

eCommerce in the Fixed-Income Markets



THE 2002 REVIEW OF ELECTRONIC TRANSACTION SYSTEMS

NOVEMBER 2002

eCommerce in the Fixed-Income Markets: The 2002 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

The past year has represented a time of maturation and, to a lesser degree, consolidation among electronic trading platforms. If 1999 and 2000 were years of unrestrained growth and expansion, and 2001 was a year of consolidation, 2002 was a year for the surviving and thriving trading platforms to consolidate their positions in the market and focus on product enhancements. Some participants have folded or merged, although not nearly to the degree observed in 2001. We have also seen the introduction of several new platforms in both the U.S. and Europe. In all, we have identified 81 electronic fixed-income trading systems currently operating in the US and Europe in late 2002, versus 79 in 2001 and 11 in 1997. Of the 81, 52 are based principally in the US, and 28 are based principally in Europe, although with a growing number of platforms supporting trading in both American and European products, this distinction is becoming less significant.¹ There are 11 names listed in our 2001 report that are not in this year's edition. On the other hand, 13 new names have been added to our 2002 survey.

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.

Trends we saw emerge in previous years have persisted in 2002. First, most electronic trading activity—like most trading activity in the fixed-income markets overall—continues to be concentrated in the markets for commoditized, liquid products like government securities. Second, those platforms which have thrived are those focused on enhancing the fixed-income marketplace rather than revolutionizing it, those which have used technology to improve the way bond traders do business rather than change it. Market participants are still focused away from exchange-like, anonymous, limit-order matching systems, except in the interdealer market. Finally, the trend in the interdealer market toward increasing reliance on electronic brokering has accelerated.

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

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

SYSTEM TYPE	1997	1998	1999	2000	2001	2002
Auction	1	2	10	14	16	14
Cross-Matching	2	6	8	22	25	17
Interdealer	1	0	5	10	15	21
Multi-Dealer	0	4	3	9	10	13
Single-Dealer	7	12	13	17	19	22
Other	0	2	1	0	0	0
Total	11	27	40	72	79	87

All figures are as of November except 2001, which are as of December. "Auction" systems was formerly "Primary Market Auction" systems. Figures for 2001 and 2002 do not total because several companies operate more than one type of platform.

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

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.

Trading platforms have focused increasing attention on product enhancements, and this trend is likely to continue in 2003. A number of vendors expanded their scope of product coverage in 2002. In addition, enhanced support for straight-through processing is becoming an increasingly important feature for trade execution systems. Also, trading platform vendors have begun using more comprehensive trade data made available through regulatory initiatives in the municipal and corporate bond markets as components of their product offerings.

Broader industry initiatives designed to enhance the electronic fixed-income marketplace are also coming to fruition. A multi-year, industry-wide effort to develop a common communication protocol for fixed-income platforms will culminate in early 2003 with the release of FIX protocol version 4.4, which will include a number of additions and enhancement tailored to fixed-income trading. The focus in the protocols arena in 2003 will shift to the implementation of the new enhancements. Industry members have also focused significant attention on the development of a common securities master database, which, when complete, will contribute to more efficient trade execution and processing.

Some additional consolidation among trading platforms is to be expected in 2003 as less efficient platforms exit the space or are absorbed into larger systems. The volume of trades conducted electronically will likely continue to grow, especially in market sectors for less liquid spread products, where the growth potential is greatest.

The number and types of electronic trading platforms change frequently. A version of this survey, searchable and updated periodically 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. For questions or comments on the survey, please contact Michael Decker at mdecker@bondmarkets.com.

Electronic Transaction Systems for Fixed-Income Securities

SYSTEM/COMPANY NAME	ABS	AGY	CORP	DERIV	EURO	LOANS	MBS	M. MKT	MUNI	REPO	TREAS	OTHER	SYSTEM TYPE	AVAILABILITY
American Express Credit Corporation								√					Auction	Internet
Autobahn Electronic Trading		√	√		√		√	√			√	√	Single-Dealer	Internet Bloomberg API
Automated Bond System		√	√						√		√		Cross-Matching	Proprietary Network
Banco Portugues de Investimento SA					√								Single-Dealer	Bloomberg
Bear, Stearns & Co. Inc.											√	√	Single-Dealer	Bloomberg
Blackbird				√									Auction Interdealer Single-Dealer	Dedicated Line Internet
Bloomberg BondTrader		√			√						√		Multi-Dealer	Bloomberg
Bloomberg Money Markets Platforms								√					Multi-Dealer	Bloomberg
Bloomberg Municipal System									√				Auction	Bloomberg
Bloomberg Spread Execution System (SPEX)	√		√		√								Cross-Matching	Bloomberg
BondDesk Group		√	√				√	√	√		√	√	Cross-Matching	Internet
BondGlobe		√	√		√				√		√	√	Cross-Matching	Internet
BondHub.com			√				√	√					Cross-Matching	Internet
Bondpage.com	√	√	√						√		√		Multi-Dealer	Internet
BondVision					√								Auction	Internet Private Network
BondWave									√				Multi-Dealer	Internet
BrokerTec Global, LLC		√		√	√		√			√	√		Interdealer	Proprietary Network
Chicago Board of Trade (CBOT)				√									Cross-Matching	Proprietary Network
Confederacion Española de Cajas Ahorros (CECA)					√								Multi-Dealer	Bloomberg
CoredealMTS Ltd.					√								Interdealer	Proprietary Network

LEGEND OF ABBREVIATIONS	ABS	Asset-Backed Securities	EURO	European	REPO	Repo
	AGY	Agency	MBS	Mortgage-Backed Securities	TREAS	Treasury
	CORP	Corporate	M. MKT	Money Market		
	DERIV	Derivatives	MUNI	Municipal		

√ Includes current as well as proposed product offerings in this market sector.

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

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GovRate/Odd-Lot Machine		√	√						√		√		Single-Dealer	Bloomberg Internet Proprietary Network Telerate
Grant Street Group		√						√	√	√			Auction	Internet
G.X. Clarke & Co.		√									√		Single-Dealer	Bloomberg Internet
HanoverTrade.com						√							Auction	Internet
Hartfield, Titus & Donnelly LLC									√				Interdealer	Internet Private Internet
Helaba					√								Cross-Matching	Bloomberg
i-Deal LLC									√				Auction Multi-Dealer	Dial-up Proprietary Network
J.P. Morgan eXpress		√	√		√						√	√	Single-Dealer	Bloomberg Internet
LehmanLive		√	√						√	√			Single-Dealer	Internet
lexc.com						√							Auction Cross-Matching	Internet
LoanX, Inc.					√	√							Multi-Dealer	Internet
MarketAxess			√		√							√	Cross-Matching Multi-Dealer	Internet
Merrill Lynch Capital Markets		√		√	√			√	√	√	√	√	Single-Dealer	Bloomberg Internet
Mizuho Securities											√		Single-Dealer	Bloomberg
Morgan Stanley									√	√	√		Single-Dealer	Bloomberg Proprietary Network
MOT					√								Interdealer	Proprietary Network
MTS Amsterdam					√								Interdealer	Proprietary Network
MTS Associated Markets					√								Interdealer	Proprietary Network
MTS France					√								Interdealer	Proprietary Network
MTS German Market					√								Interdealer	Proprietary Network
MTS Ireland					√								Interdealer	Proprietary Network

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SYSTEM/COMPANY NAME	ABS	AGY	CORP	DERIV	EURO	LOANS	MBS	M. MKT	MUNI	REPO	TREAS	OTHER	SYSTEM TYPE	AVAILABILITY
MTS Portugal SGMR,SA					√								Interdealer	Proprietary Network
MTS S.p.A.					√								Interdealer	Proprietary Network
MTS Spain					√								Interdealer	Proprietary Network
Prescient Markets, Inc.								√					Auction	Dedicated Line Internet
Ragen MacKenzie Incorporated		√									√		Single-Dealer	Bloomberg
RetLots Caboto		√	√		√							√	Single-Dealer	Bloomberg Internet
SEB Merchant Banking				√	√								Single-Dealer	Internet
Spear, Leeds & Kellogg		√	√						√		√		Multi-Dealer	Bloomberg Dial-up Internet Proprietary Network
SWX Eurobonds	√		√		√								Multi-Dealer	Bloomberg Internet Proprietary Network Reuters
<i>TAAPSLink</i>											√		Auction	Internet
TDAX Eurobonds			√		√						√	√	Single-Dealer	Bloomberg Proprietary Network Reuters
TheMuniCenter			√						√				Interdealer	Internet
Tradebonds.com		√	√				√	√	√		√		Single-Dealer	Internet
Tradesoft		√			√						√	√	Interdealer	Internet Proprietary Network
TradeWeb LLC		√	√		√		√				√	√	Multi-Dealer	Moneyline Telerate Internet
<i>Treasury Direct</i>											√		Auction	Internet
ValuBond, Inc.		√	√						√		√	√	Cross-Matching	Fixed Connection Internet Private Label
Xbond	√	√	√				√		√		√		Cross-Matching	Internet Proprietary Network

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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, facilitating transparent access to deep liquidity pools across the fixed-income product spectrum. Launched in 1996, Autobahn offers secure, automated execution in two-way markets; users have access to a breadth of product selection comprising over 5,000 securities in 20 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 and via a direct link through an API. 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 remote-terminal, screen-based, fixed-income information and 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 priority 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 partner ventures with other firms.

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

- Bear Stearns' BSFX, via Bloomberg, provides live bids and offers for foreign-exchange trading.
- MarketAxess offers trading, research and analytical content for global high-grade corporate, high-yield, municipal, agency, Eurobond, and emerging-markets debt instruments in a central trading platform combining dealer capital and client trade flows.
- BondDesk, a multi-dealer trading platform with research and analytical content, focused 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.

■ **Blackbird**

55 Broad Street, 8th Floor
New York, New York 10004
212.609.4750
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 five currencies (USD, CAD, EUR, GBP, CHF). 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, reverse auction and call 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. For every type of trading style, Blackbird provides pre-screened credit, an online blotter and the creation of an electronic record which is fully FpML compliant. Blackbird is installed on over 70 trading floors throughout North America and Europe.

■ **Bloomberg BondTrader**

Bloomberg L.P.
499 Park Avenue
New York, New York 10022
212.318.2160
www.bloomberg.com

Bloomberg BondTrader is a multi-dealer electronic trading system for global sovereign debt. A component of the Bloomberg Electronic Trading System, Bloomberg BondTrader has been operational since March 1999. BondTrader is available through the Bloomberg Professional Service and allows clients of participating dealers to execute orders and price inquiries for global government debts of 16 countries.

BondTrader provides customers with live bid and offer quotes as well as size parameters of all contributing dealers. Portfolio managers and traders can perform price discovery and satisfy fiduciary responsibility by looking at a single Bloomberg screen and executing trades. Customers submit orders or price inquiries, which are subject to acceptance by the respective dealer. Dealer participants are able to set up automatic acceptance procedures for transactions which meet certain parameters such as quantity and maturity. 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.

BondTrader is included as part of the basic Bloomberg 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
212.893.3997
www.bloomberg.com

A number of corporations and special-purpose vehicles offer commercial paper directly to investors through Bloomberg's Direct Issuer Commercial Paper Auto-Ex. Participating corporations and special-purpose vehicles allow both dealers and institutional investors 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 and agency discount notes 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
- Credit Suisse First Boston
- Deutsche Bank
- FTN Financial
- Greenwich Capital
- Goldman Sachs
- JP Morgan Chase
- Lehman Brothers
- Mellon Bank
- Mellon Financial
- Merrill Lynch
- Morgan Stanley Dean Witter
- Salomon Smith Barney
- Suntrust
- UBS Warburg

■ **Bloomberg Municipal System**

Bloomberg L.P.
499 Park Avenue
New York, New York 10022
609.806.1216
www.bloomberg.com

Bloomberg offers subscribers an electronic competitive bidding system for new issues of municipal securities. The system allows users to electroni-

cally 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.

■ **Bloomberg's Spread Execution System (SPEX)**

Bloomberg Tradebook LLC
499 Park Avenue
New York, New York 10022
212.318.2227
www.bloomberg.com

The Spread Execution System (SPEX) offered on the Bloomberg Professional Service currently provides a U.S. domestic and European market for fixed-income securities that trade on a spread-to-benchmark or price basis. SPEX electronically pairs buyers and sellers of fixed-income securities and notifies them of execution. Data, analytics, integration and security are consistent with Bloomberg's straight-through-processing functionality. SPEX clients may post bids, offers and bids wanted on specific securities.

Clients are able to utilize SPEX as an internal addition to current functionality they receive over the Bloomberg Professional Service. Portfolio matching, customized searches and automated alerts notify users of potential fixed-income securities which meet their parameters. Full links are built to accommodate Bloomberg's Trade Order Management System clients to complement Bloomberg's straight-through-processing functionality.

Broker-dealers, institutional traders and portfolio managers are able to use SPEX to facilitate current industry practices as well as trade on an anonymous basis with one another. Sellers of fixed-income securities upload or enter offering lists with a set spread to a defined benchmark or price for outright offerings or in a bids-wanted format. All postings can be hedged. Buyers of fixed-income securities bid and compete for offerings or "lift" outright offerings. Upon a "match," the seller's and buyer's trade blotters

are immediately updated and the clearing process begins with BNY Clearing Services LLC. Net pricing of the “matched” transaction is set off the Bloomberg BondTrader benchmarks.

Bloomberg Tradebook LLC provides anonymity to SPEX clients. Commissions are consistent with industry practices. Both “buyside” and “sellside” clients are welcome to participate in SPEX.

■ **BondDesk Group**

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

Founded in October 1999 by software company BondExchange LLC, and initial participation and investment from The Goldman Sachs Group, Inc., UBS PaineWebber, and Spear Leeds & Kellogg, LP, BondDesk develops, markets and licenses software and related system-support mechanisms enabling broker-dealers to offer their clients access to online fixed-income trading and research. This business-to-business multi-dealer platform delivers live, commingled inventory and allows dealers to automate trading from point of inquiry through back office clearing. The BondDesk platform offers a secondary market trading system and a new-issue e-syndicate platform, hosting the gamut of user types, including: dealers, brokers, traders, financial advisors, money managers and electronic brokers’ individual investors.

Participant broker-dealers (“Contributors”) post inventory on the platform, while other participant broker-dealers (“Distributors”) search, buy and sell inventory offered on the platform on behalf of their retail clients.

BondDesk’s wholly owned subsidiary, BondDesk Trading LLC (“BondDesk Trading”), is a registered broker-dealer and a member of NASD Regulation, Inc. BondDesk Trading is an alternative trading system (“ATS”), offering electronic information and a trading platform for fixed-income securities of all types, using software developed by BondDesk. BondDesk Trading also operates as an electronic broker-dealer, providing fixed-income securities to institutional clients and broker-dealers that do not desire an integrated system.

BondDesk has offices in Mill Valley, California, and Rochester Hills, Michigan. Bond Desk Trading has offices in New York City and Carlsbad, California.

■ **BondGlobe**

82 Wall Street, Suite 600
New York, New York 10005
212.558.6058
www.bondglobe.com

BondGlobe operates a notification service and a liquidity browser for the fixed-income markets. Subscribers of the notification service can set criteria to be notified of profit-taking opportunities in the bond markets. Users of the liquidity browser—broker-dealers and retail and institutional investors—have direct access to live executable prices on both order-matching and auction/reverse-auction trading systems covering Treasury, federal agency, corporate and municipal debt securities, certificates of deposit and Eurobonds. Users can post offerings or bids and can search available offerings and bids by a variety of criteria. All posted prices are executable. Users can also initiate auctions or reverse auctions, including specifying time limits and reserve prices. There is no minimum transaction size.

BondGlobe also provides a price aggregation system for CMOs that connects to over 30 dealers. This system connects to Bloomberg for analytics and descriptive information.

In addition to electronic trading, BondGlobe offers a variety of analytical tools and other services. Users can generate risk/return metrics and analyze historical price/yield trends. The system also provides market research reports and news.

■ **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 400 firms and 800 users provide inventory, liquidity and order flow to BondHub's network. Buyers are able to 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 fully 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.com 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.

■ **BondVision**

Piazza Paolo Ferrari 8
20121 Milan
Italy
39.02.80235201
www.bondvision.net

BondVision is an Internet-based multi-dealer-to-client market powered by MTS. It is the only regulated Internet-based multi-dealer-to-client market with an ISD European Passport.

Institutional clients connect via the Internet and can request live quotes from up to four dealers prior to trading the best incoming price. The 22 BondVision dealers provide two-way indicative prices and live quotes in response to end users' inquiries.

BondVision supports trading in a range of securities, including:

- Sovereign debt
- Agency debt
- Covered bonds
- Corporate bonds

The system also allows for outright as well as switch trades between any two securities listed.

BondVision also includes an order book functionality, which allows clients to set quotes outright or switch limits to initiate an auction. Clients then receive an alert from the system once the set price or spread has been reached.

Clients access BondVision for free, without membership or transaction fees.

■ **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.

■ **BrokerTec Global, LLC**

One EverTrust Plaza
Jersey City, New Jersey 07302
201.209.7800
www.btec.com

Announced in 1999, BrokerTec Global is a fully electronic interdealer broker of fixed-income securities that was formed by a consortium of financial services companies.

BrokerTec began its commercial operations in June of 2000 by trading U.S. Treasury bills, notes, bonds, STRIPs, agency benchmark and Euro sover-

eign debt. Additional products now supported on BrokerTec's U.S. and European platforms include: U.S. and European basis trading, U.S. Treasury, agency and mortgage repo, Euro-sovereign repo, *Pfandbriefe*, supranationals, global agency benchmark debt and mortgage-backed TBAs. In addition, BrokerTec operates BrokerTec Futures Exchange (BTEX). The platform supports trading in futures contracts on 5-, 10- and 30-year Treasury securities. Additional futures contracts as well as options are expected to be introduced in the future.

BrokerTec's market data can be accessed through Moneyline Telerate's Page 500, the benchmark page for U.S. Treasuries.

■ **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. Trading on the platform is electronic matching based on a price and time priority, which follows the "first-in-first-out" (FIFO) algorithm. Prices are fully disseminated to various quote vendors, but all terms of the trade are not, in order to maintain the anonymity of participants.

■ **Confederacion Española de Cajas de Ahorro (CECA)**

Alcala 27
28014 Madrid
Spain
34.91.532.0106
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.

■ **CoredealMTS Ltd.**

99 Bishopsgate
London EC2M 3XD
United Kingdom
44.207.786.6001
www.coredealmts.com

CoredealMTS is an electronic trading system for European corporate debt. Fixed-coupon Eurobonds and floating-rate notes, issued for at least Euro 1.5 billion and with a minimum rating of BBB/Baa, are listed for trading. Ten major European and U.S. banks support the market, acting as liquidity providers and making continuous two-way markets according to a maximum bid/offer spread and a minimum size. CordealMTS is a Recognized Investment Exchange.

CoredealMTS uses the technology of the Telematico trading system, managed by EuroMTS Ltd. Specifically, CoredealMTS uses the Telematico Cash System and the Telematico Spread Trading Facility. The system architecture utilizes a centralized market management system that allows users to access the system from a peripheral client/server environment. Quotes are anonymous, and participants may trade anonymously through TradeGO, the exchange's clearinghouse, or are notified of trade counterparties after trade execution if they choose to settle their trades bilaterally. The Telematico system also provides straight-through processing capabilities, which include the automatic creation and transmission of settlement instructions to TradeGO or to the relevant depositories.

■ **Credit Suisse First Boston**

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 its electronic trading system on the Bloomberg network and through PrimeTrade, a proprietary, Internet/intranet-based platform. 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). CSFB also operates PrimeTrade, a proprietary single-dealer platform that allows clients to have trading access to the world's electronic exchanges for listed futures, all major global currencies, European government bonds and Euro bonds, U.S. Treasury bonds, agencies and corporate bonds through its Web-based electronic trading and order-routing system. Also, PrimeTrade is fully integrated with PrimeClear, offering real-time transaction processing and settlement for global futures markets.

■ **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.(0)20.7400.5050
Fax: 44.(0)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 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 available to clients upon the announcement of deal terms. The system displays bids and offers for asset-swapped convertible paper. The system is anonymous; participants are notified of trade counterparties only after trade execution.

■ **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

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.

■ **De@IDone**

C.so Monforte, 15
20122 Milan
Italy
39.02.69 705.690
www.mpsfinance.biz

De@IDone 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@IDone 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.

■ **debtdomain**

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

debtomain is an electronic platform for the distribution of syndicated loans in both primary and secondary markets in Europe, the Middle East and the Asia-Pacific region. Arrangers may use the platform to distribute primary deals.

The system services over 1,300 debtomain members from over 300 banks. debtomain functions as an independent exchange, allowing the buying and selling of various types of loans. In addition, the system monitors trading activity, allows users to communicate anonymously with potential counterparties in real time and documents the trades once

agreed. The platform encourages direct bank-to-bank trading, as well as dealer-to customer and dealer-to-dealer activity.

The debtdomain primary platform includes bookrunning, contact-management and document-distribution functions, real-time deal status reporting and allocation capability.

Participants and secondary buyers may use the platform to review current secondary offers, historical trades and quotation data.

■ 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, subperforming and nonperforming 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.

■ Direct-Issue Limited

6-8 Underwood Street
London N1 7JQ
United Kingdom
www.direct-issue.com

Direct-Issue is an electronic community and marketplace for trading equity and bond issues, both primary and secondary.

The site's "Free Trade Zone," used by over 220 well-known firms, is specifically designed for the institutional investment community, with a directory, targeted e-mail alerts, customized notice boards and protected e-mail facilities.

The site's dealing facility has five main components which facilitate new-issue sales and secondary market trading in Europe and the United Kingdom:

- *Fee Estimator*—issuers can gauge in advance the cost of a transaction and then pre-test terms and conditions with potential purchasers on the issuer's *Symposium* without disclosing their identity.
- *Symposium*—issuers can conduct research, give Direct-Issue members an outline of their intended offering and solicit input.
- *DealArranger*—a structured introduction service that enables banks, brokers, traders and advisors to compete for the business of organizations wishing to arrange large financial transactions. The facility covers loans, new-issue securities and "block trades" of securities. Fees are paid only by those raising money.
- *New-Issue Auctions*—allow offerings of bonds, syndicated loans, shares and other securities to be distributed via the traditional "Dutch auction" method, either directly to investors or to an underwriting syndicate. Investors pay no fees and have equal access to new issues.
- *Crossing Auctions*—allow investors to trade a wide variety of assets, including corporate and government bonds, loans, and warrants, shares and medium-term notes (MTNs). Direct-Issue members can request an auction for any security with an International Securities Identification Number (ISIN). Trading is free of commission and exchange fees.

Membership is free and entails no trading obligations.

■ eBondTrade

2033 North Main Street, Suite 600
Walnut Creek, California 94596
925.279.2000 or 877.702.8000
www.ebondtrade.com

eBondTrade is an Internet-based municipal bond trading platform for investment advisors, broker-dealers and institutional investors. The system offers access to a searchable inventory of continuously updated municipal bonds, including a live municipal ticker. eBondTrade also offers features such as online bidding, market news and Fitch reports.

All prices on eBondTrade are executable. The database of offerings is completely searchable by a variety of terms. Participants are able to bid partial orders and counterbid. Settlement is on a delivery-versus-payment basis.

eBondTrade also allows broker-dealers and institutional investors to execute trades with each other directly and anonymously. eBondTrade serves as riskless principal in these transactions.

■ eSpeed, Inc.

135 East 57th Street
New York, New York 10002
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 by using 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 products and credit limits. The system is available 24 hours a day through a proprietary global redundant network distribution system. eSpeed has offices in North America, Europe and Asia.

■ Eurex

D-60485 Frankfurt/Main

Germany

49.(0)69.21.01.0

www.eurexchange.com

Eurex is an integrated electronic trading and clearing system for options and futures. 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. and offers a comprehensive range of services along the complete value chain. 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 of low intra-day volatility in comparison to 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 volume bid or offered 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.(0)69.2101.1222

www.eurex-bonds.com

Eurex Bonds is an electronic trading system for bond and basis trading in debt issues. Founded in October 2000, Eurex Bonds is a joint initiative of Eurex Frankfurt AG and leading financial institutions. All fixed-income debt instruments of the Federal Republic of Germany and the

Treuhandanstalt (a privatization group), jumbo *Pfandbriefe*, bonds from the European Investment Bank, Kreditanstalt fuer Wiederaufbau, and the German federal states are available for trading. In addition, basis trading for all bonds which are deliverable through Eurex's capital market futures are 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 all orders. All market participants also have the possibility of entering limited or unlimited buy or sell orders into the system, with the option execution parameters of "fill or kill" or "immediate or cancel." As a result, orders can be executed in full, partially or not at all. Depending on the execution parameters, the portions of orders that were not or could not be matched are automatically canceled. Trading on Eurex Bonds can be done via the Eurex Bonds trading system 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

Eurex Repo is a fully electronic interdealer trading platform with an integrated clearing and settlement environment for sale and 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. All transactions on Eurex Repo in the Swiss Franc market are automatically settled through SegInterSettle (SIS). 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, Euroclear and, beginning in November 2002, SegInterSettle (SIS) 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

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 Bishopgate
15th Floor
London EC2M 3XD
United Kingdom
44.20.7786.6001
www.euromts-ltd.com

EuroMTS began operations in 1999 as a pan-European electronic trading system for Euro-denominated benchmark government bonds. In May 2000, EuroCredit MTS, a division of EuroMTS, began trading non-government bonds, namely German *Pfandbriefe* and French Obligations Foncières. The repo trading facility is available for both special and general collateral repo for Italian, German and French government bonds and all other European markets. In September 2000, a quasi-government segment was established for agency bonds such as Freddie Mac, the EIB EARNs program and Kreditanstalt fuer Wiederaufbau. 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. Specifically, EuroMTS uses the Telematico Cash System, the Telematico Repo Trading Facility, and the Telematico Spread and Basis Trading Facilities. 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 capabilities, which include the automatic creation and transmission of settlement instructions to the relevant depositories.

■ FiDirectX

Salomon Smith Barney
388 Greenwich Street
New York, New York 10003
New York: 212.723.9474
London: 44.207.986.9283
direct2.sbi.com

FiDirectX is the fixed-income electronic trading system from Salomon Smith Barney. 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 & supras, mortgage TBAs,

emerging markets, Euro governments and Eurobonds. New users of FiDirectX are sponsored by Salomon Smith Barney sales coverage and are required to accept a “click through” legal agreement. The auto-execution model allows users to hit or lift on-screen prices. Spread and outright trading is also available for both agency and Eurobond execution, with “Request for Quote” (RFQ) to be made available soon. The site also offers additional services such as security analytics, live trader color and an online research subscription tool.

■ **Fixed Income Securities, LLC**

18925 Base Camp Road
Monument, Colorado 80132
888.883.2663
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 nation. Broker-dealers, money managers and registered representatives can search the database and select offerings from the 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 broad 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 major 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; and
- 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.gfinet.com

GFI offers brokerage, analytics and market data for the credit derivative and fixed-income markets. Interdealer brokerage services are offered in credit derivatives (default swaps, asset swaps, structured products) and fixed-income products (corporate bonds, Eurobonds, high-yield bonds, distressed debt, swaptions, bond options and asset-backed options). Selected markets are supported by GFInet trading system technology, allowing online trading as well as voice trading. GFI's 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. Market data distribution is either through dedicated feeds or through the GFInet.com market data portal covering real-time and historical data on a subscription basis. Trading systems can also be integrated with GFI's benchmark FENICS derivative pricing software suite that will soon be available for credit derivative markets offering market-based pricing and portfolio management for credit markets.

■ Global Link

225 Franklin Street
Boston, MA 02110
877.454.3570
www.globallink.com

Money Market 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; and
- 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 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.gs.com

Goldman, Sachs & Co. provides customers with the ability to electronically execute transactions through Goldman Sachs WebETSM. WebET is Goldman Sachs' multi-product online electronic trading system for institutional investors, providing real-time pricing and auto execution for a number of fixed-income, foreign exchange and convertible product lines. For futures, WebET provides real-time prices and auto-executable bids and offers via direct connectivity to the world's major future exchanges. WebET will be fully integrated with the new *Goldman Sachs Institutional*

Investor Portal, to be released in Fall 2002. This will allow clients to access both research and analytical tools and trade on that information.

WebET facilitates trading in a range of products. Fixed-income product groups include U.S. Treasuries, U.S. agencies, U.S. money markets, U.S. corporates, Euro governments, Euro agencies, Eurobonds and Japanese government bonds. Foreign-exchange product groups include spot, forward, roll and option transactions, as well as major USD, EUR, JPY currency pairs and a broad array of emerging markets and currency crosses.

Customers can execute transactions in U.S. Treasuries, U.S. agencies, U.S. corporates, U.S. mortgage and commercial paper during New York trading hours. Transactions in Euro governments, Eurobonds and foreign exchange may be executed during New York, London and Tokyo trading hours. Japanese government bonds are available during Tokyo trading times, and futures are available during New York and London trading times.

Additionally, Goldman Sachs offers clients the ability to purchase commercial paper through an automatic execution system available through the Bloomberg network.

■ **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 the 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 BBT.

■ **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, FHLB and Freddie Mac; 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 that wish to remain anonymous.

The following is a list of Grant Street Group private-label Web sites, which are powered by Grant Street Group software and supported by training and administrative services from Grant Street Group personnel.

PRIVATE-LABEL CLIENT	PRIVATE-LABEL WEB SITE
State of Ohio	www.bidohio.com
State of South Carolina	www.bidsc.com
State of Texas	www.bidtx.com
State of Louisiana	www.bidlouisiana.com
State of Idaho	www.bididaho.com
State of Iowa	www.bidiowa.com
Commonwealth of Massachusetts	www.bidmass.com
Commonwealth of Pennsylvania	www.bidpa.com
Allegheny County, PA	www.bidallegheny.com
Columbia Capital Management	www.columbiacapitalauction.com
Dain Rauscher	www.dainrauscherauction.com
Deutsche Bank	www.xchangeoffer.com
Federal Home Loan Banks	www.fhlbauction.com
Freddie Mac	www.freddiemacauction.com
FWW Financial Ltd.	www.fwwauction.com
Kirkpatrick Pettis	www.kpauction.com
Mellon Financial	www.mellongslauction.com
City of Portland, Oregon	www.pdxauction.com
Public Financial Management (PFM)	www.pfmauction.com
P.G. Corbin & Company, Inc.	www.pgcorbinauction.com
City of Pittsburgh	www.pghauction.com
Ponder & Company	www.ponderauction.com
R.W. Baird	www.bairdauction.com
Shattuck Hammond	www.shattuckhammondauction.com
Speer Financial Inc.	www.speerauction.com
Wilmington Trust	www.wtauctions.com

■ **G.X. Clarke & Co.**

10 Exchange Place
Jersey City, New Jersey 07302
201.200.3600
www.gxecute.com

G.X. Clarke & Co., an institutional dealer in government and agency securities, operates GxeCute, an electronic trading system available through the Bloomberg Auto Execution system. GxeCute 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.com**

379 Thornall Street
Edison, New Jersey 08837
732.548.0101
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 that, pending registration as an ATS (alternative trading system), will operate an electronic execution platform as well as a currently avail-

able Web-based interface to its book of offerings and bids wanted. The electronic execution platform, which uses a Java-based front end and is built on Garban-Icap trading technology, provides real-time markets for the most liquid and widely held U.S. municipal securities. Trades can be executed directly online. The browser-based offering and bid wanted system offers access to HTD's complete brokering book. It is searchable by a wide variety of criteria, including yield spread to the MMA consensus scale. Bids and offerings can be viewed online together with a variety of descriptive information, and execution is conducted through HTD's voice brokers.

■ **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 *Pfandbrief*, 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 of 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, the BiDCOMP Competitive Bidding System and the Thomson Worksheets. Issuers electing to accept bids through PARITY provide information relating to the sale to i-Deal's bond research group for entry into the database that supports BiDCOMP, PARITY and the Worksheets. 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 submit multiple bids reflecting market conditions, with only the final bid made available to the issuer at the time of sale. Issuers use the Internet to access PARITY through the Thomson Municipal Market Monitor (TM3). At time of sale, details of bids can be accessed for review and to 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 on a transactional basis.

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.

■ 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 tradeable prices for a broad range of assets including U.S. Treasuries, corporates, agencies, Eurobonds, Euro governments, equity warrants, Japanese government bonds, listed futures, and emerging market fixed-income securities, with more products being added. The Web platform allows clients to access firm prices and submit request-for-quotes or subject orders. JPeX is also available over the Bloomberg network. Firm prices are processed electronically while orders are automatically routed to the trading desk. JPeX provides a full trade blotter of executed trades for audit trail purposes. Furthermore, 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 fixed-income investors. LehmanLive is delivered only via the Internet, and is only available to Lehman Brothers clients. Content and functionality encompass a range of pre-trade decision support, transaction execution 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 intra-day performance monitors, interactive single-security home pages, and historical plotting and statistical analysis tools with customizable alerts. Select clients 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.

■ **lexc.com**

111 East 85th Street, 8th Floor
New York, New York 10028
212.722.4167
www.lexc.com

Loan Exchange Communications (LEXC) created and operates lexc.com, an Internet-based trading system for syndicated loans. lexc.com offers anonymous trading by matching bids and offers. Users pay only a fixed commission and there is no bid-offer spread on matched transactions. In addition, lexc.com provides syndicated loan investors with analytical tools to assess their current positions and to screen the loans available for purchase in the market. LEXC’s trading system has been subject to patents pending since the first application was filed in September of 1999.

■ **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. With the support of 32 loan trading desks in the U.S. and Europe, 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.

Over 100 institutional investors use the portfolio valuation software, and over 3,000 loan market participants use the weekly LoanX Flash Pricing Report.

■ **MarketAxess**

140 Broadway, 42nd Floor
New York, New York 10005
212.813.600
or
MarketAxess Europe, Ltd.
71 Fenchurch Street
London EC3M 4BS
United Kingdom
44.(0)20.7709.3105
www.marketaxess.com

MarketAxess is an Internet-based, multi-dealer platform for fully disclosed counterparty and anonymous trading of credit products. MarketAxess offers institutional investors access to new-issue securities and a large pool of liquidity across a comprehensive range of securities. The platform provides price discovery, trade execution and trade processing. Currently, investors are able to trade investment-grade corporate, Eurobond, high-yield, emerging-market and convertible bonds. In the near future, the platform will begin phasing in trading of other European credit products including Sterling, *Pfandbrief*, European high-yield and Euro-denominated emerging markets. The platform also includes comprehensive fixed-income research, TRACE data, and new issue offerings from its leading group of global dealers.

Current MarketAxess participating dealers are: UBS Warburg, Morgan Stanley, Merrill Lynch, Lehman Brothers, JP Morgan, Dresdner Kleinwort Wasserstein, Deutsche Bank, Credit Suisse First Boston, BNP Paribas, Bear Stearns, Bank of America Securities and ABN Amro. Combined, these dealers handle some 50 to 70 percent of the fixed-income trading in the selected markets.

Trading on the disclosed platform was launched in January 2001. With the acquisition of Trading Edge, Inc. in March of 2001, MarketAxess added an anonymous trade-matching system and now provides a credit trading platform with comprehensive product breadth and alternative trading models. The fundamental difference between the two trading models is that the multi-dealer inquiry model provides institutional investors with simultaneous pricing and full disclosure of both parties' identity, whereas the cross-matching model allows any participant to trade anonymously with any other system participant. MarketAxess plans to offer a seamless choice of trading models in credit products and let market participants decide which best suits their needs. The dealer is the trading counterparty in the disclosed model, whereas Trading Edge, Inc., a wholly owned subsidiary of MarketAxess Inc., is the counterparty in the cross-matching system. Both MarketAxess Inc. and Trading Edge, Inc. are registered broker-dealers and members of SIPC.

■ 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. Additionally, 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 during London trading hours. 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. 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. Currently on MLX, investors can trade U.S. Treasury and federal agency securities, commercial paper, municipal bonds and Euro-sovereign debt, in addition to 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. Also on MLX, 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 through a secure Web server. Trading hours and minimum trade sizes vary among the product offerings.

■ Mizhuho Securities

111 River Street, 11th Floor
Hoboken, New Jersey 07030
201.626.1000
Fax: 201.626.1577
www.fujisec.com

Mizhuho Securities, formerly Fuji Securities, provides customers with the ability to execute transactions electronically in U.S. Treasury bills, notes, bonds and STRIPs. The system, which is available through the Bloomberg network, allows automatic execution capabilities subject to size limitations depending on the specific type and maturity of the security. Individual transactions in Treasury bills can be executed for up to \$24 million, while individual transactions in longer-term securities have a \$10 million limit. All off-the-run securities are subject to a maximum \$5 million individual transaction size limitation. The system is available during New York, London and Tokyo trading hours, with all transactions executed through Mizhuho's New Jersey office.

■ Morgan Stanley

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

Morgan Stanley provides customers with the ability to electronically execute transactions in several fixed-income instruments.

Repo Link allows authorized customers to view live prices and electronically execute transactions in repurchase agreements for the full spectrum 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.

In addition to these proprietary platforms, Morgan Stanley is involved in a number of multi-dealer electronic trading platforms.

■ 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, the 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 the open auction, which allows as many bids and offers as possible to be matched at a single price. The second stage is con-

tinuous 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 instructions 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 began its operations in September 1999 and manages the electronic trading system for Dutch government securities. Over 30 Euro-denominated securities—Dutch state loans and Dutch treasury certificates—are traded, either with fixed annual coupons or zero-coupon, 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 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 €27 billion, a total of 18 Belgian securities with an outstanding amount of €192 billion and seven Finnish listed securities with an outstanding total amount of about €35 billion are currently traded on MTSAM, representing all fixed-rate OLO (linear bonds) lines and RFGBs (Finnish government bonds). The 27 participants on the MTS Belgium segment and 19 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 France

39, Rue Cambon
75039 Paris cedex
France
33.1.4927.1462
www.mtsfrance.com

MTS France, which began trading April 2000, was established for the purpose of trading Euro-denominated securities issued by the French government. These securities include negotiable fixed-rate discount treasury bills (BTFs), negotiable fixed-rate medium-term treasury notes with annual interest (BTANs), fungible treasury notes (OATs), stripped

OATs, floating-rate bonds and inflation-indexed bonds (TEC, OAT-I and OAT-ei). In 2001, the range of instruments was extended to include non-sovereign debt securities, namely 3 CADES (Caisse d'Amortissement de la Dette Sociale) fixed-rate securities and CRH (Caisse de Refinancement de l'Habitat) fixed-rate securities. The system is owned by 21 French government bond primary dealers, MTS S.p.A. and Euronext Paris SA. 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. MTS France offers Clearnet as a clearinghouse and as a central counterparty, and uses both the Telematico cash system and the Telematico Repo Trading Facility platforms. Cash trades are executed anonymously and participants are only informed of counterparties' identity after a trade is executed. MTS France offers a fully anonymous, or "blind," repurchase agreement (repo) facility, with Clearnet as the central counterparty. Both floating and fixed-rate repos are available. MTS France follows the Trans-European Automated Real-Time Gross Settlement Express Transfer system (TARGET), which was developed by the European Central Bank and national central banks of the European Union member states. Market makers are released from their market-making obligations during the official French public holidays.

■ MTS German Market

Lurgiallee 5
60439 Frankfurt
Germany
49.69.5808.4511
www.mtsgermany.com

MTS German Market began its operations in April 2001 and supports electronic trading in German government securities. All bond and treasury certificates issued by the federal government as well as benchmark bonds issued by the states of Germany are traded. Twenty-nine banks serve as liquidity providers and an additional 28 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 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 anonymous 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 Ltd., 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). MEDIP is the Portuguese regulated market which targets wholesale electronic trading by specialists of Portuguese public debt securities. Only two treasury bonds are traded on MTS Portugal: treasury fixed-rate bonds and treasury floating-rate bonds. 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.mtspa.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
Fax: 34.91.319.3725
www.mtsspain.com

MTS Spain, or MTS España SON, a supervised market for wholesale electronic trading for designated specialists, was officially launched on May 27, 2002, after attaining the status of SON (Organized Trading System) or supervised market for the trading of Spanish public debt. 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 to their secondary market obligations.

MTS Spain supports trading in public debt securities issued by the government of Spain. The securities traded on MTS Spain include bonds of all maturities ranging from two to 30 years; Bonos del Estado (three- and five- years bonds), Obligaciones del Estado (10-, 15- and 30-years bonds) and Strips (coupons and principals from strippable bonds).

Currently there are 21 participants in the system, 20 acting as market makers (14 of whom are official primary dealers), and one participant as price taker. The strong presence of market makers helps ensure the liquidity of the system.

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 70 percent of the morning session (8:30 to 14:30 CET), approximately 4 hours and 12 minutes, and 45 percent of the afternoon session (14:30 to 17:15 CET), approximately one hour and 14 minutes. Trades are completely anonymous and participants become aware of counterparties only after a trade is completed. MTS Spain is based on a straight-through-processing (STP) model, with an automated settlement process conducted through the clearing system of the Bank of Spain (CADE).

■ **Prescient Markets, Inc.**

445 Hamilton Avenue
White Plains, New York 10601
800.218.1635
www.cpmarket.com

Prescient Markets, a subsidiary of SunGard Financial Network, operates *cpmarket.com*, an electronic trading system launched in June 2000 that allows real-time transaction capability directly between issuers and investors. More than 60 commercial paper programs, including direct issuers as well as dealer-placed programs, comprising close to 20 percent of the commercial paper market, are transacting on the site. Issuers such as GE Capital, BASF, Dow Chemical, Household, American Express, General Motors and AIG Funding are among the names that use the system. As of November 2002, the system has been enhanced to support CDs (U.S., Yankee and Euro). The system is accessible through the Internet and allows investors to find the best rate by credit rating, and negotiate and send trades seamlessly to the back office. SunGard provides Web hosting and optional network services.

Prescient Funding Desk (PFD) is a product that provides Treasury personnel with tools to manage the short-term funding process for commercial paper, CDs, Fed funds and time deposits. PFD allows borrowers to manage direct and dealer-placed issuance in an integrated environment. The system's subscription-based technology provides users with real-time information such as market intelligence, benchmarking and analytics.

■ **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 ten 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 IntesaBci’s, a proprietary electronic trading system aimed at meeting the demand of banks, financial institutions and institutional investors for retail-driven order flows. Caboto IntesaBci traders provide executable two-way prices for sizes of up to €1 million. The system is available via Bloomberg and over the Internet. Primary market issues where Caboto IntesaBci 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-market, supranational and high-yield bonds.

As part of the company’s e-commerce project, Caboto IntesaBci is currently implementing a new corporate Web portal that will allow clients online access to the full range of Caboto IntesaBci products (both for research and trading). The Web site is likely to go live by the end of 2002.

In addition, Caboto IntesaBci has also launched the ECN RetLots Exchange, available to all 3,200 branches of the IntesaBci network.

■ SEB Merchant Banking

Kungsträdgårdsgatan 8
Post Office Box 16067
103 22 Stockholm
Sweden
46.8763.8000
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, besides currency and futures trading, the system handles 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 members 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 Bond Trader.

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.

All systems are available during New York trading hours.

■ **SWX Eurobonds**

SWX Swiss Exchange
Selnaustrasse 30 Postfach
CH-8021 Zurich
Switzerland
41.1.229.25.95
www.swx.com/products/eurobonds_en.html

SWX Eurobonds 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.

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 EUR, USD, GBP, CHF and JPY. SWX facilitates over 4,000 trades per day from a group of 3,000 bonds, straight and convertible, and 222 structured debt products.

SWX Eurobonds is accessible either by means of a direct telecommunications link or, since the second quarter of 2002, via Network Connectivity Providers (NCPs).

■ **TAAPSLink®**

U.S. Department of the Treasury
Bureau of the Public Debt
Treasury Auction Processing Center
999 E Street, NW, Room 510
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 auctions.

■ **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 through the Bloomberg Professional service and focuses on key currencies within the Eurobond market. The platform is operated by TD Securities. With TD Securities' electronic trading functionality, clients can perform price discovery, view the depth of the market of executable prices, access liquidity and execute their trades. Through TDAX, users have access to TD Securities' research and trade ideas. TDAX is constantly providing new features, adding new products and bridging time zones. Access the system on Bloomberg at the 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, Salomon Smith Barney, Chapdelaine & Co., FSA and Lehman Brothers owns TheMuniCenter, which was established in July 2000.

TheMuniCenter is an anonymous Web-based B2B marketplace for municipal and corporate securities, with an average of 5,000 postings daily. It is an open system, available to all qualified participants.

The system permits participating firms to post live bids and offerings of municipal and corporate securities. The database is easily searchable by a full variety of fields. TheMuniCenter provides online market and trading information through a number of tools. Since TheMuniCenter has its own broker-dealer license, qualified institutional investors can also offer, bid on or buy bonds through the site.

■ **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 has developed a platform for market prices, order execution, news, research and analytical tools targeted to midsized institutional investors on a direct basis and as a solution for regional broker-dealers. The system offers a number of database tools, including a database of bonds from multiple dealers, an analytical engine with indicative pricing, and an 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, while supplemental tools and resources for analytical modeling and pricing are available continuously.

■ **Tradesoft**

One New York Plaza, 16th Floor
New York, New York 10292
212.778.2731
www.tradesoft.com

Tradesoft is a trading system allowing dealers to trade agency, U.S. Treasury, Euro, and Brady bonds. Tradesoft is affiliated with the broker-dealer Euro Brokers. The system offers electronic trading capability over the Internet and private networks, giving traders a choice between Java, Windows or streaming HTML user interfaces. Trades are matched on a price and time basis and, depending on market requirements, with bids and offers matched. The system also allows for negotiation after bids and

offers are matched. The system is anonymous and participants are notified of trade counterparties after trade execution. Tradesoft offers XML, email or fax connections to back-office trade processing systems for post-trading processing.

■ **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 19 fixed-income securities dealers with more than 1,000 buy-side institutions in North America and Europe. TradeWeb's products include U.S. Treasuries, agencies, TBA-MBS, Euro sovereigns, commercial paper, *Pfandbriefe*, Supranationals, agency discount notes and benchmark corporates.

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

TradeWeb also supports electronic "straight-through processing" of fixed-income trades, providing dealers and customers with paperless trade allocations and confirmations on its integrated TradeXpress network.

TradeWeb's network of leading dealers includes Credit Suisse First Boston, Goldman Sachs, Lehman Brothers, Merrill Lynch, Salomon Smith Barney, Morgan Stanley, Deutsche Bank, Barclays Capital, J.P. Morgan, Greenwich Capital, ABN Amro, Bear Stearns, UBS Warburg, Banc of America Securities, Commerzbank, the HSBC Group, Société Générale, BNP Paribas and Dresdner Kleinwort Wasserstein.

■ **TreasuryDirect**

U.S. Department of Treasury
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 purchases 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

Founded in 1999, ValuBond offers a live trading platform for fixed-income securities, including municipal, corporate, government and agency debt, and is used currently on 350+ desks. ValuBond also participates in the primary market as a selling group member, bringing new issues to platform participants. In August 2001, ValuBond acquired Bond Express and has added its products to the ValuBond offerings.

The company offers a range of pre-trade, 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), robust reporting tools to generate offer sheets and bond ladders with cash flows, order entry automatically via a FIX connection or by FTP or input directly onto the site, and order management and modification. Trading includes matching and execution, with bid and trade notifications sent to a trader's desk via pop-up message and e-mail. Post-trade services feature historical trade views, reporting, execution routing and system updates. Users may post bids, bid-wanted or offers at live executable prices. Back office integration allows ValuBond to route execution notifications and inventory updates directly into customers' systems for STP.

ValuBond's private-label solution for trading and content, known as ValuBond Express, integrates price discovery, live trading and new issues into a Web site for internal use by reps, traders, correspondents, etc., or for end-customer use on a public Web site. 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 *2002 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.



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London

www.bondmarkets.com

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