



US008725629B2

(12) **United States Patent**
Villacorta et al.

(10) **Patent No.:** **US 8,725,629 B2**
(45) **Date of Patent:** ***May 13, 2014**

(54) **SYSTEM AND METHOD FOR MANAGING CREDIT RISK FOR INVESTMENT PORTFOLIOS**

(75) Inventors: **Roland E. Villacorta**, New York, NY (US); **Scott J. Condron**, Armonk, NY (US); **Cheewee Chew**, Princeton, NJ (US)

(73) Assignee: **BlackRock, Inc.**, New York, NY (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **13/489,203**

(22) Filed: **Jun. 5, 2012**

(65) **Prior Publication Data**

US 2012/0296848 A1 Nov. 22, 2012

Related U.S. Application Data

(63) Continuation of application No. 10/685,865, filed on Oct. 15, 2003, now Pat. No. 8,219,487.

(51) **Int. Cl.**
G06Q 40/00 (2012.01)

(52) **U.S. Cl.**
USPC **705/38**

(58) **Field of Classification Search**
USPC 705/38, 37, 36
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

5,239,462 A * 8/1993 Jones et al. 705/38
6,088,686 A * 7/2000 Walker et al. 705/38

6,112,190 A * 8/2000 Fletcher et al. 705/36 R
6,405,181 B2 * 6/2002 Lent et al. 705/38
6,587,841 B1 * 7/2003 DeFrancesco et al. 705/38
7,143,069 B2 * 11/2006 Lacivita et al. 705/64
2002/0016758 A1 * 2/2002 Grigsby 705/36
2002/0087451 A1 * 7/2002 Rieger et al. 705/37
2003/0083984 A1 * 5/2003 Crawford et al. 705/38
2003/0117443 A1 * 6/2003 Langner et al. 345/810
2003/0225667 A1 * 12/2003 Sato 705/36
2003/0233292 A1 * 12/2003 Richey et al. 705/28
2004/0107152 A1 * 6/2004 Marlowe-Noren 705/35

FOREIGN PATENT DOCUMENTS

WO WO 00/70506 * 11/2000 G06F 17/30

OTHER PUBLICATIONS

Standard&Poors: Ratings Actions > Ratings Lists, 2002, Internet Archives, p. 1.*

Moody' Investors Service: Rating Action: Moody Confirms Debt Ratings of M&T Bank Corporation, May 18, 2000, pp. 1-3.*

Florida State College, Jacksonville: Rules for the Board of Trustees, Adopted Jul. 1, 1972, pp. 1-6.*

* cited by examiner

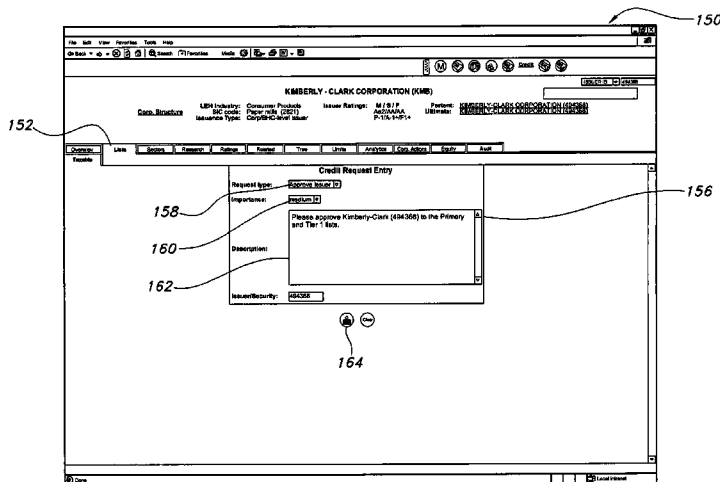
Primary Examiner — Bijendra K Shrestha

(74) *Attorney, Agent, or Firm* — Edwards Wildman Palmer LLP; Scott D. Wofsy; Christopher J. Capelli

(57) **ABSTRACT**

A system is disclosed for enabling a portfolio manager to obtain credit approval for an issuer of securities from a credit analyst. The system includes a relational database containing subjective and objective issuer information, a graphical user interface for permitting a portfolio manager to submit a credit approval request to a credit analyst, a graphical user interface for permitting a credit analyst to evaluate the credit approval request submitted by the portfolio manager based on the issuer information contained in the database, and a graphical user interface for permitting the credit analyst to resolve the credit approval request on behalf of the portfolio manager.

5 Claims, 18 Drawing Sheets



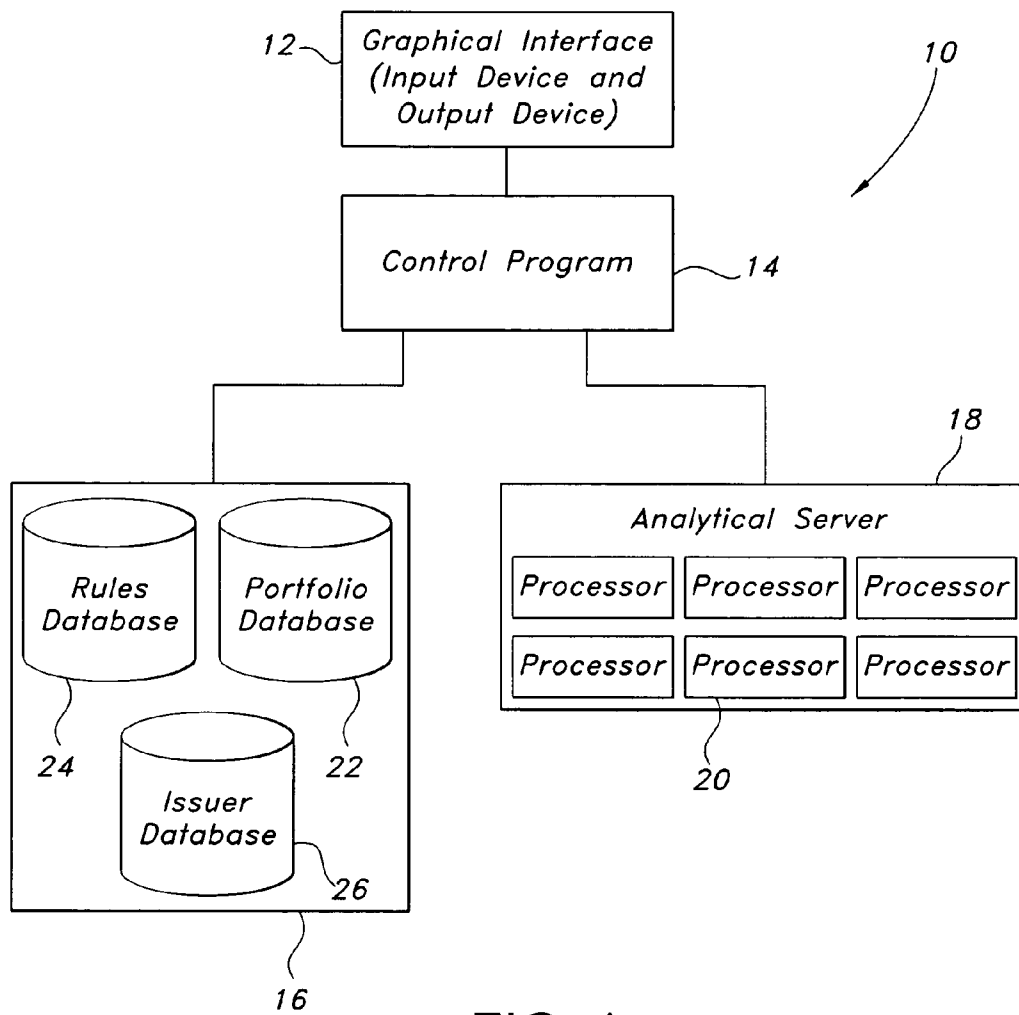


FIG. 1

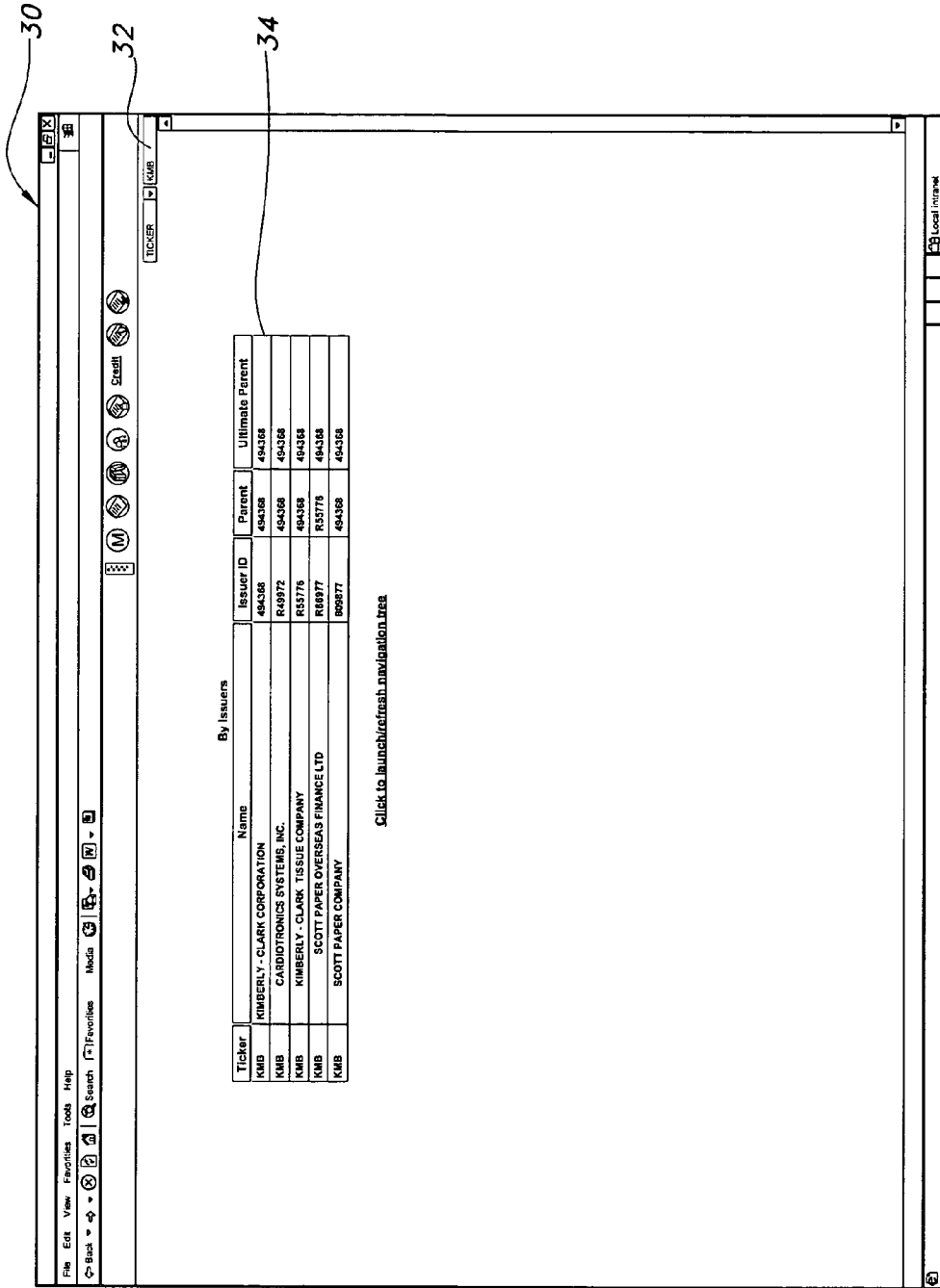


FIG. 2

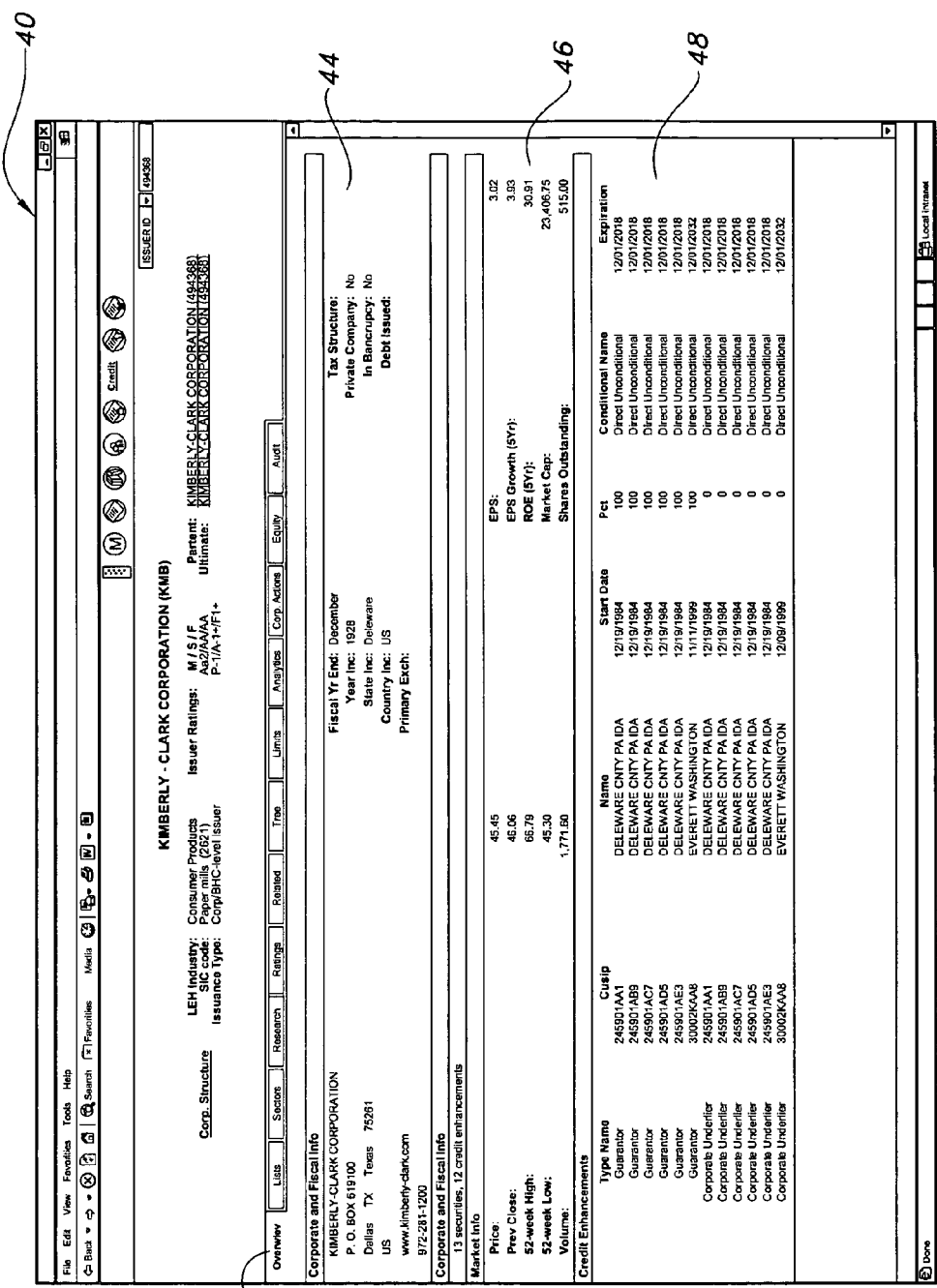


FIG. 3

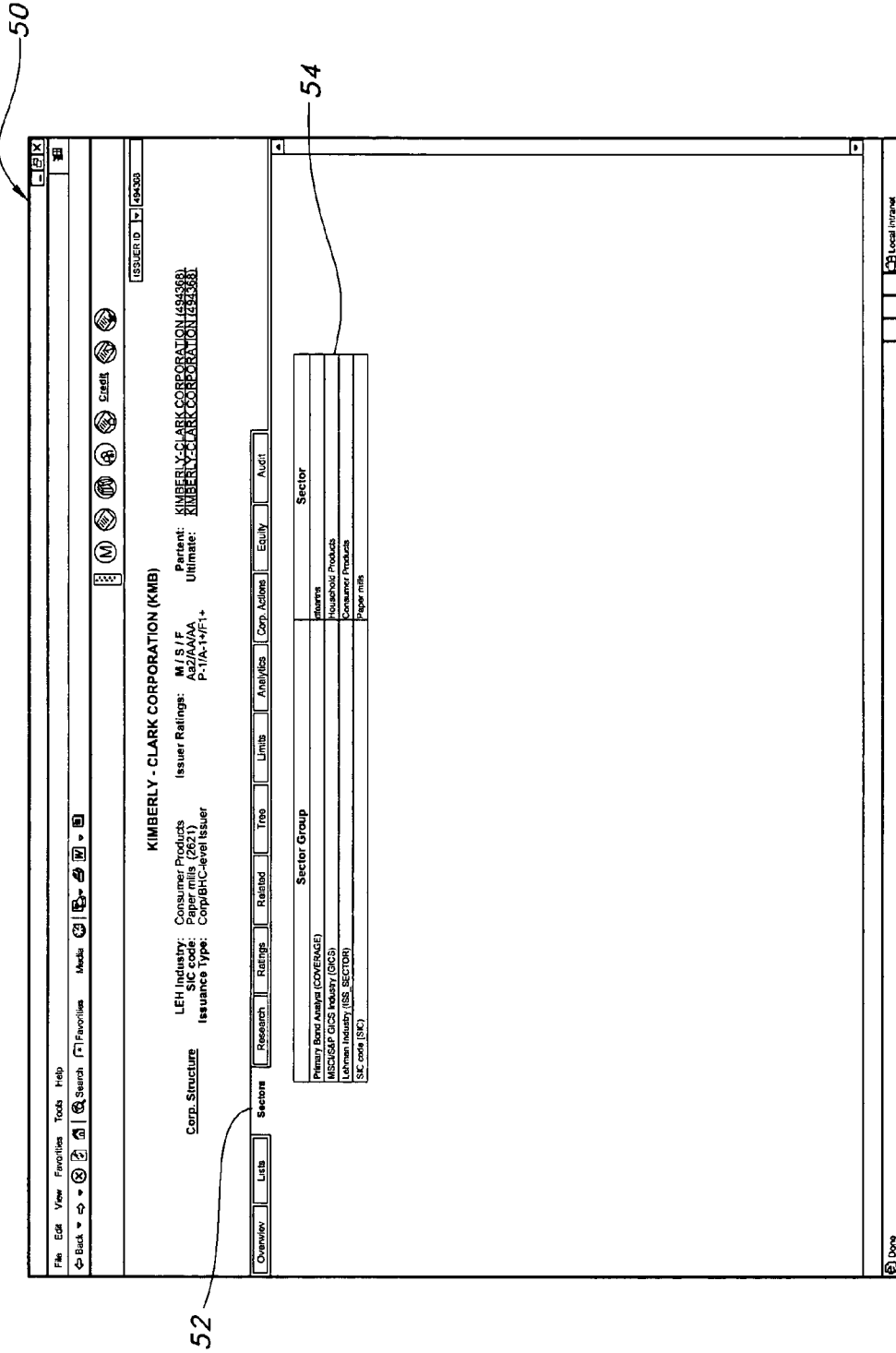


FIG. 4

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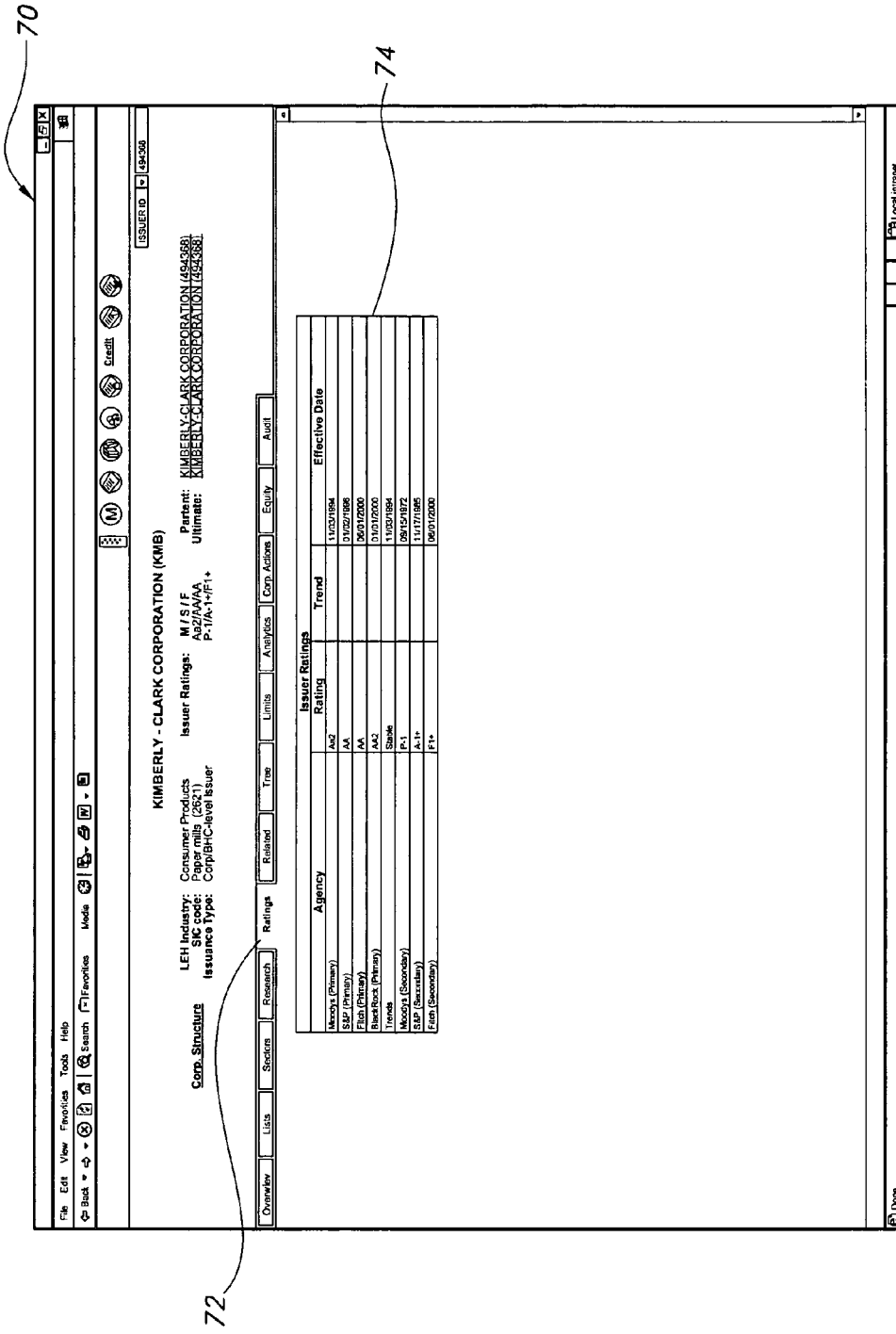


FIG. 6

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ISSUER ID: 48438

KIMBERLY - CLARK CORPORATION (KMB)

LEH Industry: Consumer Products
SIC code: Paper mills (2621)
N/S / F
A2/AA/A
P-1A-1+1F1+

Parant: KIMBERLY-CLARK CORPORATION (694368)
Ultimate: KIMBERLY-CLARK CORPORATION (694368)

Consumer Products
Paper mills (2621)
Corp. Structure
Issuance Type: Corp/BHC-level issuer

Issuer Ratings: M/S / F
A2/AA/A
P-1A-1+1F1+

Types Name
Guarantor
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Guarantor
Corporate Underlier
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Local intranet

Done

Corp. Desc	Sec Desc	Ticker	Coupon	Maturity	Sec Type
KIMBERLY-CLARK CORP		KMB	10.000	03/15/2005	EQUITY
SCOTT PAPER COMPANY		KMB	4.500	07/29/2005	CORP
KIMBERLY-CLARK CORP		KMB	7.100	08/07/2007	CORP
SCOTT PAPER COMPANY		KMB	5.500	07/29/2007	CORP
KIMBERLY-CLARK CORP		KMB	5.525	02/15/2012	CORP
KIMBERLY-CLARK CORP		KMB	11.500	03/01/2013	CORP
KIMBERLY-CLARK CORP		KMB	6.815	02/15/2014	CORP
KIMBERLY-CLARK CORP		KMB	9.500	02/01/2018	CORP
KIMBERLY-CLARK CORP		KMB	6.250	02/01/2018	CORP
KIMBERLY-CLARK CORP		KMB	6.875	01/01/2023	CORP
KIMBERLY-CLARK CORP		KMB	8.975	01/01/2028	CORP

FIG. 7

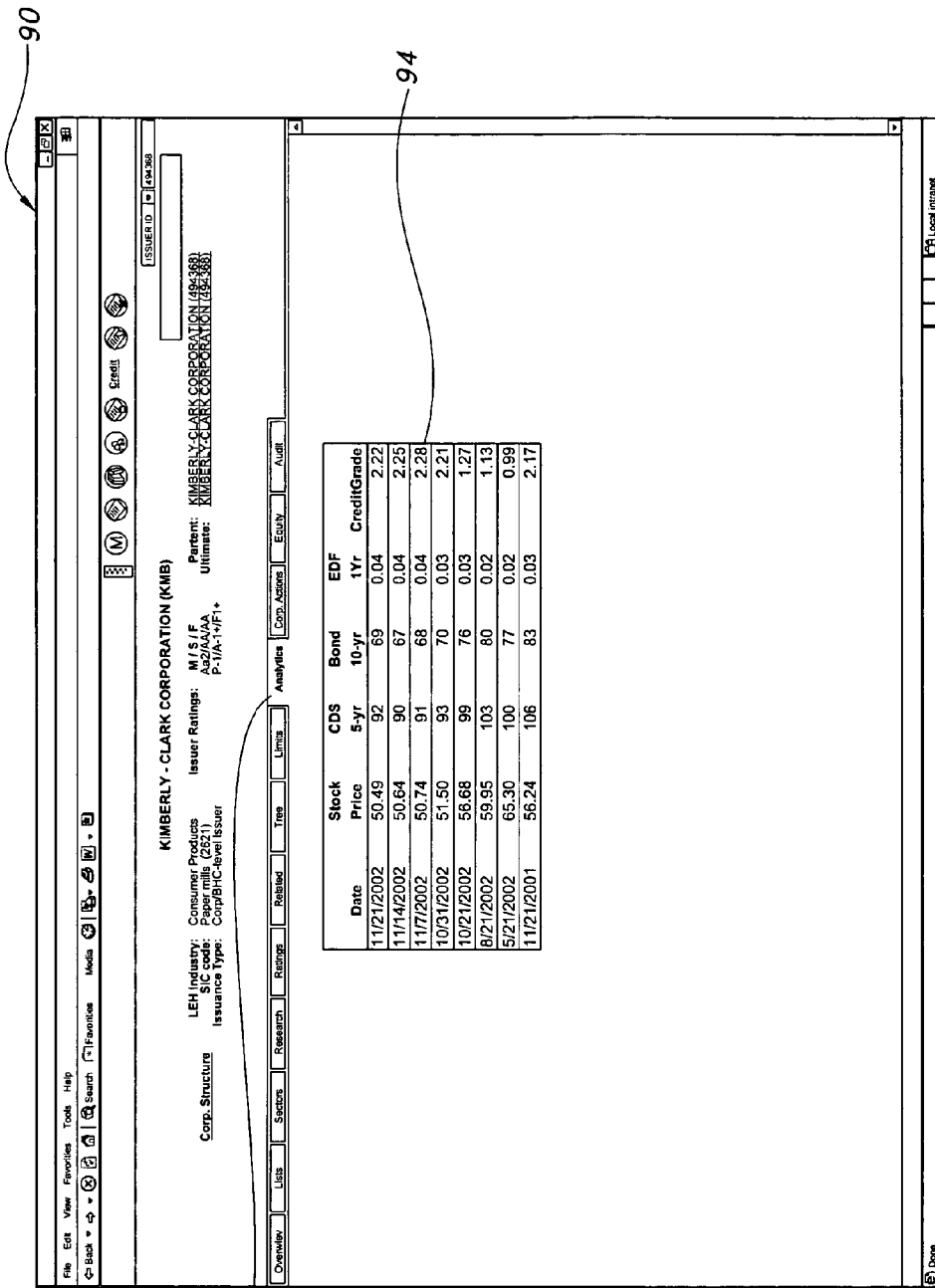


FIG. 8

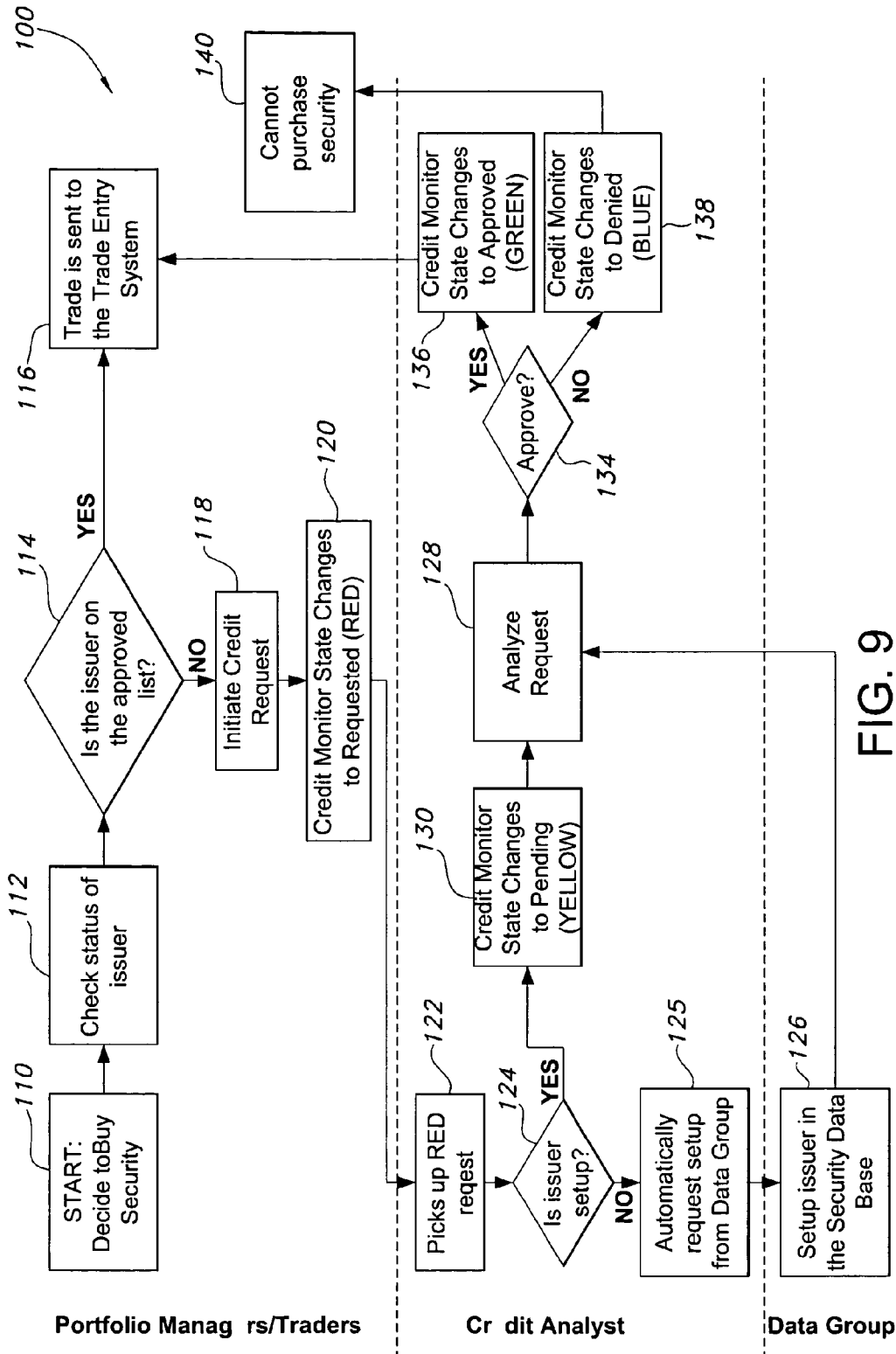


FIG. 9

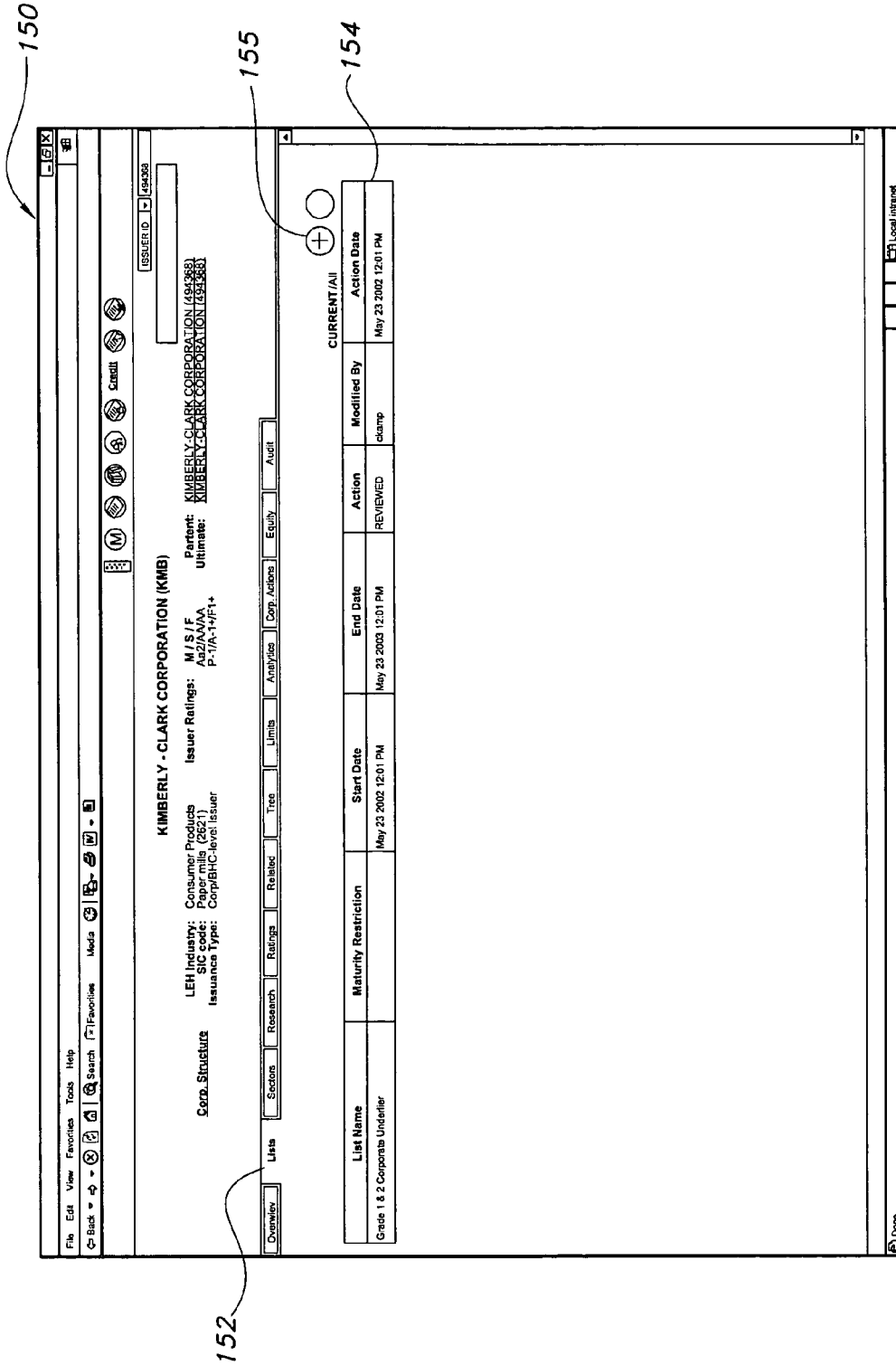


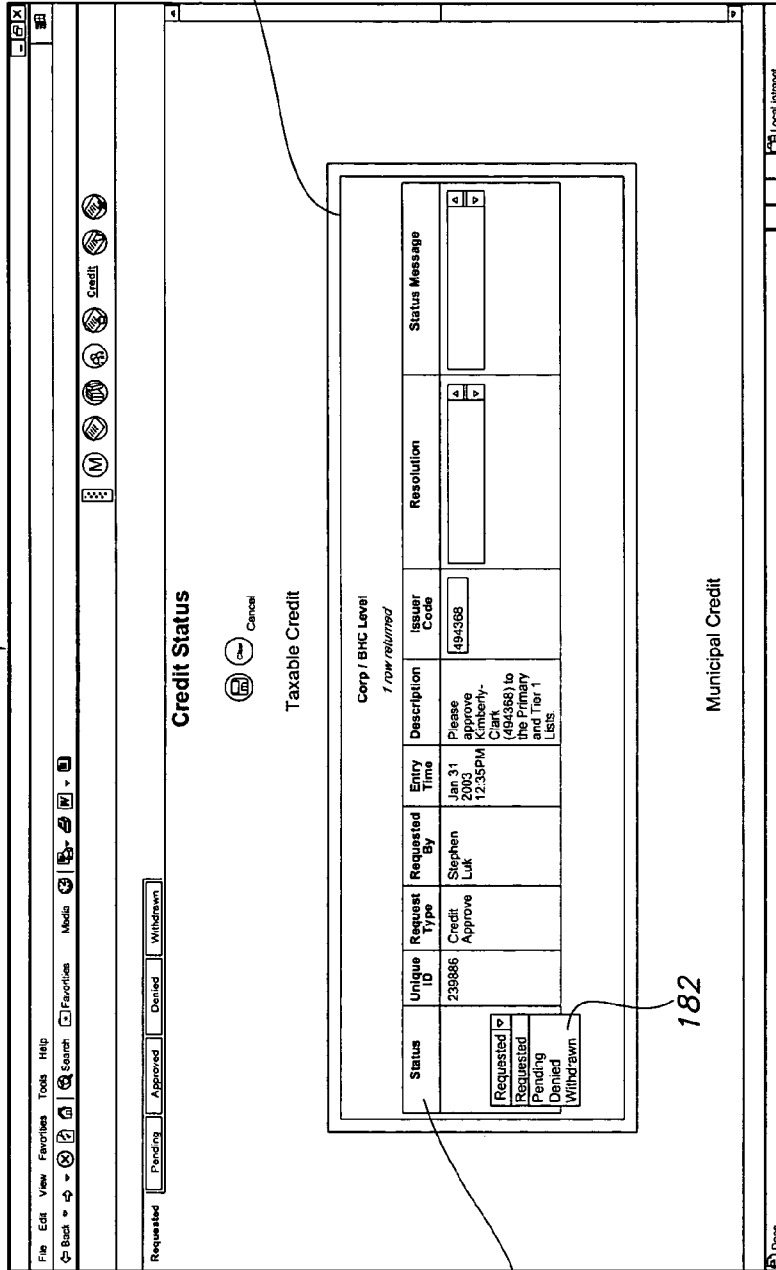
FIG. 10

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***Credit Monitor (View Only) TEST NETWORK ***				
File Window Help				
Credit Monitor				
5 Items				
Active Time	Client	Description	Request	Requested By
N/A	BlackRock	Please setup: FGHJK Additional Credit Request:	Credit Approve	sluk
N/A	BlackRock	Please setup: T.B.D. Additional Credit Request:	Credit Approve	sluk
N/A	BlackRock	Approving GENERAL MOTORS ACCEPTANCE CORPORATION CONTINENTAL (R73925) for Primary, First Tier, Second Tier	Credit Suspension/Restriction	sluk
N/A	BlackRock	New Research Note(s) has been added for KIMBERLY-CLARK CORPORATION (494368) Subject: management call	Credit Research	sluk
N/A	BlackRock	Please approve Kimberly-Clark (494368) to the Primary and Tier 1 lists.	Credit Approve	sluk

FIG. 12

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FIG. 13

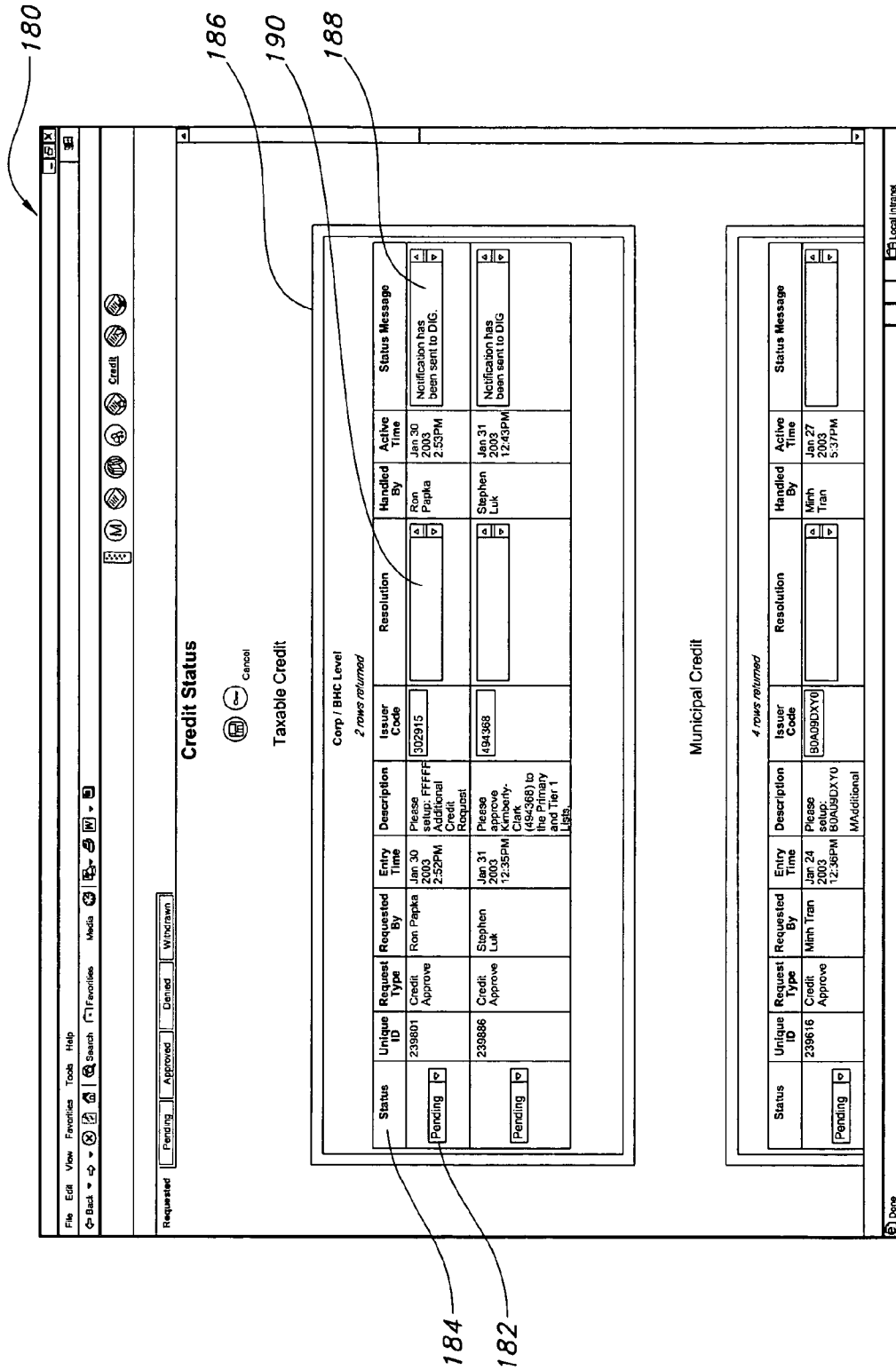


FIG. 14

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FIG. 15

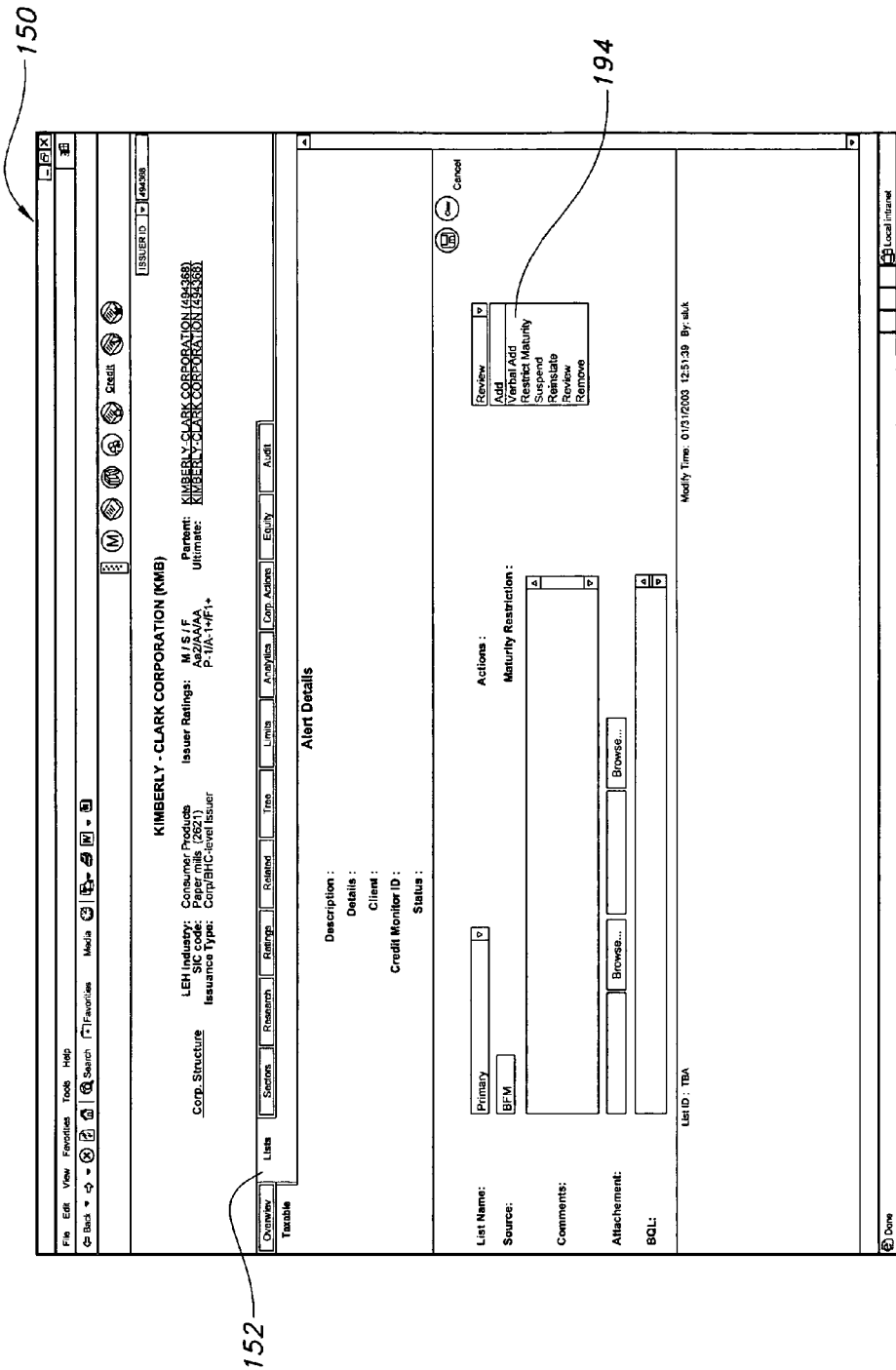


FIG. 16

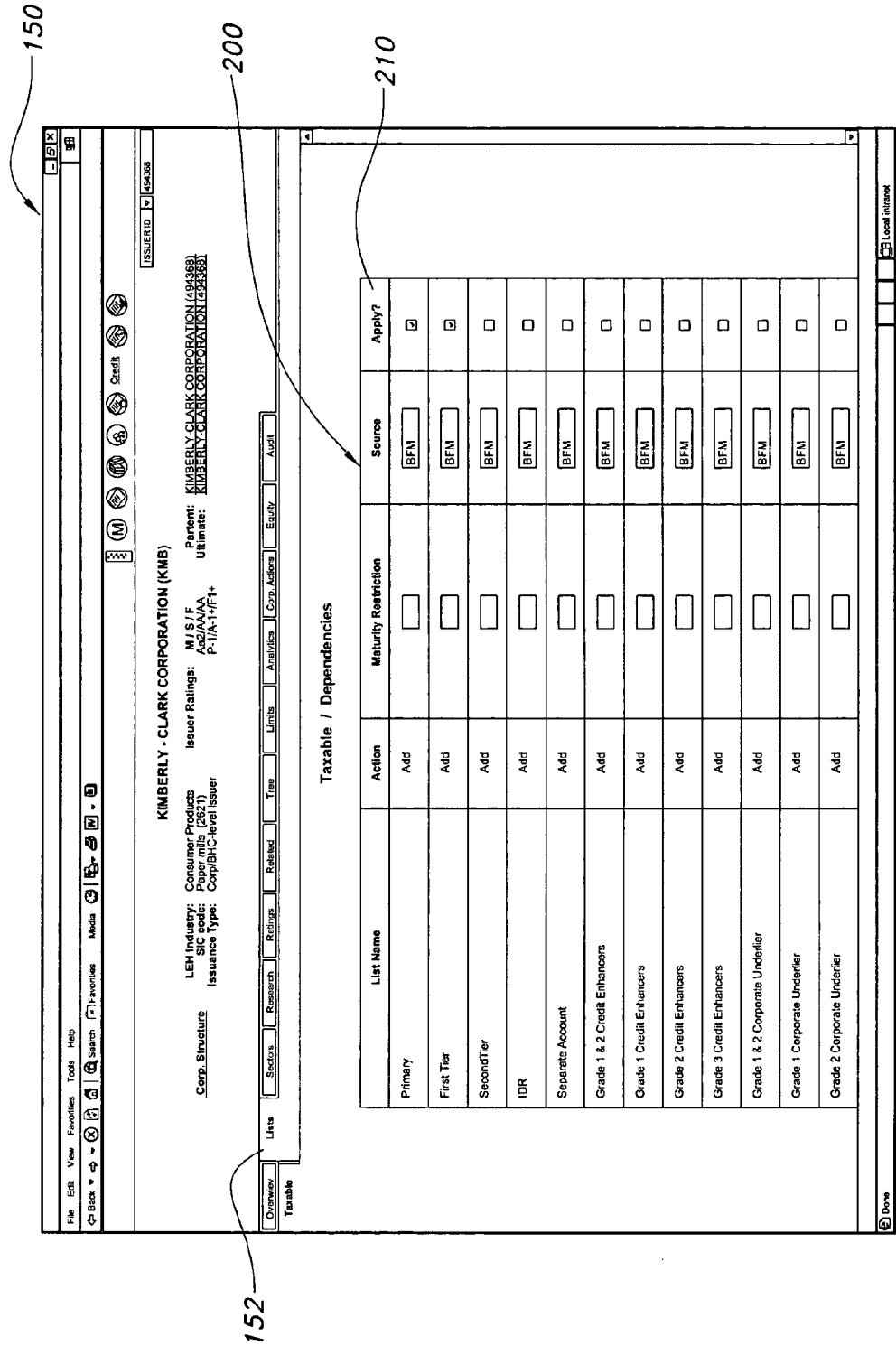


FIG. 17

SYSTEM AND METHOD FOR MANAGING CREDIT RISK FOR INVESTMENT PORTFOLIOS

CROSS-REFERENCE TO RELATED APPLICATION

The subject application is a continuation of U.S. patent application Ser. No. 10/685,865 filed Oct. 15, 2003 now U.S. Pat. No. 8,219,487.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The subject invention relates to financial portfolio management, and more particularly, to a system and method for managing credit risk as it relates to issuers of fixed income securities.

2. Background of the Related Art

Evaluating the credit risk associated with an issuer of fixed income securities is a critical aspect of portfolio management. Regardless of whether the issuer is public or private, foreign or domestic, small or large, portfolio managers need to assess the issuer's probability of default before a transaction can be executed. The probability of default or credit risk associated with an issuer is typically assessed using quantitative or objective financial data including capital structure, volatility, and asset value, related securities issued to or by the company, agency ratings and market analytics. Oftentimes, the credit risk or exposure associated with an issuer is evaluated using subjective or qualitative information such as analyst opinions and commentary from market observers.

It would be beneficial to provide a relational database containing subjective and objective information relating to issuers of fixed income securities, and to provide a web-based system and method which enables a credit analyst to readily access the information in the database to evaluate the credit worthiness and risk associated with an issuer of securities.

It would also be beneficial to provide a web-based system and method that enables portfolio managers and credit analysts to readily communicate with one another to obtain credit approval for an issuer of securities in an effective and efficient manner.

SUMMARY OF THE INVENTION

The subject invention is basically directed to a new and useful system for enabling a portfolio manager or trader to obtain credit approval for an issuer of securities from a credit analyst. The system includes a relational database containing information about issuers of securities in the form of subjective data and objective data. Means are provided for permitting a portfolio manager to submit a credit approval request to a credit analyst, and means are provided for broadcasting the credit approval request to the credit analyst for evaluation. The means for submitting a credit approval request includes a graphical user interface having a data entry field for entering a description of the request. Preferably, the graphical user interface permits a portfolio manager to assign a degree of relative importance to the credit approval request in another data entry field.

Means are also provided for permitting a credit analyst to evaluate the credit approval request submitted by the portfolio manager based on the issuer information contained in the database. This involves graphical user interfaces enabling ready access to information contained in the issuer database. The system further includes means for permitting the credit

analyst to resolve the credit approval request on behalf of the portfolio manager. The means for permitting the credit analyst to resolve the credit approval request includes a graphical user interface accessible by the credit analyst for specifying a resolution to the credit approval request in a data field.

Preferably, the graphical user interface is adapted and configured to permit the credit analyst to resolve the credit approval request on behalf of the portfolio manager by adding an issuer to at least one list of approved issuers. In an embodiment of the subject invention, the system also includes means for providing the portfolio manager with status messages indicating the status of a credit approval request. Preferably, the means for providing status messages includes a graphical display providing color-coded status messages to the portfolio manager.

The subject invention is also directed to a system for enabling a portfolio manager to obtain credit approval for an issuer of securities from a credit analyst that includes means for submitting a credit approval request to a credit analyst, means for monitoring the status of the credit approval request, means for managing the status of the credit approval request, and means for resolving the credit approval request on behalf of the portfolio manager. Preferably, the means for submitting a credit approval request for an issuer includes a graphical user interface accessible by a portfolio manager for entering a description of the request in a data field, and the means for monitoring the status of the credit approval request includes a graphical display, which provides color-coded status messages viewable by the portfolio manager.

Preferably, the means for managing the status of the credit approval request includes a graphical user interface accessible by the credit analyst for specifying the status of the credit approval request in a data field, and the means for resolving the credit approval request includes a graphical user interface accessible by the credit analyst for specifying a resolution to the credit approval request in a data field. The resolution to the credit approval request is preferably selected from the group of actions consisting of adding an issuer to a list of approved issuers, restricting the maturity of an issuer, suspending an issuer, re-instating an issuer, or removing an issuer from a list of approved issuers.

The subject invention is also directed to a method of providing credit approval, which includes the steps of receiving a credit approval request from a portfolio manager, evaluating the credit approval request based upon objective and subjective information stored in a database, managing the status of the credit approval request, and resolving the credit approval request on behalf of the portfolio manager. In one instance, the credit approval request relates to an issuer of securities (e.g., a corporation or municipality). In another instance, the credit approval request relates to a particular security (e.g., an asset backed security or municipal security). Thus, the credit approval request can be resolved on behalf of the portfolio manager on an issuer level or on a security level. Preferably, the step of managing the status of the credit approval request includes communicating status messages to the portfolio manager, and the step of resolving the credit approval request includes communicating a resolution to the credit approval request to the portfolio manager.

These and other aspects of the system and method of the subject invention will become more readily apparent to those having ordinary skill in the art from the following detailed description of the invention taken in conjunction with the drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

So that those having ordinary skill in the art to which the present invention pertains will more readily understand how

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to make and use the method and system of the present invention, embodiments thereof will be described in detail herein below with reference to the drawings, wherein:

FIG. 1 is a schematic diagram depicting the core functional components of a computer-based system for managing credit risk for investment portfolios configured in accordance with a preferred embodiment of the subject invention;

FIG. 2 is a depiction of a graphical user interface configured in accordance with a preferred embodiment of the subject invention that enables a user to enter a ticker symbol for a given issuer in a data input field to obtain tabulated information on the corporate structure and corporate relationships of the issuer from an issuer database containing objective and subjective data about issuers;

FIG. 3 is a depiction of a graphical user interface configured in accordance with a preferred embodiment of the subject invention that displays an overview for a selected issuer based on information from the issuer database including corporate and fiscal information, market information such as exchange closing prices and credit enhancements;

FIG. 4 is a depiction of a graphical user interface configured in accordance with a preferred embodiment of the subject invention that displays information from the issuer database regarding the industry sectors for a selected issuer;

FIG. 5 is a depiction of a graphical user interface configured in accordance with a preferred embodiment of the subject invention that displays research information for a selected issuer compiled by users and stored in the issuer database;

FIG. 6 is a depiction of a graphical user interface configured in accordance with a preferred embodiment of the subject invention that displays ratings information for a selected issuer that are stored in the issuer database;

FIG. 7 is a depiction of a graphical user interface configured in accordance with a preferred embodiment of the subject invention that displays securities that are related to or issued by a selected issuer and that are stored in the issuer database;

FIG. 8 is a depiction of a graphical user interface configured in accordance with a preferred embodiment of the subject invention that displays market analytics that are related to a selected issuer and that are stored in the issuer database;

FIG. 9 is a flow chart depicting the steps in the pre-trade credit approval process of the subject invention;

FIG. 10 is a depiction of a graphical user interface configured in accordance with a preferred embodiment of the subject invention that displays approved credit lists;

FIG. 11 is a depiction of a graphical user interface configured in accordance with a preferred embodiment of the subject invention that includes a data entry field for submitting a credit approval request for a selected issuer;

FIG. 12 is a depiction of a display screen that enables a portfolio manager to monitor the credit approval process through color-coded states;

FIG. 13 is a depiction of a graphical user interface that enables an analyst to manage the status of the credit approval process, at an initial stage of the credit approval process;

FIG. 14 is a depiction of the graphical user interface of FIG. 13, with multiple rows of data presented, at a final stage of the credit approval process;

FIG. 15 is a depiction of a graphical user interface which enables an analyst to add an issuer to an approved credit list selected from a group of credit lists;

FIG. 16 is a depiction of the graphical user interface of FIG. 15 showing a pull down menu to enable an analyst to add an issuer to an approved credit list selected from a group of credit lists;

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FIG. 17 is a depiction of the graphical user interface that enables an analyst to add an issuer to multiple credit lists; and

FIG. 18 is a depiction of the graphical user interface of FIG. 10 showing the two new credit lists to which the issuer has been added.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

The subject invention is directed to a new and useful credit risk management system that is particularly adapted and configured to enable a portfolio manager, trader investor, agent or custodian to request and obtain credit approval for an issuer of financial securities (e.g., a corporation or municipality) prior to executing a transaction involving an issued security. The system is further adapted and configured to enable a credit analyst to evaluate/analyze a request for credit approval based upon subjective and objective data related to the issuer that has been compiled, organized and stored in a relational database.

Those skilled in the art will also readily appreciate that a credit risk management system configured in accordance with the present disclosure includes the various computer and network related software and hardware that may be used in a distributed computing network, that is, programs, operating systems, memory storage devices, input/output devices, data processors, servers with links to data communication systems, wireless or otherwise, such as those which take the form of a local or wide area network, and a plurality of data terminals within the network, such as personal computers. Those skilled in the art will further appreciate that, so long as its users are provided with access to a system and method constructed in accordance with the present disclosure, the type of network, software or hardware is not vital to its full implementation.

Referring now to the drawings wherein like reference numerals identify similar aspects, components or features of the subject invention, there is illustrated in FIG. 1 a schematic representation of the core functional components of the computerized, web-based credit risk management system of the subject invention, which is designated generally by reference numeral 10. It should be understood that system 10 is adapted and configured to function independently while also interacting with other web-based systems such as, for example, an enterprise investment management system that features trade entry, trade settlement, cash management and payment processing tools, as well as an integrated compliance module which monitors investment decisions to ensure that the investment and portfolio composition as a whole remain in compliance with the investment objectives of a particular investor.

In particular, system 10 provides, preferably through a set of graphical user interfaces (GUI's) 12, a credit risk management system for submitting and evaluating requests for credit approval. Preferably, the graphical user interfaces (also referred to herein as "screens") used by system 10 incorporate user-friendly features and fit seamlessly with other operating system interfaces, that is, in a framed form having borders, multiple folders, toolbars with pull-down menus, embedded links to other screens and various other selectable features associated with animated graphical representations of depressible buttons. These features can be selected (i.e., "clicked on") by the user via connected mouse, keyboard, or other commonly used tool for indicating a preference in a computerized graphical interface.

With continuing reference to FIG. 1, the graphical user interfaces 12 define collectively the input and output devices

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for system **10**, which enables portfolio managers, traders and credit analysts to receive and report data in accordance with the present invention. These devices are operatively associated with a data storage device or memory **16** and an analytical server **18**. Memory **16** preferably contains a portfolio database **22** which stores a plurality of portfolios each containing fixed income securities, a rules database **24** storing a plurality of compliance rules or guidelines relating to the portfolios contained in portfolio database **22**, and an issuer database **26** storing subjective and objective data about issuers of fixed income securities.

Analytical server **18** preferably includes one or more processors **20** which communicate with a control program **14**. Control program **14** preferably contains an instruction set written in a conventional computing language such as HTML, C++ or Java, for coordinating the interactive relationship between memory **16**, the processors **20** of server **18**, and the graphical interfaces **12**.

Referring to FIG. **2**, there is depicted a graphical user interface screen **30** that is adapted and configured to enable a user (e.g., a credit analyst) to obtain information from issuer database **26** about an issuer of securities. The information is used to evaluate a credit approval request from a portfolio manager or trader, as will be discussed in greater detail below with respect to the process flowchart illustrated in FIG. **9**. The information associated with screen **30** can be obtained in any number of ways including, for example, entering a ticker symbol for a given issuer of fixed income securities (i.e., KMB the ticker symbol for Kimberly Clarke) in data input field **32** of screen **30**, or by entering an issuer identification number such as a CUSIP identifier (e.g., 484368) in the same field. The information obtained by the credit analyst is set forth in table **34** and includes data on the corporate structure (e.g., parent/subsidiary) and corporate relationships (e.g., share ownership) of the issuer.

FIG. **3** depicts a graphical user interface screen **40** that is adapted and configured to display descriptive information about the selected issuer (i.e., Kimberly-Clark Corporation). Screen **40** is accessed by selecting the "Overview" tab **42**. The information displayed is obtained from the issuer database **26** and includes, for example, corporate and fiscal data in display field **44**, market data such as exchange closing prices in display field **46** and credit enhancements shown in display field **48**. This information is used by the credit analyst to evaluate the credit worthiness of the issuer.

FIG. **4** depicts a graphical user interface screen **50** that is adapted and configured to display information from the issuer database **26** regarding the industry sectors or sector groups for a selected issuer of securities. Screen **50** is accessed by selecting the "Sectors" tab **52**. In the case of Kimberly-Clarke Corporation, the identified sectors displayed in table **54** of screen **50** include household and consumer products, and paper mills. This information is also used by the credit analyst to evaluate the credit worthiness of the issuer.

Referring to FIG. **5**, there is depicted a graphical user interface screen **60** that is adapted and configured to display research information for a selected issuer of securities that has been compiled by users and stored in the issuer database **26**. This qualitative information may be accessed by selecting the "Research" tab **62**. The subjective research information displayed on screen **60** is derived from the comments and/or views of various credit analysts associated with the system of the subject invention. These analyst comments can involve, for example, regulatory issues, earnings reports or credit ratings from outside agencies. In use, an analyst may select icon **64** to add a comment to table **66** using a conventional text editor. It is envisioned that the analyst comments can be

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linked to documents, reports or other types of attachments stored in the database that may be readily accessed by the analyst. This information is used by the credit analyst to evaluate the credit risk associated with an issuer.

Referring to FIG. **6**, there is depicted a graphical user interface screen **70** that may be accessed by a credit analyst by selecting "Ratings" tab **72**, and which displays a table of ratings information **74** for a selected issuer of securities that are stored in the issuer database **26**. The ratings information includes agency ratings such as, for example, Moody's, S&P and Fitch's ratings, and may be used by the credit analyst in evaluating risk. Similarly, FIG. **7** depicts a graphical user interface screen **80** that may be accessed by selecting "Related" tab **82**, and which displays a table of securities **84** that are related to or issued by a selected issuer. In this case, table **84** displays securities that are related to Kimberly-Clarke Corporation, such as, for example, securities issued by Scott Paper Company. This information is also stored in issuer database **26**, and may be utilized by a credit analyst to evaluate the credit worthiness of an issuer of securities.

FIG. **8** depicts a graphical user interface screen **90** that displays additional information in the form of market analytics for a selected issuer. This information, which is stored in issuer database **26**, may be accessed by selecting "Analytics" tab **92**. The information, which is displayed in table **94**, provides the credit analyst with an indication of what the market thinks of a particular issuer, and includes, for example, stock prices, credit defaults swap spreads, bond yields and credit grades in a chronological order.

Referring now to FIG. **9**, there is illustrated a flow chart **100** depicting the steps in the pre-trade credit approval process of the subject invention. As illustrated, the process includes steps that are performed by three distinct parties, namely, the portfolio manager/trader, the credit analyst and the data group. Initially, at step **110**, a portfolio manager/trader will decide to purchase a particular security, for example, a security issued by Kimberly-Clarke Corporation, for a portfolio contained within portfolio database **22**. The portfolio has a set of compliance rules associated therewith, which are stored in rules database **24**, and which provide guidelines for the purchase of securities. For example, the compliance rules may provide that securities can be added to the portfolio only if they are on the Primary and Tier 1 lists that are maintained by the credit management system of the subject invention.

Accordingly, prior to purchasing a security using the trade entry system associated with the subject invention, the portfolio manager must check the list status of the issuer at step **112**. This is accomplished, as shown in FIG. **10**, by accessing graphical user interface screen **150** by way of selecting "Lists" tab **152**. At such a time, a List table **154** displays the inclusive Lists under which the issuer of the securities sought to be purchased are maintained. Thus, at step **114**, the portfolio manager may determine whether the issuer is maintained on a list that is in accord with the compliance rules of the portfolio.

If the issuer is on an approved list, then the portfolio manager may proceed to step **116**, and send the trade to the trade entry system for execution. However, if, as in the case of the subject example, Kimberly-Clarke is only maintained under the Grade 1 & 2 Corporate Underlier list, as shown in table **154** of screen **150**, the portfolio manager must initiate a credit approval request, because the compliance rules for the subject portfolio do not permit the purchase of securities that are maintained this list. Therefore, at step **118**, the portfolio manager requests credit approval for Kimberly-Clarke to be added to the Primary and Tier 1 lists, since they are approved by the compliance rules of the portfolio.

A credit approval request is made by selecting the icon **155** on screen **150** of FIG. **10**. Thereupon, a credit request entry form **156** is displayed on screen **150** which includes, among other things, a data entry field **158** for designating the type of request (e.g., Approve Issuer), a data entry field **160** for designating the relative importance of the request (e.g., high or medium), and a data entry field **162** for setting forth a detailed textual statement describing the credit approval request. Once the portfolio manager has completed request form **156**, the request may be submitted to the credit analyst by selecting icon **164**. Then, the request is broadcast to a credit analyst and is displayed in real-time on the Credit Monitor screen **170** depicted in FIG. **12**. At this stage of the process **100**, which is corresponds to step **120** in FIG. **9**, the credit monitor displays the description of the request in the color Red, indicating that no action has been taken by the credit analyst.

At step **122**, the credit analyst receives the credit approval request from the portfolio manager, and determines at step **124** whether the issuer is set up in the issuer database **26**. That is, a determination is made as to whether the credit management system **10** of the subject invention includes information related to the issuer of interest. If the answer to this inquiry at step **124** is no, then the credit analyst will automatically request that the issuer be set up in the system at step **125**. A person or group assigned to this task will then perform the steps necessary to set up the issuer in the system at step **126**. Thereafter, the process will be placed back into the control of the credit analyst at step **128**, whereupon, the request is analyzed based upon the subjective and objective information now stored in issuer database **26**.

It is envisioned that during the period of time in which the issuer is being setup in the database at step **126**, verbal approval may be given by the credit analyst to enable the portfolio manager/trader to proceed with the transaction, subject to specified restrictions. This verbal approval may be granted for a period of time, and expire automatically thereafter. An appropriate status message indicating a verbal approval would be displayed in the Credit Monitor screen **170**, or in another location.

If the answer at step **124** is yes, that is, the issuer is set up in the system, then process **100** proceeds to step **130**, whereupon the color-coded status of the credit approval request displayed in the Credit Monitor screen **170** is changed to Yellow. This color indicates that the status of the request is pending.

The credit analyst manages the credit approval process using the credit status screen **180** illustrated in FIG. **13**. More particularly, using a pull-down menu **182** in the status column **184** of table **186**, the analyst can selectively change the color-coded status of the request in Credit Monitor screen **170** by choosing between the following states: Requested, Pending, Denied, and Withdrawn. The credit status screen **180** also allows the credit analyst to manage the flow of information during the pendency of the request. For example, FIG. **14** illustrates the use of textual status messages in the status message field **188** of table **186**. A resolution message field **190** is also provided on screen **180**, which enables the credit analyst to present textual messages describing the resolution of the credit approval request on behalf of the portfolio manager.

With continuing reference to FIG. **9**, at step **128** the credit analyst evaluates the credit worthiness of the issuer by using the information stored in issuer database **26** through the use of the graphical user interfaces shown in FIGS. **2** through **8**. More particularly, the credit analyst will determine the credit risk associated with the issuer based upon the subjective and objective information stored in the issuer database **26**. Once

the evaluation is complete, the credit analyst will either approve or deny the request at step **134**.

If the request is approved, at step **136**, the credit analyst changes the color-coded status message on monitor screen **170** of FIG. **12** to Green. This indicates approval of the request. If, on the other hand, the request is denied because of the credit risk involved, at step **138**, the credit analyst changes the color-coded status message on monitor screen **170** of FIG. **12** to Blue. This indicates denial of the request. Consequently, at step **140**, the portfolio manager will be unable to purchase the security for the subject portfolio, as this would be a purchase contrary to the investment objectives defined by the portfolio's compliance rules.

Upon approval of the request at step **134**, the credit analyst selects the "Lists" tab **152** on the graphical user interface **150** of FIGS. **15** and **16**, to add the issuer to the approved lists, which in this instance, are the Primary and Tier 1 lists. As illustrated in FIG. **15**, the credit analyst resolves the request by first accessing the pull-down menu **192** to select the newly approved list(s) from a group of list names. Then, the credit analyst adds the issuer to an approved list by selecting pull-down menu **194** which contains a group of actions including: Add, Verbal Add, Restrict Maturity, Suspend, Reinstate, Review and Remove. This screen is also configured to permit the credit analyst to append comments and attach documents to the credit approval.

It is also possible for the credit analyst to add an issuer to multiple lists by accessing table **200** shown in FIG. **17**. In this instance, the credit analyst can apply an action to multiple lists names by selecting a box in the "Apply?" column **210** of table **200**. Once the credit analyst adds an issuer to one or more approved lists using either screen of interface **150**, the list name will appear in List table **154**, as depicted in FIG. **18**. As noted in the table, the actions taken with respect to the lists include "Reviewed" with respect to the initial Grade 1 & 2 Corporate Underlier lists and "Approved" with respect to the Primary and First Tier lists.

The credit risk management system of the subject invention is also adapted and configured to enable the credit analyst and/or portfolio manager to query historical actions performed in the system to determine the status of certain issuers with respect to a selected list name. For example, a credit analyst can determine which issuers have been suspended from the Tier 1 list, when such actions occurred and which credit analyst conducted the credit evaluation. Historical queries can be based on list name, action, issuer name or date.

The subject system is also adapted and configured to enable a credit analyst or portfolio manager to perform list queries to obtain all or a portion of the taxable or tax-exempt issuers in a particular list of approved issuers. The subject system is further adapted and configured to enable a credit analyst or portfolio manager to access a credit list matrix or spreadsheet, which summarizes approved taxable and tax-exempt issues.

Although the system and method of the subject invention have been described with respect to preferred embodiments, those skilled in the art will readily appreciate that changes and modifications may be made thereto without departing from the spirit and scope of the subject invention as defined by the appended claims. For example, while the graphical user interfaces described and illustrated are focused on managing credit risk with respect to issuers of fixed income securities, those skilled in the art will readily appreciate that the system of the subject invention can be readily utilized to evaluate the credit risk associated with individual securities, and this is considered well within the scope of the subject invention.

What is claimed is:

1. An apparatus for enabling a credit analyst to evaluate credit risk and provide credit approval for an issuer of securities in a trade entry system, comprising:

a memory configured to store instructions;
a processor disposed in communication with said memory wherein said processor upon execution of the instructions is configured to:

a portfolio manager determining whether an issuer is maintained on a list that is in accord with compliance rules of a portfolio and sending a credit approval request to a credit analyst requesting the issuer of securities be added to Primary and Tier 1 lists when the issuer is not found in a database containing compliance rules for the purchase of securities for the portfolio;

the portfolio manager obtaining a credit approval from the credit analyst for an issuer of securities;

the credit analyst determining whether the issuer is set up in an issuer database; and evaluating the credit approval request based upon objective and subjective information stored in a database;

monitoring the status of the credit approval request in real time;

manage the status of the credit approval request; resolve the credit approval request in the trade entry system on behalf of the portfolio manager; and approve or deny the credit approval request based on the compliance rules for purchase of securities and list the issuer in the approved list of issuer in the Primary and Tier 1 lists, if approved.

2. An apparatus according to claim 1, wherein the credit approval request relates to an issuer of securities.

3. An apparatus according to claim 1, wherein the credit approval request relates to a security from an issuer.

4. An apparatus according to claim 1, wherein the instruction configured to manage the status of the credit approval request includes communicating status messages to the portfolio manager.

5. An apparatus according to claim 1, wherein the instruction configured to resolve the credit approval request includes communicating a resolution to the credit approval request to the portfolio manager.

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