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JPMorgan Chase / Greenblum & Bernstein 1950 Roland Clarke Place Reston, VA 20191			ANDERSON, JOHN A	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

gbpatent@gbpatent.com

## Office Action Summary

**Application No.**

14/839,048

**Applicant(s)**

Wootton et al.

**Examiner**

JOHN A ANDERSON

**Art Unit**

3692

**AIA (FITF) Status**

Yes

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1)  Responsive to communication(s) filed on 09/10/2019.  
 A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on \_\_\_\_\_.
- 2a)  This action is **FINAL**. 2b)  This action is non-final.
- 3)  An election was made by the applicant in response to a restriction requirement set forth during the interview on \_\_\_\_\_; the restriction requirement and election have been incorporated into this action.
- 4)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims\***

- 5)  Claim(s) 19-36 is/are pending in the application.  
 5a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 6)  Claim(s) \_\_\_\_\_ is/are allowed.
- 7)  Claim(s) 19-36 is/are rejected.
- 8)  Claim(s) \_\_\_\_\_ is/are objected to.
- 9)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement

\* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see [http://www.uspto.gov/patents/init\\_events/pph/index.jsp](http://www.uspto.gov/patents/init_events/pph/index.jsp) or send an inquiry to [PPHfeedback@uspto.gov](mailto:PPHfeedback@uspto.gov).

**Application Papers**

- 10)  The specification is objected to by the Examiner.
- 11)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

**Priority under 35 U.S.C. § 119**

- 12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

**Certified copies:**

- a)  All b)  Some\*\* c)  None of the:

1.  Certified copies of the priority documents have been received.
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\*\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1)  Notice of References Cited (PTO-892)
- 2)  Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b)  
 Paper No(s)/Mail Date \_\_\_\_\_.
- 3)  Interview Summary (PTO-413)  
 Paper No(s)/Mail Date \_\_\_\_\_.
- 4)  Other: \_\_\_\_\_.

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Notice of Pre-AIA or AIA Status

The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

**DETAILED ACTION**

**Response to amendment:**

In the amendment filed 09/10/2019, the following has occurred: claims 19-36 have been added. Claims 1-18 have been cancelled. Claims 19-36 are pending and are presented for examination.

**Response to Arguments**

Applicant's arguments filed 09/10/2019 have been fully considered but they are not persuasive.

Applicant argues as follows:

As can be seen by a review of the text of representative claim 19 shown above, claim 19 and corresponding method claim 1 and corresponding non-transitory computer-readable storage medium claim 31 are devoid of any recitation of mathematical relationships, mathematical formulas or equations, mathematical calculations.

Therefore, these claims fail to be directed to mathematical concepts.

As can also be confirmed by a review of the text of representative claim 19 shown above, and corresponding method claim 1 and corresponding non-transitory computer-readable storage medium claim 31 are devoid of any recitation of fundamental

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economic principles or practices (such as hedging, insurance, mitigating risk); commercial or legal interactions (such as agreements in the form of contracts; legal obligations; advertising, marketing or sales activities or behaviors; business relations); managing personal behavior or relationships or interactions between people (including social activities, teaching, and following rules or instructions). Therefore, these claims fail to be directed to certain prohibited methods of organizing human activity.

Moreover, the term “certain” to qualify “methods of organizing human activity” is used to remind Examiners that (1) not all methods of organizing human activity are abstract ideas, and (2) machines and machine operations related in some way to human activity may not be abstract ideas.

Moreover, as a review of the entirety of claims 19, 25, and 31 reveals, these claims facilitate improved GUI that generate a graphical display onto a graphical user interface (GUI) configured to provide a visual depiction of the glide path map and a recommended change in the allocation ratios of the plurality of assets to the participant, wherein the visual depiction of the glide path map illustrates various risks by corresponding representation of a circle, wherein the diameter of the circle is proportionally related to the strength of the risk factor, and wherein the diameter of a particular risk factor is configured to change proportionally as the strength of a particular risk factor changes over time.

Further, as a review of the text of claims 19, 25, and 31 reveals, these claims are devoid of any recitation of concepts performed in the human mind (such as an observation, evaluation, judgment, or opinion). For example, at least the features related to accumulating the allocation ratios of assets in the investment plan portfolio and risk

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factors in one module thereby improving network resource usage efficiency; and generating the glide path map in a centralized location of the system thereby improving efficiency in computing resources cannot be performed in the human mind.

Therefore, these claims fail to be directed to forbidden mental processes.

As established above, independent claims 19, 25, and 31 fail to recite a mathematical concept, certain prohibited methods of human activity, or a mental process. As a result, claims 19, 25, and 31 do not recite an abstract idea. Therefore, these claims are patent eligible under the 2019 PEG, and satisfy 35 U.S.C. § 101. For this reason, Applicant respectfully requests that the rejection under 35 U.S.C. § 101 of independent claims 19, 25, and 31, and their dependent claims be withdrawn.

**The above argument is not found to be persuasive.**

Claim 19,25 and 31 recites a system and a method that includes accessing, via a graphical user interface (GUI), portfolio data related to the investment plan portfolio, the portfolio data including allocation ratios of a plurality of assets of the investment plan portfolio;

defining first risk factors associated with market conditions and including a future date and risk a strength;

defining second risk factors associated with the participant;

calculating a change in the allocation ratios of the plurality of assets as a function of time based on the first risk factors and the second risk factors resulting in glide path data;

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generating a glide path map based on the resulting glide path data, the glide path map providing a visual depiction of the change in the allocation ratios of the plurality of assets over time, and wherein the glide path map includes an area graph including: a plurality of areas corresponding to the plurality of assets, the plurality of areas presenting the allocation ratios of the plurality of assets as a function of time; and a plurality of risk factor indicators overlaying the plurality of areas, the plurality of risk factor indicators indicating the future date as a function of time and the risk strength; generating a graphical display onto the GUI configured to provide a visual depiction of the generated glide path map and a recommended change in the allocation ratios of the plurality of assets to the participant, wherein the visual depiction of the glide path map illustrates various risks by corresponding representation of a circle, wherein the diameter of the circle is proportionally related to the strength of the risk factor, and wherein the diameter of a particular risk factor is configured to change proportionally as the strength of a particular risk factor changes over time; monitoring the first risk factors and the second risk factors to identify a change in the first risk factors and the second risk factors; identifying a change in at least one of the first risk factors or the second risk factors; updating the allocation ratios of the plurality assets based on the identified change in at least one of the first risk factors or second risk factors and displaying an updated glide path map based on the updated allocation ratios of the plurality of assets; accumulate the allocation ratios of assets in the investment plan portfolio and risk factors in one module thereby improving network resource usage efficiency; and

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generate the glide path map in a centralized location of the system thereby improving efficiency in computing resources.

These limitations recite using a processor in a network with software modules to perform risk management for investors in their investment plans and allocation strategy.

Risk management is a longstanding business practice. Using computer system with a network to perform risk management is a business act that is not meaningfully different from economic acts that courts have determined are fundamental economic practices.

See, e.g. *Alice*, 573 U.S. at 219. Examiner, therefore determine that claim 19,25 and 31 recites fundamental economic business practices, one of the certain methods of organizing human activity identified in the Revised Guidance, see Revised Guidance, 84 Fed.Reg.at 52. Claims 19, 25 and 31 therefore recites an abstract idea.

**Applicant argues as follows:**

As mentioned above, independent claim 19 recites, among other things, “generate a graphical display onto a graphical user interface (GUI) configured to provide a visual depiction of the glide path map and a recommended change in the allocation ratios of the plurality of assets to the participant, wherein the visual depiction of the glide path map illustrates various risks by corresponding representation of a circle, wherein the diameter of the circle is proportionally related to the strength of the risk factor, and wherein the diameter of a particular risk factor is configured to change proportionally as the strength of a particular risk factor changes over time;

... accumulate the allocation ratios of assets in the investment plan portfolio and risk factors in one module thereby improving network resource usage efficiency; and

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generate the glide path map in a centralized location of the system thereby improving efficiency in computing resources,” and independent claims 25 and 31 recite similar features. In this regard, similarly as in Core Wireless, the claim requires the displaying of a limited set of data, i.e., a display of information related to the glide path map that illustrates various risks by corresponding representation of a circle, wherein the diameter of the circle is proportionally related to the strength of the risk factor, and wherein the diameter of a particular risk factor is configured to change proportionally as the strength of a particular risk factor changes over time.

Accordingly, Applicant respectfully submits that in view of this recited claim features, the claims of the instant application recite an improved user interface for computing devices that facilitates more effective presentation of data in an automated and dynamic manner, and therefore, that the claims are not directed to an abstract idea.

Accordingly, claims 19, 25, and 31 are patent eligible because these claims exemplify the first example of the second prong of step 2A of the USPTO’s Eligibility Analysis under the 2019 PEG.

**The above argument is not found to be persuasive.**

The additional elements of storage module and glide path module used to provide improved user interface taken individually and as a combination, do not result in the claim amounting to significantly more than the abstract idea. The additional elements consist of well understood, routine, conventional activity already engaged in by the scientific community. The particular machine, i.e. interface or modules do not improve the performance of the interface or the processor.



The interface limitation, the courts have found that simply limiting the use of the abstract idea to a particular technological environment does not add significantly more. (See e.g. Flook). The claimed additional computer elements do not show any inventive concept in transmitting data for risk management or improving the performance of a processor any technology such as the interface. The claims do not add any meaningful limitation such as improvements in the interface or the processor.

**Applicant argues as follows:**

The recitation of these three particular machines comprises the majority of text of claim 19, And as a review of the text of claim 19 makes clear, claim 19 seamlessly integrates the recitation of these particular machines with their recited operations. Accordingly, Applicant submits that the recitation of these three particular machines is integral to the operation of the invention of claim 19.

Further, Applicant respectfully submits that the features of “wherein the visual depiction of the glide path map illustrates various risks by corresponding representation of a circle, wherein the diameter of the circle is proportionally related to the strength of the risk factor, and wherein the diameter of a particular risk factor is configured to change proportionally as the strength of a particular risk factor changes over time ... accumulate the allocation ratios of assets in the investment plan portfolio and risk factors in one module thereby improving network resource usage efficiency; and generate the glide path map in a centralized location of the system thereby improving efficiency in computing resources” are directed to non-obvious subject matter, and therefore, claim

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19 recite a patentable improvement over the applied art. And since these claimed features relate to the claimed processor/computing device, Applicant submits that the claimed processor/computing device is an improvement in conventional processors/computing devices of electronic devices. For this additional reason, Applicant submits that claim 19 relates to an improved processor under prong two of Step 2A of the USPTO's Eligibility Analysis.

Therefore, claim 19 is patent eligible under the second example of the second prong of Step 2A of the USPTO's Eligibility Analysis in the 2019 PEG. And because claim 1 is a method executed by a computing device and claim 31 is directed to a corresponding non-transitory computer-readable storage medium, claims 1 and 31 are also patent eligible for corresponding reasons.

**The above argument is not found to be persuasive.** Claims 19, 25 and 31 recites additional elements: storage modules, glide path modules, network and processor. The written description indicates that this system encompasses generic computer components. The written description discloses

Each computer system may include any appropriate input devices, output devices, mass storage media, processors, memory, or other suitable components for receiving, processing, storing, and communicating data. Spec Detailed description.

The written description discloses a terminal system 20 may be implemented using any suitable type of processing system and may include any suitable combination of hardware, firmware, and software. Terminal system 20 may include one or more computer systems at one locations. Each computer system may include any appropriate

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input devices, output devices, mass storage media, processors, memory, or other suitable components for receiving, processing, storing, and communicating data. For example, each computer system may include a personal computer, workstation, network computer, kiosk, wireless data port, personal data assistant (PDA), one or more Internet Protocol (IP) telephones, smart phones, tablet computers, one or more servers, a server pool, one or more processors within these or other devices, or any other suitable processing device capable of receiving, processing, storing, and/or communicating information with other components of system 10. Terminal system 1020 to be a stand-alone computer or may be part of a larger network of computers associated with an entity. Specification, detail description.

Given these disclosures, the recited risk management system is simply a generic computer system that serves as a tool to perform the abstract idea. Claims 19, 25 and 31 do not integrate the abstract idea into a practical application. See Alice, 573 U.S. at 223-24.

Applicant argues as follows:

As mentioned above, at least the features of “wherein the visual depiction of the glide path map illustrates various risks by corresponding representation of a circle, wherein the diameter of the circle is proportionally related to the strength of the risk factor, and wherein the diameter of a particular risk factor is configured to change proportionally as the strength of a particular risk factor changes over time ... accumulate the allocation ratios of assets in the investment plan portfolio and risk factors in one module thereby improving network resource usage efficiency; and generate the glide path map in a

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centralized location of the system thereby improving efficiency in computing resources” are directed to non-obvious subject matter. See pages 6-7, sections 25 and 26 of the Office Action.

Thus, Applicant submits that claims 19, 25, and 31 recite an additional element or combination of elements that adds a specific limitation or combination of limitations that are not well-understood, routine, conventional activity in the field, indicating that an inventive concept is present. Accordingly, Applicant respectfully submits that claims 19, 25, and 31 recite significantly more than the alleged abstract idea and meets the step 2B of the USPTO’s Eligibility Analysis in the 2019 PEG.

For at least the reasons noted above, Applicant respectfully submits that all pending claims (i.e., claims 19-36) are directed to patent eligible subject matter.

**The above argument is not found to be persuasive.** Under the Revised Guidance, examiner evaluated whether the additional claim elements add a specific limitation or combination of limitations that are not well-understood, routine, conventional activity in the field or simply append well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality. Revised Guidance, 84 Fed. Reg. at 56.

The Examiner determined that the additional element recited in claims 19, 25 and 31 consists of components generally found in computer implementations and performs well-known, routine and conventional computer functions.

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The additional element in the claims are modules displayed on interfaces of a processor. The written description indicates that this system consists of generic computer components. The claimed invention uses this system to perform generic computer functions such as accessing data, defining risk factors, calculating a change in ratio, generate a map and display on GUI, monitor risk factors, identify change in risk factors, updating allocation ratios, accumulating allocation ratios and generate a glide map. Nearly every computer will include a processor and data storage unit capable of performing the basic calculation, storage and transmission functions required by the method claims. The written description provides few details about the system or functions it performs. Examiner has determined that the additional elements recited in the claims are conventional and perform well-understood, routine and conventional activities. See R.W. Bahr, Memorandum on Changes in Examination Procedure Pertaining to Subject Matter Eligibility.

The limitations do not transform the nature of the claims into a patent –eligible application. The limitations consists of conventional computer components that perform well-understood, routine, and conventional computer functions and do not provide the necessary inventive concept. The additional elements in claims 19,25 and 31 simply appends well-understood, routine , conventional activities previously known to the industry, specified at a high level of generality. Revised Guidance, 84 Fed. Reg. at 56. The claims do not include an inventive concept. The claims are directed to fundamental business practice and does not have an inventive concept.

**Claim Rejections – 35 USC § 101**

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 19-36 are rejected under 35 U.S.C. 101 because the claimed invention is directed to an abstract idea without significantly more.

Claims 19, 25 and 31 are drawn to a system, method and an apparatus respectively.

Therefore they are within the four enumerated statutory categories. Step 1: Yes.

Step 2A: Prong One: The claim recites accessing portfolio data, defining risk factors, calculating change in allocation ratios, generating a glide path map, generating a graphical display, monitoring risk factors, identifying a change in risk factors and updating the allocation ratios.

The limitation of generating a glide path map based on the resulting glide path data, the glide path map providing a visual depiction of the change in the allocation ratios of the plurality of assets over time, and wherein the glide path map includes an area graph including:

a plurality of areas corresponding to the plurality of assets, the plurality of areas presenting the allocation ratios of the plurality of assets as a function of time; and a plurality of risk factor indicators overlaying the plurality of areas, the plurality of risk factor indicators indicating the future date as a function of time and the risk strength; generating a graphical display configured to provide a visual depiction of the generated glide path map and a recommended change in the allocation ratios of the plurality of

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assets to the participant, as drafted, is a process that, under its broadest reasonable interpretation, covers performance of a certain method of organizing a human activity but for the recitation of generic computer components. That is, other than reciting “a storage module,” nothing in the claim element precludes the step from practically being performed in the mind or by a human analog. For example, but for the “a storage module” language, “calculating” in the context of this claim encompasses the user manually calculating a change in allocation ratios.

Similarly, the limitation of identifying a change in risk factors, as drafted, is a process that, under its broadest reasonable interpretation, covers performance of the limitation by a human investment analyst or financial advisor or financial planner but for the recitation of generic computer components. For example, but for the “a storage module” language, “identifying” in the context of this claim encompasses the user or a financial advisor performing a method of organizing the results of the calculating a change in the allocation ratios and generating a graphical display.

Calculating change in allocation ratios is consistent with a commercial transactions identifying change in allocations. If a claim limitation, under its broadest reasonable interpretation, covers performance of certain methods of organizing human activity or performance of the limitations within the mind, but for the recitation of generic computer components, then it falls within the “Mental Processes” or “Certain Methods of Organizing Human Activities” grouping of abstract ideas. Accordingly, the claim recites an abstract idea.

Step 2A: Prong Two: This judicial exception is not integrated into a practical application. In particular, the claim only recites one additional element – using a storage module to

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perform accessing portfolio data, defining risk factors, calculating change in allocation ratios, generating a glide path map, generating a graphical display, monitoring risk factors, identifying a change in risk factors and updating the allocation ratios steps. The module in the steps is recited at a high-level of generality (i.e., as a generic processor performing a generic computer function of accessing portfolio data, defining risk factors, calculating change in allocation ratios, generating a glide path map, generating a graphical display, monitoring risk factors, identifying a change in risk factors and updating the allocation ratios) such that it amounts no more than mere instructions to apply the exception using a generic computer component. Accordingly, this additional element does not integrate the abstract idea into a practical application because it does not impose any meaningful limits on practicing the abstract idea. The claim is directed to an abstract idea. The claim does not include additional elements that are sufficient to amount to significantly more than the judicial exception. As discussed above with respect to integration of the abstract idea into a practical application, the additional element of using a storage module to perform accessing portfolio data, defining risk factors, calculating change in allocation ratios, generating a glide path map, generating a graphical display, monitoring risk factors, identifying a change in risk factors and updating the allocation ratios steps amounts to no more than mere instructions to apply the exception using a generic computer component. Mere instructions to apply an exception using a generic computer component cannot provide an inventive concept. The claim is not patent eligible.

Step 2B: The claim does not include additional elements that are sufficient to amount to significantly more than the judicial exception because the additional elements when



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considered both individually and as an ordered combination do not amount to significantly more than the abstract idea. The claim recites the additional limitations of a “data processing device”. Next, “using one data processing device to calculate a change in ratio and update the allocation ratios” is stated at a high level of generality and its broadest reasonable interpretation comprises only the generic use of a module to conduct calculations and analysis. The use of generic computer components to process information through an unspecified device does not impose any meaningful limit on the computer implementation of the abstract idea.

The additional element of using a storage module to perform accessing portfolio data, defining risk factors, calculating change in allocation ratios, generating a glide path map, generating a graphical display, monitoring risk factors, identifying a change in risk factors and updating the allocation ratios steps amounts to no more than mere instructions to apply the exception using a generic computer component. Mere instructions to apply an exception using a generic computer component cannot provide an inventive concept. The claim is not patent eligible.

The specification does not provide any improved computer or technology rather generically applies the abstract idea to generic computers as filed specification in pages 5-21 and Figure 1 [discloses generic computer systems and components that conduct the method].

Thus, taken alone, the additional elements do not amount to significantly more than the above-identified judicial exception (the abstract idea). Looking at the limitations as an ordered combination adds nothing that is not already present when looking at the

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elements taken individually. There is no indication that the combination of elements improves the functioning of a computer or improves any other technology.

The dependent claims do not recite additional limitations beyond those identified as the judicial exception in the independent claims that would qualify as significantly more. The dependent claims do not amount to significantly more than the identified abstract idea.

The dependent claims do not recite limitations that transforms the corresponding independent claims into a patent-eligible application of the otherwise ineligible abstract idea recited in the independent claims.

The claims do not recite any limitations that qualify as significantly more than the abstract idea. The claimed invention does not recite improvement to another technology or another technical field or the server. The claimed invention does not recite any improvement to the functioning of the computer system itself. The claimed invention does not improve the network facility or network centric technology.

Therefore the claim limitations do not qualify as significantly more. Step 2B: No.

The Examiner notes that independent claim 7 and 13 are similar in scope to claim 1 and are rejected on the same basis. The dependent claims do not correct the deficiencies and are therefore also rejected.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112(a):

(a) IN GENERAL.—The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor or joint inventor of carrying out the invention.

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The following is a quotation of the first paragraph of pre-AIA 35

U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 19, 25, and 31 are rejected under 35 U.S.C. 112(a) or 35 U.S.C. 112 (pre-AIA), first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor or a joint inventor, or for pre-AIA the inventor(s), at the time the application was filed, had possession of the claimed invention. The claims recite a limitation of "calculate a change in the allocation ratios". This limitation is not supported in the specification. There is no calculating of a change in allocation ratio. Examiner will interpret the limitation as a recommended change in allocation ratio. All dependent claims are rejected based on dependency.

### **Claim Rejections - 35 USC §103**

In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

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This application currently names joint inventors. In considering patentability of the claims the examiner presumes that the subject matter of the various claims was commonly owned as of the effective filing date of the claimed invention(s) absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and effective filing dates of each claim that was not commonly owned as of the effective filing date of the later invention in order for the examiner to consider the applicability of 35 U.S.C. 102(b) (2) (C) for any potential 35 U.S.C. 102(a) (2) prior art against the later invention.

The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103 are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

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4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

**Claims 19-20, 22-26, 28-32, 34-36 are rejected under 35 U.S.C. 103 as being unpatentable over Weber et al. (Patent 8170935) and in view of Mindlin (Patent 8396775) and in view of McAtammey (PGPub 2007/0005477).**

As regards claims 19, 25 and 31 Weber discloses a storage module having portfolio data related to the investment plan portfolio, the portfolio data including allocation ratios of a plurality of assets of the investment plan portfolio; [col 23 lines 64 to col 24 lines 27] Weber does not a glide path module including a processor operably connected to the storage module for accessing the portfolio data to model the investment plan portfolio, a network that establishes communication between the storage module and the glide path module, wherein the processor is configured to:

- define first risk factors associated with market conditions including a future date and a risk strength;
- define second risk factors associated with the participant;
- calculate a change in the allocation ratios of the plurality of assets as a function of time based on the first risk factors and the second risk factors resulting in glide path data;
- generate a glide path map based on the resulting glide path data, wherein the glide path map provides a visual depiction of the change in the allocation ratios of the plurality of assets over time, and wherein the glide path map includes an area graph including:

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a plurality of areas corresponding to the plurality of assets, wherein the plurality of areas present the allocation ratios of the plurality of assets as a function of time; and

a plurality of risk factor indicators overlaying the plurality of areas, wherein the plurality of risk factor indicators indicate the future date as a function of time and the risk strength;

generate a graphical display onto a graphical user interface (GUI) configured to provide a visual depiction of the glide path map and a recommended change in the allocation ratios of the plurality of assets to the participant, wherein the visual depiction of the glide path map illustrates various risks by corresponding representation of a circle, wherein the diameter of the circle is proportionally related to the strength of the risk factor, and wherein the diameter of a particular risk factor is configured to change proportionally as the strength of a particular risk factor changes over time;

monitor the first risk factors and the second risk factors to identify a change in the first risk factors and the second risk factors;

identify a change in at least one of the first risk factors or the second risk factors; and

update the allocation ratios of the plurality assets based on the identified change in at least one of the first risk factors or the second risk factors and display an updated glide path map based on the updated allocation ratios of the plurality of assets;

accumulate the allocation ratios of assets in the investment plan portfolio and risk factors in one module thereby improving network resource usage efficiency; and

generate the glide path map in a centralized location of the system thereby improving efficiency in computing resources.

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Mindlin discloses a glide path module including a processor operably connected to the storage module for accessing the portfolio data to model the investment plan portfolio ;(

Col 4 lines 22-26, Fig 9)

a network that establishes communication between the storage module and the glide path module, wherein the processor is configured to: (col 4 lines 60-67)

define first risk factors associated with market conditions including a future date and a risk strength; (Col 2 lines 37-60)

define second risk factors associated with the participant; ;( Col 2 lines 60-67)

calculate a change in the allocation ratios of the plurality of assets as a function of time based on the first risk factors and the second risk factors resulting in glide path data; ;(

Col 23 lines 40-49)

generate a glide path map based on the resulting glide path data, wherein the glide path map provides a visual depiction of the change in the allocation ratios of the plurality of assets over time, and wherein the glide path map includes an area graph including: ;(

Col 4 lines 14-21, Fig 8)

a plurality of areas corresponding to the plurality of assets, wherein the plurality of areas present the allocation ratios of the plurality of assets as a function of time; ;( Col 4 lines

6-14, Fig 7) and

a plurality of risk factor indicators overlaying the plurality of areas, wherein the plurality of risk factor indicators indicate the future date as a function of time and the risk

strength; ( Col 4 lines 19-21)

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generate a graphical display onto a graphical user interface (GUI) configured to provide a visual depiction of the glide path map and a recommended change in the allocation ratios of the plurality of assets to the participant,( Col 4 lines 14-21)

monitor the first risk factors and the second risk factors to identify a change in the first risk factors and the second risk factors; (Col 25 lines 4-13)

Identify a change in at least one of the first risk factors or the second risk factors; (Col 25 lines 4-13) and

update the allocation ratios of the plurality assets based on the identified change in at least one of the first risk factors or the second risk factors and display an updated glide path map based on the updated allocation ratios of the plurality of assets. ;( Col 25 lines 4-13)

accumulate the allocation ratios of assets in the investment plan portfolio and risk factors in one module thereby improving network resource usage efficiency; (Fig 6B, 7B and 8B) and

generate the glide path map in a centralized location of the system thereby improving efficiency in computing resources. (col 4 lines 14-42, Fig 8)

It would have been obvious for a person of ordinary skill in the art at the time of the invention was made to use Mindlin in the device of Weber. The rationale to support a conclusion that the claim would have been obvious is that a method of enhancing a particular class of devices was made part of the ordinary capabilities of one skilled in the art based upon the teaching of such improvement in other situations. One of ordinary skill in the art would have been capable of applying this known method of



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enhancement to a base device in the prior art and the results would have been predictable to one of ordinary skill in the art.

Weber and Mindlin do not disclose wherein the visual depiction of the glide path map illustrates various risks by corresponding representation of a circle, wherein the diameter of the circle is proportionally related to the strength of the risk factor, and wherein the diameter of a particular risk factor is configured to change proportionally as the strength of a particular risk factor changes over time.

McAtammey disclose wherein the visual depiction of the glide path map illustrates various risks by corresponding representation of a circle, wherein the diameter of the circle is proportionally related to the strength of the risk factor, and wherein the diameter of a particular risk factor is configured to change proportionally as the strength of a particular risk factor changes over time.[0032,0035-0037]

It would have been obvious for a person of ordinary skill in the art at the time of the invention was made to use McAtammey in the device of Weber and Mindlin. The rationale to support a conclusion that the claim would have been obvious is that a method of enhancing a particular class of devices was made part of the ordinary capabilities of one skilled in the art based upon the teaching of such improvement in other situations. One of ordinary skill in the art would have been capable of applying this known method of enhancement to a base device in the prior art and the results would have been predictable to one of ordinary skill in the art.

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As regards claims 20,26 and 32, Weber and Mindlin and McAtammey discloses Claims

19, 25 and 31, Weber further discloses an inflation risk, indicating a risk that a principal of the investment plan portfolio will be eroded by inflation; (col 13 lines 27 -60)

an interest rate risk, indicating a sensitivity of the investment plan portfolio to rising interest rates; (col 13 lines 27 -60)

a market risk, wherein the market risk indicates a risk of a capital loss or an investment loss to the investment plan portfolio of the participant due to market volatility ;( col 14 lines 4-26)

an event risk, indicating a risk of loss of the principal of the investment plan portfolio due to a market event; and (Col 13 lines 27-60)

a longevity risk, indicating a risk the participant will outlive the plurality of assets of the investment plan portfolio. (Col 14 lines 4-26)

As regards claims 23,29 and 35, Weber, and Mindlin and McAtammey discloses Claims 19, 25 and 31, Weber further discloses the processor is further configured to access a historical index return for the investment plan portfolio, via the storage module; and (col 4 lines 58-03)

Weber does not disclose calculate the change in the allocation ratios of the plurality of assets as a function of time based on the first risk factors, the second risk factors, and the historical index return for the investment plan portfolio resulting in the glide path data.

Mindlin discloses calculate the change in the allocation ratios of the plurality of assets as a function of time based on the first risk factors, the second risk factors, and the

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historical index return for the investment plan portfolio resulting in the glide path data.

[Col 4 lines 22-26]

It would have been obvious for a person of ordinary skill in the art at the time of the invention was made to use Mindlin in the device of Weber and McAtammey. The rationale to support a conclusion that the claim would have been obvious is that a method of enhancing a particular class of devices was made part of the ordinary capabilities of one skilled in the art based upon the teaching of such improvement in other situations. One of ordinary skill in the art would have been capable of applying this known method of enhancement to a base device in the prior art and the results would have been predictable to one of ordinary skill in the art.

As regards claims 24, 30 and 36, Weber and Mindlin and McAtammey discloses Claims 19, 25 and 31, Weber further discloses the processor is further configured to generate a historical index return for the investment plan portfolio based on at least one asset allocation for the investment plan portfolio; (col 4 lines 58-03) calculate the change in the allocation ratios of the plurality of assets as a function of time based on the first risk factors, the second risk factors, and a Monte Carlo simulation resulting in the glide path data; [col 24 lines 52-62] and adjust any future allocation ratios resulting from the Monte Carlo simulation calculation based on the forecasted future potential returns of the investment portfolio. [Col 23 lines 64-27]

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Weber does not disclose forecast future potential returns of the investment portfolio based on the historical index return for the investment plan portfolio and at least one of the first risk factors or second risk factors;

Mindlin discloses forecast future potential returns of the investment portfolio based on the historical index return for the investment plan portfolio and at least one of the first risk factors or second risk factors; [col 4 lines 19-21]

It would have been obvious for a person of ordinary skill in the art at the time of the invention was made to use Mindlin in the device of Weber and McAtammey. The rationale to support a conclusion that the claim would have been obvious is that a method of enhancing a particular class of devices was made part of the ordinary capabilities of one skilled in the art based upon the teaching of such improvement in other situations. One of ordinary skill in the art would have been capable of applying this known method of enhancement to a base device in the prior art and the results would have been predictable to one of ordinary skill in the art.

**Claims 21,27 and 33 are rejected under 35 U.S.C. 103 as being unpatentable over Weber et al. (Patent 8170935) and in further view of Mindlin (Patent 8396775) ) and in view of McAtammey (PGPub 2007/0005477) and in further view of Stolerman (PGPub 2010/0131425).**

As regards claims 21,27 and 33 Weber and Mindlin and McAtammey discloses Claims 22,26 and 32, Weber, and Mindlin and McAtammey does not disclose generate an inflation risk rating based on the glide path data and the inflation risk;

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generate an interest rate risk rating based on the glide path data and the interest rate risk;

generate a market risk rating based on the generated glide path data and the market risk;

generate an event risk rating based on the glide path data and the event risk; and

generate a longevity risk rating based on the glide path data and the longevity risk.

Stolerman discloses generate an inflation risk rating based on the glide path data and the inflation risk; [0015]

generate an interest rate risk rating based on the glide path data and the interest rate risk; [0158]

generate a market risk rating based on the glide path data and the market risk; [015]

generate an event risk rating based on the glide path data and the event risk; [0103, 0143]

and generate a longevity risk rating based on the glide path data and the longevity risk. [0418, 0439]

It would have been obvious for a person of ordinary skill in the art at the time of the invention was made to use Stolerman in the device of Weber and Mindlin and McAtammey .The rationale to support a conclusion that the claim would have been obvious is that a method of enhancing a particular class of devices was made part of the ordinary capabilities of one skilled in the art based upon the teaching of such improvement in other situations. One of ordinary skill in the art would have been capable of applying this known method of enhancement to a base device in the prior art and the results would have been predictable to one of ordinary skill in the art.

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**Claims 22, 28 and 34 are rejected under 35 U.S.C. 103 as being unpatentable over Weber et al. (Patent 8170935) and in further view of Mindlin (Patent 8396775) ) and in view of McAtammey (PGPub 2007/0005477) and in view of Ameriks et al. (Patent 9633395)**

As regards claims 22, 28 and 34, Weber and Mindlin discloses Claims 19, 25 and 31, Weber and Mindlin and McAtammey do not disclose a participant-user risk, indicating a risk that the participant misuses a principal of the investment plan portfolio; a withdrawal rate risk, indicating a risk that the participant withdraws the principal of the investment plan portfolio prior to retirement; and an accumulation risk, indicating a risk that the participant will outlive the principal of the investment plan portfolio. Ameriks discloses a participant-user risk, indicating a risk that the participant misuses a principal of the investment plan portfolio ;( col 12 lines 62-10) a withdrawal rate risk, indicating a risk that the participant withdraws the principal of the investment plan portfolio prior to retirement ;( col 12 lines 62-10) and an accumulation risk, indicating a risk that the participant will outlive the principal of the investment plan portfolio. (Col 12 lines 62-10)

It would have been obvious for a person of ordinary skill in the art at the time of the invention was made to use Ameriks in the device of Weber and Mindlin and McAtammey .The rationale to support a conclusion that the claim would have been obvious is that a method of enhancing a particular class of devices was made part of the ordinary capabilities of one skilled in the art based upon the teaching of such

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improvement in other situations. One of ordinary skill in the art would have been capable of applying this known method of enhancement to a base device in the prior art and the results would have been predictable to one of ordinary skill in the art.

#### Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHN A ANDERSON whose telephone number is (571)270-3327. The examiner can normally be reached on 9Am-6PM EST M-F.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at <http://www.uspto.gov/interviewpractice>.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sarah Monfeldt can be reached on 571-270-1833. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JOHN A ANDERSON/  
Examiner, Art Unit 3692

/BRUCE I EBERSMAN/  
Primary Examiner, Art Unit 3692



**REMARKS**

Applicant initially expresses appreciation to the Examiner for the detailed Office Action provided. Upon entry of the present amendment, the claims of the present application will have been amended. The herein-contained amendments should not be considered an indication of acquiescence as to the propriety of any outstanding rejection. Rather, the claims will have been amended in order to advance prosecution and obtain early allowance of the claims in the present application.

More particularly, claims 19, 25, and 31 have been amended and claims 24, 30, and 35 have been canceled. No prohibited new matter is believed to have been added. Support for amendments may be found, for example, at least in page 16, line 6 – page 17, line 3; and page 21, lines 16-18 of the originally filed specification. (Reference to the specification is for exemplary purposes only, and is not intended to limit the scope of the claimed disclosure). In addition, Applicant expressly reserves the right to submit claims of a related scope in another application. Thus, the cancellation of claims 24, 30, and 35 is without prejudice or disclaimer.

Accordingly, claims 19-23, 25-29, 31-34, and 36 are pending for consideration of which claims 19, 25, and 31 are independent.

**Interview Summary**

Applicant thanks the Examiner for the courtesy of a telephone interview extended to Applicant's representative Ali Imam (Reg. No. 58755) on January 17, 2020, during which the outstanding rejections were discussed.

During the interview, Applicant's representative proposed an amendment to independent claims 19 (and similarly, claims 25 and 31) to replace "calculate a change in the allocation

ratios” to “display a change in the allocation ratios”. The Examiner acknowledged that such amendment should overcome the outstanding rejection under 35 USC 112(a).

Applicant representative further discussed possible amendments to independent claims 19, 25, and 31 to further clarify that the processor is configured to calculate risk ratings for the investment portfolio using the generated glide path and specific date and strength of a certain risk and determine a risk rank from the calculated risk rating as disclosed in page 16, line 6 – page 17, line 3 of the specification. The Examiner acknowledged that if the independent claims 19, 25, and 31 are amended to recite the above-noted amendment along with the features of dependent claim 24 (or similar features in claims 30 or 35) should overcome the outstanding rejections under 35 USC 101 and 103.

The undersigned thanks the Examiner for such indications and notes that the present amendments and response generally correspond to the amendments discussed during the interview.

Accordingly, it is respectfully submitted that all pending claims are in condition for allowance.

**Rejection under 35 USC § 112(a)**

Claims 19-36 were rejected under 35 U.S.C 112(a) as being failing to comply with the written description requirement. This rejection is respectfully traversed.

While not conceding the appropriateness of the Examiner’s rejection, has amended independent claims 19 (and similarly, claims 25 and 31) to replace “calculate a change in the allocation ratios” to “display a change in the allocation ratios”. As acknowledged by the

Examiner during the interview of January 17, 2020, such amendment should overcome the outstanding rejection under 35 USC 112(a).

Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

**Rejection Under 35 U.S.C. § 101**

In the outstanding official action, the Examiner has rejected claims 19-36 under 35 U.S.C. §101, asserting that the claimed invention is directed to an abstract idea without significantly more and that the alleged abstract idea is not integrated into a practical application. This rejection is respectfully traversed.

While not conceding the appropriateness of the Examiner's rejection, independent claims 19, 25, and 31 have been amended as discussed during the interview of January 17, 2020. More specifically, claim 19 (and similarly, claims 25 and 31) has been amended to recite, *inter alia*, "generate the glide path map in a centralized location of the system thereby improving efficiency in other computing resources included in the system, and wherein the processor is further configured to: generate a historical index return for the investment plan portfolio based on at least one asset allocation for the investment plan portfolio; forecast future potential returns of the investment portfolio based on the historical index return for the investment plan portfolio and at least one of the first risk factors or second risk factors; calculate the change in the allocation ratios of the plurality of assets as a function of time based on the first risk factors, the second risk factors, and a Monte Carlo simulation resulting in the glide path data; and adjust any future allocation ratios resulting from the Monte Carlo simulation calculation based on the forecasted future potential returns of the investment portfolio."

As acknowledged by the Examiner during the interview of January 17, 2020, the above-noted amendment should overcome the outstanding rejection under 35 USC 101.

For at least the reasons noted above, Applicant respectfully submits that all pending claims are directed to patent eligible subject matter.

Accordingly, reconsideration and withdrawal of this rejection are respectfully requested.

### **Rejections under 35 U.S.C. 103**

Claims 19-20, 22-26, 28-32, 34-36 were rejected under 35 U.S.C. 103 as being unpatentable over Weber et al. (US 8170935; hereinafter “Weber”) in view of Mindlin (US 8396775; hereinafter “Mindlin”), and further in view of McAtammey (US 2007/0005477; hereinafter “McAtammey”); Claims 21, 27, and 33 were rejected under 35 U.S.C. 103 as being unpatentable over Weber in view of Mindlin and McAtammey, and further in view of Stolerman (US 2010/0131425; hereinafter “Stolerman”); and Claims 22, 28, and 34 were rejected under 35 U.S.C. 103 as being unpatentable over Weber in view of Mindlin and McAtammey, and further in view of Ameriks et al. (US 9633395; hereinafter “Ameriks”). These rejections are respectfully traversed.

While not conceding the appropriateness of the Examiner’s rejection, independent claims 19, 25, and 31 have been amended as discussed during the interview of January 17, 2020. More specifically, claim 19 (and similarly, claims 25 and 31) has been amended to recite, *inter alia*, “generate the glide path map in a centralized location of the system thereby improving efficiency in other computing resources included in the system, and wherein the processor is further configured to: generate a historical index return for the investment plan portfolio based on at least one asset allocation for the investment plan portfolio; forecast future potential returns of the

investment portfolio based on the historical index return for the investment plan portfolio and at least one of the first risk factors or second risk factors; calculate the change in the allocation ratios of the plurality of assets as a function of time based on the first risk factors, the second risk factors, and a Monte Carlo simulation resulting in the glide path data; and adjust any future allocation ratios resulting from the Monte Carlo simulation calculation based on the forecasted future potential returns of the investment portfolio.”

As acknowledged by the Examiner during the interview of January 17, 2020, the above-noted amendment should overcome the outstanding rejection under 35 USC 103.

At least based on the above, Applicant respectfully submits that claims 19, 25, and 31, and any claim depending therefrom are allowable over the cited documents, including Weber, Mindlin, McAtammey, Stolerman, and Ameriks.

Accordingly, reconsideration and withdrawal of these rejections are respectfully requested.

### **AFCP 2.0**

By the present response, Applicant has addressed and traversed various positions asserted by the Examiner in the outstanding official action while other positions taken by the Examiner have not been addressed or traversed. However, by not addressing such other positions taken by the Examiner, Applicant does not in any manner intend to acquiesce in the propriety of such positions. Rather, Applicant has addressed and responded to a number of Examiner expressed positions adequate to clearly evidence the patentability of the claims pending in the present application without acquiescing in any other such unaddressed positions by the Examiner.

Applicant notes that the status of the present application is after final rejection and that an Applicant does not have a right to amend an application once a final rejection has issued. Nevertheless, Applicant respectfully submits that entry of the present amendment is appropriate and proper as it is in full compliance with 37 C.F.R. §1.116. Additionally, in view of the herein contained remarks, the present amendment clearly places the present application into condition for allowance.

Further, to the extent that any of the herein contained amendment to the claims raise new issues that would require further consideration or search, it is respectfully submitted that, based on the nature of the herein contained amendment, the present amendment can be determined to place the application in condition for allowance with only a limited amount of further search or consideration and thus, in accordance with the guidelines of the after final consideration pilot 2.0 (AFCP 2.0) program, the present amendment should be entered and considered and the present application should be allowed.

**Applicant requests that the Examiner contact the undersigned should the Examiner have any suggestions for compacting the prosecution of the application.**

**CONCLUSION**

In view of the fact that none of the documents of record, whether considered alone, or in any proper combination thereof, discloses or renders obvious the presently pending claims of the present application, and in further view of the above remarks, reconsideration of the Examiner's action and allowance of the present application are respectfully requested and submitted to be appropriate.

Applicant notes that this amendment is being made to advance prosecution of the application to allowance, and should not be considered as surrendering equivalents of the territory between the claims prior to the present amendment and the amended claims. Further, no acquiescence as to the propriety of the Examiner's rejection is made by the present amendment. All amendments to the claims which have been made in this amendment, and which have not been specifically noted to overcome a rejection based upon the prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

If there should be any questions concerning this application, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully Submitted,  
Lynn A AVITABILE et al.

/Ali M. Imam/  
Reg. No. 58,755  
Ali M. Imam

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Sean Myers-Payne  
Reg. No. 42920

January 28, 2020  
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**AMENDMENTS TO THE CLAIMS**

Upon entry of the present amendment, the status of claims will be as is shown below. This listing of claims replaces all prior versions and listing of claims in the application.

**Listing of Claims:**

1. -18. (Canceled)

19. (Currently Amended) A system for simulating an investment plan portfolio of a participant and a plurality of risk factors, detecting a change in risk factors, and managing risk in the investment plan portfolio, the system comprising:

a storage module having portfolio data related to the investment plan portfolio, the portfolio data including allocation ratios of a plurality of assets of the investment plan portfolio;

a glide path module including a processor operably connected to the storage module for accessing the portfolio data to model the investment plan portfolio; and

a network that establishes communication between the storage module and the glide path module,

wherein the processor is configured to:

define first risk factors associated with market conditions including a future date and a risk strength;

define second risk factors associated with the participant;

~~calculate~~ display a change in the allocation ratios of the plurality of assets as a function of time based on the first risk factors and the second risk factors resulting in glide path data;



generate a glide path map based on the resulting glide path data, wherein the glide path map provides a visual depiction of a change in the allocation ratios of the plurality of assets over time, and wherein the glide path map includes an area graph including:

a plurality of areas corresponding to the plurality of assets, wherein the plurality of areas present the allocation ratios of the plurality of assets as a function of time; and

a plurality of risk factor indicators overlaying the plurality of areas, wherein the plurality of risk factor indicators indicate the future date as a function of time and the risk strength;

generate a graphical display onto a graphical user interface (GUI) configured to provide a visual depiction of the glide path map and a recommended change in the allocation ratios of the plurality of assets to the participant, wherein the visual depiction of the glide path map illustrates various risks by corresponding representation of a circle, wherein the diameter of the circle is proportionally related to the strength of the risk factor, ~~and~~ wherein the diameter of a particular risk factor is configured to change proportionally as the strength of a particular risk factor changes over time, and wherein the processor is configured to calculate risk ratings for the investment portfolio using the generated glide path and specific date and strength of a certain risk and determine a risk rank from the calculated risk rating;

monitor the first risk factors and the second risk factors to identify a change in the first risk factors and the second risk factors;

identify a change in at least one of the first risk factors or the second risk factors;

update the allocation ratios of the plurality assets based on the identified change in at least one of the first risk factors or the second risk factors and display an updated glide path map based on the updated allocation ratios of the plurality of assets;

accumulate the allocation ratios of assets in the investment plan portfolio and risk factors in one module thereby improving network resource usage efficiency; and

generate the glide path map in a centralized location of the system thereby improving efficiency in other computing resources included in the system, and

wherein the processor is further configured to:

generate a historical index return for the investment plan portfolio based on at least one asset allocation for the investment plan portfolio;

forecast future potential returns of the investment portfolio based on the historical index return for the investment plan portfolio and at least one of the first risk factors or second risk factors;

calculate the change in the allocation ratios of the plurality of assets as a function of time based on the first risk factors, the second risk factors, and a Monte Carlo simulation resulting in the glide path data; and

adjust any future allocation ratios resulting from the Monte Carlo simulation calculation based on the forecasted future potential returns of the investment portfolio.

20. (Previously Presented) The system of Claim 19, wherein the first risk factors associated with the market conditions comprises:

an inflation risk indicating a risk that a principal of the investment plan portfolio will be eroded by inflation;

an interest rate risk indicating a sensitivity of the investment plan portfolio to rising interest rates;

a market risk indicating a risk of a capital loss or an investment loss to the investment plan portfolio of the participant due to market volatility;

an event risk indicating a risk of loss of the principal of the investment plan portfolio due to a market event; and

a longevity risk indicating a risk the participant will outlive the plurality of assets of the investment plan portfolio.

21. (Previously Presented) The system of Claim 20, wherein the processor is further configured to:

generate an inflation risk rating based on the glide path data and the inflation risk;

generate an interest rate risk rating based on the glide path data and the interest rate risk;

generate a market risk rating based on the glide path data and the market risk;

generate an event risk rating based on the glide path data and the event risk; and

generate a longevity risk rating based on the glide path data and the longevity risk.

22. (Previously Presented) The system of Claim 19, wherein the second risk factors associated with the market condition comprises:

a participant-user risk indicating a risk that the participant misuses a principal of the investment plan portfolio;

a withdrawal rate risk indicating a risk that the participant withdraws the principal of the investment plan portfolio prior to retirement; and

an accumulation risk indicating a risk that the participant will outlive the principal of the investment plan portfolio.

23. (Previously Presented) The system of Claim 19, wherein the processor is further configured to:

access a historical index return for the investment plan portfolio, via the storage module;  
and

calculate the change in the allocation ratios of the plurality of assets as a function of time based on the first risk factors, the second risk factors, and the historical index return for the investment plan portfolio resulting in the glide path data.

24. (Canceled)

25. (Currently Amended) A method implemented by a ~~computing device system~~ in a glide path module for simulating an investment plan portfolio of a participant and a plurality of risk factors, detecting a change in risk factor, and managing risk in the investment plan portfolio comprising:

accessing, via a graphical user interface (GUI), portfolio data related to the investment plan portfolio, the portfolio data including allocation ratios of a plurality of assets of the investment plan portfolio;

defining, by utilizing a computer processor included in the system, first risk factors associated with market conditions and including a future date and risk a strength;

defining, by utilizing the computer processor, second risk factors associated with the participant;

~~calculating~~ displaying, by utilizing the computer processor, a change in the allocation ratios of the plurality of assets as a function of time based on the first risk factors and the second risk factors resulting in glide path data;

generating, by utilizing the computer processor, a glide path map based on the resulting glide path data, the glide path map providing a visual depiction of the change in the allocation ratios of the plurality of assets over time, and wherein the glide path map includes an area graph including:

a plurality of areas corresponding to the plurality of assets, the plurality of areas presenting the allocation ratios of the plurality of assets as a function of time; and

a plurality of risk factor indicators overlaying the plurality of areas, the plurality of risk factor indicators indicating the future date as a function of time and the risk strength;

generating, by utilizing the computer processor, a graphical display onto the GUI configured to provide a visual depiction of the generated glide path map and a recommended change in the allocation ratios of the plurality of assets to the participant, wherein the visual depiction of the glide path map illustrates various risks by corresponding representation of a circle, wherein the diameter of the circle is proportionally related to the strength of the risk factor, ~~and~~ wherein the diameter of a particular risk factor is configured to change proportionally as the strength of a particular risk factor changes over time, and wherein the computer processor is configured to calculate risk ratings for the investment portfolio using the generated glide path

and specific date and strength of a certain risk and determine a risk rank from the calculated risk rating;

monitoring, by utilizing the computer processor, the first risk factors and the second risk factors to identify a change in the first risk factors and the second risk factors;

identifying, by utilizing the computer processor, a change in at least one of the first risk factors or the second risk factors;

updating, by utilizing the computer processor, the allocation ratios of the plurality assets based on the identified change in at least one of the first risk factors or second risk factors and displaying an updated glide path map based on the updated allocation ratios of the plurality of assets;

~~accumulate~~ accumulating, by utilizing the computer processor, the allocation ratios of assets in the investment plan portfolio and risk factors in one module thereby improving network resource usage efficiency; and

generate generating, by utilizing the computer processor, the glide path map in a centralized location of the system thereby improving efficiency in other computing resources included in the system;

generating, by utilizing the computer processor, a historical index return for the investment plan portfolio based on at least one asset allocation for the investment plan portfolio;

forecasting, by utilizing the computer processor, future potential returns of the investment portfolio based on the historical index return for the investment plan portfolio and at least one of the first risk factors or second risk factors;

calculating, by utilizing the computer processor, the change in the allocation ratios of the plurality of assets as a function of time based on the first risk factors, the second risk factors, and a Monte Carlo simulation resulting in the glide path data; and

adjusting, by utilizing the computer processor, any future allocation ratios resulting from the Monte Carlo simulation calculation based on the forecasted future potential returns of the investment portfolio.

26. (Previously Presented) The method of Claim 25, wherein the first risk factors associated with the market conditions comprises:

an inflation risk indicating a risk that a principal of the investment plan portfolio will be eroded by inflation;

an interest rate risk indicating a sensitivity of the investment plan portfolio to rising interest rates;

a market risk indicating a risk of a capital loss or an investment loss to the investment plan portfolio of the participant due to market volatility;

an event risk indicating a risk of loss of the principal of the investment plan portfolio due to a market event; and

a longevity risk indicating a risk the participant will outlive the plurality of assets of the investment plan portfolio.

27. (Previously Presented) The method of Claim 26, further comprising:

generating an inflation risk rating based on the glide path data and the inflation risk;

generating an interest rate risk rating based on the glide path data and the interest rate risk;

generating a market risk rating based on the glide path data and the market risk;

generating an event risk rating based on the glide path data and the event risk; and

generating a longevity risk rating based on the glide path data and the longevity risk.

28. (Previously Presented) The method of Claim 25, wherein the second risk factors associated with the market conditions comprises:

a participant-user risk indicating a risk that the participant misuses a principal of the investment plan portfolio;

a withdrawal rate risk indicating a risk that the participant withdraws the principal of the investment plan portfolio prior to retirement; and

an accumulation risk indicating a risk that the participant will outlive the principal of the investment plan portfolio.

29. (Previously Presented) The method of Claim 25, further comprising:

accessing a historical index return for the investment plan portfolio; and

calculating the change in the allocation ratios of the plurality of assets as a function of time based on the first risk factors, the second risk factors, and the historical index return for the investment plan portfolio resulting in the glide path data.

30. (Canceled)



31. (Currently Amended) A non-transitory computer readable medium comprising programing logic for simulating an investment plan portfolio of a participant and a plurality of risk factors, detecting a change in risk factors, and managing risk in the investment plan portfolio by utilizing a system, the programming logic, when executed by a processor included in the system, is operable to:

access portfolio data related to an investment plan portfolio of a participant, the portfolio data comprising allocation ratios of a plurality of assets of the investment plan portfolio;

define first risk factors associated with market conditions, wherein the first risk factors include a future date and a risk strength;

define second risk factors associated with the participant;

~~calculate~~ display a change in the allocation ratios of the plurality of assets as a function of time based on the first risk factors and the second risk factors resulting in glide path data;

generate a glide path map based at least partially on the resulting glide path data, the glide path map providing a visual depiction of a change in the allocation ratios of the plurality of assets over time, wherein the glide path map includes an area graph including:

a plurality of areas corresponding to the plurality of assets, the plurality of areas presenting the allocation ratios of the plurality of assets as a function of time; and

a plurality of risk factor indicators overlaying the plurality of areas, the plurality of risk factor indicators indicating the future date as a function of time and the risk strength;

generate a graphical display onto a graphical user interface (GUI) configured to provide a visual depiction of the generated glide path map and a recommended change in the allocation ratios of the plurality of assets to the participant, wherein the visual depiction of the glide path

map illustrates various risks by corresponding representation of a circle, wherein the diameter of the circle is proportionally related to the strength of the risk factor, ~~and~~ wherein the diameter of a particular risk factor is configured to change proportionally as the strength of a particular risk factor changes over time, and wherein the programming logic, when executed by the processor, is further operable to calculate risk ratings for the investment portfolio using the generated glide path and specific date and strength of a certain risk and determine a risk rank from the calculated risk rating;

monitor the first risk factors and the second risk factors to identify a change in the first risk factors and the second risk factors;

identify a change in at least one of the first risk factors or the second risk factors; and

update the allocation ratios of the plurality assets based on the identified change in at least one of the first risk factors or second risk factors and display an updated glide path map based on the updated allocation ratios of the plurality of assets;

accumulate the allocation ratios of assets in the investment plan portfolio and risk factors in one module thereby improving network resource usage efficiency; and

generate the glide path map in a centralized location of the system thereby improving efficiency in other computing resources included in the system, and

wherein the programming logic, when executed by the processor, is further operable to:

generate a historical index return for the investment plan portfolio based at least partially on at least one asset allocation for the investment plan portfolio;

forecast future potential returns of the investment portfolio based at least partially on the historical index return for the investment plan portfolio and at least one of the first risk factors or second risk factors;

calculate the change in the allocation ratios of the plurality of assets as a function of time based at least partially on the first risk factors, the second risk factors, and a Monte Carlo simulation resulting in the glide path data; and

adjust any future allocation ratios resulting from the Monte Carlo simulation calculation based on the forecasted future potential returns of the investment portfolio.

32. (Previously Presented) The computer readable medium of Claim 31, wherein the first risk factors associated with the market conditions comprises:

an inflation risk indicating a risk that a principal of the investment plan portfolio will be eroded by inflation;

an interest rate risk indicating a sensitivity of the investment plan portfolio to rising interest rates;

a market risk indicating a risk of a capital loss or an investment loss to the investment plan portfolio of the participant due to market volatility;

an event risk indicating a risk of loss of the principal of the investment plan portfolio due to a market event; and

a longevity risk indicating a risk the participant will outlive the plurality of assets of the investment plan portfolio.

33. (Previously Presented) The computer readable medium of Claim 32, wherein the programming logic is further operable to:

generate an inflation risk rating based on the glide path data and the inflation risk;

generate an interest rate risk rating based on the glide path data and the interest rate risk;

generate a market risk rating based on the glide path data and the market risk;  
generate an event risk rating based on the glide path data and the event risk; and  
generate a longevity risk rating based on the glide path data and the longevity risk.

34. (Previously Presented) The computer readable medium of Claim 32, wherein the programming logic is further operable to:

receive a historical index return for the investment plan portfolio; and  
calculate the change in the allocation ratios of the plurality of assets as a function of time based at least partially on the first risk factors, the second risk factors, and the historical index return for the investment plan portfolio.

35. (Canceled)

36. (Previously Presented) The computer readable medium of Claim 31, wherein:

the second risk factors associated with the market conditions comprises:  
a participant-user risk, wherein the participant-user risk indicates a risk that the participant misuses a principal of the investment plan portfolio;  
a withdrawal rate risk, wherein the withdrawal rate risk indicates a risk that the participant withdraws the principal of the investment plan portfolio prior to retirement; and  
an accumulation risk, wherein the accumulation risk indicates a risk that the participant will outlive the principal of the investment plan portfolio.