009					
10/19/1999	BY	6000			114.5	10Y < 6.000 08/15/2009					
10/19/1999	SL	6000			114.5	10Y < 6.000 08/15/2009					
10/19/1999	BY	3000			113.0	10Y < 6.000 08/15/2009					
10/19/1999	BY	1100			114.5	10Y < 6.000 08/15/2009					
10/19/1999	SL	500			116.0	10Y < 6.000 08/15/2009					

FIG. 32

Trade History <BNET 8.000 08/01/2009>						
From: 11/18/1999		3311		3312		3313
To: 11/24/1999		3310		3314		3315
TSN#	Time	Qty	Price	Yld	Sprd	Benchmark
49370	11/18/1999 10:24	100	105.816970	7.158	112.7	10Y < 6.000 08/15/
49369	11/18/1999 10:00	200	105.816970	7.158	112.3	10Y < 6.000 08/15/

FIG. 33A

3310

Confirmation

**SELL 100 "BNET 8.000 08/01/2009" at 116.0 basis points  
vs. Bid "10Y <6.000000 08/15/2009"**

**Fill or Kill**

**In Account "BNETSHARE" Bucket ""?**

FIG. 33B

## AUTOMATED FIXED INCOME TRADING

## BACKGROUND

The present invention relates generally to an automated method and system for trading fixed income securities. More specifically the present invention provides an automated trading forum which enables institutional investors, broker dealers and others, to transact and trade directly and anonymously, investment grade corporate bonds, municipal bonds or other fixed income instruments. The system sponsor acts as counterparty to all transactions, from trade execution through settlement, and can also serve as a credit intermediary.

Electronic networks have eliminated many of the costs associated with an open outcry system. Electronic trading systems eliminate the need to maintain a trading representative on a market floor. Small entities and individual investors now have access to information and trading vehicles that were previously available only to institutional investors. However, the complexities of the fixed income market, wherein a multitude of securities each has distinctive characteristics, have caused many trading systems to be limited to a particular type or class of securities. Each fixed income security can have a different combination of structures, credit ratings, coupons, maturities, payment schedules or other characteristics. Although there are no regulatory limitations on the class of trading system, the current electronic trading available is generally relegated into one of five system type categories. These categories include dealer systems, cross-matching systems, primary market auction systems, interdealer systems and retail systems.

Dealer systems are generally constructed such that an investor can execute a transaction concerning fixed income securities directly with a fixed income security dealer. It has been known for a dealer system to use a public network, such as the Internet, or a proprietary network. Proprietary networks can additionally permit trading using consolidated orders involving multiple dealers.

An interdealer system provides anonymous transactions between dealers wherein the trading service acts as a broker's broker. A cross-matching system automatically matches orders that meet a predetermined criteria. The speed and uniform accessibility to the electronic trading platform allows for cross-matching systems to provide real-time trading to all participants. A primary market auction system is specialized towards new debt offerings. Dealers and investors are given an electronic form to bid on new issues. Retail systems generally include on-line brokers which allow individual investors to execute transactions for fixed income securities. Generally, automatic execution of fixed income transactions is limited by regulatory requirements.

It is known to have an electronic transaction system with a database of bond offerings wherein a user can search the database for securities meeting the user's specific criteria. The user can also receive real-time pricing information and conduct transactions on an automatic execution basis. Examples of fixed income securities can include U.S. treasury notes and bonds, federal agency securities, commercial paper instruments, foreign exchange spot, forwards and options, discount notes, municipal securities, repurchase agreements and other security types. An electronic trading system may subject each trade to acceptance by the institution hosting the system. Other systems allow for automatic trades within predetermined constraints.

Tools available as enhancements to an electronic trading system can include a searchable database of bond offerings from multiple dealers and a database of callable and bullet certificates of deposit. Additionally e-mail notification services can also alert users to important information relating to the trades. Information can include changes in federal policy actions, daily or weekly fixed income market wrap-ups, or other pertinent information. Systems can allow a customer to automatically record information relating to trading transactions. Other systems allow customers to determine which dealers will receive a customer inquiry. In turn, the customers only see bids and offers from the predetermined list of dealers.

Electronic systems can also include predetermined time limits between the time of bid or offer and the time of acceptance. For example, a customer may have a limited time to execute a trade at a price on the wire. After the time limit expires, a dealer's price may become a subject price wherein a customer can hit or lift the subject price. However, the dealer retains the option to approve the trade at the subject price. If the market has moved, the dealer may counter with a new price and a new on-the-wire time period. A party can nullify the transactions within the predetermined time periods.

Auction systems can allow dealers and investors to submit bids electronically during a predetermined auction time period. During the auction period, competing bidders can improve bids for a particular issue. The terms of the transaction can include the size and preferred maturity date. Variations on the electronic auctions include "Dutch" auctions which allow a user to anonymously enter a bid. The entire auction bid is equal in size to an aggregate size of the bids still in the money at the close of the auction, and equal in price to that specified by the lowest of such bids, the determining bid.

Other electronic systems such as those offered by the U.S. Treasury Department, allow investors with existing treasury direct accounts to purchase U.S. treasury bills, notes and bonds through the Treasury Department's Website on the Internet with non-competitive bids. Cross-matching systems can match orders on a price/time priority basis according to criteria of the issuer. Orders can be stored and displayed anonymously such that they can be matched according to the predetermined price/time priority.

However none of the known systems provides a liquidity commitment, which can be essential to the success of a trading environment. There is a growing call from market participants and regulators for broader access and enhanced price transparency in the fixed income market. In addition, it would be useful to consolidate a fragmented market and establish greater liquidity in the bond market. What is needed is a system which will allow direct trading between anonymous market participants and provide price transparency, as well as a commitment to liquidity. However, the market size and complexity for fixed income products and the established roles of market participants have heretofore hindered such an embodiment.

## SUMMARY

Accordingly, the present invention includes a method and system providing automated trading of fixed income securities which can enable institutional investors, broker dealers and others, to transact directly and anonymously for the purpose of trading investment grade, high yield corporate bonds, municipal bonds or other fixed income securities. A financial institution acting as a fixed income security trading

system sponsor can act as counterparty to transactions from trade execution through settlement, and can also serve as a credit intermediary. Computer systems are utilized in conjunction with an electronic communications network to facilitate fixed income security trading activities. Software routines are utilized to direct a trader to various fixed income securities available according to specific criteria put forth by the trader. Software routines can also provide information and services related to the automated trading of fixed income securities.

In one embodiment, the present invention provides a computer-implemented method for providing fixed income securities via a communications network such as the Internet. Data relating to trading a fixed income security is transmitted from a Fixed Income Trading (FIT) system and information relating to the sale of a fixed income security is received. A live order, based upon the sale information received, can then be executed or transmitted to a point of execution. The live order provides that the FIT system acts as counterparty to each transaction such that a client trader can remain anonymous to a party on the other side of a trade. In this manner, a first trade can be executed between a party selling a fixed income security and the FIT system, and a second trade can be executed between the FIT system and a party purchasing the fixed income security. In addition, the FIT system operators can commit to market liquidity for the fixed income security traded. Numerous types of fixed income securities can be traded, including investment grade, high yield corporate bonds, municipal bonds or other types of securities.

A credit checking service can also be automated and incorporated into the present invention. Financial data related to the live order can be transmitted to a credit system and approval from the credit system to process the trade can be received. In one embodiment, transmission of the financial data can be accomplished by real time trade monitoring via client web access. The credit service can provide a credit authorization for a given trade after referencing a credit limit for the client involved and calculating a level of credit extended to the client inclusive of an amount necessary to execute the order. When all appropriate input has been received, the FIT system can execute the trade. Data related to the trade can be transmitted to a settlement system.

Monitoring client access to the fixed income trading system can be accomplished in real time. In this sense real time can include responses as fast as a computer system involved can process the data with no artificial delays programmed in.

One aspect of the present invention includes a method for a client to interact with a network access device in order to complete a fixed income security transaction. The network access device can be used to interact with a host computer via a communications network. The client can view graphical user interface (GUI) presented via a data stream content. The GUI can include interactive areas with offers to buy or sell a fixed income security. The network access device can be used to transmit an instruction to execute an anonymous trade relating to a specific fixed income security and receive confirmation of an executed trade relating to the specific fixed income security. A provider of the host computer can act as counterparty to the client in the trade. The client can also receive a commitment regarding market liquidity relating to the specific fixed income security.

Another aspect of the present invention includes a computer system that provides fixed income trading. A computer server can be made accessible to a network access device via a communications network. Software stored on the server

and executed on demand can be operative with the server to cause the system to provide the functionality described above relating to fixed income trading.

In addition, the software can be operative to cause the system to act as counterparty to a trade responsive to a fixed income security order and/or to act as counterparty to an additional trade offsetting a live order.

The computer communications system can conform to the transmission control protocol/internet protocol or other protocol. In addition, the communications network can include a private network, or a public network, such as the Internet.

Other embodiments of the present invention include a computer executable program code residing on a computer-readable medium or a computer data signal embodied in a digital data stream.

The details of one or more embodiments of the invention are set forth in the accompanying drawings and the description below. Features, objects, and advantages of the invention will be apparent from the description, the drawings and the claims.

#### DESCRIPTION OF THE DRAWINGS

FIG. 1 illustrates a block diagram of the present invention.

FIG. 2 illustrates exemplary components system according to the present invention.

FIG. 3 illustrates a block diagram of a prior art secondary debt market.

FIG. 4 illustrates components included in a secondary debt market according to the present invention and the corresponding structure.

FIG. 5 illustrates a block diagram of a prior art new issue market.

FIG. 6 illustrates components included in a new issue market according to the present invention and the corresponding structure.

FIG. 7 illustrates a block diagram of a prior art retail market.

FIG. 8 illustrates components included in a retail market according to the present invention and the corresponding structure.

FIG. 9 illustrates a trading center GUI.

FIG. 10 illustrates an exemplary interface that might be used with a monitor function.

FIG. 11 illustrates input fields.

FIG. 12 illustrates an exemplary order entry screen.

FIG. 13 illustrates an online bond calculator.

FIG. 14 illustrates a GUI dedicated to callable bond analysis.

FIG. 15 illustrates a GUI relating to Puttable bond analysis.

FIG. 16 illustrates a GUI relating to sinking fund analysis.

FIG. 17 illustrates an informational screen embodied in a message of the day graphical user interface.

FIG. 18 illustrates a trader profile GUI.

FIG. 19 illustrates a searching utility.

FIG. 20 illustrates a messaging system.

FIG. 21 illustrates a quick information GUI.

FIG. 22 illustrates a GUI with additional bond detail.

FIG. 23 illustrates a GUI with coupon detail.

FIG. 24 illustrates a GUI with rating detail.

FIG. 25 illustrates a GUI with additional issuer detail and menus for address and comments.

- FIG. 26 illustrates a GUI with issuance detail.  
 FIG. 27 illustrates a GUI with Putable detail.  
 FIG. 28 illustrates a GUI with call refund detail.  
 FIG. 29 illustrates a GUI with sinking fund detail.  
 FIG. 30 illustrates a default detail GUI.  
 FIG. 31 illustrates a GUI with covenant detail.  
 FIG. 32 illustrates an order history GUI.  
 FIG. 33A illustrates a trade history GUI.  
 FIG. 33B illustrates a confirmation history GUI.

#### DETAILED DESCRIPTION

The present invention provides a method and system that enables direct trading between market participants. Market participants such as institutional investors, broker dealers and others can transact directly for the purpose of trading investment grade, high yield corporate bonds, municipal bonds or other fixed income securities. A financial institution providing a bond trading system (FIT System) can act as a counterparty to all transactions, from trade execution through settlement, and has the option to serve as a credit intermediary. The market participants are able to maintain anonymity with regard to each other. The system provides price transparency and a commitment to liquidity. Computer systems are utilized in conjunction with an electronic communications network to facilitate live execution of matched bids and offers. Software routines can direct a trader to various fixed income securities available according to specific criteria put forth by the trader.

A computer communications network is utilized to provide a vehicle for participation. A trader can use a network access device, such as a computer, to view bond auction offerings and/or market related information and present bids in a timely manner to available offerings over the network.

Referring now to FIG. 1, a block diagram illustrates the present invention. A Fixed Income Trading (FIT) system **102** can transmit and receive orders and execution messages with a Client A Buy Side **101** and a Client B Broker **103**. Both the Broker **103** and the Buy Side **101** can complete a trade while remaining anonymous to each other. The FIT system **102** acts as counterparty to both sides of a trading transaction. If desired, a Credit System **104** can monitor real time trade information via client WEB access and provide credit authorizations to the FIT system. Details relating to completed transactions can be automatically forwarded to a settlement system **105** for settlement. A trade file multi-batch can also be communicated between the FIT system **102** and the Credit System **104**.

Referring now to FIG. 2a, an online bond trading auction system can include a bond trading (FIT) host **250** accessible via a distributed network **220** such as the Internet, or a private network. Bond trader locations **241-244** can use a computerized system or network access device **231-234** to receive and view fixed income security information and to transmit bids to the FIT host **250**.

The FIT host **250** can provide sponsor backed liquidity to fixed income securities markets and two sided markets. In addition, if it is desired, the trading host can provide sponsor backed credit intermediation. A trader can participate in complete anonymity without having to "give up" their name. Clearing and settlement can be provided via a 3<sup>rd</sup> party.

FIG. 2b shows a network of computers **200** that may be used in an implementation of an online bond trading auction system. The network **200** can include a FIT host system **250** and network access devices **201-206**. Each of the network

access devices includes a processor, memory and a user input device, such as a keyboard and/or mouse, and a user output device, such as a display screen and/or printer. The network access devices **201-206** can communicate with the FIT host **250** to obtain trading data stored at the FIT host **250**. The network access device **201-206** may interact with the host computer **250** as if the host was a single entity in the network **200**. However, the host **250** may include multiple processing and database sub-systems, such as cooperative or redundant processing and/or database servers **231-232**, that can be geographically dispersed throughout the network **200**. In some implementations, groups of network access devices **204-206** may communicate with host **250** through a local area network **210**.

The host computer **250** includes one or more databases **245** storing data relating to bond trading. Trading data can include for example, price, quantity, maturity date, and any other information pertaining to the trading activities. In one embodiment, the database **245** can also include client information and credit information relating to the clients. The host **250** may interact with and/or gather data from a trader who is operating a network access device **201-206**. Data gathered from the trader may be used to conduct trading or provide information to the trader.

Typically a trader will access the FIT host **250** using client software executed at the trader's network access device **201-206**. The client software may include a generic hypertext markup language (HTML) browser, such as Netscape Navigator or Microsoft Internet Explorer, (a "WEB browser"). The client software may also be a proprietary browser, and/or other host access software. In some cases, an executable program, such as a Java™ program, may be downloaded from the FIT host **250** to the client computer and executed at the client computer as part of the live auction software. Other implementations include proprietary software installed from a computer readable medium, such as a CD ROM. The invention may therefore be implemented in digital electronic circuitry, computer hardware, firmware, software, or in combinations of the above. Apparatus of the invention may be implemented in a computer program product tangibly embodied in a machine-readable storage device for execution by a programmable processor; and method steps of the invention may be performed by a programmable processor executing a program of instructions to perform functions of the invention by operating on input data and generating output.

Interaction with the trading host can provide real time display of live orders. Order entry can be accomplished by spread, real time U.S. treasury price, or price on yield. The host **250** will effect automated matching of orders and provide full book display for all issues with markets. In addition, a trade and order history can be made available via a library.

In one embodiment, the FIT system can provide multiple order matching wherein the system matches multiple orders with the same price, even if there is a reserve order. The FIT system can execute an amount of a reserve order, and also any other orders at that price. The FIT system can then treat any remaining reserve order as a new order at that price. In another aspect of the FIT system, a participant will have the ability to hide a portion of their order with a plus sign showing on the screen to indicate a reserve order. A participant will also have the ability to sweep orders. Sweeping can be accomplished with or without treasury hedges of a duration neutral quantity.

The FIT system will operate in real time and thereby have the ability to post trades as they are consummated. If desired,

the trade information can then be immediately forwarded to interested parties for confirmation and record keeping. Summary reports can also be compiled and distributed at predetermined time intervals, or upon request.

Additional services, such as trade settlement and credit verification can be provided over the network **220** via servers such as a settlement server **234** or a credit system server **233**.

Referring now to FIG. **3**, traditionally in the secondary debt market, institutional investors **310–314** were limited to interactions with a dealer **315–317**. Likewise, a dealer **315–317** would only interact with an inter dealer broker **318–319**. Under this scenario, the dealers **315–317** could not interact directly with another dealer **315–317**.

Referring now to FIG. **4**, the current invention provides for a FIT System **400** to service the secondary debt market wherein institutional investors **310–313** and dealers **315–317** interact directly with the automated eBond trading system **410**. Essentially, the role of the inter dealer broker **318–319** has been eliminated. Additionally, dealers **315–317** and institutional investors **310–313** can anonymously trade via the automated FIT System **410**. The hierarchy of the system illustrated in FIG. **3** has generally been replaced with a structure in which, any market participant acting as a trader, including the dealers **315–317** and institutional investors **310–313**, can consummate a trade with each other on the secondary debt market.

Referring now to FIG. **5**, the traditional primary new issue market **500** included issuers **510–511** which interacted with dealers **512**. The dealers in turn can interact with institutional investors **311–315** or regional dealers **513–514**. Regional dealers **513–514** in turn would interact with retail investors **521–525**. The current invention as depicted in FIG. **6**, includes an automated FIT System **600** directed towards the primary new issue market. Issuers **510–511** can interact with an automated FIT System **410** to complete an anonymous transaction directly with other traders. Other traders can include institutional investors **310–311**, dealers **315–316** or regional dealers **513** wherein these other traders can also deal anonymously with the automated FIT System. A retail investor **521–525** can still interact with a regional dealer **513–514** under the more efficient scenario that allows the regional dealers **513–514** to circumvent the need to operate through a dealer **315316**. Under the present invention, the regional dealer **513–514** can deal directly with the automated FIT System **410** to complete transactions with an issuer **510–511**.

Referring now to FIG. **7**, a prior art, trading scenario for online brokers is illustrated in a block diagram. As seen in the diagram, retail investors **521–525** can interact with an online broker **710–712**. In turn, the online broker **710–712** will interact with an electronic intermediary **713–714**. The dealers **311–313** also interact with the electronic intermediary **713–714**. In turn, the dealers **311–313** will interact with an inter dealer broker **318–319**. This system is based upon a hierarchy of levels. Each level being limited to interactions with the level directly above or directly below.

As depicted in FIG. **8**, the current invention teaches a system wherein a retail investor **521–525** can interact directly with either a regional dealer **513** or an online broker **710**. In turn, commercial traders including the online broker **710**, the regional dealer **513**, an issuer **510–511**, an institutional investor **310–311** or a dealer **315–316** can complete anonymous transactions through the automated FIT System **510**. The automated FIT System **510** provides market efficiency by eliminating trading hierarchies and facilitating direct interaction between all market participants.

Market liquidity can be accomplished through commitments from sponsors to provide sufficient liquidity necessary to create a real market for credit and spread products. The sponsors commitment can ensure a critical mass trade volume and live markets as well as markets to secondary trading of new issues by the sponsors. Dealer shareholders, or other sponsors can commit to minimum market making and trading volume. For example, each dealer shareholder can agree to make either a one-sided or a two-sided market trading day in a certain number of issues relating to secondary trading in high grade corporate bonds, high yield bonds and municipals. In addition, with respect to high grade corporate bonds and high yield bonds, each dealer shareholder can agree to certain trading volume commitments for a predetermined time period, such as annual, monthly or daily.

In order to appropriately respond to changes related to liquidity needs associated with the fixed income trading system, market making and trading volume commitments can be reviewed and renegotiated, extended, or amended. In one embodiment an initial commitment to market liquidity can be phased out as the average trading volume on the FIT system reaches an appropriate level necessary to support efficient functionality.

Functionality utilized to implement a FIT System can be represented in interactive graphic user interfaces (GUI) and presented upon network access devices. Implementation of the FIT System can include functions that facilitate trading and the presentation of information conducive to trading, as well as functions directed to quantifying market participants and monitoring the status of participants' credit.

Specific embodiments of the present invention can include various features and functionality. The following sections discuss such features and functions which can facilitate an online FIT system, however, the these descriptions are not meant to limit the scope of the invention.

Referring now to FIG. **9**, a graphical user interface (GUI) can be used to present numerous features and functions to a user. The FIT system can include an interface that allows a user to choose a monitor function, a blotter function, a ticker function, a trader profile function, a find the bond function, and other features that may be useful on a main menu of a FIT system.

A trading center (**911**) menu can include user interactive devices to proceed onto: an order entry menu (**912**), an order book (**915**), to find-a-bond (**916**), to monitor (**917**), to trader preferences (**918**), to blotter (**919**), or to ticker (**920**) menus.

An order entry menu GUI can include additional user interactive devices, for example, to link to: a bond selector (**913**), a bond information (**921**), a calculator (**922**), an order book (**923**), a trade history (**924**), or a blotter (**925**) menu. If multiple securities are found under a bond information menu, the user can be directed to a bond selector menu (**951**).

A calculator GUI can allow a user to proceed to a bond information (**952**), a call refund calculator (**953**), a puttable calculator (**954**), a sinking fund calculator (**955**), or an order entry (**956**) menu. An order book (**915**) menu can allow a user to proceed to a bond selector (**914**), order entry (**946**), order history (**947**), trade history (**948**), bond information (**949**), or calculator (**950**) menu. A bond menu (**916**) can direct a user to a monitor menu (**926**).

A monitor menu (**917**), can include interactive devices to proceed to functions including: a bond selector (**927**), order entry (**928**), Prc/SZ/spread (**932**), information (**933**), order book (**929**), analytics (**934**), set alert (**930**), alerts triggered



(935), monitor ticker (936), or bond information (931) menu. The bond information menu (931) can include links to access information on bond details (957), coupon details (958), rating details (959), issuer details (960), issuance details (961), price details (962), convertible (966), call refund (965), unit/WTS (967), sinking fund (964), default (968), putable (965), or covenant (969) menus.

A trader preferences menu (918) can include interactive devices to proceed to change a password (941), an order entry profile (937), an accounts profile (938), a messages profile (939), or miscellaneous profile (940) menu.

A blotter menu (919) can include interactive devices to proceed to order entry (842), order book (943), monitor (944), or show fills (945) menus. Show fills (945) can include an additional link to an order entry menu (970).

FIG. 10 shows an exemplary interface that might be used with a monitor function. A monitor function can include graphical user interface menus for symbol (1010), coupon (1011), maturity (1012), bid UST quantity (1013), bid quantity (1014), bid (spread (yield) Px) (1015), ask (spread (yield) Px) (1016), ask quantity (1017), and ask UST quantity (1018). The monitor function can also include quantity (1019) and price (1020) GUIs.

FIG. 11 illustrates input fields as well as information fields that can be displayed relating to an order book GUI. An order book GUI can also include user-interactive devices to launch a B/S ticket, an order history, a calculator, a trade history, or other information, as well as user interactive devices to clear a screen or to close the screen. Input fields as well as information fields can be displayed relating to an order book GUI. An order book GUI can also include menus that show whether a bond order was affirmed (1110), as well as related spd/px (1111), condition (1112), quantity (1113), price (1114), yield (1115) and spread (1116) functions.

FIG. 12 illustrates an exemplary order entry screen with numerous field entry positions, as well as functional user interactive buttons. Input fields as well as information fields can be displayed relating to an order entry GUI. More specifically, the order entry GUI contains menus for buy (1210), sell (1211), quantity (1212), leaves (1213), price (1214), yield (1215), spread over bid (1216), symbol (1218), coupon (1219), maturity (1220), treasury hedge (1217), benchmark (1221), bid (1222), offer (1223), last (1224), day (1225), fill or kill (1226), immediate or cancel (1227), status (1228), order number (1229), timestamp (1230), account (1231), and bucket (1232).

FIG. 13 illustrates an online bond calculator that can be displayed in a separate window to help a trader with calculations related to bond trading. A calculator GUI can contain menus for price (1310), ytw (1311), spread (1312), bid (1313), ask (1314), last (1315), benchmark (1316), bid (1317), offer (1318), last (1319), Macaulay duration (1320), adj/mod duration (1321), convexity (1322), price value of (1323), yield value of (1324), and daycount type (1325).

FIG. 14 illustrates a GUI dedicated to callable bond analysis. A callable bond analysis GUI can contain menus for call date (1410), call price (1411), yield (1412), treasury crv (1413), spread (1414), adjusted duration (1415), conversion (1416), maturity (1417), next call (1418), refunding (1419), worst yield (1420), worst spread (1421), yield (1422), spread (1423), adjusted duration (1424), redemption price (1425), and redemption date (1426).

FIG. 15 illustrates a GUI relating to Putable bond analysis. A putable bond analysis GUI can contain menus for put date (1510), put price (1511), yield (1512), treasury crv (1513), spread (1514), adjusted duration (1515), conversion

(1516), maturity (1517), next put (1518), best yield (1519), best spread (1520), yield (1521), spread (1522), adjusted duration (1523), redemption price (1524), and redemption date (1525).

FIG. 16 illustrates a GUI relating to sinking fund analysis. A sinking fund analysis GUI can contain menus for maturity (1610), next sink (1611), longest average life (1612), shortest average life (1613), next mandatory sinking fund date (1614), next voluntary sinking fund date (1615), amount for next mandatory sinking fund date (1616), amount for next voluntary sinking fund date (1617), and a section for sinking fund footnote (1618).

FIG. 17 illustrates an informational screen embodied in a message of the day graphical user interface. Additional screens can include a trader profile such as the one illustrated in FIG. 18. A trader profile GUI can contain menus for password (1810), profile (1811), b/s ticket (1812), accounts (1813), messages (1814), miscellaneous (1815), default quantity (1816), default tip (1817), default condition (1818), confirm quantity (1819), confirm price change (1820), and clear ticket after send (1821).

A searching utility can be embodied in a GUI such as that illustrated in FIG. 19 to help a trader find a bond based on criteria specific to the fixed income industry. A find-a-bond GUI can contain menus for rating (1913), range from (1914), range to (1915), coupon rate from (1916), coupon rate to (1917), price from (1918), price to (1919), maturity date from (1920), maturity date to (1921), bid size (1922), ask price (1923), tight markets (1924), industry sectors (1910), bond structures (1911), and ability to include or exclude certain bond characteristics (1912).

FIG. 20 illustrates a messaging system including functions allowing a trader to implement an offer or reply to the message. A bumper stickers GUI contains menus for okay symbol (2010), offer (2011), reply (2012), and print (2013).

FIG. 21 illustrates quick information relating to a bond as well as user interactive devices that can be useful in launching additional graphical user interfaces containing more detailed information or additional functionality. A quick bond information GUI can contain menus for company name symbol (2110), coupon rate (2111), maturity date (2112), default benchmark (2113), used benchmark (2114), Moody's rating (2115), S&P rating (2116), Fitch rating (2117), and a comments section (2118).

FIG. 22 illustrates a GUI with additional bond detail. A bond detail GUI can contain menus for ownership (2210), minimum/multiple denomination (2211), DTC eligibility (2212), principal amount (2213), currency exchange location (2214), trustee (2215), fiscal agent (2216), and comments (2217).

FIG. 23 illustrates a GUI with coupon detail. A coupon detail GUI can contain menus for type of coupon (2310), timing of interest payment (2311), today's date (2312), current coupon rate (2313), accrual interest per bond (2314), and a comments section (2315).

FIG. 24 illustrates a GUI with rating detail. A rating detail GUI can contain menus for showing current bond ratings by Moody's (2410), S&P (2411), Fitch (2412); date rated by Moody's (2413), S&P (2414), Fitch (2415); any change was by Moody's (2416), S&P (2417), Fitch (2418); outlook/trend by Moody's (2419), S&P (2420), Fitch (2421); watch/alert by Moody's (2422), S&P (2423), Fitch (2424); date announced by Moody's (2425), S&P (2426), Fitch (2427); indication by Moody's (2428), S&P (2429), Fitch (2430), and a comments section (2431).

FIG. 25 illustrates a GUI with additional issuer detail and menus for address of an issuer (2510), and any comments about the issuer (2511).

FIG. 26 illustrates a GUI with issuance detail. An issuance detail GUI can contain menus for total amount of issuance (2610), priced at rate (2611), and the yield rate (2612). Other menus are issue spread (2613), old spread (2614), name of lead underwriter (2615), type (2616), gross spread amount (2617), selling concession (2618), regarding amount (2619), and a comments section (2620).

FIG. 27 illustrates a GUI with Putable detail. A putable detail GUI can contain menus for comments (2710), and a section for notice of intention to put the bonds within a fixed timeframe (2711).

FIG. 28 illustrates a GUI with call refund detail. A call refund detail GUI can contain menus for announced call (2810), call schedule (2811), maintenance and replacement details (2812), and announced call history (2813).

A sinking fund detail GUI, exemplified in FIG. 29, can contain menus for sinking fund schedule (2910), and sinking fund footnotes (2911).

In FIG. 30 a default detail GUI is illustrated which can contain menus for default status of an issue (3010), trustee's name and phone number (3011), exchange agent's name and phone number (3012), whether in bankruptcy (3013), bankruptcy status (3014), and reorganization status (3015).

A GUI with covenant detail, illustrated in FIG. 31, can contain menus for covenants restricting the issuer (3110), covenants restricting subsidiaries (3111), and change of control put and declining net worth provisions (3112).

FIG. 32 illustrates an order history GUI with menus for beginning of a query date (3210), end of the query date (3211), date of transaction (3212), directory (3213), quantity (3214), price (3215), yield (3216), spread (3217), and benchmark (3218). An order history GUI can contain menus for beginning of the query date (3210), end of the query date (3211), date of transaction (3212), directory (3213), quantity (3214), price (3215), yield (3216), spread (3217), and benchmark (3218).

As illustrated in FIG. 33A, a trade history GUI can contain menus for transaction number (3310), time and date (3311), quantity (3312), price (3313), yield (3314), spread (3315), and benchmark (3316). FIG. 33B illustrates a confirmation GUI giving a user an option to sell a certain number of shares using the fill or kill caption (3310).

Screens containing GUIs with additional detail can also include interactive devices to launch an order or a sell command.

A FIT system can also include monitoring and reporting functionality that can be presented as printed reports or additional GUIs wherein the monitoring and functionality facilitates the efficient and successful trading of fixed income securities. For example, a FIT system can produce a report that contains details for each order that is X percent outside the best bid/offer in the system.

If there is only one bid/offer in the system for an issue, the order price should be compared against the most recent price from the system's last trade price or the price from IDC. The system's last trade price should be used if the trade dates of both sources are equal. If an issue does not have an order in the system, a last trade price in the system, or an IDC price, then "N/A" can be displayed in the related priced fields of a report. Reports can run at predetermined intervals such as every 10 minutes. In addition, reports can be executed upon request. In one embodiment, the report can be sorted by user ID and order number. FIG. 34 includes fields that can be included in a price surveillance report. FIG. 35 illustrates a process/data flow which can be utilized while implementing

a price surveillance report. FIG. 36A and 36B illustrates a flow chart that can be used to generate a price surveillance report.

The price surveillance report can be based upon queries to an order table, a bond master table, a trade table, and/or daily price tables according to the mentioned process flow. A user table can contain user names needed for the report. User names can be obtained by querying a user table using a user ID or broker ID contained in an order audit table. In one embodiment, a file can also be made to export into another application, such as Microsoft Excel.

A trade volume report can also be generated at a regular intervals such as a daily trade volume report. The trade volume report can display daily trading volume by product and trading entity. The report can include a number of trades and a percentage of volume for each product within a trading entity. It can be generated by querying a trade table for a current day's trades sorted by trading entity. Within each trading entity, a count can be generated of the number of investment grade and/or high yield trades. A count can be accomplished using a Bond Sub Type field in a trade table wherein I will equal investment grades and H will equal high yield grades. Percentage of volume can be calculated by dividing the total number of trades executed by a trading entity by the number of trades executed for each product. The percent of the volume denominator can be the total number of trades within the entity, the aggregated total of all the trades in the system, or the aggregated total of all the trades within the system by product. A monthly trade volume report can show a total volume of trading within the system by product on a monthly basis. The report can include the number of trades and a percent of volume for each product. For example, a product can include investment grade or high yield grade instruments. A number of trades is an integer value and a percent of volume with total 100% in the aggregate. A monthly trade volume report can be generated by querying a trade table for all trades taking place during a current month or other specified month and listed by product. The report can also include a count for the number of investment grade trades and the number of high yield trades executed within the month, and calculate the total number of trades executed during the specified month. Percentage of volume can be calculated by dividing a total number of trades executed by the number of number of trades executed for each product.

To facilitate auditing purposes, it can be important to have the ability to track all orders in a system from the time the orders are submitted until the time they are cancelled or traded. A FIT system can include the ability to view exactly what a user modifies and/or status changes for each order that is executed. A table can be used to track activity for every order and generate reports for surveillance purposes. Exemplary activities include, input of an order, a modification to an order, a hold put on an order, reactivation of an order, canceling an order, or other actions which affect an order such that a record is needed to the audit table. To be most effective, a replace should not occur on this table. Only writes bases on dimension triggers or other specified triggers should be used to modify the table. In one embodiment, real time entry can be used to enter information into the order/audit table. A change from active status report can be run on a daily, weekly, monthly or other time period to track end of day displays of all orders that have a change from an active status in a minute or less. This report can be useful to monitor whether or not a user is continuously placing and immediately canceling or holding their order.

A live time should be calculated for all orders in an order audit table in which a change from active status occurs. If a

change occurs in a minute or less then both instances of the order, the active and the cancelled or held must be placed in the report. The report can be sorted by fields such as user ID and order number.

In order to facilitate trading activity, a FIT system can store and readily access information relating to a trading participant. Trading participant information can include a company profile, credit ratings, credit analysis, financial information, and review information. A GUI can allow a user to query databases containing such information and present the information in any format conducive to the trading process. Interface screens can include informational fields, programmable interactive devices, and input fields. In addition, specialized icons can be set up to provide efficient execution of fixed income trading related functions.

A credit function can establish credit limits for its participants to facilitate the financial institution will bear a minimal amount of risk. Establishment and monitoring of online credit can facilitate trading and also protect a financial institution extending credit. To enforce the credit limits, the financial institution can monitor a participant's usage of credit throughout the trading day. The credit monitoring can be automated and in real time or semi-automated, based on reporting intervals, such as every 10 minutes. Reports can be generated reflecting credit monitoring. To support the data needs of reports, calculations can be performed and the results the calculations can be stored in variables (fields).

Credit exposure can be measured on a notional basis, i.e., no potential market risk will be incorporated into Exposure and termed Usage, wherein the Notional value=(price×quantity)+accrued interest. Reports can reflect aggregate values, such as Buys+Sells, as well as total buys and total sells.

Report detail can occur on a per entity, per product basis. Entity profile information can be obtained from the Credit Management System and be mapped against an associated credit activity. Reports can be processed according to the preferences of the financial institution or a client. For example, reports can be created after the generation of credit calculations, at the start-of-day, at the end of nightly batch cycle, at predetermined intervals such as every 10 minutes during the trading day and/or at the end-of-day after the non-executed orders have been purged.

In one embodiment a report can contain multiple views. Views can include, for example: a Report Summary with a macro view, per entity, per product of credit usage; Investment Grade with per entity detail of buy and sell contribution to credit usage; High Yield with per entity detail of buy and sell contribution to credit usage; or Municipals with per entity detail of buy and sell contribution to credit usage. Report data can be sorted according to specific needs, for example, data can be sorted from highest to lowest by Utilization, then from highest to lowest by Current (aggregate) exposure, then from A to Z by Trading Entity. An example is included in Table 1 below.

TABLE 1

Trading Entity	Current Exposure	Utilization
Echo Company	78,000	78%
Frank Company	65,000	78%
Tango Company	65,000	78%
Charlie Company	34,400	67%
Bravo Company	15,000	56%
Alpha Company	60,000	45%
Delta Company	32,450	35%

In order to provide consistency in credit analysis and reporting, terms can be defined for a person accessing the

system. For example, a Trading Entity can include the name of the trading entity associated with the credit usage information. An Ultimate Parent can include an ultimate parent of the trading entity. A Client Industry can be defined as an industry of the trading entity, and a financial institution Account Number as an account number associated with the trading entity. A financial institution Internal Credit Rating can include a credit rating assigned by the financial institution to a trading entity. Aggregate Failed can indicate the combined failed trades as of the start-of-day for a given trading entity and can be based upon the sum of fail information.

An Aggregate Start-of-Day Credit Balance can indicate remaining credit available as of the start-of-day, based upon the difference between an aggregate limit and the sum of unsettled trade and aggregate fail information. An Aggregate Current Day Activity for a given trading entity can indicate a combined usage of credit for current day activity as of the time the report was generated, based upon the sum of buy orders, sell orders, executed buys, and executed sells. Aggregate Current Usage can define an overall usage of credit for the current day as of the time the report was generated, based upon the sum of aggregate current day activity and aggregate open commitments. Aggregate Utilization can include the overall percentage of the credit limit that has been used for the current day as of the time the report was generated, based upon the quotient of aggregate current usage and the aggregate limit. Aggregate Limit can include an overall credit limit, assigned by the Credit department, for a given trading entity.

Investment Grade Open Commitments can refer to a combined usage of credit that is attributed to investment grade trades made as of the start-of-day, based upon the sum of unsettled trade and fail information for investment grade trades. Investment Grade Current Day Activity can represent a combined usage of credit for current day activity that is attributed to investment grade trades as of the time a report is generated, based upon the sum of buy orders, sell orders, executed buys, and executed sells for investment grade trades. Investment Grade Current Usage can include an overall usage of credit for the current day that is attributed to investment grade trades as of the time the report was generated, based upon the sum of current day usage and start-of-day credit balance for investment grade trades.

The combined usage of credit that is attributed to high yield trades made as of the start-of-day and based upon the sum of unsettled trade and fail information for high yield trades can be referred to as a High Yield Open Commitment. A High Yield Current Day Activity can define combined usage of credit for current day activity that can be attributed to high yield trades as of the time the report was generated, based upon the sum of buy orders, sell orders, executed buys, and executed sells for high yield trades. High Yield Current Usage can define an overall usage of credit for the current day that is attributed to high yield trades as of the time the report was generated, based upon the sum of current day usage and start-of-day credit balance for high yield trades.

Municipal Open Commitments can indicate a combined usage of credit that is attributed to municipal trades made as of the start-of-day, based upon the sum of unsettled trade and fail information for municipal trades. Municipal Current Day Activity can define a combined usage of credit for current day activity that is attributed to municipal trades as of the time the report was generated, based upon the sum of buy orders, sell orders, executed buys, and executed sells for municipal trades and Municipal Current Usage, the overall

usage of credit for the current day that is attributed to municipal trades as of the time the report was generated, based upon the sum of current day usage and start-of-day credit balance for municipal trades.

For a given product type, Unsettled Buys can represent the total unsettled buys as of the start-of-day, based upon the sum of all unsettled buys for a given trading entity, for the product type upon which the report view focuses. Similarly, Failed Buys can represent a total of failed trades as of the start-of-day, based upon the sum of all failed trades for a given trading entity, for the product type upon which the report view focuses. Executed Buys can define a total of executed buys for the current day as of the time the report was generated, based upon the sum of all executed buys for a given trading entity, for the product type upon which the report view focuses.

Total buy orders for a current day and based upon the sum of all buy orders for a given trading entity, for a product type can be referenced as Buy Orders. Unsettled Sells can define a total of unsettled sells as of the start-of-day, based upon the sum of all unsettled sells for a given trading entity, and for a product type. Similarly, Failed Sells can equal the total failed trades as of the start-of-day, based upon the sum of all failed trades for a given trading entity, for the product type upon which the report view focuses. Executed Sells can define a total of executed sells for the current day as of the time the report was generated, based upon the sum of all executed sells for a given trading entity and/or a product type. Sell Orders can indicate a total of sell orders for a current day as of the time a report is generated, and can be based upon a sum of all sell orders for a given trading entity, for the product type upon which a report view focuses.

Open Commitments can indicate a combined usage of credit that can be attributed to investment grade trades made as of the start-of-day, based upon the sum of unsettled trade and fail information for a given trading entity, for the product type upon which the report view focuses.

The percentage of the current usage of credit that is attributed to buys made as of the time the report was generated and based upon quotient of buy activity such as the sum of unsettled buys, failed buys, executed buys, buy orders and current usage for a given trading entity, can be included in a Percentage Long.

Current Day Activity can indicate a combined usage of credit for current day activity as of the time the report was generated, based upon the sum of buy orders, sell orders, executed buys, and executed sells for a given trading entity, for the product type upon which the report view focuses. Current Usage can define an overall usage of credit for a current day, based upon the sum of current day activity and open commitments, for a given trading entity and/or a product type.

Credit reporting calculations can occur and the resulting values can be stored and referenced to monitor the extension of credit as it relates to a client's trading position. Customer profile information can also be obtained and matched against corresponding credit detail information to aid in the analysis of extended credit. Analysis can take place at predetermined intervals, such as every 10 minutes during the trading day and/or the end-of-day. Credit reporting calculations can occur and the resulting values will be referenced or stored.

The invention may advantageously be implemented in one or more computer programs that are executed on a programmable system including at least one programmable processor coupled to receive data and instructions from, and to transmit data and instructions to, a data storage system; at

least one input device; and, at least one output device. Each computer program may be implemented in a high-level procedural or object-oriented programming language, or in assembly or machine language if desired; and in any case, the language may be a compiled or interpreted language. Suitable processors include both general and special purpose microprocessors.

Computers or other network access devices in the online fixed income trading system may be connected to each other by one or more network interconnection technologies. For example, dial-up lines, token-ring and/or Ethernet networks, T1 lines, asynchronous transfer mode links, wireless links, Digital Subscriber Line (DSL) lines and integrated service digital network (ISDN) connections may all be combined in the network **100**. Other packet network and point-to-point interconnection technologies may also be used. Additionally, the functions associated with separate processing and database servers in the host may be integrated into a single server system or may be partitioned among servers and database systems that are distributed over a wide geographic area.

A number of embodiments of the present invention have been described. Nevertheless, it will be understood that various modifications may be made without departing from the spirit and scope of the invention. For example, client computers **101-106** can comprise a personal computer executing an operating system such as Microsoft Windows™, Linux™, Unix™, or Apple MacOS™, Palm OS, as well as software applications, such as a web browser. Network access devices can be terminal devices, a computer, a personal digital assistant or a palm-type computer WEB access device that adheres to a point-to-point or network communication protocol such as the Internet protocol. Other examples can include TV WEB browsers, terminals, and wireless access devices (such as a 3-Com Palm VII organizer). A client computer may include a processor, RAM and/or ROM memory, a display capability, an input device and hard disk or other relatively permanent storage. Accordingly, other embodiments are within the scope of the following claims.

What is claimed is:

**1.** A computer-implemented method for providing fixed income securities trading via a communications network, the method comprising:

transmitting data relating to trading a fixed income security;  
receiving information related to the sale of a fixed income security;  
transmitting a live order from an anonymous trader, wherein the live order is related to the information received; and  
providing a commitment to market liquidity related to the live order.

**2.** The method of claim **1** additionally comprising the step of executing a trade instruction responsive to the live order.

**3.** The method of claim **2** additionally comprising the step of acting as counterparty to a first trade, wherein the first trade is executed as a result of the trade instruction.

**4.** The method of claim **1** additionally comprising the step of executing a second trade to offset the first trade.

**5.** The method of claim **1** wherein the fixed income security is a corporate bond.

**6.** The method of claim **1** wherein the fixed income security is a municipal bond.

**7.** The method of claim **1** additionally comprising the step of transmitting financial data related to the live order to a

credit system and receiving approval from the credit system to process the trade.

8. The method of claim 7 wherein transmission of the financial data is realized by real time trade monitoring via client web access.

9. The method of claim 1 additionally comprising the step of executing the trade.

10. The method of claim 1,7 or 8 additionally comprising the step of transmitting data related to the trade to a settlement system.

11. A method for providing credit authorization for automated trading of fixed income securities, the method comprising:

monitoring a client access an automated fixed income trading system via an electronic communications network;

receiving data from the client related to an order for a fixed income security;

referencing a credit limit for the client placing the order;

calculating a level of credit extended to the client inclusive of an amount necessary to execute the order;

transmitting approval to execute the order;

receiving confirmation of an executed order; and

transmitting details of the executed order to a settlement system.

12. The method of claim 11 wherein monitoring client access to the fixed income trading system is accomplished in real time.

13. A computer system for providing fixed income trading via a computerized network, the system comprising:

a computer server accessible with a network access device via a communications network; and

executable software stored on the server and executable on demand, the software operative with the server to cause the system to:

transmit data relating to trading fixed income securities; receive an instruction to buy or sell a fixed income security;

transmit a live order from an anonymous trader, wherein the live order is related to the instruction to buy or sell a fixed income security; and

provide a commitment to market liquidity related to the live order.

14. The computer system of claim 13 wherein the executable software is additionally operative to cause the system to act as counterparty to a trade responsive to the live order.

15. The computer system of claim 14 wherein the executable software is additionally operative to cause the system to act as counterparty to an additional trade offsetting to the trade responsive to the live order.

16. The computer communications system of claim 13 wherein the network access device comprises a computer.

17. The computer communications system of claim 13 wherein the computer communication network conforms to the transmission control protocol/internet protocol.

18. The computer communications system of claim 17 wherein the communication network comprises private network.

19. The computer communications system of claim 13 wherein the communication network comprises the Internet.

20. Computer executable program code residing on a computer-readable medium, the program code comprising instructions for causing the computer to:

transmit data relating to trading fixed income securities; receive an instruction to buy or sell a fixed income security;

transmit a live order from an anonymous trader, wherein the live order is related to the instruction to buy or sell a fixed income security; and

provide a commitment to market liquidity related to the live order.

21. A method for a client to interact with a network access device in order to complete a fixed income security transaction, the method comprising the steps of:

interacting with a host computer on a computer communications network;

viewing a data stream content via a graphical user interface, wherein the data stream content comprises an offer to buy or sell a fixed income security;

transmitting an instruction to execute an anonymous trade relating to a specific fixed income security; and

receiving a commitment to market liquidity relating to the specific fixed income security.

22. The method of claim 21 for interacting with a network access device additionally comprising the step of receiving confirmation of an executed trade relating to the specific fixed income security, wherein a provider of the host computer acts as counterparty to the client in the trade.

23. A computer data signal embodied in a digital data stream comprising data relating to a fixed income security transaction, wherein the computer data signal is generated by a method comprising the steps of:

interacting with a host computer on a computer communications network;

viewing a data stream content via a graphical user interface, wherein the data stream content comprises an offer to buy or sell a fixed income security;

transmitting an instruction to execute an anonymous trade relating to a specific fixed income security; and receiving a commitment to market liquidity relating to the specific fixed income security.

24. A computer data signal embodied in a digital data stream comprising data relating to a fixed income security transaction, wherein the computer data signal is generated by a method comprising the steps of:

transmitting data relating to trading a fixed income security;

receiving information related to the sale of a fixed income security;

transmitting a live order from an anonymous trader, wherein the live order is related to the information received; and

providing a commitment to market liquidity related to the live order.

25. A computer data signal as in claim 23 or 24 wherein the signal generated adheres to the transmission control protocol/internet protocol.