

Claim 13 reads as follows:

13. A non-transitory machine-readable medium storing instructions that, when executed, cause one or more processors to perform operations comprising: receiving responses to a set of poll questions, each poll question linked to a macro factor of the plurality of macro factors, wherein the responses to the poll questions were generated by: processing a plurality of data feeds by applying a first set of rules; generating a plurality of events defined by the second set of rules based on the processing; selecting the event from the plurality of events; generating a set of macro factors by applying a second set of rules to the event; applying a third set of rules to identify the plurality of macro factors from among the set of macro factors and generate the set of poll questions; and providing for display a user interface with visual elements for the poll questions linked to macro factors and one or more controls for inputting responses to the poll questions; generating a graph data storage structure representing scenarios for the plurality of macro factors and the plurality of outcomes, each node in the graph data storage structure including a descriptor and a data value, the graph data storage structure including a root node, outcome nodes connected to the root node, and macro factor nodes connected to the outcome nodes, the root node corresponding to the event, each outcome node corresponding to one of the plurality of outcomes, and each macro factor node corresponding to one of the macro factors and including a data value; applying a fourth set of rules to at least some of the responses to generate values for the macro factors; populating the macro factor nodes in the graph data storage structure with the data values for the corresponding macro factors to generate scenarios for the outcome nodes; and providing for display a user interface including visual elements indicating the scenarios and a distribution of responses, wherein each scenario is a path from the root node to a leaf node of the generated graph data storage structure.

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| Claim 13 Language<br>Pat. 10,558,769 | Construction (Term<br>Meaning) | Location in Petitioner<br>Disclosures/Declarations |
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| A non-transitory machine-readable medium storing instructions                       |  | Exhibit I page 33                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| that, when executed, cause one or more processors to perform operations comprising: |  | Exhibit I page 33                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| receiving responses to a set of poll questions,                                     |  | <p>Declaration of Christian Gunther: 6. "... The electronic trading platform would comprise receiving a request from a user to trade an investment product;..."</p> <p>Exhibit J:<br/>Page 7 - "...1. The client choses from existing questions/constraints, which corresponding answers reflect his investment criteria and preferences (answers maybe as radio buttons)..."</p> <p>Page 8 - "...3.STEP: SELECTION OF THE CUSTOMIZING---PROCESS/CUSTOMIZING</p> <p>A. Constraints/wishes via constraints typed in</p> |

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|                                                                                                                            |  | <p>B. Via Payoff-Diagram</p> <p>C. A+B concurrently</p> <p>A: Client should type in one constraint after another and therefore shrinken the possible selections of the available structured products</p> <p>1.Variant: First 3-5 questions standardized by the selection of the predefined possibilities in combo-boxes. Than free "adding" of constraints/wishes by unconstrained selection-possibilities in the combo-boxes or free fields.</p> <p>2.Variant (wishfull): Client can type in and provide his wishes in every combo-box/field from the very beginning.” ff</p> |
| each poll question linked to a macro factor of the plurality of macro factors, wherein the responses to the poll questions |  | <p>Exhibit J:<br/>Page 7 – “...loss tolerance/ loss sensitivity</p> <p>wished spectrum of annual performance/return (normally very structured product specific)</p>                                                                                                                                                                                                                                                                                                                                                                                                            |

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|                                                                                                                                                                                                       |                                                                                                                                                                                                                           | <p>preference between trade-off return/ risk preference (for instance: defensive,</p> <p>low; medium, moderate; slightly higher, slightly higher; high, aggressive)</p> <p>annual savings potential from annual income</p> <p>free capital assets</p> <p>investment horizon</p>                                                                                                                                                                              |
| <p>were generated by:<br/>processing a plurality of data feeds by applying a first set of rules;<br/>generating a plurality of events defined by the second set of rules based on the processing;</p> | <p>“data feeds” is constructed to mean any one or more priced components corresponding to any generated deal terms for any investment product corresponding to product request information by the user or web service</p> | <p>Declaration of Christian Gunther:</p> <p>6.” ... a product generation system that generates customized</p> <p>tradable investment products in response to product request information received</p> <p>from a retail customer user of the electronic platform...”</p> <p>Declaration of Patrick Winzenried:</p> <p>3.:” ... two or more priced components corresponding to respective deal terms, which would generate price and other information...”</p> |

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|  |  | <p>Product generation system: Term paper (Exhibit J) page 5 – “the platform should help, advise and customize a product just for him according to the typed in requirements, propose an existing one or initiate the first-issuing of a new note.”</p> <p>Exhibit I Page 45: ....network and client data...</p> <p>[[A network is a graph; network with client data is graph data storage]];</p> <p>Term paper Exhibit J:</p> <p>Page 53 – “Databaseserver...Webservices”</p> <p>Page 54 – “Migration and Synchronization of Data...Webservices”</p> <p>Page 56 – “...Webservices-Webapplication”</p> <p>Term paper Exhibit J</p> <p>Page 16 – “The module uses a central data source for calculating the price of a structured product as well as the presentation and the updating or</p> |
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|                                                                                                                                      |  | <p>refreshing of the personally fixated options/ investment criteria.”</p> <p>Exhibit J page 9</p> <p>... if the tool would automatically get the gradient, incline or slope and then for instance automatically compute the corresponding delta hedge ratio,</p> <p>draw it into the diagram and the message and ask via text: "Slope = 4 identified -&gt; 4</p> <p>Call positions to be fixed, composited and with corresponding Strike positioned by</p> <p>mouse click Strike (x,y coordinates).”</p> |
| <p>selecting the event from the plurality of events;<br/>generating a set of macro factors<br/>by applying a second set of rules</p> |  | <p>Exhibit J Page 44:<br/>“Flow of the structuring process: Illustration 1”<br/>Page 45 – “...2.STEP:<br/>INVESTMENT CRITERIA</p>                                                                                                                                                                                                                                                                                                                                                                         |

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| <p>to the event;</p> |  | <p>In order to segment the client into an investor category and already remove certain investment products and derivatives from the personalized catalog and queue of the user session the client types in his investment preferences.</p> <p>Two variants could be considered at this point:</p> <p>1. The client choses from existing questions/constraints, which corresponding answers reflect his investment criteria and preferences (answers maybe as radio buttons)</p> <p>loss tolerance/ loss sensitivity</p> <p>wished spectrum of annual performance/return (normally very structured product specific)</p> <p>preference between trade-off return/ risk preference (for instance: defensive, low; medium, moderate; slightly higher, slighly higher; high, aggressive)</p> |
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|                                                                                                                            |  | <p>annual savings potential from annual income</p> <p>free capital assets</p> <p>investment horizon... ”</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <p>applying a third set of rules to identify the plurality of macro factors</p> <p>from among the set of macro factors</p> |  | <p>Exhibit J Page 45: “...2. Client types in his data in free fields</p> <p>Analogous to 1. But with sectional heading/naming of the fields according to</p> <p>the aforementioned pattern</p> <p>Variant 1 is to be preferred, because data could be more structured and easier to save</p> <p>3.STEP: SELECTION OF THE CUSTOMIZING---<br/>PROCESS/CUSTOMIZING</p> <p>A. Constraints/wishes via constraints typed in</p> <p>B. Via Payoff-Diagram</p> <p>C. A+B concurrently</p> <p>A: Client should type in one constraint after another and therefore shrinken the possible selections of the available structured products</p> |

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|                                         |  | <p>I.Variant: First 3-5 questions standardized by the selection of the predefined</p> <p>possibilites in combo-boxes. Than free "adding" of constraints/wishes by unconstrained selection-possibilities in the combo-boxes or free fields.</p> <p>2.Variant (wishfull): Client can type in and provide his wishes in every combobox/</p> <p>field from the very beginning..."</p> |
| and generate the set of poll questions; |  | <p>Declaration of Christian Gunther: 6. "... The electronic trading platform would comprise receiving a request from a user to trade an investment product;..."</p> <p>Exhibit J:<br/>Page 7 - "...1. The client choses from existing questions/constraints, which corresponding answers reflect his investment criteria and preferences (answers maybe as radio buttons)..."</p> |

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|                                                                                                                |  | <p>Page 8 - "...3.STEP: SELECTION OF THE CUSTOMIZING---PROCESS/CUSTOMIZING</p> <p>A. Constraints/wishes via constraints typed in</p> <p>B. Via Payoff-Diagram</p> <p>C. A+B concurrently</p> <p>A: Client should type in one constraint after another and therefore shrinken the possible selections of the available structured products</p> <p>1.Variant: First 3-5 questions standardized by the selection of the predefined possibilities in combo-boxes. Than free "adding" of constraints/wishes by unconstrained selection-possibilities in the combo-boxes or free fields.</p> <p>2.Variant (wishfull): Client can type in and provide his wishes in every combo-box/field from the very beginning." ff</p> |
| and providing for display a user interface with visual elements for the poll questions linked to macro factors |  | <p>Exhibit J</p> <p>Page 45 - "2.STEP: INVESTMENT CRITERIA</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

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| <p>and one or more controls for inputting responses to the poll questions;</p> |  | <p>In order to segment the client into an investor category and already remove certain investment products and derivatives from the personalized catalog and queue of the user session the client types in his investment preferences.</p> <p>Two variants could be considered at this point:</p> <p>1. The client choses from existing questions/constraints, which corresponding answers reflect his investment criteria and preferences (answers maybe as radio buttons)</p> <p>loss tolerance/ loss sensitivity</p> <p>wished spectrum of annual performance/return (normally very structured product specific)</p> <p>preference between trade-off return/ risk preference (for instance: defensive, low; medium, moderate; slightly higher, slighly higher; high, aggressive)</p> |
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|  |  | <p>annual savings potential from annual income</p> <p>free capital assets</p> <p>investment horizon..."</p> <p>Page 46 - "...2. Client types in his data in free fields</p> <p>Analogous to 1. But with sectional heading/naming of the fields according to</p> <p>the aforementioned pattern</p> <p>Variant 1 is to be preferred, because data could be more structured and easier to save</p> <p>3.STEP: SELECTION OF THE CUSTOMIZING---<br/>PROCESS/CUSTOMIZING</p> <p>A. Constraints/wishes via constraints typed in</p> <p>B. Via Payoff-Diagram</p> <p>C. A+B concurrently</p> <p>A: Client should type in one constraint after another and therefore shrinken the possible selections of the available structured products</p> |
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|  |  | <p>I.Variant: First 3-5 questions standardized by the selection of the predefined possibilities in combo-boxes. Than free "adding" of constraints/wishes by unconstrained selection-possibilities in the combo-boxes or free fields.</p> <p>2.Variant (wishfull): Client can type in and provide his wishes in every combobox/field from the very beginning.</p> <p>Page 47 - "...Nafter every input of one constraint the GUI responds/refreshes one field (green/red or with a text message) and tells, whether an already typed in and provided option is covered by an already existing structured product.</p> <p>Both variants have in common, that they start with one Combo-Box and after input one plus-button is displayed by which another field/combo box can be added and displayed.</p> |
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|  |  | <p>B: An empty PayOff-Diagram is displayed. The naming and description should already be prepared, existing and displayed ( suggestion by the platform's generation algorithms) but should be also permitted to be changed by the client before the first step.</p> <p>The client can select and move from the palette (Strike, Barrier, Multi-Barrier, Cap, Mid Cap, delta hedge, vega, ....) the one of his choosing and move it into the diagram. Dependent on the selection he can now draw and drop one point (coordinate) in the diagram and draw the payoff diagram (also done in real-time by the plotter) and couple it with a function or an attribute via a line or specific drawing.</p> <p>Wishful would be, if the tool would automatically get the gradient, incline or slope and then for instance automatically compute the corresponding delta hedge ratio,</p> |
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|                                           |                                                                                                                                                                  | <p>draw it into the diagram and the message and ask via text: "Slope = 4 identified -&gt; 4</p> <p>Call positions to be fixed, composited and with corresponding Strike positioned by</p> <p>mouse click Strike (x,y coordinates)...."</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| generating a graph data storage structure | <p>"graph data storage structure " is constructed to mean any network of computing machines/ data racks for storing client data/investment and scenario data</p> | <p>Exhibit I</p> <p>Page 33 – left hand side: depicts a network (=graph) of computing devices as a storage structure; middle: data embodied as (electronic) contract data/investment criteria/ data points; right hand side: data rack connected via a (blue) node on an edge of the network (=graph)</p> <p>Page 35 – right hand side: depicting a network with an exemplary root node (in blue) in the middle as well as different/plural nodes of leafs in one embodiment on a connected corresponding system per node; receiving responses and input to the poll questions by users/platform users representing different outcomes and scenarios ; the figure at a glance depicting a graph data</p> |

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|                                                                                                 |                                                                                                                                                                 | <p>storage structure (also for production)</p> <p>Page 45 – various layers for storing and managing client data on a network (=graph)</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <p>representing scenarios for the plurality of macro factors and the plurality of outcomes,</p> | <p>“scenario” is constructed to mean any outcome of a client data/deal term collection stored and executed as a corresponding investment/structured product</p> | <p>Exhibit J:</p> <p>Page 5 –“ ... Now the client can type in and fixate</p> <p>"step by step" one wish, requirement and investment criterion and therefore shorten the sample space for possible products. Starting with the investment horizon and the risk appetite/attitude, the client types into the browser based platform (later in an app) the wished invested capital, wished barriers, strike-prices et cetera line by line.</p> <p>Besides the now made constraints and criteria in the form and fashion of financial ratios and limits the tool does also provide the client with the possibility to display the wished payoff in form of a payoff diagram.</p> |

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| each node in the graph data storage structure including a descriptor and a data value, | “descriptor and data value” is constructed to mean any data collection/pricing component based on client data/deal terms                                | <p>Exhibit J:</p> <p>Page 8 – Step 2: data for scenario/structured product/outcome linked to questions/polling</p> <p>Page 9 – “B: An empty PayOff-Diagram is displayed. The naming and description should already</p> <p>be prepared, existing and displayed ( suggestion by the platform's generation algorithms)</p> <p>but should be also permitted to be changed by the client before the first step.”</p>                                                                                                     |
| the graph data storage structure                                                       | “graph data storage structure” is constructed to mean any network of computing machines/data racks for storing client data/investment and scenario data | <p>Exhibit I</p> <p>Page 33 – left hand side depicts a network (=graph) of computing devices as a network; middle: data embodied as (electronic) contract data/investment criteria/ data points; right hand side: data rack connected via a (blue) node on an edge of the network (=graph)</p> <p>Page 35 – right hand side: depicting a network with an exemplary root node in (blue) in the middle as well as different/plural nodes of leafs in one embodiment on a connected corresponding system per node;</p> |

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|                                                                                                                                                                                                                 |  | <p>receiving response and input to the poll questions by users/platform users representing different outcomes and scenarios ; the figure at a glance depicting a graph data storage structure (also for production)</p> <p>Page 45 – various layers for storing and managing client data on a network (=graph)</p> |
| including a root node, outcome nodes connected to the root node, and macro factor nodes connected to the outcome nodes,                                                                                         |  | <p>Exhibit I</p> <p>Page 35 – right hand side: depicting a network with an exemplary root node in (blue) in the middle as well as different/plural nodes of leafs in one embodiment on a connected corresponding system per node;</p>                                                                              |
| the root node corresponding to the event, each outcome node corresponding to one of the plurality of outcomes, and each macro factor node corresponding to one of the macro factors and including a data value; |  |                                                                                                                                                                                                                                                                                                                    |
| applying a fourth set of rules to at least some of                                                                                                                                                              |  | Exhibit J page 9                                                                                                                                                                                                                                                                                                   |

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| the responses<br>to generate values for<br>the macro factors;                                                                                                                                       |  | <p>if the tool would automatically<br/>get the gradient, incline or slope<br/><br/>and then for instance<br/>automatically compute the<br/>corresponding delta hedge ratio,<br/><br/>draw it into the diagram and the<br/>message and ask via text: "Slope<br/>= 4 identified -&gt; 4</p> <p>Call positions to be fixed,<br/>composited and with<br/>corresponding Strike positioned<br/>by</p> <p>mouse click Strike (x,y<br/>coordinates)."</p> |
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| populating the macro<br>factor nodes in the<br>graph data storage<br>structure with the data<br>values for the<br>corresponding macro<br>factors<br>to generate scenarios<br>for the outcome nodes; |  | <p>Term paper Exhibit J:<br/>Page 14 - " The application<br/>server communicates with the<br/>user, the database server as well<br/>as with other web services and<br/>web interfaces in order to<br/>calculate the real-time price for<br/>structured investment products<br/>and derivatives traded on<br/>exchanges."</p> <p>Term paper (Exhibit J) page 15 -<br/>" calculation and displaying of<br/>the payoff diagram and the</p>           |

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|                                                                                                                                           |  | <p>payoff table regarding the calculation of the price of the structured product.”</p> <p>Term paper (Exhibit J) page 14 –<br/>“ calculation of the actual and real-time price of the structured product/ derivative.”</p>                                                |
|                                                                                                                                           |  |                                                                                                                                                                                                                                                                           |
| <p>and providing for display<br/>a user interface including visual elements indicating the scenarios and a distribution of responses,</p> |  | <p>Declaration of Christian Gunther: 55.: “ ...reference to the use of previously designed products enabled by</p> <p>allowing users to "save or share ... pricing", graphically presented investment</p> <p>information using a heat map and "real-time pricing"...”</p> |
| <p>wherein each scenario is a path from the root node to a leaf node of the generated graph data storage structure.</p>                   |  |                                                                                                                                                                                                                                                                           |
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| <b>Dependent Claim 14:</b>                                                                                                                |  |                                                                                                                                                                                                                                                                           |
| <p>Claim 14. The non-transitory machine-readable medium of</p>                                                                            |  | <p>Exhibit J: Term paper page 9:<br/>‘ ...Input into the diagram should only be possible if financially</p>                                                                                                                                                               |

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| <p>claim 13, the operations further comprising:</p> <p>filtering the responses for bias based on sentiment factors,</p> <p>wherein the fourth set of rules are applied to the filtered responses</p>     |  | <p>reasonable and logical.’ ‘...-<br/>&gt;Trade-off client degree of freedom(satisfaction)/Bank liability <b>if</b></p> <p><b>financially senseless risk without expected reasonable benefit....</b></p>                                                                                                                                                                                                                                                                                    |
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| <b>Dependent Claim 15:</b>                                                                                                                                                                               |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <p>Claim 15. The non-transitory machine-readable medium of</p> <p>claim 14, wherein each macro factor is associated with a</p> <p>range of acceptable data values as responses for the macro factor,</p> |  | <p>Exhibit J :</p> <p>Page 46: “...3.STEP: SELECTION OF THE CUSTOMIZING---PROCESS/CUSTOMIZING</p> <p>A. Constraints/wishes via constraints typed in</p> <p>B. Via Payoff-Diagram</p> <p>C. A+B concurrently</p> <p>A: Client should type in one constraint after another and therefore shrinken the</p> <p>possible selections of the <b>available</b> structured products...”</p> <p>Page 47: “...Wishful would be, if the tool would automatically get the gradient, incline or slope</p> |

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|                                                                                                                                                                                                 |  | <p>and then for instance automatically compute the corresponding delta hedge ratio,</p> <p>draw it into the diagram and the message and ask via text: "Slope = 4 identified -&gt; 4</p> <p>Call positions to be fixed, composited and with corresponding Strike positioned by</p> <p>mouse click Strike (x,y coordinates). Input into the diagram should only be possible if financially reasonable and logical.</p> |
| <p>and the user interface with visual elements for the</p> <p>poll questions further includes an indication of the range of</p> <p>acceptable data values acceptable for each macro factor.</p> |  | <p>Exhibit J:</p> <p>Page 47 - "...- every possibility for options and constraints</p> <p>Page 48 - "...If the request is validated and confirmed..."</p>                                                                                                                                                                                                                                                            |
|                                                                                                                                                                                                 |  |                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Dependent Claim 16:</b>                                                                                                                                                                      |  |                                                                                                                                                                                                                                                                                                                                                                                                                      |

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| <p>16. The non-transitory machine-readable medium of</p> <p>claim 13, wherein the second set of rules are generated, at</p> <p>least in part, using at least one of:</p> <p>deep learning on historical data; and</p> <p>regression on historical data</p> | <p>"regression" is constructed to mean any form of interpolation on data; interpolation is a form of regression:</p> | <p>Exhibit J page 47</p> <p>"....compute the corresponding delta hedge ratio..." / determining some aspect of a price from a plurality of price components..." "... if the tool would automatically get the gradient, incline or slope</p> <p>and then for instance automatically compute the corresponding delta hedge ratio,</p> <p>draw it into the diagram and the message and ask via text: "Slope = 4 identified -&gt; 4</p> <p>Call positions to be fixed, composited and with corresponding Strike positioned by</p> <p>mouse click Strike (x,y coordinates)."</p> |
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| <p><b>Dependent Claim 18:</b></p>                                                                                                                                                                                                                          |                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <p>18. The non-transitory machine-readable medium of</p> <p>claim 13,</p>                                                                                                                                                                                  |                                                                                                                      | <p>Exhibit I page 33</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

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| <p>wherein the operations further comprise generating the ranges of <b>acceptable</b> responses for the macro factors</p> <p>using a scale with a middle point representing no change, a</p> <p>portion representing upward change to an extreme, and</p> <p>another portion representing downward change to another extreme.</p> | <p>“acceptable” is to be constructed as meaning made available by algorithm</p> | <p>Exhibit J :</p> <p>Page 46: “...3.STEP: SELECTION OF THE CUSTOMIZING---PROCESS/CUSTOMIZING</p> <p>A. Constraints/wishes via constraints typed in</p> <p>B. Via Payoff-Diagram</p> <p>C. A+B concurrently</p> <p>A: Client should type in one constraint after another and therefore shrinken the possible selections of the <b>available</b> structured products...”</p> <p>Page 47: “...Wishful would be, if the tool would automatically get the gradient, incline or slope</p> <p>and then for instance automatically compute the corresponding delta hedge ratio,</p> <p>draw it into the diagram and the message and ask via text: "Slope = 4 identified -&gt; 4</p> <p>Call positions to be fixed, composited and with corresponding Strike positioned by</p> |

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|  |  | mouse click Strike (x,y coordinates). Input into the diagram should only be possible if financially reasonable and logical. |
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In addition, each of the limitations of Claim 13 +dependent claim 14,15,16,18 are supported by the specification in United States Patent Application No. 15 368221.

| Claim 13 Language<br>Pat. 10,558,769                          | Construction (Term<br>Meaning) | Location in US15/368,221                                                                                                                                                                                                                                                                                                                                                                                                                   |
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| A non-transitory machine-readable medium storing instructions |                                | <p>Fig. 26, 27, 28</p> <p>[0053] FIG. 27 illustrates another embodiment of the Client and Server relationship of the online platform.</p> <p>[0054] FIG. 28 illustrates a project implementation cycle during development and customization of a structured investment product.</p> <p>[0265] FIG. 22 illustrates one type of client devices 1001 needed for the access and usage of the platform, such as personal computers. Tablets</p> |

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|  |  | <p>or smartphones will also function well with the inventive system. A virtual (smart) contract 1002 is stored in a non-transitory computer-readable medium. Contract 1002 is generated and redacted according to regulatory needs, requirements and laws of the user's domicile. According to the client's drag &amp; drop adjustments either on the payoff diagram or on the free fields regarding the constraints and investment criteria for his customized financial product, the contract is updated, expanded and automatically generated in the product generation system.</p> <p>[0230]...A heat map may be used to graphically simplify the customizing process. Such a heat map would effectively act as a number of pricing tables for each of the two or more priced components of the structured investment product. Such a heat map may be generated by interpolating pricing information for multiple sets of deal terms associated with the two or more priced components in</p> |
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|  |  | <p>response to information provided by the user of the electronic platform.</p> <p>[0248] In accordance with the invention, after every input of one constraint (for example, which, desire or objective), the graphic user interface responds by refreshing the relevant field. In addition, if the client input is meant by an existing structured product, the field, which was previously a pale green may turn red indicating that the product cannot be made by the client because there is already a product inexistent which meets the criteria. On the other hand, if an additional constraint is added to feel may turn green again indicating that a new product may be created. If the client is agreeable to purchase the existing product, in response to the client clicking on the "structuring completed" button on his device screen, information on the same may be presented by the system. The client is then given the opportunity of making the trade by clicking on a "make trade" button on the screen.</p> |
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|  |  | <p>The changing of the background color from green to red may be accompanied by a text message) for example, saying whether an already typed in and provided option is covered by an already existing structured product. Such message may also include further instructions to the client.</p> <p>[0249] Both of the above alternatives may have the common element that they start with one field for the entry of information or multiple choice selection, and after input by the client, another field or other input is displayed by which another investment criteria can be input and displayed.</p> <p>[0250] Figures illustrate various aspects, choices, features, screens and the like of the present invention. The invention contemplates the use of a payoff diagram such as that illustrated in Figures, 23, 25 or 26. As can be seen from these figures, the payoff diagram shows the various features of the instrument involved in a format familiar</p> |
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|  |  | <p>to those in the investment field.</p> <p>[0251] Initially, in accordance with the invention, an empty PayOff-Diagram is displayed. The abscissa and ordinate parameters are displayed, as determined by the trading platform system algorithms. However, the client is permitted to change the same by writing in plain language suggestions which may trigger selections from a parameter database employed by the system. This would be done prior to the commencement of the structuring process.</p> <p>[0265] FIG. 22 illustrates one type of client devices 1001 needed for the access and usage of the platform, such as personal computers. Tablets or smartphones will also function well with the inventive system. A virtual (smart) contract 1002 is stored in a non-transitory computer-readable medium. Contract 1002 is generated and redacted according to regulatory needs, requirements and laws of the user's domicile. According to</p> |
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|  |  | <p>the client's drag &amp; drop adjustments either on the payoff diagram or on the free fields regarding the constraints and investment criteria for his customized financial product, the contract is updated, expanded and automatically generated in the product generation system.</p> <p>[0276] By the means of a command line like `free field` the user can type in his investment criteria. Each criterion is displayed as a separate symbol ("CP" in FIG. 29). Each of those symbols can be removed by clicking on the `X` letter. This method gives the user of the <i>electronic platform</i> the means to specify the investment terms for his product in a very rapid fashion. The corresponding Payout-Chart as well as every change is generated and presented to the user in real time.</p> <p>[0279] After all needed specifications are green and acceptable, a new prompt named `Create new Structured Product` appears (i.e. "Create new Structured Note" in FIG. 34). After the user clicks on it</p> |
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|                                                                                            |  | <p>and affirms his investment criteria the product together with the needed contracts (i.e. term sheets and other forms) are generated and presented. The button's naming changes to `Trade` ("T R A D E" in FIG. 35). The user can now effectively invest in his product.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <p>that, when executed, cause one or more processors to perform operations comprising:</p> |  | <p>[0229] In response to such product request information received from the client operating on the <i>electronic platform</i>, the software on the servers construct the product designed by the retail client, make information respecting the same available and execute the trade. Because it is highly desirable that the client have some level of sophistication, the servers provide product education to clients having the app and certify successful completion of online courses related to the tradable investment products which would be available to certified users of the inventive <i>electronic platform</i>. After one retail customer user of the inventive platform has created an instrument, that instrument</p> |

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|                                                        |  | <p>is available to other users. This can occur, for example, when the software constituting the platform determined that other investment products managed by the <i>electronic platform</i> share characteristics with the product generated in response to the user's criteria. The result is a product exchange system and the establishment of an information exchange environment between users of the <i>electronic platform</i>.</p>                                                                                                                                         |
| <p>receiving responses to a set of poll questions,</p> |  | <p>[0243] Two alternatives may be considered at this point. First, client answers a plurality of questions and sent a number of constraints. This process is meant to assess his investment criteria and preferences. Such process can be achieved using a multiple-choice question format with the client clicking on his selection. It is anticipated that questions will include multiple choices selected in order to assess loss tolerance and/or loss sensitivity, the desired range of annual performance/return (normally very structured product specific), preference</p> |

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|                                                    |  | <p>between trade-off return and risk preference (for instance: defensive, low; medium, moderate; slightly higher, slightly higher; high, aggressive), annual savings potential from earned annual income (for example from employment, investments, pension, etc.), free capital assets, and investment horizon</p> <p>[0245] As an alternative to a multiple-choice format, an open field may be provided for the prospective client to type in his investment criteria in plain language which would be processed by an artificial intelligence algorithm to determine a more formal presentation of such investment criteria. This more formal representation would then be displayed to the user in order to confirm that his plain language request has been understood. Use of a multiple-choice question format is preferred, because data could be more structured and easier to save, and may also be easier for a user.</p> |
| each poll question linked to a macro factor of the |  | FIG. 43 - FIG.46                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

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| <p>plurality of macro factors, wherein the responses to the poll questions</p> |  | <p>[0244] The invention also contemplates the determination of client type, for example low income, middle income, high income, high net worth individual, etc. The same may be determined on the basis of a plurality of multiple-choice questions to be answered by the prospective client.</p> <p>[0246] In accordance with one alternative embodiment of the invention, the client begins the process by entering one constraint after another. This results in shrinking the possible selections of the available structured products. Constraints may include, for example, the investment amount, risk tolerance, investment horizon, and the other investment criteria detailed above. One possible way to implement this process is for the system to ask, for example, three to five questions such as "how much do you want to invest", "how long do you want to hold this investment", etc., for example in a multiple choice format. For example, as potential</p> |
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|                                                                                                                                                                                                         |                                                                                                                                                                                                                           | <p>answers to the question "how much do you want to invest?", The system could present the choices "less than \$1000", "\$1000 to \$10,000", and "\$10,000 to \$100,000". The next step in the process would be the input of investment criteria using plain language (to be processed by an artificial intelligence algorithm) as composed by the client user of the inventive platform, or, alternatively, dragging and dropping investment criteria options from a menu presented by the system. Such free "adding" of constraints and wishes by unconstrained selection possibilities in open fields may be preferable for many users.</p> |
| <p>were generated by:<br/> processing a plurality of data feeds by applying a first set of rules;<br/> generating a plurality of events defined by the second set of rules based on the processing;</p> | <p>"data feeds" is constructed to mean any one or more priced components corresponding to any generated deal terms for any investment product corresponding to product request information by the user or web service</p> | <p>Fig. 22, 24, 27, 28, 1005, 1008, 1009</p> <p>[0051] FIG. 24 illustrates overall general security measures and requirements for the online-platform.</p> <p>[0053] FIG. 27 illustrates another embodiment of the Client and Server relationship of the online platform.</p>                                                                                                                                                                                                                                                                                                                                                                  |

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|  |  | <p>[0054] FIG. 28 illustrates a project implementation cycle during development and customization of a structured investment product.</p> <p>[0265] FIG. 22 illustrates one type of client devices 1001 needed for the access and usage of the platform, such as personal computers. Tablets or smartphones will also function well with the inventive system. A virtual (smart) contract 1002 is stored in a non-transitory computer-readable medium. Contract 1002 is generated and redacted according to regulatory needs, requirements and laws of the user's domicile. According to the client's drag &amp; drop adjustments either on the payoff diagram or on the free fields regarding the constraints and investment criteria for his customized financial product, the contract is updated, expanded and automatically generated in the product generation system.</p> <p>[0266] One embodiment of the contract is the term-sheet for</p> |
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|  |  | <p>structured investment products. This term-sheet can be printed as a PDF (Portable Data Format) or Microsoft file. Another embodiment of the contract is a XML (Extensible Markup Language) file or another adequate markup language file. Yet another embodiment or use of this dynamic electronic contract is to automatically fill regulatory forms like Foreign Account Tax Compliance Act (FATCA) Forms "on the fly" as the user of the platform makes and trades his financial products. This automatic generation of contracts and forms results in dramatic cost reductions regarding front-office, middle-office and back-office efforts normally done by bank employees. The data and records themselves are either stored in one or more centralized servers 1003, or in a decentralized distributed database network (also peer-to-peer technology). The network as well as the server and storage infrastructure is assisted, implemented and protected by cryptographic hash-tables and other cryptographic and encryption</p> |
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|  |  | <p>technology. In one embodiment, the online platform comes together under a brand name 1004 which is presented on screens in the graphic user interface, in this case the brand "MyStructuring".</p> <p>[0263] On the client side the benefits are, that the platform user gains access to exclusive financial services, which were only available to high net worth individuals prior to the invention (FIG. 24). Also the client can participate in investing in structured investment products with a smaller budget. The platform therefore provides and enables the client to co-determine and interact with other users and other users' on the platform to create customized, issued and traded structured products (FIG. 24).</p> <p>[0266] One embodiment of the contract is the term-sheet for structured investment products. This term-sheet can be printed as a PDF (Portable Data Format) or Microsoft file. Another embodiment of the contract is a XML (Extensible Markup Language) file or</p> |
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|  |  | <p>another adequate markup language file. Yet another embodiment or use of this dynamic electronic contract is to automatically fill regulatory forms like Foreign Account Tax Compliance Act (FATCA) Forms "on the fly" as the user of the platform makes and trades his financial products. This automatic generation of contracts and forms results in dramatic cost reductions regarding front-office, middle-office and back-office efforts normally done by bank employees. The data and records themselves are either stored in one or more centralized servers 1003, or in a decentralized distributed database network (also peer-to-peer technology). The network as well as the server and storage infrastructure is assisted, implemented and protected by cryptographic hash-tables and other cryptographic and encryption technology. In one embodiment, the online platform comes together under a brand name 1004 which is presented on screens in the graphic user interface,</p> |
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|  |  | <p>in this case the brand "MyStructuring".</p> <p>[0285] In accordance with the invention, on-the-fly text mining is enabled. More particularly, the results may be presented in a free area beside the payout diagram described above. As noted herein, text mining may take the form of the user putting in a number of keywords and a selected database being searched to present relevant results. The relevant results would include the sought after terms to the extent that the system can determine that the same are finance related, as well as finance related terms associated with the term being searched. Additionally, so-called "stop words" would be removed from the search results. Stop words may comprise such things as the words "the", "a", insofar as these terms have minimal to no content. Search results may be provided in the preview window, for example in the form of a document term matrix, as illustrated in FIG. 43. As illustrated in FIGS. 44 and 45, depending upon the</p> |
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|                                                                                                                                                        |  | <p>results of the search, the system may suggest one or more non-binding investment proposals. Referring to FIG. 46 the inventive platform makes investment proposals referring to the occurrence of the word "interest" (FIG. 46), namely in the form of Interest Rate Derivatives listed in FIG. 46.</p> <p>[0286] Further the text mining preview indicates the general or overall so called "Open Interest" of a potential underlying, when the user hovers over one of the remain words illustrated in FIG. 43. Open Interest is the total number of outstanding future or option contracts that are held by market participants at the end of the day, thus yesterday plan the file having you roughly indicating trading activity.</p> |
| <p>selecting the event from the plurality of events;<br/>generating a set of macro factors<br/>by applying a second set of rules<br/>to the event;</p> |  | <p>[0289] A skyline query is used to mediate between conflicting objectives and investment criteria, such as high return, investment amount, payback time, marginal value adjustments, duration and</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

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|  |  | <p>tenor et cetera. This inventive step implemented, presented and executed to and by the user by the product generation and exchange system in accordance with a heat map pricing approach.</p> <p>[0290] Succinctly Skyline queries return a set of points (in this context regarding finance) i.e. investment criteria that are not dominated by any other point in the data set (here: product exchange system). By requesting a skyline product the <i>electronic platform</i> presents the user an ad-hoc structured investment product proposal. Based on this Inline Derivative Language session proposal or payout-chart the user can either immediately invest and trade in the product by clicking on the button illustrated in FIG. 35 or further elaborate and customize this "compromise" (combination of historical best investment criteria and his preference matrix stored in the platform) structured product until he is prepared to invest.</p> |
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| <p>applying a third set of rules to identify the plurality of macro factors from among the set of macro factors</p> |  | <p>[0289] A skyline query is used to mediate between conflicting objectives and investment criteria, such as high return, investment amount, payback time, marginal value adjustments, duration and tenor et cetera. This inventive step implemented, presented and executed to and by the user by the product generation and exchange system in accordance with a heat map pricing approach.</p> <p>[0290] Succinctly Skyline queries return a set of points (in this context regarding finance) i.e. investment criteria that are not dominated by any other point in the data set (here: product exchange system). By requesting a skyline product the <i>electronic platform</i> presents the user an ad-hoc structured investment product proposal. Based on this Inline Derivative Language session proposal or payout-chart the user can either immediately invest and trade in the product by clicking on the button illustrated in FIG. 35 or further elaborate and customize this</p> |
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|                                                |  | <p>"compromise" (combination of historical best investment criteria and his preference matrix stored in the platform) structured product until he is prepared to invest.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <p>and generate the set of poll questions;</p> |  | <p>[0289] A skyline query is used to mediate between conflicting objectives and investment criteria, such as high return, investment amount, payback time, marginal value adjustments, duration and tenor et cetera. This inventive step implemented, presented and executed to and by the user by the product generation and exchange system in accordance with a heat map pricing approach.</p> <p>[0290] Succinctly Skyline queries return a set of points (in this context regarding finance) i.e. investment criteria that are not dominated by any other point in the data set (here: product exchange system). By requesting a skyline product the <i>electronic platform</i> presents the user an ad-hoc structured investment product proposal. Based on this Inline Derivative</p> |

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|                                                                                                                                                                                               |  | <p>Language session proposal or payout-chart the user can either immediately invest and trade in the product by clicking on the button illustrated in FIG. 35 or further elaborate and customize this "compromise" (combination of historical best investment criteria and his preference matrix stored in the platform) structured product until he is prepared to invest.</p>                                                                                                                                                                                                                                                                 |
| <p>and providing for display a user interface with visual elements for the poll questions linked to macro factors and one or more controls for inputting responses to the poll questions;</p> |  | <p>[0243] Two alternatives may be considered at this point. First, client answers a plurality of questions and sent a number of constraints. This process is meant to assess his investment criteria and preferences. Such process can be achieved using a multiple-choice question format with the client clicking on his selection. It is anticipated that questions will include multiple choices selected in order to assess loss tolerance and/or loss sensitivity, the desired range of annual performance/return (normally very structured product specific), preference between trade-off return and risk preference (for instance:</p> |

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|  |  | <p>defensive, low; medium, moderate; slightly higher, slightly higher; high, aggressive), annual savings potential from earned annual income (for example from employment, investments, pension, etc.), free capital assets, and investment horizon</p> <p>[0245] As an alternative to a multiple-choice format, an open field may be provided for the prospective client to type in his investment criteria in plain language which would be processed by an artificial intelligence algorithm to determine a more formal presentation of such investment criteria. This more formal representation would then be displayed to the user in order to confirm that his plain language request has been understood. Use of a multiple-choice question format is preferred, because data could be more structured and easier to save, and may also be easier for a user.</p> <p>FIG. 43 - FIG.46</p> <p>[0244] The invention also</p> |
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|  |  | <p>contemplates the determination of client type, for example low income, middle income, high income, high net worth individual, etc. The same may be determined on the basis of a plurality of multiple-choice questions to be answered by the prospective client.</p> <p>[0246] In accordance with one alternative embodiment of the invention, the client begins the process by entering one constraint after another. This results in shrinking the possible selections of the available structured products. Constraints may include, for example, the investment amount, risk tolerance, investment horizon, and the other investment criteria detailed above. One possible way to implement this process is for the system to ask, for example, three to five questions such as "how much do you want to invest", "how long do you want to hold this investment", etc., for example in a multiple choice format. For example, as potential answers to the question "how much do you want to invest?",</p> |
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|                                           |                                                                                                                                                                | <p>The system could present the choices "less than \$1000", "\$1000 to \$10,000", and "\$10,000 to \$100,000". The next step in the process would be the input of investment criteria using plain language (to be processed by an artificial intelligence algorithm) as composed by the client user of the inventive platform, or, alternatively, dragging and dropping investment criteria options from a menu presented by the system. Such free "adding" of constraints and wishes by unconstrained selection possibilities in open fields may be preferable for many users.</p> |
| generating a graph data storage structure | <p>"graph data storage structure" is constructed to mean any network of computing machines/data racks for storing client data/investment and scenario data</p> | <p>[0265] FIG. 22 illustrates one type of client devices 1001 needed for the access and usage of the platform, such as personal computers. Tablets or smartphones will also function well with the inventive system. A virtual (smart) contract 1002 is stored in a non-transitory computer-readable medium. Contract 1002 is generated and redacted according to regulatory needs,</p>                                                                                                                                                                                             |

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|  |  | <p>requirements and laws of the user's domicile. According to the client's drag &amp; drop adjustments either on the payoff diagram or on the free fields regarding the constraints and investment criteria for his customized financial product, the contract is updated, expanded and automatically generated in the product generation system.</p> <p>[0266] One embodiment of the contract is the term-sheet for structured investment products. This term-sheet can be printed as a PDF (Portable Data Format) or Microsoft file. Another embodiment of the contract is a XML (Extensible Markup Language) file or another adequate markup language file. Yet another embodiment or use of this dynamic electronic contract is to automatically fill regulatory forms like Foreign Account Tax Compliance Act (FATCA) Forms "on the fly" as the user of the platform makes and trades his financial products. This automatic generation of contracts and forms results in dramatic cost reductions regarding front-</p> |
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|                                                                                                 |                                                                                                                                                                 | <p>office, middle-office and back-office efforts normally done by bank employees. The data and records themselves are either stored in one or more centralized servers 1003, or in a decentralized distributed database network (also peer-to-peer technology). The network as well as the server and storage infrastructure is assisted, implemented and protected by cryptographic hash-tables and other cryptographic and encryption technology. In one embodiment, the online platform comes together under a brand name 1004 which is presented on screens in the graphic user interface, in this case the brand "MyStructuring".</p> |
| <p>representing scenarios for the plurality of macro factors and the plurality of outcomes,</p> | <p>"scenario" is constructed to mean any outcome of a client data/deal term collection stored and executed as a corresponding investment/structured product</p> | <p>macro factors = pricing components (Fig.32, 33, 43-46)</p> <p>Fig. 36 -48 represent different depictions or data structures representing different events which stand for different outcomes/scenarios in turn based on other events</p> <p>[0058] FIGS. 47-48 illustrate platform user making changes to user's investment positions. different investment position</p>                                                                                                                                                                                                                                                                |

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|                                               |                                            | <p>are different scenarios</p> <p>[0237] In accordance with a further embodiment of the invention, the components of the structured product are selected by an algorithm on the system.... trading platform automatically picks a substitute component which is expected to perform closer to the investment criteria input by the retail customer...</p> <p>[0261]...and an algorithm providing constant feedback in response to consumer requests in the form of instrument performance, performance expectations, suggestions, directions and...</p> <p>[0289] A skyline query is used to mediate between conflicting objectives and investment criteria, such as high return, investment amount, payback time, marginal value adjustments, duration and tenor et cetera. This inventive step implemented, presented and executed to and by the user by the product generation and exchange system in accordance with a heat map pricing approach.</p> |
| each node in the graph data storage structure | "descriptor and data value" is constructed | <p>Fig. 36-42</p> <p>Fig. 22</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

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| including a descriptor and a data value, | to mean any data collection/pricing component based on client data/deal terms                                                                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| the graph data storage structure         | “graph data storage structure” is constructed to mean any network of computing machines/data racks for storing client data/investment and scenario data | <p>[0265] FIG. 22 illustrates one type of client devices 1001 needed for the access and usage of the platform, such as personal computers. Tablets or smartphones will also function well with the inventive system. A virtual (smart) contract 1002 is stored in a non-transitory computer-readable medium. Contract 1002 is generated and redacted according to regulatory needs, requirements and laws of the user's domicile. According to the client's drag &amp; drop adjustments either on the payoff diagram or on the free fields regarding the constraints and investment criteria for his customized financial product, the contract is updated, expanded and automatically generated in the product generation system.</p> <p>[0266] One embodiment of the contract is the term-sheet for structured investment products. This term-sheet can</p> |

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|  |  | <p>be printed as a PDF (Portable Data Format) or Microsoft file. Another embodiment of the contract is a XML (Extensible Markup Language) file or another adequate markup language file. Yet another embodiment or use of this dynamic electronic contract is to automatically fill regulatory forms like Foreign Account Tax Compliance Act (`FATCA`) Forms "on the fly" as the user of the platform makes and trades his financial products. This automatic generation of contracts and forms results in dramatic cost reductions regarding front-office, middle-office and back-office efforts normally done by bank employees. The data and records themselves are either stored in one or more centralized servers 1003, or in a decentralized distributed database network (also peer-to-peer technology). The network as well as the server and storage infrastructure is assisted, implemented and protected by cryptographic hash-tables and other cryptographic and encryption technology. In one embodiment, the online</p> |
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|                                                                                                                                                                                                                 |                                                                             | platform comes together under a brand name 1004 which is presented on screens in the graphic user interface, in this case the brand "MyStructuring".                                                                                                                                                                                                                                                                                                      |
| including a root node, outcome nodes connected to the root node, and macro factor nodes connected to the outcome nodes,                                                                                         | "outcome node" is to be understood as the outermost node of a graph or tree | macro factors = pricing components (Fig. 32, 33, 43-46)<br><br>[0289] A skyline query is used to mediate between conflicting objectives and investment criteria, such as high return, investment amount, payback time, marginal value adjustments, duration and tenor et cetera. This inventive step implemented, presented and executed to and by the user by the product generation and exchange system in accordance with a heat map pricing approach. |
| the root node corresponding to the event, each outcome node corresponding to one of the plurality of outcomes, and each macro factor node corresponding to one of the macro factors and including a data value; |                                                                             | Fig. 36 - 42, 47, 48<br><br>Fig. 47:<br><br>SMI (\$) is a root node of a graph or tree<br><br>'CHF goes up' path /edge of tree<br><br>'CHF goes down' path /edge of tree                                                                                                                                                                                                                                                                                  |

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|                                                                                                                                       |  | <p>Fig. 48:</p> <p>SMI (\$) is a root node of a graph or tree</p> <p><i>'SMI up'</i> path /edge of tree</p> <p><i>'SMI down'</i> path /edge of tree</p>                                                                                                                                                                                                                                                                                                          |
| <p>applying a fourth set of rules to at least some of the responses</p> <p>to generate values for the macro factors;</p>              |  | <p>macro factors = pricing components (Fig. 32, 33, 43-46)</p> <p>[0289] A skyline query is used to mediate between conflicting objectives and investment criteria, such as high return, investment amount, payback time, marginal value adjustments, duration and tenor et cetera. This inventive step implemented, presented and executed to and by the user by the product generation and exchange system in accordance with a heat map pricing approach.</p> |
| <p>populating the macro factor nodes in the graph data storage structure with the data values for the corresponding macro factors</p> |  | <p>macro factors = pricing components (Fig. 32, 33, 43-46)</p> <p>[0289] A skyline query is used to mediate between conflicting objectives and investment criteria, such as high return,</p>                                                                                                                                                                                                                                                                     |

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| to generate scenarios for the outcome nodes;                                                                                   |  | investment amount, payback time, marginal value adjustments, duration and tenor et cetera. This inventive step implemented, presented and executed to and by the user by the product generation and exchange system in accordance with a heat map pricing approach.                                                                                                                        |
| and providing for display a user interface including visual elements indicating the scenarios and a distribution of responses, |  | [0289] A skyline query is used to mediate between conflicting objectives and investment criteria, such as high return, investment amount, payback time, marginal value adjustments, duration and tenor et cetera. This inventive step implemented, presented and executed to and by the user by the product generation and exchange system in accordance with a heat map pricing approach. |
| wherein each scenario is a path from the root node to a leaf node                                                              |  | Fig. 36 - 42, 47, 48<br><br>Fig. 47:<br><br>SMI (\$) is a root node of a graph or tree                                                                                                                                                                                                                                                                                                     |

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|                                                                                                                                                                                 |  | <p><i>'CHF goes up'</i> path /edge of tree</p> <p><i>'CHF goes down'</i> path /edge of tree</p> <p>Fig. 48:</p> <p>SMI (\$) is a root node of a graph or tree</p> <p><i>'SMI up'</i> path /edge of tree</p> <p><i>'SMI down'</i> path /edge of tree</p> <p>FIG. 47, 48: SMI (\$) is a root node, SMI up and SMI down are paths which lead to leaf nodes of the possible depicted outcomes</p> |
| of the generated graph data storage structure.                                                                                                                                  |  |                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>Dependent Claim 14:</b>                                                                                                                                                      |  |                                                                                                                                                                                                                                                                                                                                                                                               |
| <p>Claim 14. The non-transitory machine-readable medium of claim 13, the operations further comprising:</p> <p>filtering the responses for bias based on sentiment factors,</p> |  | <p>[0265] FIG. 22 illustrates one type of client devices 1001 needed for the access and usage of the platform, such as personal computers. Tablets or smartphones will also function well with the inventive system. A virtual (smart) contract 1002 is stored in a non-transitory computer-</p>                                                                                              |

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|  |  | <p>readable medium. Contract 1002 is generated and redacted according to regulatory needs, requirements and laws of the user's domicile. According to the client's drag &amp; drop adjustments either on the payoff diagram or on the free fields regarding the constraints and investment criteria for his customized financial product, the contract is updated, expanded and automatically generated in the product generation system.</p> <p>[0230]...A heat map may be used to graphically simplify the customizing process. Such a heat map would effectively act as a number of pricing tables for each of the two or more priced components of the structured investment product. Such a heat map may be generated by interpolating pricing information for multiple sets of deal terms associated with the two or more priced components in response to information provided by the user of the electronic platform.</p> <p>[0265] FIG. 22 illustrates one type of client devices 1001</p> |
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|  |  | <p>needed for the access and usage of the platform, such as personal computers. Tablets or smartphones will also function well with the inventive system. A virtual (smart) contract 1002 is stored in a non-transitory computer-readable medium. Contract 1002 is generated and redacted according to regulatory needs, requirements and laws of the user's domicile. According to the client's drag &amp; drop adjustments either on the payoff diagram or on the free fields regarding the constraints and investment criteria for his customized financial product, the contract is updated, expanded and automatically generated in the product generation system.</p> <p>[0276] By the means of a command line like `free field` the user can type in his investment criteria. Each criterion is displayed as a separate symbol ("CP" in FIG. 29). Each of those symbols can be removed by clicking on the `X` letter. This method gives the user of the <i>electronic platform</i> the means to specify</p> |
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|  |  | <p>the investment terms for his product in a very rapid fashion. The corresponding Payout-Chart as well as every change is generated and presented to the user in real time.</p> <p>[0279] After all needed specifications are green and acceptable, a new prompt named `Create new Structured Product` appears (i.e. "Create new Structured Note" in FIG. 34). After the user clicks on it and affirms his investment criteria the product together with the needed contracts (i.e. term sheets and other forms) are generated and presented. The button's naming changes to `Trade` ("T R A D E" in FIG. 35). The user can now effectively invest in his product.</p> <p>removing bias:</p> <p>preventing and removing of <i>bias</i> regarding financial investment conditions/criteria [0253]: [0253]...Input into the diagram should only be possible <b>if financially reasonable and logical</b>, and the same would be controlled by system algorithms...</p> |
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|  |  | <p>sentiment factors are determined by:</p> <p>Ad Hoc Text Mining</p> <p>[0285] In accordance with the invention, on-the-fly text mining is enabled. More particularly, the results may be presented in a free area beside the payout diagram described above. As noted herein, text mining may take the form of the user putting in a number of keywords and a selected database being searched to present relevant results. The relevant results would include the sought after terms to the extent that the system can determine that the same are finance related, as well as finance related terms associated with the term being searched. Additionally, so-called "stop words" would be removed from the search results. Stop words may comprise such things as the words "the", "a", insofar as these terms have minimal to no content. Search results may be provided in the preview window, for example in the form of a document term matrix, as illustrated in FIG. 43. As illustrated in FIGS. 44</p> |
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|  |  | <p>and 45, depending upon the results of the search, the system may suggest one or more non-binding investment proposals. Referring to FIG. 46 the inventive platform makes investment proposals referring to the occurrence of the word "interest" (FIG. 46), namely in the form of Interest Rate Derivatives listed in FIG. 46.</p> <p>[0286] Further the text mining preview indicates the general or overall so called "Open Interest" of a potential underlying, when the user hovers over one of the remain words illustrated in FIG. 43. Open Interest is the total number of outstanding future or option contracts that are held by market participants at the end of the day, thus yesterday plan the file having you roughly indicating trading activity.</p> <p>[0245] As an alternative to a multiple-choice format, an open field may be provided for the prospective client to type in his investment criteria in plain language which</p> |
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|  |  | <p>would be processed by an artificial intelligence algorithm to determine a more formal presentation of such investment criteria.</p> <p>[0246]...The next step in the process would be the input of investment criteria using plain language (to be processed by an artificial intelligence algorithm)...</p> <p>[0253]...Input into the diagram should only be possible if financially reasonable and logical, and the same would be controlled by system algorithms...</p> <p>[0254] Such algorithms would work by balancing the degree of freedom for the client (to the extent that it is connected to client satisfaction) and financial institution liability to guard against the client taking financially unreasonable risk without a sufficiently likely expected and reasonably scaled benefit.</p> <p>Fig. 43, 44, 45, 46</p> |
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|  |  | <p>text mining is an artificial intelligence application of machine learning</p> <p>[0269]... "text-mine" the database of structured product components maintained by the system. For example, by giving the system keywords such as health and fitness, the system will search the equity/bond/etc. database for these keywords or related words and present them as an option to the user. Additionally, typing in new product constraints by dragging a new column underneath the ...</p> <p>[0270] The area indicated by 1012 is reserved for other layers namely additional functionality regarding helping the user to specify his target payoff or other tools like an instant text mining module. The whole structure of the graphical presentation is to be understood as flexible and customizable itself. The user can position and drag and drop modules 1011, 1013, 1014 and 1015 within the browser. Below the diagram the product constraints area shown in text (1013 1). In this</p> |
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|                                                                       |  | <p>area of the graphical user interface the user can input his preferences by text.</p> <p>complete [0285]</p> <p>complete [0290]</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| wherein the fourth set of rules are applied to the filtered responses |  | <p>[0288] Provided and presented by the inventive platform and the diagrams the user can "drag &amp; drop" his short and long positions to his liking (FIG. 47 &amp; FIG. 48). In FIG. 47 he can react and adjust his investment positions (i.e. represented by his customized product) via graphical input regarding his FX exposure. Likewise he can do the same regarding his equity positions illustrated in FIG. 48. If he's been certified by the platform and able to he can also alter and correct his hedging ratio in the concurrent Inline Derivative Language session. Changes are directly updated to the payout-charts in real-time.</p> <p>[0289] A skyline query is used to mediate between conflicting objectives and investment criteria, such as high return, investment amount, payback</p> |

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|  |  | <p>time, marginal value adjustments, duration and tenor et cetera. This inventive step implemented, presented and executed to and by the user by the product generation and exchange system in accordance with a heat map pricing approach.</p> <p>[0290] Succinctly Skyline queries return a set of points (in this context regarding finance) i.e. investment criteria that are not dominated by any other point in the data set (here: product exchange system). By requesting a skyline product the <i>electronic platform</i> presents the user an ad-hoc structured investment product proposal. Based on this Inline Derivative Language session proposal or payout-chart the user can either immediately invest and trade in the product by clicking on the button illustrated in FIG. 35 or further elaborate and customize this "compromise" (combination of historical best investment criteria and his preference matrix stored in the platform)</p> |
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|                                                                   |  | structured product until he is prepared to invest.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Dependent Claim 15:</b>                                        |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Claim 15. The non-transitory machine-readable medium of claim 14, |  | <p>[0265] FIG. 22 illustrates one type of client devices 1001 needed for the access and usage of the platform, such as personal computers. Tablets or smartphones will also function well with the inventive system. A virtual (smart) contract 1002 is stored in a non-transitory computer-readable medium. Contract 1002 is generated and redacted according to regulatory needs, requirements and laws of the user's domicile. According to the client's drag &amp; drop adjustments either on the payoff diagram or on the free fields regarding the constraints and investment criteria for his customized financial product, the contract is updated, expanded and automatically generated in the product generation system.</p> <p>[0266] One embodiment of the contract is the term-sheet for structured investment products. This term-sheet can be printed as a PDF (Portable</p> |

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|  |  | <p>Data Format) or Microsoft file. Another embodiment of the contract is a XML (Extensible Markup Language) file or another adequate markup language file. Yet another embodiment or use of this dynamic electronic contract is to automatically fill regulatory forms like Foreign Account Tax Compliance Act (FATCA) Forms "on the fly" as the user of the platform makes and trades his financial products. This automatic generation of contracts and forms results in dramatic cost reductions regarding front-office, middle-office and back-office efforts normally done by bank employees. The data and records themselves are either stored in one or more centralized servers 1003, or in a decentralized distributed database network (also peer-to-peer technology). The network as well as the server and storage infrastructure is assisted, implemented and protected by cryptographic hash-tables and other cryptographic and encryption technology. In one embodiment, the online platform comes together</p> |
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|                                                                                                                   |  | under a brand name 1004 which is presented on screens in the graphic user interface, in this case the brand "MyStructuring".                                                                                                                                                                                                                                                                                                                                                    |
| wherein each macro factor                                                                                         |  | macro factors = pricing components (Fig. 32, 33, 43-46)                                                                                                                                                                                                                                                                                                                                                                                                                         |
| is associated with a range of acceptable data values as responses for the macro factor,                           |  | [0279] After all needed specifications are green and acceptable, a new prompt named `Create new Structured Product` appears (i.e. "Create new Structured Note" in FIG. 34). After the user clicks on it and affirms his investment criteria the product together with the needed contracts (i.e. term sheets and other forms) are generated and presented. The button's naming changes to `Trade` ("T R A D E" in FIG. 35). The user can now effectively invest in his product. |
| and the user interface with visual elements for the poll questions further includes an indication of the range of |  | [0230] As alluded to above, the investment instruments being designed by users are constructed from a combination of one or more selected investment products based on the information received from the user and                                                                                                                                                                                                                                                               |

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|  |  | <p>based on the real-time conditions of the investment market. Particularly for a client using a bigger screen, there would be an option to drag and drop investment criteria on a payoff or other diagram, thus interactively and instantly displaying changing product characteristics. A heat map may be used to <b>graphically</b> simplify the customizing process. Such a heat map would effectively act as a number of pricing tables for each of the two or more priced components of the structured investment product. Such a heat map may be generated by interpolating pricing information for multiple sets of deal terms associated with the two or more priced components in response to information provided by the user of the <i>electronic platform</i>. The system may also present almost finished or already issued and traded products in an overview. The overall result of these aspects of my invention is, that the client/user defines the investment criteria himself via the online platform and does</p> |
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|  |  | <p>not necessarily need the help of a bank employee or financial advisor. Therefore cost can be reduced.</p> <p>[0233] Once certified, the client can begin the design of an attachment by typing in and fixating "step by step" one desire, requirement and investment criterion and therefore shorten the sample space for possible products. This may be done repeatedly to cause the system to select components of the structured financial instrument meeting investor criteria. In accordance with the invention, it is contemplated that the software on the servers operating the inventive trading platform will contain a wide range of investment products selected by the operator of the platform and having a range of different characteristics. These investment products would be selected for their ability to provide a range of characteristics when a number of these products are combined to form a structured product, for example a structured financial product.</p> |
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|  |  | <p>This enables the design of a structured product by the retail investment customer. As the product is being designed, <b>the system may graphically display</b> the characteristics of the product. Starting with the investment horizon and the risk appetite/attitude, the client types into a browser based platform (or, alternatively, in an app) the desired invested capital, desired barriers, strike-prices, et cetera line by line. Besides the now made constraints and criteria in the form and fashion of financial ratios and limits the inventive tool is programmed to also provide the client with the possibility displaying a desired payoff in the form of a payoff diagram. The software <b>provides a graphical display</b> of the designed instrument's characteristics. The software is also capable of adjusting the criteria in both directions in real-time (namely changing the payoff-diagram graphically &lt;-&gt; constraints in form of text). Such adjustment may be done by clicking and dragging display characteristics on a graphic</p> |
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|  |  | <p>display of designed instrument characteristics.</p> <p>[0266] One embodiment of the contract is the term-sheet for structured investment products. This term-sheet can be printed as a PDF (Portable Data Format) or Microsoft file. Another embodiment of the contract is a XML (Extensible Markup Language) file or another adequate markup language file. Yet another embodiment or use of this dynamic electronic contract is to automatically fill regulatory forms like Foreign Account Tax Compliance Act (FATCA) Forms "on the fly" as the user of the platform makes and trades his financial products. This automatic generation of contracts and forms results in dramatic cost reductions regarding front-office, middle-office and back-office efforts normally done by bank employees. The data and records themselves are either stored in one or more centralized servers 1003, or in a decentralized distributed database network (also peer-to-peer technology). The network as well as the server</p> |
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|  |  | <p>and storage infrastructure is assisted, implemented and protected by cryptographic hash-tables and other cryptographic and encryption technology. In one embodiment, the online platform comes together under a brand name 1004 which is presented on screens in the graphic user interface, in this case the brand "MyStructuring".</p> <p>[0058] FIGS. 47-48 illustrate platform user making changes to user's investment positions.</p> <p>different investment position are different scenarios</p> <p>[0233] Once certified, the client can begin the design of an attachment by typing in and fixating "step by step" one desire, requirement and investment criterion and therefore shorten the sample space for possible products. This may be done repeatedly to cause the system to select components of the structured financial instrument meeting investor criteria. In accordance with the invention, it is</p> |
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|  |  | <p>contemplated that the software on the servers operating the inventive trading platform will contain a wide range of investment products selected by the operator of the platform and having a range of different characteristics. These investment products would be selected for their ability to provide a range of characteristics when a number of these products are combined to form a structured product, for example a structured financial product.</p> <p>[0270] The area indicated by 1012 is reserved for other layers namely additional functionality regarding helping the user to specify his target payoff or other tools like an instant text mining module. The whole structure of the graphical presentation is to be understood as flexible and customizable itself. The user can position and drag and drop modules 1011, 1013, 1014 and 1015 within the browser. Below the diagram</p> |
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|                                                                                                                      |  | the product constraints area shown in text (1013 1). In this area of the graphical user interface the user can input his preferences by text.                                                                                                                                                                                                                                                                                                                                                                                                  |
| acceptable data values acceptable for each macro factor.                                                             |  | macro factors = pricing components (Fig. 32, 33, 43-46)<br><br>[0279] After all needed specifications are green and acceptable, a new prompt named `Create new Structured Product` appears (i.e. "Create new Structured Note" in FIG. 34). After the user clicks on it and affirms his investment criteria the product together with the needed contracts (i.e. term sheets and other forms) are generated and presented. The button's naming changes to `Trade` ("T R A D E" in FIG. 35). The user can now effectively invest in his product. |
| <b>Dependent Claim 16:</b>                                                                                           |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| 16. The non-transitory machine-readable medium of<br><br>claim 13, wherein the second set of rules are generated, at |  | [0265] FIG. 22 illustrates one type of client devices 1001 needed for the access and usage of the platform, such as personal computers. Tablets or smartphones will also function well with the inventive system. A virtual                                                                                                                                                                                                                                                                                                                    |

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| <p>least in part, using at least one of:</p> |  | <p>(smart) contract 1002 is stored in a non-transitory computer-readable medium. Contract 1002 is generated and redacted according to regulatory needs, requirements and laws of the user's domicile. According to the client's drag &amp; drop adjustments either on the payoff diagram or on the free fields regarding the constraints and investment criteria for his customized financial product, the contract is updated, expanded and automatically generated in the product generation system.</p> <p>[0266] One embodiment of the contract is the term-sheet for structured investment products. This term-sheet can be printed as a PDF (Portable Data Format) or Microsoft file. Another embodiment of the contract is a XML (Extensible Markup Language) file or another adequate markup language file. Yet another embodiment or use of this dynamic electronic contract is to automatically fill regulatory forms like Foreign Account Tax Compliance Act (`FATCA`) Forms "on the fly"</p> |
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|  |  | <p>as the user of the platform makes and trades his financial products. This automatic generation of contracts and forms results in dramatic cost reductions regarding front-office, middle-office and back-office efforts normally done by bank employees. The data and records themselves are either stored in one or more centralized servers 1003, or in a decentralized distributed database network (also peer-to-peer technology). The network as well as the server and storage infrastructure is assisted, implemented and protected by cryptographic hash-tables and other cryptographic and encryption technology. In one embodiment, the online platform comes together under a brand name 1004 which is presented on screens in the graphic user interface, in this c[0237] In accordance with a further embodiment of the invention, the components of the structured product are selected by an algorithm on the system.... trading platform automatically picks a substitute component which is expected to perform closer to</p> |
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|                                                                                   |                                                                                                                      | <p>the investment criteria input by the retail customer...</p> <p>[0261]...and an algorithm providing constant feedback in response to consumer requests in the form of instrument performance, performance expectations, suggestions, directions and...</p> <p>polling (renamed questions as in Broder app and Gunther term paper, presentations and emails to Credit Suisse and Accenture):</p> <p>[0243] Two alternatives may be considered at this point. First, client answers a plurality of questions...</p> <p>ase the brand "MyStructuring".</p> |
| <p>deep learning on historical data; and</p> <p>regression on historical data</p> | <p>"regression" is constructed to mean any form of interpolation on data; interpolation is a form of regression:</p> | <p>[0245] As an alternative to a multiple-choice format, an open field may be provided for the prospective client to type in his investment criteria in plain language which would be processed by an artificial intelligence algorithm to determine a more formal presentation of such investment criteria.</p>                                                                                                                                                                                                                                          |

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|  |  | <p>[0246]...The next step in the process would be the input of investment criteria using plain language (to be processed by an artificial intelligence algorithm)...</p> <p>text mining is an artificial intelligence application of machine learning</p> <p>[0269]... "text-mine" the database of structured product components maintained by the system. For example, by giving the system keywords such as health and fitness, the system will search the equity/bond/etc. database for these keywords or related words and present them as an option to the user. Additionally, typing in new product constraints by dragging a new column underneath the ...</p> <p>[0270] The area indicated by 1012 is reserved for other layers namely additional functionality regarding helping the user to specify his target payoff or other tools like an instant text mining module. The whole structure</p> |
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|                                                                                         |  | <p>of the graphical presentation is to be understood as flexible and customizable itself. The user can position and drag and drop modules 1011, 1013, 1014 and 1015 within the browser. Below the diagram the product constraints area shown in text (1013 1). In this area of the graphical user interface the user can input his preferences by text.</p> <p>complete [0285]</p> <p>complete [0290]</p> <p>deep learning = artificial intelligence algorithm [0245][0246]</p> <p>machine learning = artificial intelligence algorithm [0245][0246]</p> <p>regression on historical data is a variant of interpolation</p> |
| <b>Dependent Claim 18:</b>                                                              |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <p><b>18.</b> The non-transitory machine-readable medium of</p> <p>claim <b>13</b>,</p> |  | <p>Fig. 26, 27, 28</p> <p>[0053] FIG. 27 illustrates another embodiment of the</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

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|  |  | <p>Client and Server relationship of the online platform.</p> <p>[0054] FIG. 28 illustrates a project implementation cycle during development and customization of a structured investment product.</p> <p>[0265] FIG. 22 illustrates one type of client devices 1001 needed for the access and usage of the platform, such as personal computers. Tablets or smartphones will also function well with the inventive system. A virtual (smart) contract 1002 is stored in a non-transitory computer-readable medium. Contract 1002 is generated and redacted according to regulatory needs, requirements and laws of the user's domicile. According to the client's drag &amp; drop adjustments either on the payoff diagram or on the free fields regarding the constraints and investment criteria for his customized financial product, the contract is updated, expanded and automatically generated in the product generation system.</p> |
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|  |  | <p>[0230]...A heat map may be used to graphically simplify the customizing process. Such a heat map would effectively act as a number of pricing tables for each of the two or more priced components of the structured investment product. Such a heat map may be generated by interpolating pricing information for multiple sets of deal terms associated with the two or more priced components in response to information provided by the user of the electronic platform.</p> <p>[0248] In accordance with the invention, after every input of one constraint (for example, which, desire or objective), the graphic user interface responds by refreshing the relevant field. In addition, if the client input is meant by an existing structured product, the field, which was previously a pale green may turn red indicating that the product cannot be made by the client because there is already a product inexistent which meets the criteria. On the other hand, if an additional constraint is added</p> |
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|  |  | <p>to feel may turn green again indicating that a new product may be created. If the client is agreeable to purchase the existing product, in response to the client clicking on the "structuring completed" button on his device screen, information on the same may be presented by the system. The client is then given the opportunity of making the trade by clicking on a "make trade" button on the screen. The changing of the background color from green to red may be accompanied by a text message) for example, saying whether an already typed in and provided option is covered by an already existing structured product. Such message may also include further instructions to the client.</p> <p>[0249] Both of the above alternatives may have the common element that they start with one field for the entry of information or multiple choice selection, and after input by the client, another field or other input is displayed by which another investment criteria can be</p> |
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|  |  | <p>input and displayed.</p> <p>[0250] Figures illustrate various aspects, choices, features, screens and the like of the present invention. The invention contemplates the use of a payoff diagram such as that illustrated in Figures, 23, 25 or 26. As can be seen from these figures, the payoff diagram shows the various features of the instrument involved in a format familiar to those in the investment field.</p> <p>[0251] Initially, in accordance with the invention, an empty PayOff-Diagram is displayed. The abscissa and ordinate parameters are displayed, as determined by the trading platform system algorithms. However, the client is permitted to change the same by writing in plain language suggestions which may trigger selections from a parameter database employed by the system. This would be done prior to the commencement of the structuring process.</p> <p>[0265] FIG. 22 illustrates one type of client devices 1001</p> |
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|  |  | <p>needed for the access and usage of the platform, such as personal computers. Tablets or smartphones will also function well with the inventive system. A virtual (smart) contract 1002 is stored in a non-transitory computer-readable medium. Contract 1002 is generated and redacted according to regulatory needs, requirements and laws of the user's domicile. According to the client's drag &amp; drop adjustments either on the payoff diagram or on the free fields regarding the constraints and investment criteria for his customized financial product, the contract is updated, expanded and automatically generated in the product generation system.</p> <p>[0276] By the means of a command line like `free field` the user can type in his investment criteria. Each criterion is displayed as a separate symbol ("CP" in FIG. 29). Each of those symbols can be removed by clicking on the `X` letter. This method gives the user of the <i>electronic platform</i> the means to specify</p> |
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|                                                                                                                                                                                       |  | <p>the investment terms for his product in a very rapid fashion. The corresponding Payout-Chart as well as every change is generated and presented to the user in real time.</p> <p>[0279] After all needed specifications are green and acceptable, a new prompt named `Create new Structured Product` appears (i.e. "Create new Structured Note" in FIG. 34). After the user clicks on it and affirms his investment criteria the product together with the needed contracts (i.e. term sheets and other forms) are generated and presented. The button's naming changes to `Trade` ("T R A D E" in FIG. 35). The user can now effectively invest in his product.</p> |
| <p>wherein the operations further comprise generating the ranges of acceptable responses for the macro factors</p> <p>using a scale with a middle point representing no change, a</p> |  | <p>macro factors = pricing components (Fig.32, 33, 43-46)</p> <p>Fig. 43-48</p> <p>[0058] FIGS. 47-48 illustrate platform user making changes to user's investment positions.</p> <p>Fig. 47:</p> <p>SMI(\$): "no change";</p> <p>upward change: "CHF goes</p>                                                                                                                                                                                                                                                                                                                                                                                                          |

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| <p>portion representing upward change to an extreme, and</p> <p>another portion representing downward change to another extreme.</p> |  | <p>up”<br/>downward change: “CHF goes down”</p> <p>[0287] Certain Structured Products can be very complex and difficult to understand. By providing the platform user graphically displayed investment schemes as for instance hedging diagrams the client can invest in exotic derivatives himself. The <i>electronic platform</i> stores prepared complex financial products schemas ready to be customized by the user. FIGS. 47 and 48 both illustrate a so called ‘Quanto Forward Adjustment’. Quanto and Composite options are derivatives, which allow the final payout to be in a different currency than the underlying currency, i.e. these options are also dependent on the FX (foreign exchange) rate. I.e. a Quanto Call expressed in the payout currency. Imagine for instance selling a quanto SMI (SMI-Index) \$ forward to an investor (i.e. other user of the platform), short a liability in \$. At the beginning the user is short in the SMI in \$, i.e. to hedge the equity the user buys</p> |
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|  |  | <p>the SMI in CHF (for instance via futures) and thereby goes long \$ against CHF.</p> <p>[0288] Provided and presented by the inventive platform and the diagrams the user can "drag &amp; drop" his short and long positions to his liking (FIG. 47 &amp; FIG. 48). In FIG. 47 he can react and adjust his investment positions (i.e. represented by his customized product) via graphical input regarding his FX exposure. Likewise he can do the same regarding his equity positions illustrated in FIG. 48. If he's been certified by the platform and able to he can also alter and correct his hedging ratio in the concurrent Inline Derivative Language session. Changes are directly updated to the payout-charts in real-time.</p> |
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## Claim 20

Claim 20 reads as follows:

20. A system for generating scenarios and user interface elements representing valuations of instruments under the scenarios, the system comprising: at least one processor; and a machine-readable medium storing instructions that, when

executed, cause the at least one processor to perform operations including: receiving responses to a set of poll questions, each poll question linked to a macro factor of the plurality of macro factors, wherein the responses to the poll questions were generated by: processing a plurality of data feeds by applying a first set of rules; generating a plurality of events defined by the second set of rules based on the processing; selecting the event from the plurality of events; generating a set of macro factors by applying a second set of rules to the event; applying a third set of rules to identify the plurality of macro factors from among the set of macro factors and generate the set of poll questions; and providing for display a user interface with visual elements for the poll questions linked to macro factors and one or more controls for inputting responses to the poll questions; generating a graph data storage structure representing scenarios for the plurality of macro factors and the plurality of outcomes, each node in the graph data storage structure including a descriptor and a data value, the graph data storage structure including a root node, outcome nodes connected to the root node, and macro factor nodes connected to the outcome nodes, the root node corresponding to the event, each outcome node corresponding to one of the plurality of outcomes, and each macro factor node corresponding to one of the macro factors and including a data value; filtering the responses for bias based on sentiment factors, the filtering including: applying natural language processing to at least a subset of the responses to identify sentiments of authors of the responses; and eliminating responses from authors for whom the identified sentiment indicates bias with regard to the event; applying a set of rules to the filtered responses to generate values for the macro factors; populating the macro factor nodes in the graph data storage structure with the data values for the corresponding macro factors to generate scenarios for the outcome nodes; and providing for display a user interface including visual elements indicating the scenarios and a distribution of responses, wherein each scenario is a path from the root node to a leaf node of the generated graph data storage structure.

| Claim 20 Language<br>Pat. 10,558,769           | Construction (Term<br>Meaning)             | Location in Petitioner<br>Disclosures/Declarations               |
|------------------------------------------------|--------------------------------------------|------------------------------------------------------------------|
| Claim 20. A system for<br>generating scenarios | "scenarios for an<br>event" is constructed | Declaration of Christian Gunther:<br>6."... a product generation |

|                                    |                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
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| <p>and user interface elements</p> | <p>to mean any corresponding investment product and different investment position are different scenarios</p> | <p>system that generates customized</p> <p>tradable investment products in response to product request information received</p> <p>from a retail customer user of the electronic platform..."</p> <p>Declaration of Patrick Winzenried:</p> <p>3.: "... two or more priced components corresponding to respective deal terms, which would generate price and other information..."</p> <p>Product generation system: Term paper (Exhibit 9T) page 5 - "the platform should help, advise and customize a product just for him according to the typed in requirements, propose an existing one or initiate the first-issuing of a new note."</p> <p>Declaration of Christian Gunther:</p> <p>55. : "...allowing the consumer "to design, price and trade structured products", allowing the consumer</p> |
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|  |  | <p>to "calculate and compare product offerings", allow the consumer to "solve for coupon, strike or barrier", reference to term sheets with "marketing and legal documentation", reference to the use of previously designed products enabled by allowing users to "save or share ... pricing", graphically presented investment information using a heat map and "real-time pricing".</p> <p>Exhibit N page 7:</p> <p><i>'These documents provide <b>indicative</b> or final key <b>product terms</b>, an explanation of the product structure and the benefits and risks.'</i></p> <p>Different Scenarios as in Exhibit E and Exhibit I also described in further detail in Exhibit D</p> <p>Exhibit P page 1:</p> <p><i>'... You can simulate various possibilities in real time....'</i></p> |
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| representing valuations of instruments under the scenarios,                                                                             |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| the system comprising:<br>at least one processor;<br>and a machine-readable medium<br>storing instructions that,                        |  | Exhibit I page 33                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| when executed, cause the at least one processor to perform operations including:<br><br>receiving responses to a set of poll questions, |  | <p>Exhibit I page 33</p> <p>Term paper (Exhibit J) page 5 – “The Application is also capable of adjusting the criteria in both directions in real-time (namely changing the payoff diagram graphically &lt;-&gt; constraints in form of text).”</p> <p>7.:”... based on the information received from the user</p> <p>and based on the real-time conditions of the investment market. I conceived that</p> <p>particularly for a client using a bigger screen, there would be an option to drag and</p> |

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|  |  | <p>drop investment criteria on a payoff diagram, thus interactively and instantly displaying changing product characteristics..."</p> <p>55.: "... graphically presented investment information using a heat map and "real-time pricing"...."</p> <p>Declaration of Patrick Winzenried:</p> <p>3. : "...which would operate in real-time decomposing products into two or more priced components corresponding to respective deal terms..."</p> <p>Exhibit J:</p> <p>Page 5 -</p> <p>Page 9 - "Nafter every input of one constraint the GUI responds/refreshes one field (green/red or with a text message) and tells, whether an already typed in and provided option is covered... "</p> <p>Page 9 - "Dependent on the selection he can now draw and drop one point (coordinate) in</p> |
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|  |  | <p>the diagram and draw the payoff diagram (also done in real-time by the plotter) and couple it with a function or an attribute via a line or specific drawing.</p> <p>Wishful would be, if the tool would automatically get the gradient, incline or slope</p> <p>and then for instance automatically compute the corresponding delta hedge ratio,</p> <p>draw it into the diagram and the message and ask via text: "Slope = 4 identified -&gt; 4</p> <p>Call positions to be fixed, composited and with corresponding Strike positioned by mouse click Strike (x,y coordinates)..."</p> <p>Page 10 - "...C: Synchronous mode makes it possible to concurrently tie in investment constraints via combo-box or directly in the payoff diagram. Changes in one area</p> <p>should be, after confirmation for a constraint (for instance mouse click),</p> <p>automatically applied, put forward and displayed in/ to the</p> |
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|  |  | <p>other in real-time..."</p> <p>Exhibit P page 1:</p> <p>'...You can simulate various possibilities in real time....'</p> <p>Term paper (Exhibit J) page 5 –<br/> "The Application is also capable of adjusting the criteria in both directions in real-time (namely changing the payoff diagram graphically &lt;-&gt; constraints in form of text)."</p> <p>7.:"... based on the information received from the user</p> <p>and based on the real-time conditions of the investment market. I conceived that</p> <p>particularly for a client using a bigger screen, there would be an option to drag and</p> <p>drop investment criteria on a payoff diagram, thus interactively and instantly displaying changing product characteristics..."</p> <p>55.:"... graphically presented investment</p> <p>information using a heat map and "real-time pricing"...."</p> |
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|  |  | <p>Declaration of Patrick Winzenried:</p> <p>3. : "...which would operate in real-time decomposing products into two or more priced components corresponding to respective deal terms..."</p> <p>Exhibit J:</p> <p>Page 5 -</p> <p>Page 9 - "Nafter every input of one constraint the GUI responds/refreshes one field (green/red or with a text message) and tells, whether an already typed in and provided option is covered... "</p> <p>Page 9 - "Dependent on the selection he can now draw and drop one point (coordinate) in the diagram and draw the payoff diagram (also done in real-time by the plotter) and couple it with a function or an attribute via a line or specific drawing.</p> <p>Wishful would be, if the tool would automatically get the gradient, incline or slope</p> |
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|  |  | <p>and then for instance automatically compute the corresponding delta hedge ratio, draw it into the diagram and the message and ask via text: "Slope = 4 identified -&gt; 4</p> <p>Call positions to be fixed, composited and with corresponding Strike positioned by mouse click Strike (x,y coordinates)..."</p> <p>Page 10 - "...C: Synchronous mode makes it possible to concurrently tie in investment constraints via combo-box or directly in the payoff diagram. Changes in one area should be, after confirmation for a constraint (for instance mouse click), automatically applied, put forward and displayed in/ to the other in real-time..."</p> <p>Exhibit P page 1:</p> <p>'...You can simulate various possibilities in real time....'</p> |
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| <p>each poll question linked to a macro factor of the plurality of macro factors,</p> |  | <p>Exhibit J:</p> <p>Page 5 – “...Now the client can type in and fixate</p> <p>"step by step" one wish, requirement and investment criterion and therefore shorten</p> <p>the sample space for possible products... Besides the now made constraints and criteria in the form and fashion of financial</p> <p>ratios and limits the tool does also provide the client with the possibility to display</p> <p>the wished payoff in form of a payoff diagram.</p> <p>Page 7: ‘...wished spectrum of annual performance/return (normally very structured product specific)’</p> <p>wished means the platform algorithm does testing/validation/simulation if the product terms are viable</p> |
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| <p>wherein the responses to the poll questions were generated by:</p> <ul style="list-style-type: none"> <li>processing a plurality of data feeds by applying a first set of rules;</li> <li>generating a plurality of events defined by the second set of rules based on the processing;</li> <li>selecting the event from the plurality of events;</li> </ul> |  | <p>Declaration of Christian Gunther:<br/>6. "... The electronic trading platform would comprise receiving a request from a user to trade an investment product;..."</p> <p>Exhibit J:<br/>Page 7 - "...1. The client choses from existing questions/constraints, which corresponding answers reflect his investment criteria and preferences (answers maybe as radio buttons)..."</p> <p>Page 8 - "...3.STEP: SELECTION OF THE CUSTOMIZING---PROCESS/CUSTOMIZING</p> <p>A. Constraints/wishes via constraints typed in</p> <p>B. Via Payoff-Diagram</p> <p>C. A+B concurrently</p> <p>A: Client should type in one constraint after another and therefore shrinken the possible selections of the available structured products</p> |

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|  |  | <p>1.Variant: First 3-5 questions standardized by the selection of the predefined</p> <p>possibilities in combo-boxes. Than free "adding" of constraints/wishes by unconstrained selection-possibilities in the combo-boxes or free fields.</p> <p>2.Variant (wishfull): Client can type in and provide his wishes in every combo-box/</p> <p>field from the very beginning.” ff</p> <p>Exhibit J:</p> <p>Page 7 - “...loss tolerance/ loss sensitivity</p> <p>wished spectrum of annual performance/return (normally very structured product specific)</p> <p>preference between trade-off return/ risk preference (for instance: defensive,</p> <p>low; medium, moderate; slightly higher, slightly higher; high, aggressive)</p> <p>annual savings potential from annual income</p> <p>free capital assets</p> |
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|                                                                                                                                                                                                               |  | investment horizon                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <p>generating a set of macro factors<br/>by applying a second set of rules to the event;<br/>applying a third set of rules to identify the plurality of macro factors from among the set of macro factors</p> |  | <p>Exhibit J page 9</p> <p>if the tool would automatically get the gradient, incline or slope<br/>and then for instance<br/>automatically compute the corresponding delta hedge ratio,<br/>draw it into the diagram and the message and ask via text: "Slope = 4 identified -&gt; 4</p> <p>Call positions to be fixed,<br/>composited and with<br/>corresponding Strike positioned by<br/>mouse click Strike (x,y coordinates)."</p> <p>Term paper Exhibit J:<br/>Page 14 - " The application server communicates with the user, the database server as well as with other web services and web interfaces in order to calculate the real-time price for structured investment products and derivatives traded on exchanges."</p> <p>Term paper (Exhibit J) page 15 -<br/>" calculation and displaying of</p> |

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|  |  | <p>the payoff diagram and the payoff table regarding the calculation of the price of the structured product.”</p> <p>Term paper (Exhibit J) page 14 – “ calculation of the actual and real-time price of the structured product/ derivative.”</p> <p>Exhibit J Page 45: “ ...2. Client types in his data in free fields</p> <p>Analogous to 1. But with sectional heading/naming of the fields according to</p> <p>the aforementioned pattern</p> <p>Variant 1 is to be preferred, because data could be more structured and easier to save</p> <p>3.STEP: SELECTION OF THE CUSTOMIZING---<br/>PROCESS/CUSTOMIZING</p> <p>A. Constraints/wishes via constraints typed in</p> <p>B. Via Payoff-Diagram</p> <p>C. A+B concurrently</p> |
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|                                         |  | <p>A: Client should type in one constraint after another and therefore shrink the possible selections of the available structured products</p> <p>I.Variant: First 3-5 questions standardized by the selection of the predefined possibilities in combo-boxes. Then free "adding" of constraints/wishes by unconstrained selection-possibilities in the combo-boxes or free fields.</p> <p>2.Variant (wishfull): Client can type in and provide his wishes in every combobox/field from the very beginning..."</p> |
| and generate the set of poll questions; |  | <p>Declaration of Christian Gunther: 6. "... The electronic trading platform would comprise receiving a request from a user to trade an investment product;..."</p> <p>Exhibit J:<br/>Page 7 - "...1. The client chooses from existing</p>                                                                                                                                                                                                                                                                         |

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|  |  | <p>questions/constraints, which corresponding</p> <p>answers reflect his investment criteria and preferences (answers maybe as radio buttons)..."</p> <p>Page 8 - "...3.STEP: SELECTION OF THE CUSTOMIZING---PROCESS/CUSTOMIZING</p> <p>A. Constraints/wishes via constraints typed in</p> <p>B. Via Payoff-Diagram</p> <p>C. A+B concurrently</p> <p>A: Client should type in one constraint after another and therefore shrinken the possible selections of the available structured products</p> <p>1.Variant: First 3-5 questions standardized by the selection of the predefined possibilities in combo-boxes. Than free "adding" of constraints/wishes by unconstrained selection-possibilities in the combo-boxes or free fields.</p> |
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|                                                                                                                                                                                               |  | <p>2.Variant (wishfull): Client can type in and provide his wishes in every combo-box/</p> <p>field from the very beginning.” ff</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <p>and providing for display a user interface with visual elements for the poll questions linked to macro factors and one or more controls for inputting responses to the poll questions;</p> |  | <p>Exhibit J</p> <p>Page 45 - “2.STEP: INVESTMENT CRITERIA</p> <p>In order to segment the client into an investor category and already remove certain investment products and derivatives from the personalized catalog and queue of the</p> <p>user session the client types in his investment preferences.</p> <p>Two variants could be considered at this point:</p> <p>1. The client choses from existing questions/constraints, which corresponding answers reflect his investment criteria and preferences (answers maybe as radio buttons)</p> <p>loss tolerance/ loss sensitivity</p> |

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|  |  | <p>wished spectrum of annual performance/return (normally very structured product specific)</p> <p>preference between trade-off return/ risk preference (for instance: defensive, low; medium, moderate; slightly higher, slightly higher; high, aggressive)</p> <p>annual savings potential from annual income</p> <p>free capital assets</p> <p>investment horizon..."</p> <p>Page 46 - "...2. Client types in his data in free fields</p> <p>Analogous to 1. But with sectional heading/naming of the fields according to the aforementioned pattern</p> <p>Variant 1 is to be preferred, because data could be more structured and easier to save</p> <p>3.STEP: SELECTION OF THE CUSTOMIZING---<br/>PROCESS/CUSTOMIZING</p> |
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|  |  | <p>A. Constraints/wishes via constraints typed in</p> <p>B. Via Payoff-Diagram</p> <p>C. A+B concurrently</p> <p>A: Client should type in one constraint after another and therefore shrinken the possible selections of the available structured products</p> <p>I.Variant: First 3-5 questions standardized by the selection of the predefined possibilities in combo-boxes. Than free "adding" of constraints/wishes by unconstrained selection-possibilities in the combo-boxes or free fields.</p> <p>2.Variant (wishfull): Client can type in and provide his wishes in every combobox/field from the very beginning.</p> <p>Page 47 - "...Nafter every input of one constraint the GUI responds/refreshes one field (green/red or with a text message) and tells, whether an already typed in and provided option is</p> |
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|  |  | <p>covered by an already existing structured product.</p> <p>Both variants have in common, that they start with one Combo-Box and after input</p> <p>one plus-button is displayed by which another field/combo box can be added and</p> <p>displayed.</p> <p>B: An empty PayOff-Diagram is displayed. The naming and description should already</p> <p>be prepared, existing and displayed ( suggestion by the platform's generation algorithms)</p> <p>but should be also permitted to be changed by the client before the first step.</p> <p>The client can select and move from the palette (Strike, Barrier, Multi-Barrier, Cap,</p> <p>Mid Cap, delta hedge, vega, ....)</p> <p>the one of his choosing and move it into the</p> <p>diagram. Dependent on the selection he can now draw and drop one point</p> <p>(coordinate) in the diagram and draw the payoff diagram (also done in real-time by</p> |
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|                                           |                                                                                                                                                                 | <p>the plotter) and couple it with a function or an attribute via a line or specific drawing.</p> <p>Wishful would be, if the tool would automatically get the gradient, incline or slope</p> <p>and then for instance automatically compute the corresponding delta hedge ratio,</p> <p>draw it into the diagram and the message and ask via text: "Slope = 4 identified -&gt; 4</p> <p>Call positions to be fixed, composited and with corresponding Strike positioned by</p> <p>mouse click Strike (x,y coordinates)...."</p> |
|                                           |                                                                                                                                                                 |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| generating a graph data storage structure | <p>"graph data storage structure" is constructed to mean any network of computing machines/ data racks for storing client data/investment and scenario data</p> | <p>Exhibit I</p> <p>Page 33 – left hand side: depicts a network (=graph) of computing devices as a storage structure; middle: data embodied as (electronic) contract data/investment criteria/ data points; right hand side: data rack connected via a (blue) node on an edge of the network (=graph)</p> <p>Page 35 – right hand side: depicting a network with an</p>                                                                                                                                                          |

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|  |  | <p>exemplary root node (in blue) in the middle as well as different/plural nodes of leafs in one embodiment on a connected corresponding system per node; receiving responses and input to the poll questions by users/platform users representing different outcomes and scenarios ; the figure at a glance depicting a graph data storage structure (also for production)</p> <p>Page 45 – various layers for storing and managing client data on a network (=graph)</p> <p>Declaration of Christian Gunther:</p> <p>6.” ... a product generation system that generates customized tradable investment products in response to product request information received from a retail customer user of the electronic platform...”</p> <p>Declaration of Patrick Winzenried:</p> <p>3.:” ... two or more priced components corresponding to</p> |
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|  |  | <p>respective deal terms, which would generate price and other information...”</p> <p>Product generation system: Term paper (Exhibit 9T) page 5 – “the platform should help, advise and customize a product just for him according to the typed in requirements, propose an existing one or initiate the first-issuing of a new note.”</p> <p>Exhibit I Page 45: ....network and client data...</p> <p>A network is a graph; network with client data is graph data storage;</p> <p>Term paper Exhibit J:</p> <p>Page 53 – “Databaseserver...Webservices”</p> <p>Page 54 – “Migration and Synchronization of Data...Webservices”</p> <p>Page 56 – “...Webservices-Webapplication”</p> <p>Term paper Exhibit J</p> |
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|                                                                                                 |                                                                                                                                                                 | <p>Page 16 - "The module uses a central data source for calculating the price of a structured product as well as the presentation and the updating or refreshing of the personally fixated options/ investment criteria."</p>                                                                                                                                                                                                                                                                                                                                                                                                 |
| <p>representing scenarios for the plurality of macro factors and the plurality of outcomes,</p> | <p>"scenario" is constructed to mean any outcome of a client data/deal term collection stored and executed as a corresponding investment/structured product</p> | <p>Exhibit J:</p> <p>Page 5 - "... Now the client can type in and fixate</p> <p>"step by step" one wish, requirement and investment criterion and therefore shorten the sample space for possible products. Starting with the investment horizon and the risk appetite/attitude, the client types into the browser based platform (later in an app) the wished invested capital, wished barriers, strike-prices et cetera line by line.</p> <p>Besides the now made constraints and criteria in the form and fashion of financial ratios and limits the tool does also provide the client with the possibility to display</p> |

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|                                                                                        |                                                                                                                                                         | the wished payoff in form of a payoff diagram.                                                                                                                                                                                                                                                                                                                                                                  |
| each node in the graph data storage structure including a descriptor and a data value, | “descriptor and data value” is constructed to mean any data collection/pricing component based on client data/deal terms                                | <p>Exhibit J:</p> <p>Page 8 – Step 2: data for scenario/structured product/outcome linked to questions/polling</p> <p>Page 9 – “B: An empty PayOff-Diagram is displayed. The naming and description should already</p> <p>be prepared, existing and displayed ( suggestion by the platform's generation algorithms)</p> <p>but should be also permitted to be changed by the client before the first step.”</p> |
| the graph data storage structure                                                       | “graph data storage structure” is constructed to mean any network of computing machines/data racks for storing client data/investment and scenario data | <p>Exhibit I</p> <p>Page 33 – left hand side depicts a network (=graph) of computing devices as a network; middle: data embodied as (electronic) contract data/investment criteria/data points; right hand side: data rack connected via a (blue) node on an edge of the network (=graph)</p> <p>Page 35 – right hand side: depicting a network with an exemplary root node in (blue) in</p>                    |

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|                                                                                                                                                                                                          |                                                                                                                                                                    | <p>the middle as well as different/plural nodes of leafs in one embodiment on a connected corresponding system per node; receiving response and input to the poll questions by users/platform users representing different outcomes and scenarios ; the figure at a glance depicting a graph data storage structure (also for production)</p> <p>Page 45 – various layers for storing and managing client data on a network (=graph)</p> |
| including a root node, outcome nodes connected to the root node, and macro factor nodes connected to the outcome nodes,                                                                                  |                                                                                                                                                                    | <p>Exhibit I</p> <p>Page 35 – right hand side: depicting a network with an exemplary root node in (blue) in the middle as well as different/plural nodes of leafs in one embodiment on a connected corresponding system per node;</p>                                                                                                                                                                                                    |
| the root node corresponding to the event, each outcome node corresponding to one of the plurality of outcomes, and each macro factor node corresponding to one of the macro factors and including a data | <p>“data value” is constructed to mean any one or more priced components corresponding to any generated deal terms for any investment product corresponding to</p> | <p>Exhibit I</p> <p>Page 33 – left hand side: depicts a network (=graph) of computing devices as a storage structure; middle: data embodied as (electronic) contract data/investment criteria/ data points; right hand side: data rack connected via a (blue) node on an edge of the network (=graph)</p> <p>Page 35 – right hand side:</p>                                                                                              |

|        |                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
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| value; | product request information | <p>depicting a network with an exemplary root node (in blue) in the middle as well as different/plural nodes of leafs in one embodiment on a connected corresponding system per node; receiving responses and input to the poll questions by users/platform users representing different outcomes and scenarios ; the figure at a glance depicting a graph data storage structure (also for production)</p> <p>Page 45 – various layers for storing and managing client data on a network (=graph)</p> <p>Exhibit I</p> <p>Page 35 – right hand side: depicting a network with an exemplary root node in (blue) in the middle as well as different/plural nodes of leafs in one embodiment on a connected corresponding system per node;</p> <p>Declaration of Patrick Winzenried:</p> <p>3.:” ... two or more priced components corresponding to respective deal terms, which would generate price and other information...”</p> |
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|  |  | <p>Product generation system: Term paper (Exhibit 9T) page 5 – “the platform should help, advise and customize a product just for him according to the typed in requirements, propose an existing one or initiate the first-issuing of a new note.”</p> <p>Exhibit I Page 45: ....network and client data...</p> <p>A network is a graph; network with client data is graph data storage;</p> <p>Exhibit J:<br/>Page 8 – Step 2: data for scenario/structured product/outcome linked to questions/polling</p> <p>Page 9 – “B: An empty PayOff-Diagram is displayed. The naming and description should already</p> <p>be prepared, existing and displayed ( suggestion by the platform's generation algorithms)</p> <p>but should be also permitted to be changed by the client before the first step.”</p> <p>Term paper Exhibit J:<br/>Page 14 – “ The application server communicates with the user, the database server as well</p> |
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|                                                                                                                                   |  | <p>as with other web services and web interfaces in order to calculate the real-time price for structured investment products and derivatives traded on exchanges.”</p> <p>Term paper (Exhibit J) page 15 – “ calculation and displaying of the payoff diagram and the payoff table regarding the calculation of the price of the structured product.”</p> |
| <p>filtering the responses for bias based on sentiment factors, the filtering including: applying natural language processing</p> |  | <p>Exhibit J: Term paper page 9: ‘...Input into the diagram should only be possible if financially reasonable and logical.’ ‘...- &gt;Trade-off client degree of freedom(satisfaction)/Bank liability <b>if financially senseless risk without expected reasonable benefit....</b></p>                                                                     |
| <p>to at least a subset of the responses to identify sentiments of authors of the responses;</p>                                  |  | <p>Declaration of Christian Gunther: 6. “... The electronic trading platform would comprise receiving a request from a user to trade an investment product;...”</p>                                                                                                                                                                                        |

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|  |  | <p>Exhibit J:</p> <p>Page 7 - "...1. The client choses from existing questions/constraints, which corresponding answers reflect his investment criteria and preferences (answers maybe as radio buttons)..."</p> <p>Page 8 - "...3.STEP: SELECTION OF THE CUSTOMIZING---PROCESS/CUSTOMIZING</p> <p>A. Constraints/wishes via constraints typed in</p> <p>B. Via Payoff-Diagram</p> <p>C. A+B concurrently</p> <p>A: Client should type in one constraint after another and therefore shrinken the possible selections of the available structured products</p> <p>1.Variant: First 3-5 questions standardized by the selection of the predefined possibilites in combo-boxes. Than free "adding" of constraints/wishes by</p> |
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|                                                                                                                                                                                                                            |  | <p>unconstrained selection-possibilities in the combo-boxes or free fields.</p> <p>2.Variant (wishfull): Client can type in and provide his wishes in every combo-box/</p> <p>field from the very beginning.”</p> <p>Ff</p>                                                              |
| and eliminating responses from authors for whom the identified sentiment indicates bias with regard to the event;                                                                                                          |  | <p>Exhibit J: Term paper page 9: ‘...Input into the diagram should only be possible if financially reasonable and logical.’ ‘...-&gt;Trade-off client degree of freedom(satisfaction)/Bank liability <b>if financially senseless risk without expected reasonable benefit....</b></p>    |
| applying a set of rules to the filtered responses to generate values for the macro factors; populating the macro factor nodes in the graph data storage structure with the data values for the corresponding macro factors |  | <p>Term paper Exhibit J: Page 14 – “ The application server communicates with the user, the database server as well as with other web services and web interfaces in order to calculate the real-time price for structured investment products and derivatives traded on exchanges.”</p> |

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|                                                                                                                                                                                    |  | <p>Term paper (Exhibit J) page 15 –<br/>“ calculation and displaying of the payoff diagram and the payoff table regarding the calculation of the price of the structured product.”</p> <p>Term paper (Exhibit J) page 14 –<br/>“ calculation of the actual and real-time price of the structured product/ derivative.”</p>                                                                                                                                                              |
| <p>to generate scenarios for the outcome nodes; and providing for display a user interface including visual elements indicating the scenarios and a distribution of responses,</p> |  | <p>Declaration of Christian Gunther:<br/>6.” ... a product generation system that generates customized tradable investment products in response to product request information received from a retail customer user of the electronic platform...”</p> <p>Declaration of Christian Gunther:<br/>6. ” ... The electronic trading platform would comprise receiving a request from a user to trade an investment product;...”</p> <p>Exhibit J:<br/>Page 7 – “...1. The client choses</p> |

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|  |  | <p>from existing questions/constraints, which corresponding</p> <p>answers reflect his investment criteria and preferences (answers maybe as radio buttons)..."</p> <p>Page 8 - "...3.STEP: SELECTION OF THE CUSTOMIZING---PROCESS/CUSTOMIZING</p> <p>A. Constraints/wishes via constraints typed in</p> <p>B. Via Payoff-Diagram</p> <p>C. A+B concurrently</p> <p>A: Client should type in one constraint after another and therefore shrinken the possible selections of the available structured products</p> <p>1.Variant: First 3-5 questions standardized by the selection of the predefined</p> <p>possibilites in combo-boxes. Than free "adding" of constraints/wishes by unconstrained selection-possibilities in the combo-boxes or free fields.</p> |
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|                                                                      |  | <p>2.Variant (wishfull): Client can type in and provide his wishes in every combo-box/</p> <p>field from the very beginning.” ff</p> <p>Declaration of Patrick Winzenried:</p> <p>3.:”... two or more priced components corresponding to respective deal terms, which would generate price and other information...”</p> <p>Product generation system: Term paper (Exhibit J) page 5 – “the platform should help, advise and customize a product just for him according to the typed in requirements, propose an existing one or initiate the first-issuing of a new note.”</p> <p>Exhibit I Page 45: ....network and client data...</p> <p>A network is a graph; network with client data is graph data storage;</p> |
| wherein each scenario is a path from the root node to a leaf node of |  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

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| the generated graph data storage structure. | “graph data storage structure ” is constructed to mean any network of computing machines/data racks for storing client data/investment and scenario data | <p>Exhibit I</p> <p>Page 33 – left hand side: depicts a network (=graph) of computing devices as a storage structure; middle: data embodied as (electronic) contract data/investment criteria/ data points; right hand side: data rack connected via a (blue) node on an edge of the network (=graph)</p> <p>Page 35 – right hand side: depicting a network with an exemplary root node (in blue) in the middle as well as different/plural nodes of leafs in one embodiment on a connected corresponding system per node; receiving responses and input to the poll questions by users/platform users representing different outcomes and scenarios ; the figure at a glance depicting a graph data storage structure (also for production)</p> <p>Page 45 – various layers for storing and managing client data on a network (=graph)</p> |
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In addition, each of the limitations of Claim 20 are supported by the specification in United States Patent Application No. 15 368221.

| Claim 20 Language<br>Pat. 10,558,769                                    | Construction (Term<br>Meaning)                                                                                                                 | Location in Petitioner<br>US15/368,221                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
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| Claim 20. A system for generating scenarios and user interface elements | “scenarios for an event” is constructed to mean any corresponding investment product and different investment position are different scenarios | <p>Fig. 36 -48 represent different depictions or data structures representing different events which stand for different outcomes/scenarios in turn based on other events [0058] FIGS. 47-48 illustrate platform user making changes to user's investment positions. different investment position are different scenarios [0237] In accordance with a further embodiment of the invention, the components of the structured product are selected by an algorithm on the system.... trading platform automatically picks a substitute component which is expected to perform closer to the investment criteria input by the retail customer... [0261]...and an algorithm providing constant feedback in response to consumer requests in the form of instrument performance, performance expectations, suggestions, directions and... [0289] A skyline query is used to mediate between conflicting objectives and investment criteria, such as high return,</p> |

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|  |  | <p>investment amount, payback time, marginal value adjustments, duration and tenor et cetera. This inventive step implemented, presented and executed to and by the user by the product generation and exchange system in accordance with a heat map pricing approach.</p> <p>[0289] A skyline query is used to mediate between conflicting objectives and investment criteria, such as high return, investment amount, payback time, marginal value adjustments, duration and tenor et cetera. This inventive step implemented, presented and executed to and by the user by the product generation and exchange system in accordance with a heat map pricing approach.</p> <p>[0230] As alluded to above, the investment instruments being designed by users are constructed from a combination of one or more selected investment products based on the information received from the user and based on the real-time conditions of the investment market. Particularly for a</p> |
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|  |  | <p>client using a bigger screen, there would be an option to drag and drop investment criteria on a payoff or other diagram, thus interactively and instantly displaying changing product characteristics. A heat map may be used to <b>graphically</b> simplify the customizing process. Such a heat map would effectively act as a number of pricing tables for each of the two or more priced components of the structured investment product. Such a heat map may be generated by interpolating pricing information for multiple sets of deal terms associated with the two or more priced components in response to information provided by the user of the <i>electronic platform</i>. The system may also present almost finished or already issued and traded products in an overview. The overall result of these aspects of my invention is, that the client/user defines the investment criteria himself via the online platform and does not necessarily need the help of a bank employee or</p> |
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|  |  | <p>financial advisor. Therefore cost can be reduced.</p> <p>[0233] Once certified, the client can begin the design of an attachment by typing in and fixating "step by step" one desire, requirement and investment criterion and therefore shorten the sample space for possible products. This may be done repeatedly to cause the system to select components of the structured financial instrument meeting investor criteria. In accordance with the invention, it is contemplated that the software on the servers operating the inventive trading platform will contain a wide range of investment products selected by the operator of the platform and having a range of different characteristics. These investment products would be selected for their ability to provide a range of characteristics when a number of these products are combined to form a structured product, for example a structured financial product. This enables the design of a structured product by the</p> |
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|  |  | <p>retail investment customer. As the product is being designed, <b>the system may graphically display</b> the characteristics of the product. Starting with the investment horizon and the risk appetite/attitude, the client types into a browser based platform (or, alternatively, in an app) the desired invested capital, desired barriers, strike-prices, et cetera line by line. Besides the now made constraints and criteria in the form and fashion of financial ratios and limits the inventive tool is programmed to also provide the client with the possibility displaying a desired payoff in the form of a payoff diagram. The software <b>provides a graphical display</b> of the designed instrument's characteristics. The software is also capable of adjusting the criteria in both directions in real-time (namely changing the payoff-diagram graphically &lt;-&gt; constraints in form of text). Such adjustment may be done by clicking and dragging display characteristics on a graphic</p> |
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|  |  | <p>display of designed instrument characteristics.</p> <p>[0266] One embodiment of the contract is the term-sheet for structured investment products. This term-sheet can be printed as a PDF (Portable Data Format) or Microsoft file. Another embodiment of the contract is a XML (Extensible Markup Language) file or another adequate markup language file. Yet another embodiment or use of this dynamic electronic contract is to automatically fill regulatory forms like Foreign Account Tax Compliance Act (FATCA) Forms "on the fly" as the user of the platform makes and trades his financial products. This automatic generation of contracts and forms results in dramatic cost reductions regarding front-office, middle-office and back-office efforts normally done by bank employees. The data and records themselves are either stored in one or more centralized servers 1003, or in a decentralized distributed database network (also peer-to-peer technology). The network as well as the server</p> |
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|  |  | <p>and storage infrastructure is assisted, implemented and protected by cryptographic hash-tables and other cryptographic and encryption technology. In one embodiment, the online platform comes together under a brand name 1004 which is presented on screens in the graphic user interface, in this case the brand "MyStructuring".</p> <p>[0058] FIGS. 47-48 illustrate platform user making changes to user's investment positions.</p> <p>different investment position are different scenarios</p> <p>[0233] Once certified, the client can begin the design of an attachment by typing in and fixating "step by step" one desire, requirement and investment criterion and therefore shorten the sample space for possible products. This may be done repeatedly to cause the system to select components of the structured financial instrument meeting investor criteria. In accordance with the invention, it is</p> |
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|  |  | <p>contemplated that the software on the servers operating the inventive trading platform will contain a wide range of investment products selected by the operator of the platform and having a range of different characteristics. These investment products would be selected for their ability to provide a range of characteristics when a number of these products are combined to form a structured product, for example a structured financial product.</p> <p>[0270] The area indicated by 1012 is reserved for other layers namely additional functionality regarding helping the user to specify his target payoff or other tools like an instant text mining module. The whole structure of the graphical presentation is to be understood as flexible and customizable itself. The user can position and drag and drop modules 1011, 1013, 1014 and 1015 within the browser. Below the diagram</p> |
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|                                                             |                                                                                                                                                          | the product constraints area shown in text (1013 1). In this area of the graphical user interface the user can input his preferences by text.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| representing valuations of instruments under the scenarios, | “scenario” is constructed to mean any outcome of a client data/deal term collection stored and executed as a corresponding investment/structured product | <p>Fig. 36 -48 represent different depictions or data structures representing different events which stand for different outcomes/scenarios in turn based on other events</p> <p>[0058] FIGS. 47-48 illustrate platform user making changes to user's investment positions. different investment position are different scenarios</p> <p>[0237] In accordance with a further embodiment of the invention, the components of the structured product are selected by an algorithm on the system.... trading platform automatically picks a substitute component which is expected to perform closer to the investment criteria input by the retail customer...</p> <p>[0261]...and an algorithm providing constant feedback in response to consumer requests in the form of instrument performance, performance expectations, suggestions, directions and...</p> <p>[0289] A skyline query is used</p> |

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|                                                                                                                  |  | to mediate between conflicting objectives and investment criteria, such as high return, investment amount, payback time, marginal value adjustments, duration and tenor et cetera. This inventive step implemented, presented and executed to and by the user by the product generation and exchange system in accordance with a heat map pricing approach.                                                                                                                                                                                                                                                                                                            |
| the system comprising:<br>at least one processor;<br>and a machine-readable medium<br>storing instructions that, |  | [0229] In response to such product request information received from the client operating on the <i>electronic platform</i> , the software on the servers construct the product designed by the retail client, make information respecting the same available and execute the trade. Because it is highly desirable that the client have some level of sophistication, the servers provide product education to clients having the app and certify successful completion of online courses related to the tradable investment products which would be available to certified users of the inventive <i>electronic platform</i> . After one retail customer user of the |

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|  |  | <p>inventive platform has created an instrument, that instrument is available to other users. This can occur, for example, when the software constituting the platform determined that other investment products managed by the <i>electronic platform</i> share characteristics with the product generated in response to the user's criteria. The result is a product exchange system and the establishment of an information exchange environment between users of the <i>electronic platform</i>.</p> <p>Fig. 26, 27, 28</p> <p>[0053] FIG. 27 illustrates another embodiment of the Client and Server relationship of the online platform.</p> <p>[0054] FIG. 28 illustrates a project implementation cycle during development and customization of a structured investment product.</p> <p>[0265] FIG. 22 illustrates one type of client devices 1001 needed for the access and usage of the platform, such as personal computers. Tablets</p> |
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|  |  | <p>or smartphones will also function well with the inventive system. A virtual (smart) contract 1002 is stored in a non-transitory computer-readable medium. Contract 1002 is generated and redacted according to regulatory needs, requirements and laws of the user's domicile. According to the client's drag &amp; drop adjustments either on the payoff diagram or on the free fields regarding the constraints and investment criteria for his customized financial product, the contract is updated, expanded and automatically generated in the product generation system.</p> <p>[0230]...A heat map may be used to graphically simplify the customizing process. Such a heat map would effectively act as a number of pricing tables for each of the two or more priced components of the structured investment product. Such a heat map may be generated by interpolating pricing information for multiple sets of deal terms associated with the two or more priced components in</p> |
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|  |  | <p>response to information provided by the user of the electronic platform.</p> <p>[0248] In accordance with the invention, after every input of one constraint (for example, which, desire or objective), the graphic user interface responds by refreshing the relevant field. In addition, if the client input is meant by an existing structured product, the field, which was previously a pale green may turn red indicating that the product cannot be made by the client because there is already a product inexistent which meets the criteria. On the other hand, if an additional constraint is added to feel may turn green again indicating that a new product may be created. If the client is agreeable to purchase the existing product, in response to the client clicking on the "structuring completed" button on his device screen, information on the same may be presented by the system. The client is then given the opportunity of making the trade by clicking on a "make trade" button on the screen.</p> |
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|  |  | <p>The changing of the background color from green to red may be accompanied by a text message) for example, saying whether an already typed in and provided option is covered by an already existing structured product. Such message may also include further instructions to the client.</p> <p>[0249] Both of the above alternatives may have the common element that they start with one field for the entry of information or multiple choice selection, and after input by the client, another field or other input is displayed by which another investment criteria can be input and displayed.</p> <p>[0250] Figures illustrate various aspects, choices, features, screens and the like of the present invention. The invention contemplates the use of a payoff diagram such as that illustrated in Figures, 23, 25 or 26. As can be seen from these figures, the payoff diagram shows the various features of the instrument involved in a format familiar</p> |
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|  |  | <p>to those in the investment field.</p> <p>[0251] Initially, in accordance with the invention, an empty PayOff-Diagram is displayed. The abscissa and ordinate parameters are displayed, as determined by the trading platform system algorithms. However, the client is permitted to change the same by writing in plain language suggestions which may trigger selections from a parameter database employed by the system. This would be done prior to the commencement of the structuring process.</p> <p>[0265] FIG. 22 illustrates one type of client devices 1001 needed for the access and usage of the platform, such as personal computers. Tablets or smartphones will also function well with the inventive system. A virtual (smart) contract 1002 is stored in a non-transitory computer-readable medium. Contract 1002 is generated and redacted according to regulatory needs, requirements and laws of the user's domicile. According to</p> |
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|  |  | <p>the client's drag &amp; drop adjustments either on the payoff diagram or on the free fields regarding the constraints and investment criteria for his customized financial product, the contract is updated, expanded and automatically generated in the product generation system.</p> <p>[0276] By the means of a command line like `free field` the user can type in his investment criteria. Each criterion is displayed as a separate symbol ("CP" in FIG. 29). Each of those symbols can be removed by clicking on the `X` letter. This method gives the user of the <i>electronic platform</i> the means to specify the investment terms for his product in a very rapid fashion. The corresponding Payout-Chart as well as every change is generated and presented to the user in real time.</p> <p>[0279] After all needed specifications are green and acceptable, a new prompt named `Create new Structured Product` appears (i.e. "Create new Structured Note" in FIG. 34). After the user clicks on it</p> |
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|                                                                                         |  | <p>and affirms his investment criteria the product together with the needed contracts (i.e. term sheets and other forms) are generated and presented. The button's naming changes to `Trade` ("T R A D E" in FIG. 35). The user can now effectively invest in his product.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <p>when executed, cause the at least one processor to perform operations including:</p> |  | <p>[0229] In response to such product request information received from the client operating on the electronic platform, the software on the servers construct the product designed by the retail client, make information respecting the same available and execute the trade. Because it is highly desirable that the client have some level of sophistication, the servers provide product education to clients having the app and certify successful completion of online courses related to the tradable investment products which would be available to certified users of the inventive electronic platform. After one retail customer user of the inventive platform has created an instrument, that instrument</p> |

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|                                                        |  | <p>is available to other users. This can occur, for example, when the software constituting the platform determined that other investment products managed by the electronic platform share characteristics with the product generated in response to the user's criteria. The result is a product exchange system and the establishment of an information exchange environment between users of the electronic platform.</p>                                                                                                                                                       |
| <p>receiving responses to a set of poll questions,</p> |  | <p>[0243] Two alternatives may be considered at this point. First, client answers a plurality of questions and sent a number of constraints. This process is meant to assess his investment criteria and preferences. Such process can be achieved using a multiple-choice question format with the client clicking on his selection. It is anticipated that questions will include multiple choices selected in order to assess loss tolerance and/or loss sensitivity, the desired range of annual performance/return (normally very structured product specific), preference</p> |

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|                                                    |  | <p>between trade-off return and risk preference (for instance: defensive, low; medium, moderate; slightly higher, slightly higher; high, aggressive), annual savings potential from earned annual income (for example from employment, investments, pension, etc.), free capital assets, and investment horizon</p> <p>[0245] As an alternative to a multiple-choice format, an open field may be provided for the prospective client to type in his investment criteria in plain language which would be processed by an artificial intelligence algorithm to determine a more formal presentation of such investment criteria. This more formal representation would then be displayed to the user in order to confirm that his plain language request has been understood. Use of a multiple-choice question format is preferred, because data could be more structured and easier to save, and may also be easier for a user.</p> |
| each poll question linked to a macro factor of the |  | FIG. 43 - FIG.46                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

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| <p>plurality of macro factors,</p> |  | <p>macro factors = pricing components (Fig.32, 33, 43-46)</p> <p>[0244] The invention also contemplates the determination of client type, for example low income, middle income, high income, high net worth individual, etc. The same may be determined on the basis of a plurality of multiple-choice questions to be answered by the prospective client.</p> <p>[0246] In accordance with one alternative embodiment of the invention, the client begins the process by entering one constraint after another. This results in shrinking the possible selections of the available structured products. Constraints may include, for example, the investment amount, risk tolerance, investment horizon, and the other investment criteria detailed above. One possible way to implement this process is for the system to ask, for example, three to five questions such as "how much do you want to invest", "how long do you want to hold this</p> |
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|                                                                                                                                              |                                                                                                                                                                    | <p>investment", etc., for example in a multiple choice format. For example, as potential answers to the question "how much do you want to invest?", The system could present the choices "less than \$1000", "\$1000 to \$10,000", and "\$10,000 to \$100,000". The next step in the process would be the input of investment criteria using plain language (to be processed by an artificial intelligence algorithm) as composed by the client user of the inventive platform, or, alternatively, dragging and dropping investment criteria options from a menu presented by the system. Such free "adding" of constraints and wishes by unconstrained selection possibilities in open fields may be preferable for many users.</p> |
| <p>wherein the responses to the poll questions were generated by: processing a plurality of data feeds by applying a first set of rules;</p> | <p>"data feeds" is constructed to mean any one or more priced components corresponding to any generated deal terms for any investment product corresponding to</p> | <p>Fig. 22, 24, 27, 28, 1005, 1008, 1009</p> <p>[0051] FIG. 24 illustrates overall general security measures and requirements for the online-platform.</p> <p>[0053] FIG. 27 illustrates another embodiment of the</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

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|  | <p>product request information by the user or web service</p> | <p>Client and Server relationship of the online platform.</p> <p>[0054] FIG. 28 illustrates a project implementation cycle during development and customization of a structured investment product.</p> <p>[0265] FIG. 22 illustrates one type of client devices 1001 needed for the access and usage of the platform, such as personal computers. Tablets or smartphones will also function well with the inventive system. A virtual (smart) contract 1002 is stored in a non-transitory computer-readable medium. Contract 1002 is generated and redacted according to regulatory needs, requirements and laws of the user's domicile. According to the client's drag &amp; drop adjustments either on the payoff diagram or on the free fields regarding the constraints and investment criteria for his customized financial product, the contract is updated, expanded and automatically generated in the product generation system.</p> |
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|  |  | <p>[0266] One embodiment of the contract is the term-sheet for structured investment products. This term-sheet can be printed as a PDF (Portable Data Format) or Microsoft file. Another embodiment of the contract is a XML (Extensible Markup Language) file or another adequate markup language file. Yet another embodiment or use of this dynamic electronic contract is to automatically fill regulatory forms like Foreign Account Tax Compliance Act (`FATCA`) Forms "on the fly" as the user of the platform makes and trades his financial products. This automatic generation of contracts and forms results in dramatic cost reductions regarding front-office, middle-office and back-office efforts normally done by bank employees. The data and records themselves are either stored in one or more centralized servers 1003, or in a decentralized distributed database network (also peer-to-peer technology). The network as well as the server and storage infrastructure is</p> |
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|  |  | <p>assisted, implemented and protected by cryptographic hash-tables and other cryptographic and encryption technology. In one embodiment, the online platform comes together under a brand name 1004 which is presented on screens in the graphic user interface, in this case the brand "MyStructuring".</p> <p>[0263] On the client side the benefits are, that the platform user gains access to exclusive financial services, which were only available to high net worth individuals prior to the invention (FIG. 24). Also the client can participate in investing in structured investment products with a smaller budget. The platform therefore provides and enables the client to co-determine and interact with other users and other users' on the platform to create customized, issued and traded structured products (FIG. 24).</p> <p>[0266] One embodiment of the contract is the term-sheet for structured investment products. This term-sheet can be printed as a PDF (Portable</p> |
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|  |  | <p>Data Format) or Microsoft file. Another embodiment of the contract is a XML (Extensible Markup Language) file or another adequate markup language file. Yet another embodiment or use of this dynamic electronic contract is to automatically fill regulatory forms like Foreign Account Tax Compliance Act (FATCA) Forms "on the fly" as the user of the platform makes and trades his financial products. This automatic generation of contracts and forms results in dramatic cost reductions regarding front-office, middle-office and back-office efforts normally done by bank employees. The data and records themselves are either stored in one or more centralized servers 1003, or in a decentralized distributed database network (also peer-to-peer technology). The network as well as the server and storage infrastructure is assisted, implemented and protected by cryptographic hash-tables and other cryptographic and encryption technology. In one embodiment, the online platform comes together</p> |
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|  |  | <p>under a brand name 1004 which is presented on screens in the graphic user interface, in this case the brand "MyStructuring".</p> <p>[0285] In accordance with the invention, on-the-fly text mining is enabled. More particularly, the results may be presented in a free area beside the payout diagram described above. As noted herein, text mining may take the form of the user putting in a number of keywords and a selected database being searched to present relevant results. The relevant results would include the sought after terms to the extent that the system can determine that the same are finance related, as well as finance related terms associated with the term being searched. Additionally, so-called "stop words" would be removed from the search results. Stop words may comprise such things as the words "the", "a", insofar as these terms have minimal to no content. Search results may be provided in the preview window, for example in the form of a document term</p> |
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|                                  |                                                                                      | <p>matrix, as illustrated in FIG. 43. As illustrated in FIGS. 44 and 45, depending upon the results of the search, the system may suggest one or more non-binding investment proposals. Referring to FIG. 46 the inventive platform makes investment proposals referring to the occurrence of the word "interest" (FIG. 46), namely in the form of Interest Rate Derivatives listed in FIG. 46.</p> <p>[0286] Further the text mining preview indicates the general or overall so called "Open Interest" of a potential underlying, when the user hovers over one of the remain words illustrated in FIG. 43. Open Interest is the total number of outstanding future or option contracts that are held by market participants at the end of the day, thus yesterday plan the file having you roughly indicating trading activity.</p> |
| generating a plurality of events | "event" is constructed to mean any one or more priced component corresponding to any | <p>Fig. 29-48</p> <p>[0056] FIGS. 36-42 illustrate the operation of a rehypothecation syndicate.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

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|  | <p>generated deal term or<br/>any investment<br/>product polling<br/>questing response or<br/>user request or<br/>artificial intelligence<br/>computation</p> | <p>[0057] FIGS. 43-46 illustrate search results preview window in the form of a document term matrix.</p> <p>[0058] FIGS. 47-48 illustrate platform user making changes to user's investment positions.</p> <p>[0276] By the means of a command line like `free field` the user can type in his investment criteria. Each criterion is displayed as a separate symbol ("CP" in FIG. 29). Each of those symbols can be removed by clicking on the `X` letter. This method gives the user of the <i>electronic platform</i> the means to specify the investment terms for his product in a very rapid fashion. The corresponding Payout-Chart as well as every change is generated and presented to the user in real time.</p> <p>[0277] There are two modes of operation for this functionality. The first is the guided Inline Derivative Language, where the user starts with a few letters for each criterion (FIG. 29) and the platform makes suggestions for each criterion</p> |
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|  |  | <p>via `autocomplete` ("TN" in FIG. 30) and an appearing drop-down list. The user can then select from one of those either via his keyboard, mouse, touchpad or other type of input provided by his client device.</p> <p>[0278] The second mode for the functionality is the free Inline Derivatives Language. The user types in his product category, as well as all the other investment criteria (i.e. investment criteria described in FIG. 30, FIG. 31, FIG. 32, FIG. 33). Synchronously with his input every symbol is highlighted, as appropriate, as red for defective and not accepted and green for correct and accepted by the product generation system (i.e. "TN", "ZCB" and "ID: May 30 2014" in FIG. 34).</p> <p>[0279] After all needed specifications are green and acceptable, a new prompt named `Create new Structured Product` appears (i.e. "Create new Structured Note" in FIG. 34). After the user clicks on it and affirms his investment criteria the product together</p> |
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|  |  | <p>with the needed contracts (i.e. term sheets and other forms) are generated and presented. The button's naming changes to `Trade` ("T R A D E" in FIG. 35). The user can now effectively invest in his product.</p> <p>Circular Rehypothecation</p> <p>[0280] FIGS. 36 through 42 illustrate the operation of a rehypothecation syndicate including authorization by the retail customer for re-hypothecation of the underlying instrument by the bank or other in the financial institution with whom he is dealing. The placement and use of the collateral is controlled by the retail customer via a graphic user interface presented by the platform to the user. At inception of the inventive re-hypothecation process, referred to herein as a "circular rehypothecation syndicate," all participating financial institutions have to satisfy the condition where the customer has borrowed from the financial institution an amount which is under 140%</p> |
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|  |  | <p>of the collateral posted by the client (in this example, the current platform user), although this amount may change dependent upon the current laws of the relevant domicile. For example, in the United States SEC rules and Federal Reserve Regulation T limit the amount of a client's assets which a prime broker may be hypothecate to the equivalent of 140% of the client's liability to the prime broker. In many other markets, there are no such limits.</p> <p>[0281] After the user has started a Circular Rehypotheication session, the Platform user can select and click on the Bank or financial entity where his initial margin collateral should be put. By doing this he gives his authorization that his collateral may be (re)hypothecated. The displayed Banks and the number of the participating financial entities is done by a syndicate generation system.</p> <p>[0282] More particularly, after a predefined cycle, during the</p> |
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|  |  | <p>product's life span (namely till the expiration date/maturity date), the margin collateral can and will migrate to the next syndicate bank (this process cannot be changed) and disappear from the previous bank's balance sheet.</p> <p>[0283] According to the bank's and user's domicile law, the platform user is usually given a rebate on fees, lower cost of borrowing, in exchange for giving the bank the flexibility to be hypothecate to other banks within its group. In this manner the banks have the advantage of generating income with the collateral. Likewise, among the cells, the banks may agree to share losses in the event of a client default or a default at one of the financial institutions within the circular syndicate. The same may be better understood with respect to the figures where FIG. 36 illustrates a syndicate. FIG. 37-38 describes the setting of the syndicate of FIG. 36 at that point in time immediately before the platform user makes his selection of which where to put his initial</p> |
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|  |  | <p>collateral, i.e. the particular bank which will hold the collateral in the first instance. However this is done with the expectation that that particular bank will move the collateral in a re-hypothecation step two other banks which will have the same right to be hypothecate with in the circular re-hypothecation syndicate. Subsequent hypothecation is illustrated in FIG. 39, as detailed in the figure. FIG. 40 illustrates the first step in the circular re-hypothecation cycle. The next step in the circular re-hypothecation cycle is illustrated in FIG. 41. FIG. 42 illustrates yet another subsequent possible step in the circular re-hypothecation cycle.</p> <p>[0284] In accordance with the invention, it is contemplated that the collateral will move step-by-step from one bank to another in the circle in a predetermined sequence until it has returned to the bank where it was initially put by the retail customer. At that point, if the life of the instrument purchased by the</p> |
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|  |  | <p>retail customer is completed (i.e. the expiration date/maturity date), the syndicate is dissolved in the collateral return to the investor.</p> <p>Ad Hoc Text Mining</p> <p>[0285] In accordance with the invention, on-the-fly text mining is enabled. More particularly, the results may be presented in a free area beside the payout diagram described above. As noted herein, text mining may take the form of the user putting in a number of keywords and a selected database being searched to present relevant results. The relevant results would include the sought after terms to the extent that the system can determine that the same are finance related, as well as finance related terms associated with the term being searched. Additionally, so-called "stop words" would be removed from the search results. Stop words may comprise such things as the words "the", "a", insofar as these terms have minimal to no content. Search results may</p> |
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|  |  | <p>be provided in the preview window, for example in the form of a document term matrix, as illustrated in FIG. 43. As illustrated in FIGS. 44 and 45, depending upon the results of the search, the system may suggest one or more non-binding investment proposals. Referring to FIG. 46 the inventive platform makes investment proposals referring to the occurrence of the word "interest" (FIG. 46), namely in the form of Interest Rate Derivatives listed in FIG. 46.</p> <p>[0286] Further the text mining preview indicates the general or overall so called "Open Interest" of a potential underlying, when the user hovers over one of the remain words illustrated in FIG. 43. Open Interest is the total number of outstanding future or option contracts that are held by market participants at the end of the day, thus yesterday plan the file having you roughly indicating trading activity.</p> <p>Bringing the Sell-Side and Buy-Side Closer</p> |
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|  |  | <p>[0287] Certain Structured Products can be very complex and difficult to understand. By providing the platform user graphically displayed investment schemes as for instance hedging diagrams the client can invest in exotic derivatives himself. The <i>electronic platform</i> stores prepared complex financial products schemas ready to be customized by the user. FIGS. 47 and 48 both illustrate a so called 'Quanto Forward Adjustment'. Quanto and Composite options are derivatives, which allow the final payout to be in a different currency than the underlying currency, i.e. these options are also dependent on the FX (foreign exchange) rate. I.e. a Quanto Call expressed in the payout currency. Imagine for instance selling a quanto SMI (SMI-Index) \$ forward to an investor (i.e. other user of the platform), short a liability in \$. At the beginning the user is short in the SMI in \$, i.e. to hedge the equity the user buys the SMI in CHF (for instance via futures) and thereby goes long \$ against CHF.</p> |
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|  |  | <p>[0288] Provided and presented by the inventive platform and the diagrams the user can "drag &amp; drop" his short and long positions to his liking (FIG. 47 &amp; FIG. 48). In FIG. 47 he can react and adjust his investment positions (i.e. represented by his customized product) via graphical input regarding his FX exposure. Likewise he can do the same regarding his equity positions illustrated in FIG. 48. If he's been certified by the platform and able to he can also alter and correct his hedging ratio in the concurrent Inline Derivative Language session. Changes are directly updated to the payout-charts in real-time.</p> <p>Skyline Products</p> <p>[0289] A skyline query is used to mediate between conflicting objectives and investment criteria, such as high return, investment amount, payback time, marginal value adjustments, duration and tenor et cetera. This inventive step implemented, presented and executed to and by the</p> |
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|                                                             |  | <p>user by the product generation and exchange system in accordance with a heat map pricing approach.</p> <p>[0290] Succinctly Skyline queries return a set of points (in this context regarding finance) i.e. investment criteria that are not dominated by any other point in the data set (here: product exchange system). By requesting a skyline product the <i>electronic platform</i> presents the user an ad-hoc structured investment product proposal. Based on this Inline Derivative Language session proposal or payout-chart the user can either immediately invest and trade in the product by clicking on the button illustrated in FIG. 35 or further elaborate and customize this "compromise" (combination of historical best investment criteria and his preference matrix stored in the platform) structured product until he is prepared to invest.</p> |
| defined by the second set of rules based on the processing; |  | <p>[0289] A skyline query is used to mediate between conflicting objectives and investment criteria, such as high return,</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

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|  |  | <p>investment amount, payback time, marginal value adjustments, duration and tenor et cetera. This inventive step implemented, presented and executed to and by the user by the product generation and exchange system in accordance with a heat map pricing approach.</p> <p>[0290] Succinctly Skyline queries return a set of points (in this context regarding finance) i.e. investment criteria that are not dominated by any other point in the data set (here: product exchange system). By requesting a skyline product the <i>electronic platform</i> presents the user an ad-hoc structured investment product proposal. Based on this Inline Derivative Language session proposal or payout-chart the user can either immediately invest and trade in the product by clicking on the button illustrated in FIG. 35 or further elaborate and customize this "compromise" (combination of historical best investment criteria and his preference matrix stored in the platform)</p> |
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|                                                   |  | structured product until he is prepared to invest.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| selecting the event from the plurality of events; |  | <p>[0289] A skyline query is used to mediate between conflicting objectives and investment criteria, such as high return, investment amount, payback time, marginal value adjustments, duration and tenor et cetera. This inventive step implemented, presented and executed to and by the user by the product generation and exchange system in accordance with a heat map pricing approach.</p> <p>[0290] Succinctly Skyline queries return a set of points (in this context regarding finance) i.e. investment criteria that are not dominated by any other point in the data set (here: product exchange system). By requesting a skyline product the <i>electronic platform</i> presents the user an ad-hoc structured investment product proposal. Based on this Inline Derivative Language session proposal or payout-chart the user can either immediately invest and trade in the product by</p> |

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|                                                                                                                                                                                                                     |  | <p>clicking on the button illustrated in FIG. 35 or further elaborate and customize this "compromise" (combination of historical best investment criteria and his preference matrix stored in the platform) structured product until he is prepared to invest.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <p>generating a set of macro factors</p> <p>by applying a second set of rules to the event;</p> <p>applying a third set of rules to identify the plurality of macro factors from among the set of macro factors</p> |  | <p>[0289] A skyline query is used to mediate between conflicting objectives and investment criteria, such as high return, investment amount, payback time, marginal value adjustments, duration and tenor et cetera. This inventive step implemented, presented and executed to and by the user by the product generation and exchange system in accordance with a heat map pricing approach.</p> <p>[0290] Succinctly Skyline queries return a set of points (in this context regarding finance) i.e. investment criteria that are not dominated by any other point in the data set (here: product exchange system). By requesting a skyline product the <i>electronic platform</i> presents the user an</p> |

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|                                         |  | <p>ad-hoc structured investment product proposal. Based on this Inline Derivative Language session proposal or payout-chart the user can either immediately invest and trade in the product by clicking on the button illustrated in FIG. 35 or further elaborate and customize this "compromise" (combination of historical best investment criteria and his preference matrix stored in the platform) structured product until he is prepared to invest.</p>                                                                 |
| and generate the set of poll questions; |  | <p>[0289] A skyline query is used to mediate between conflicting objectives and investment criteria, such as high return, investment amount, payback time, marginal value adjustments, duration and tenor et cetera. This inventive step implemented, presented and executed to and by the user by the product generation and exchange system in accordance with a heat map pricing approach.</p> <p>[0290] Succinctly Skyline queries return a set of points (in this context regarding finance) i.e. investment criteria</p> |

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|                                                                                                                                                                                               |  | <p>that are not dominated by any other point in the data set (here: product exchange system). By requesting a skyline product the <i>electronic platform</i> presents the user an ad-hoc structured investment product proposal. Based on this Inline Derivative Language session proposal or payout-chart the user can either immediately invest and trade in the product by clicking on the button illustrated in FIG. 35 or further elaborate and customize this "compromise" (combination of historical best investment criteria and his preference matrix stored in the platform) structured product until he is prepared to invest.</p> |
| <p>and providing for display a user interface with visual elements for the poll questions linked to macro factors and one or more controls for inputting responses to the poll questions;</p> |  | <p>[0243] Two alternatives may be considered at this point. First, client answers a plurality of questions and sent a number of constraints. This process is meant to assess his investment criteria and preferences. Such process can be achieved using a multiple-choice question format with the client clicking on his selection. It is anticipated that questions will include</p>                                                                                                                                                                                                                                                       |

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|  |  | <p>multiple choices selected in order to assess loss tolerance and/or loss sensitivity, the desired range of annual performance/return (normally very structured product specific), preference between trade-off return and risk preference (for instance: defensive, low; medium, moderate; slightly higher, slightly higher; high, aggressive), annual savings potential from earned annual income (for example from employment, investments, pension, etc.), free capital assets, and investment horizon</p> <p>[0245] As an alternative to a multiple-choice format, an open field may be provided for the prospective client to type in his investment criteria in plain language which would be processed by an artificial intelligence algorithm to determine a more formal presentation of such investment criteria. This more formal representation would then be displayed to the user in order to confirm that his plain language request has been understood. Use of a</p> |
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|  |  | <p>multiple-choice question format is preferred, because data could be more structured and easier to save, and may also be easier for a user.</p> <p>FIG. 43 - FIG.46</p> <p>[0244] The invention also contemplates the determination of client type, for example low income, middle income, high income, high net worth individual, etc. The same may be determined on the basis of a plurality of multiple-choice questions to be answered by the prospective client.</p> <p>[0246] In accordance with one alternative embodiment of the invention, the client begins the process by entering one constraint after another. This results in shrinking the possible selections of the available structured products. Constraints may include, for example, the investment amount, risk tolerance, investment horizon, and the other investment criteria detailed above. One possible way to implement this process is for the system to ask, for</p> |
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|                                           |                                                        | <p>example, three to five questions such as "how much do you want to invest", "how long do you want to hold this investment", etc., for example in a multiple choice format. For example, as potential answers to the question "how much do you want to invest?", The system could present the choices "less than \$1000", "\$1000 to \$10,000", and "\$10,000 to \$100,000". The next step in the process would be the input of investment criteria using plain language (to be processed by an artificial intelligence algorithm) as composed by the client user of the inventive platform, or, alternatively, dragging and dropping investment criteria options from a menu presented by the system. Such free "adding" of constraints and wishes by unconstrained selection possibilities in open fields may be preferable for many users.</p> |
|                                           |                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| generating a graph data storage structure | "graph data storage structure " is constructed to mean | [0265] FIG. 22 illustrates one type of client devices 1001 needed for the access and                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

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|  | <p>any network of computing machines/data racks for storing client data/investment and scenario data</p> | <p>usage of the platform, such as personal computers. Tablets or smartphones will also function well with the inventive system. A virtual (smart) contract 1002 is stored in a non-transitory computer-readable medium. Contract 1002 is generated and redacted according to regulatory needs, requirements and laws of the user's domicile. According to the client's drag &amp; drop adjustments either on the payoff diagram or on the free fields regarding the constraints and investment criteria for his customized financial product, the contract is updated, expanded and automatically generated in the product generation system.</p> <p>[0266] One embodiment of the contract is the term-sheet for structured investment products. This term-sheet can be printed as a PDF (Portable Data Format) or Microsoft file. Another embodiment of the contract is a XML (Extensible Markup Language) file or another adequate markup language file. Yet another embodiment or use of this</p> |
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|  |  | <p>dynamic electronic contract is to automatically fill regulatory forms like Foreign Account Tax Compliance Act (‘FATCA’) Forms "on the fly" as the user of the platform makes and trades his financial products. This automatic generation of contracts and forms results in dramatic cost reductions regarding front-office, middle-office and back-office efforts normally done by bank employees. The data and records themselves are either stored in one or more centralized servers 1003, or in a decentralized distributed database network (also peer-to-peer technology). The network as well as the server and storage infrastructure is assisted, implemented and protected by cryptographic hash-tables and other cryptographic and encryption technology. In one embodiment, the online platform comes together under a brand name 1004 which is presented on screens in the graphic user interface, in this case the brand "MyStructuring".</p> |
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| <p>representing scenarios for the plurality of macro factors and the plurality of outcomes,</p> | <p>“scenario” is constructed to mean any outcome of a client data/deal term collection stored and executed as a corresponding investment/structured product</p> | <p>macro factors = pricing components (Fig.32, 33, 43-46)</p> <p>Fig. 36 -48 represent different depictions or data structures representing different events which stand for different outcomes/scenarios in turn based on other events</p> <p>[0058] FIGS. 47-48 illustrate platform user making changes to user's investment positions. different investment position are different scenarios</p> <p>[0237] In accordance with a further embodiment of the invention, the components of the structured product are selected by an algorithm on the system.... trading platform automatically picks a substitute component which is expected to perform closer to the investment criteria input by the retail customer...</p> <p>[0261]...and an algorithm providing constant feedback in response to consumer requests in the form of instrument performance, performance expectations, suggestions, directions and...</p> <p>[0289] A skyline query is used to mediate between conflicting objectives and investment criteria, such as high return,</p> |
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|                                                                                        |                                                                                                                                                         | investment amount, payback time, marginal value adjustments, duration and tenor et cetera. This inventive step implemented, presented and executed to and by the user by the product generation and exchange system in accordance with a heat map pricing approach.                                                                                                                                                                                                                                                          |
| each node in the graph data storage structure including a descriptor and a data value, | “descriptor and data value” is constructed to mean any data collection/pricing component based on client data/deal terms                                | Fig. 36-42<br>Fig. 22                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| the graph data storage structure                                                       | “graph data storage structure” is constructed to mean any network of computing machines/data racks for storing client data/investment and scenario data | [0265] FIG. 22 illustrates one type of client devices 1001 needed for the access and usage of the platform, such as personal computers. Tablets or smartphones will also function well with the inventive system. A virtual (smart) contract 1002 is stored in a non-transitory computer-readable medium. Contract 1002 is generated and redacted according to regulatory needs, requirements and laws of the user's domicile. According to the client's drag & drop adjustments either on the payoff diagram or on the free |

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|  |  | <p>fields regarding the constraints and investment criteria for his customized financial product, the contract is updated, expanded and automatically generated in the product generation system.</p> <p>[0266] One embodiment of the contract is the term-sheet for structured investment products. This term-sheet can be printed as a PDF (Portable Data Format) or Microsoft file. Another embodiment of the contract is a XML (Extensible Markup Language) file or another adequate markup language file. Yet another embodiment or use of this dynamic electronic contract is to automatically fill regulatory forms like Foreign Account Tax Compliance Act (FATCA) Forms "on the fly" as the user of the platform makes and trades his financial products. This automatic generation of contracts and forms results in dramatic cost reductions regarding front-office, middle-office and back-office efforts normally done by bank employees. The data and records themselves are either stored in one or more</p> |
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|                                                                                                                                |                                                                                    | <p>centralized servers 1003, or in a decentralized distributed database network (also peer-to-peer technology). The network as well as the server and storage infrastructure is assisted, implemented and protected by cryptographic hash-tables and other cryptographic and encryption technology. In one embodiment, the online platform comes together under a brand name 1004 which is presented on screens in the graphic user interface, in this case the brand "MyStructuring".</p> |
| <p>including a root node, outcome nodes connected to the root node, and macro factor nodes connected to the outcome nodes,</p> | <p>"outcome node" is to be understood as the outermost node of a graph or tree</p> | <p>macro factors = pricing components (Fig. 32, 33, 43-46)</p> <p>Fig. 36 - 42, 47, 48</p> <p>Fig. 47:</p> <p>SMI (\$) is a root node of a graph or tree</p> <p>'CHF goes up' path /edge of tree</p> <p>'CHF goes down' path /edge of tree</p> <p>Fig. 48:</p> <p>SMI (\$) is a root node of a graph or tree</p>                                                                                                                                                                           |

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|                                                                                                                                                                                                                                      |                                                                                                                                                                                                | <p><i>'SMI up'</i> path /edge of tree</p> <p><i>'SMI down'</i> path /edge of tree</p> <p>[0289] A skyline query is used to mediate between conflicting objectives and investment criteria, such as high return, investment amount, payback time, marginal value adjustments, duration and tenor et cetera. This inventive step implemented, presented and executed to and by the user by the product generation and exchange system in accordance with a heat map pricing approach.</p> |
| <p>the root node corresponding to the event,</p> <p>each outcome node corresponding to one of the plurality of outcomes,</p> <p>and each macro factor node corresponding to one of the macro factors and including a data value;</p> | <p>"data value" is constructed to mean any one or more priced components corresponding to any generated deal terms for any investment product corresponding to product request information</p> | <p>macro factors = pricing components (Fig. 32, 33, 43-46)</p> <p>Fig. 36 - 42, 47, 48</p> <p>Fig. 47:</p> <p>SMI (\$) is a root node of a graph or tree</p> <p><i>'CHF goes up'</i> path /edge of tree</p> <p><i>'CHF goes down'</i> path /edge of tree</p> <p>Fig. 48:</p> <p>SMI (\$) is a root node of a graph or tree</p>                                                                                                                                                          |

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|                                                                                                                                                                                                                                                                                                                                         |  | <p>'SMI up' path /edge of tree</p> <p>'SMI down' path /edge of tree</p> <p>[0289] A skyline query is used to mediate between conflicting objectives and investment criteria, such as high return, investment amount, payback time, marginal value adjustments, duration and tenor et cetera. This inventive step implemented, presented and executed to and by the user by the product generation and exchange system in accordance with a heat map pricing approach.</p> |
| <p>filtering the responses for bias based</p> <p>on sentiment factors, the filtering including:</p> <p>applying natural language processing to at least a subset of the responses</p> <p>to identify sentiments</p> <p>of authors of the responses;</p> <p>and eliminating responses from authors for whom the identified sentiment</p> |  | <p>removing bias:</p> <p>preventing and removing of <i>bias</i> regarding financial investment conditions/criteria</p> <p>[0253]: [0253]...Input into the diagram should only be possible <b>if financially reasonable and logical</b>, and the same would be controlled by system algorithms...</p> <p>sentiment factors are determined by:</p> <p>Ad Hoc Text Mining</p> <p>[0285] In accordance with the invention, on-the-fly text mining is enabled. More</p>        |

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| <p>indicates bias with regard to the event;</p> |  | <p>particularly, the results may be presented in a free area beside the payout diagram described above. As noted herein, text mining may take the form of the user putting in a number of keywords and a selected database being searched to present relevant results. The relevant results would include the sought after terms to the extent that the system can determine that the same are finance related, as well as finance related terms associated with the term being searched. Additionally, so-called "stop words" would be removed from the search results. Stop words may comprise such things as the words "the", "a", insofar as these terms have minimal to no content. Search results may be provided in the preview window, for example in the form of a document term matrix, as illustrated in FIG. 43. As illustrated in FIGS. 44 and 45, depending upon the results of the search, the system may suggest one or more non-binding investment proposals. Referring to FIG. 46 the inventive platform makes investment proposals</p> |
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|  |  | <p>referring to the occurrence of the word "interest" (FIG. 46), namely in the form of Interest Rate Derivatives listed in FIG. 46.</p> <p>[0286] Further the text mining preview indicates the general or overall so called "Open Interest" of a potential underlying, when the user hovers over one of the remain words illustrated in FIG. 43. Open Interest is the total number of outstanding future or option contracts that are held by market participants at the end of the day, thus yesterday plan the file having you roughly indicating trading activity.</p> <p>[0245] As an alternative to a multiple-choice format, an open field may be provided for the prospective client to type in his investment criteria in plain language which would be processed by an artificial intelligence algorithm to determine a more formal presentation of such investment criteria.</p> |
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|  |  | <p><b>[0246]...The next step in the process would be the input of investment criteria using plain language (to be processed by an artificial intelligence algorithm)...</b></p> <p>[0253]...Input into the diagram should only be possible if financially reasonable and logical, and the same would be controlled by system algorithms...</p> <p>[0254] Such algorithms would work by balancing the degree of freedom for the client (to the extent that it is connected to client satisfaction) and financial institution liability to guard against the client taking financially unreasonable risk without a sufficiently likely expected and reasonably scaled benefit.</p> <p>Fig. 43, 44, 45, 46</p> <p>text mining is an artificial intelligence application of machine learning</p> <p>[0269]... "text-mine" the database of structured product components maintained by the system. For example, by giving the system</p> |
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|  |  | <p>keywords such as health and fitness, the system will search the equity/bond/etc. database for these keywords or related words and present them as an option to the user.</p> <p>Additionally, typing in new product constraints by dragging a new column underneath the ...</p> <p>[0270] The area indicated by 1012 is reserved for other layers namely additional functionality regarding helping the user to specify his target payoff or other tools like an instant text mining module. The whole structure of the graphical presentation is to be understood as flexible and customizable itself. The user can position and drag and drop modules 1011, 1013, 1014 and 1015 within the browser. Below the diagram the product constraints area shown in text (1013 1). In this area of the graphical user interface the user can input his preferences by text.</p> <p>complete [0285]</p> <p>complete [0290]</p> |
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| <p>applying a set of rules to the filtered responses to generate values for the macro factors;</p>                                    |  | <p>macro factors = pricing components (Fig. 32, 33, 43-46)</p> <p>[0289] A skyline query is used to mediate between conflicting objectives and investment criteria, such as high return, investment amount, payback time, marginal value adjustments, duration and tenor et cetera. This inventive step implemented, presented and executed to and by the user by the product generation and exchange system in accordance with a heat map pricing approach.</p> |
| <p>populating the macro factor nodes in the graph data storage structure with the data values for the corresponding macro factors</p> |  | <p>macro factors = pricing components (Fig. 32, 33, 43-46)</p> <p>[0289] A skyline query is used to mediate between conflicting objectives and investment criteria, such as high return, investment amount, payback time, marginal value adjustments, duration and tenor et cetera. This inventive step implemented, presented and executed to and by the user by the product generation and exchange system in accordance with a heat map pricing approach.</p> |

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| <p>to generate scenarios for the outcome nodes;<br/>and providing for display a user interface including visual elements indicating the scenarios and a distribution of responses,</p> |  | <p>macro factors = pricing components (Fig. 32, 33, 43-46)</p> <p>[0289] A skyline query is used to mediate between conflicting objectives and investment criteria, such as high return, investment amount, payback time, marginal value adjustments, duration and tenor et cetera. This inventive step implemented, presented and executed to and by the user by the product generation and exchange system in accordance with a heat map pricing approach.</p> |
| <p>wherein each scenario is a path from the root node to a leaf node of</p>                                                                                                            |  | <p>Fig. 36 - 42, 47, 48</p> <p>Fig. 47:</p> <p>SMI (\$) is a root node of a graph or tree</p> <p><i>'CHF goes up'</i> path /edge of tree</p> <p><i>'CHF goes down'</i> path /edge of tree</p> <p>Fig. 48:</p>                                                                                                                                                                                                                                                    |

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|                                             |                                                                                                                                                                 | <p>SMI (\$) is a root node of a graph or tree</p> <p><i>'SMI up'</i> path /edge of tree</p> <p><i>'SMI down'</i> path /edge of tree</p> <p>FIG. 47, 48: SMI (\$) is a root node, SMI up and SMI down are paths which lead to leaf nodes of the possible depicted outcomes</p>                                                                                                                                                                                                                                                                                                           |
| the generated graph data storage structure. | <p>"graph data storage structure " is constructed to mean any network of computing machines/data racks for storing client data/investment and scenario data</p> | <p>[0265] FIG. 22 illustrates one type of client devices 1001 needed for the access and usage of the platform, such as personal computers. Tablets or smartphones will also function well with the inventive system. A virtual (smart) contract 1002 is stored in a non-transitory computer-readable medium. Contract 1002 is generated and redacted according to regulatory needs, requirements and laws of the user's domicile. According to the client's drag &amp; drop adjustments either on the payoff diagram or on the free fields regarding the constraints and investment</p> |

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|  |  | <p>criteria for his customized financial product, the contract is updated, expanded and automatically generated in the product generation system.</p> <p>[0266] One embodiment of the contract is the term-sheet for structured investment products. This term-sheet can be printed as a PDF (Portable Data Format) or Microsoft file. Another embodiment of the contract is a XML (Extensible Markup Language) file or another adequate markup language file. Yet another embodiment or use of this dynamic electronic contract is to automatically fill regulatory forms like Foreign Account Tax Compliance Act (FATCA) Forms "on the fly" as the user of the platform makes and trades his financial products. This automatic generation of contracts and forms results in dramatic cost reductions regarding front-office, middle-office and back-office efforts normally done by bank employees. The data and records themselves are either stored in one or more centralized servers 1003, or in a decentralized distributed</p> |
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|  |  | <p>database network (also peer-to-peer technology). The network as well as the server and storage infrastructure is assisted, implemented and protected by cryptographic hash-tables and other cryptographic and encryption technology. In one embodiment, the online platform comes together under a brand name 1004 which is presented on screens in the graphic user interface, in this case the brand "MyStructuring".</p> |
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