

# eCommerce in the Fixed-Income Markets



**THE 2003 REVIEW OF ELECTRONIC TRANSACTION SYSTEMS**

**NOVEMBER 2003**

*eCommerce in the Fixed-Income Markets: The 2003 Review of Electronic Transaction Systems* was conducted and compiled by the staff of The Bond Market Association.

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# Review of Electronic Transaction Systems for Fixed-Income Markets

Electronic trading platforms in the U.S. and Europe continued to mature and consolidate in 2003 as online execution of fixed-income transactions has become virtually commonplace. The continued growth in the use of online trading platforms has resulted in a well-established core group of systems. Weaker platforms continued to exit the space, while only three new systems came online. Surviving platform vendors have continued to improve their product offerings, which have in turn enhanced the use of online trading for dealers and customers. In all, we have identified 77 electronic, fixed-income trading systems operating in the U.S. and Europe in late 2003 versus 81 in 2002 and 11 in 1997. Of the 77, 46 are based principally in the U.S. and 31 are based principally in Europe.<sup>1</sup> The trend towards platforms supporting trading in both the U.S. and Europe continued in 2003. There are seven platforms listed in our 2002 survey which are no longer operating. Several platforms changed names as a result of changes in ownership or for other reasons.

This report catalogs and describes all systems that allow dealers or institutional investors to buy or sell fixed-income products electronically. We generally do not include “middleware” providers—vendors that principally market software or other infrastructure used to build electronic trading systems—unless those vendors also operate their own trading platform. We also do not include systems focused principally on retail, or individual, investors.

During 2003, participants in markets for liquid fixed-income products like sovereign debt continued to incorporate electronic execution as an integral component of their trading. Traders also accelerated their adoption of electronic execution for less liquid products such as corporate debt securities, according to anecdotal evidence. Platform vendors encouraged the adoption of electronic trading by adding or enhancing features and services on their trading systems such as connectivity for automated trade processing; pre-trade services such as research, analytics and calculation software; and services tailored to syndicated underwriting of new issues.

The following tables list the number of electronic systems we have identified by system type and market coverage since we started our survey in 1997.

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<sup>1</sup>One system is based in Asia, but supports transactions in US and European products.

SYSTEM TYPE	1997	1998	1999	2000	2001	2002	2003
Auction	1	2	10	14	16	14	12
Cross-Matching	2	6	8	22	25	17	12
Interdealer	1	0	5	10	15	21	21
Multi-Dealer	0	4	3	9	10	13	16
Single-Dealer	7	12	13	17	19	22	21
Other	0	2	1	0	0	0	0
Total	11	27	40	72	79	81	77

All figures are as of November except 2001, which are as of December. "Auction" systems was formerly "Primary Market Auction" systems. Total figures for 2001-2003 do not reflect column totals because several companies operate more than one type of platform.

MARKET SECTOR	1997	1998	1999	2000	2001	2002	2003	
							U	E
Agency	5	8	17	31	28	29	27	7
Asset-Backed	0	1	2	6	6	6	6	7
Corporate	2	9	14	30	26	29	29	10
Derivatives	N/A	N/A	N/A	N/A	8	9	10	3
European	N/A	N/A	N/A	16	37	45	N/A	N/A
Loans	N/A	N/A	N/A	N/A	6	6	5	1
Mortgage-Backed	2	3	5	14	8	12	12	5
Money Market	3	5	13	13	11	13	15	3
Municipal	3	10	18	31	11	24	23	0
Repo	4	4	4	4	6	9	10	4
Treasury/Sovereign	9	20	27	34	33	31	29	37
Other	0	0	0	11	13	19	18	7

All figures are as of November except 2001, which are as of December. Totals may exceed the actual number of systems listed since some systems cover multiple product lines. For 2003 U = United States, E = Europe.

Information provided by trading platform vendors suggests that fixed-income trading executed electronically has increased in volume steadily over the past several years, including throughout 2003. For this year's survey, we asked platform vendors to provide data on the trading volume executed through their systems. Unfortunately, an insufficient number of platforms provided data to make aggregate calculations useful. However, from data we did receive, we can conclude that online bond trading grew significantly during the past year with average growth in 2003 of 70 percent, ranging from 20 to 140 percent.

With this year's survey, we have begun identifying those European market sectors covered by platforms which support trading in European fixed-income securities. In the table on pages four through seven, each system is marked with a "U" if the relevant U.S. sector is supported and an "E" if that sector in Europe is supported. Reports for previous years included this information for U.S. markets only.

Several industry initiatives related to electronic trade execution saw significant progress in 2003, further enhancing the appeal of electronic trading. In April, FIX Protocol Ltd., in conjunction with The Bond Market Association, published version 4.4 of the FIX Protocol, including significant enhancements to facilitate trading in U.S. Treasuries, agencies, municipals, TBA mortgages, corporates, commercial paper, repos, and European corporates, agencies and sovereigns. Since the release of FIX 4.4, industry

participants have focused attention on encouraging the adoption of the new enhancements, including, for example, the development of a FIX certification program. In addition to the FIX enhancements, the industry has made significant progress on initiatives such as the development of a common message hub (a means towards implementing straight-through processing in the fixed-income markets); the development of a “market data definition language” (comprehensive definitional standards related to bond descriptions); and the development of standards related to operational aspects of prime brokerage services. All these initiatives should have the effect of enhancing the benefits of electronic trade execution.

In 2004, it is likely that recent trends in electronic fixed-income trading will continue. Trading volume will likely continue to grow. Platform vendors will continue to enhance their product offerings. Smaller, less successful platforms will continue to exit the business. We may also see a trend toward mergers among trading platforms as we began to witness in 2003.

The number and types of electronic trading platforms change periodically. A version of this survey, searchable and updated as warranted throughout the year, is maintained on The Bond Market Association’s Web site at *www.bondmarkets.com*. For more information on individual systems, please contact the respective firms.

# Electronic Transaction Systems for Fixed-Income Securities

SYSTEM/COMPANY NAME	ABS	AGY	CORP	DERIV	LOANS	MBS	M. MKT	MUNI	REPO	TREAS SOV	OTHER	SYSTEM TYPE	AVAILABILITY
American Express Credit Corporation							U					Auction	Internet
Autobahn Electronic Trading*	E	U	U			U	U			U E	U	Single-Dealer	Internet Bloomberg Reuters API
Automated Bond System		U	U					U		U		Cross-Matching	Proprietary Network
Banco Portugues de Investimento SA										E		Single-Dealer	Bloomberg
Bear, Stearns & Co. Inc.			U							U	U	Single-Dealer	Bloomberg Proprietary Network
Blackbird				U								Auction Interdealer Single-Dealer	Dedicated-Line Internet
Bloomberg BondTrader*		U								U E	E	Multi-Dealer	Bloomberg
Bloomberg Money Markets Platforms							U					Multi-Dealer	Bloomberg
Bloomberg Municipal System								U				Auction	Bloomberg
BondDesk Group		U	U			U	U	U		U	U	Cross-Matching	Internet
BondHub.com			U			U		U				Cross-Matching	Internet
Bondpage.com	U	U	U					U		U		Multi-Dealer	Internet
Bondscape.net			E							E		Multi-Dealer	Internet Proprietary Network Host to Host
BondVision	E	E				E				E		Auction	Internet Private Network
BondWave								U				Multi-Dealer	Internet
Chicago Board of Trade (CBOT)				U								Cross-Matching	Proprietary Network
Citigroup Fixed Income Direct		U	U			U				U E	E	Single-Dealer	Internet
Confederacion Española de Cajas de Ahorros										E		Multi-Dealer	Bloomberg

\*These systems also support trading in Asian, Australian and/or supranational debt.

LEGEND OF ABBREVIATIONS	ABS	AGY	CORP	DERIV	MBS	M. MKT	MUNI	REPO	TREAS/SOV
	Asset-Backed Securities	Agency Corporate		Derivatives	Mortgage-Backed Securities	Money Market			
									MUNI REPO TREAS/SOV
									Municipal Repo U.S. Treasuries or European Sovereigns

"U" and "E" represent that the system supports trading in the relevant product group in the United States and Europe, respectively.



# Electronic Transaction Systems for Fixed-Income Securities

SYSTEM/COMPANY NAME	ABS	AGY	CORP	DERIV	LOANS	MBS	M. MKT	MUNI	REPO	TREAS SOV	OTHER	SYSTEM TYPE	AVAILABILITY
Credit Suisse First Boston LLC		U	U E				U			U E		Single-Dealer	Bloomberg Internet Proprietary Network
Creditex											U	Cross-Matching	Internet
CreditTrade	U E			U E	U							Cross-Matching	Internet
dbconvertibles.com*			E							E	U	Single-Dealer	Internet
De@IDone*			U							U E	U E	Single-Dealer	Bloomberg Proprietary Network
DealComposer Inc.*			U	U	U						U	Auction	Internet
DebtDomain*					E							Cross-Matching	Internet
DebtX					U							Auction	Internet
eSpeed, Inc.*		U	U					U	U	U E	U	Interdealer	Internet Proprietary Network
Eurex				U E								Cross-Matching	Internet
Eurex Bonds GmbH						E				E		Interdealer	Internet Proprietary Network
Eurex Repo									U E	E		Interdealer	Internet
EuroMOT	E		E			E						Interdealer	Proprietary Network
EuroMTS Limited		U E								E		Interdealer	Proprietary Network
Fixed Income Securities, Inc.		U	U			U	U	U		U		Multi-Dealer	Internet
Garban-Intercapital plc*		U	U	U		U	U	U	U E	U E	U	Interdealer	Dedicated Line Internet
GFI	U	U	U E			U		U	U E	E	U E	Interdealer	Dedicated Line Internet Proprietary Network
Global Link							U					Multi-Dealer	Internet
Goldman, Sachs & Co.		U E	U			U	U			U E	U	Single-Dealer	Bloomberg Internet Proprietary Network

\*These systems also support trading in Asian, Australian and/or supranational debt.

LEGEND OF ABBREVIATIONS	ABS	AGY	CORP	DERIV	MBS	M. MKT	MUNI	REPO	TREAS/ SOV
	Asset-Backed Securities	Agency	Corporate	Derivatives	Mortgage-Backed Securities	Money Market			Municipal Repo
									U.S. Treasuries or European Sovereigns

"U" and "E" represent that the system supports trading in the relevant product group in the United States and Europe, respectively.

# Electronic Transaction Systems for Fixed-Income Securities

SYSTEM/COMPANY NAME	ABS	AGY	CORP	DERIV	LOANS	MBS	M. MKT	MUNI	REPO	TREAS SOV	OTHER	SYSTEM TYPE	AVAILABILITY
GovRate/Odd-Lot Machine		U	U					U		U		Single-Dealer	Bloomberg Internet Proprietary Network Telerate
Grant Street Group		U					U	U	U			Auction	Internet
G.X. Clarke & Co.		U								U		Single-Dealer	Bloomberg Internet
HanoverTrade Inc.					U							Auction	Internet
Hartfield, Titus & Donnelly LLC								U				Interdealer	Internet Private Intranet
Helaba										E		Cross-Matching	Bloomberg
i-Deal LLC								U				Auction Multi-Dealer	Dial-up Proprietary Network
ICAP Electronic Broking		U		U		U			U	U E		Interdealer	Proprietary Network
J.P. Morgan eXpress		U	U				U			U E	U	Single-Dealer	Bloomberg Internet
LehmanLive		U	U					U	U			Single-Dealer	Internet
LoanX, Inc.			E		U							Multi-Dealer	Internet
MarketAxess*	U	U E	U							E	U E	Cross-Matching Multi-Dealer	Internet
Merrill Lynch Capital Markets		U	E	U			U	U	U	U E	U	Single-Dealer	Bloomberg Internet
Mizuho Securities										U		Single-Dealer	Bloomberg
Morgan Stanley								U	U	U		Single-Dealer	Bloomberg Proprietary Network
MOT										E		Interdealer	Proprietary Network
MTS Amsterdam										E		Interdealer	Proprietary Network
MTS Associated Markets										E		Interdealer	Proprietary Network
MTS Austrian Market										E		Interdealer	Proprietary Network
MTS France										E		Interdealer	Proprietary Network
MTS German Market										E		Interdealer	Proprietary Network

\*These systems also support trading in Asian, Australian and/or supranational debt.

LEGEND OF ABBREVIATIONS	ABS	Asset-Backed Securities	DERIV	Derivatives	MUNI	Municipal Repo
	AGY	Agency	MBS	Mortgage-Backed Securities	REPO	U.S. Treasuries or
	CORP	Corporate	M. MKT	Money Market	TREAS/SOV	European Sovereigns

"U" and "E" represent that the system supports trading in the relevant product group in the United States and Europe, respectively.

# Electronic Transaction Systems for Fixed-Income Securities

SYSTEM/COMPANY NAME	ABS	AGY	CORP	DERIV	LOANS	MBS	M. MKT	MUNI	REPO	TREAS SOV	OTHER	SYSTEM TYPE	AVAILABILITY
MTS Ireland										E		Interdealer	Proprietary Network
MTS Portugal SGMR, SA										E		Interdealer	Proprietary Network
MTS S.p.A.	E	E				E				E		Interdealer	Proprietary Network
MTS Spain										E		Interdealer	Proprietary Network
Ragen MacKenzie Incorporated		U								U		Single-Dealer	Bloomberg
RetLots Caboto		U	U E							E	U	Single-Dealer	Bloomberg Internet
SEB Merchant Banking	E		E	U		E	E			E	E	Single-Dealer	Internet
Spear, Leeds & Kellogg		U	U					U		U		Multi-Dealer	Bloomberg Dial-up, Internet Proprietary Network
SunGard Transaction Network			U				U	U				Multi-Dealer	Dedicated Line Internet
SWX Eurobonds	U E	E	U E							E		Multi-Dealer	Bloomberg Internet Proprietary Network Reuters
TAAPSLink®										U		Auction	Internet
TDAX Eurobonds			U							U E	U	Single-Dealer	Bloomberg Proprietary Network Reuters
TheMuniCenter			U					U				Intrdealer	Internet Proprietary Network
Tradebonds.com		U	U			U	U	U		U		Single-Dealer	Internet
TradeWeb LLC*		U E	U			U	E			U E	U E	Auction Multi-Dealer	Internet Moneyline Telerate
Treasurydealer				U E			U E		U E			Multi-Dealer	Internet
TreasuryDirect										U		Auction	Internet
ValuBond, Inc.		U	U					U		U	U	Cross-Matching	Fixed Connection Internet Private Label
Xbond	U	U	U			U		U		U		Cross-Matching	Internet Proprietary Network

\*These systems also support trading in Asian, Australian and/or supranational debt.

LEGEND OF ABBREVIATIONS	ABS	Asset-Backed Securities	DERIV	Derivatives	MUNI	Municipal
	AGY	Agency	MBS	Mortgage-Backed Securities	REPO	Repo
CORP	Corporate	M. MKT	Money Market	TREAS/SOV	U.S. Treasuries or European Sovereigns	

"U" and "E" represent that the system supports trading in the relevant product group in the United States and Europe, respectively.

# Types of Systems

## **Auction Systems**

Auction systems enable participants to conduct electronic auctions of securities offerings. Some auction systems are tailored to new issues in the primary market. Others focus on auctions of secondary market offerings by investors or others. In either case, a seller or issuer typically posts the details of a security being offered for sale and the specific terms of the auction, i.e., whether the auction is single-price or multiple-price, the time the auction is open, whether partial orders will be filled, etc. Buyers are able to submit bids for the offered securities, and the offering is awarded to the bidder that offers the highest price or lowest yield. In some cases, the identities of the bidders and the amounts of the bids are kept anonymous. In others, identities and/or bid amounts are viewable by all participants.

## **Cross-Matching Systems**

Cross-matching systems generally bring both dealers and institutional investors together in electronic trading networks that provide real-time or periodic cross-matching sessions. Customers are able to enter anonymous buy and sell orders with multiple counterparties that are automatically executed when contra side orders are entered at the same price or when the posted prices are “hit” or “lifted.” In some cases, customers are able to initiate negotiation sessions to establish the terms of trades. These types of systems typically allow users to execute complex portfolio strategies that incorporate multiple orders in different securities.

## **Interdealer Systems**

Interdealer systems allow dealers to execute transactions electronically with other dealers through the fully anonymous services of brokers' brokers. All of the major interdealer brokers in the U.S. Treasury securities market currently offer or expect to offer their customers access to electronic brokering.

## **Multi-Dealer Systems**

Multi-dealer systems provide customers with consolidated orders from two or more dealers and provide customers with the ability to execute from among multiple quotes. Often, multi-dealer systems display to customers the best bid or ask price for a given security among all the prices posted by participating dealers. These systems also generally allow investors to request quotes for a particular security or type of security from one or more dealers. Participating dealers generally act as principals in transactions. A variety of security types are offered through these systems.

## **Single-Dealer Systems**

Single-dealer systems allow investors to execute transactions directly with a specific dealer of choice, with the dealer acting as principal in each transaction. Dealers offer access through a combination of third-party providers, proprietary networks and the Internet, although in recent years there has been a pronounced shift toward access through the Internet.

# Systems

## ■ American Express Credit Corporation

301 North Walnut Street, Suite 1002  
Wilmington, Delaware 19801  
302.594.3350  
*www.axpcp.com*

American Express Credit Corporation allows institutional investors to execute transactions electronically in the company's commercial paper program through its Web site. Investors are able to submit the terms of the transactions, including size and preferred maturity date, and are also able to view current commercial paper rates, as well as reports on their executed trades. Minimum orders for one- to four-day paper start at \$1 million, while orders for five- to 270-day paper start at \$100,000. Customers are able to place trades from 8:45 a.m. to 2:45 p.m. eastern standard time.

## ■ Autobahn Electronic Trading

Deutsche Bank  
31 West 52nd Street  
New York, New York 10019-6118  
212.469.4562  
*www.autobahn.db.com*

The Autobahn Electronic Trading system provides Deutsche Bank clients with real-time tradable prices, across numerous fixed-income sectors. Launched in 1996, Autobahn offers secure, automated execution in two-way markets; users have access to over 6,000 securities in 25 currencies, including government bonds, credit instruments, emerging-market securities, Asian bonds and money market instruments. Certain product groups are tradable 24 hours a day. All trades have instant trade confirmation and full historical trade documentation. Autobahn can be accessed through Bloomberg, the Internet, Reuters, via a direct link through an API, and soon through Moneyline Telerate. Through these channels, users can also gain access to Deutsche Bank's research, commentary, trade ideas and quantitative tools.

### ■ Automated Bond System

New York Stock Exchange, Inc.  
Fixed Income Markets Division  
20 Broad Street  
New York, New York 10005  
212.656.7094  
*www.nyse.com*

The New York Stock Exchange's Automated Bond System (ABS®) is a trading system that allows subscriber firms to automatically execute orders in corporate, agency, Treasury and municipal securities. Most trading occurs in corporate debt, including convertible bonds. ABS is available through New York Stock Exchange member firms over a proprietary network and allows for electronic trading in over 2,000 debt securities.

ABS is an order-driven system in which priced orders are stored, displayed anonymously and matched on a price/time basis. Locked-in compared trades are automatically submitted to clearing with calculated accrued interest. ABS quotations and trade prices are reported in real time to the market data vendors. Trading is generally in multiples of \$1,000 face amounts, but can be in higher units. The system is available on the same days as the Exchange's equity market and with the same trading hours: Monday through Friday from 9:30 a.m. to 4:00 p.m. eastern standard time.

### ■ Banco Portugues de Investimento SA

Largo Jean Monnet, 1 - 4º  
1269-067 Lisboa  
Portugal  
351.21.310.1159  
*www.bancobpi.pt*

Banco Portugues de Investimento (BPI) provides an online trading system allowing institutional investors to conduct transactions electronically in Portuguese and Greek government securities. The single-dealer system allows investors to execute transactions with BPI's bond trading desk. Offered through Bloomberg's third party network, BPI's system electronically matches bids for sellers and offers from buyers. Information regarding trades is kept confidential between transacting parties.

### ■ Bear, Stearns & Co. Inc.

383 Madison Avenue  
New York, New York 10179  
212.272.2000  
*www.bearstearns.com*

Bear Stearns provides institutional and private clients the ability to conduct electronic transactions, access research and provide analytics in a range of fixed-income products through its own proprietary platforms and through ventures in partnership with other firms.

The firm's partnerships in trading and research platforms include:

- MarketAxess offers trading, research and analytical content for global high-grade and high-yield corporate, municipal, agency, Eurobond, and emerging-markets debt instruments in a central platform combining dealer capital and client trade flows.
- BondDesk, a multi-dealer trading platform with research and analytical content, focuses on the private-client/retail sector, for all taxable and tax-exempt fixed-income securities.
- TradeWeb, a multi-dealer U.S. Treasury, agency and mortgage-backed TBA securities trading platform.
- Bear Stearns' BSFX, via Bloomberg, provides live bids and offers for foreign exchange trading.
- In addition, Bear Stearns offers clients the ability to purchase U.S. Treasury and corporate bonds through an automated execution system available through the Bloomberg network.

#### ■ **Blackbird**

55 Broad Street, 8th Floor  
New York, New York 10004  
212.609.4749  
*www.blackbird.net*

Blackbird provides an electronic system for derivatives negotiation and deal capture. The system can be used to negotiate interest rate and currency derivatives online or to create an electronic record of deals for straight-through processing, even when those deals are negotiated offline. Blackbird covers a range of interest rate derivatives, from FRAs to custom-tailored swaps across six currencies (USD, CAD, EUR, GBP, CHF, JPY). Blackbird offers a variety of trading styles so that users can trade in the manner that best suits their strategy. These include point-to-point, central price posting with execution capability and reverse auction. In addition, Blackbird enables users to define their own custom trading community, in which they can choose the counterparties with whom they wish to trade. Blackbird provides a pre-screened credit system and an online blotter and creates an electronic record for each trade that is fully FpML compliant. Blackbird has been installed on up to 80 trading floors throughout North America and Europe.



## ■ **Bloomberg BondTrader**

Bloomberg L.P.  
499 Park Avenue  
New York, New York 10022  
212.318.2000  
*www.bloomberg.com*

Bloomberg BondTrader® (BBT) is a multi-dealer electronic “hybrid” trading system for global sovereign debt. A component of the Bloomberg electronic trading platform, BBT has been operational since March 1999. BBT is available through the Bloomberg Professional Service® and allows clients of participating dealers to view pricing and execute trades on a selected government security in 21 countries.

BondTrader provides customers with live bid and offer quotes of all contributing dealers in both a composite and attributed format. Portfolio managers and traders can perform price discovery and satisfy fiduciary responsibility by looking at a single Bloomberg screen and executing trades. Customers submit single-dealer directed orders or multi-dealer price inquiries. Dealer participants are able to set up automatic acceptance procedures for orders, or auto respond to inquiries, that meet certain parameters. BBT tickets are also accessible from any Bloomberg Professional Service® analytical screen, allowing customers to easily capture pricing. The system allows customers to automatically record transactions on personal electronic blotters, with ticket writing, checkout and account breakdown functionality. Additionally, the system supports straight-through-processing functionality by allowing clients to e-mail account breakdowns directly to the executing dealer.

Bloomberg BondTrader is included as part of the basic Bloomberg Professional Service® subscription, although participating dealers must approve customers before they may execute transactions through the system. Currently the system is available for trading during U.S., European and Asian market trading hours.

## ■ **Bloomberg Money Markets Platforms**

Bloomberg L.P.  
499 Park Avenue  
New York, New York 10022  
212.318.2000  
*www.bloomberg.com*

A number of corporations and special-purpose vehicles offer commercial paper directly to investors through the Bloomberg Direct Issuer Commercial Paper Auto-Ex trading platform. Participating corporations and special-purpose vehicles allow both dealers and institutional inves-

tors to electronically purchase commercial paper with a variety of terms on a fully executable basis. All issuers control their own enablement functionality and are able to review those that they have enabled at any time. Investors are able to lift offers at rates specified by issuers. Transaction minimums and maximums vary by issuer. However, the majority of the direct issuers provide users with the ability to electronically trade down to the last \$1.00. Currently, over 50 corporate issuers representing commercial paper programs issue commercial paper through the system.

Bloomberg also operates the Bloomberg Offerings of Money Markets (BOOM) system. BOOM provides investors access to major U.S. dealers offering commercial paper, agency discount notes and CDs for electronic review and trading. BOOM supplies users with customizable search fields that can be added, deleted, rearranged and narrowed. Results of the BOOM search include the number of securities each dealer offers within the search scope defined by the investor. Investors must be dealer-enabled in order to trade or view their offerings. Many of the contributing dealers display offerings in a commingled format. Each dealer's offerings can be displayed separately and are identical to their single-dealer pages. The U.S. commercial paper and agency discount note dealers that provide electronic trading and/or viewing over BOOM include:

- ABN AMRO
- Banc of America Securities
- Banc One
- Barclays
- Citigroup Global
- Credit Suisse First Boston
- Deutsche Bank
- FTN Financial
- Greenwich Capital
- Goldman Sachs
- HSBC Securities
- JP Morgan Chase
- Lehman Brothers
- Mellon Financial
- Merrill Lynch
- Mizuho Securities

- Morgan Stanley
- State Street
- SunTrust
- UBS Warburg
- Zions Bank

### ■ **Bloomberg Municipal System**

Bloomberg L.P.  
499 Park Avenue  
New York, New York 10022  
212.318.2000  
*www.bloomberg.com*

Bloomberg offers subscribers an electronic competitive bidding system for new issues of municipal securities. The system allows users to electronically submit bids for issuer-designated transactions by using the Bloomberg DEAL-O-MATIC function. All bidders must register with the issuer prior to participating in its electronic bidding session. Bidders then enter various components of their bid, including coupons, prices and whether the bid includes insurance or an underwriter's discount. At sale time, the issuer can see which firms have submitted bids, although interest costs associated with the bid are not disclosed until after the official sale time has passed. An electronic award is issued once the bids have been reviewed and the winner has been selected. The bidding system is included at no charge to dealers that subscribe to a Bloomberg terminal. The system is also free to issuers that use the system to offer their debt securities at least once in a two-year period.

### ■ **BondDesk Group**

One Lovell Avenue  
Mill Valley, California 94941  
877.266.3922  
*www.bonddeskgroup.com*

BondDesk Group is a privately held company providing fixed income solutions to the securities industry in the U.S. and Canada. The BondDesk ECN, run by BondDesk's broker-dealer subsidiary, BondDesk Trading LLC, connects national and regional broker dealers, through a centralized marketplace. Participant broker-dealers post inventory on the platform, while other participant broker-dealers search and buy inventory offered on the platform for their retail clients. The modularized platform uses a real-time pricing system. BondDesk\*Systems, BondDesk\*Syndicate, BondDesk\*Analytics, and BondDesk\*Trading, the BondDesk Group's

operating subsidiaries, supply additional services including customized interface and integration services, fixed income analytics, portfolio management systems, syndicate management systems and a municipal underwriting platform.

BondDesk equity partners include ABN AMRO, A.G. Edwards & Sons, Inc., Bank of America, Bear, Stearns & Co. Inc., Goldman, Sachs & Co., Legg Mason Wood Walker, Inc., Pershing LLC, a member of BNY Securities Group and a subsidiary of The Bank of New York, Prudential Securities, a division of Wachovia Securities, LLC, RBC Dain, Inc., Raymond James & Associates, Inc., Spear Leeds & Kellogg, Susquehanna Partners, G.P. and TD Waterhouse Group, Inc., UBS Financial Services, Wachovia, Inc. and Bond Exchange, LLC a technology firm.

Headquartered in Mill Valley, California, BondDesk Group has offices in New York, NY, Rochester Hills, MI, Summit, NJ and Carlsbad, CA, along with a joint venture with TD Waterhouse Canada based in Toronto, Ontario.

■ **BondHub.com**

200 West Mercer Street  
Suite 300  
Seattle, Washington 98119  
206.832.2663  
*www.bondhub.com*

BondHub provides an open, price-transparent, anonymous service for trading of municipal, corporate and mortgage-backed securities. Access to BondHub is available to financial advisors, investment officers and portfolio managers at institutions, and broker-dealers who inventory or trade fixed-income securities. Customers can post executable offers, bids-wanted and inquiries to BondHub's secure Internet-based trading system. Descriptive and analytical information is available free for over 3 million issues, and 5,000 offerings are posted daily for trading online. Over 700 firms and 1,200 users provide inventory, liquidity and order flow to BondHub's network. Buyers can lift firm offers directly or make counterproposals which can be accepted or rejected. Users can save searches and receive notification when there is a match to their search or response to their posting via home-page alert, e-mail, and instant messaging. BondHub supports the distribution of new-issue offerings and offers a seamless electronic connection to back-office trade processing systems. Users pay a disclosed fee when they complete a transaction. BondHub also provides a market-neutral, full-service trading desk during market hours at 206.832.2605.

### ■ **Bondpage.com**

Cambridge Group Investments, Ltd.  
4660 S. Hagadorn Road, Suite 100  
East Lansing, Michigan 48823  
800.795.4648  
*www.bondpage.com*

Bondpage.com, a service of Cambridge Group Investments, Ltd., provides electronic access to fixed-income securities trading for institutional and retail investors. The Internet-based system offers access to all major fixed-income product areas, including U.S. Treasuries, agencies, corporates, municipals, zero coupons, CMOs and CDs from 400 different broker-dealers. Clients can utilize a variety of tools, such as various Treasury charts, historical and current rates, economic statistics and market commentary, to analyze, sell and purchase supported debt securities. No special software is required, and all features are available 24 hours a day via the Internet. Bondpage aggregates dealer inventories, and clients can search for bonds in these inventories. Institutional customers are provided with live bid/ask quotes for the most active bonds in the market.

### ■ **Bondscape.net**

54 Lombard Street  
London EC3P 3AH  
United Kingdom  
08702.426637  
*www.bondscape.net*

Bondscape is a real-time electronic trading platform accessible via the Internet, Thomson Financial Topic services or through host to host automated links. Originally launched in June 2001, this multi-dealer system was developed to primarily serve brokers and other professional investment advisors with access to the bond markets. It currently supports the trading of securities such as gilts, index linked gilts, and sterling bonds with the intent to extend its product coverage to additional Eurobonds in the near future. The system's key features include detailed bond search functionality and configurable portfolios, online research, rich/cheap/heat analytics, as well as straight through processing and automated trading via the FIX API. Bondscape's service is currently being delivered live in over 90 institutions within the United Kingdom, and is used by over 500 dealers and portfolio managers throughout the area. The system has also seen over 200,000 trades since its inception in 2001.

■ **BondVision**

Piazza Paolo Ferrari, 8  
20121 Milan  
Italy  
39.02.80235.201  
Fax: 39.02.80235.200  
*www.bondvision.net*

BondVision is an Internet-based multi-dealer-to-client market powered by MTS. BondVision allows institutional clients to connect to a group of dealers via the Internet and request live quotes for up to four market makers prior to trading the best incoming price. BondVision is supported by a growing network of dealers (currently 25) and offers straightforward Web technology. BondVision is designed for institutional clients and offers continuous price updates and liquidity provided by the participating dealers, a competitive quote facility and value-added reports on the Web site.

■ **BondWave**

1001 Warrenville Road  
Suite 407  
Lisle, Illinois 60532  
877.795.6288  
*www.bondwave.com*

BondWave provides software, analytical and management tools, and a trading platform to institutional investors and broker-dealers in the municipal bond market. Among BondWave's capabilities is the ability to provide an aggregated pool of demand that is able to interact with an online book of offerings accessible to users via dedicated client software. Broker-dealers and investors can post offerings or bids wanted for review by other participants in the system.

The system allows users to negotiate prices and quantities via exchanged electronic messages. The identities of broker-dealers who post offerings are disclosed to investors. Offerings posted by investors are anonymous, and in these trades BondWave acts as riskless principal. Although transactions can be executed online, users generally choose to maintain traditional relationships and execute transactions by voice.

■ **Chicago Board of Trade (CBOT)**

141 West Jackson Boulevard  
Chicago, Illinois 60604-2994  
312.435.3500  
*www.cbot.com*

The Chicago Board of Trade (CBOT) offers an electronic trading platform for futures and options on U.S. Treasury bonds and notes, agency notes, interest rate swaps, municipal bonds, Fed funds and other non-fixed-income products at the exchange. Trading firms must have an existing CBOT membership or establish a business relationship with a CBOT clearing firm. Prices are fully disseminated to various quote vendors, but all terms of the trade are not, in order to maintain the anonymity of participants.

#### ■ Citigroup Fixed Income Direct

388 Greenwich Street

New York, New York 10013

212.723.9474

44.207.986.9283 (London)

<http://fidirect.citigroup.com>

Flash demo: [http://www.smithbarney.com/test/flash\\_demo/online\\_trading/](http://www.smithbarney.com/test/flash_demo/online_trading/)

FiDirectX is the fixed-income electronic trading system from Citigroup Fixed Income Direct. The system is Internet-based and geared toward institutional clients. Products that can be traded include U.S. Treasuries, U.S. agencies, U.S. corporates, sovereign agency and supras, mortgage TBAs, emerging markets, Euro governments and Eurobonds. New users of FiDirectX are sponsored by Citigroup Global Markets sales coverage and are required to accept a “click through” legal agreement. The auto-execution/Request for Quote (“RFQ”) model allows users to hit or lift on-screen prices and/or request prices. Spread and outright trading is also available for both agency and Eurobond execution. The site also offers additional services such as security analytics, live trader color and an online research subscription tool.

#### ■ Confederacion Española de Cajas de Ahorros

Alcala 27

28014 Madrid

Spain

34.91.532.0106

[www.ceca.es](http://www.ceca.es)

CECA—an association of savings banks—launched its trading system in 2001. Currently, the system is available to CECA’s member banks and several institutional customers. Trading on the system is not conducted on an anonymous basis and counterparties are required to have a credit risk line. The system provides participants with the best bids and offers for each security. Trade details are only available to counterparties. Securities offered in the system are limited to Spanish government bonds and STRIPs, but the range of products is likely to expand to other European bonds and,

in the future, to other markets. The CECA system does not provide details for trade settlement and straight-through processing.

■ **Credit Suisse First Boston LLC**

11 Madison Avenue  
New York, New York 10010-3629  
212.325.2000  
*www.csfb.com*

Credit Suisse First Boston (CSFB) allows customers to execute transactions electronically in a variety of U.S. fixed-income instruments through Prime Trade, a proprietary, Internet/intranet-based platform and through its electronic trading system on the Bloomberg network. Prime Trade is a single-dealer, Web-based electronic trading and order-routing system that allows clients to have trading access to the world's electronic exchanges for listed futures, major global currencies, European government bonds and Euro bonds, and U.S. Treasury and agency bonds. PrimeTrade is fully integrated with PrimeClear, offering real-time transaction processing and settlement for global futures markets. In addition, CSFB offers trading access via the most up-to-date FIX protocols as well as offering execution and post-trade APIs. CSFB's Bloomberg-based systems allow customers to execute transactions in U.S. federal agency discount notes (ADNTrade), commercial paper (CPTrade) and certificates of deposit (CDTrade).

■ **creditex**

26 West 17th Street, 4th Floor  
New York, New York 10011  
212.633.7277  
*www.creditex.com*

creditex is an Internet-based transactional and informational platform which offers its users the ability to execute credit default swaps electronically. The system allows major financial institutions, corporations and institutional investors in both North America and Europe to meet each other and negotiate, and to execute transactions with other qualified counterparties anonymously. creditex also offers a documentation solution, historical data and related information to facilitate the execution of transactions.

Users are able to anonymously post desired credit swap positions to the creditex system, which can then be viewed by other participants. Quotes are executable, but all trades require verbal confirmation. Upon execution, creditex sends an automated trade ticket to each party confirming the terms of the trade. Settlement takes place directly between the two parties. Users access the service through Internet-based dedicated client



software. Commissions associated with the service are based on the fixed rate, scheduled termination and notional amount of the contract. creditex is available during New York and London trading hours.

■ **CreditTrade**

180 Fleet Street  
London EC4A 2HG  
United Kingdom  
44.20.7400.5050  
Fax: 44.20.7400.5099  
*www.credittrade.com*

CreditTrade is an independent provider of transactional, information and data services to the wholesale credit markets.

CreditTrade provides an online mechanism for buyers and sellers of non-commoditized credit risk to meet and negotiate deals. CreditTrade is active in a number of markets including loans, credit derivatives, collateralized debt obligations and asset-backed securities. CreditTrade has offices in London, Singapore and New York. Its clients include major investment and commercial banks as well as many of the world's leading financial institutions.

The platform itself is designed so that when a deal is ready to close, traders use the exchange facility to get the details of their prospective counterparty. They then talk to each other via telephone to check limits and close the deal (or not) directly. The platform is designed to allow the user to post deals and select various levels of anonymity through identifying what type of or what specific organizations can see one's trades and the risk weighting of the counterparty. There is no fee to register for the service.

CreditTrade Limited is regulated by the Financial Services Authority.

■ **dbconvertibles.com**

Deutsche Bank AG, London  
1 Great Winchester Street  
London EC2N 2EQ  
United Kingdom  
44.20.7545.2361  
*www.dbconvertibles.com*

dbconvertibles.com is an online convertible bond trading service launched by Deutsche Bank AG for institutional investors. The system currently provides information on and facilitates trading in approximately 2,000 convertible securities in Europe, the United States, Asia and Japan. dbconvertibles.com offers pricing information, graphics and analytics,

linked prospectuses and a convertible calculator with analyses of new issues made available to clients upon the announcement of deal terms. The system displays bids and offers for asset-swapped convertible paper. All online trades have Deutsche Bank as principal and there is instant trade confirmation and a full history of trades. No special software is required to access [dbconvertibles.com](http://dbconvertibles.com).

■ **De@l Done**

C.so Monforte, 15  
20122 Milan  
Italy  
39.02.69.705.690  
*[www.mpsfinance.biz](http://www.mpsfinance.biz)*

De@lDone Trading (DDT), the electronic trading platform launched by MPS Finance, allows investors to trade in a broad range of fixed-income products through both Bloomberg and proprietary networks.

DDT is an order-driven, proprietary electronic trading system in which priced orders are displayed anonymously and executed automatically on a price and time priority. MPS Finance acts as counterparty in all transactions. Corporations, small- and medium-size institutions, and retail investors, who access the system indirectly through partner banks and intermediaries, are able to execute orders. Covered products include non-government bond issues (supranationals, banks, non-bank financials, emerging markets and investment-grade corporates), as well as Italian and European government bonds, covered warrants, structured securities and securities arranged by MPS Finance. De@lDone Trading also offers research, economic news, market commentaries and services for investment evaluations.

MPS Finance also offers price-driven trading available through the Bloomberg network for transactions in a wide range of non-government and government securities. This system also offers distribution of new debt underwritten or issued by MPS Finance.

■ **DealComposer Inc.**

01 Inc.  
1803, Kyung-ki Building  
115 Samgak-dong, Jung-gu  
Seoul, Korea 100-200  
82.2.736.7003  
*[www.o-one.com](http://www.o-one.com)*

DealComposer is an Internet-based transaction and information application designed to facilitate all capital markets activities. DealComposer

divides the process of raising capital into repeatable steps, offering its users tools to design, structure, analyze, negotiate, document and execute primary transactions and complete secondary market trades. DealComposer supports corporate and sovereign issuers, institutional investors, financial intermediaries and other capital markets participants, including legal and accounting firms and consultants. The system provides its users with a secure, interactive medium through which users can communicate with other transaction participants, analyze and evaluate offerings, conduct due diligence and negotiate transaction terms. DealComposer supports a number of domestic and cross-border financial products including loans, bonds, convertibles, equity and derivatives transactions.

■ **DebtDomain.com**

60 Lombard Street  
London EC3V 9EA  
United Kingdom  
44.20.7464.8612  
*www.debtDomain.com*

DebtDomain builds, markets and operates electronic platforms devoted to the syndicated loan market. DebtDomain offers an electronic platform dedicated to the secondary loan markets for European, Middle Eastern and Asia-Pacific syndicated loans.

DebtDomain's secondary platform services over 400 member banks and 3,000 members including syndication teams, secondary loan traders, portfolio managers and corporate bankers. The secondary platform functions as an independent service provider rather than as a principal and offers users functionality to buy and sell various types of loans; allows them to monitor trading activity and to communicate anonymously in real time with potential counterparties.

Comprising secondary loan bids, offers and trades placed directly into DebtDomain's secondary trading platform, secondary data is available by subscription.

The DebtDomain primary syndication platform includes bookrunning, contact management, and document-distribution facilities, real-time deal status reporting and allocation capability. Participants and secondary buyers may use the platform to review current secondary offers, historical trade and quotation data.

DebtDomain services the market from offices in London, Singapore and Sydney.

## ■ DebtX

101 Arch Street  
Suite 410  
Boston, Massachusetts 02110  
617-443-9199  
*www.debtX.com*

DebtX provides a secure, online B2B exchange for the sale of commercial loans in the secondary market. The DebtX system supports trading of performing, sub-performing and non-performing loans secured by residential and commercial real estate as well as other illiquid debt holdings such as judgments, deficiencies and charge-offs. Assets can be pooled or presented individually. Auctions can be in several formats: sealed, indicative or English. Sellers have the option of reserve pricing.

DebtX facilitates all aspects of the loan sale process, including:

- Portfolio analysis
- Document preparation
- Online listing
- Marketing
- Due diligence
- Offer management
- Closing

Buyers are able to search offerings-based loan criteria as well as review all loan documents online. Buyers can set e-mail alerts based upon loan filter criteria. In addition, a trading team actively consults with buyers based on registration profiles to present offerings matching the goals of buyers.

## ■ eSpeed, Inc.

135 East 57th Street  
New York, New York 10022  
212.938.5000  
*www.espeed.com*

eSpeed (NASDAQ:ESPD), a subsidiary of Cantor Fitzgerald, is a provider of electronic marketplaces and related trading technology solutions. eSpeed operates multiple buyer/seller real-time electronic marketplaces, and allows customers to execute transactions and trading strategies in multiple products across multiple markets simultaneously. Customers can access the system via eSpeed's privately owned global trading network, or over the Internet.

eSpeed offers software to trade more than 45 products and currently supports the trading of U.S. Treasury and U.S. agency securities, European and Canadian government bonds, electricity, natural gas, emissions allowances and weather, as well as other financial instruments. eSpeed also tailors software to fit participants' specifications.

Transactions are processed using Interactive Matching, a proprietary, rules-based trading method that interactively executes the orders of multiple-market participants. eSpeed incorporates a customizable range of compliance and credit risk management components that continuously monitor trading activity to ensure credit limits have not been exceeded and to evaluate positions and risk exposure across product and credit limits. The system is available 24 hours a day through a proprietary redundant global network distribution system.

eSpeed has offices in North America, Europe and Asia.

#### ■ **Eurex**

D-60485 Frankfurt/Main

Germany

49.69.211.13.225

[www.eurexchange.com](http://www.eurexchange.com)

Eurex is an integrated electronic trading and clearing system for futures and options. The platform was created by Deutsche Borse AG and the Swiss Exchange. The Eurex system can be used by member firms like global banks, professional trading firms, institutional investors, etc. Since only members have direct access to Eurex, an individual investor must submit orders through his or her broker. Various types of orders can be entered in the Eurex system. In options trading, there are limit, market and combination orders; in futures trading, there are also stop orders.

With price/time priority matching, a time stamp is assigned to all orders entered into the Eurex system to determine the chronological priority of the order for matching purposes and is used to prioritize orders in the book with the same price.

Following the price/time principle described above, when the intra-day volatility of the inside market price is relatively low, large orders may prevent smaller orders from participating in the matching process. Since the market for futures on short-term interest rates (STIR products) is characterized by low intra-day volatility in comparison with other exchange-traded derivative instruments, the price/time matching algorithm is regarded as inappropriate for such products. In its place the *pro rata* matching algorithm governs execution priority.

When matching against an incoming order, the *pro rata* matching algorithm takes into account each book order at the inside market price according to its percentage of the overall bid or offer volume at the price, regardless of its time stamp. The *pro rata* principle avoids an imbalance in priority between orders with small and large quantities.

#### ■ **Eurex Bonds GmbH**

D-60485 Frankfurt/Main  
Germany  
49.69.211.11.222  
[www.eurex-bonds.com](http://www.eurex-bonds.com)

Eurex Bonds is a fully electronic interdealer trading system with an integrated clearing and settlement environment for bond and basis trading in debt issues. Founded in October 2000, Eurex Bonds is a joint initiative of Eurex Frankfurt AG and leading bond trading houses. All fixed-income debt issues of the Federal Republic of Germany and the Treuhandanstalt (a privatization agency of the Federal Republic of Germany), jumbo *Pfandbriefe* of German issuers, bonds from the European Investment Bank, Kreditanstalt fuer Wiederaufbau and the German federal states are available for trading. In addition, basis trading for all German government bonds in combination with Eurex's capital market futures is offered. Trading is based on a model in which quotes and orders are entered into a central quote book. During trading hours, orders entered into the system are executed against the best available bid or asked prices. When orders have the same price, time is used to prioritize the orders. All market participants also have the possibility of entering limited or unlimited buy or sell orders into the system. In addition, members can also enter orders for bond and basis trades via the "Pre-arranged Trade Facility." This functionality gives members the opportunity to enter trades which previously have been agreed in the OTC market outside the existing quote book without any execution risk. Eurex Clearing AG serves as a central counterparty (CCP) for buyers and sellers, and thus guarantees anonymity of all transactions executed via the trading system. Automated links to the settlement locations Clearstream and Euroclear allow cross-border settlement. Trading on Eurex Bonds can be done via leased lines or via the Internet. Participation in the system is available to all banks and financial services firms which fulfill the trading and clearing admission requirements.

#### ■ **Eurex Repo**

D-60485 Frankfurt/Main  
Germany  
44.69.2102.5741  
[www.eurex.repo.com](http://www.eurex.repo.com)

Eurex Repo is a fully electronic interdealer trading platform with an integrated clearing and settlement environment for repurchase agreements. This multi-market and multi-currency trading platform currently operates in two markets: the Swiss franc market and the Euro market.

In the Swiss franc segment, the list of collaterals includes Swiss, German and Austrian government bonds, jumbo *Pfandbriefe* and Swiss equity. In addition to the interbank repo market, Eurex Repo also includes an auction functionality which can be used for various purposes. The Swiss National Bank, for example, uses this facility to operate its monetary policy in Swiss francs. Eurex Repo is also used for auctions of new issues in Swiss government bonds and money market claims. The Euro market focuses primarily on German government bonds as well as jumbo *Pfandbriefe*. In the Euro market, Eurex Clearing AG serves as a central counterparty (CCP) for buyers and sellers, and thus guarantees both the settlement and anonymity of all transactions executed via the system. Automated links to the settlement locations Clearstream and Euroclear allow cross-border settlement. In combination with its clearing and settlement institutions, Eurex Repo is able to provide overnight terms in all markets.

Eurex Repo charges annual and transaction fees. The Eurex Repo software can be downloaded via the Internet directly to the PC or local area network of market participants, and runs on standard Windows-NT infrastructure.

#### ■ EuroMOT

Borsa Italiana S.p.A.  
Piazza degli Affari  
6 - 20123 Milano  
Italy  
011.39.02.724.261  
[www.borsaitalia.it](http://www.borsaitalia.it)

Since January 2000, Borsa Italiana has operated EuroMOT for the trading of Eurobonds, foreign non-Italian bonds, and asset- and mortgage-backed securities. EuroMOT is a screen-based multi-currency system that accommodates trades in minimum lots of €5,000 or in multiples thereof. The system is available throughout Europe to banks and investment firms. Investors can access the system through the interconnection of a broker. The trading environment is order-driven with specialists. During continuous trading, trades are made by matching opposing bids and offers available in the market. Orders are executed with an automatic matching procedure according to price and time priority. Trading may be conducted by participants who are authorized to trade and who have signed the membership agreement for markets regulated and managed by Borsa Italiana. In addition, certain authorized intermediaries act as specialists, whose

ongoing task is to provide bid and offer prices in a given set of securities, with a maximum spread and a quantity established by Borsa Italiana. The system provides straight-through-processing capabilities, which include the automatic creation and transmission of settlement instructions to the relevant depositories (Euroclear, Clearstream and Montetitolì) using daily matching and rectification methods. During trading hours, prices and quantities of the best bids and offers are available publicly in real time, as are the quantities being bought and sold at the best prices. The price of the most recent trade, time of trade and quantity traded are also available. EuroMOT uses a NAM technology system, which is an electronic fixed-income trading platform managed by SIA S.p.A.

### ■ EuroMTS Limited

99 Bishopsgate  
15th Floor  
London EC2M 3XD  
United Kingdom  
44.20.7786.6001  
[www.euromts-ltd.com](http://www.euromts-ltd.com)

EuroMTS, which began operations in 1999, is a pan-European electronic trading system for Euro-denominated benchmark government bonds of at least €5 billion in outstanding size. EuroCredit MTS, a division of EuroMTS, began trading benchmark covered bonds, namely for German *Pfandbriefe* and French *Obligations Foncières*, in 2000. Covered bonds must be at least €3 billion to qualify for listing. In September 2000, EuroMTS extended its pools of instruments to include a quasi-government segment for agency bonds such as Freddie Mac, the EIB EARNs Program and Kreditanstalt fuer Wiederaufbau, with listing requirements similar to those of government bonds. In addition to outright cash trading, EuroMTS offers a repo trading facility available for both special and general collateral repo, as well as basis and spread trading. Trading of U.S.-dollar-denominated agency, supranational, quasi-government and sovereign bonds traded on spread versus U.S. Treasuries was introduced in July 2003. EuroMTS is wholly owned by MTS S.p.A. but operates as an interdealer trading platform incorporated in the United Kingdom.

Participants on EuroMTS commit to make two-way markets for substantial sizes in a subset of bonds listed on the system. EuroMTS uses the technology of the Telematico system, an electronic fixed-income trading platform managed by MTS S.p.A. The system architecture utilizes a centralized market management system that allows users to access the system from a peripheral client server environment. Trading is anonymous, and participants are notified of trade counterparties only after trade execution. The Telematico system also provides straight-through-processing capabil-



ities, which include the automatic creation and transmission of settlement instructions to the relevant depositories.

■ **Fixed Income Securities, Inc.**

7220 Trade Street, Suite 310  
San Diego, California 92121-2327  
800.697.722.0663  
*www.fisbonds.com*

Fixed Income Securities is an electronic offerings and transaction system that consolidates and displays offerings from over 450 bond dealers across the United States. Broker-dealers, money managers and registered representatives can search the database and select offerings from over 18,000 listings of municipals, corporates, governments, agencies, MBS and CDs. The system allows users to set specific search criteria to find offerings that are an exact match to an inquiry. Licensed users can electronically enter orders for straight-through processing or for review and release by FIS, depending on preset user criteria. The site provides real-time pricing information for taxable securities that are live and executable. All orders effected through the system are subject to acceptance by Fixed Income Securities, which will confirm electronically. There are no fees associated with using the system. The system is available Monday through Friday from 8:30 a.m. to 6:00 p.m. eastern standard time.

■ **Garban-Intercapital plc**

5 Harborside Financial Center, Plaza 5  
Jersey City, New Jersey 07311-3988  
201.369.5670  
*www.garban-intercapital.com*

ICAP plc, the holding company of Garban-Intercapital, is an interdealer broker active in the wholesale market for OTC derivatives, fixed income, money markets, futures, commodities, foreign exchange, equities and equity derivatives. Through ICAP's electronic broking system, a range of fixed-income products are traded electronically. The system, seen on trading screens globally as ETC, launched in the U.S. Treasuries market in February 2000 and allows traders at banks and investment houses to transact deals interactively via private extranet or the Internet.

ETC supports trading in a number of asset classes, including, but not limited to, U.S. Treasuries, emerging markets, repo, government bonds in Australia, Korea and Japan, a variety of mortgage products and more. The design allows the platform to support a variety of trading protocols, which are peculiar to the instruments traded.

The application is platform-independent. A complete application programming interface permits clients to integrate pricing feeds, transaction models and post-trade data into proprietary and commercially available trading systems.

Features of ETC include:

- Hybrid voice/electronic brokering system
- The ability to notify traders of trader-specific market conditions
- Access to a variety of global markets
- The ability to “private-label” the application
- Customized trading screens
- User-defined keys for both standard and proprietary keyboards
- User-defined input limits
- Customized trade notification

ICAP also allows dealers, through secure access, to view and check out trades via the Internet. These straight-through-processing features apply to both electronic and voice-assisted trades.

#### ■ GFI

100 Wall Street  
New York, New York 10005  
212.968.4100  
*www.GFIgroup.com*

GFI offers brokerage, analytics and market data for the credit-derivative and fixed-income markets. GFI offers brokerage services in the following derivative products: default swaps, asset swaps, credit index swaps and options, basket default swaps, CDOs, synthetic CDO tranches, swaptions, bond options and asset-backed options, and other complex credit derivative products. GFI also offers the same services for fixed-income products such as corporate bonds, Eurobonds, investment-grade and high-yield bonds, emerging market bonds and distressed debt.

GFI’s trading system technology supports selected markets by combining electronic and voice-assisted trade execution. This hybrid brokerage model allows orders to be posted and executed either interactively or through the broker. Trading screens display GFI’s price discovery and analytical services, and market data can be seen through dedicated feeds or a streaming Web portal, which provides real-time and historical data on a subscription basis.

Credit derivatives data are also available through Reuters terminals. Third-party trading systems can also be integrated with GFI's benchmark FENICS credit derivative pricing software suite, which is available for credit derivative markets that offer market-based pricing and revaluation.

■ **Global Link**

225 Franklin Street  
Boston, Massachusetts 02110  
877.454.3570  
*www.globallink.com*

MM Connect is a real-time electronic money markets trading system available via Global Link, State Street's e-finance network. MM Connect supports the execution of money market transactions with multiple providers in multiple currencies. The platform is delivered through a single interface using dedicated client software and secure private connection.

MM Connect:

- Allows investment managers to enter or upload expressions of interest for viewing by selected participating dealers
- Transmits trade details to relevant counterparties upon execution
- Supports instant messaging for rate and trade term negotiations
- Stores trade details and chat transcripts
- Integrates with existing trade management, accounting, and custody systems

In addition to MM Connect, Global Link offers clients access to an array of e-finance applications and services across multiple asset classes. The network offers: world market research and analytics; secure real-time multi-asset class trade execution services; and full connectivity to global investment managers' chosen trading destinations, including multiple exchanges, brokers, ECNs and bank counterparties. Global Link is used by over 300 asset management companies, including 19 of the world's top 20. The network's buy-side clients span 23 countries and collectively manage over half of the world's professionally managed cross-border assets.

■ **Goldman, Sachs & Co.**

85 Broad Street  
New York, New York 10004-2456  
212.902.1000  
*www.portal.gs.com*

Institutional investors can electronically access Goldman Sachs liquidity for most fixed-income and foreign exchange asset classes. Through their proprietary system, WebET, investors can execute trades in multiple securities, many of them auto-executable. Furthermore, Goldman Sachs trades fixed-income and foreign exchange products on a number of multi-dealer platforms, including TradeWeb (U.S. Treasuries, agencies, mortgage-backed securities, U.S. and foreign commercial paper, European governments, agency discount notes, U.S. corporates), FXAll (foreign exchange), BondDesk (municipals), MarketAxess (U.S. corporates, emerging markets and Eurobonds) and BOOM (U.S. commercial paper and agency discount notes).

The Goldman Sachs Institutional Portal, launched in Spring 2003, is the new Goldman Sachs Web site offering institutional clients personalized access to research, trading, analytics and communication tools in a single location. It is a single site for Goldman Sachs, combining fixed income, equities, economics, foreign exchange, futures, commodities, convertibles, derivatives and asset management.

#### ■ **GovRate/Odd-Lot Machine**

Zions Bank Capital Markets  
525 Washington Boulevard  
Jersey City, New Jersey 07310  
801.524.2312  
*www.govrate.com*

GovRate (Odd-Lot Machine) is an Internet electronic trading system offered by Zions Bank Capital Markets (formerly Discount Corp. of New York). GovRate allows clients to auto-execute transactions in U.S. Treasury bills, notes, bonds, zero coupons, benchmark agencies and corporate bonds and also provides search engines for municipal bonds. In addition to Internet trading services, electronic trading is also available on Bloomberg at ZION or Bloomberg BondTrader.

#### ■ **Grant Street Group**

1800 Allegheny Building  
429 Forbes Avenue  
Pittsburgh, Pennsylvania 15219  
412.391.5555  
*www.grantstreet.com*

Grant Street Group, parent of MuniAuction, is an Internet auction house that conducts (1) forward auctions (sales) of new bond issues for municipalities and government-sponsored enterprises (GSEs), namely, Freddie Mac and Tennessee Valley Authority (TVA); and (2) reverse auctions

(solicitations) of money market instruments including CDs, TDs, O/Ns, repos, GICs and Treasuries. The company hosts approximately 1,000 auctions per year totaling \$1.5 trillion.

In addition to hosting auctions, Grant Street Group provides customized auction software for debt issuers and institutional investors, often on “private label” sites, as well as auction support services such as bidder training, information dissemination and technical troubleshooting. Grant Street Group also offers clearance and settlement services as requested through its wholly owned subsidiary, Grant Street Securities, which is both a broker-dealer and an alternative trading system (ATS). The system is available to institutional investors and broker-dealers.

Grant Street Group does not engage in proprietary trading, underwriting or other traditional investment banking activities, and does not require that trades between institutional investors using its Web site involve a broker-dealer, unless required by the issuer or seller. The firm offers clearance and settlement services solely for the purpose of facilitating trades between institutional investors or parties wishing to remain anonymous.

The following is a list of Grant Street Group private-label Web sites:

<b>PRIVATE-LABEL CLIENT</b>	<b>PRIVATE-LABEL WEB SITE</b>
State of Ohio	<a href="http://www.bidohio.com">www.bidohio.com</a>
State of South Carolina	<a href="http://www.bidsc.com">www.bidsc.com</a>
State of Texas	<a href="http://www.bidtx.com">www.bidtx.com</a>
State of Louisiana	<a href="http://www.bidlouisiana.com">www.bidlouisiana.com</a>
State of Idaho	<a href="http://www.bididaho.com">www.bididaho.com</a>
State of Iowa	<a href="http://www.bidiowa.com">www.bidiowa.com</a>
Commonwealth of Massachusetts	<a href="http://www.bidmass.com">www.bidmass.com</a>
Commonwealth of Pennsylvania	<a href="http://www.bidpa.com">www.bidpa.com</a>
Allegheny County, Pennsylvania	<a href="http://www.bidallegheny.com">www.bidallegheny.com</a>
Ameritas Investment Corporation	<a href="http://www.aicauction.com">www.aicauction.com</a>
Columbia Capital Management	<a href="http://www.columbiacapitalauction.com">www.columbiacapitalauction.com</a>
Dain Rauscher	<a href="http://www.dainrauscherauction.com">www.dainrauscherauction.com</a>
Freddie Mac	<a href="http://www.freddiemacauction.com">www.freddiemacauction.com</a>
FWW Financial Ltd.	<a href="http://www.fwwauction.com">www.fwwauction.com</a>
H.J. Umbaugh & Associates	<a href="http://www.bidumbaugh.com">www.bidumbaugh.com</a>
Kelling, Northcross & Nobriga	<a href="http://www.knnauction.com">www.knnauction.com</a>
Kirkpatrick Pettis	<a href="http://www.kpauaction.com">www.kpauaction.com</a>
Mellon Financial	<a href="http://www.mellongslauction.com">www.mellongslauction.com</a>
Northland Securities	<a href="http://www.nslauction.com">www.nslauction.com</a>
City of Portland, Oregon	<a href="http://www.pdxauction.com">www.pdxauction.com</a>
Public Financial Management (PFM)	<a href="http://www.pfmauction.com">www.pfmauction.com</a>
P.G. Corbin & Company, Inc.	<a href="http://www.pgcorbinauction.com">www.pgcorbinauction.com</a>
City of Pittsburgh	<a href="http://www.pghauction.com">www.pghauction.com</a>
Ponder & Company	<a href="http://www.ponderauction.com">www.ponderauction.com</a>
R.W. Baird	<a href="http://www.bairdauction.com">www.bairdauction.com</a>
R.W. Wentworth & Co., Inc.	<a href="http://www.wentworthauction.com">www.wentworthauction.com</a>

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Shattuck Hammond	<a href="http://www.shattuckhammondauction.com">www.shattuckhammondauction.com</a>
Speer Financial Inc.	<a href="http://www.speerauction.com">www.speerauction.com</a>
Tennessee Valley Authority	<a href="http://www.tvauction.com">www.tvauction.com</a>
Wilmington Trust	<a href="http://www.wtauctions.com">www.wtauctions.com</a>

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■ **G.X. Clarke & Co.**

10 Exchange Place  
Jersey City, New Jersey 07302  
201.200.3600  
[www.gxecute.com](http://www.gxecute.com)

G.X. Clarke & Co., an institutional dealer in government and agency securities, operates GxCute, an electronic trading system available through the Bloomberg Auto Execution system. GxCute allows customers to auto-execute transactions in U.S. Treasury bills, notes, bonds and STRIPs, and agency securities.

Minimum transactions begin at \$1,000. All prices are executable with no odd-lot markup.

■ **HanoverTrade Inc.**

379 Thornall Street  
Edison, New Jersey 08837  
732.548.0101  
[www.hanovertrade.com](http://www.hanovertrade.com)

HanoverTrade is a principal-only Web site serving as a marketplace for large pools of whole loans sold over the Internet from one principal to another utilizing common trading terms and protocol. Through Asset OnSite, its real-time, Web-based data analysis system, members can view standardized stratification reports or create customized reports. Users can view loan documents online and transmit due diligence results to sellers.

The membership structure of HanoverTrade allows the creation and management of standardized processes for trading protocols, purchase agreements and settlement procedures. The platform facilitates the actual sale/purchase of loans, providing credit and financial data on potential buyers and sellers. In addition to trading assets, HanoverTrade provides a range of asset valuation, analysis and marketing services for performing, subperforming and nonperforming assets, including whole loans and participations, on a servicing-retained or released basis.

■ **Hartfield, Titus & Donnelly LLC**

111 Pavonia Avenue, Suite 1430  
Jersey City, New Jersey 07310  
201.217.8080  
*www.htdonline.com*

Hartfield, Titus & Donnelly LLC (HTD) is a brokers' broker for municipal securities and is registered as an ATS (alternative trading system). HTD operates an electronic bid-wanted platform as well as a Web-based interface to its book of offerings. The browser-based offering and bid wanted system offers access to HTD's complete brokering book. It is searchable based on a wide variety of criteria, including yield spread to MMA Consensus scale. Execution is conducted through HTD's voice brokers located in seven offices in the U.S. Bids and offerings can be entered and viewed online. Market commentary and a variety of descriptive information are also available online. HTD provides a direct link to its system for any customer interested in establishing a relationship with HTD.

■ **Helaba**

11 Ironmonger Lane  
London  
United Kingdom  
44.20.7334.4512  
*www.helaba.de*

Helaba is the bank for the German regional states of Hesse and Thuringia and for their local authorities. In addition, it works as the central institution and clearinghouse of the Hesse and Thuringia savings banks. Helaba serves both dealers and institutional investors, mainly within Europe, with an electronic automatic execution service for Euro-denominated government bonds. The system also provides live, executable prices for *Pfandbriefe*, subject to credit-line checking. In this cross-matching system, Helaba provides the securities' prices to their customer base, and orders are executed according to the matched price on a time priority basis. The system is completely anonymous. Alternatively, customers can request a quote for a particular trade that is outside the quoted parameters. Helaba is currently available via the Bloomberg system and plans to expand into the Internet-based platform in the near future.

■ **i-Deal LLC**

40 West 23rd Street, 5th Floor  
New York, New York 10010  
212.812.0600  
*www.i-deal.com*

i-Deal LLC allows dealers to submit bids electronically to issuers of municipal securities through integration of the PARITY Electronic Bid Submission System and the BiDCOMP Competitive Bidding System. Issuers electing to accept bids through PARITY provide information relating to the sale to iDeal's bond research group for entry into the database that supports BiDCOMP and PARITY. Prior to the scheduled sale time, underwriters use BiDCOMP to calculate bids conforming to the issuer's parameters. The bids are then submitted to PARITY. Features include the ability to create, edit, submit and withdraw a bid in order to refine bids to reflect up-to-the-minute market conditions. Only the final bid is made available to the issuer at the time of sale. At the time of the sale, issuers can review details of bids and make the award. Once the official award is made, actual reoffering yields and prices can be viewed. Among other features are those that give issuers the ability to download bids into spreadsheet programs and databases for verification purposes, and to deliver notices of sales and preliminary official statements electronically. There is no direct fee for use of PARITY by dealers, issuers or their financial advisors. Dealers pay for use of BiDCOMP.

i-Deal LLC also operates the Dalcomp Variable Rate Trading System (VRTS), a platform used by remarketing agents to automate internal, dealer-to-dealer and dealer-to-investor trading of municipal variable-rate and commercial paper instruments. The system allows institutional investors to auto-execute transactions with remarketing agents. To support this facility, Dalcomp provides remarketing agents with the ability to customize their clients' views of available positions, rates and security descriptions. VRTS is available through leased-line and dial-up connections to i-Deal users 24 hours a day, seven days a week.

#### ■ **ICAP Electronic Broking**

Harborside Financial Center Plaza 5  
Jersey City, New Jersey 07302  
201.209.7800  
*www.icap.com*

ICAP is a voice and electronic interdealer broker with an average daily transaction volume in excess of \$550 billion, 40% of which is electronic. ICAP acquired BrokerTec in May 2003.

ICAP operates a hybrid of voice and electronic broking that uses both the BrokerTec platform and other ICAP technologies to deliver voice and/or electronic access to a combined pool of liquidity. The system supports straight-through processing for all transactions.

The BrokerTec (*www.btec.com*) electronic fixed-income trading platform provides execution and straight-through processing to participating deal-



ers. The platform is currently live in nine countries and its systems are linked into the dealing rooms of over 150 customers. BrokerTec transacts in excess of \$200 billion a day (single count) in fixed-income securities, and has transacted more than \$100 trillion since its commercial launch in June 2000.

ICAP is active in the wholesale markets for fixed-income securities, OTC derivatives, money market products, foreign exchange, energy, credit and equity derivatives. The group provides independent broking service to commercial banks, investment banks and other liquidity providers that trade in the wholesale financial markets.

### ■ **J.P. Morgan eXpress**

J.P. Morgan Chase  
270 Park Avenue, 6th Floor  
New York, New York 10017  
866.762.7559  
*www.jpmorganexpress.com*

J.P. Morgan eXpress is a fully electronic multi-asset trading platform. JPeX provides live, streaming tradable prices for a broad range of assets including U.S. Treasuries, corporates, agencies, Eurobonds, Euro governments, European asset-backed and emerging-market fixed-income securities, in addition to foreign exchange. The Web platform allows clients to access firm prices and submit requests for quotes or subject orders. JPeX is also available over the Bloomberg network. Firm prices are processed electronically while inquiries are automatically routed to the trading desk. JPeX provides a real-time (and historical) blotter of executed trades for audit trail purposes and is downloadable into Excel. A FIX API is also available and, with JPeXLink, clients can stream real-time prices directly into a spreadsheet for custom analysis. Commercial paper is available over the Bloomberg network at JPCP and multi-currency deposits are available on the eDepo Web platform.

### ■ **LehmanLive**

Lehman Brothers Inc.  
745 Seventh Avenue  
New York, New York 10019  
1.800.265.3251  
*www.lehmanlive.com*

LehmanLive, launched by Lehman Brothers in 2000, is a Web-based portal offering front-to-back functionality for Lehman Brothers clients. Content and functionality include pre-trade decision support, transaction execu-

tion and post-trade reporting, settlement, mark-to-market and portfolio/attribution analysis.

Pre-trade content includes access to economics, research, advanced analytics, Lehman Brothers indices, live market data, buy/sell volume and intraday performance monitors, interactive single-security home pages, and historical plotting and statistical analysis tools with customizable alerts. Select cities can transact electronically in a number of fixed-income products, including bullet, benchmark and callable agencies, municipal bonds, repurchase agreements and investment-grade corporate bonds. Agencies, municipals and repos are traded via a “click-and-lift” live streaming system, which provides ongoing “good” prices that can be executed immediately. Investment-grade corporate bonds can trade (on an interactive negotiated basis) from a market monitor or from an offering page where Lehman posts bids and offers.

Post-trade functionality includes fixed-income prime brokerage, risk management, derivatives servicing and mark-to-market, electronic clearing and settlement, and transaction reporting, as well as portfolio analytics and index attribution analysis.

■ **LoanX, Inc.**

26 West 17th Street, 4th Floor  
New York, New York 10011  
212.886.1440  
*www.loanx.com*

LoanX is an industry-sponsored platform that provides secondary market liquidity and transparency services to dealers and asset managers in the syndicated loan market.

The company currently provides brokerage services to the dealer community, posting the inside markets and facilitating trade activity on as many as 50 different issues at any time. LoanX launched an Internet-enabled mark-to-market service in May 2002. This new service marries dealer marks and known facility details, and integrates this market data with analytical tools and real-time credit market news from multiple vendors.

■ **MarketAxess**

140 Broadway, 42nd Floor  
New York, New York 10005  
212.813.6000

or

**MarketAxess Europe, Ltd.**

71 Fenchurch Street  
London EC3M 4BS  
United Kingdom  
44.20.7709.3105  
*www.marketaxess.com*

MarketAxess is an Internet-based, multi-dealer platform for credit product trading. MarketAxess provides institutional investors and securities dealers with access to credit market data, electronic trading in the primary and secondary markets, and straight-through processing. Currently, investors are able to trade investment-grade and high-yield corporate bonds, emerging-market bonds and Eurobonds.

MarketAxess provides institutional investors with access to liquidity from a group of dealer partners in both the primary and secondary markets. The secondary market platform facilitates secondary trading across a range of credit products, with trading volume on the U.S. and European platforms averaging more than \$1 billion a day. In addition, the system offers users access to more than \$50 billion in commingled credit market inventory, as well as fixed-income market research provided by participating dealers.

The MarketAxess new-issue system allows investors to submit indications of interest directly to participating syndicate desks on new issues in the U.S. corporate bond market. MarketAxess provides access to a new-issue calendar, prospectuses, electronic road shows and transaction terms.

MarketAxess provides dealers and institutional investors with a range of tools that facilitate straight-through processing, including simple online allocation tools and fully FIX-compliant messaging features that allow clients to communicate electronically between front- and back-office systems. MarketAxess' STP tools can be customized to meet specific needs of users.

MarketAxess provides credit market data through the MarketAxess Corporate BondTicker™, a service that provides real-time access to corporate bond price and spread data disseminated by NASD, price information for leveraged loans, credit default swap prices, and third-party content from news organizations.

The MarketAxess dealer group includes the following firms: ABN AMRO, Banc of America Securities, Banc One Capital Markets, Barclays PLC,

Bear Stearns, BNP Paribas, Citigroup Global Markets, Credit Suisse First Boston, Deutsche Bank Securities, Goldman Sachs, HSBC, J.P. Morgan Chase, Lehman Brothers, Merrill Lynch, Morgan Stanley, Spear Leeds & Kellogg, UBS and Wachovia Securities.

Current and Proposed Offerings by Sector:

U.S. investment-grade corporates (including benchmarks)

U.S. high yield and crossovers

U.S. floating-rate notes

Asset-backed securities (2004)

Emerging markets

USD/EUR-denominated Eurobonds

GBP Eurobonds

Euro floaters

### ■ Merrill Lynch Capital Markets

250 Vesey Street

New York, New York 10281

212.449.1000

*www.ml.com*

Merrill Lynch Capital Markets provides customers with the ability to access research, view product offerings and execute transactions via LMS or Bloomberg, and MLX on the Internet. In addition, Merrill Lynch supports industry initiatives to establish direct fixed-income connectivity links via industry-standard protocols. The LMS system allows customers to automatically execute transactions via the Bloomberg network in a wide variety of fixed-income investments, including U.S. Treasury bills, notes and bonds; U.S. federal agency discount notes; municipal securities; commercial paper; and repurchase agreements. Recently, European sovereign debt was added to the products available for electronic execution. It also allows customers to execute transactions in institutional money market funds, as well as variable-rate preferred securities. Transaction size limitations vary within the different investment classes. Transactions in U.S. Treasury securities and federal agency discount notes can be executed during New York, London and Tokyo trading hours. European sovereign debt may be traded during London trading hours. Commercial paper transactions can be executed during New York and London trading hours, while transactions in most other security types can be executed from 8:00 a.m. to 4:00 p.m. eastern standard time.

Merrill Lynch operates MLX, an electronic suite of content, markets and services for Merrill's clients in fixed income, equities and post-trade securities services. Through MLX, Merrill Lynch's institutional customers can buy new issues, execute secondary market transactions and access research, analytical tools, and post-trade processing and financing services. Through

MLX, investors can trade U.S. Treasury and federal agency securities, commercial paper, municipal bonds and Euro-sovereign debt. Investors may also trade equities, and obtain real-time indications for equity-linked products such as convertible bonds, certificates and warrants. Full debt and equity new-issue capabilities are available, including electronic roadshows and complex, multi-tranche issues. Clients can access live markets in credit derivatives, including default swaps, interest rate derivatives, OTC options and mortgage products, including CMOs. New products are added regularly. In addition, customers can undertake futures and options transactions, verify intra-day trade status, access clearance and settlement reporting across asset classes, and access prime brokerage and financing services. A wide array of research and analysis is also available through the system. Access is available through a secure Web server. Trading hours and minimum trade sizes vary among the product offerings.

■ **Mizuho Securities**

111 River Street, 11th Floor  
Hoboken, New Jersey 07030  
201.626.1000  
*www.mizuhosecurities.com*

Mizuho Securities USA Inc. (MSUSA) provides customers with the ability to execute transactions electronically in U.S. Treasury bills, notes, bonds and STRIPs. The system is available through the Bloomberg network, either as a stand-alone market maker or as part of the multi-dealer platform commonly known as Bloomberg BondTrader® (BBT). The system provides customers with live bid and offer quotes. Customers submit orders or price inquiries which are subject to acceptance by MSUSA's trading desk. The system does have automated acceptance on orders which meet certain size and maturity parameters. The system is available during New York trading hours of 8:00 a.m. to 5:00 p.m. eastern standard time. MSUSA has been actively trading electronically with customers through the Bloomberg network since 1995.

■ **Morgan Stanley**

1585 Broadway  
New York, New York 10036  
212.761.4000  
*www.morganstanley.com*

Morgan Stanley provides institutional clients the ability to conduct electronic transactions, access research and provide analytics in a range of fixed-income products through its own proprietary platforms and through partner ventures with other firms.

Repo Link allows authorized customers to view live prices and electronically execute transactions in repurchase agreements among a variety of collateral products and market segments, including overnight, term, Treasury and agency benchmark specials and general collateral. All orders submitted through the system are subject to acceptance by Morgan Stanley. The system is available to customers through the Bloomberg network.

MSCP allows clients to view live offerings and electronically execute transactions in commercial paper. Using MSCP, clients can view Morgan Stanley's inventory and submit electronic orders for commercial paper. All orders submitted through the system are subject to acceptance by Morgan Stanley. The system is available to customers through the Bloomberg network.

Client Link is a Web-based portal offering pre-trade functionality for fixed-income and equity investors. Pre-trade content includes access to economics, research and advanced analytics.

In addition to these proprietary platforms, Morgan Stanley is involved in a number of multi-dealer electronic trading platforms. Among the many fixed-income trading systems participated in by Morgan Stanley are TradeWeb, FXAll, TheMuniCenter and MarketAxess.

#### ■ MOT

Borsa Italiana S.p.A.—Italian Exchange  
Piazza degli Affari n 6  
20123 Milano  
Italy  
011.39.02.72.42.6276  
*www.borsaitalia.it*

Since 1994, Borsa Italiana has operated MOT, an electronic bond and government securities market. MOT is a screen-based system that accommodates trades in minimum lots of €1,000 or in multiples thereof. The system is available throughout Europe to banks and investment firms. Investors such as funds or insurance companies can access the system through the interconnection of a broker. Trading is conducted in two stages. The first stage is an open auction, which allows as many bids and offers as possible to be matched at a single price. The second stage is continuous trading, during which trades are made by matching opposing bids and offers available on the market. Orders are executed with an automatic matching procedure according to price and time priority. Trading may be conducted by participants who are authorized to trade and who have signed the membership agreement for markets regulated and managed by Borsa Italiana. The system provides straight-through-processing capabilities, which include the automatic creation and transmission of settlement instruc-

tions to the relevant depositories using daily matching and rectification methods. During trading hours, prices and quantities of the best bids and offers are available publicly in real time, as are the quantities being bought and sold at the best prices. The price of the most recent trade, time of trade and quantity traded are also available.

■ **MTS Amsterdam**

Prinsengracht 1087  
1017 JH Amsterdam  
The Netherlands  
31.20.5310460  
*www.mtsamsterdam.com*

MTS Amsterdam, which began its operations in September 1999, manages the electronic trading system for Dutch government securities. Over 30 Euro-denominated securities—Dutch state loans and Dutch treasury certificates—are traded, either zero-coupon or with fixed annual coupons, and with maturities ranging from three months to 30 years. The system is owned by 13 primary dealers, the State of the Netherlands and MTS S.p.A., and is under the supervision of the Security Board of the Netherlands.

Quotes are collected in a book according to price and side of the market. For each product, orders are electronically matched by price and quantity with respect to time of arrival. Market makers may show both the quantity bid/asked as well as the maximum quantity they are willing to trade, and the quotes must be displayed for all products assigned for at least five hours per day. MTS Amsterdam uses the Telematico Cash System and the Telematico Repo and Basis Trading Facility platforms. Trades are completely anonymous and participants become aware of counterparties only after a trade is executed. Trades executed through MTS Amsterdam settle through Euroclear and Clearstream.

■ **MTS Associated Markets**

Rue du Commerce 96  
B-1040 Brussels  
Belgium  
32.2.280.0427  
*www.mtsbelgium.com*  
*www.mtsfinland.com*

MTS Associated Markets (MTSAM), formerly known as MTS Belgium, operates an electronic interdealer system for the trading of Belgian and Finnish government securities. MTS Belgium was changed to MTS Associated Markets in March 2002 to reflect the expansion of scope to include coverage of the Finnish market.

In addition to 12 lines of Treasury certificates with an outstanding amount of about €32 billion, a total of 19 Belgian securities with an outstanding amount of €198 billion and nine Finnish listed securities with an outstanding total amount of about €46 billion are currently traded on MTSAM. This represents all fixed-rate OLO lines and RFGBs. The 26 participants on the MTS Belgium segment and the 20 participants on the MTS Finland segment provide liquidity on MTSAM. Quotes are collected in a book according to price and side of the market. For each product, orders are electronically matched by price and quantity with respect to time of arrival. Market makers may show both the quantity bid/asked as well as the maximum quantity they are willing to trade, and quotes must be displayed for all products assigned to market makers for at least five hours per day. MTSAM uses the Telematico Cash System and the Telematico Repo Trading Facility platforms. Trades are completely anonymous, and participants become aware of counterparties only after a trade is executed. Transactions on MTS Belgium are settled through the National Bank of Belgium while those on MTS Finland are settled through Euroclear or Clearstream.

#### ■ MTS Austrian Market

99 Bishopsgate  
London EC2M 3XD  
United Kingdom  
44.20.7786.6001  
Fax: 44.20.7786.600  
*www.mtsaustria.com*

The MTS Austrian Market, a division of EuroMTS Limited., began its operations in June 2003 and manages the electronic trading system for Austrian government securities. All Austrian bonds of €3 billion or more are listed on the platform, which is supported by 20 market makers and 20 market takers.

Quotes are collected in a book according to price and side of the market. Orders are electronically matched by price and quantity with respect to time of arrival. Market makers may show both the quantity bid/asked as well as the maximum quantity they are willing to trade, and the quotes must be displayed for all products assigned for at least five hours per day. MTS Austrian Market uses the Telematico system. Trades are anonymous, and participants become aware of counterparties only after a trade is executed. Trades executed on MTS Austrian Market settle through Euroclear and Clearstream.



### ■ MTS France

39, Rue Cambon  
75039 Paris de la defense cedex  
France  
33.1.4927.1462  
*www.mtsfrance.com*  
*www.mtsfinland.com*

MTS France was established in April 2000 for trading French sovereign securities. In addition to French government bonds, nonsovereign debt securities, including CADES, ERAP and CRH, are now also traded. Cash trades are executed anonymously, while MTS France offers a fully anonymous, or “blind,” repurchase agreement (repo) facility, with Clearnet as the central counterparty.

Shares are held by Spécialistes en Valeurs du Trésor—SVTs, the French government bond primary dealers, as well as MTS S.p.A. and EuroNext Paris SA. MTS France market rules are drawn up by the Market Committee, which comprises a representative from each SVT and two representatives from the French treasury. Trading on the MTS France market is conducted via the Telematico system.

Currently, 26 institutions participate in the MTS France market, including 21 primary dealers (SVTs) in the French government bond market. Quotes are collected in a book according to price and side of the market. For each product, orders are electronically matched by price and quantity with respect to time of arrival. Market makers may show both the quantity bid/asked as well as the maximum quantity they are willing to trade, and the quotes must be displayed for all assigned products for at least five hours per day. Settlement is conducted by Euroclear France through the RGV system. All the transactions are cleared by CLEARNET<sup>SBF</sup> SA, which becomes the central counterpart to all trades.

### ■ MTS German Market

Lurgiallee 5  
60439 Frankfurt  
Germany  
49.69.5808.4511  
*www.mtsgermany.com*

MTS German Market, a division of EuroMTS Limited, began its operations in April 2001 and supports electronic trading in German government

securities. All bonds and treasury certificates issued by the federal government, as well as benchmark bonds issued by the states of Germany are traded. Twenty-eight banks serve as liquidity providers in the Bund segment and an additional 10 banks participate as market takers. For treasury certificates (bubills) the German Market counts 17 banks as market makers and four banks as market takers and for the Laender segment 19 banks serve as liquidity providers and five banks take part as market takers.

Quotes are collected in a book according to price and side of the market. For each product, orders are electronically matched by price and quantity with respect to time of arrival. Market makers may show both the quantity bid/asked as well as the maximum quantity they are willing to trade, and the quotes must be displayed for all products assigned for at least five hours per day. MTS German Market uses the Telematico Cash System, the new Internet access Telematico-Online (TOL), the Telematico Repo Trading Facility and the Telematico Basis Trading Facility platforms. Trades may be done on a bilateral basis (participants become aware of counterparties only after a trade is executed) or completely anonymously through a central counterparty. Cash trades executed through MTS German Market may settle through the London Clearing House or through Euroclear and Clearstream.

#### ■ MTS Ireland

99 Bishopsgate  
London EC2M 3XD  
United Kingdom  
44.20.7786.6001  
*www.mtsireland.com*

MTS Ireland, a division of EuroMTS Limited, began its operations in June 2002 and manages the electronic trading system for Irish government securities. MTS Ireland is governed by a committee which includes the National Treasury Management Agency and the six official primary dealers of Ireland. Eight market makers, which include the six primary dealers, commit to providing liquidity on the platform.

Quotes are collected in a book according to price and side of the market. For each product, orders are electronically matched by price and quantity with respect to time of arrival. Market makers may show both the quantity bid/asked as well as the maximum quantity they are willing to trade, and the quotes must be displayed for all products assigned for at least five hours per day. MTS Ireland uses the Telematico Cash System. Trades are completely anonymous, and participants become aware of counterparties only after a trade is executed. Trades executed on MTS Ireland settle through Euroclear and Clearstream.

■ **MTS Portugal SGMR, SA**

Av. Defensores de Chaves, 15, 4B  
10 0 0-109 Lisbon  
Portugal  
351.21.351.1930  
*www.mtsportugal.com*

MTS Portugal began operating in July 2000 and manages the electronic trading system of the Mercado Especial de Divida Publica (MEDIP), the Portuguese regulated market, which targets wholesale electronic trading by specialists of Portuguese public debt securities. MTS Portugal offers trading in treasury fixed-rate and floating-rate bonds as well as Portuguese treasury bills. Liquidity on the system is ensured by the 15 market makers, 13 of whom are primary dealers in Portuguese securities. Quotes are collected in a book according to price and side of the market. For each product, orders are electronically matched by price and quantity with respect to time of arrival. Market makers may show both the quantity bid/asked as well as the maximum quantity they are willing to trade, and the quotes must be displayed for all products assigned for at least five hours per day. MTS Portugal uses the Telematico Cash System and the Telematico Repo Trading Facility platforms. Trades are completely anonymous and participants become aware of counterparties only after a trade is executed. Trades executed through MTS Portugal settle through Euroclear and Clearstream.

■ **MTS S.p.A.**

Via Sallustiana, 26  
00187 Rome  
Italy  
39.06.421201  
or  
Piazza Paolo Ferrari, 8  
20121 Milan  
Italy  
39.02.80235201  
*www.mtsspa.it*  
*www/mtsgroup.org*

MTS S.p.A., founded in 1988 and privatized in 1997, was the first European electronic market for government bonds. MTS S.p.A. provides wholesale electronic trading for Italian government bonds and other Italian fixed-income securities. The Italian government bonds on the system include floating-rate treasury certificates, fixed-rate bonds, zero-coupon treasury bills, and STRIPs, as well as asset-backed securities.

Quotes are collected in a book according to price and side of the market. For each product, orders are electronically matched by price and quantity with respect to time of arrival. Market makers may show both the quantity bid/asked as well as the maximum quantity they are willing to trade, and the quotes must be displayed for all products assigned for at least five hours per day. MTS S.p.A. uses the Telematico Cash System and the Telematico Repo Trading Facility. Trades are completely anonymous and participants become aware of counterparties only after a trade is executed. MTS S.p.A. clears Italian government securities through the Bank of Italy and, for Eurobonds, through Euroclear and Clearstream. MTS S.p.A. has entered into an agreement with Clearnet and Cassa di Compensazione e Garanzia to allow for transactions on Italian government bonds to be executed on MTS S.p.A. on an anonymous basis and guaranteed by a central clearing institution.

### ■ MTS Spain

C/Bárbara de Braganza 2, 2-C  
28004 Madrid  
Spain  
34.91.702.7909  
*www.mtsspain.com*

MTS Spain, or MTS España SON, a market for wholesale electronic trading of Spanish government debt, was officially launched in May 2002, after attaining the status of SON (Organized Trading System, or supervised market). MTS Spain supports both cash and repo trading in public debt securities issued by the government of Spain through the Telematico platform. Market activity carried out by the official primary dealers of Spain participating on the platform is taken into consideration by the Spanish treasury with regard to their compliance with secondary market obligations.

All euro-denominated securities issued by the Spanish government, with maturities ranging from three months to 30 years, are listed on MTS Spain. Securities include Letras del Tesoro (less than 18 months), Bonos del Estado (three- and five-year bonds), Obligaciones del Estado (10-, 15- and 30-year bonds) and Strips (coupons and principals from strippable bonds).

Currently, there are 22 participants in the system, 18 acting as market makers (13 of which are official primary dealers) for bonds, obligations and Strips, and four as price takers. There are also four Letras del Tesoro market makers.

In the cash segment, quotes are collected in a book according to price and side of the market. For each product, orders are electronically matched by price and quantity with respect to time of arrival. Market makers may show both the quantity bid/asked as well as the maximum quantity they are willing to trade. Quoting obligations exist for Bonos, Obligaciones and Strips, as

well as for Letras del Tesoro. Trades are completely anonymous and participants become aware of counterparties only upon completion of a trade.

Repo trades are conducted on a disclosed basis and acceptance is completely manual. Participation is open to all members of MTS Spain with no market-making obligations. Two different types of agreement may be traded within the Repo Segment: Specific Repos (Special Repos) or General Collateral Repos.

MTS Spain is based on a straight-through-processing (STP) model, with an automated settlement process conducted through Iberclear.

#### ■ **Ragen MacKenzie Incorporated**

2440 Carillon Point  
Kirkland, Washington 98033  
425.453.1616  
*www.ragen-mackenzie.com*

Ragen MacKenzie Incorporated provides customers with the ability to electronically execute transactions in U.S. Treasury STRIPs, dealer-created zero coupons such as CATs and TIGERs, and many of the agency zero-coupon issues. The system, which is available through the Bloomberg network, allows customers to automatically execute bids and offers for transactions of less than \$300,000 face amount. All other transactions are subject to acceptance by Ragen MacKenzie, typically within five to 10 seconds. The system is available Monday through Friday from 8:30 a.m. to 4:45 p.m. eastern standard time.

#### ■ **RetLots Caboto**

Via Boito, 7  
20121 Milan  
Italy  
39.02.80.215.500  
*www.caboto.it (corporate Web site)*  
*www.retlots.caboto.it (trading Web site)*

RetLots (short for “retail lots”) was originally launched as Caboto’s (Banca Intesa Group) proprietary electronic trading system designed to support retail-driven order flows. Caboto traders provide executable two-way prices for sizes up to €1 million. The system is available via Bloomberg and over the Internet. Primary market issues where Caboto is the sole lead manager or acts as co-lead manager are also available on the system. The markets covered include European government, corporate, emerging, supranational and high yield, convertible bond.

In addition, in 2001 Caboto also launched the ECN RetLots Exchange®, now available to a network of 20 Italian banks (4,500 branches and 6,600 promoters). Retlots Exchange® offers about 1200 bonds, from government to non-government securities to equity-linked to reverse convertible bonds.

#### ■ **SEB Merchant Banking**

Kungsträdgårdsgatan 8  
P.O. Box 16067  
103 22 Stockholm  
Sweden  
46.8763.800  
*www.mb.seb.se*

SEB Merchant Banking's platform, Trading Station, offers currency, fixed-income and futures trading via the Internet for institutional clients. More specifically, in addition to currency and futures trading, the system supports trading in government bonds from Sweden, Norway, Finland and Denmark, as well as Swedish mortgage-backed and corporate bonds. Trading Station users can view prices and lift or hit offers or bids for securities covered by the system. The system also offers real-time access to foreign exchange rates, interest rates, equity indices, commodity prices, market information and other news. Trading Station is an anonymous system. SEB memberships include the Eurex, the Chicago Mercantile Exchange, the London International Financial Futures Exchange and Euronext.

#### ■ **Spear, Leeds & Kellogg**

10 Exchange Place  
Jersey City, New Jersey 07302  
*www.slkbond.com*

Spear, Leeds & Kellogg provides customers with the ability to electronically execute transactions in U.S. fixed-income securities through both the Bloomberg and proprietary networks. The Bloomberg product (SLK, SLKA and SLKB) allows customers to auto-execute trades in U.S. Treasury bills, notes, bonds, STRIPs, agency benchmark and medium-term notes, as well as investment-grade corporates. SLK also contributes prices to the multi-dealer platform Bloomberg BondTrader®.

For those preferring an Internet-based product, Spear, Leeds offers SLK/etc and Slkbond.com. On SLK/etc, users can receive immediate execution of transactions in U.S. Treasury and agency benchmark issues. This platform also provides users the opportunity to create customized trading pages and simultaneously execute multiple trades. On Slkbond.com, customers can execute trades in U.S. Treasury bills, notes, bonds, STRIPs, agency benchmark and medium-term notes, investment-grade corporates,

and high yield, as well as municipals. Additional features of the platform include ladder creation and personal-saved queries. SLK is also a participant in the multi-dealer MarketAxess platform.

All systems are available during New York trading hours.

## ■ SunGard Transaction Network

SUNGARD

11 Salk Creek Lane

Hinsdale, Illinois 60521

866.276.2753

*www.sungard.net*

SunGard Transaction Network (STN) is an electronic global network that links financial services firms and allows users to automate transactions across common security types to achieve straight-through processing (STP). The system includes STN Money Markets and STN Securities.

STN Money Markets (formerly [cpmarket.com](http://cpmarket.com)) is an electronic trading platform for money market instrument which allows institutional investors the ability to trade money market mutual funds, offshore money market funds, commercial paper and certificates of deposit on one screen.

STN Money Markets' institutional clients include insurance companies, corporate treasurers and short-term money managers. Over 80 CP and CD issuers and over 100 money market funds currently use STN Money Markets. Users are able to view offering information and process trades electronically, as well as process trades using STP.

Features of STN Money Markets include single screen access to a variety of CP and CD offerings as well as domestic and offshore money market funds, comparison of real-time rates on a variety of short-term investments, electronic trading with immediate notification of trade status and CUSIP, a direct and fully disclosed model ensuring complete transparency that allows investors to continue to get "relationship credit" when dealing with credit banks for money market funds, integrated balance reporting across investment types, a centralized account instruction database that insures distribution and coordination of settlement information among trading counterparties, the ability to manage multiple sub-accounts from a single login, and the ability to create unique login IDs with different access levels for different staff members.

STN Securities supports the aggregation, management, display and execution of fixed-income security offerings. Its trading and analytical tools include search capabilities, "quick picks," and ladder creation, allowing clients to research, develop and execute trading strategies. In addition, the system features consolidated inventory display, online trade confirmations and straight-through process (STP).

### ■ **SWX Eurobonds**

Selnaustrasse 30/Postfach  
CH-8021 Zurich  
Switzerland  
41.1.229.25.95  
*www.swx.com*

SWX Bonds is a fully electronic trading platform for a variety of fixed-income products. The system is available to both dealers and buy-side firms and offers trade execution and straight-through clearing and settlement functions through Clearstream and Euroclear. Orders are processed on the basis of the best price at a given time, regardless of size or origin.

Current SWX Bonds participating market makers are: ABN AMRO, CSFB, UBS, Rabobank, Van der Moolen and Winterflood.

Market data, including prices and volumes of executed trades, are disseminated on a real-time basis via Bloomberg and Reuters, and are published on a 30-minute delayed basis on the SWX Web site. The system supports fixed-income products denominated in AUD, CAD, CHG, Euro, GBP, JPY, NOK, NZD and USD. SWX supports trading in 3,500 bonds, straight convertibles and 222 structured debt products.

SWX Bonds is accessible either by means of a direct telecommunications link or via Network Connectivity Providers (NCPs).

### ■ **TAAPSLink®**

U.S. Treasury Department  
Bureau of the Public Debt  
Washington, DC 20239  
202.691.3550  
*www.publicdebt.treas.gov*

TAAPSLink® is the U.S. Treasury's Internet-based application specifically designed for securities dealers and institutional investors wishing to participate directly in Treasury auctions. Users have the ability to place both noncompetitive and competitive bids in all publicly announced marketable securities.

### ■ **TDAX Eurobonds**

Triton Court, 14-18 Finsbury Square  
London EC2A 1DB  
United Kingdom  
44.20.7628.4445  
*www.tdsecurities.com*

TDAX is a real-time electronic trading platform available via the Bloomberg Professional service. Operated by TD Securities, it is focused on key curren-



cies within the Eurobond market. The functionality of TD Securities' electronic trading platform enables customers to perform price discovery, view the depth of a market of executable prices, access liquidity and execute their trades and access TD securities' research and trade ideas.

TDAX has recently added support for several new products. Their Dollar Bloc presence has been supplemented by Canadian governments and New Zealand Dollar Global Bonds. Also, Euro denominated sovereign, supra and bank credits are now available for customers to trade. TD Securities has also developed a sister platform—TDAP<GO>—to service the Asia/Pacific region. By the end of 2003, the system will support extended trading hours for North American users.

Access the system on Bloomberg at address TDAX <GO>.

### ■ **TheMuniCenter**

540 Madison Avenue  
4th Floor  
New York, New York 10022  
866.686.4287  
*www.TheMuniCenter.com*

A group of investors that includes Merrill Lynch & Co., Morgan Stanley, Citigroup Global Markets, FSA, Lehman Brothers, and Chapdelaine & Co. owns TheMuniCenter, which was established in July 2000. TheMuniCenter is an anonymous Web-based B2B marketplace for municipal and corporate bonds, medium-term notes, and certificates of deposit, with an average of 7500 postings daily. It is an open system, available to all qualified participants; institutions and broker-dealers trade with one another on the site as a community of fixed income professionals. As an anonymous site, TheMuniCenter is counter-party to all transactions.

Participating firms post live markets on the site and negotiate transactions via a sophisticated on-line messaging system. Many firms connect with TheMuniCenter via its proprietary API, allowing individual firms to maintain hundreds of markets on the site. TheMuniCenter also provides online market and trading information.

### ■ **Tradebonds.com**

Finacorp Securities  
4100 MacArthur Boulevard, Suite 315  
Newport Beach, California 92660  
877.708.7233  
*www.tradebonds.com*

Tradebonds.com, a division of Finacorp Securities, provides an online electronic trading system and e-infrastructure for participants in the

fixed-income market. Tradebonds.com operates a platform for market prices, order execution, news, research and analytical tools targeted to mid-sized institutional investors on a direct basis. The system offers a number of database tools, including a database of bonds from multiple dealers, an analytical engine with indicative pricing and a historical yield and pricing database. Tradebonds.com also offers tools to complement the existing sales force and facilitate integration into back-office systems. The system covers corporate, municipal, U.S. Treasury, agency and mortgage-backed securities and money market instruments. Trading is available during market hours, and supplemental tools and resources for analytical modeling and pricing are available continuously.

#### ■ TradeWeb LLC

Harborside Financial Center  
2200 Plaza Five  
Jersey City, New Jersey 07311  
800.541.2268  
*www.tradeweb.com*

TradeWeb is a multi-dealer auction system which links 24 fixed-income securities dealers with more than 1,500 buy-side institutions in North America and Europe. Products traded on the platform include U.S. Treasuries, agencies, TBA-MBS, Euro sovereigns, commercial paper, *Pfandbriefe*, supranationals, agency discount notes and corporates. Beyond trading, TradeWeb also provides market data and STP for fixed-income products.

TradeWeb's auction model enables institutional investors to receive live price quotes simultaneously from designated dealers and trade instantly. Users can connect to TradeWeb's network over the Internet using dedicated client software which runs on standard computer hardware. TradeWeb has extensive direct connectivity with all 24 of its dealers. The company also provides market participants with market data for the liquid fixed-income securities traded on its platform. Real-time market data are available either directly from TradeWeb over the Internet or through a data distribution agreement with Moneyline Telerate.

TradeWeb also provides the buy-side and sell-side electronic straight-through processing of fixed-income trades through its integrated TradeXpress network. This network also has AccountNet, a Web-based standing settlement instruction data warehouse for fixed-income, fully integrated into its workflow process.

TradeWeb's network of dealers includes Credit Suisse First Boston, Goldman Sachs, Lehman Brothers, Merrill Lynch, Citigroup, Morgan Stanley, Deutsche Bank, Barclays Capital, J.P. Morgan, BRS Greenwich Capital, ABN AMRO,

Bear Stearns, UBS, Banc of America Securities, Commerzbank, the HSBC Group, Société Générale, BNP Paribas, Dresdner Keinwort Wasserstein, Nomura Securities, Nordea, SEB, Handelsbanken, and Danske Bank.

■ **Treasurydealer**

Treasurydealer Ltd.  
7 Duke of York Street  
London SW1Y 6LA  
England  
44 20 7004 2554  
*www.treasurydealer.com*

Treasurydealer provides online trading capability between banks and their customers in the short-term money markets and treasury management products. It is a private and confidential trading platform--customers and dealers specify with whom they exchange information and all prices and credit data can be tailored to each of one's counterparties individually.

Dealers can enter prices into a yield curve for a product and currency of their choice. Once entered, these prices can be retrieved and manipulated or uploaded via API from another pricing engine. Customers can instantly view the best the best prices from all their banking counterparties. Customers can see which of their counterparty banks is making the best price, in what size, and the credit remaining before executing the trade.

Counterparty profiles of each customer and dealer using Treasurydealer can be tailored. Price offsets can be made so certain counterparties will receive tighter or wider spreads on the yield curve entered. Credit limits can be entered and managed so a credit picture is available on screen at all relevant times; clearing details can also be entered.

Both customers and dealers can send price requests in any dates or products and, in the case of government specific paper, choose from a live data base of government bonds and send price requests for multiple dates all from one screen. This allows for the mass distribution of specific price and bond requests to multiple counterparties and the appraisal of prices returned.

■ **TreasuryDirect**

U.S. Treasury Department  
Bureau of the Public Debt  
Washington, DC 20239  
877.392.2678  
*www.treasurydirect.gov*

The U.S. Treasury Department allows investors with existing *TreasuryDirect* accounts to execute purchases of U.S. Treasury bills, notes and bonds

through the Treasury Department's Web site. Investors are able to submit noncompetitive bids for securities, with the purchase amount debited directly from an account authorized by the customer. Minimum purchases begin at \$1,000, with maximum purchase capped at \$1 million for bills and at \$5 million for notes and bonds.

■ **ValuBond, Inc.**

ValuBond Securities  
6 Piedmont Center, Suite 300  
Atlanta, Georgia 30306  
877.392.8258  
*www.valubond.com*

ValuBond Trader, ValuBond's online trading and distribution platform, enables firms to have direct access to secondary trading, new issues, news and tools via an Internet or FIX connection. Offering firms may list their inventory on the ValuBond platform, and firms can buy and sell on the ValuBond platform on behalf of their clients. ValueBond's platform offers live trading for fixed-income securities, including municipal, corporate, government and agency debt. ValuBond also participates in the primary market as a selling group member, bringing new issues to platform participants.

The company offers a range of pre-trade and post-trade services and technology. Pre-trade services include research and information, research of live inventory, access to a bond's MSRB trading history (for municipals), reporting tools to generate offer sheets and bond ladders with cash flows, automatic order via a FIX connection, by FTP or input directly onto the site, and order management and modification. Trading includes matching and execution, with bid and trade notifications sent directly to traders. Post-trade services include historical trade views, reporting, execution routing and system updates. Users may post bids, bid-wanted or offers at live executable prices.

In addition, ValuBond acts as a member of the selling team for new issues, augmenting the services provided by the underwriting syndicate through its distribution system. ValueBond's participation in a selling group does not disrupt the existing issuer—financial advisor—underwriter relationship.

ValuBond's private-label solution for trading and content, ValueBond Express, integrates price discovery, live trading and new issues into a Web site for internal use by reps, traders, correspondents, etc. Customized look and feel is configurable to display information and pricing appropriate for each group of users. Content includes ValuBond-hosted bond tools analysis, commentary and news, as well as all of the trading, search and research functions on ValuBond.

## ■ **XBond**

6000 Fairview Road  
Suite 1200  
Charlotte, North Carolina 28210  
704.552.3640  
*www.xbond.com*

Xbond Order System (X-OS) enables broker-dealers and investors to communicate, negotiate and execute fixed-income trades with designated counterparties over the Internet or private networks. X-OS is specifically designed to be extended and integrated with existing front-, middle- and back-office systems. X-OS is fully operational and tested for performance and scalability.

Users can deploy X-OS through a server software license or through an ASP delivery model. The X-OS browser and Excel/VB user applications can be used as-is, branded or utilized as open-source examples when developing customized applications. X-OS is suitable for creating Web-based inventory distribution and live execution systems. Application developers can access X-OS functionality through advanced XML message schemas that are specifically tailored to current fixed-income market protocols. Potential users may download the XBond Developer Tool Kit from the company's Web site.

In addition to licensing X-OS for use by platform developers, XBond offers an online bid solicitation service for institutional portfolio managers. Through this system, institutional investors can set up counterparty relationships with designated broker-dealers. Portfolio managers can then enter bid-wanted requests as well as subject offers and live offers in the system, individually or on a batch basis. Descriptive information and commentary can be associated with a bid-wanted or offer. Pre-selected dealers then receive e-mail notifications of the requests for bids. Dealers can view and respond to the requests through X-OS. Portfolio managers can view responses, adjust pricing, counter, execute or instant-message back to each responding dealer. Dealers can also add markups to each bond on a bid-list and broker bonds out over X-OS to any customer or other dealer with whom they set up an X-OS counterparty relationship. X-OS sends e-mails with instructions to respond. Dealers can utilize customer feedback to respond to portfolio managers.

## Methodology

The information presented in the Association's 2003 Review of Electronic Transaction Systems was obtained from a variety of sources, including personal and telephone interviews, media reports and other sources of publicly available information. Association staff have used their best efforts in attempting to verify that all information is correct, but cannot guarantee its accuracy. Please contact individual firms for more information on their electronic transaction systems.

The Bond Market Association represents securities firms and banks that underwrite, trade and sell debt securities, both domestically and internationally.



Washington

New York

London

*[www.bondmarkets.com](http://www.bondmarkets.com)*

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