Display of Market Information

Field of the Invention

This invention relates to the processing and display of information relating to tradable products. It is particularly concerned with the treatment of financial information obtained from a number of different sources, and the presentation of that information to customers in a manner that facilitates trading decisions.

Background to the Invention

Within the fixed income markets, inventory is distributed from brokers to clients within two timeframes. Axes are communications from sell side brokers which are distributed to customers first thing in the morning; and Runs are updates which are communicated to the buy side during the trading day. Axes are generally an indication of beginning of day positions which are updated during the trading day.

Typically a broker will have several hundred positions that they wish to publish at the start of the day, and numerous updates throughout the day. A market will have many brokers submitting positions to buy side customers, so a buy side fund manager or dealer may have to search through many thousand offerings at the beginning of the day together with thousands more runs during the day. This vast quantity of information is difficult for the fund manager and buy side dealers to process and organise in order to develop trading strategies and correctly evaluate the market.

At present, offerings are sent to buy side customers from brokers via a number of routes, including e-mail, which simply involves each broker sending a separate email to all buy-side customers listing axes at the beginning of the day, and separate e-mails listing runs during the trading day. This type of communication is difficult for the buy side fund managers and dealers as they receive large numbers of different communications from different parties which is hard to assemble into an overview of the market.

Offerings may also be distributed by electronic communications networks (ECNs) or by proprietary interfaces. These suffer from the same problems of fragmentation, requiring fund managers and buy side dealers to filter and sort information to match their requirements. This results in a lack of consolidated transparency and may lead to missed opportunities.

One existing provider of axe and run data is Bloomberg L.P of New York USA which publishes lists of offerings from various parties. However, this is predominantly an email service and suffers from a number of disadvantages. It is inefficient as fund managers and dealers have to spend a large amount of time searching through Bloomberg email for bonds, as the Bloomberg system notifies buy side fund managers, buy side dealers and sell side traders of many different products. The Bloomberg system is ineffective as it communicates to the buy side many thousands of offerings with no ability to tailor what is sent to the requirements of particular clients. It is also not a timely service. While it is recognised to be good at capturing historical data, which is good for analysis, it is not good for representing real time, as near real time data to clients. The Bloomberg service also does not allow for automatic comparisons of price data from numerous sources as it is used in conjunction with emails and phone calls.

Some attempts have been made to address the problems mentioned above. Bondaxe provided by BondAxe LLC of Boston Massachusetts, and described at www.bondaxe.com to which reference is hereby directed, searches through buy side dealers emails and also through Bloomberg email. In effect, this service enhances existing communications channels and provides a platform for storage and routing of data-driven axes. The system enables price data to be uploaded. The data is presented in a format which enables it to be compared and searched from bonds matching specific criteria, such as maturity, coupon and minimum rating. Specific bonds can be selected and the owners of the price data emailed or notified through the Bloomberg network to indicate interest.

Quotevision is a product offered by Credit Market Analysis Limited of London UK and described at www.quotevision.com. It is a quote parsing tool which structures credit market pricing data and allows traders to view, organise and store the prices they receive in real time regardless of format. The product is

intended to be used in the credit default swap (CDS) market and can rank available bids and offers in real time providing depth of market for each CDS.

The International Capital Market Association (ICMA) make available daily bid and offer quotes from major market makers for over 8000 international bond issues together with data relating to many other issues. Data can be filtered according to personal requirement. The ICMA service is available through www.ICMA-info.org.

Although the systems described go some way to addressing the problems of fragmentation, none of them provide an adequate display of fixed income, or other market information to customers which can be manipulated to provide targeted information that can easily and quickly be understood by the customer and so used to assist in making trading decisions.

The present invention aims to address the problems discussed above.

Summary of the Invention

According to one aspect of the invention there is provided a method of displaying on an electronic display device information relating to products available for trade in a market, comprising: providing a user with a display of consolidated information relating to product offerings available for trade offered from a plurality of sources; selecting at least one of the displayed product offerings; and generating a graphical display of the depth of the market in the selected product and in related products having a predefined characteristic in common with the selected product, the graphical display of the depth of the market showing a plurality of offerings of the product, wherein the best offering in the market is highlighted with respect to the other products.

Preferably, the graphical display arranges the plurality of offerings in each of the product and the related products side by side in rows. The offerings for a product are preferably displayed in a colour and the depth of colour with which an offering is displayed is dependent on the position of the offering in the market with respect to the other offerings for the product in the graphical display. In one preferred embodiment the best offering in the market is shown in the darkest colour, the

worst offering displayed is shown in the lightest colour and intermediate offerings are shown in intermediate shades of the colour.

Preferably, the offerings in the market for each product are arranged in order of time of receipt at a central server. The offerings may include buy and sell offerings for the product and wherein buy offerings are displayed in a different colour to sell offerings. The best offering in the market is preferably displayed with a dark border.

The position of offerings in the market may determined with reference to a characteristic of the offerings definable by the user such as, in the case of a bond, price, benchmark spread or asset swap spread. The predefined characteristic in common with the selected product is defined by the user and may be the originator or issuer of the product to be traded or some other characteristic such as at least one of currency, maturity, industry, benchmark and rating.

The user can preferably switch between the predefined characteristic thereby altering the graphical display and can also preferably switch between the characteristic of the offerings, thereby altering the graphical display.

The display of related products may include products not displayed to the user in the display of consolidated information. The display of consolidated information may comprise a plurality of fields for each product offering and the display includes filters to filter the product offerings displayed according to the content of each field.

A plurality of graphical displays of the depth of the market may be generated with each display being related to at least one product selected from the displayed product offerings. In one preferred embodiment the display of market depth shows up to the best five offerings in the market for the product.

The products may be financial instruments and the product offerings may comprise one of quotes, indications of interest, and advertised trades.

This aspect of the invention also resides in a computer readable medium having program code stored thereon for execution on a computer for displaying device information relating to products available for trade in a market which performs the steps defined above and in a client side system for displaying information relating to products available for trade in a market, comprising: an electronic display device for displaying, in a browser, a display of consolidated information received from a service provider and relating to product offerings available for trade offered from a plurality of sources; a selector for selecting at least one of the displayed product offerings; and software for generating a graphical display of the depth of the market in the selected product and in related products having a predefined characteristic in common with the selected product, the graphical display of the depth of the market showing a plurality of offerings of the product, wherein the best offering in the market is highlighted with respect to the other products.

Embodiments of this aspect of the invention have the advantage that they enable the user to see market information from a number of different sources which is consolidated into a single display. They can filter the display so that only offerings potentially of interest to them are shown. They can then select from this display one or more offerings and generate a graphical display of the market in the select product and in related products. The graphical display is presented in a manner that is very easily understood by the user who can see the best offerings in the market and also the best offering is related products, and their origin.

A second aspect of the invention provides a method for providing information to users about products available for trade in a market comprising: communicating to a service provider by each of a plurality of parties offering products, a list of tiers to which each party has assigned users receiving information about the product offerings from the service provider; storing the lists of tiers at the service provider; sending details of product offerings from a plurality of parties offering the products to a service provider; storing details of product offerings supplied by a plurality of parties offering the products in a database at the service provider; and communicating the product offerings stored in the database to a plurality of users; wherein the product offerings communicated by the parties offering the

products include details of the tier of tiers of users to which the product offerings are to be communicated by the service provider.

Preferably the communications of product information from parties offering the product include information regarding the relative timings of distribution of information to each of the tiers to which the product offerings are to be communicated.

The use of tiering enables brokers or other sources of product offerings to control to whom particular offerings are made available. Where a broker has a particular offering, they may only send it to certain tiers, or may send it to one set of tiers at a first price and another set of tiers at a second price. Alternatively, or additionally, certain tiers may receive the product offering before others and later tiers may only receive the offering if it has not been taken up by one of the earlier recipients.

Brief Description of Drawings

Embodiments of the invention will now be described by way of example only, with reference to the accompanying drawings, in which:

Figure 1 is a schematic diagram of a system embodying the present invention;

Figure 2 is a screen shot of an unpopulated buy-side display of a system embodying the present invention;

Figure 3 is a screen shot similar to figure 2 showing the display populated with Axe and Run offerings;

Figure 4 is a view showing how the Axes and Runs displayed can be filtered by the user;

Figure 5 is a view showing how search criteria can be defined and saved;

Figure 6 shows how offerings may be selected for generation of a market watch heat map generated from selected offerings;

Figure 7 shows and example of a market watch window;

Figure 8 shows how underlying information about offerings in the heat map may be displayed;

Figure 9 shows how several heat maps may be overlayed;

Figure 10 shows a further example of a heat map based on price comparison;

Figure 11 shows the heat map of figure 10 rearranged on the basis of benchmark spread comparison;

Figure 12 shows the heat map of figure 9 re-arranged on the basis of asset swap spread;

Figure 13 shows how the user may configure the market watch;

Figure 14 show how a change in matching criteria is reflected in a heat map;

Figure 15 show a comparison between a heat map based on ticker matching and other characteristic matching; and

Figure 16 shows how underlying Axe/Run data may be displayed for a selected offering.

Detailed Description of Preferred Embodiments

The embodiment to be described is intended for use in the fixed income market. However, this is purely illustrative and the invention may be used in the trading of any tradable instrument in which details of product available for trading come from a plurality of sources.

The embodiment to be described is an internet based system in which brokers and buy side customers communicate with a service provider via the internet. However, communication could be by any private or public communication network, for example, a private financial communications network.

Figure 1 shows, in a highly schematic form, the architecture of an embodiment of the invention. The service provider sits between sell side fixed income (or other tradable product) asset management houses. A single buy side and sell side party is shown. In practice, there will be a large number of both. Each of the buy side and sell side communicates with the service provide using a standard PC or workstation running application software. The sell side broker client machine 10 sends details of offerings to the service provider using file transfer protocol (ftp) in a manner that will be described more fully below. The buy side client machine 12 is also a standard PC or workstation that communicates with the service provide through a dedicated website shown in figure 1.

At the service provider is a data base server 14 which hosts a system data base which holds details of offerings provided by sell side brokers and related information, and an application server which is responsible for communications with the sell side brokers and the buy side houses.

Sell side clients can upload files periodically throughout the day. Files to be transferred may be built up by the broker and sent to the application server manually, or may be constructed from a sell side OMS (order management system) and uploaded automatically at set periods through the trading day. Communication with buy side clients is through an internet browser such as Internet Explorer (IE), Firefox or a similar system or an embedded browser control in an Order Management System (OMS) or other customised application. The buy side client logs into the application over an https encrypted session.

The service provider database may be any suitable relational database. All relevant Axe and Run data is held in a table which associates each Axe/Run that has been imported by a particular sell side broker. The table takes broker, timestamp and target tier fields from the name of each file sent by sell side brokers. Tiering will be discussed below.

Each Axe file includes a unique identifier and is set on successful validation and insertion of the row during import. The record includes a Trader field that identifies the sell side trader that issued the Axe/Run and allows the buy side trader to find contact information should they wish to transact the Axe/Run. The record will contain many fields relating to specific details of the Axe/Run which

are populated from a flat file containing the Axe/Run data provided by the sell side trader. These fields may include a number of industry fields which represent the ratings classification for the bond at different levels of granularity and assist buy side traders or fund managers searching for particular bonds of interest.

Within the database, the sell side brokers will be associated with many asset management brokers. This is required for the Axe/Run data to be displayed to particular asset management brokers.

As mentioned above, sell side brokers send details of Axes and Runs using ftp. The flat file containing data fields relating to the Axe/Run may be in any convenient format. However it is presently preferred that the data is in CSV format (comma separated value) with a carriage return indicating a new Axe or Run within the flat file. An alternative is to use XML.

Figure 2 shows the main service screen which is displayed to asset management houses after logging into the service website. The screen is displayed within a web browser. The display comprises a function bar which allows the user to define the parameters of Axes and Runs that will be displayed, and also provides searching functionality. The broker field allows the user to select offerings from specific sell side brokers or groups of brokers, or to see offerings from all brokers. The currency field allows the user to limit the display to Axes or Runs in a particular currency or currencies or to display all offerings irrespective of currency. The ticker field enables the user to limit the display to offerings relating to a particular company by reference to their ticker ID. The maturity field enables the display to be limited by when the bond matures and the rating field enables the display to be limited according to the credit rating of the bond. This field also enables the credit rating to be searched for a particular rating, or a given rating and above, or a given rating and below. An industry field allows the selection of one or more predefined industry sectors and a benchmark field filters the display according to selected benchmarks.

Once the user has selected the desired filters, clicking on the "find" button with their pointer will return from the database all Axes/Runs that conform to their defined criteria. To the right of the find button is a "clear" button which clears the filter returning them to the default settings, rather than the details returned under

those criteria. A saved searches panel contains a drop down menu from which a saved search can be selected allowing a user to run a particular set of filter criteria without having to re-enter them all.

Figure 3 shows the display area populated with broker offerings. In this case there are no filters set so all offerings are shown. If the number of offerings to be displayed is greater than can fit into the display area, a scroll bar is provided at the right hand side of the display. The number of entries, in this case 1850, is shown above the display on the right hand side underneath the search panel.

The Axes and Runs are displayed within a grid but only offerings with the present day's date are returned. Where there are multiple offerings from the same broker having the same ISIN (International Securities Identification number), only the latest offerings are sorted according to a default priority of: ticker, currency, coupon, maturity, but the user may define the sort order by clicking on the relevant display column.

The display shows a number of attributes for each offering, all of which, with the exception of the age, are derived from the flat file provided by the sell side broker. The age column shows the time that has elapsed since the offering was received. The broker column shows the identity of the broker who sent the offering. The CCY column shows the currency of the offering. The BIDsize and ASKsize columns shown the volume of the offering and whether it is a bid or an ask. The ticker column identifies the bond issuer and the coupon and maturity columns indicate the coupon, or return of the bond, and its maturity date respectively. The next two columns show the bid and ask prices for the bond. The next two columns labelled BIDasw and ASKasw show the asset swap rates, if these are available. The columns headed BIDsprdbm, ASKsprdbm and Benchmark show the benchmark bid and ask spreads and identify the benchmark, if there is one. The final three columns show the industry sector, the credit rating for the bond and the ISIN number for the bond issuer.

Thus it can be see that the display presented to users is a consolidated display of axes and runs from multiple brokers. The display is presented in a manner which can be configured by the user to suit their needs and preferences and can be filtered so that only offerings of interest to the user are displayed. This approach

greatly assists the buy side asset manager or trader in assessing the market in the areas of interest to them.

Figure 4 shows an example of a search for bonds with particular characteristics. In this case the search is for Deutschmark denominated bonds (DEM) from a broker identified as MS. It can be seen that 6 bonds have been found and are displayed. On depressing the "save..." button, a window opens, as shown, enabling the user to name the search and then save it for future retrieval. This is illustrated in figure 5 which shows the search MS DEM Bonds from figure 4 available within the saved search panel.

As described, the embodiment is extremely useful to fund managers and traders as it provides a consolidated display of Axe and Runs from multiple brokers which can be configured and filtered as desired by the user. Figure 6 to 9 show how this information may be further processed to give the user a better idea of how the market is performing. At any time, the user, for example using a mouse, can select one or more of the bonds displayed, regardless of whether the display has been filtered or not. This display can be used to product a market watch window which is shown in figure 7. On selecting one or more bonds, a panel labelled market watch is displayed to the user, selection of which generates the market watch window of figure 7. The parameters of the market watch window can largely be set by the user as will be described below.

In the illustration of figure 6, the display is limited by a filter "diversified banks" as can be seen from the "Industry" column in the display. The user has selected or highlighted 14 of the offerings returned. The selection may be based on some characteristic or characteristics of interest to the user. On selecting "market watch" a market watch window is formed as shown in figure 7. The market window is formed as a heat map, by which is meant that quotes are displayed, relative to one another, in a manner which ranks the quotes relative to one another. In the preferred embodiments, colour is used so that the best quote has the strongest and darkest colour, which other quotes having a lighter shading relative to the best quote. It is presently preferred that bids and asks are shown in different colours. For example, bids may be shown in blue, with the best bid dark blue and the worst pale blue. Asks may be shown in red, with the best ask being shown as a deep red square and the worst ask as a light pink square.

Colour is not the only way of distinguishing the quality of the bonds, although, it is very easy for the user to assimilate. Other distinctions could be made, for example the relative sizes of the areas represented for each bond. In the embodiments shown, the position of each bond is dictated by the age of the bond, that is the time since receipt by the system, but relative order could also be used as an indication of quality. In this example, price is the measure of quality used although other measures are possible as will be described later. The best quote, as well as being shown in a darker colour, has a dark border to further draw the traders' attention to it.

It will be seen that the heat map retrieves 5 offerings for each bond. In figure 7 there are seven bonds. The number of offerings displayed may be varied but it is preferred to have at last 3 to enable the user to get a view of the depth of the market. It will be seen that for each offering, there is an identification of the price, the broker making the offering, and the volume available. Thus, for example, in the first line, the bond is ticker STANLN having a coupon of 5.375% maturing on 06 May 2009 and being denominated in Euro. The best offer is from the broker 6 who offers 5.0m at a price of 103.9377. The colour of the display will tell the user whether that is a bid or and ask price but it can be seen that it is an ask as the lowest price is highlighted as the best. It can be seen that the order of the prices after the best, is: broker 3, broker 2, broker 5 and then broker 4. This is reflected by the depth of colour shown in each display.

It can be seen that, in the third bond highlighted, STANLN 5.375% 01 JAN 4000 (GBP), the best price is actually the third offering listed. This merely highlights that the display order is dictated by time rather than price. It will be noted that the heat map is displaying seven different bonds, each having offerings from five different brokers although more are included but invisible. Thus there are 35 offerings visible in the heat map. A careful examination of the offerings highlighted on the screen behind the heat map shows only 28 offerings highlighted. Moreover, not all the bonds shown on the heat map are each displayed on the screen. For example, if one examines ticker STANLN it can be seen that there are seven offerings, one each from brokers 1 to 6 and one from broker MS, all denominated in $US, all maturing on 03 December 2014. It will be seen that this corresponds to the 4th row of the heat map but that one of the

offerings, the worst two prices, have been discarded as only the five best are shown on the heat map. However, in addition, bonds for the same ticker, but having different characteristics, are displayed in the heat map, thus giving the user the opportunity to compare more offerings available around his specific area of interest. This is extremely valuable in assessing the merits of the particular bond under consideration. The heat map of figure 7 shows an additional 5 bonds for STANLN at varying coupons and maturity dates and in a range of currencies.

The same problem is followed for the other highlighted bonds although this is not shown in figure 7. There is a scroll bar at the right hand side of the market watch window which can bring up other bond offerings related to the selected bond offerings.

It can be seen that the heat map comprises a row of offerings in the product that has been selected from the main display with a number of different offerings being displayed side by side in the row. The offerings for a product are displayed in a colour and the depth of colour with which an offering is displayed is dependent on the position of the offering in the market with respect to the other offerings for the product in the graphical display. The best offering in the market is shown in the darkest colour, the worst offering displayed is shown in the lightest colour and intermediate offerings are shown in intermediate shades of the colour. Thus, after the best offering, the next best n offerings are shown in gradually decreasing depth of colour. Within a row, the offerings in the market for each product are arranged in order of time of receipt at a central server. The offerings in other rows that make up the heat map are arranged in the same manner, with the offerings displayed being selected in accordance with at least one predefined common attribute with the selected product offering.

Thus, the market watch window enables buy side dealers to select one or more bonds of interest and generate a heat map showing the relative qualifies of offerings available for that bond and also showing other bonds in the market which are related to the selected bond, for example being from the same company or some other attribute. These related bonds are also displayed showing the relative qualities of various brokers' offerings.

Figure 8 show how the user may gain more information about a particular offering shown on the heat map. Hovering the user's mouse pointer over an offering will display more information about the offering. It must be remembered that this embodiment is not a trading system as such, although as will be discussed, it may be adapted to allow direct trading from this display. Hovering over the offering shows details of the bond and the broker, including the individual broker's name, the age of the quote and bid and ask prices, sizes swap and benchmark spreads. It will be observed that this is more or less the information that is displayed in the consolidated display.

Figure 9 shows how multiple market windows may be opened simultaneously. In this example, the user has selected a single offering from the main listing and generated a market watch heat map based around that offering. Again, the heat map shows not only offerings for the particular bond selected, but also other bonds from the same issuer. Separately, the user has selected two other bonds from the main listing and generated a market watch for each one. The user can switch between market watch windows simply by clicking on the one they wish to see.

The prices displayed are dynamic. Brokers will withdraw and re-price offerings periodically. The market watch window is configured to update prices from brokers at periodic intervals, for example every 15 minutes.

In the market watch heat map of figures 7 to 9 the heat map is constructed and arranged on the basis of comparative price. The heat map may be arranged according to some other variable. For a bond, the spread against a benchmark, and the asset swap rate are both characteristics which may be used at the basis for the heat map. However, it should be understood that there are exemplary characteristics only. The invention may be used to present market information for a wide range of tradable products including financial instruments, and the particular characteristics on which the market watch heat map may be based will vary from product to product, or instrument to instrument.

The heat map may vary according to which characteristic is selected. This is illustrated by a comparison if figures 10 to 12. In these figures, the user has selected a single bond from the main display and generated a market watch heat

map. The user can then toggle between various characteristics to display a different heat map based on the same bond but comparing a different characteristic.

Thus, in figure 10 a Toyota bond having a coupon of 4.352, maturing on 15 December 2010 and denominated in US$ is selected. The heat map returns the best five offerings for that bond, and also the best five offerings for related bonds. The best offerings for the selected bond are shown in the third row of the heat map in figure 10. The second offering, from broker six, is highlighted as being the best priced quote. The fifth offering, from broker three, is shown with the least colour indicating that it is the worst priced quoted.

By selecting a toggle function, in this case by hitting F8 on the keyboard, the user can switch to a different comparator. In figure 11, the heat map for the same selected bond is shown. Two features are noticeable. First, the other bonds that have been retrieved are the same. Second, the relative placing of the offerings, which are based on time, are the same, but the broker three quote is now highlighted as the best quote.

Previously it has been the worst quote. However, the comparator is now benchmark spread, and it can be seen that this quote has the widest spread. The broker six quote which had previously been the best priced quote is now the worst and shown with the lightest shading. In figure 11, the pointer is hovering over the best quote showing details of the quote and it can be seen that the ask price of the quote, 96.2038, corresponds to that shown in figure 10.

By pressing the F8 toggle a second time, the comparator for the heat map changes again, this time to asset swap spread. Again, the heat map for our selected bond changes, with the offering from broker 4 being highlighted as the best, and the offering from broker MS having the lightest shading as the worst quote. If the user toggles the F8 key again, the heat map will return to a price comparator.

The manner in which the market watch populates the heat map can be determined by the user by pressing the settings button at the bottom right hand corner of the market watch display. This displays to the user the window shown

in figure 13. This allows selection of default characteristics under three headings: Side, default displayed value, and bond selections matching. The side selection determines whether the heat map displays only asks (in a first colour), bids (in a second colour) or both. In the examples shown in the preceding figures, both bids and asks have been shown and it will be seen that this option has been selected in figure 13.

The default displayed value setting determines the comparator that will be used as a default to generate the market watch heat map. In this case price has been selected. The options available under this heading will depend on the particular instrument or product being traded.

The bond selections matching determine which bonds are displayed in the heat map in addition to the bond or bonds selected by the user from the main display. In this example, which is not limiting, the user can select between matching based on a combination of other characteristics. It will be appreciated that the matching criteria will vary from product to product. This figure illustrates how the user may select matching criteria from a limited set of options.

In the example shown, matching based on ticker has been selected and within that selection the user has selected multicurrency as opposed to asset currency so that the bonds shown in the heat map are not limited to the currency of the bond or bonds which are selected for heat map generation.

Looking back at the examples of heat maps shown in the figures, it can be seen that the comparative bonds selected have all been from the same ticker or tickers as the bond or bonds selected from the main display by the user.

It can be seen from figure 13 that if the user had selected characteristics other than ticker, the bonds would have been matched based on a combination of two or more of currency, maturity, rating, industry and benchmark . Clearly, the matching need not be limited to these particular characteristics or require a combination of characteristics. In the example shown in figure 14, the user has selected currency and industry as the characteristics and the market watch returns bonds with these characteristics. In this figure, although not visible, the

original selected bond is displayed. As the match has returned a large number of bonds, the user will have to scroll down to see the selected bond.

The user can toggle between the two main matching criteria: Ticker and other characteristics, for example by using the F7 key. The principle is the same as that discussed in relation to figures 10 and 12. The heat map will be regenerated according to the new matching criteria. Toggling the key again will return the matching criteria to the default setting. This is illustrated in figure 15 in which the heat map on the left is based on characteristics matching, as shown at the bottom of the heat map display. In this case the matching characteristics are industry and currency. It will be seen from the market watch that all the bonds displayed are in US Dollars. The grid above the market watch shows that all the bonds selected are from the automotive industry. The heat map on the right is based on matching by ticket.

It will be appreciated that the characteristics illustrated in this example are those that are relavant to bond trading and other instruments will define other characteristics. Typical characteristics for bonds may also include may include Issuer, Country of Issue, and Duration,

Similarly, the basis on which the heat map shows the best offering will vary from instrument to instrument. For example floating rate notes may use discount libor bid / ask and swaps may use factors and recovery rates to compare correctly.

In figure 6, a panel is displayed on selection of one or more bonds from the main list. This panel include a market watch option from which the heat map is generated. It also includes a view details option which, if selected, returns a window showing all data for the highlighted Axe/Run over which the user's pointer is hovering, that have been sent by the broker. An example of this is shown in figure 16.

It will be appreciated that many modifications to the examples of heat maps given may be made. As mentioned, the order in which offerings are arranged is based on time of receipt of axe/run by the system, but other ordering criteria could be used. The boxes within which bonds are displayed are the same size, but size

may be varied, for example according to ranking. The graduations in shading between the best quote and the worst are equal regardless of the actual difference in the characteristic being compared. In many instances, two bonds will have the same value of compared characteristic. In that case, both will be displayed with the same shading or alternatively may be ranked with respect to one another using a secondary characteristic such as volume.

The number of offerings for each bond is shown as five, although this may vary. In some cases these will not be five offerings in the market in which case only those available are shown.

Within the heat map, the position of the selected bonds or bond may vary. For example, it may be preferred that the selected bond/s be shown first.

As mentioned above, the invention is not limited to fixed income products but may be used with any type of tradable product including financial instruments and other products. It is particularly suited to the display of quotes as opposed to orders. Those quotes may be firm or indicative. It is also particularly suited to indications of interest and advertised trades.

A second aspect of the system which is highly beneficial is tiering. Each broker has a wide range of clients and will not want to deal with all of them on the same terms. They may not wish to make all offerings available to all clients and may wish to give some clients preference over others. In some cases one or more clients may be given first refusal before the offering is shown to other clients. The system described is particularly suited to the use of tiering by broker to rank clients with respect to one another. Brokers can assign each possible clients to one of a number n of possible tiers. The tiering allocation is complied by the broker who communicates it to the system application server. When the broker sends details of a new Axe or Run to the system, the file for that offering, which may conveniently be a XML file will contain details of the tier, or target group to which the offering is to be made available. The system will then limit the availability of the offerings to those clients it has been notified as belonging to that target group or tier. In one development of tiering, the target group instruction may include an instruction to make the offering available to a certain group or groups initially and then to make the offering available to one or more

other groups after a certain time. Of course a tier or target group could comprise a single buy-side client if appropriate. In another embodiment, different tiers or target groups will see offerings both at different prices and at different timings. Timings may be restricted as well as delayed so that a tier may see an offering for a limited time before it is removed from their view. The size of the offering or any other characteristic may be varied from tier or tier. Different tiers may be shown different prices if it is perceived that the amounts they are likely to trade are different. If an asset manager is in the top tier it is likely they will want to buy/sell large sizes and will therefore gain discounts in price

The tiering is possible as the system is provided with details of the tiers and the clients assigned to each tier. The system is also provided by brokers with the criteria for each tier for a given offering so that the system can administrate the brokers' tiering regime. In some instances, the sell side trader will want to show the same price to all buy tiers, in which case a global broadcast can be sent to all tiers.

Thus, the embodiment described provides a system for providing information to users about products available for trade in a market. A service provider is arranged between a plurality of parties offering products and a plurality of users receiving product offerings. The service provider comprises a database for storing details of product offerings supplied by a plurality of parties offering the products. The service provider and the plurality of parties offering the product communicate via a communications link such as the Internet for communication of product offerings information to the service provider. The plurality of users communicate with the service provider via a communications link such as the Internet to receive details of product offerings from the database. The service provider comprises a store for storing a list of tiers to which each party offering the products has assigned each of the plurality of users. Communications of product information from the parties offering the product include information regarding the tier or tiers to which the product information is to be distributed.

The embodiments described provide a greatly enhanced information tool for buy side traders and fund managers. As well as consolidating market offerings from

multiple brokers it enables them to extract comparative data in selected areas of interest and to see a display of that data that is clear and very easy to assimilate.

Although described as a system which displays market information, the system may be modified to allow trading from the display or from the heat map. For example, selecting a best quote from a particular bond on the heat map display might automatically initiate a trade in that bond. Alternatively, it might open an on-line conversation with the broker from which a trade can be negotiated.

Many other modifications are possible and will occur to those skilled in the art without departing from the scope of the present invention which is defined by the following claims.

Claims

1. A method of displaying on an electronic display device information relating to products available for trade in a market, comprising:

providing a user with a display of consolidated information relating to product offerings available for trade offered from a plurality of sources;

selecting at least one of the displayed product offerings; and

generating a graphical display of the depth of the market in the selected product and in related products having a predefined characteristic in common with the selected product, the graphical display of the depth of the market showing a plurality of offerings of the product, wherein the best offering in the market is highlighted with respect to the other products.

2. A method according to claim 1, wherein the graphical display arranges the plurality of offerings in each of the product and the related products side by side in rows.

3. A method according to claim 2, wherein the offerings for a product are displayed in a colour and the depth of colour with which an offering is displayed is dependent on the position of the offering in the market with respect to the other offerings for the product in the graphical display.

4. A method according to claim 3, wherein the best offering in the market is shown in the darkest colour, the worst offering displayed is shown in the lightest colour and intermediate offerings are shown in intermediate shades of the colour.

5. A method according to claim 4, wherein the offerings in the market for each product are arranged in order of time of receipt at a central server.

6. A method according to claim 3, wherein the offerings for each product may include buy and sell offerings for the product and wherein buy offerings are displayed in a different colour to sell offerings.

7. A method according to claim 4, wherein the best offering in the market is displayed with a dark border.

8. A method according to claim 1, wherein the position of offerings in the market is determined with reference to the price of the offerings.

9. A method according to claim 1, wherein the position of offerings in the market is determined with reference to a characteristic of the offerings definable by the user.

10. A method according to claim 9, wherein the products are bonds, and the position of the offerings in the market is determined with reference to one of price, benchmark spread and asset swap spread.

11. A method according to claim 1, wherein the predefined characteristic in common with the selected product is defined by the user.

12. A method according to claim 11, wherein the predefined characteristic is the originator or issuer of the product to be traded.

13. A method according to claim 11, wherein the predefined characteristic is at least one of currency, maturity, industry, benchmark and rating.

14. A method according to claim 1, wherein the user can switch between the predefined characteristic thereby altering the graphical display.

15. A method according to claim 9, wherein the user can switch between the characteristic of the offerings, thereby altering the graphical display.

16. A method according to claim 1, wherein the display of related products includes products not displayed to the user in the display of consolidated information.

17. A method according to claim 1, wherein the display of consolidated information is comprises a plurality of fields for each product offering and the display includes filters to filter the product offerings displayed according to the content of each field.

18. A method according to claim 1, comprising generating a plurality of graphical displays of the depth of the market each display being related to at least one product selected from the displayed product offerings.

19. A method according to claim 1, wherein the display of market depth shows up to the best five offerings in the market for the product.

20. A method according to any preceding claim, therein the products are financial instruments.

21. A method according to claim 20, wherein the product offerings comprise one of quotes, indications of interest, and advertised trades.

22. A computer readable medium having program code stored thereon for execution on a computer for displaying device information relating to products available for trade in a market, the program code causing the computer to perform the steps of:

providing a user with a display of consolidated information relating to product offerings available for trade offered from a plurality of sources;

selecting at least one of the displayed product offerings; and

generating a graphical display of the depth of the market in the selected product and in related products having a predefined characteristic in common with the selected product, the graphical display of the depth of the market showing a plurality of offerings of the product, wherein the best offering in the market is highlighted with respect to the other products.

23. A computer readable medium according to claim 22, wherein the graphical display arranges the plurality of offerings in each of the product and the related products side by side in rows.

24. A computer readable medium according to claim 22, wherein the offerings for a product are displayed in a colour and the depth of colour with which an offering is displayed is dependent on the position of the offering in the market with respect to the other offerings for the product in the graphical display.

25. A computer readable medium according to claim 23, wherein the best offering in the market is shown in the darkest colour, the worst offering displayed is shown in the lightest colour and intermediate offerings are shown in intermediate shades of the colour.

26. A computer readable medium according to claim 25, wherein the offerings in the market for each product are arranged in order of time of receipt at a central server.

27. A computer readable medium according to claim 24, wherein the offerings for each product may include but and sell offerings for the product and wherein buy offerings are displayed in a different colour to sell offerings.

28. A computer readable medium according to claim 25, wherein the best offering in the market is displayed within a dark border.

29. A computer readable medium according to claim 22, wherein the position of offerings in the market is determined with reference to the price of the offerings.

30 A computer readable medium according to claim 22, wherein the position of offerings in the market is determined with reference to a characteristic of the offerings definable by the user.

31. A computer readable medium according to claim 30, wherein the products are bonds, and the position of the offerings in the market is determined with reference to one of price, benchmark spread and asset swap spread.

32. A computer readable medium according to claim 22, wherein the predefined characteristic in common with the selected product is defined by the user.

33. A computer readable medium according to claim 32, wherein the predefined characteristic is the originator or issuer of the product to be traded.

34. A computer readable medium according to claim 32, wherein the predefined characteristic is at least one of currency, maturity, industry, benchmark, country of issue, issuer, duration and rating.

35. A computer readable medium according to claim 22, wherein the user can switch between the predefined characteristic thereby altering the graphical display.

36. A computer readable medium according to claim 30, wherein the user can switch between the characteristic of the offerings, thereby altering the graphical display.

37. A computer readable medium according to claim 22, wherein the display of related products includes products not displayed to the user in the display of consolidated information.

38. A computer readable medium according to claim 22, wherein the display of consolidated information is comprises a plurality of fields for each product offering and the display includes filters to filter the product offerings displayed according to the content of each field.

39. A computer readable medium according to claim 22, comprising generating a plurality of graphical displays of the depth of the market each display being related to at least one product selected from the displayed product offerings.

40 A computer readable medium according to claim 22, wherein the display of market depth shows up to the best five offerings in the market for the product.

41. A computer readable medium according to claim 22, wherein the products are financial instruments.

42. A computer readable medium according to claim 22, wherein the product offerings comprise one of quotes, indications of interest, and advertised trades.

43. A client side system for displaying information relating to products available for trade in a market, comprising:

an electronic display device for displaying, in a browser, a display of consolidated information received from a service provider and relating to product offerings available for trade offered from a plurality of sources;

a selector for selecting at least one of the displayed product offerings; and

software for generating a graphical display of the depth of the market in the selected product and in related products having a predefined characteristic in common with the selected product, the graphical display of the depth of the market showing a plurality of offerings of the product, wherein the best offering in the market is highlighted with respect to the other products.

44. A system for providing information to users about products available for trade in a market comprising:

a service provider;

a plurality of parties offering products;

a plurality of users receiving product offerings;

wherein the service provider comprises a database for storing details of product offerings supplied by a plurality of parties offering the products;

the service provider and the plurality of parties offering the product communicate via a communications link for communication of product offerings information to the service provider;

the plurality of users communicate with the service provider via a communications link to receive details of product offerings from the database;

wherein the service provider comprises a store for storing a list of tiers to which each party offering the products has assigned each of the plurality of users,

and wherein communications of product information from the parties offering the product include information regarding the tier or tiers to which the product information is to be distributed.

45. A system according to claim 44, wherein the communications of product information fro parties offering the product include information regarding the relative timings of distribution of information to each of the tiers to which the product offerings are to be communicated.

46. A method for providing information to users about products available for trade in a market comprising:

communicating to a service provider by each of a plurality of parties offering products, a list of tiers to which each party has assigned users receiving information about the product offerings from the service provider;

storing the lists of tiers at the service provider;

sending details of product offerings from a plurality of parties offering the products to a service provider;

storing details of product offerings supplied by a plurality of parties offering the products in a database at the service provider;

communicating the product offerings stored in the database to a plurality of users;

wherein the product offerings communicated by the parties offering the products include details of the tier of tiers of users to which the product offerings are to be communicated by the service provider.

47. A method according to claim 46, wherein the communications of product information from parties offering the product include information regarding the relative timings of distribution of information to each of the tiers to which the product offerings are to be communicated.