
**EUROPEAN BOND
PRICE DISCOVERY
&
MARKET DATA
GUIDE**

FOR THE CREDIT MARKETS

FEBRUARY 2011

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I. INTRODUCTION

The aim of this guide is to provide investors and other interested parties with an overview of the trading venues, and price and data providers for the various European bond products, e.g. Investment Grade, Covered Bond, High Yield, and Structured Finance bonds¹.

A number of services exist to provide a high level of transparency to market participants, including: dealers' runs, parsing services, indices providers (such as Markit), price aggregators (such as Markit and Bloomberg), electronic services (TradeWeb, Bondvision, MarketAxess, and Bloomberg), "Bids (and Offers) wanted in competition". These services are part of a large and competitive industry of financial services providers, whose business is to collect, aggregate, consolidate or evaluate price information for use by dealers and investors. They compete, amongst other things, on data availability, user friendliness, speed and analytical soundness. This dynamic, market-driven process reacts to changing market conditions and investor needs, thereby helping to determine optimal levels of price transparency in the markets.

To understand the way that the availability of price and market data is structured in the bond market, it is important to note how the European bond market operates. Noticeably, there are key differences between the bond market and the equity market. Differences in the nature of each product lead to differences in liquidity and in the way price information is distributed among market participants². Unlike equities, the markets for bonds are not setup on centralised exchanges but rather on networks of dealers, each of which provide 'bid' and 'offers' (in general 'quotes') for each of the issues in which they participate. Thus an investor's buy or sell request can be conducted with an individual dealer over the phone; through single dealer electronic platforms or with dealers placed in competition on a multi-platform request for quote ("RFQ") environment. On the latter, clients can request quotes from up to five dealers and then trade at the best price provided. This RFQ information is indicative, the real price of a security is formed when the dealer's offer meets the buyer's one. However, it is important to note the general best practices conducted in the market: dealers are expected to stand behind their prices and face reputational issues if they do not do so. Therefore dealers have a commercial incentive to ensure that they are willing to execute a trade at the indicative price.

We have categorised the market for price data on the basis of their source. Then we identified key players in the each market division, and asked them to provide us with summary information about their organisation and the data/services they provide. This list is not intended to be exhaustive and reflects the summary of those who kindly responded to our request for information. In some instances, information was gathered from publicly available information published on the organisation's website, so is just a high-level description.

This guide does not aim to give a detailed picture of every aspect of the services a company offers, nor does it aim to identify all the players in the market. The goal is to

¹ See also [AFME/EPDA Price Discovery and Market Guide](#) for the European Government Bonds Market

²Fabuozi J. Frank, *The Handbook of Fixed Income Securities*, 7th edition, p. 42.

provide interested market participants with a basic overview and to simplify the process of finding the right data provider. Any feedback on the firms that are included, or the data provided, is welcome.

Division of the chapters

The document contains three Chapters:

- Chapter I gives an overview of the structure of the market, the key market players and a description of the different types of price information available and their sources. The price information has been categorised into pre-trade and post-trade information. Pre-trade captures price information available *before* the execution of a trade. Post-trade captures price information available *after* the execution of a trade.
- Chapter II captures the types of venues and services that provide pre-trade information to market participants and other interested parties. The majority of venues are where participants can obtain prices and execute a trade. Trading venues are broken down into electronic trading platforms (also known as “organised trading venues”) and traditional dealer services, whereby bond trading takes place over-the-counter (“OTC”). It is important to note that all these services work in tandem and provide a complimentary suite of execution methods to the end user. Services include a number of organisations that provide an additional means of obtaining pre-trade price information.
- Chapter III provides information on data vendors and valuation providers. Data vendors provide post-trade data to market participants and other interested parties. Valuation providers undertake analysis on bond issues using data that includes post trade information. Market participants can then obtain the results from the valuation providers.

A. THE EUROPEAN BOND MARKET

1. THE STRUCTURE OF THE MARKET – MARKET PLAYERS

1.1 DEALERS

Dealers are the go-betweens linking issuers and buyers. They buy and sell or hold in inventory the bonds that are traded. They will buy a bond issue for their own account (to add to an inventory of a bond issue) or sell from their own account (to reduce the inventory of a bond issue).

The role of the Dealer:

a. Risk takers

At a given time, dealers are willing to buy a bond at a bid price that is less than what they are willing to sell the same bond for (ask price). The difference in price should correspond to the risk that Market Makers take for supplying immediate trades to the market. While dealers wait for a bond to be bought the price for that bond could decrease due to a temporary imbalance in the number of buy and sell orders placed by investors for a bond at any one time. Such unmatched flow causes two problems: one is that the bond's price may change abruptly, even if there has been no shift in either supply or demand for the bond. Second is that buyers have to pay more, or sellers have to accept lower prices, if they want to make their trade immediately.

b. Liquidity providers

By taking the opposite side of a trade when such imbalances occur, dealers prevent the prices from materially diverging from the price at which a recent trade was consummated. That is a risk that Market Makers take in order to ensure immediate trades in the market.

c. Price information providers

By communicating their bid offers to potential buyers (investors), dealers provide reliable price information to investors (see 'dealer runs', section C). Although dealers are not obliged to sell their bonds at that specific price, they are, however, expected to stand behind their prices and face reputational issues if they don't do so.

1.2 INVESTORS

On the buy side of the trade there are investors. They attempt to estimate the intrinsic value of a particular bond they are interested in. A comparison with dealers' prices guides their decision of whether or not to invest. As such investors have a broader view of where the market is than the dealer participants, as they have access to a wider range of prices from different sources (multiple dealers, price aggregators, indices providers).

1.3 BROKERS

A broker acts on behalf of an investor wishing to execute orders. In economic and legal terms a broker is an 'agent' of the investor. The broker receives, transmits and executes investors' orders with other investors. The typical investor needs a broker to:

- receive and keep track of their orders for buying or selling;
- find other parties wishing to sell or buy;
- negotiate for good prices, to serve as a focal point for trading; and
- execute the orders.

For performing these functions the broker receives an explicit commission.

1.4 TRADING PLATFORMS

Traditionally bond trading takes place OTC, where broker-dealer trading desks take the principal position to fill customer buy and sell orders. In addition to OTC there has also been a continued growth in trading via electronic means on single dealer and multi-dealer trading platforms³. Electronic trading was initiated for efficient trade execution, however it has expanded to other related functions, most importantly providing market data (thus improving price transparency) and providing post-trade services, which typically are complicated and manually intensive (thus facilitating Straight Through Processing).

Electronic trading can be based on single or multi-dealer platforms. The former is based on a customer dealing with a single, identified dealer over the computer. In other words, it simply computerises the traditional customer-dealer market making mechanism. The latter provides some advancement as a customer can select from several identified dealers whose bids and offers are provided on a computer screen.

1.5 RETAIL PLATFORMS

For the purposes of this guide 'Retail' means the non-institutional part of the buy side and the smaller institutions. Retail platforms encompass only a small part of the market, around 5% of the investor base according to 2007 estimates⁴.

³ The AFME Electronic Trading Survey published in February 2010 found that Electronic trading in the European markets increased in 2009 with 36% of clients conducting more than 85% of their trading electronically, as opposed to the 21% in 2008. 53% of buy side and 76% of sell side respondents increased their electronic trading in 2009. E-trading is further expected to increase in 2010, with Investment Grade bonds one of the expected growth areas.

⁴ SIFMA response to CESR call for evidence on non-equity markets, March 2007

1.6 DATA VENDORS

Data vendors provide market and pricing data to the whole spectrum of market participants for commercial purposes. Typically, they offer a combination of price data derived from the trading venues, often offered in a package and combined with tools for analysis. This includes both pre- and post-trade information, for example, indices, aggregated prices, parsing services, historical and reference data, valuations (see section C below).

B. THE SOURCES OF PRE- AND POST-TRADE PRICE DATA ON EUROPEAN BONDS

The best way to identify all sources of price information is to follow the trade execution process step-by-step. Analysts, traders and investors contribute to prices and valuations under a number of different contexts, for different reasons and with varying precision requirements. However, based on a chronological criterion, price information can be categorised into two types: pre-trade and post-trade information.

1. PRE-TRADE

Pre-trade indicates the price information prior the trade execution. This includes a range of information available to the investor for the purpose of executing a trade, from the dealer's offer to sell a security to the composite price calculated by trading platforms or other service providers, based on prices offered by multiple dealers.

Contrary to equities, the markets in bonds are not centralised exchanges but networks of fragmented dealers, each of which provide 'bids' and 'offers' (in general 'quotes') for each of the issues in which they participate⁵. Thus an investor's buy or sell is conducted with an individual dealer over the phone; through single dealer electronic platforms or with dealers in competition on a multi-platform RFQ environment. On the latter, clients can request quotes from generally up to five dealers and then trade at the best price provided. This kind of information is only indicative, the real price of a security is formed when the dealer's offer meet the buyer's one. However, dealers are expected to stand behind their prices and face reputational issues if they do not do so. Therefore dealers have a commercial incentive to ensure that they are willing to execute a trade at the indicative price.

⁵Fabuoizzi J. Frank, *The Handbook of Fixed Income Securities*, 7th edition, p. 42.

1.1 DEALER “RUNS”

Investors have access to pre-trade information provided from the dealers through widely disseminated dealer pricing “runs” (inventories).

A typical scenario would be: First, a buy side investor/trader will receive information from the dealer/counterparties he interfaces with about pricing of a variety of securities. This pricing is almost always communicated via an email sent over the Bloomberg®. These emails are sent throughout the course of the day by the traders on the dealers’ side to all their clients (the investors) on the buy side.

Investors can receive runs from multiple dealers with the frequency depending on the liquidity of the bond. So investors often have a broader view of where the market is than dealers as they have access to a wider range of prices. It is estimated that for most actively traded bonds, clients could receive at least one quote from each dealer per day, and typically a client would receive a material number of quotes per minute overall. For the most liquid bonds, runs would be sent multiple times a day by each dealer.

Although the runs prices are not executable, dealers are expected to stand behind their run prices so have a commercial incentive to ensure that they are willing to execute within the bid offers sent via these runs. Investors review the prices available in the runs and can then raise a RFQ to the dealers from which they want to receive competing ask quotes.

1.2 BID AND ASK QUOTES

Bid is the price that a buyer, broker or market maker offers to pay for a bond and ask is the price that the broker or market maker offers to sell. The difference between the two prices is called the spread. Bid and ask reflect at what prices the security can be bought or sold and are generally known as a “quotes.” Current dealer indicative quotes are used for determining *mark-to market*⁶ portfolio values, for *index development*⁷ and incorporated in *consolidated price services*.

1.3 PARSING SERVICES

Parsing services organise and present dealer runs in an easily accessible format. The typical investor receives thousands of dealer emails every day, containing a wealth of pricing information, as well as commentary, research opinions, and other information. The sheer volume of emails and the fact that each email is different makes it difficult for traders to effectively act on this information. So parsing services organise and present the dealer runs in an easily accessible format by creating stacks displaying the best price amongst the dealers, as well as the depth of quotes (with time and ownership stamp of each point). The parsing services may be available for free, or for a fee from commercial vendors, to any market participant or other entity wishing to gain access to the data.

⁶ See POST TRADE section, under paragraph 3

⁷ See paragraph 4

Some of the vendors that provide parsing services include Bloomberg, Markit and CMA Quote Vision.

1.4 INDICES PROVIDERS

Designed to be objective representations of the markets, the indices are rules-based and calculated using the best market prices submitted by a number of contributing dealers. Markit iBoxx is a commonly used index in the bond market and produces a range of benchmarks, as well as tradable indices for cash bonds including, e.g., EUR, GDP, USD, High Yield, Sovereign, emerging markets and Asia indices. Iboxx bond indices for EUR and GDP use intra-day bid offer prices provided via automatic price feeds from each bank's bond desk. The prices are consolidated by Deutsche Borse, calculated every minute and disseminated immediately to the market via data vendors.

Dealers also provide their own bond indices to clients. Investors can subscribe to dealers' in-house platforms, which often provide a wide array of research as well as data, yield curves and banks' own indices. These are often customisable and investors have the ability to determine which instruments should be included in a bespoke index.

A number of trading platforms also produce indices on bonds listed on their platforms. For example, EuroMTS provides real-time Eurozone bond indices based on tradable prices provided by MTS Group. They provide all data necessary for users to replicate the indices. The EuroMTS indices are widely distributed via vendors such as Bloomberg and Thomson–Reuters. Indices include Government Bonds, Inflation Linkers, Covered Bonds and Government Bills.

1.5 PRICE AGGREGATORS

Commercial vendors also provide daily mid-market, intra-day and end of day pricing based on levels aggregated across various dealer providers, which are not executable but provide an indication of the market. These services are also known as 'contributor's based pricing services' because they depend on the dealers' contributions and not on independent analysis. For example, Markit composite prices are built where there are at least three contributors to that composite.

1.6 ELECTRONIC SERVICES

Electronic execution platforms are widely used in the European dealer-to-client market. The most widely used platforms are Bloomberg, TradeWeb, BondVision and MarketAxess. The platforms receive and aggregate dealer prices and allow clients to select the best price and to raise RFQs or orders to single or multiple dealers.

From a single dealer the investor receives quotes in one-on-one contacts with the bank, either via email or phone. Also, all of the larger banks are signed up to electronic trading platforms where investors can monitor real or indicative quotes from the individual bank and execute trades. Investors can get access to this information by visiting the relevant client pages on these systems or by adjusting the customer settings on their platforms. An example of this is the Single Dealer Pages on Bloomberg. Finally, some banks use web-based client portals to exchange (price) information with their clients. Some examples of these are shown below.

1.7 BIDS AND OFFERS WANTED IN COMPETITION

BWIC's/OWIC's are lists of positions sent by clients to multiple dealers to seek competitive bids in order to achieve the best possible price. The lists are exchanged and prices are sought on electronic platforms such as Bloomberg and TradeWeb, which allow clients to customise the bid process by, for example, selecting the dealers for the quote request (typically 5 to 6), defining the time by which prices must be received, identifying the best prices, and initiating execution following selection of the best price.

2. POST-TRADE

The major difference between bond and stock trading is that in the latter the trade-by-trade prices are reported and made public through exchanges or financial information services (e.g. Markit Boat). This is because traded stocks are subject to public disclosure obligations. Despite the fact trade-by-trade bonds prices are not public, there are many sources of aggregated end-of-day prices available: for example, participants of electronic trading platforms, such as Tradeweb or Reuters Fixed Income, have access to end-of-day prices. In addition, commercial vendors such as Markit sell such data to the subscribers of specific services (i.e. Markit evaluated bonds). Furthermore, it is worth mentioning two other sources:

2.1 TRADE MATCHING AND REGULATORY REPORTING SERVICES

Xtrakter (owned by Euroclear) manages the TRAX OTC trade matching and regulatory reporting service, and holds data on many of the European corporate bonds. The data is available to the regulators and commercial users. Xtrakter publishes average closing bid and offer quotes, and high, low, and median prices for bond trades reported to TRAX.

2.2 POST-TRADE VALUATIONS

Typically these services include regular statements on a position level and mark-to-market valuation on the positions that the client has facing the dealer. These pricing evaluation services (sometimes referred to as “matrix” pricing) are provided by independent third parties such as Reuters, S&P Pricing and FT Interactive Data. Strictly speaking, this price information cannot be classified as post-trade because it is produced through a different process to trade execution.

Mark-to-Market

Mark-to-market or fair value accounting refers to accounting for the value of assets or liabilities based on the current market price for them, or for similar assets and liabilities, or based on another objectively assessed “fair” value.

An investor that has a position in its book can quite accurately mark-to-market that position by reviewing the emails received throughout the day or via the use of a specialised tool provided by third parties. On the dealer side, the trader who faced the investor in the execution is mandated to mark this position to market at the end of each day, as well as the other positions accumulated in his book, and a variety of issues that he has not traded or does not own, but which are in the same sector or classification as the sector he specialises in. The dealer then uses this marked-to-market information to supply their customers with any pricing information requested.

Risk Management valuations

These services are designed for traders, portfolio managers, risk analysts and market professionals, and the tools supplied provide market insights to support investment strategies.

Structured and securitised finance risk management measurement systems, such as Value at Risk (“VaR”), rely on valuation and price determination under varying sensitivity analysis scenarios to set maximum exposure levels.

II. PRE-TRADE EXECUTION VENUES AND PRICE INFORMATION PROVIDERS

This section captures all services that provide pre-trade information to market participants and other interested parties. It includes all price information useful for the price execution process. The pre-trade providers are the sources of this information. These are mainly venues where market participants trade but also commercial vendors. The latter provide indices, aggregated prices and parsing services, along with other types of descriptive information, such as historical and reference data.

Traditionally bond trading takes place OTC, where broker-dealer trading desks take principal position to fill customer buy and sell orders. In addition to OTC there has also been a continued growth in electronic trading on single dealer and multi-dealer trading platforms.

A. VENUES

1. ELECTRONIC TRADING

Electronic trading can be based on single or multiple dealer platforms. The former is based on a customer dealing with a single, identified dealer over the computer. In other words, it simply computerises the traditional customer-dealer market making mechanism. The latter provides some advancement. A customer can select from any several identified dealers whose bids and offers are provided on a computer screen.

1.1 MULTIDEALER

1.1.1 TO DEALER

BGC Partners

eSpeed

On April 1, 2008, eSpeed merged with BGC to form BGC Partners, Inc. BGC's suite of marketplace tools provides end-to-end transaction solutions for the purchase and sale of financial products over its global private network powered by the eSpeed platform or via the Internet. BGC's neutral eSpeed platform, reliable network, straight-through processing tools, and wide variety of fully electronic products make it the trusted source for electronic trading at the world's largest fixed income, derivative, credit and foreign exchange trading firms.

Trading method: Cross-matching and via voice brokerage (see section 2)

Participants: Dealers

Price contributors: Dealers

Minimum trading size: 1 million unit increments

Sector coverage: Global Government Bonds, Agency Securities, Supranational and Sovereign Bonds, Investment Grade and High-yield Corporate Bonds, CDS indices, Emerging Market Corporate Bonds plus other sectors.

Data available:

Pre-trade prices executable

Post-trade prices real time

Distribution through other vendors: BGCantor Market Data (see section B), Bloomberg, Thomson Reuters, ION, CQG, Broadway Technology, FastFill, List Group, Orc, RTS, Trading Screen.

Further information: <http://www.bgcpartners.com/>

Contact information:

sales@bgcpartners.com

clientenquiries@bgcpartners.com

BGC Pro

BGC Pro facilitates the trading of multiple instruments across multiple exchanges on a single configurable screen with minimal legging risk.

Trading method: Cross-matching

Participants: Dealers

Price contributors: Dealers

Product coverage: Global Government Bonds and Financial Futures from ELX Futures, L.P. and the CME.

Data available:

Pre-trade prices executable

Post-trade prices real time

Distribution through other vendors: BGCantor Market Data (see section B), Bloomberg, Thomson Reuters, ION, CQG, Broadway Technology, FastFill, List Group, Orc, RTS, Trading Screen.

Contact information:

sales@bgcpartners.com

clientenquiries@bgcpartners.com

BGC Trader

BGC Trader offers a global multi-product front-end based on thin-client technology supported by Volume Match auction functionality.

Trading method: Cross-matching and auction

Participants: Dealers

Price contributors: Dealers

Product coverage: FX Options, i-Traxx, Global Corporate Bonds, Global Corporate CDS, Emerging Market NDF, Asian NDF, Latam NDF, Floating Rate Notes, Mortgage Backed Securities, Base and Precious Metals

Data available:

Pre-trade prices real-time

Post-trade prices historical price information available

Distribution through other vendors: BGCantor Market Data (see section B), Bloomberg, Thomson Reuters.

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Eurex Bonds

Eurex Bonds GmbH was founded in October 2000, as a joint initiative of Eurex Frankfurt AG and leading financial institutions. It is a private-law joint venture with the purpose of establishing and operating a pan-European electronic platform for bond and basis trading in debt securities. The platform also provides a modern and reliable clearing structure integrated in Eurex Clearing.

Total Turnover on Eurex Bonds in December 2010 reached € 6.807 billion on a single counted basis. Total Turnover on Eurex Bonds in 2010 exceeded € 101.634 billion (single counted) versus € 87.289 billion in 2009.

Trading method: Cross-matching

Participants: Dealers

Price contributors: Trading takes place in continuous trading. Every market participant can enter quotes and orders into the open order book or hit or lift orders and quotes directly. Every price given in the order book in continuous trading is binding and tradable.

Market making at Eurex Bonds is on voluntary basis, Eurex Bonds is not requesting any quoting obligations. But Eurex Bonds rewards liquidity, according the Eurex Bonds price model, the participant who offers liquidity and whose price is accepted to perform a trade pays less or even receives a credit.

Minimum trading size: €1 million for all bonds and €5 million for all basis instruments. 0.5 Million for Corporate Bonds.

Access:

- 1) Possess equity capital of at least EUR 50,000.00, unless the enterprise submitting the application is a credit institution, a financial service provider or a securities company complying with the definition of article 1 paragraph 1 and 2 and article 4 paragraph 1 of Council Directive 2004/39/EG on markets for financial instruments ("MIFid") or with a company acting pursuant to § 53 paragraph 1 clause 1 or § 53 b paragraph 1 clause 1 KWG ("German Banking Act") which is authorized to conduct financial commission business within the meaning of § 1 paragraph 1 clause 2 number 4 KWG or to provide a financial service within the meaning of § 1 paragraph 1 a clause 2 number 1 to 4 KWG; the deposited money and the reserves after deduction of the owner's or personal liable shareholders' withdrawal and the credits granted to them as well as a liabilities' overhang with the free assets of the owner are regarded as equity capital.
- 2) Member of Eurex AG if Basis Trading is required.
- 3) Participation in the clearing process of Eurex Clearing AG (as GCM or DCM or via a NCM-CM agreement with an already existing Clearing member).
- 4) Access to the technical infrastructure of the Xetra system.

Charges: Eurex Bonds charges an annually membership fee and transaction fees. Eurex Bonds differentiate between shareholders and non shareholders and aggressors and non-aggressors. Please have a look to our price model, (http://www.eurex-bonds.com/public/documents/pricing_en.html)

Sector coverage: *European Government Bonds; Agencies, Covered bonds:*

- 1) German Jumbo Pfandbriefe;
- 2) Covered Bonds of issuers from France, Italy, Ireland, the Netherlands, Spain, UK, Denmark, Norway, Sweden and Portugal;
- 3) Collateralized Bonds non-German Issuers (e.g. Cédulas Hipotecarias, Obligaciones Foncières, HBOS);

Financials and Corporate bonds (i.e. BNG, Nedwater and Rabo Bank).

Break-Even Products

The Eurex Bonds Break-Even instruments represent two bonds, a nominal bond (a regular government bond) and a real bond (inflation linked bond), wherein you buy/sell or sell/buy both bonds in one trade. Break-Even Trading is available for German and French Inflation Linkers.

Calculation of Break-Even is calculated by the following formula:
Break-Even = yield (nominal bond) – yield (real bond)

Basis Products (Deliverable Basis Instruments)

The basis represents a combination of a security and a future contract that has its own price. Buying the basis involves the purchase of a certain amount of securities and the simultaneous sale of a corresponding number of futures contracts. The exact opposite holds true when selling the basis.

- 1) The combination of German debt issues with a remaining term to maturity of 1.75 years and 2.25 years, and the current Schatz future contract (FGBS).
- 2) The combination of German debt issues with a remaining term to maturity of 4.5 years and 5.5 years, and the current Bobl future contract (FGBM).
- 3) The combination of German debt issues with a remaining term to maturity of 8.5 years and 10.5 years, and the current Bund future contract (FGBL).
- 4) The combination of Italian debt issues (BTPS) with a remaining term to maturity of 8.5 years and 10.5 years, and the current Italian future contract (FBTP).

Non-deliverable Basis Instrument

Selected German debt issues, which are not deliverable components of the baskets of the respective Euro Bund, Euro Bobl and Euro Schatz futures, in combination with a tradable future at Eurex (as defined by Eurex Bonds) [On August 2010, Eurex Bonds introduced trading in bonds issued in U.S. dollar. As a first step, bonds issued in U.S. dollar by the German Federal Government, the Kreditanstalt für Wiederaufbau, the European Investment Bank and the Rentenbank are admitted to trading.

Data available:

- *Pre-trade prices:* executable
- *Post-trade prices:* real time
- *Other information:* volume par month/ daily average.

Eurex Bonds has pre-trade transparency. We disseminate bid and ask prices as well as the volumes and the time. In case of a trade in the open order book, Eurex Bonds has post trade transparency. We provide the traded prices with volumes and trade times.

Distribution through other vendors: Real-time price dissemination via Deutsche Börse. This dissemination system broadcasts its price information to all relevant data vendors in both real time as well as end-of-day information packages. Vendors include Bloomberg (EUBO page), Thompson Reuters (page <#Eurexbonds>), Moneyline (<xe#<isin>), SIX Telekurs (ISIN_540), VWD (WKN>EUB), Townsend Analytics.

Further information: <http://www.eurex-bonds.com/>

Contact information:

Germany: Eurex Bonds GmbH

Neue Börsenstrasse 1

60487 Frankfurt/Main,

Customer support (Mon - Fri 8.30am - 6.00pm)

Tel. +49 (0)69 - 211-1 12 22

Fax +49 (0)69 - 211-1 70 03

E-mail: info@eurex-bonds.com

[Market Design & Functionality / Business Development

Fabian Cosmann

fabian.cosmann@eurex-bonds.com

Tel: +49-(0) 69-211-1 80 55]

ICAP Electronic Broking

Trading method: Cross-matching and voice

Participants: Dealers

Price contributors: Dealers

Sector coverage: EU government bonds, agency, supranational, repo investment grade and high yield corporate, convertibles, financials, floating rates notes. In particular, concerning corporate: 1) corporate bonds, 2) medium-term notes, and 3) commercial papers.

Data available:

- *Pre-trade prices*: executable
- *Post-trade prices*: real time
- *Other information*: Core bond description information, including volume, historical prices, coupon, and yield.

Contact information:

Europe, Middle East, Africa: +44 (0)20 7000 5880

ICAP plc

2 Broadgate

London, EC2M 7UR

John Edwards

Head of Fixed Income

Tel. +442070005838

E-mail: john.edwards@icap.com

MTS platforms

MTS is Europe's premier electronic market in fixed income securities with daily volumes exceeding €85 billion and over 500 unique counterparties. MTS' state-of-the-art technology delivers efficient and effective solutions, which combined with expert knowledge and client-focused consultancy, benefits all market participants, including issuers, primary dealers, and market makers.

MTS supports the full chain of pre-trade, trade execution and post-trade capabilities across cash and repo markets, and also provides independent benchmark market data and comprehensive fixed income indices. Its platforms are used daily by a very wide number of diverse counterparties, ensuring optimum liquidity.

The group also includes MTSNext, the company that manages the EuroMTS Indices, the first range of independent, transparent, real-time and tradable Euro-zone fixed income indices.

Trading method: Firm quotes

Participants: Dealers

Price contributors: 500 unique counterparties

Minimum trading size: Varies per MTS market

Charges: Varies per MTS market

Sector coverage: Tradable products on the MTS markets comprise EUR denominated and Local currency government bonds, inflation-indexed bonds and Treasury bills, Quasi Government bonds (Supra, Sovereign and Agency Bonds & Government Guaranteed Bonds), and EUR Covered bonds. In addition, Bond Vision is the multi -dealer-to-client electronic market for trading bonds (see section ii).

Price Data available:

Pre-trade prices: executable

Real-time tradable prices from the only electronic system offering data across the entire European Government, Quasi-government and covered bond markets:

- Best bid / offer quotes, market depth and last traded price, all complete with related volumes;
- Actual traded prices or prices live on the MTS platform at which MTS participants may deal
- No indicative prices; and
- MTS market-making system ensures narrow bid-offer spreads and continuous, aggressive pricing on a wide range of products, irrespective of market conditions.

Post-trade prices: real time to participants, real-time under subscription to non MTS participants via market data vendors.

Distribution through other vendors: Real-time pricing information AND other information data are available Bloomberg, BIT Market Service, Class Editori, CarryQuote, Exchange, Data International, Fixnetix, Il Sole 24 Ore, Interactive Data, SIX Telekurs, Sungard and Thomson Reuters. Free trials are available on request.
Contact information: info@mtsmarkets.com; Tel +44 (0)20 7797 4090

Tullett Prebon E-Broking

TP CREDIT DEAL is Tullett Prebon's hybrid trading solution, which offers its clients a platform that leverages the combination of cutting-edge technology with a market-leading voice broking team for a wide range of fixed income products. It allows live real-time order entry and trade execution with connectivity to ICE Link, providing clients with fully-automated straight through processing (STP), and it also has API connection to the major clearing houses.

Trading method: Electronic and Voice (see par. 2 – Over-the-counter)

Participants: Dealers

Sector coverage: Among the credit products, product coverage varies according to the place they are traded. 1) London: EU Corporate Bonds, UK convertibles, EU convertibles, Asian convertibles, High Yield bonds, emerging Markets Eurobonds, Sovereign and Banks, Corporate Repos, Structured credit, financial cash. 2) Paris: Bonds 3) Frankfurt: Eurobonds; Covered Bonds; Floating Rate Notes.

Data available:

- *Pre-trade prices*: executable
- *Other information*: yes (see section B – Pre trade price information providers of this chapter and section A of Chapter III)

Distribution through other vendors: Tullett Prebon Information; Thomson Reuters and Bloomberg.

Further information: http://www.tullettprebon.com/ebroking/ebroking_about.aspx

1.1.2 TO CUSTOMER

Bloomberg Fixed Income Electronic Trading

Bloomberg L.P. began in 1981. The New York-based company employs more than 10,000 people in over 135 offices around the world. Bloomberg is about information: accessing it, reporting it, analysing it and distributing it. The BLOOMBERG PROFESSIONAL® service, the core product of Bloomberg, is the fastest-growing real-time financial information network in the world.

Bloomberg offers both multi and single dealer trading on European Bonds markets. Prices are displayed either in a multi-dealer environment or on a single dealer offering page. Bloomberg provides STP to third party OMS via the TSOX trading platform.

Trading method: Request-for-Quote or click-to-trade (single dealer page)

Participants: Large and diverse group of customers. This includes large institutional asset managers, hedge funds, central banks and retail clients.

Access: Subscribers of the Bloomberg Terminal.

Sector coverage: 4.6 million fixed income securities including sovereign, corporate, US municipal, residential MBS, commercial MBS, asset-backed securities and emerging market debt.

Data available:

- *Pre-trade prices:* executable
- *Post-trade prices:* bid/ask/mid pricing as well as end of day

Other information:

- 1) Bloomberg creates a real-time composite price from the Tradable prices contributed to Bloomberg. This is called the CBBT price and is available to all Bloomberg users.
- 2) Bloomberg also provides a "BVAL" price for Mark-to-Market valuations. This is a premium service using more sophisticated algorithms for calculating prices but useful in less liquid markets.
- 3) Best Execution information (Full Audit Trail including cover price etc; Cover Value - Comparison of price traded vs. next best price quoted; CBBT Value - Comparison of price traded vs. CBBT price at the time of trade.

Distribution through other vendors: Bloomberg professional

Bloomberg all quotes (ALLQ)

Bloomberg's ALLQ (all quotes) function enables price quotes provided by dealer contributors to be viewed. Depending on the price contributor, the quotes may be firm or indicative. If firm, the quote can be hit as long as it is seen on the screen. The ALLQ function is available for the broad array of market sectors, including investment grade, high-yield and emerging market.

Trading method: Firm quotes and request for quotes

Participants: Dealer and institutional buy-side

Price contributors: Dealers

Sector coverage: 4.6 million of fixed income securities including Sovereign, Corporates, US municipal, residential MBS, commercial MBS, asset-backed securities and emerging market debt.

Data available:

- *Pre-trade prices:* Executable and indicative, depending on trading methodology and subject to consent by price contributors
- *Post-trade prices:* Real-time; available to dealers only
- *Other information:* Yes (see section C for further information)

Distribution through other vendors: Bloomberg professional

BondVision (MTS)

BondVision is a leading multi-dealer-to-client electronic bond trading market. BondVision's Best Page has unrivalled price discovery with real-time prices from the leading MTS market makers.

BondVision was launched in 2001 in response to continued requests from institutional investors for access to the liquidity of the MTS markets. This is achieved by enabling clients to "auction" their business – outright, switch and butterfly – with up to five dealers online. Coupled with an extensive post-trade functionality, such as allocation to sub-accounts and DDE (Dynamic Data Exchange) links to Excel, BondVision allows for further efficiency and cost savings via the use of FIX protocols. FIX protocols enable the system to interface with clients' order management and portfolio management systems. It also provides an API system, which paves the way for full STP, as well as a Dynamic Link Library (DLL) output with a COM type interface for ease of usage in different standards such as Visual Basic and Excel. All reports provided by BondVision API are available in XML format.

BondVision is a regulated market, thus providing a "best execution" environment. The Italian Ministry of Finance regulates the government bond trading area whilst CONSOB regulates the non-government trading section.

BondVision is extremely user friendly, using light Internet-based technology and the highest standards of security, fulfilling ISO standards. This technology allows institutional investors to access the MTS markets free of charge. There is no start up cost, membership fees or transaction costs. This is part of the BondVision philosophy of providing superior execution and price discovery rather than over the telephone (or as opposed to OTC trades), without adding to client expenses.

Trading method: Request for quotes from up to 5 dealers at a time.

Participants: 25 market makers and a comprehensive number and diversity of counterparties – 350 institutions and 2,000 traders globally

Price contributors: 25 market makers.

These include global houses and regional Specialists (Banca IMI; Barclays Capital; BNP Paribas; BoA Merrill Lynch; Credit Agricole; Citi; Commerzbank; Credit Suisse; Deutsche Bank; Goldman Sachs; Helaba; HSBC; ING Bank NV; Jefferies International; J.P. Morgan; Morgan Stanley; Natixis; Nomura; RBC Europe; RBS; Santander; Société Générale; UBS; UniCredit; WestLB).

Minimum trading size: 1,000 euros

Charges: Institutional investors are not charged for the use of BondVision

Sector coverage: over 2,000 securities listed:

- EUROZONE Covered Bonds: - e.g. Pfandbriefe, Obligations Foncières
- € Government - All European Government issues

- € Supranationals & Agencies: - e.g. EIB, KfW, CADES
- € Govt Guaranteed: - e.g. SFEF, Bank issues (grtd)
- Other Government Bonds: Treasuries (USD), UK Gilts (GBP), Sweden (SEK), Denmark (DKK), Central and Eastern Europe (EUR, USD), Czech Republic (CZK), Hungary (HUF), Poland (PLN).

Data available:

- *Pre-trade prices:* Last traded prices are available on “Best Page” summary.
- *Post-trade prices:* Available real-time on “Best Page”.
- *Other information:* Core bond information includes prices, coupon, yield and maturity.

Distribution through other vendors: None

Further information: www.mtsmarkets.com

Contact information: bondvision@mtsmarkets.com; Tel +44 (0)20 7797 4090

MarketAxess

MarketAxess operates one of the leading platforms for the electronic trading of corporate bonds and certain other types of fixed-income securities.

Trading method: Request for quotes simultaneously from multiple broker-dealers

Price contributors: 23 dealers (ABN AMRO, Banc of America Securities, Barclays PLC, Bear Stearns, BNP Paribas, Citigroup Global Markets, Credit Suisse First Boston, Deutsche Bank Securities, DZ Bank, FTN Financial, Goldman Sachs, HSBC, ING Financial Markets, J.P. Morgan, Jefferies & Company, Lehman Brothers, Merrill Lynch, Morgan Stanley, The Royal Bank of Scotland, Santander Investment Securities, SG Corporate & Investment Banking, UBS and Wachovia Securities).

Charges: The majority of MarketAxess revenues are derived from commissions for trades executed on its platform that are billed to our broker-dealer clients on a monthly basis. MarketAxess also derive revenues from information and user access fees, license fees and other income.

Sector coverage: U.S. high-grade corporate bonds, European high-grade corporate bonds, credit default swap indices, agencies, high yield and emerging markets bonds.

Data available:

- *Pre-trade prices*: Indicative commingled inventory prices. Quotes received and selected from inquiries are executable. Indicative Prices returned from inquiries are executable for a defined period of time.
- *Post-trade prices*: Real time.
- *Other information*: MarketAxess also provides data and analytical tools that help their clients make trading decisions, and they facilitate the trading process by electronically communicating order information between trading counterparties.

SIX Swiss exchange (SIX Group)

SIX Group provides infrastructure services to national and international participants of the Swiss financial centre. The company's services include securities trading, securities services, and financial information and payment transactions. SIX Group was formed at the beginning of 2008 through the merger of SWX Group, SIS Group and Telekurs Group. As a globally operating infrastructure provider, the company is an important pillar of the Swiss financial centre.

Trading method: Cross-matching

Participants: Institutional dealers and institutional buy-side.

Price contributors: 19 market makers.

Sector coverage: Government bonds, Investment-grade and high-yield corporates, Agency, supranational and emerging markets. Approximately 3,363 fixed-income securities available.

Data available:

- *Pre-trade prices*: Executable.
- *Post-trade prices*: Real time for dealers and buy side. Delayed 30 minutes on Web site.
- *Other information*: Core bond description information, including volume, coupon, accrued interest and high/low price for a specific period.

Vendor distribution: Real-time information disseminated by major data vendors, such as Bloomberg, Reuters and SIX Telekurs.

Further information: http://www.six-swiss-exchange.com/index_en.html

Contact information:

SIX Swiss Exchange
Selnaustrasse 30, Postfach, CH-8021 Zurich, Switzerland

Thomson Reuters Fixed income Trading

With Thomson Reuters Fixed Income Trading, Thomson Reuters Eikon and Reuters 3000Xtra users have easy access to premier sources of liquidity from global, regional and local dealers for an extensive range of instruments. Thomson Reuters Fixed Income Trading possesses a unique FIX Interface that brings the world of automated trading to clients that have large numbers of orders to fulfil in a trading day.

Trading method: Flexible trading model which offers you the option of

- A) Auto-execution
- B) Subject orders based on attributable Firm prices
- C) Bilateral RFQ based on attributable Indicative prices

Participants: Dealers and institutional (generally retail aggregators)

Price contributors: 15 dealers

Minimum trading size: Only dependent on the individual security

Charges: Free access for users of Thomson Reuters Eikon or 3000Xtra

Sector coverage:

- Cash Bond instruments: Across Rates, Credit and Emerging Markets.
- Government bonds: 43 countries/21 currencies
- Sovereign bonds: G24 and Emerging Markets
- Supranational/State: 31 countries/19 currencies and Agency bonds
- Corporate bonds: All major markets covered across 24 currencies
- Covered bonds: 7 countries/3 currencies
- Floating rate notes: Government/Corporate 11 currencies

Data available:

- *Pre-trade prices:* Firm executable and indicative.
- *Post-trade prices:* real time.
- *Other information:* Thomson Reuters Fixed Income Trading is fully integrated with Thomson Reuters Eikon and 3000 Xtra (see section B), giving you full access to their market data and analytics (i.e. Terms, conditions & reference data, news, analysis, charts and history data).

Further information: http://thomsonreuters.com/products_services/financial/

Contact information: Byron Cooper-Fogarty (Head of Fixed Income e-Commerce), Thomson Reuters Building , 30 South Colonnade; Canary Wharf, London, E145E, UK

Tradeweb

Tradeweb is a leading provider of online markets and a pioneer in the development of electronic trading and trade processing. The company provides services in the fixed income and derivatives markets to clients in more than 50 countries. Since 1998, Tradeweb has operated a global fixed income and derivatives trading network, which harnesses the distribution of the major investment banks with over 2,000 institutional clients.

Tradeweb's credit platform provides market data, trade execution, and trade processing in the following markets: European Credit, Covered Bonds/Pfandbriefe, Supranationals, Credit Default Swap Indices. These marketplaces provide institutional investors the ability to:

- **Monitor and analyze markets** using proprietary pricing and tracking tools to identify trading opportunities.
- **Execute trades** by placing dealers in competition or selecting from extensive inventory and dealers' indicative pricing.
- **Process trades** using Tradeweb's trusted and proven post-trade processing services.

Tradeweb is owned by Thomson Reuters and 10 leading dealers.

Trading method: Request-for-quotes

Participants: Dealers and institutional buy side.

Price contributors: 25 in total (number of contributors may vary according to the product offered).

Banca IMI, Bank of America Merrill Lynch, Barclays Capital, Citigroup, Commerzbank, Credit Agricole CIB, Credit Suisse, DZ Bank, Deutsche Bank, Goldman Sachs, HSBC, ING, J.P. Morgan, Jefferies, LBBW, Morgan Stanley, Natixis, Nomura, RBC Capital Markets, Societe Generale, The Royal Bank of Scotland, UBS Investment Bank, Unicredit, WestLB.

Minimum trading size: None

Issue size: 100 Million (EU credit); 150 million (Covered Bonds)

Charges: Buy-side: Monthly User Fee

Sell-side: fixed annual subscription fee and an activity-based variable fee (should a user wish to download pricing information or take a direct market data feed). The ability to view prices on the Tradeweb Viewer is included in any access fees.

Sector coverage: European credit (Investment grade; cross-over), Supranationals, Covered Bonds/Pfandbriefe, CDS platform and CDS index.

Data available:

- *Pre-trade prices*: Indicative. The quotes received from inquiries are live and executable.

1) Bid/Offer and mid-price are both supported.

2) Composite prices are derived using Tradeweb's proprietary algorithm. The composite is adjusted in real-time to reflect any changes from contributing dealers.

- *Post-trade prices:* Tradeweb provides a suite of post trade best execution and transaction cost analysis services to customers for trades executed both on and off the platform. These include comparisons to the composite, cover prices and a variety of peer group analysis. Furthermore, in line with FSA requirements, Tradeweb provide delayed information to market participants for trades executed on the platform. This is a subscription service.
- *Other information:* Basic bond information, including coupon, yield, ISIN and other core bond characteristics.

Further information: <http://www.tradeweb.com/index>

1.2 SINGLE DEALER

In the single dealer part of the dealer-to-costumer market, the investor receives quotes in one-on-one contacts with the bank. These contacts can be via email or phone. Also, all of the larger banks are signed up to trading platforms where investors can monitor real or indicative quotes from the individual bank and execute trades. Investors can get access to this information by visiting the relevant client pages on these systems or by adjusting the customer settings on their platforms. An example of this is the single dealer pages on Bloomberg.

Finally, some banks use web-based client portals to exchange (price) information with their clients. Some examples of these client portals are shown below.

Barclays Capital

Barclays Capital provides clients access to market data relating to European Bonds via the client portals Barclays Capital Live and BARX Fixed Income. Barclays Capital Live is a global, cross-asset class online portal available to clients, which allows access to research reports, pricing information, analytical tools and to the electronic trading platform BARX.

BARX Fixed Income

Service: Trade execution

Trading method: click to trade or request for quotes

Sector coverage:

Differs according to the trade platform:

1. BARX via Bloomberg: Global Government Bonds; EUR and GBP Corporate Bonds; Financials; Covered Bonds; Commercial Paper; Emerging Markets; Agencies; Mortgage Backed Securities ; Municipal Bonds ; Exotic Structured Notes ; Inflation linked bonds; Exchange-Traded Funds ; Convertible Bonds; Credit Default Swaps
2. BARX Credit via MarketAxess: High Grade & High Yield Corporates (EUR & GBP), Emerging Markets, Agencies, Covered bonds, Global Government Bonds and MBS
3. Tradeweb: covered bonds, supra/sovs, investment-grade, bonds (EUR & GBP), Global Government Bonds and MBS
4. BARX Credit via Bondvision: covered bonds and supra/sovs.
5. Thomson Reuters: US and European government bonds, Gilts and Scandinavian Bonds.

Data available:

- *Pre-trade prices:* executable and indicative (through the MARKET MONITOR webpage, which shows mid-levels values, updated approximately every 10 seconds intra-day).
- *Post-trade prices:* end of day mid-prices through ANALYTIC TOOLS (see below).
- *Other information:* yes, through the ANALYTIC TOOLS webpage.

Access to dealer page via trade platforms: Bloomberg, MarketAxess, Tradeweb, Bondvision, Thomson Reuters.

Further information: <http://www.barx.com>.

ANALYTIC TOOLS

Service: Indicative prices for Bonds and access to analytical tools

Data available: Examples of analytics tools provided are: the ability to chart historical analysis, plot bespoke curves and perform regression analysis using the Relative Value Interactive (RVI) tool.

Update frequency: End of day mid-prices

Further information: For an overview and demo of BARX Fixed Income please click on the following link: <http://www.barx.com>.

Contact information:

BARX Fixed Income Services: +44 (0)20 7773 6291

barxfisupport@barcap.com

Citigroup

Citi's updated proprietary single dealer platform, Citimarkets.com, has been launched during 2010 and will enable clients to access end-to-end solutions that allow them to monitor the market with uncompromising global product access.

Service: Trade execution, historical data, live pricing

Trading method: Request for quotes

Sector coverage: Fixed-income, strong presence across all asset classes, including derivatives

Data available:

- *Pre-trade prices:* executable
- *Other information:* As well as offering liquidity in European bonds, Citimarkets offers a full suite of complementary and globally recognised and award-winning services ranging from research, commentary and analytics through to its leading cross-border securities services.

Access to dealer page via trade platforms: Bloomberg, Tradeweb, BondVision and Reuters.

Further information: <https://icg.citi.com/index.jsp>

Contact information:

Citigroup Centre, 33 Canada Square,
Canary Wharf London, E14 5LB

Crédit Agricole CIB

Credit Agricole CIB is an active dealer in all major bond electronic distribution venues for both credit and rate products: Tradeweb, BondVision, Market Axess, Bloomberg. Its global bond offer is available on its Bloomberg's single dealer page CALY. Credit Agricole CIB also offers to its clients single dealer execution for structured notes and interest rate swaps on its proprietary platform CALM (Credit Agricole Live Markets).

Service: Real time pricing and trade execution.

Trading method: Click to trade, request for quotes, request for stream

Sector Coverage:

CALM: Secondary trading for structured notes, interest rate swaps.

CALY via Bloomberg

EUR and USD denominated Bonds: Government bonds and bills (Austria, Belgium, Germany, Greece, Finland, France, Holland, Ireland, Italy, Portugal, Spain, US), inflation linked bonds, supranational, agencies, government guaranteed bonds, covered bonds, corporate floating & fixed rate bonds, emerging markets bonds, Asian credit, high yield bonds, Latin America and US Corporate Bonds; interest rate swaps.

Tradeweb: Government, inflation linked, supranationals and agencies, interest rate swaps, covered and credit bonds.

BondVision: EUR Government bonds, inflation linked, supranationals, agencies, covered bonds.

Market Axess: Corporate bonds, emerging markets and high yield bonds, covered bonds

Credit Suisse

LOCUS

Locus provides a live, interactive, multi-product platform for clients, sales, trading and research within fixed income. Locus delivers a combination of live market data, relative value monitors, calculators, the ability to analyse and track trade ideas and collaborate using application specific instant messaging and email. Users have access to Credit Suisse's view of the market and trade ideas, as well as the ability to customise their own market views and set up trade performance monitors.

Service: Trade execution & integrated information services

Trading method: Request for quotes

Sector coverage: Among the Corporate & Credit Products: Investment grade domestic corporate and sovereign debt; short-term securities such as floating rate notes, both US and European commercial paper and non-convertible preferred stock. The products traded also include Agencies, Medium Term Notes, Bank and Finance, Preferred Stocks, Commercial Paper, Projects/Slobs, Floaters, Utilities, Industrials, Yankees, and Eurobonds.

Data available:

- *Pre-trade prices:* executable
- *Post-trade prices:* end of day mid-prices through ANALYTIC TOOLS (see below).
- *Other information:* see the "specific tools" section

Access to dealer page via trade platforms: Bloomberg

Specific tools:

RESEARCH AND ANALYTICS (Fixed income tab)

Research & Analytics (R&A) is the web application for Credit Suisse's clients. It provides easy access to both Equity and Fixed Income research and analytics. The web site is organised under the tabs listed across the top of the page. These provide access to common areas of interest such as FX, Commodities, Economics, and Strategy, with the more specialised items under the Fixed Income or Equities tabs.

The Fixed Income tab provides access to research on interest rate products, credit, securitized products, global leveraged finance, and fixed income strategy. R&A's personalised notifications issue alerts for new research publications, both by email and via the Notifications page, and offer a diverse set of criteria to set notifications or search the contents on the site, including by analyst, industry, country, individual, company, periodical and/or language.

GLOBAL RELATIVE VALUE ANALYSER

The Global Relative Value Analyser (GRVA) is a fixed income securities search engine, which fully integrates with Credit Suisse's research platform. An investor can define the selection process by currency, credit rating, industry sector, or maturity sector across

liquid fixed income indices in US dollar, euro, sterling, Swiss franc, or yen. The results page lists the bonds specified by the selection process and provides spread to LIBOR levels in a common chosen currency creating a basic cheap/rich comparison.

FIXED INCOME LIQUID INDICES

Credit Suisse has developed the following suite of fixed income bond indices:

- 1) *Global Government Bond Indices:* U.S. Treasury Index (USGI) ; U.S. Inflation Protected Treasury Index (TIPS); U.S. TBills Index (TBILL); Liquid U.S. Agency Index (LUAI); U.S. Government Guaranteed Index (GGBI); European Government Index (EURGI); European Inflation Linked Index (EILI); U.K. Government Bond Index (UKTI); U.K. Inflation Linked Index (GILI); Mexican Bond Index (LOBOS) ; Sovereign Bond Index (SBI); Japan Government Bond Index (JGI); Global Government Index (GGI).
- 2) *Global Corporate Bond Indices:* Liquid US Corporate Index (LUCI); Liquid European Corporate Index (LEI) (€, £); Liquid Swiss Index (LSI); Liquid Japanese Corporate Index (LJCI); Latin American Corporate Index (CS- LACI); Emerging Market Corporate Index (CS- EMCI); Covered Bond Index (CBI) ; Bank Capital Index (BCI) (€, £); Asian Bond Index (CS- ABI); LUCI Crossover Index (XOVER); Euro Crossover Index (EU XOVER)
- 3) *CDS Indices:* US Credit Default Swap Index (US-CINDI); European Credit Default Swap Index (EU-CINDI); Japanese Credit Default Swap Index (JP-CINDI); Emerging Markets Credit Default Swap Indices (EM-CDSI)
- 4) *Structured Product Indices:* Fortinbras Index (CSFN); FX Carry Indices (ROCI); FX Factor Indices (FXFT); CS Volatility Index (CSVI); CS Adaptive Volatility Index (CSAVI); TBA Mortgage Index (MTGI)

PORTFOLIO RISK +

Credit Suisse's PortfolioRisk+ is a full-distribution portfolio risk system, allowing investors to measure the forward-looking risk of a portfolio as a whole and the contribution of each holding to overall risk. Employing a new technology for credit risk management, PortfolioRisk+ is easily adaptable to the requirements of total-rate-of-return investors, leveraged investors, CDO managers, insurance companies, and pension funds. It can handle default risk as well as mark-to-market risk. The default risk calculator can run the CreditRisk+ model or the more common Gaussian copula model employed by Credit Metrics and KMV.

The mark-to-market model employs Credit Suisse's proprietary [CUSP®](#) model to assess the probability of losses for individual issuers. Using cutting-edge mathematical approaches, PortfolioRisk+ shows users how tail risk interacts in a portfolio, gauges how each holding adds to or detracts from portfolio diversification, and identifies trades that can reduce portfolio risk. Additionally, PortfolioRisk+ can optimise portfolios to reduce risk and improve prospective returns, taking into account users' risk aversion, index-tracking requirements, cost of funding, and exposure constraints. Further applications include analysis of counterparty default risk and curve risk analysis.

ARBITRAGE PRICING SPREAD

Credit Suisse's APS model compares the value of a cash bond with that of the CDS, based on the principle of no arbitrage.

TECHNICAL ANALYSIS

Technical Analysis combines classic charting techniques with the application of select statistical indicators. The broad product range encompasses six dailies, two weeklies and a variety of ad hoc publications.

Technical Analysis has developed an Online Training program for new and existing clients. The course, with its integral Q&A sessions, teaches that by analysing price action it is possible to identify future trends and to finesse the time and location of trades

Further information:

https://www.credit-suisse.com/investment_banking/research/en/client_applications.jsp

Deutsche Bank- Autobahn

Deutsche Bank provides customers with access to deep liquidity and market insight 24 hours a day. Their ecommerce experts work closely with clients to provide truly customised solutions that benefit from real time pricing and instant execution on over 7,000 bonds across 25 currencies, and choose immediate execution or leave limit orders – a service exclusive to Autobahn. Fully customisable search options, a dynamic search engine with the ability to create personal cross market watch lists, as well as full STP, make trading decisions on Autobahn efficient, convenient and transparent.

Service: Trade execution and access to Deutsche Bank's analytics & published content.

Trading method: Request for Quote / Request for Stream / Click to Trade / Good until Limit Orders / Unwinds

Sector coverage: More than 7,000 securities in 25 currencies. Among the Fixed Income products: Global Government Bonds; Agencies, Sovereigns and Supranationals; Eurobonds; Covered Bonds; Inflation Bonds; Structured Notes; Corporate and Financial Bonds; Emerging Markets; Local Domestic Bonds.

Data available:

- Autobahn delivers competitive pricing with automated execution, as well as trading expertise and decision support intelligence through Insight on Autobahn (see below)
- Access to dealer page via trade platforms: Autobahn pricing and liquidity is also available from a number of third party trade platforms including: Bloomberg, Reuters, Tradeweb, Market Axess and BondVision.

Insight on Autobahn

Autobahn Insight contains charting, analytics and pricing tools and offers easy access to the full breadth of research and analytics services provided by Deutsche Bank Global Markets, including:

- Asset class summary views (market wraps, research, benchmark reports, trader commentaries)
- Aggregated pricing, analytics and charting tools for each asset class
- Advanced charting, including user annotation and export functions
- Integrated economic events calendar for significant company releases

Further information: Website: <https://autobahn.db.com>

Contact details: London +44 207 547 0220; Frankfurt +49 69 910 30201;
New York +1 212 250 050

Goldman Sachs

Service: No single dealer page is available. GS contributes European bond pricing to Bloomberg's AllQ and Markit Group's indicative End of Day service.

Trading method: Goldman executes electronically over Bloomberg, MarketAxess and Tradeweb in Europe

Product coverage: European Corporate bonds, Covered Bonds, and Financials

Data available:

- *Pre-trade:* GS contributes indicative pricing to Bloomberg's AllQ platform and to Markit's end of day service across all products (corporate, financial, sovereign, covered etc)
- *Post Trade:* Goldman Sachs trade reports via TRAX on an end of day basis

Access to dealer page via trade platforms: No Single Dealer page is currently available

Specific tools:

Further information:

Contact information:

Grant Wilson – Grant.Wilson@gs.com 020 7051 8589

Wayne Leslie – Wayne.Leslie@gs.com 020 7774 0919

Serene Saliba - Serene.saliba@gs.com 020 7774 2356

J.P. Morgan

J.P. Morgan provides comprehensive, integrated and tailored execution, risk management and research services to its global client base across all asset classes.

J.P. MORGAN EXPRESS/ MORGAN MARKETS

Service: Global electronic execution service with Pre-Trade/ Price Discovery, RFQ and order based trade execution, and a comprehensive research portal. J.P. Morgan's research and market data portal MorganMarkets provides a single point of access to the firm's award winning research across all asset classes and regions, including market data, analytical tools, trader commentary and research.

Product coverage: Comprehensive global coverage including government bonds, supranationals, high grade and high yield corporate bonds, distressed/ illiquids, structured notes, emerging market bonds, commercial paper and other short term fixed income products.

Data available:

Pre-trade prices: Real-time, executable or indicative prices and market commentary from J.P. Morgan's global trading desks are available through J.P. Morgan Express and/ or MorganMarkets.

Post-trade prices: firm's indicative and closing prices are available through MorganMarkets.

Methodology: A wide range of data and analytical tools are available for clients for pricing, valuations, portfolio analysis and charting.

Access to dealer page via trade platforms: Access to the bank's liquidity in the fixed income space is also available through a range of proprietary or 3rd party electronic channels, including Bloomberg, BondVision, MorganDirect, TradeWeb, and MarketAxess.

Further information:

<http://www.jpmorgan.com/pages/jpmorgan/investbk/solutions/fixedincome>

Contact information:

Petra Bukhalenkova – Petra.J.Bukhalenkova@jpmorgan.com - 020 7325 9277

Morgan Stanley

Service: No single dealer page for EU credit is currently available. MS contributes European bond pricing to Bloomberg, Tradeweb, MarketAxess, Reuters and some exchanges (e.g. Euronext).

Trading method: Both RFQ and click-to-trade depending on the platform:

- Bloomberg:
Page MSFI shows bonds by sector and maturity. Clients most often access prices on a specific bond via a multi quote function <ALLQ>. MS offers click to trade and Request for quotes in Eur, GBP and USD Investment Grade corporate, High Yield and Emerging market bonds.
- Tradeweb & Market Axess:
A very similar product line to BBG and again have click to trade.
- Matrix:
Single dealer platform offering execution, trade ideas, research, analytics, charting and chat facilities. Available for US credit, to be rolled out to European and Asian credit.

Product coverage:

Investment grade: LM Corporates, Euro Agency & Covered, Euro IRS, Structured products.

Royal Bank of Canada (RBC)

Service: No single dealer page is available. RBC contributes European bond pricing to Bloomberg, Tradeweb, Bondvision, MarketAxess and Markit Group's indicative End of Day service.

Trading method: RBC executes electronically over Bloomberg, MarketAxess, Bondvision and Tradeweb.

Product coverage:

- Investment Grade - Government Bonds (Bills, Bonds, Strips and Inflation Linked Bonds), Supra's, Sovereigns, Agencies, Prefs
- Covered Bonds
- High Yield
- Structured Finance Bonds

Data available:

- *Pre-trade prices:* RBC contributes executable pricing to Bloomberg's AllQ platform (across all Investment Grade products – Government, corporate, financial, sovereign, etc) and Tradeweb PLUS for Government Bonds. RBC contribute indicative pricing to Bloomberg's AllQ, Tradeweb and MarketAxess across all products (Sovereign, corporate, financial, high yield, structured finance etc) plus Markit's end of day service.
- *Post-trade prices:* RBC contributes prices to Markit's end of day service.

Access to dealer page via trade platforms: No single dealer page is currently available for Bonds but a single dealer EUR Interest Rate SWAP page is provided on Bloomberg - RBCI

Contact information:

Katherine Krebsler (katherine.krebsler@rbccm.com 0207 029 0108)

Warren Butler (warren.butler@rbccm.com 0207 029 7459)

Alice Beavan (alice.beavan@rbccm.com 0207 002 2538)

UBS

The UBS Client Portal provides access to insight, advice and execution capabilities and features up-to-the-minute data and intelligence, as well as sophisticated trading, post-trade and analytical tools.

UBS CLIENT PORTAL

Service: Analytical tools, research, insight, advice and execution capabilities

Trading method: Request for quotes

Sector coverage: Equities, Fixed Income [e.g. Investment Grade, Covered Bond, High Yield, and Structured Finance bonds.], FX and Investment Banking products.

Data available: Cross asset class research and trade ideas, market commentary and technical strategy. Portfolio analysis tools

Specific tools: UBS Delta (Best Tech Vendor Risk Management, Pricing Analytics, Credit Awards 2009, Best Prop Technology, Buy-Side Technology 2007).

UBS Delta is an analysis and risk management system that enables measurement of risk and performance across fixed income, commodities and equities. The product support is provided by market practitioners with extensive experience of fixed income and equities trading.

UBS Delta's reporting tools provide exposure, actuarial, risk, performance and statutory reporting in flexible file formats. It's available over the internet and the automatic portfolio upload and open architecture with multiple third party data and analytics feeds easily integrate with clients existing systems.

UBS offers training and workshops in support of the application, contact details are below.

Access to dealer page via trade platforms: UBS are present on a number of external vendor platforms including Tradeweb, Market Access, Bloomberg and Reuters which are multi dealer accessible, providing composite prices and dealer level information. Request for Quotes are initiated through the platforms by clients. More liquid products are available on a click to trade basis.

Further information:

More information is available at <http://www.ibb.ubs.com/mc/ubsdelta/products.shtml>

Client Portal

The UBS Investment Bank Client Portal brings the trading floor to client desktops with the latest market news, analysis, research and market strategy direct from traders, salespersons and research analysts. This content rich web site also provides a wide range of trading and post-trade tools and services for - Equities, Fixed Income, FX and Investment Banking.

Further information: https://clientlogin.ibb.ubs.com/AuthSSO/html/request_login.html

UBS also offers a new and innovative multi-client-to-client trading platform:

UBS PRICE IMPROVEMENT NETWORK - FIXED INCOME

In 2010 UBS launched the Price Improvement Network - a new multi-client-to-client trading platform for USD Corporate Bonds. Aggregating flow from institutional clients, retail networks and 3rd party broker dealers, the platform offers approx 12,000 live prices with live depth from approx 50,000 orders at any point in time. .

Contacts:

Stu Taylor +44 20756 87652 (Global)

Lisa Toth +1 203 719 4704 (US)

Yen Ling Tan +41 44 239 82 16 (Europe)

1.3 RETAIL PLATFORMS AND OTHER RETAIL DATA SOURCES

1.3.1 PLATFORMS

Bondscape

Bondscape is the bond trading platform launched by Winterflood Securities and Barclays Capital and the addition of HSBC as a price provider has further strengthened the platform. Bondscape.net has evolved alongside the increasing retail appetite for fixed income instruments, creating a free, robust, transparent platform still firmly focused on the retail investor. The platform routes, on average, over 94,000 trades per year, valued at over £1.5bn.

Trading method: Firm quotes

Participants: Professional investment advisors

Price contributors: 3 market makers (Barclays, HSBC, Winterflood Securities)

Minimum trading size: No. Please be aware that some bonds can have minimum tradable sizes as set by the issuer at time of launch, most of the Bonds on Bondscape are 1,000 nominal, but some may be 10,000 and 50,000.

Charges: Access via the Internet, Proquote, Fidessa or Thomson Reuters; free of charges.

Sector coverage: Government bonds, investment-grade corporate and agency securities (over 200 tradable products).

Data available:

- *Pre-trade prices:* Executable.
- *Post-trade prices:* Closing price information available at the end of day on the web site.
- *Other information:* Core bond information includes prices, coupon, yield and maturity.

Further information: <http://www.bondscape.net/index.shtml>

Contact information:

Bondscape, 5 The North Colonnade
Canary Wharf, London, E14 4BB, United Kingdom
xraEcommsalesassista@barclayscapital.com

Borsa Italiana - MOT

MOT (*Mercato obbligazionario telematico*) is the electronic retail bond market operated by Borsa Italiana, part of the London Stock Exchange Group. In addition, 2009 saw the introduction of a new market segment, ExtraMOT, which was added to offer even great flexibility and diversity for users of the Italian retail bond market. ExtraMOT is dedicated to the trading of corporate bonds of Italian and foreign issuers already admitted to listing on other regulated markets of the European Union. The MOT market was established to facilitate private investor's access to the bond markets, providing easily understandable and transparent operating procedures. The Borsa Italiana MOT market segments comprise the most liquid and heavily traded retail fixed income market in all of Europe. In 2010, there were over 3.8 million trades executed on the Domestic MOT and EuroMOT market segments, representing total annual turnover of around €230 billion. At the end of 2010, there were over 720 bonds listed on the Italian electronic bond market with over 220 new bonds listed and admitted to MOT's electronic order books in that year alone.

Trading method: Firms quotes

Participants: Mainly Italian and EU banks and investment firms

Price contributors: MOT and ExtraMOT are order driven markets, i.e. all market participants can be price contributors. Market making activity is not mandatory in order to have a bond listed. At the moment seven market participants are formally active as market maker.

Minimum trading size: from 1,000 € to 100,000 € according to the nominal amount set on the product conditions of each bond

Charges: from 0,4 € to 0,9 € per trade according to annual volumes for MOT; 1 € per trade for ExtraMOT

Product coverage: MOT comprises DomesticMOT offering Italian Government bonds and corporate bonds for the domestic markets mainly issued by banks and EuroMOT, providing access to Eurozone sovereign issuers (mainly German and French), Supranational (EIB, KfW, IBRD) and a range of Eurobonds issued by Italian corporate (Fiat, Unicredit, Telecom Italia). ExtraMOT comprises Eurobonds of Italian and foreign issuers (i.e. Deutsche Telekom, General Electric)

Data available:

- *Pre-trade prices:* executable
- *Post-trade prices:* real time

Distribution through other vendors: market data are provided to the main info providers

Contact information:

Alessia Baccalaro (Head of Fixed Income and Securitised Derivatives Listing)

Borsa Italiana, London Stock Exchange Group

alessia.baccalaro@borsaitaliana.it

Tel. +39.02-72426-276

EuroTLX

EuroTLX SIM S.p.A. manages the Multilateral Trading Facility (MTF) EuroTLX, targeted to the non-professional investors' needs and mainly focused on fixed income securities.

Trading method: Central Limit Order Book

Participants: Dealers and retailers. Nowadays, more than 80% of the Italian retail network banks are connected to EuroTLX market.

Price contributors: 4 Market Makers (Unicredit, Banca IMI, MPS Capital Services, BNL-BNP Paribas) and 8 Specialists (Banca Akros, Banca Popolare di Vicenza, Banco Desio, Centrobanca, Deutsche Bank AG, Equita SIM, Morgan Stanley & Co. International plc, Veneto Banca).

Three are the typologies of Liquidity Providers present on the market:

Market Maker (type A and type B) and Specialist.

Minimum trading size: Not below the minimum trading lot (which is usually equal to 1,000 EUR).

Charges: from 0,35 € to 1,50 € per trade according to annual volumes and to instrument type.

Sector coverage: Most sectors, including government (approximately 400 bonds), investment-grade and high-yield corporate (approximately 550 bonds), agency, supranational (approximately 150 bonds) and emerging markets, for a total of more than 3,400 securities.

Data available:

- *Pre-trade prices*: Firm prices.
- *Post-trade prices*: 20' delayed on the public website, realtime via Info providers or via the market
- *Other information*: Product sheets containing basic bond description information, including ISIN, coupon, issuer, maturity and rating.

Vendor distribution: Pricing information available on third-party data providers in real time, such as Bloomberg, Reuters, SunGard, Telekurs, and InfoVendor, and local providers like Sole24Ore and MFSat.

Further information: <http://www.eurotlx.com/index.php>

Contact information:

EuroTLX SIM S.p.A.

Via Cavriana, 20

20134 Milano

Mr. Luca Bandinelli, Corporate Communications

London Stock Exchange: ORB

In February 2010, the London Stock Exchange launched its new electronic Order book for Retail Bonds (ORB). An initial offering of gilts and of 'retail-size' corporate bonds (tradable in denominations of £1,000 or similar) were made available on ORB in response to strong private investor demand for easier access to trading fixed income. Since then the number of bonds available on the platform has continued to grow and the ORB now offers a comprehensive range of UK corporate, gilts and supranational bonds all of which are supported by continuous transparent pricing throughout the trading day. The electronic order book for retail bonds offers an open model where dedicated market makers are able to enter named, electronically executable quotes and all other market participants are able to use limit orders and market orders, thereby offering the potential for more efficient price discovery.

Market makers are committed to showing two-way on-screen tradable prices and all ORB bonds are supported by a least one market maker. Because of the greater transparency, private investors in the UK are now able to see prices on-screen and trade in bonds in a similar way as they currently do for shares.

Trading method: Electronic order driven platform supported by market makers

Participants: Retail brokers, market makers, investment managers

Price contributors: Dedicated market makers in addition to informal liquidity providers

Minimum trading size: £1 for gilts, for corporates as determined by the prospectus, but most ORB corporates have trading denominations of around £1, 000 with some as low as £100

Charges: 90 pence per executed order

Product coverage: Gilts, UK Corporates, Supranationals

Data available:

- *Pre-trade prices:* executable prices provided by market makers
- *Post-trade prices:* real-time

Distribution through other vendors: data distributed as part of UK domestic feed, available through all major quote vendors

Contact information:

Gillian Walmsley

Head of Fixed Income Products

London Stock Exchange

gwalmsley@londonstockexchange.com

Tel. +44 (0)20 7797 3679

www.londonstockexchange.com/retail-bonds

1.3.2 OTHER DATA SOURCES

InvestinginbondsEurope.org

InvestinginbondsEurope.org is the result of a unique partnership between the Securities Industry and Financial Markets Association (SIFMA), the SIFMA Foundation for Investor Education; the Association of Financial Markets in Europe (AFME), their members; and other European market makers. Together, some 40 organisations are contributing resources, expertise, bond prices, market and ratings data; indices; important economic indicator and benchmark rate data, commentary and analysis, and educational content. There are over 100 sources of data on www.InvestinginbondsEurope.org, which is a non-profit, non-commercial free resource for individuals at every point on the investing spectrum. The site, containing content in five languages, offers valuable educational information on bonds and the bond markets, bond price data, important economic indicators and market indices, and news and market commentary.

www.investinginbonds.com is the sister site of www.investinginbonds.com, a source of information on the US bond markets which includes free, real-time bond price information and a wide variety of market data, news, commentary and information about bonds. The www.investinginbonds.com site has been ranked as a top investor site for bonds by Money, CNBC, Forbes and others and is continually enhanced and updated with new data, information and features.

BondMarketPrices.com

BondMarketPrices.com is a free service for private (retail) investors. The service is available to private investors that are not based in the USA. It provides useful information on what a bond is; a glossary of commonly used bond terminology; useful links for private investors and pricing data for certain bonds (securities).

The site provides users with: end of day average closing bid and offer quotes and the high, low and median prices for trades reported to TRAX that day. TRAX is Xtrakter's trade matching, settlement facilitation and regulatory reporting system available to the capital markets. The site also provides average daily volume data giving quantity and number of trades for given securities. The service is easily accessible and today's data is available at the end of the trading day.

Users of the site can filter search results by Security category (International, Domestic etc.); Security type (Straights, FRNs etc.); Issuer classification (Corporate, Sovereign etc.) and Currency. Bonds can also be selected by specifying the beginning of the Security name.

Additional market information to retail and academia can also be found on <http://www.xtrakter.com/bondinvesting.aspx>

2. OVER-THE-COUNTER

2.1 TO DEALER

BGC Partners

BGC Trader is BGC's multi-asset, integrated voice and electronic price execution platform for the inter-bank and broker community. BGC Trader is fully integrated with a choice of either voice or electronic access to support multiple fixed income products.

London

Product coverage: Convertibles, Corporates, Eurobonds, Structured credit

Contact information: Tel: + 44 (0)20 7894 7700

Paris

Product coverage: Corporates; Credit Derivatives; Eurobonds

Contact information: +33 1 5580 5389

New York

Product coverage: Convertibles; Corporates; Emerging Markets; Eurobonds; Structured Credit

Contact information: + 1 646 346 7000

Nyon

Product coverage: Structured Credit

Contact information: +41 22 994 8001

Singapore

Product Coverage: Structured Credit

Contact information: +65 6510 2300

Tokyo

Product Coverage: Credit Derivatives; Eurobonds

Contact information: +81 3 3519 9165

ICAP Voice Broking

ICAP operate both Electronic and Voice broked businesses under the same company. The Market Data provision looks to utilise data sources from both venues where ever possible. Please refer to paragraph III for more information on ICAP's integrated sets of market data.

Contact information:

Europe, Middle East, Africa +44 207 000 5000

Contact person: Wim De Gheest (Broker)

E-mail wim.degheest@icap.com

Tradition Fixed Income

Tradition is the interdealer broking arm of Compagnie Financière Tradition (CFT). The world's third largest interdealer broker (IDB) in OTC financial and commodity related products, with a presence in 27 countries and 12 headquarters in Europe: [Amsterdam](#); [Brussels](#); [Copenhagen](#); [Frankfurt](#); [Lausanne](#); [Lisbon](#); [London](#); [Luxembourg](#); [Milan](#); [Moscow](#); [Munich](#); [Paris](#).

Acting as a marketplace and an intermediary, CFT facilitates transactions between financial institutions and other professional traders in the capital markets. These transactions vary in scale and liquidity, from the simplest to the most sophisticated, the most liquid to the most illiquid.

Trading method: Primarily 'voice' based.

Sector coverage: Among the Fixed Income products: Convertible Bonds; Credit Bonds; Emerging Markets; Eurobonds; European High Yield; Floating; Illiquid Debt; Covered Bonds; Mortgage Backed Securities.

Data available: Tradition provides real-time OTC prices in many of the world's fastest moving markets, including hard-to-find prices in developing products and regions.

Update frequency:

- *Real Time* via its new 'white board' technology Tradition live prices are collected and published internally. Clients have access to the information through Tradition data service on its website. This information can be distributed externally on a case by case basis.
- *End-of-day and historical* Please, refer to section III, letter a)

Price methodology: Pricing is dependent on the type of bond traded. It is generally assumed to be based on a spread on one or more of the following component parts: cash, futures, credit (country, sector etc), CDS, equities.

Distribution through other vendors: Interactive Data Corporation has recently announced that it will carry Tradition OTC data. (<http://www.automatedtrader.net/news/data-news/52496/interactive-data-to-distribute-tradition-otc-data>)

Further information: www.tradition.com

Contact information:

Weblink to the 12 European desks:

<http://www.tradition.com/contact-us/europe.aspx>

Dominique Velter (Dir of Strategic Marketing)

Compagnie Financière Tradition

Rue Langallerie 11

Lausanne, Vaud, 1005

Switzerland

Tel. +41213435290

Email: Dominique.velter@tradition.ch

Simon Crees (Head of Data Sales)

Tradition

Beaufort Hse

15 St Botolph

London EC3A 7QX

Tel. +44(0)20 7198 5914

Email: simon.crees@tradition.com

Matthew Evans, tel. +44 (0)20 7198 1540

Email: matthew.evans@tradition.com or datasupport@tradition.com

Tullett Prebon

As a major global intermediary for the IDB market, Tullett Prebon provides its electronic platforms that complement its voice brokerage operations. Its brokers are linked to thousands of dealing rooms in 23 countries, collecting orders and facilitating trades on behalf of their clients.

Tullett Prebon Brokerage:

Globally 1600, over 200 desks.

Americas: over 600 brokers (54 desks)

EMEA: over 700 brokers (London – 76 desks; rest of Europe – 17 desks)

Asia Pacific: over 300 (62 desks)

Contact information:

Tullett Prebon plc

155 Bishopsgate

London EC2M 3TQ

Tel: +44 (0) 20 7200 7300

2.2 TO CUSTOMER

Barclays Capital

Barclays Capital provides an integrated, full service global Trading, Sales and Research platform with coverage across all bond sectors.

Product coverage: Corporate Bonds (High Grade, High Yield and Distressed); Financials; Covered Bonds; Government Bonds, Commercial Paper; Emerging Markets; Agencies; Asset & Mortgage Backed Securities ; Municipal Bonds ; Exotic Structured Notes ; Inflation linked bonds; Exchange-Traded Funds; Convertible Bonds.

Country coverage: Sales coverage in all key European countries/markets with trading primarily located in London, Frankfurt and Zurich.

Further Information:

Head of European Credit Trading: Conor Brown +44 (0)207 773 9333

Head of European Credit Sales: Brett Tejpaul +44 (0)207 773 8631

Head of European Fundamental Credit Research: Rob Jones +44 (0)207 773 9857

Crédit Agricole CIB

Debt & Credit Markets is a global product line organised around four divisions. It has geographical presence in all major financial centers and dedicated trading hubs in London, Paris, New York, Hong Kong and Tokyo.

The four divisions are:

1. Debt Capital Markets Origination: providing debt capital markets solutions for investment grade, high yield and emerging markets borrowers.
2. Global credit sales and trading: incorporating the bond syndicate, secondary trading and global distribution teams. This department is in charge of the distribution to end-investors, dealing with bonds and vanilla credit derivatives.
3. Securitisation: origination and structuring teams offering funding solutions based on assets ranging from trade/financial receivables to single assets. Deals are refinanced on the short term capital markets (Asset Backed Commercial Paper) or medium/long term capital markets (Asset Backed Securities).
4. Risk and operations manages banking books and conduit management functions and securitisations programs.

Product coverage: Investment grade, high yield and emerging markets. In particular:

- 1) Government bonds, T-Bills, US Treasuries, Supranationals, Agencies, Government Guaranteed & Covered Bonds;
- 2) Corporate Bonds (Floating Rate Notes; Fixed Rate Bonds; Asian Credit; Emerging Markets; High Yield Corporates; Latin America Bonds; US Corporate Bonds; MTNs). Inflation Linked Bonds. Covered Bonds.

Country coverage/trading rooms: Crédit Agricole CIB has a network of 31 trading rooms around the world, of which five are liquidity centers: London, Paris, New York, Hong Kong and Tokyo. It offers its clients a strong positioning in Europe, Asia and the Middle East, a targeted presence in the United States, and additional entry points in other local markets.

Credit Suisse

Product coverage: Credit Suisse provides an integrated Trading, Sales and Research coverage across all bond sectors including Corporate Bonds (High Grade, High Yield, Distressed) and Commercial Paper.

Country coverage/trading rooms:

- 1) *Europe:* Credit Suisse provide a full range of investment banking services across the whole of Europe with a principal office in London and additional offices in Amsterdam, Frankfurt, Istanbul, Kiev, Madrid, Milan, Moscow, Paris, Vienna, Warsaw, and Zurich.
- 2) *Others:* Japan, non-Japan Asia, Australia, India, Canada, US

Contact information:

Head of European Credit Trading: Jonathan Moore +44 (0)207 888 2336

Head of European Credit Sales: Nicholas Kyprios +44 (0)207 888 2984

Head of European Fundamental Credit Research: Ben Booth +44 (0)207 888 1721

Head of European Credit Strategy: William Porter +44 (0)207 888 1207

Goldman Sachs

The sales and trading professionals at Goldman Sachs provide real-time insight to help clients formulate an execution strategy by proactively monitoring the capital markets, searching for pockets of liquidity and news that may require time-sensitive adjustments to execution strategy.

Product coverage: Fixed Income: European Corporate bonds, covered bonds, Sovereigns, Financials, Structured Products

Services: Voice & Electronic (Bloomberg, MarketAxess, Tradeweb)

Country coverage/trading rooms: EMEA (Trading resides exclusively in London)

Further information: <http://www2.goldmansachs.com/services/securities/execution-services/high-touch-sales-and-trading.html>

Contact information:

Grant Wilson – Grant.Wilson@gs.com 020 7051 8589

Wayne Leslie – Wayne Leslie@gs.com 020 7774 0919

Serene Saliba - Serene.Saliba@gs.com 020 7774 2356

J.P. Morgan

J.P. Morgan is a global leader across credit markets, rate markets and securitized products. The firm's fixed income offering includes:

- Credit Trading and Syndicate
- Rates
- Securitized Products
- Fixed Income Exotics and Hybrids
- Public Finance
- Sales, Marketing and Distribution
- Foreign Exchange
- Emerging Markets

Credit Trading and Syndicate

J.P. Morgan is a premier market maker in credit derivatives, corporate bonds and secondary loans and is a leader in terms of volume traded, issuers traded and investor relationships. The firm provides financial assets and liquidity for banks, insurance companies, finance companies, mutual funds and hedge funds. Traders, salespeople and research analysts work collectively to generate ideas and make secondary markets in high grade bonds/CDS, high yield bonds/CDS, loans/LCDS, distressed loans and bonds, preferred stock, trade claims, indices, short-term fixed income, flow exotics, private placements and illiquids. Global Credit Syndicate works in partnership with origination, capital markets and the secondary credit trading desk to combine superior debt origination and structuring expertise with exceptional distribution and trading capabilities to a large investor base. Additionally, Credit Trading offers a suite of credit protection and liquidity solutions, including Receivable Puts, Lease Puts, Alternative Letters of Credit (ALOCs), Claims Monetization (e.g., Bankruptcy, SIVs, Auction Rates and other illiquid claims), as well as others.

Securitized Products

J.P. Morgan originates, underwrites/securitizes and trades asset backed securities, including residential mortgage backed and asset backed securities, commercial mortgage backed securities, asset backed commercial paper conduits and asset backed securities originations.

Contact information:

Petra Bukhalenkova – Petra.J.Bukhalenkova@jpmorgan.com - 020 7325 9277

Morgan Stanley

Morgan Stanley's Fixed Income Division actively assesses and manages risk, trades securities and structures as well as executes innovative transactions in a fast-paced and constantly changing global market.

The team is divided into four groups:

- 1) Commodities
- 2) Interest Rate and Currency Products
- 3) Credit Products
- 4) Distribution

Product coverage:

The Corporate Credit Group (CCG) encompasses investment grade and high-yield bond and credit derivatives trading; structured credit trading, including baskets and synthetic CDOs; par and distressed loan trading; convertible bond trading and strategic and proprietary investments across multiple asset classes.

The Securitised Products Group (SPG) engages in a wide array of global activities such as structuring, underwriting and trading of collateralised securities. The team makes active markets and takes proprietary positions in the full range of asset-backed, residential mortgage-backed, commercial-backed and collateralised debt-obligation securities in both the cash and synthetic markets.

Royal Bank of Canada (RBC)

Product coverage:

- Investment Grade - Government Bonds (Bills, Bonds, Strips and Inflation Linked Bonds), Supranationals, Sovereigns, Agencies, Prefs; Covered Bonds (coming soon)
- High Yield
- Structured Finance Bonds,
- Structured Notes

Country coverage/trading rooms:

- Europe: London
- Others: Sydney, Hong Kong, Tokyo, New York, Toronto

Services: Voice and Electronic (Bloomberg, MarketAxess, Tradeweb, Bondvision)

Contact information: European Government Bond Trading – Diego Megia (Diego.Megia@rbccm.com 0207 029 7032) European Credit Trading – Narasim Iyengar (Narasim.Iyengar@rbccm.com 0207 029 7039]

UBS

UBS has a global presence in credit markets. Local sales teams operate closely with local trading teams to service clients on a regional basis. Operate in Structured and Flow products, across all sectors including Corporates, ABS, Financials, Covered and High Yield/Distressed, and operate in all key currencies.

Product coverage: Europe Credit trading covers cash, CDS and loan products. Sectors covered include Corporates, Financials, ABS, Swiss, High Yield and Distressed

Country coverage/trading rooms: Sales and trading locations in all key European markets. Trading is concentrated in London and Zurich

Further information:

European Head of Trading: Derrick Herndon +44 20756 72935

European Head of Sales: Emmanuel Duclos +33 1 48 88 31 50

B. PRE-TRADE PRICE INFORMATION PROVIDERS

BGCantor Market Data

BGCantor Market Data is a subsidiary of BGC Partners and responsible for the management and distribution of its benchmark data sets. BGCantor Market Data provides a wide variety of European Government Bond data through a network of distributors and channels.

Service: Parsing services, indices provider

Product coverage: Government bonds, investment-grade and high-yield corporate. Agency and supranational and other sectors also covered.

Data available:

- 1) Tradable cash and basis prices; Viewable hits and takes, and related volumes; U.S. Treasury, Fixed Income, Rates, Credit, FX.
- 2) Indices:
 - a) S&P/BGCANTOR U.S. TREASURY INDICES
BGCantor Market Data and Standard and Poor's have jointly developed a family of fixed income indices. Currently, U.S. Treasury Bond and U.S. Treasury Bill indices are available.
 - b) S&P/ BGCantor U.S. Treasury Bill Index is a broad, comprehensive, market-value weighted index that seeks to measure the performance of the U.S. Treasury Bill market. The Index undergoes a review and rebalancing on a weekly basis so as to keep the Index current with frequent borrowing by fixed income investors.
 - c) S&P / BGCantor U.S. Treasury Bond index is a broad, comprehensive, market value-weighted index that seeks to measure the performance of the U.S. Treasury Bond and Note market. The Index undergoes a review and rebalancing twice a month (semi-monthly) as opposed to monthly for other available indices, with the intent of keeping the Index current.

Sources: BGC Partners' OTC services and eSpeed

Distribution through other vendors: It is available via direct data feed and the Internet, and through vendors such as Bloomberg, Thomson Reuters, CQG, DTN, eSignal, and Infotec.

Update frequency: Real-time; Intraday, End-of-Day, On-Demand.

Further information: www.bgcantor.com

Contact information: New York: +1 212 829 4840; London: +44 207 894 8013
Chicago: +1 312 469 7491; Tokyo: +813 3519 9148; Hong Kong: +852 3477 7700
marketdata@bgcantor.com

Bloomberg Professional

Service: Parsing services, price aggregator, Mark-to-market and descriptive data provider.

Product coverage: 4.6 million fixed income securities including sovereign, corporate, US municipal, residential MBS, commercial MBS, asset-backed securities and emerging market debt.

Access: Anyone (dealers may limit access to dealer page).

Data available:

- 1) *Real-time composite price:* Bloomberg creates a real-time composite price from the Tradable prices contributed to Bloomberg. This is called the CBBT price and is available to all Bloomberg users. The prices (whether CBBT or from a particular dealer) can be seen on the Bloomberg terminal or extracted using a Bloomberg API. The data is bid/ask/mid pricing as well as end of day. This does not include information on traded prices.
- 2) *Mark-to-market:* Bloomberg also provides a “BVAL” price for Mark-to-Market valuations. This is a premium service using more sophisticated algorithms for calculating prices but useful in less liquid markets.
- 3) *Best Execution information:* captured for trades done electronically over Bloomberg:
 - Full Audit Trail (including cover price etc)
 - Cover Value – Comparison of price traded vs. next best price quoted
 - CBBT Value – Comparison of price traded vs. CBBT price at the time of trade.
- 4) *Other:* The Bloomberg is more than data; it provides a comprehensive suite of tools for calculating yield, spread, OAS and total return, and provides covenant information on more than 65,000 bonds. Also available are real-time monitors and over 4,100 yield curves enabling tracking and analysing of relative value opportunities around the globe. In addition to capital market offerings, Bloomberg provides not only coverage of terms and covenants on more than 5,000 syndicated and institutional loans, but also complete access to corporate actions and company fundamentals.

Price methodology:

- 1) consolidated prices are based on average price minimum of 3 contributors;
- 2) bond evaluation service based on peers, middle of the credit curve and yield curves;
- 3) other information sources distributed through Bloomberg determined by the source (see Iboxx, ICMA price service); platforms (MTS, Eurex trading platforms);
- 4) Bloomberg-evaluated prices.

Sources:

| <u>Info Provided to Bloomberg</u> | <u>Update Frequency</u> |
|--|---|
| Prices on the individual dealers pages | Generally posted without delay |
| Dealer quotes | Throughout the day |
| Consolidated prices | Intraday |
| Exchanges | Real time or minimal delay |
| Iboxx | See iboxx |
| ISMA (price service) | See ICMA |
| Platforms (MTS, Eurex trading platforms) | Real time or minimal delay |
| Bloomberg-evaluated prices. | When prices on comparable bonds change. |

Further information: <http://www.bloomberg.com/professional/>

INDICES

Service: Index provider (The FINRA/Bloomberg Active U.S. Corporate Bond Indexes)

Product coverage: U.S. Corporate Bonds

Access and Fee: FREE access on Bloomberg website.

Data available:

- 1) Total Return (Index) measures the total amount earned by owning a security over the time period. It incorporates the accrued interest on the bond during ownership, coupons paid out on the bond, and rise and fall of the bond's price. It is the most complete measure of the amount of money made on holding fixed income issues in the index.
- 2) Price (Index) is the weighted average Index price of all bonds in the index. Please see below for details.
- 3) Yield (Index) is the weighted average Index yield of all bonds in the index. Please see details below.
- 4) Change — Calculated as today's value less yesterday's value.
- 5) Volume — Total par value traded for all bonds in the index in millions of U.S. dollars - this is the total volume reported to TRACE and is not constrained by Disseminated Volume caps.

Source: The Indexes are comprised of the "active" (most frequently traded) fixed coupon bonds represented by FINRA TRACE, FINRA's transaction reporting facility that disseminates all over-the-counter secondary market transactions in these public bonds.

Update frequency: Indexes are updated after 5:30PM ET each business day. The indexes are rebalanced on a monthly basis.

Further information:

<http://www.bloomberg.com/markets/rates-bonds/corporate-bonds/>

Contact information

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Bloomberg L.P.
City Gate House
39-45 Finsbury Square
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CMA Quotevision

In late 2001 a group of credit specialists decided to improve the way that business was conducted in the OTC credit markets. Frustrated by the vast, disorganized flow of information and lack of transparency, they set up CMA to deliver innovative solutions. CMA combines independent pricing data with innovative technology solutions to deliver unprecedented transparency to OTC credit markets.

Service: Parsing service for middle & front office users.

Access: Subscribers.

Fee: £35,000 includes two positions, demo available.

Product coverage: corporate bonds, convertible bonds, government bonds, syndicated loans, ABX, CMBX, CDS, CDS Indices.

Data available: CMA parses email pricing runs and enables traders to view, organise and store OTC credit prices in real-time. Access to this high quality data enables front office users to research and analyse possible trading opportunities, make execution decisions with the most reliable information, and monitor the market and their positions in real time.

Middle-office can effectively use CMA Quotevision to conduct independent pricing review and analysis.

Price methodology:

- 1) Automated quote-parsing solution scans email messages and transforms them into useable structured information, readily accessible via an easy to use desktop application or Excel add-in. The service can be further integrated to update a client's in-house pricing and risk system.
- 2) All pricing is checked for accuracy using CMA proprietary validation and cleaning algorithms. Quotes that do not pass validation go to our experienced data editorial team for further review and cleaning. Reference data and parsing rules are continuously updated to recognize new

securities, tickers, entities and name changes resulting from corporate actions.

- 3) CMA Quotevision provides several interfaces for customers to integrate pricing data directly into their internal risk management and market data systems.

Sources:

- 1) Dealer pricing runs
- 2) CMA CDS composite pricing

Update frequency: real time

Further information: <http://www.cmavision.com/cmaquotevision>

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F: 0207 236 1963
Email marketing@cmavision.com

ICAP Market Information

ICAP's Market Information division is a leading source of original and authoritative over the counter (OTC) prices. ICAP was voted Best Data Provider (Broker) in a poll of financial services professionals at the 2010 Inside Market Data awards.

Service: Parsing services.

Product coverage: EU government bonds, agency, supranational, repo investment grade and high yield corporate, convertibles, financials, floating rates notes. In particular, concerning corporate:

- 1) corporate bonds
- 2) medium-term notes
- 3) commercial papers.

Access: Subscribers

Data available: Real-time market data

Sources and update frequency:

- 1) Real-time data: ICAP's global interdealer trading platforms.
- 2) End-of-Day: the data is based on ICAP global trading activity and includes complete order book and active trade data from ICAP's electronic [BrokerTec](#) platform, as well as unique, certified data from the ICAP GovPX service.
- 3) ICAP's unique historical market data packages include past electronic UST trading activity on the [BrokerTec](#) platform, and electronic spot FX trading on ICAP's award-winning [EBS](#) platform.
- 4) Further information:
<http://www.icap.com/market-commentary/market-information.aspx>

Contact information:

E-mail: icapinformationservices@icap.com

Americas: +1 212 341 9789

Asia Pacific: +612 9777 0878

Europe, Middle East, Africa: +44 (0)20 7000 5880

Markit

Markit is a leading, global financial information services company with over 2,000 employees. The company provides independent data, valuations and trade processing across all asset classes in order to enhance transparency, reduce risk and improve operational efficiency. Its client base includes the most significant institutional participants in the financial marketplace.

Markit was founded in 2001 as the first independent source of credit derivative pricing. Today, its data, valuations and trade processing services are regarded as a market standard in the global financial markets.

Markit's clients include hedge funds, asset managers, central banks, regulators, rating agencies and insurance companies. Markit provides round-the-clock support from our offices in London, New York, Dallas, Toronto, Amsterdam, Frankfurt, Luxembourg, Tokyo, Singapore, New Delhi and Boulder.

Markit provides a range of bond related pricing services including Markit Evaluated Bonds, Markit Bonds and Markit Convertible Bonds for end-of-day pricing and Markit iBoxx index pricing. Markit also provides parsing and valuations services for bonds.

Markit Quotes

Service: Markit Quotes is a real-time quote parsing service that extracts indicative and live over-the-counter (OTC) and cash pricing from email messages. The service provides portfolio managers, traders and risk managers with increased transparency and insight over the course of the day.

Product coverage: Markit Quotes parses email messages for twelve types of OTC quotes, including: bonds (both corporate and government), convertible bonds, indices, CDS, loans, tranches, switches, rolls, recoveries, ABS, ABCDS and variance swaps.

Access: Subscription

Fee: On request

Data available & price methodology: Prices are extracted from the thousands of messages that active market participants receive each day. These messages are parsed and scrubbed by Markit in near real-time. The result is consistent price data that can be used for real-time market indications, idea generation and analysis

Update frequency: Real-time daily

Further information:

<http://www.markit.com/quotes>

Markit Bonds / Markit Convertible Bonds

Service: Price aggregator.

Product coverage: Corporate, government, sovereign and agency bonds across the investment grade and high yield universe. Markit Bonds is an independent pricing service which provides subscribers with daily composite and individual contributor level pricing on approximately 12,000 bonds. A separate service covering convertible bond composite pricing is also available

Access: Subscribers (e.g. sell-side, hedge funds, asset managers, central banks, regulators and insurance companies).

Fee: Different subscription levels are available depending on whether subscribers need access to the full universe or to a limited portfolio only.

Data available: The subscription includes individual composites, par asset swap spread and Z-Spread for each contributed price. TRACE data covering secondary market transactions in the US corporate bond market is also provided alongside the composite prices

Price methodology: Markit's pricing, reference data products and services use contributions from global institutions. Data quality tests are run against each contribution in order to provide an accurate, reliable data set. Composite prices are produced after prices failing any one of the data quality tests have been excluded. Composite bond prices are built where there are at least three contributors to that composite.

Source: The Markit Bonds service includes contributions from major sell-side market makers.

Update frequency: daily

Further information:

<http://www.markit.com/bonds>

<http://www.markit.com/convertible-bonds>

Markit European ABS Pricing

Service: Price aggregator

Product coverage: European and Australian asset-backed securities (ABS) are covered including RMBS, CMBS, Auto Loans/Leases, Credit Cards, CLOs and other securitised structures. Coverage ranges across the issuing countries in Europe, including the United Kingdom, Ireland, Spain, France, Germany, Portugal and the Netherlands.

Access: Subscribers (e.g. sell-side, hedge funds, asset managers, central banks, regulators and building societies).

Fee: Dependent on universe requested (full universe or limited portfolio).

Data available: The subscription includes bond composite prices, spreads and average lives, as well as providing the anonymous contributed dealer levels for each bond. Markit offers 5,000 ABS bond prices in total; each includes bid, mid and offer levels, depth and liquidity statistics as well as standard static data. Data is available from November 2005. Separately, a data quality report for contributing banks is provided to assist each dealer with outlying pricing inconsistencies as per the European ABS cleaning methodologies.

Price methodology: The Markit European ABS pricing contributions are tested for price, spread and average life deficiencies by a series of t-tests and distance tests. Staleness is also taken into account to disallow many marks which have not been updated as frequently. Composite prices are produced after prices failing any one of the data quality tests have been excluded. The Contribution Report displays to all clients both passed and failed contributions. The product team facilitates client challenges on the pricing of bonds daily to account for inconsistencies uncaptured by the automated cleaning procedure.

Source: The Markit European ABS Pricing Service includes contributions from major sell-side market makers.

Update frequency: daily

Further information: <http://www.markit.com/structured-finance>

Markit iBoxx

Service: Index provider.

Markit iBoxx indices are market-leading fixed income benchmark indices. They are an essential tool for structured products and provide data for fixed income research, asset allocation and performance evaluation in the global fixed income markets.

Product coverage: Bonds and ABS, with a different coverage according to the single index (see single indices coverage under data available).

Access and Fee: Data are publicly available for free on the Markit website <http://indices.markit.com> (go to <http://indices.markit.com>, and select an index in "Quick Data Access" on the left side of the screen). Data is also available via FTP and other vendors.

Data available: Markit iBoxx indices can be customised to the specific requirements of a client, whether for benchmarking purposes or as a basis for structured products. In addition, geographic, rating, sector and maturity sub-indices enable multi-dimensional analysis.

The indices are:

1) *Markit analytical values:*

In addition to index and bond price levels a wide range of selected analytical values is provided, both for the individual bond issues and for the indices themselves. These include yield, maturity, duration, modified duration, spreads and convexity, both as

annual and as semi-annual values, as well as including or excluding cash. Markit iBoxx analytical values are available under the Data section.

2) Benchmark indices:

- a) EUR and Sterling. These include investment grade fixed income issues in Euro and Sterling. Constituent lists and index values are published also in real time, ensuring that managers have the required tools at their disposal for benchmarking and risk control. The EUR and Sterling index families each consist of four major sub-indices: sovereigns; sub-sovereigns (agencies, supranationals and government guaranteed organisations); Collateralized (covered and other securitised bonds); Corporates, with relevant maturity, rating and sector indices too.
- b) USD. Includes US Dollar-denominated fixed income investment grade issues. The Markit iBoxx USD bond indices comprise treasury, agency and corporate issues. In addition to overall indices, separate indices are published for domestic, Eurodollar issues, as are maturity, rating and sector indices.
- c) Asia. The Asian index family comprises local currency investment grade fixed income issues of the following markets: China, Hong Kong, Indonesia, Korea, Malaysia, Philippines, Singapore, and Thailand. The Asian bond indices include sovereign and sub-sovereign issues.
- d) GEMX. The Markit iBoxx Global Emerging Markets Local Currency Bond Index in cooperation with IFC comprises sovereign debt from a broad range of emerging markets. Regional and country indices are published, as are hedged and unhedged returns.
- e) Global Inflation-Linked Indices. The Markit iBoxx Global Inflation-Linked indices cover the major sovereign and quasi-sovereign inflation linked bond markets of the world.
- f) EUR High Yield Index. The Markit iBoxx EUR High Yield Index represents the sub-investment grade fixed-income market for Euro denominated corporate bonds.

3) Markit iBoxx bond pricing:

Markit iBoxx bond indices for Euro and Sterling use intra-day bid offer prices provided via automatic price feeds from each contributing bank's bond desk. The prices are subjected to a rigorous series of quality controls before consolidated bid and ask prices are calculated, used for index calculation and published for every bond in the Markit bond universe, along with a range of analytical values:

- Real-time (The prices are consolidated by Deutsche Borse, calculated every minute and disseminated immediately to the market via data vendors).
- End-of-day (Closing bid/ask prices – for Dollar, Euro, Sterling, Asian and Inflation-Linked bonds – are calculated at the end of each trading day and may be accessed via the internet. They are also available for download from an FTP server and may be obtained through data vendors).

4) Markit custom indices:

In response to client demand many banks provide special indices for selected customers. Custom indices are calculated for banks and asset managers, using securities already included in the broad Markit iBoxx indices.

5) Markit iBoxx US Pension Liability Indices:

This family of indices comprises three sets of benchmarks that reflects pension liability performance. The indices help sponsors, consultants and investment managers construct more successful liability-based investment strategies.

6) Markit iBoxx European ABS Index

The Markit iBoxx ABS which will launch in beginning 2011 will serve as a standardised, diversified tool referencing securitised floating-rate ABS. Investors will be able to measure the returns available from European ABS, as well as the relative performance compared to the standard indices. A Beta version of the index has been made available for testing purposes in July 2010. The Beta version is a robust tool tracking returns across various time periods on specific areas of ABS exposure. Benchmarking may be done to compare standard index, bespoke index and single name performance

7) *Liquidity indices:*

A family of liquid bond indices complements Markit's benchmark indices. Liquid bonds indices are designed to track the most liquid bonds in the market. They contain a strictly limited number of issues, thereby making them easier to replicate. They are ideally suited for use as the underlying for a variety of replicating trading strategies or for derivative products.

There are four types of liquid indices:

- a) EUR and GBP Liquid IG Indices. These consist of a subset of the most liquid bonds from the Markit iBoxx EUR and GBP benchmark index families and are designed for use as a basis for derivatives and exchange traded funds and to reduce tracking and hedging costs.
- b) USD Liquid IG Index. Designed to represent the corporate investment grade Dollar denominated bond market using the most liquid issues available, this index is a subset of the Markit iBoxx USD benchmark corporate index.
- c) USD Liquid HY Index. This index comprises the most liquid Dollar denominated sub-investment grade issues.
- d) USD Liquid Convertible Bond Index. This index represents a benchmark of the U.S. convertible bond market with the top 50 issues. Its companion index, the Markit iBoxx Liquid USD Convertible Bond Delta Hedging Index, tracks the same 50 constituents delta-adjusted equities performance.

Sources: The following leading financial institutions provide input bond prices for Euro, Sterling and Dollar indices: ABN Amro, Barclays Capital, BNP Paribas, Deutsche Bank, Dresdner Kleinwort, Goldman Sachs, HSBC, J.P. Morgan, Morgan Stanley, Royal Bank of Scotland and UBS. For other regions, local financial institutions – including central banks and exchanges – provide data in addition to the banks listed above.

Distribution via other vendors: Markit iBoxx data are also available via Bloomberg, Fides, MoneyLine Telerate, Telekurs, Thomson Reuters and others. A number of providers of databases and related services also carry Markit iBoxx price data, such as Barra, Datastream, Exshare, FactSet, Wilshire Associates and others. Data are also available on Deutsche-Boerse website: www.deutsche-boerse.com/iboxx_e.

Further information: <http://indices.markit.com>

Markit Custom and Bespoke Indices

Service: Index provider

Product coverage: Markit indices coverage: Credit; Loans; Bonds; Currencies and Structured Finance.

Fee: By their nature, all Markit Bespoke and Custom Index clients' requirements can vary in complexity. Markit arranges an initial meeting to show capabilities and strengths in this complex area and recommends a solution tailored to its customers' needs.

Data available & price methodology: The service is based on Markit's index families but allows for modifications to meet the needs of the client. Markit's bespoke index service delivers indices built to the exact specifications of their clients in any major asset class. In both cases, the Markit index design team works closely with their clients to ensure a result that meets their specific needs. Markit's Bespoke and Custom index service is a white-labeled service, and indices calculated are published under the client's branding.

Sources: Credit (Markit CDX, Markit MCDX, Markit iTraxx), Loans (Markit LCDX, Markit iTraxx Levx), Bonds (Markit iBoxx), Currencies (Markit iBoxx FX) and Structured Finance (Markit ABX, Markit CMBX, Markit TABX).

Update frequency: Real time; end-of-day

Distribution through other vendors: see Markit iBoxx above.

Further information: <http://indices.markit.com>

Contact information:

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London EC2Y 9LY,
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Tel: +44 20 7260 2000

Fax: +44 20 7260 2001

List of contacts: <http://www.markit.com/en/about/contact/contact-us.page?>

MTS data

MTS Market Data is produced directly by the inter-dealer MTS Markets. All MTS Data products are direct from the MTS trading platform and are therefore considered “Golden Source”⁸.

Service: Real-time data, reference data, historical data and index data.

Product coverage: European government, quasi-government and covered bonds.

Access: Varies by data type: via market data vendors or direct from MTS.

Fee: Varies by MTS data type. FREE trials are available on request.

Data available:

These products are all based on the benchmark MTS Data direct from the MTS platform and all are produced exclusively by MTS. The MTS Data Product Suite currently comprises the following:

MTS Real-Time Data

Real-time *tradable* prices from the only electronic system offering data across the entire European Government, Quasi-government and covered bond markets:

- Best bid / offer quotes, market depth and last traded price, all complete with related volumes;
- Actual traded prices or prices live on the MTS platform at which MTS participants may deal – no indicative prices; and
- MTS market-making system ensures narrow bid-offer spreads and continuous, aggressive pricing on a wide range of products, irrespective of market conditions.

The MTS real-time data is available through a number of licensed market data vendors.

*MTS Reference Data*⁹

The descriptive, non-real-time data for each bond listed on MTS. It includes information such as Isin, Maturity Date, Issuer, MTS Market, details of payments and their frequency etc. MTS Reference Data is the only source for all the reference data for all bonds on MTS that can guarantee absolute accuracy and completeness. It is taken direct from the MTS platform. Historical Reference Data is also available. The MTS Reference Data is available via a number of licensed market data vendors.

*MTS Time Series Data*¹⁰

Directly and exclusively from the MTS platform, MTS Time Series provides a high frequency, data source for practitioners and academics conducting in-depth research in time series and market microstructure of fixed income markets and instruments and is

⁸ More information is available on www.mtsmarkets.com.

⁹ The MTS Reference Data is available via www.mtsreferencedata.com, including FTP – sign up for a 30 day free trial.

¹⁰ The MTS Time Series data is available directly from EuroMTS and via www.mtsreferencedata.com – sign up for free sample data.

available via subscription. Current subscribers include the worlds leading financial and academic institutions.

Dating from April 2003 the MTS database contains daily cash and repo information and high frequency trade and quote data, for all bonds traded on the MTS System. Coverage of the database increases along with the planned expansion of MTS into new markets - new MTS Markets are automatically included in the generation of MTS Time Series Data.

This is the richest historical data available from MTS containing the historical executable and traded prices direct from the MTS platform. The MTS Time Series Data are available via a number of licensed market data vendors.

MTS Reference Prices¹¹

The official open and close prices calculated by MTS each day and produced twice daily. The MTS Reference Prices are the only official open and close prices for the bonds listed on MTS, direct from the exchange, based on the executable and traded prices taken from the platform. Historical Reference Prices are also available. The MTS Reference Price Data is available via a number of licensed market data vendors.

MTS Snap-Shot Data

Up to 5 real-time updates per day. Alternatively, snap-shot on demand. The MTS Snap-Shot data is available via a number of licensed market data vendors.

EuroMTS Indices¹²

Transparent¹³, tradable, independent and real-time Euro-zone Government bond indices, powered by MTS. Tradability stems from the index design, the use of MTS market prices in calculating the indices and the large number of financial products tracking the indices. The EuroMTS Indices are calculated and disseminated every 30 seconds. Daily fixings are also available at 11am, 4pm & 5.30pm CET.

Over €400 billion in assets are benchmarked to the EuroMTS Indices and the range includes:

- EuroMTS Index (ex-CNO Etrix)
- EuroMTS Government Broad Index
- EuroMTS Investment Grade Index
- Short EuroMTS Government Broad Index
- EuroMTS Inflation-Linked Index
- EuroMTS AAA Government Index
- EuroMTS ex-AAA Government Index
- EuroMTS Covered Bond Index

¹¹ The MTS Reference Price data is available via a number of licensed market data vendors and via www.mtsreferencedata.com, including FTP – sign up for a 30 day free trial.

¹² Transparent - freely available methodology and data, all data necessary to replicate the indices is available for free at - www.euromtsindices.com. EuroMTS Indices data are available via FTP, by registering at the website above and through a number of data vendors. For a full list or for additional information please contact MTS Data.

¹³ Transparent - freely available methodology and data, all data necessary to replicate the indices is freely available at - www.euromtsindex.com. EuroMTS Indices data are also available via FTP (by registering at the website above) and through a number of data vendors. For a full list or for additional information please contact info@mtsmarkets.com.

- EuroMTS Government Bill Index
- EuroMTS Deposit Index

Source: MTS platforms

Update frequency: Real-time (Every 30 seconds), fixings (11:00, 16:00, 17:30 CET)

Further information: <http://www.euromtsindex.com>

Contact information:

EuroMTS Indices

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Phone: +44 (0) 20 7797 4100

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MTS Market Data

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Reuters 3000 Xtra

Service: Parsing services, price aggregator, electronic services, and indices provider.

Product coverage:

Fixed Income products:

- Rates (cash bonds and derivatives such as IRS), Credit (cash bonds and CDS) and Emerging Markets.
- Government bonds 43 countries/21 currencies
- Sovereign bonds G24 and Emerging Markets
- Supranational/State 31 countries/19 currencies and Agency bonds

Among the credit products:

- Corporate bonds: all major markets covered across 24 currencies
- Covered bonds: 7 countries/3 currencies
- Floating rate notes: Government/Corporate (11 currencies)

Access: All subscribers, no limitation; dealers may limit access to dealer page

Data available: Consolidated prices and dealer prices:

- A) Real-time pricing
- B) Extensive benchmark index coverage provides access to the most popular benchmarks against which fund managers track their performance. Indices include Inflation Linkers, Covered Bonds and Government Bills
- C) Research: Company Profiles that include Reuters fundamental data, ratios, earnings estimates - including detailed and consensus estimates, and the latest corporate actions. Ownership information for listed companies globally, including the top holders, their holdings and how these have changed over time. Access sector and share comparisons, broker research and mergers and acquisitions information.
- D) Analysis: Predefined models provide a snapshot of a stock's price events including current price quote, price charts and news. and advertised trades through Reuters 3000 Xtra.
- E) Market commentary for the Fixed Income professional looking for credible and relevant analysis and news through IFR Markets.

Price methodology: Generally indicative on bank dealer pages, with consolidated price quote based on most recent quote; Reuter's executable prices through dealers.

Sources: Dealer quotes; consolidated prices from:

- A) *Platforms* Thomson Reuters Fixed Income Trading; Tradeweb; Euro MTS; ICAP; Brokertec; Cantor and Tullet Prebon. 166 exchanges worldwide.
- B) *Brokers:* BGC Partners (voice); Bierbaum (voice); Carl Kliem (voice); Conticap (voice); Cosmorex (voice); Direct FX (voice); Enlace (voice); GFI (voice) ; GMG Brokers// GMG Dubai (voice); HPC S.A. Paris (voice); ICAP (voice and electronic); ILS Brokers (voice); Integrated Financial Products (voice); Kepler Capital

Markets (voice); Marshalls (Bahrain)Limited (voice); Meitan-Tradition (voice); Micromega (voice); Nittan Capital Asia (Hong Kong) (voice); Nittan Capital Singapore (voice); Nittan FX Limited (Tokyo) (voice); OM Financial (voice) ; Premex - Interdealer brokers (voice); Remate (voice); RESET (ICAP) (electronic); Tokyo Forex Ueda Harlow (voice); Tradition Financial Services (voice); Wallich & Matthes Czech Republic (voice); Tullett Prebon (voice).

- C) *Bank Services*: Barclays Capital (electronic); Citigroup (electronic); Credit Suisse (voice and electronic); Danske Bank (electronic); Deutsche Bank (electronic); Goldman Sachs (electronic); HSBC (electronic); J.P.Morgan (electronic); Morgan Stanley (voice and electronic); Nomura (electronic).
- D) *Thomson Reuters Services*: Reuters Trading for Foreign Exchange (electronic); FX Options on Reuters (electronic).

Update frequency: real-time, intra-day (consolidated prices)

Further information:

http://thomsonreuters.com/products_services/financial/financial_products/equities_derivatives/americas/3000_xtra?parentKey=588895

Contact information:

Reuters Building
30 South Colonnade
Canary Wharf
London, E145EP, UK

SIX Telekurs

SIX Telekurs specialises in the procurement, processing and distribution of international financial information. It gathers information from all the world's major trading venues and contributors – directly and in real time. Unique is the direct linkage of master data and corporate action data with up-to-date price information and business news. With offices in 23 countries worldwide, SIX Telekurs combines the advantages of global presence and local know-how.

Service: Parsing service, price aggregator and distribution network.

The services provided are divided as below:

- 1) Display products. For specialized research on bond pricing and convenient display of the data on the screen.
- 2) Processing products. For further processing of the delivered data in your database.

It is also source for descriptive data, including terms and conditions and corporate actions through its Valordata Feed service. (See section 3A)

- 3) Service products. For the support of technical data handling and system administration.

Data available (specific tools):

- a. *Telekurs iD*, users can access the entire range of data from SIX Telekurs – from reference data and corporate information, via news from the financial markets, right through to investment product valuation and risk management tools.
- b. *The Market Data Feed (MDF)* from SIX Telekurs is a normalised real-time feed, which provides consolidated data in one single consistent format, regardless of where in the world the data originates. SIX Telekurs offers two MDF interfaces – MDFstream and MDFselect. Both options deliver timely and accurate information gathered from sources all over the world. SIX Telekurs delivers this data in one single format, and the feed is made up of the full range of trading sessions, an extensive assortment of reported, derived and statistical elements, as well as business news from a broad range of agencies. MDF is a customisable feed, as the client is able to choose from four levels of detail and specify the exact parameters of the data needed - saving significant infrastructural costs as well as bandwidth. MDFselect is particularly well suited for feeding applications which demand mid- to high-range data throughput, covering real-time and delayed pricing data, intraday and historical time series, business news, lists and tables.
- c. *ApiD* offers easy access to the comprehensive data range of SIX Telekurs: quotes, portfolio management information, business reports and much more. To download data, a client will first need to have signed the corresponding subscription agreement.
- d. *Bondfloor Pricing Service* simply and transparently indicates the taxable component of the structured product concerned.
- e. *CARS* allow clients to receive notifications of events taking place on their portfolio in advance of the event (i.e. missing corporate actions or income distributions). This allows clients to plan ahead and to cut down on the number of potentially missed announcements. The service monitors an agreed number of event types and outputs

an agreed number of data fields, ensuring that clients receive only data that is relevant to their needs.

- f. *Intraday Pricing Service (IPS)* delivers detailed pricing information for the securities you have selected, in real-time or on a delayed basis. The Intraday Pricing Service is based on SIX Telekurs' comprehensive database, from which it draws all the necessary information on traded securities. From this wealth of information, we can provide our clients with a variety of price types, such as last trade, bid and ask, day high and day low, and fair value prices.
- g. *ISID plus ISID* means International Securities Identification Directory. The service, jointly developed with Standard & Poor's, facilitates cross-referencing of international securities identifiers.
- h. *Valordata Feed service (VFS)* delivers master data and corporate actions in a structured, encoded form, as well as valuation prices on nearly 6 million financial instruments. With over 70 message types and around 1,500 data fields, the VDF offers an extraordinary depth of data. Events and data can be traced back up to ten years. The VDF provides the basis for Straight through Processing and is available worldwide as a global product.

Product coverage: The SIX Telekurs database includes real time prices and securities administration data on more than 6 million instruments

Access: All; no limitation.

Sources: over 850 data sources,

- 1) Dealers
- 2) Platforms (Six Swiss exchange, Eurex, MTS)

Update Frequency:

- 1) Real time,
- 2) Real time or minimal delay
- 3) End-of-day

Further information: www.six-telekurs.com

Standard & Poor's Indices

S&P Indices, a leading index provider, maintains a variety of investable (please note that it is not possible to invest directly in an index) and benchmark indices to meet the widest array of investor needs. With over \$1.25 trillion directly indexed to its family of indices, and over 80 years of experience as a global index innovator, S&P Indices is widely regarded as an authoritative source for index data and information around the world. S&P Indices' comprehensive suite of equity, fixed income, commodity, strategy, and custom indices provide investors with an index for every investment.

Service: Indices Provider

Product coverage: U.S. Municipal, U.S. Treasury, Global Fixed Income (Eurozone Government Bonds; non-U.S. Dollar, corporate bonds issued by non-U.S., investment grade issuers); additional loan- and derivative-based indices.

Spanning equities, fixed income, commodities, real estate, strategy, and thematic, S&P Indices is the only index provider to offer investors a full array of indices covering all major asset classes.

Access: Daily stock level and index level data is available via FTP on subscription; Additions, deletions, share and Investable Weight Factor (IWF) changes are normally announced two-to-five days ahead of the effective date and posted on the web site and sent to clients via email or FTP.

Fee: Index and constituent level data available through a license; fees vary by product. Please contact S&P Indices for more information

Data available:

Global Fixed Income:

- S&P International Corporate Bond Index: is an investable index of non-U.S. Dollar; corporate bonds issued by non-U.S., investment grade issuers. The index seeks to measure the performance of corporate bonds issued in non-U.S. Dollar G10 currencies: Australia Dollar, British Pound, Canadian Dollar, Danish Krone, Euro, Japanese Yen, New Zealand Dollar, Norwegian Krone, Swedish Krona, and Swiss Franc.

Price methodology: End-of-day (EOD) pricing for index constituents used to calculate index levels and returns

Sources: Pricing provided by Standard & Poor's Securities Evaluations, Inc. for Municipal Indices. Pricing provided from BGCantor for U.S. Treasury Indices. Pricing provided by third-party trading desks for other bond indices.

Update frequency: Indices are calculated at EOD. Constituent pricing provided EOD.

Further information: <http://www.indices.standardandpoors.com>

Contact information: index_services@standardandpoors.com

Client Services at +1 (212) 438-2046; +44 (20) 7176 8888

Tullett Prebon Information

Tullett Prebon Information is the information vending arm of the Tullett Prebon Group and a leading provider of independent price information from the inter-dealer brokered financial and commodity markets.

Service Price aggregator

Product coverage: Over 30,000 instruments covering the full OTC cash and derivatives spectrum. In particular, concerning fixed income products: Government Bonds, Inflation Linked Gov Bonds, GM Benchmark Bonds, Corporate Bonds, Eurobonds, Asset Backed Securities, Mortgage Backed Securities (USD market only).

Data available: Tullett Prebon Information collects and aggregates observable market prices from their brokerage desks and E-Broking platforms adding value through the services of our team of price reporters and quality assurance analysts. The resulting product is one of the most renowned, comprehensive and unbiased independent price feeds.

Source:

- Tullett Prebon's CREDIT DEAL platform;
- its brokers (they are linked to thousands of dealing rooms around the world, collecting orders and facilitating trades on behalf of their clients); and
- TP Global pricing team (Data origination from global offices, covering over 50 countries).

Update frequency: Real-time

Further information:

http://www.tullettprebon.com/marketdata/marketdata_tpiabout.aspx

Contact information:

Tullett Prebon Information

155 Bishopgate

London EC2M 3TQ, United Kingdom

Sales: London +44 (0) 20 7200 7600

New York +1 877 639 7300

Singapore +65 6536 5843

Support: +44 (0) 20 7302 5382

Sales: sales@tpinformation.com

Support: support@tpinformation.com

III. POST-TRADE DATA VENDORS AND VALUATION PROVIDERS

This section captures all services that together provide post-trade information to market participants and other interested parties. Data vendors provide post trade information and independent price data, whereas valuations are provided exclusively by valuations providers.

A. DATA VENDORS

ICAP Market Information

ICAP's Market Information division is a leading source of original and authoritative over the counter (OTC) prices. ICAP was voted Best Data Provider (Broker) in a poll of financial services professionals at the 2010 Inside Market Data awards.

Service: end-of-day pricing and historical data requirements, as well as research and commentary from some of the world's leading economists and analysts.

In 2009, ICAP launched ICAP FIX, a comprehensive data service providing accurate and verifiable marks across an extensive range of ICAP market data. ICAP FIX can be used as reference and validation data for product and credit control, risk management and mark-to-market of positions.

Product coverage: EU government bonds, agency, supranational, repo investment grade and high yield corporate, convertibles, financials, floating rates notes. In particular, concerning corporate: 1) corporate bonds, 2) medium-term notes, and 3) commercial papers.

Access: Subscribers

Data available: Real-time market data

Sources and update frequency:

- 1) End-of-Day: the data is based on ICAP global trading activity and includes complete order book and active trade data from ICAP's electronic [BrokerTec](#) platform, as well as unique, certified data from the ICAP GovPX service.
- 2) ICAP's unique historical market data packages include past electronic UST trading activity on the [BrokerTec](#) platform, and electronic spot FX trading on ICAP's award-winning [EBS](#) platform.

Further information: <http://www.icap.com/market-commentary/market-information.aspx>

Contact information:

E-mail: icapinformationservices@icap.com ;

Phone: Americas: +1 212 341 9789;

Asia Pacific: +612 9777 0878 ; Europe, Middle East, Africa: +44 (0)20 7000 5880

FT Interactive data

INTERACTIVE DATA PRICING

Service: Post trade price information

Product coverage:

- 1) Global listed markets: listed bonds and convertible securities;
- 2) U.S. OTC securities

Data available: End-of-day pricing from 120 markets and exchanges around the globe.

Sources:

- 1) Global listed markets (120 markets and exchanges around the globe)
- 2) OTC: a) OTC Bulletin Board (OTCBB) -- provides market maker trade and quote information for OTC securities that meet SEC or other regulatory authority filing requirements; b) Other-OTC -- brokers/dealers report trades of OTC securities to FINRA. For securities not traded on an exchange or quoted on the OTCBB, FINRA distributes the trade prices as "Other-OTC" prices via the Trade Data Dissemination Service operated by Nasdaq OMX; c) Pink OTC Markets Inc. -- formerly Pink Sheets LLC, Pink OTC Markets is a centralized quotation service that collects and publishes market maker quotes for OTC securities. It provides market maker quotations for OTC Bulletin Board and Other-OTC securities, and for other securities for which trade prices are not available.

Update frequency: end-of-day data is delivered to clients as the markets close.

Further information:

<http://www.interactivedata.com/index.php/productsandservices/content/id/Pricing+Services>

REFERENCE DATA

Service: Reference data provider

Product coverage: coverage for more than 6 million financial instruments.

- 1) Government and Corporate bonds: Fixed-rate bonds; Medium-term notes; Floating-rate notes; Certificates of Deposit; US Treasury Bill/Bonds/Notes; Eurobonds; Government issues.
- 2) Municipal bonds: Data on more than 3 million active and historical bonds.
- 3) Structured and mortgage-related securities: Current and historical information on over 1 million MBS pass-through securities and over 200,000 CMO/ABS/CMBS securities.

Access: Subscribers

Data available:

- 1) Essential identification and settlement information, such as identifier, issuer name, exchange, ticker, currency, payment, frequency, coupon rate, maturity date, dated date, settlement date, first payment date and accrual method.
- 2) Detailed terms and conditions data for debt (corporates, government, agency, municipal) and preferred and convertible stock, including: a- Basic issue details (e.g., issuer, coupon, maturity); b-Security identification and cross-reference data; c- Call, put and sinking fund schedules; d- Conversion terms; e- Floating-rate note formulas and current coupon; f- Ratings; g- Income payments; h- Called announcements; i- call, put and sinking fund schedules; l- conversion details; m- coupon reset terms; n- payment-in-kind and step-up data; o- default and credit enhancement data for municipal bonds.
- 3) Tracking of corporate action event lifecycle with comprehensive, timely information on more than 100 corporate action types, including mergers, rights offerings, tender offers, name changes, bankruptcies, recapitalizations, cash dividends, stock dividends, mutual fund payments, exchange listing changes and other shareholder notifications.
- 4) Dividends, income payment details (including qualified dividend tax status information), earnings and amounts outstanding.
- 5) Extensive classification and cross-reference information including a wide range of international security identifiers.
- 6) Agency credit ratings from Moody's, S&P and Fitch.
- 7) U.S. securities class actions information.
- 8) Tax consequence and cost basis information for corporate actions.
- 9) Business entity data, including issue, issuer and parent entity.
- 10) Factor and related data for structured securities

Sources:

- 1) Exchange and market feeds;
- 2) Agencies and Government Sponsored Enterprises (e.g., FNMA, FHLMC, GNMA);
- 3) Prospectuses and official statements;
- 4) Third party data vendors (e.g., Moody's and S&P);
- 5) Investment publications; e.g., Financial Times and The Wall Street Journal;
- 6) Issuer sources, including corporations and brokerage firms.
- 7) It will soon carry OTC data from Tradition, the interdealer broker

Update frequency: Information available on-demand, intra-day and at the end of the trading day.

Further information:

<http://www.interactivedata.com/index.php/productsandservices/content/id/Reference+Data>

Markit

EVALUATED BONDS

Service:

- 1) Independent price data
- 2) Descriptive data provider.

Markit Evaluated Bonds provides the fixed income market with independent pricing data on corporate, government, sovereign and agency bonds across the investment grade and high yield universe. The output includes full transparency metrics and liquidity scores.

Product coverage:

- Corporate bonds across the investment grade and high yield universe
- Covered bonds, Pfandbriefe,
- Multi-currency coverage
- Fixed, floating, callable, non-callable, strips/zeros, perpetuals

Access: subscribers.

Fee: Dependent on usage requirements (valuations or price discovery) and universe covered (full universe or limited portfolio).

Data available:

- Intraday updates complementing end-of-day pricing
- Liquidity scores and transparency on observed prices (see Markit Bond liquidity)
- Benchmark, asset swap and Z spreads and credit default swaps (CDS) bond basis measures
- Suitable for both price discovery and valuations purposes.

The evaluated bond price is not simply a 'mark-to-market' measure - it is produced by a resultant price validated against a number of parameters from a wide range of sources. In addition, Markit can provide industry standard terms and conditions data on 300,000 bonds for portfolio tracking and security master requirements.

Price methodology: Evaluated Bond prices are derived from multi-contributor price sources ("fuel") captured in real time by a dynamic valuation tool to calculate and reflect live market levels.

Sources: including price contributors, Markit end-of-day composites, Markit iBoxx, Markit Quotes (parsed dealer runs), Markit Valuations Manager and TRACE.

Update frequency: Customised frequency including intra-day, end of day, daily, weekly, monthly and annual valuations of customer portfolios.

Further information: <http://www.markit.com/evaluated-bonds>

MARKIT BOND LIQUIDITY

Markit's Evaluated Bond service provides unprecedented pricing transparency on observed prices and liquidity scores to support client requirements for independent measures of liquidity and underlying inputs used to price a security.

Service: liquidity metrics

Market liquidity, the ability of market participants to buy or sell a specific position with minimal price impact, is one critical measure of liquidity.

Product coverage:

- Corporate bonds across the investment grade and high yield universe
- Covered bonds, Pfandbriefe,
- Multi-currency coverage
- Fixed, floating, callable, non-callable, strips/zeros, Perpetuals

Data available: Markit's Bond Liquidity provides market participants with an independent set of liquidity measures, including an easy to understand and transparent liquidity score made available as standard to clients of Markit's next generation Evaluated Bond pricing service. Metrics include: Identifying each price source used to price a security; Bid / ask spread data; Market depth using both intra-day dealer runs and end-of-day contributions; Liquidity scores.

Sources: Markit Evaluated Bonds: price contributors, Markit end-of-day composites, Markit iBoxx, Markit Quotes, Markit Valuations Manager and TRACE.

Further information: <http://www.markit.com/en/products/data/bonds/bond-liquidity.page>

Standard & Poor's Valuation and Risk Strategies

S&P Valuation and Risk Strategies offers a portfolio of products and services that serve the global financial markets by providing financial market intelligence and analytic insight for risk-driven investment analysis within the debt, structured finance, derivative, and credit markets.

S&P Valuation and Risk Strategies: Global Data Solutions (GDS)

Service: S&P Global Data Solutions helps investors address the heightened analytical, risk management, regulatory and front-to-back-office operations requirements with a broad array of multi-asset class and market data – much of which is unique to S&P.

Product coverage: Global government, agencies and corporate securities.

Access: Inbound/outbound data feeds, Web service and an API. Customisable portfolio-style data packages allow for customer-driven content selection

Fee: Please contact S&P Global Data Solutions for more information

Further information:

www.standardandpoors.com/GDS

E-mail GDScustomersupport@standardandpoors.com

Phone: 212-438-4500

Data available:

- 1) *Standard & Poor's Credit Ratings & Research:* global credit ratings database. Coverage includes more than 9,000 Global Issuers; 600 Sovereign and U.S. Public Finance entities; 21,000 Structured Finance transactions; and 1 million maturities. Historical data back to 1922.
- 2) *Credit Risk Measures:* S&P Market Derived Signals are based on a statistical model that evaluates credit default swaps (CDS) to create a measure that captures the market's sentiment about a company's perceived risk. Additionally, relative risk and value scores for fixed income securities to help corporate bond investors determine how well they are being compensated through yield, for the risks they are taking.
- 3) *Terms & Conditions Data:* Data set contains real-time fixed income terms and conditions to support security master files, securities processing and timely reporting and analysis. Data coverage includes more than two million global corporate, government and agency securities and U.S. municipals.
- 4) *Corporate Actions:* Data set actively tracks corporate actions and changes affecting stocks and mutual and accrual funds worldwide covering more than 39,000 equity securities.
- 5) *Cross-Reference Services:* Reference data provides the foundation for a user's data package with proprietary matching capabilities that link securities, issuers and entities. Includes ownership linkages, financial obligations, and global identifiers.
- 6) *Structured Finance Data:* Loan-level data enables users to track month-to-month loan- and deal-level performance and identity loan default trends. In addition, our specialised data for the CDO markets provides daily updates across a universe of more than 6,000 global corporate CDS reference entities and 110,000 ABS, CMBS and RMBS assets.

Sources of price data: Please see the entry for S&P Valuation Services

Update frequency: For further information please contact S&P Global Data Solutions

Further information:

www.standardandpoors.com/GDS

E-mail: GDScustomersupport@standardandpoors.com

Phone: +1 (212) 438-4500

Tradition

Tradition is the interdealer broking arm of Compagnie Financière Tradition (CFT). The world's third largest interdealer broker (IDB) in OTC financial and commodity related products, with a presence in 27 countries.

Via the Tradition data service, it also provides clients access to post-trade price information. Via its new 'white board' technology Tradition price data are collected and published internally.

Access: Clients (data can be distributed externally on a case by case basis)

Fee: No fee for providing our clients with end of day prices. Historical data is provided by Reuters. Clients 'back offices' are provided with prices via Reuters Datascope with whom we have a revenue share agreement.

Data available:

- *End-of-day:* prices are collected on an intraday basis and end of day reports can also be provided. Tradition believes that this service helps to increase customer anonymity and the independence of their prices.
- *Other information:* Tradition has a large amount of historical post trade data across a variety of asset classes, all available on request.

(Please, refer to section II for further information)

Tullett Prebon Information

Tullett Prebon Information is the information vending arm of the Tullett Prebon Group and a leading provider of independent price information from the inter-dealer brokered financial and commodity markets.

Service: 1) Independent pricing to support mark to market valuation 2) historical data.

Product coverage:

- 1) Mark to market.
 - a) Mark2Marker: Government Bonds, Inflation Linked Government Bonds, Government Benchmark Bonds
 - b) MortgageMarker: US TBA mortgage-backed pass-through securities.
- 2) Historical data: Government Bonds, Inflation Linked Gov Bonds, Gvmt Benchmark Bonds, Corporate Bonds, Eurobonds, Asset Backed Securities, Mortgage Backed Securities (USD market only).

Data available:

- 1) Independent pricing for mark-to-market valuation. Mark2Marker directly addresses the need for the calculation of accurate value-at-risk or mark-to-market prices, providing end-of-day or intra-day price files. In addition, Mark2Marker provides a valuable source of independent prices supporting organisations' risk calculations and reporting obligations under such mandates as Basel II, UCITS III, MiFID and IAS39.
- 2) Tp Information has been archiving price data for many years. This historical data is now available in either end-of-day or intra-day formats and will make the purchase of historical data quick, simple and convenient.

Methodology: Error checking and Quality Assurance procedures help ensure that the file delivered is screened for erroneous spikes or missing data points, no matter what the time of day. Due to its advanced technology TP is able to provide multiple snapshots throughout the course of the day.

Source: TP information

Update frequency: End-of-day and intra-day

Further information:

1) Mark2marker

http://www.tullettprebon.com/marketdata/marketdata_tpireferencevaluation.aspx

2) Historical <https://www.tphistory.com/>

Thomson-Reuters

Thomson Reuters also offers a trade notification service covering post-trade confirmation. It eliminates manual processing and reduces costs per trade. Thomson Reuters Trade Notification captures trades electronically and delivers notifications instantly connecting banks, brokers and ECNs with their counterparties all through a single connection.

ELECTRONIC TRADE NOTIFICATION SERVICE

Service: Electronic trade notifications.

Product coverage: Interest Rates Swaps and Cash Bonds.

Among the Cash Bonds:

- Corporate bonds: all major markets covered across 24 currencies
- Covered bonds: 7 countries/3 currencies
- Floating rate notes: Government/Corporate (11 currencies)

Participants: The service connects banks, brokers and ECNs with their counterparties.

- 1) *Interdealer Brokers:* BGC Partners (voice); Bierbaum (voice); Carl Kliem (voice); Conticap (voice); Cosmorex (voice); Direct FX (voice); Enlace (voice); GFI (voice); GMG Brokers// GMG Dubai (voice); HPC S.A. Paris (voice); ICAP (voice and electronic); ILS Brokers (voice); Integrated Financial Products (voice); Kepler Capital Markets (voice); Marshalls (Bahrain)Limited (voice); Meitan-Tradition (voice); Micromega (voice); Nittan Capital Asia (Hong Kong) (voice); Nittan Capital Singapore (voice); Nittan FX Limited (Tokyo) (voice); OM Financial (voice); Premex - Interdealer brokers (voice); Remate (voice); RESET (ICAP) (electronic); Tokyo Forex Ueda Harlow (voice); Tradition Financial Services (voice); Wallich & Matthes Czech Republic (voice); Tullett Prebon (voice).
- 2) *ECN's:* Currenex (electronic); Integral (electronic); FIXI PLC (electronic); Forex Capital Markets (FXCM) (electronic); Frontier FX Ltd (electronic); London Capital Group FX (electronic); R P Martin (voice);
- 3) *Bank Services:* Barclays Capital (electronic); Citigroup (electronic); Credit Suisse (voice and electronic); Danske Bank (electronic); Deutsche Bank (electronic); Goldman Sachs (electronic); HSBC (electronic); J.P.Morgan (electronic); Morgan Stanley (voice and electronic); Nomura (electronic)
- 4) *Thomson Reuters Services:* Reuters Trading for Foreign Exchange (electronic); FX Options on Reuters (electronic); Thomson Reuters Fixed Income Trading (electronic); Tradeweb (electronic)

Charges: FREE for receivers; for Publishers there is a one-time on-boarding fee as well as fees on a per message basis with a monthly minimum charge.

Methodology:

Receivers can receive trade notifications electronically and return affirmations (or rejections) to the source. This is open to any trading institution. You simply need to decide which standard format you would like to receive your notifications in.

Publishers can publish trade notifications to Thomson Reuters Trade Notification receivers all round the globe. Details are published through a single standard API, so that one connection reaches all those customers, regardless of what formats they choose to receive in. Publishing status is designed for price makers, brokers and ECNs who want to offer their customers the complete benefits of electronic trading and straight-through processing.

Further information:

http://thomsonreuters.com/products_services/financial/financial_products/foreign_exchange/spot_fx/trade_notification_service?view=Standard&parentKey=605353

Xtrakter (Euroclear)

Xtrakter is one of the major provider of post-trade information for the corporate and covered bonds market. 85% of all European fixed income portfolio valuations are calculated using data from Xtrakter.

Xtrakter currently provides a range of regulators, aggregators and end clients with operational risk management, trade matching and regulatory reporting services¹⁴ and is already a reliable source for OTC fixed income data in Europe.

Services: Post trade information services, buy-side and retail investors services, OTC turnover info; reference data; indices provider.

Provider of price data: TRAX (trade matching, regulatory reporting and information services system).

XTRAKTER PRICE SERVICE

Service: Price Service

Access: Subscribers. The products are designed to service and assist the buy side community (asset managers, fund managers, investment managers, hedge fund managers, trust fund managers, pension fund managers), the sell side community (banks, brokers, intermediaries) and vendor community (data redistributors, trading platforms, service facilitators).

Data available: The service offers end of day quoted and traded pricing on over 45,000 fixed income securities each evening. The service allows subscribers to customize the universe of securities they are looking to price and offers a flexible delivery mechanism. Xtrakter is particularly strong at pricing the highly illiquid securities such as Asset Backed Securities. Two years of price history is also available as an additional service.

¹⁴ Under the Markets in Financial Instruments directive (MiFID), Xtrakter is an Approved Reporting Mechanism (ARM) to the: FSA (UK), AMF (France) & AFM (Netherlands). Xtrakter additionally provides Primary Dealers with an onward reporting facility to the National Bank of Belgium (NBB) in accordance with the NBB and Securities Regulation Fund requirements.

Fees: Linked to universe of securities

Update frequency: Daily

Further information: www.xtrakter.com/XM2M.aspx

XTRAKTER.INFO

Xtrakter.info builds on a previous product known affectionately in the market as 'The Stripey'. It is an online portal where lists of bonds can be stored for daily pricing updates.

Service: Price and reference data for small sized fixed income investors.

It includes 4 services: The fixed income price information, the fixed income issuance terms & conditions; the fixed income dynamic data and the fixed income prospectuses.

Access: Subscribers.

It is designed for the smaller sized fixed income investor entities. Data vendors, aggregators and other competitors to Xtrakter and/or re-sellers are not allowed to subscribe.

Fee: Free trial available.

Data available:

- 1) daily bid and offer quotes from the world's major market makers for more than 12,000 international bond issues
- 2) Underlying and historical data, prospectuses and terms & conditions on 9,000 additional issues.
- 3) An unrivalled coverage of straights, floating rate notes, convertibles and medium term notes.
- 4) Indispensable static data relating to lead managers, exchange listings and ratings.
- 5) Graphical representations including prices, yields, interest rates, and indices.

Update frequency: Daily

Further information:

<http://xtrakter.info/XtrakterInfo/public/PublicArea.asp?page=/XtrakterInfo/Public/PublicArea/linkspage.asp>

XVOL

Service: Xtrakter Volume & Liquidity Service

Access: This product is designed to service and assist the buy side community (asset managers, fund managers, investment managers, hedge fund managers, trust fund managers, pension fund managers), the sell side community (banks, brokers, intermediaries) and vendor community (data redistributors, trading platforms, service facilitators).

Data available: XVOL offers monthly total volume figures and number of trades (by band) on approximately 25,000 fixed income securities each evening. The service allows subscribers to customize the universe of securities and offers a flexible delivery mechanism. Two years of volume history is also available as an additional service.

Update frequency: Monthly

Further information: www.xtrakter.com/XVOL.aspx

XREF

Service: Xtrakter Reference Data

Access: This product is designed to service and assist the buy side community (asset managers, fund managers, investment managers, hedge fund managers, trust fund managers, pension fund managers), the sell side community (banks, brokers, intermediaries) and vendor community (data redistributors, trading platforms, service facilitators).

Data available: XREF offers reference data on over 310,000 fixed income securities each evening. The service allows subscribers to customize the universe of securities they are looking for.

Update frequency: Daily

Further information: <http://www.xtrakter.com/XREF.aspx>

FIXED INCOME INDICES

Service: Index provider.

Access: Subscribers

Data available The fixed income indices consists of average redemption yields, gross price indices, total return indices, average coupon, average life, average duration and clean price index of the constituents' fields of data. Currently, indices are produced for 12 currencies and for each currency maturity bands of over one year, one to five years and over five years are included where available.

Further information: <http://www.xtrakter.com/bondindices.aspx>

Contact information: Commercial Operation Department; Sales@xtrakter.com
+44 (0) 20 7538 5656; Xtrakter Limited, 7 Limeharbour, London E14 9NQ, UK

B. VALUATIONS PROVIDERS

BGC Cantor Market Data

BGCantor Market Data offers a suite of real-time analytics models, in conjunction with Thomas Ho Company Ltd. (THC). Known collectively as THC Decisions™ Analytics, these products are designed for traders, portfolio managers, risk analysts and market professionals, with tools offering market insights to support investment strategies.

Service: Real-time analytics models provider

Product coverage: Treasury futures and cash bonds (THC Futures/Cash Analytics); corporate bonds (THC Corporate Spread Analytics)

Data available:

- 1) THC Corporate Spread Analytics:
 - a. Attain insights into the strengthening correlations between equity and corporate bond markets through the Term Structure of Credit Risk measure built on streaming real-time CDS prices.
 - b. Assess relative value across investment grade and high yield bonds using Ho-Lee Unified Model of Flow Risks, a comprehensive model which captures both credit and interest rate risk simultaneously.
 - c. Leverage an innovative approach to credit risk management through Key Rate Credit, the Ho model for measuring price sensitivities to shifts along the term structure of credit risk.
 - d. Refine hedging and relative value strategies on a portfolio of single-name credit default swaps and the debt of the underlying corporate issuers through Cheap/Rich indicators and alerts.
- 2) THC Futures/Cash Analytics:
 - a. Access relative value across treasury futures and cash bonds through cheap/rich trend lines and valuation of the embedded futures options.
 - b. Monitor portfolio risk through Ho's market-tested Key Rate Durations model for measuring price sensitivities to independent shifts along the yield term structure.
 - c. Refine cash, futures and basis spread and arbitrage strategies through Key Rate Durations and Cheap/Rich indications.
 - d. Analyse drivers of trading profit and loss through retrospective risk analysis, Return Attributions.

Sources:

- 1) Thomas Ho Company extensive research-based financial models and analytics
- 2) BGC Cantor's Market Data

Update frequency: Real-time

Further information: <http://www.thomasho.com/mainpages/e-series.asp?/index.htm>

Bloomberg Alpha

Service: Multi-asset class Portfolio Analytics and Risk solution.

Data available: Easy to use workflow with tools to measure portfolios against benchmarks, and identify both opportunity and risk. Features include:

- Attribution
- Risk
- Real Time P&L
- Value at Risk
- Performance
- Characteristic Reporting
- Portfolio Analytics
- Scenario Analysis

Further information:

http://www.bloomberg.com/professional/portfolio_risk_management/

ICAP's Market Information division

Services: Post-trade risk valuation.

Market and/or credit risk evaluation and management; Portfolio valuation and management; Intra-day and end-of-day evaluations.

Access: Subscribers

Data available: Regulators' demand for improvements in the efficiency of post-trade processing and for reductions in the capital allocated to existing positions continued to provide opportunities for ICAP's range of post-trade processing, portfolio compression and reconciliation and risk management services (ReMatch, Traiana, TriOptima and Reset).

Source: ICAP Information Services

Further information:

<http://www.icap.com/market-commentary/post-trade-risk-services.aspx>

Contact information:

London: + 44 (0) 20 7000 5775

FT Interactive data evaluations services and fixed income analytics

Interactive data provides daily evaluations for approximately 2.5 million fixed-income and international equity issues. “Hard-to-value” unlisted fixed income instruments and “hard-to-get” information from emerging mark.

Service: Evaluation services

- 1) Vital risk/reward analysis tools that empower clients to uncover hidden risk;
- 2) test investment strategies, respond to various regulatory and rating agency requirements, and explain performance returns with ease

Product coverage:

- 1) Corporate Bonds: Investment Grade Issues (Approximately 46,000 corporate debt issues, including debentures, fixed and floating rate notes, private placements and Eurobonds; More than 45,500 long-term U.S. CDs); High-Yield Issues(Approximately 3,400 high yield debt issues); Emerging Market Issues (Approximately 2,000 emerging market debt issues);
- 2) Governments & Agencies: Approximately 16,000 government and agency debt issues, including treasuries, agency/GSEs, sovereigns, and government debt securities; Approximately 1,700 North American preferred and 9,000 convertible bonds
- 3) Securitized Debt Issues: Nearly 1,000,000 U.S. agency pass-through issues (FHLMC, FNMA, GNMA, and SBA pools); More than 150,000 U.S. agency and non-agency collateralized mortgage obligations; approximately 22,000 asset-backed securities, and 11,000 commercial mortgage-backed securities; Approximately 3,000 European asset-backed and mortgage-backed securities; Approximately 1,600 covered bonds.
- 4) U.S. Municipal Securities: Approximately 1.3 million active U.S. municipal bonds, including investment grade, high yield, derivatives, single and multi-family housing, and taxable municipals (BAB, Student Loan, Public Improvement)

Access: Subscribers

Data available:

- 1) Robust, option-adjusted analytics backed by proprietary quantitative modeling techniques for Term Structure, Option and Prepayment
- 2) Proprietary performance attribution analysis that applies the same option-adjusted framework to both indices and portfolios for consistent comparison
- 3) Extensive reporting and graphic capabilities designed to respond efficiently and effectively to client, internal management or regulatory/rating agency requirements
- 4) Robust, dynamic cash flow analysis
- 5) powerful user-interface to help clients streamline their investment process

Methodology: FT Interactive Data’s bond-evaluation methodology is based on in-house modeling techniques combined with a professional evaluation staff that fine-tunes individual evaluations.

Sources:

- 1) bid information received by its fund clients
- 2) Interactive Data's comprehensive terms and conditions security information for 2.7 million securities and more than 350 global public indices from all major families for in-depth portfolio vs. benchmark comparisons
- 3) Evaluated pricing via FT Interactive Data's proprietary models and methodologies.

Update Frequency: Daily descriptive data updates and end-of-day fixed-income evaluations (local close).

Further information:

<http://www.interactivedata.com/index.php/productsandservices/content/id/Fixed+Income+Analytics>

Contact information:

Fitzroy House
London, EC2A 4DL
+44(0)2078257800

Markit

Markit Valuations Manager

Service: Counterparty, composite and evaluated marks provider.

Markit Valuations Manager is a web-based platform which provides buy-side clients with the aggregation of counterparty position and mark data for cash securities and OTC derivatives in a timely and consistent format. This data is downloadable, and easily fed into downstream systems, streamlining workflow and saving significant time.

Markit Valuations Manager also provides access to Markit's independent valuations services, so that counterparty marks can easily be compared with Markit's independent marks. Additional features include workflow tools which allow secure and auditable communications between buy- and sell-side.

Product coverage: Coverage for independent valuation of bonds as for the Markit Evaluated and Composite services. Coverage for independent valuation of OTC derivatives as for the Markit Portfolio Valuations service.

Access: Subscribers

Fee: Based on usage

Data available: Delivery of position and valuation data in a consistent format, across all counterparties; Access to position and valuation history; at-a-glance exposure summary

for all counterparties on the platform; access to Markit Composite and evaluated marks on cash securities; access to Markit Portfolio Valuations for OTC derivatives;

Methodology: Markit Valuations Manager is an aggregation platform; for valuation methodology see descriptions of the underlying valuations services

Sources: Markit's independent valuations and multibank contributions, and counterparty marks for each client.

Update frequency: Customised frequency

Further information: <http://www.markit.com/valuations-manager>

Markit Portfolio Valuations

Service: Valuations for OTC derivatives and cash securities.

Markit Portfolio Valuations is an independent portfolio valuation service for the buy-side that differentiates itself through a proprietary data set, recognised as the industry standard. The operating model is built around client service, providing global reach and rapid response to queries and challenges. The service has a SAS70 (Type 2) accreditation.

Product coverage: Coverage for valuation of cash securities as for the Markit evaluated bonds, composite, European ABS and loan services. Coverage for valuation of OTC derivatives includes a wide range of vanilla and exotic types across credit, FX, rates, equities, commodities and hybrids.

Access: Subscribers

Fee: Based on usage

Data available: Delivery of valuation data in a consistent format via a feed, or via the Markit Valuations Manager platform

Sources: The most accurate and appropriate market data are researched and sourced for each asset type. Markit's multibank contributed data form a significant part of the data used.

Update frequency: Customised frequency, including same-day, next-day weekly and monthly

Further information: <http://www.markit.com/portfolio-valuations>

Moody's Analytics

Service: Valuations, analytics, and support services for a single security or a portfolio of hard-to-value securities

Product coverage:

Structured finance: ABS; RMBS; CMBS; CLO; CDO

Covered bonds not included

Access: by subscription

Fee: Fee varies by size of portfolio, frequency of updates, and availability of documentation, performance data, etc. Deliverables are provided to subscribers in the form of a detailed report containing a summary of each scenario, collateral cashflows, bond cashflows, and methodology. Additional data is available upon request. In addition, all elements of the deliverables can be provided via a dedicated internet portal upon request.

Data available:

Valuations metrics:

- 1) Estimated Fundamental Value ("EFV")
- 2) Estimated Credit Impairment ("ECI")
- 3) Estimated Market Value ("EMV")
- 4) Estimated Non-Credit Impairment ("ENCI")

Performance ratios:

- 1) Tranche Expected Loss
- 2) Tranche Weighted Average Life
- 3) Collateral Expected Loss

Methodology:

Moody's Analytics valuation service offers an independent assessment leveraging proprietary data and models, renowned economists, and an experienced team of valuation specialists. Moody's Analytics does not invest in or make a market in any structured finance securities. In addition, Moody's Analytics owns every component of its valuation process so there are not restrictions on the information they can release on their models, assumptions, etc.

Moody's Analytics Economics and Consumer Credit Analysis division produces monthly economic scenarios designed to illustrate a broad range of economic outcomes. The baseline forecast is an estimate of the most likely path for a nation's economy through the current business cycle with 50% probability that economic conditions will be worse and a 50% probability that economic conditions will be better. Several additional scenarios define upside and downside outcomes.

Moody's Analytics collects and processes performance data on over 10,000 active securities, including more than 6,000,000 securitised loans.

The macroeconomic scenarios and performance data feed into Moody's proprietary credit models. The credit models are typically tailored to a particular asset class and geography. Outputs from the credit models include default, prepayment and loss severity vectors.

These curves are integrated into the Structured Finance Workstation cashflow analysis platform, which contains a comprehensive waterfall library. Moody's Analytics' experience valuation specialists use Structured Finance Workstation to estimate collateral cashflows, bond cashflows and an extensive series of performance metrics including credit impairment, and non-credit impairment, expected loss, and weighted average life. Discount rate models are then applied to arrive at fundamental value, market value for a tranche.

Outputs are packaged into a detailed report containing methodology, assumptions, cashflows, and tranche performance metrics and valuations. In addition, Moody's Analytics' valuation specialists are available to answer questions and provide additional support to subscribers.

Source: Moody's Analytics

Further information: www.moodys.com/valuations

Contact information:

+44.2(0).7772.5454

sfanalytics@moodys.com

OTC Valuations (a Tullett Prebon Company)

OTC Valuations (OTC Val), a wholly owned subsidiary of Tullett Prebon, is a leading provider of independent valuation services for financial products.

With offices in London, New York, and Vancouver, our service is designed to not only provide timely and reliable pricing information to market professionals, but also to enhance transparency for investment portfolios.

Service: OTC derivatives and securities valuations.

Product coverage: Vanilla through highly complex OTC derivatives and illiquid securities, and related structured products across developed and emerging markets: Asset class coverage includes Interest Rates, Inflation, Volatility, Equity, Credit, Foreign Exchange, Commodity, Fixed Income, and Hybrids. Instrument types include swaps, forwards, options, single name and index linked, basket structures, synthetic and cash deals, bonds, floaters, ABS/MBS.

Access: Available via a feed and/or email to fund administrators and other asset servicers, asset managers, hedge funds, banks, insurance firms and corporates seeking accurate, auditable, and unbiased valuations, or banks, and third-party valuation providers required to deliver them.

Data available: Valuation, risk, and transparency reports are available from intra-day thru ad-hoc delivery.

Methodology: For instruments with demonstrably liquid markets, we focus on mark-to-market valuation. For illiquid and hard-to-value instruments, we offer mark-to-model valuation based on careful calibration. Our independent derivative valuation services are also referred to as derivative evaluation or revaluation services.

Source:

- 1) Tullett Prebon's dealing platforms and
- 2) Its brokers – they are linked to thousands of dealing rooms around the world, collecting orders and facilitating trades on behalf of their clients
- 3) TP information services
- 4) Bid, mid, ask, and closing prices

Update frequency: Reports can be produced in a variety of formats (xml, csv, txt, xls, etc.) on an intra-day, daily, weekly, monthly, quarterly, one-off, or ad-hoc basis.

Further information: <http://www.otcvaluations.com>

Contact information:

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or

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United States
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Sales: sales@otcvaluations.com
Support: support@otcvaluations.com

SIX Telekurs

Service: Evaluated pricing service

Product coverage: This service covers a great depth and breadth of asset classes. In particular, concerning fixed income products: MBS, ABS, auction-rate securities, investment-grade and high yield corporate debentures, private placements, structured products, money market instruments, and more.

Access: Subscribers

Data available:

- 1) Fair Value Pricing (FVP): FVP helps Global financial companies facing a number of regulatory challenges. In particular, consistent valuation is explicitly outlined in the accounting standards which have been adopted for use in the EU (IFRS – International Financial Reporting Standards) and the USA (US-GAAP – Generally Accepted Accounting Principles). These standards require the majority of financial instruments to be valued at so-called “fair value”. SIX Telekurs’ Fair Value Pricing Service complies with the main requirements specified by the regulatory bodies. The service is based entirely on information available in SIX Telekurs’ Valordata Feed (VDF). Fair value prices are provided in eleven currencies, and are calculated four times a day.
- 2) Complex Securities Pricing (CSP): CSP helps valuating hard-to-price securities. In today’s complex securities markets, the majority of assets are neither listed on any exchange nor traded in any alternative liquidity pool. In fact, many of these assets simply don’t trade at all, let alone on a daily basis. SIX Telekurs offers its Complex Security Pricing solution, where quantitatively-oriented methods are applied along with market-based inputs and comparisons to calculate a mid-market indication of price. Valuations are provided in any currency.

Methodology: SIX Telekurs retrieves valuation price data from stock exchanges from all around the globe six times a day. This process is based on a unified system across all

exchanges, guaranteeing that all valuations are gathered and processed in the exact same manner, regardless of location. This ability to track sources offers maximum transparency, and is also paramount for the audit trail. Thanks to the unique and encoded structure of VDF; when the valuation prices are received they are converted into the VDF format based on statistic types (STT), value types (VAT) and value styles (VS). This enables SIX Telekurs to deliver detailed data in a clearly structured and easy-to-use form.

Sources: Trade, bid, ask, closing prices.

Update frequency: The system runs are timed as closely as possible to the various Asian, American, and European stock exchange closing times, to ensure global and up-to-data coverage.

Further information: www.six-telekurs.com

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S&P Valuation and Risk Strategies' Valuation Services

S&P Valuation Services provides investors with a cross-market approach to assessing risk and value in portfolios. Valuation Services offers independent and transparent valuations across asset classes for global fixed income securities and complex illiquid assets. Valuation Services provides clients with a wide range of valuation capabilities from market-based pricing, intrinsic valuations, to a highly customised portfolio advisory solution.

Services:

- 1) Independent modeled-based valuations, market approach pricing and third-party data
- 2) Transparent assessment of structured finance portfolios
- 3) Guidance on structured finance model calibration, assumptions and stress test techniques
- 4) Ongoing analysis and commentary
- 5) Due diligence reviews
- 6) Direct access to pricing analysts and deal modeling staff

Product coverage:

- U.S. Municipal, Treasury, Agencies, U.S. and Non-U.S. Corporates
- US and EU Structured Finance securities: ABS, CMBS, MBS, RMBS, CDO, CMO, CLO
- Tender Option Bonds; Syndicated Loans; Certificates of Deposit;
- Interest Rate Swaps
- For further details of coverage, please contact S&P Valuation Services

Access: Pricing is conveniently delivered via web-based access or a data feed

Fee: Please contact S&P Valuation Services for more information

Data available:

Independent market-derived price evaluations are provided daily on more than 3 million global fixed income securities, and supplemental coverage of more than 1.5 million global securities through distribution of evaluations and equity pricing services of other unaffiliated firms.

Source: S&P Valuation Services are offered by Standard & Poor's Securities Evaluations, Inc., a registered investment adviser with the United States Securities Exchange Commission. Daily opinions are provided on more than 3 million fixed income instruments and are based on available market inputs and consistent methodology.

Update frequency: Updated prices available each business day: intra- day, end-of-day and monthly electronic delivery options

Further information: www.standardandpoors.com/valuationservices

Contact information:

Client Services: +44 (0) 20 7176 3222
emea-marketing@standardandpoors.com

Thomson-Reuters

Thomson Reuters combines industry expertise with innovative technology to deliver critical information to leading decision makers in the financial markets, powered by the world's most trusted news organisation. Reuters' journalists report news from over 1500 locations in 20 languages. Through their wide distribution channels, Reuters' news reaches over 1 billion people a day including more than 500,000 financial professionals around the world who subscribe to Thomson Reuters desktop products.

THOMPSON-REUTERS VALUATION

Service: evaluation service.

The service combines Thomson Reuter's price service with its proven, sophisticated Kondor+ risk management portfolio and Reuters 3000 Xtra pricing libraries.

Product coverage: 2.4+MM securities per day including, but not limited to governments, corporates, convertibles, bank loans, municipals, MBS and ABS.

Access: Subscribers

Data available: provides valuations across a wide range of asset classes and instruments including corporate bonds, bank loans, residential mortgage backed securities (RMBS), asset backed securities (ABS), structured products, derivatives and many more.

Methodology: Incorporates bond terms and conditions, proprietary pricing models, real-time quotes from contributing dealers, rigorous quality assurance procedures, and an experienced evaluation staff to analyse and report the pricing data. Terms and conditions are collected and maintained by Thomson Reuters analysts and data teams located in Bangalore, India, White Plains, New York, New York City, and Singapore. Evaluation models are developed and maintained by Thomson Reuters fixed income development staff consisting of over 40 professionals. Dealer quotes are obtained electronically from key market contributors, as is other critical market data.

Source: Thomson Reuters' global pricing and security reference data service.

Further information:

http://thomsonreuters.com/products_services/financial/financial_products/pricing_reference_data/valuation_risk

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Thomson Reuters
30 South Colonnade

Canary Wharf; London, E14 5EP

Tradition

Service: Evaluation services

Access: Subscribers

Product coverage: Government bonds; Convertible Bonds; Credit Bonds; Emerging Markets; Eurobonds; European High Yield; Floating; Illiquid Debt; Covered Bonds; Mortgage Backed Securities

Fee: Desks provide end-of-day prices-there is no formal fee structure as each valuation may vary on a client by client basis.

Data available: To meet increased demand for end-of-day settlement and pricing, Tradition has developed a suite of integrated valuation products. Daily and intra-day snapshots offer OTC price fixings from today and from previous days' trading.

Source: Tradition Fixed Income (please, refer to paragraph II for further information).

Update frequency: End-of-day

Further information: www.tradition.com

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IV. ABOUT THE AFME

The AFME (Association for Financial Markets in Europe) represents a broad array of European and global participants in the wholesale financial markets, and its members comprise all pan-EU and global banks as well as key regional banks, brokers, law firms, investors and other financial market participants. AFME participates in a global alliance with SIFMA in the US, and the ASIFMA (Asian Securities Industry and Financial Markets Association) through the GFMA (Global Financial Markets Association). AFME provides members with an effective and influential voice through which to communicate the industry standpoint on issues affecting the international, European, and UK capital markets. For more information please visit the AFME website, www.AFME.eu.

About AFME/Credit

The AFME Capital Markets section supports the day-to-day commercial activities of our members through industry initiatives related to market standardisation and good practice in a specific business area or product line. In particular, the Credit Division monitors developments in policy and market structure that affect the corporate bond and loan markets. It seeks to develop market policy or best practice on issues related to corporate bond price transparency, and valuation. To this purpose we are creating this price discovery guide. The aim of the guide is to provide investors and other interested parties with an overview of the variety of providers of price and market data in the European bonds market.