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DAVID S. STEUER, State Bar No. 127059
dsteuer@wsgr.com
WILSON SONSINI GOODRICH & ROSATI, P.C.
650 Page Mill Road
Palo Alto, CA 94304-1050
Telephone: (650) 493-9300
Facsimile: (650) 565-5100

NATALIE J. MORGAN, State Bar No. 211143
nmorgan@wsgr.com
WILSON SONSINI GOODRICH & ROSATI, P.C.
12235 El Camino Real, Suite 200
San Diego, CA 92130
Telephone: (858) 350-2303
Facsimile: (858) 350-2399

Attorneys for Plaintiff
Research Affiliates, LLC

UNITED STATES DISTRICT COURT
CENTRAL DISTRICT OF CALIFORNIA
SOUTHERN DIVISION

Research Affiliates, LLC,

Plaintiff,

v.

WisdomTree Investments, Inc., WisdomTree Trust, WisdomTree Asset Management, Inc., WisdomTree Retirement Services, Inc., Mellon Capital Management Corp., and ALPS Distributors, Inc.

Defendants.

CASE NO.: **SACV11-01846 DOC (ANx)**

COMPLAINT FOR PATENT INFRINGEMENT

DEMAND FOR JURY TRIAL

By Fax

COPY

For its Complaint against WisdomTree Investments, Inc., WisdomTree Trust, WisdomTree Asset Management, Inc., WisdomTree Retirement Services, Inc., Mellon Capital Management Corp., and ALPS Distributors, Inc. (collectively, "Defendants"), Plaintiff Research Affiliates, LLC alleges as follows:

NATURE OF THE SUIT

1. This action is for patent infringement under the Patent Laws of the United States of America, 35 U.S.C. §§ 1 et seq., including 35 U.S.C. § 271.

THE PARTIES

2. Plaintiff Research Affiliates, LLC ("Plaintiff" or "RA LLC") is a limited liability company duly organized and existing under the laws of the State of California, with its principal place of business at 620 Newport Center Dr., Suite 900, Newport Beach, California 92600.

3. Defendant WisdomTree Investments, Inc. ("WT Investments") is a corporation duly organized and existing under the laws of the State of Delaware, with its principal place of business at 380 Madison Avenue, 21st Floor, New York, New York 10017.

4. Defendant WisdomTree Trust ("WT Trust") is a corporation duly organized and existing under the laws of the State of Delaware, with its principal place of business at 380 Madison Avenue, 21st Floor, New York, New York 10017. The Chief Executive Officer of WT Investments serves as a Trustee and President of WT Trust; and the Chief Financial Officer of WT Investments serves as Treasurer of

the Trust.

5. Defendant WisdomTree Asset Management, Inc. ("WT Asset Management") is a corporation duly organized and existing under the laws of the State of Delaware, with its principal place of business at 380 Madison Avenue, 21st Floor, New York, New York 10017. WT Asset Management is a wholly-owned subsidiary of WT Investments. WT Asset Management is the operating subsidiary of WT Investments through which WT Investments provides investment advisory and other management services to the WT ETFs (as defined herein).

6. Defendant WisdomTree Retirement Services, Inc. ("WT Retirement Services") is a corporation duly organized and existing under the laws of the State of Delaware, with its principal place of business at 380 Madison Avenue, 21st Floor, New York, New York 10017. WT Retirement Services is a wholly owned subsidiary of WT Investments. WT Retirement Services markets with selected third parties the use of WT ETFs in 401(k) plans as well as offering a platform that offers WT ETFs to the 401(k) marketplace.

7. Defendant Mellon Capital Management Corp. ("MCM") is a corporation duly organized and existing under the laws of the State of Delaware, with its principal place of business at 50 Fremont Street, Suite 3900, San Francisco, California 94105. MCM is under contract with WT Asset Management to act as a sub-advisor and provide portfolio management services and other related services for the WT ETFs.

8. Defendant ALPS Distributors Inc. ("ALPS") is a corporation duly organized and existing under the laws of the State of Colorado, with its principal place of business at 1290 Broadway, Suite 1100, Denver, Colorado 80203. ALPS is a distributor of the WT ETFs.

JURISDICTION AND VENUE

9. This Court has subject matter jurisdiction under 28 U.S.C. §§ 1331 and 1338(a) because this is a civil action for patent infringement arising under the United States patent statutes.

10. The Court has personal jurisdiction over Defendants, because, upon information and belief, Defendants have done business in this judicial district, have continuous and systematic contacts within this district, have committed and continue to commit acts of patent infringement in this judicial district, and have harmed and continue to harm RA LLC in this judicial district by, among other things, offering for sale and selling products made by practicing infringing methods in this judicial district.

11. Venue is proper pursuant to 28 U.S.C. §§ 1391 and 1400 because, among other reasons, Defendants are subject to personal jurisdiction and have committed acts of patent infringement in this judicial district.

THE PATENTS-IN-SUIT

12. On June 29, 2010, U.S. Patent No. 7,747,502 (the "'502 Patent") was issued to RA LLC by the United States Patent and Trademark Office ("USPTO")

and is titled "Using Accounting Data Based Indexing to Create a Portfolio of Assets." A true and correct copy of the '502 Patent is attached hereto as Exhibit A.

13. On September 7, 2010, U.S. Patent No. 7,792,719 (the "'719 Patent") was issued to RA LLC by the USPTO and is titled "Valuation Indifferent Non-Capitalization Weighted Index and Portfolio." A true and correct copy of the '719 Patent is attached hereto as Exhibit B.

14. On August 23, 2011, U.S. Patent No. 8,005,740 (the "'740 Patent") was issued to RA LLC by the USPTO and is titled "Using Accounting Data Based Indexing to Create a Portfolio of Financial Objects." A true and correct copy of the '740 Patent is attached hereto as Exhibit C.

15. RA LLC is the owner by assignment of all right, title, and interest to the '502 Patent, the '719 Patent, and the '740 Patent (collectively, the "Patents-in-Suit") and has the right to bring an action and recover damages for infringement of the Patents-in-Suit, including damages for past infringement.

16. The Patents-in-Suit are valid, enforceable, and were duly issued in full compliance with Title 35 of the United States Code.

17. On information and belief, WT Investments, WT Trust, WT Asset Management, and WT Retirement Services (collectively, "WisdomTree") have had knowledge of the Patents-in-Suit since their issuance and of the patent applications that led to the issuance of the Patents-in-Suit even before they issued.

18. For example, around September 2005, counsel for RA LLC wrote to

WT Investments and provided notice of the publication of the patent application that led to the issuance of the '719 Patent. This publication was U.S. Pub. No. 2005/0171884 A1 (the "'884 Application").

19. S. Craig Hemenway, counsel for WT Investments, responded to the September 2005 letter in a letter to RA LLC's counsel dated October 7, 2005. In this letter, Mr. Hemenway wrote that RA LLC's intellectual property rights were "speculative at best" and that "WisdomTree is not interested in speculating about [Research Affiliate's] eventual patent rights . . . ."

20. In the same letter, Mr. Hemenway also wrote that RA LLC should have received service copies of WisdomTree's submission to the USPTO of alleged prior art references related to the '884 Application.

21. In a separate letter to RA LLC on October 12, 2005, Mr. Hemenway enclosed the two Third Party Submissions that were submitted during the prosecution of the application that issued as the '719 patent. Mr. Hemenway sent this letter at the instruction of WisdomTree.

22. Mr. Hemenway also submitted prior art during the prosecution of the application that issued as the '502 Patent. On information and belief, this submission was also done at the request of WisdomTree.

23. The United States Patent Office duly issued RA LLC's patents despite WisdomTree's submission of alleged prior art references.

24. Furthermore, RA LLC's Fundamental Index® methodologies have

become extremely well known in the financial industry.

25. RA LLC's patents are also well known and RA LLC has licensed its technology to numerous major entities in the financial industry.

26. On March 1, 2007, RA LLC management, including Mr. Robert Arnott, traveled to WisdomTree's location in New York for a discussion with WisdomTree's management, including Mr. Michael H. Steinhardt, the current chairman of WTI's Board of Directors. RA LLC's pending patent applications were a primary topic of that discussion.

27. Prior to the March 1, 2007 meeting, Mr. Arnott had met with management of Barclays Global Investors. On information and belief, Mr. Bruce Lavine, WTI's President and Chief Operating Officer since 2006, attended or was aware of the discussions that occurred at the meeting. During this meeting, Mr. Arnott spoke about his inventions and patent applications.

28. On information and belief, WisdomTree has monitored the prosecution of the Patents-In-Suit and was aware of when the Patents-In-Suit issued.

29. RA LLC has complied with 35 U.S.C. § 287 by requiring licensees of the Patents-in-Suit to place a notice that any product made, used, sold, or offered for sale under the license is covered by the Patents-in-Suit.

COUNT I – INFRINGEMENT OF THE '502 PATENT

(Against All Defendants)

30. RA LLC restates and re-alleges each of the allegations contained in all preceding paragraphs of this Complaint, and incorporates them as if fully stated herein.

31. As set forth more fully below, Defendants have infringed and continue to infringe – directly, contributorily, and/or by active inducement – one or more claims of the '502 Patent by using the methods claimed in the '502 patent and/or selling products created by using said methods without authority and in violation of 35 U.S.C. § 271.

32. WT Investments directly infringes and continues to directly infringe at least claim 53 of the '502 Patent by performing, directing and/or controlling others to perform, or offering to perform one or more claims of the '502 Patent related to financial products that are based on fundamental factors and by making, using, selling, licensing, and/or offering to sell said financial products. Alternatively, WT Investments directly infringes and continues to directly infringe at least claim 53 of the '502 Patent by performing and directing and/or controlling others to perform one or more steps of one or more claims of the '502 Patent related to financial products that are based on fundamental factors and by making, using, selling, licensing, and/or offering to sell said financial products. Example financial products that are based on fundamental factors include: WisdomTree Dividend Index, WisdomTree

LargeCap Dividend Index, WisdomTree MidCap Dividend Index, WisdomTree SmallCap Dividend Index, WisdomTree Equity Income Index, WisdomTree ex-Financials Dividend Index, WisdomTree Earnings Index, WisdomTree Earnings 500 Index, WisdomTree MidCap Earnings Index, WisdomTree SmallCap Earnings Index, WisdomTree LargeCap Growth Index, WisdomTree LargeCap Value Index, WisdomTree Global Equity Income Index, WisdomTree World ex-U.S. Growth Index, WisdomTree DEFA Index, WisdomTree DEFA Equity Income Index, WisdomTree International LargeCap Dividend Index, WisdomTree International MidCap Dividend Index, WisdomTree International SmallCap Dividend Index, WisdomTree Japan SmallCap Dividend Index, WisdomTree Europe SmallCap Dividend Index, WisdomTree Asia Pacific ex-Japan Index, WisdomTree Australia Dividend Index, WisdomTree International Dividend ex-Financials Index, WisdomTree Commodity Country Equity Index, WisdomTree Global Natural Resources Index, WisdomTree International Utilities Sector Index, WisdomTree International Real Estate Index, WisdomTree Japan Hedged Equity Index, WisdomTree DEFA International Hedged Equity Index, WisdomTree India Earnings Index, WisdomTree Emerging Markets Equity Income Index, WisdomTree Emerging Markets SmallCap Dividend Index, WisdomTree Middle East Dividend Index (collectively, "WT Indexes") and related Exchange Traded Funds ("WT ETFs"). As a direct and proximate result of WT Investments' direct infringement of the '502 Patent, Plaintiff has been and continues to be damaged.

33. WT Investments has indirectly infringed and continues to indirectly infringe at least claim 53 the '502 Patent by actively inducing direct infringement by other persons. In particular, WT Investments has induced direct infringement by customers and partners of WT Investments, including without limitation WT Trust, WT Retirement Services, WT Asset Management, MCM, and ALPS. WT Trust, WT Retirement Services, WT Asset Management, MCM, and ALPS perform one or more claims of the '502 Patent pursuant to contractual agreements with WT Investments and/or make, use, sell, license, or offer for sale financial products made by performing one or more of the claims of the '502 patent. WT Investments engaged in such inducement having knowledge of the '502 Patent. Furthermore, WT Investments knew or should have known that its actions would induce direct infringement by others and intended that its actions would induce direct infringement by others. As a direct and proximate result of WT Investments' indirect infringement of the '502 Patent, Plaintiff has been and continues to be damaged.

34. WT Investments has contributorily infringed and continues to contributorily infringe at least claim 53 the '502 Patent by providing non-staple articles of commerce to others for use in an infringing method with knowledge of the '502 Patent and knowledge that these non-staple articles of commerce are used as a material part of the claimed invention of the '502 Patent. As a direct and proximate result of WT Investments' contributory infringement of the '502 Patent,

Plaintiff has been and continues to be damaged.

35. WT Trust issues WT ETFs based on the WT Indexes. WT Trust has directly infringed and continues to directly infringe at least claim 53 of the '502 Patent by performing or directing and/or controlling others to perform one or more claims of the '502 Patent related to financial products that are based on fundamental factors and by making, using, selling, licensing, and/or offering to sell said financial products. Alternatively, WT Trust directly infringes and continues to directly infringe at least claim 53 of the '502 Patent by performing and directing and/or controlling others to perform one or more steps of one or more claims of the '502 Patent related to financial products that are based on fundamental factors and by making, using, selling, licensing, and/or offering to sell said financial products. As a direct and proximate result of WT Trust's direct infringement of the '502 Patent, Plaintiff has been and continues to be damaged.

36. WT Trust has indirectly infringed and continues to indirectly infringe at least claim 53 of the '502 Patent by actively inducing direct infringement by other persons. In particular, WT Trust has induced direct infringement by partners of WT Trust including, without limitation, WT Asset Management, MCM, and ALPS. WT Asset Management, MCM, and ALPS perform one or more claims of the '502 Patent pursuant to contractual agreements with WT Trust and/or make, use, sell, license, or offer for sale financial products, including WT ETFs, made by performing one or more of the claims of the '502 patent. WT Trust engaged in such

inducement having knowledge of the '502 Patent. Furthermore, WT Trust knew or should have known that its actions would induce direct infringement by others and intended that its actions would induce direct infringement by others. As a direct and proximate result of WT Trust's indirect infringement of the '502 Patent, Plaintiff has been and continues to be damaged.

37. WT Asset Management directly infringes and continues to directly infringe at least claim 53 of the '502 Patent by performing, directing and/or controlling others to perform, and/or offering to perform one or more claims of the '502 Patent related to financial products, including WT ETFs, that are based on fundamental factors and by making, using, selling, licensing, and/or offering to sell said financial products. Alternatively, WT Asset Management directly infringes and continues to directly infringe at least claim 53 of the '502 Patent by performing and directing and/or controlling others to perform one or more steps of one or more claims of the '502 Patent related to financial products that are based on fundamental factors and by making, using, selling, licensing, and/or offering to sell said financial products.

38. WT Asset Management has indirectly infringed and continues to indirectly infringe at least claim 53 of the '502 Patent by actively inducing direct infringement by other persons. In particular, WT Asset Management has induced direct infringement by partners of WT Asset Management, including without limitation MCM. MCM performs one or more claims of the '502 Patent pursuant to

contractual agreements with WT Asset Management and/or makes, uses, sells, licenses, or offers for sale financial products, including WT ETFs, made by performing one or more of the claims of the '502 patent. WT Asset Management engaged in such inducement with knowledge of the '502 Patent. Furthermore, WT Asset Management knew or should have known that its actions would induce direct infringement by others and intended that its actions would induce direct infringement by others. As a direct and proximate result of WT Asset Management's indirect infringement of the '502 Patent, Plaintiff has been and continues to be damaged.

39. WT Retirement Services directly infringes and continues to directly infringe at least claim 53 of the '502 Patent by performing or directing and/or controlling others to perform one or more claims of the '502 Patent related to financial products, including WT ETFs, that are based on fundamental factors and by making, using, selling, licensing, and/or offering to sell said financial products. As a direct and proximate result of WT Retirement Services' direct infringement of the '502 Patent, Plaintiff has been and continues to be damaged.

40. MCM directly infringes and continues to directly infringe at least claim 53 of the '502 Patent by performing, directing and/or controlling others to perform, and/or offering to perform one or more claims of the '502 Patent related to financial products, including WT ETFs, that are based on fundamental factors and by making, using, selling, licensing, and/or offering to sell said financial products. As a direct

and proximate result of MCM's indirect infringement of the '502 Patent, Plaintiff has been and continues to be damaged.

41. ALPS directly infringes and continues to directly infringe at least claim 53 of the '502 Patent by selling, licensing, and/or offering to sell said financial products, including WT ETFs, that are based on fundamental factors that are created by performing one or more claims of the '502 Patent. As a direct and proximate result of ALPS's direct infringement of the '502 Patent, Plaintiff has been and continues to be damaged.

42. Defendants' acts of infringement have caused damage to RA LLC. RA LLC is entitled to recover from Defendants the damages that it has incurred as a result of the infringing acts under the theories of lost profits, reasonable royalty, and/or any other theory adequate to fully compensate RA LLC. Moreover, Defendants are still infringing the Patents-in-Suit and will continue to do so unless preliminarily and permanently enjoined by this Court.

43. WT Investments, WT Trust, and WT Asset Management have had notice of the '502 Patent. Despite having notice, WT Investments, WT Trust, and WT Asset Management have continued to infringe the '502 Patent despite an objectively high likelihood that their actions constituted infringement of a valid patent. On information and belief, the infringement of WT Investments, WT Trust, and WT Asset Management has been deliberate and willful.

COUNT II – INFRINGEMENT OF THE '719 PATENT

(Against Defendants WT Investments, WT Trust and WT Asset Management)

44. RA LLC restates and re-alleges each of the allegations contained in all preceding paragraphs of this Complaint, and incorporates them as if fully stated herein.

45. As set forth more fully below, WT Investments, WT Trust, and WT Asset Management have infringed and continue to infringe – directly, contributorily, and/or by active inducement – one or more claims of the '719 Patent by using the methods claimed in the '719 patent and/or selling products created by using said methods without authority and in violation of 35 U.S.C. § 271.

46. WT Investments has directly infringed and continues to directly infringe at least claim 1 of the '719 Patent by performing, directing and/or controlling others to perform, or offering to perform one or more claims of the '719 Patent related to financial products that are based on fundamental factors and by making, using, selling, licensing, and/or offering to sell said financial products. Alternatively, WT Investments directly infringes and continues to directly infringe at least claim 1 of the '719 Patent by performing and directing and/or controlling others to perform one or more steps of one or more claims of the '719 Patent related to financial products that are based on fundamental factors and by making, using, selling, licensing, and/or offering to sell said financial products. Example financial products of WT Investments that are based on fundamental factors include the WT

Indexes. As a direct and proximate result of WT Investments' direct infringement of the '719 Patent, Plaintiff has been and continues to be damaged in an amount yet to be determined.

47. WT Investments has indirectly infringed and continues to indirectly infringe at least claim 1 of the '719 Patent by actively inducing direct infringement by other persons. In particular, WT Investments has induced direct infringement by customers and partners of WT Investments, including without limitation index managers. The index managers perform one or more claims of the '719 Patent pursuant to contractual agreements with WT Investments and/or make, use, sell, license, or offer for sale financial products made by performing one or more of the claims of the '719 patent. WT Investments engaged in such inducement having knowledge of the '719 Patent. Furthermore, WT Investments knew or should have known that its actions would induce direct infringement by others and intended that its actions would induce direct infringement by others. As a direct and proximate result of WT Investments' indirect infringement of the '719 Patent, Plaintiff has been and continues to be damaged.

48. WT Trust has indirectly infringed and continues to indirectly infringe at least claim 1 of the '719 Patent by actively inducing direct infringement by other persons. In particular, WT Trust has induced direct infringement by partners of WT Trust, including without limitation WT Investments. Partners of WT Trust perform one or more claims of the '719 Patent pursuant to contractual agreements with WT

Trust. WT Trust engaged in such inducement with knowledge of the '719 Patent. Furthermore, WT Trust knew or should have known that its actions would induce direct infringement by others and intended that its actions would induce direct infringement by others. As a direct and proximate result of WT Trust's indirect infringement of the '719 Patent, Plaintiff has been and continues to be damaged.

49. WT Asset Management has indirectly infringed and continues to indirectly infringe at least claim 1 of the '719 Patent by actively inducing direct infringement by other persons. In particular, WT Asset Management has induced direct infringement by partners of WT Asset Management, including without limitation WT Investments. Partners of WT Asset Management perform one or more claims of the '719 Patent pursuant to contractual agreements with WT Asset Management. WT Asset Management engaged in such inducement with knowledge of the '719 Patent. Furthermore, WT Asset Management knew or should have known that its actions would induce direct infringement by others and intended that its actions would induce direct infringement by others. As a direct and proximate result of WT Asset Management's indirect infringement of the '719 Patent, Plaintiff has been and continues to be damaged.

50. WT Investments, WT Trust, and WT Asset Management's acts of infringement have caused damage to RA LLC. RA LLC is entitled to recover from WT Investments, WT Trust, and WT Asset Management the damages that it has incurred as a result of the infringing acts under the theories of lost profits,

reasonable royalty, and/or any other theory adequate to fully compensate RA LLC. Moreover, WT Investments, WT Trust, and WT Asset Management are still infringing the Patents-in-Suit and will continue to do so unless preliminarily and permanently enjoined by this Court.

51. WT Investments, WT Trust, and WT Asset Management have had notice of the '719 Patent. Despite having notice, WT Investments, WT Trust, and WT Asset Management have continued to infringe the '719 Patent despite an objectively high likelihood that their actions constituted infringement of a valid patent. On information and belief, the infringement of WT Investments, WT Trust, and WT Asset Management has been deliberate and willful.

COUNT III – INFRINGEMENT OF THE '740 PATENT

(Against Defendants WT Investments, WT Trust and WT Asset Management)

52. RA LLC restates and re-alleges each of the allegations contained in all preceding paragraphs of this Complaint, and incorporates them as if fully stated herein.

53. As set forth more fully below, WT Investments, WT Trust, and WT Asset Management have infringed and continue to infringe – directly, contributorily, and/or by active inducement – one or more claims of the '740 Patent by using the methods claimed in the '740 patent and/or selling products created by using said methods without authority and in violation of 35 U.S.C. § 271.

54. WT Investments has directly infringed and continues to directly

infringe at least claim 1 of the '740 Patent by performing, directing and/or controlling others to perform, or offering to perform one or more claims of the '740 Patent related to financial products that are based on fundamental factors and by making, using, selling, licensing, and/or offering to sell said financial products. Alternatively, WT Investments directly infringes and continues to directly infringe at least claim 1 of the '740 Patent by performing and directing and/or controlling others to perform one or more steps of one or more claims of the '740 Patent related to financial products that are based on fundamental factors and by making, using, selling, licensing, and/or offering to sell said financial products. Example financial products of WT Investments that are based on fundamental factors include the WT Indexes. As a direct and proximate result of WT Investments' direct infringement of the '740 Patent, Plaintiff has been and continues to be damaged.

55. WT Investments has indirectly infringed and continues to indirectly infringe at least claim 1 of the '740 Patent by actively inducing direct infringement by other persons. In particular, WT Investments has induced direct infringement by customers and partners of WT Investments, including without limitation index managers. The index managers perform one or more claims of the '740 Patent pursuant to contractual agreements with WT Investments and/or make, use, sell, license, or offer for sale financial products made by performing one or more of the claims of the '740 patent. WT Investments engaged in such inducement having knowledge of the '740 Patent. Furthermore, WT Investments knew or should have

known that its actions would induce direct infringement by others and intended that its actions would induce direct infringement by others. As a direct and proximate result of WT Investments' indirect infringement of the '740 Patent, Plaintiff has been and continues to be damaged.

56. WT Trust has indirectly infringed and continues to indirectly infringe at least claim 1 of the '740 Patent by actively inducing direct infringement by other persons. In particular, WT Trust has induced direct infringement by partners of WT Trust, including without limitation WT Investments. Partners of WT Trust perform one or more claims of the '740 Patent pursuant to contractual agreements with WT Trust. WT Trust engaged in such inducement with knowledge of the '740 Patent. Furthermore, WT Trust knew or should have known that its actions would induce direct infringement by others and intended that its actions would induce direct infringement by others. As a direct and proximate result of WT Trust's indirect infringement of the '740 Patent, Plaintiff has been and continues to be damaged.

57. WT Asset Management has indirectly infringed and continues to indirectly infringe at least claim 1 of the '740 Patent by actively inducing direct infringement by other persons. In particular, WT Asset Management has induced direct infringement by partners of WT Asset Management, including without limitation WT Investments. Partners of WT Asset Management perform one or more claims of the '740 Patent pursuant to contractual agreements with WT Asset Management. WT Asset Management engaged in such inducement with knowledge

of the '740 Patent. Furthermore, WT Asset Management knew or should have known that its actions would induce direct infringement by others and intended that its actions would induce direct infringement by others. As a direct and proximate result of WT Asset Management's indirect infringement of the '740 Patent, Plaintiff has been and continues to be damaged.

58. WT Investments, WT Trust, and WT Asset Management's acts of infringement have caused damage to RA LLC. RA LLC is entitled to recover from WT Investments, WT Trust, and WT Asset Management the damages that it has incurred as a result of the infringing acts under the theories of lost profits, reasonable royalty, and/or any other theory adequate to fully compensate RA LLC. Moreover, WT Investments, WT Trust, and WT Asset Management are still infringing the Patents-in-Suit and will continue to do so unless preliminarily and permanently enjoined by this Court.

59. On information and belief, WT Investments, WT Trust, and WT Asset Management have had notice of the '740 Patent. Despite having notice, WT Investments, WT Trust, and WT Asset Management have continued to infringe the '740 Patent despite an objectively high likelihood that their actions constituted infringement of a valid patent. On information and belief, the infringement of WT Investments, WT Trust, and WT Asset Management has been deliberate and willful.

PRAYER FOR RELIEF

RA LLC prays for the following judgment and relief:

A. Judgment that Defendants have infringed the '502 Patent;

B. Judgment that WT Investments, WT Trust, and WT Asset Management have infringed the '719 Patent and '740 Patent;

C. An award of preliminary and permanent injunction enjoining Defendants and their agents, servants, officers, directors, employees, and persons or entities acting in concert with Defendants, from infringing directly or indirectly, inducing others to infringe, and/or contributing to the infringement of the infringed Patents-in-Suit;

D. An award to RA LLC in an amount to be determined for the damages necessary to compensate it for Defendants' infringement of the Patents-in-Suit pursuant to 35 U.S.C. § 284;

E. An award to RA LLC of enhanced damages for the willful infringement of the Patents-in-Suit pursuant to 35 U.S.C. § 284;

F. An award to RA LLC of its attorneys' fees, costs, expert witness fees, and expenses incurred by it in connection with this action pursuant to 35 U.S.C. § 285;

G. Pre-judgment and post-judgment interest; and

H. Any other and further relief, both general and special, at law or in equity, to which RA LLC is entitled.

DEMAND FOR JURY TRIAL

Pursuant to Rule 38(b) of the Federal Rules of Civil Procedure, RA LLC hereby demands a trial by jury of all issues in this action.

Dated: December 1, 2011

WILSON SONSINI GOODRICH & ROSATI
Professional Corporation

By: _____
David S. Steuer
Natalie J. Morgan

Attorneys for Plaintiff
Research Affiliates, LLC

Of Counsel

JOSE C. VILLARREAL (*pro hac vice to be submitted*)
jvillarreal@wsgr.com
BRIAN D. RANGE (*pro hac vice to be submitted*)
brange@wsgr.com
ADEN M. ALLEN (*pro hac vice to be submitted*)
aallen@wsgr.com

WILSON SONSINI GOODRICH & ROSATI, P.C.
900 South Capital of Texas Hwy.
Las Cimas IV, Fifth Floor
Austin, TX 78746
Telephone: (512) 338-5400
Facsimile: (512) 338-5499

EXHIBIT A

US007747502B2

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

(10) **Patent No.: US 7,747,502 B2**
(45) **Date of Patent: Jun. 29, 2010**

(54) **USING ACCOUNTING DATA BASED INDEXING TO CREATE A PORTFOLIO OF ASSETS**

(75) Inventors: **Robert D. Arnott**, Pasadena, CA (US); **Paul Christopher Wood**, Waltham (GB)

(73) Assignee: **Research Affiliates, LLC**, Newport Beach, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 594 days.

(21) Appl. No.: **11/509,002**

(22) Filed: **Aug. 24, 2006**

(65) **Prior Publication Data**

US 2007/0055598 A1 Mar. 8, 2007

Related U.S. Application Data

(63) Continuation-in-part of application No. 11/196,509, filed on Aug. 4, 2005, now Pat. No. 7,620,577, which is a continuation-in-part of application No. 10/961,404, filed on Oct. 12, 2004, and a continuation-in-part of application No. 10/159,610, filed on Jun. 3, 2002.

(60) Provisional application No. 60/541,733, filed on Feb. 4, 2004, provisional application No. 60/751,212, filed on Dec. 19, 2005.

(51) **Int. Cl.**
G06Q 40/00 (2006.01)

(52) **U.S. Cl.** ..... **705/36 R**; 705/35

(58) **Field of Classification Search** ..... None
See application file for complete search history.

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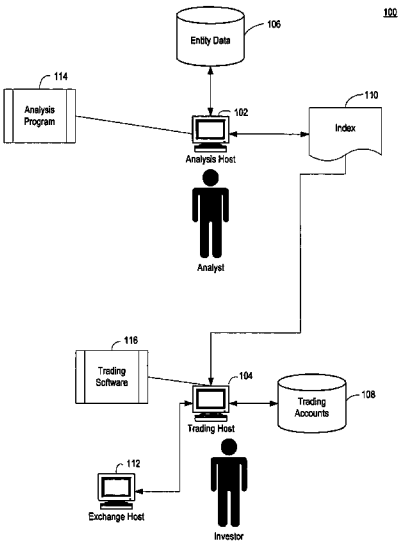
(Continued)

Primary Examiner—Alexander Kalinowski
Assistant Examiner—Gregory Johnson
(74) *Attorney, Agent, or Firm*—Albrecht Tousi & Farnum PLLC; Ralph P. Albrecht; Cameron H. Tousi

(57) **ABSTRACT**

A system, method and computer program product creates an index based on accounting based data, as well as a portfolio of financial objects based on the index where the portfolio is weighted according to accounting based data. A passive investment system may be based on indices created from various metrics. The indexes may be built with metrics other than market capitalization weighting, price weighting or equal weighting. Non-financial metrics may also be used to build indexes to create passive investment systems. Additionally, a combination of financial non-market capitalization metrics may be used along with non-financial metrics to create passive investment systems. Once the index is built, it may be used as a basis to purchase securities for a portfolio. Specifically excluded are widely-used capitalization-weighted indexes and price-weighted indexes, in which the price of a security contributes in a substantial way to the calculation of the weight of that security in the index or the portfolio, and equal weighting weighted indexes. Valuation indifferent indexes avoid overexposure to overvalued securities and underexposure to undervalued securities, as compared with conventional capitalization-weighted and price-weighted.

61 Claims, 5 Drawing Sheets



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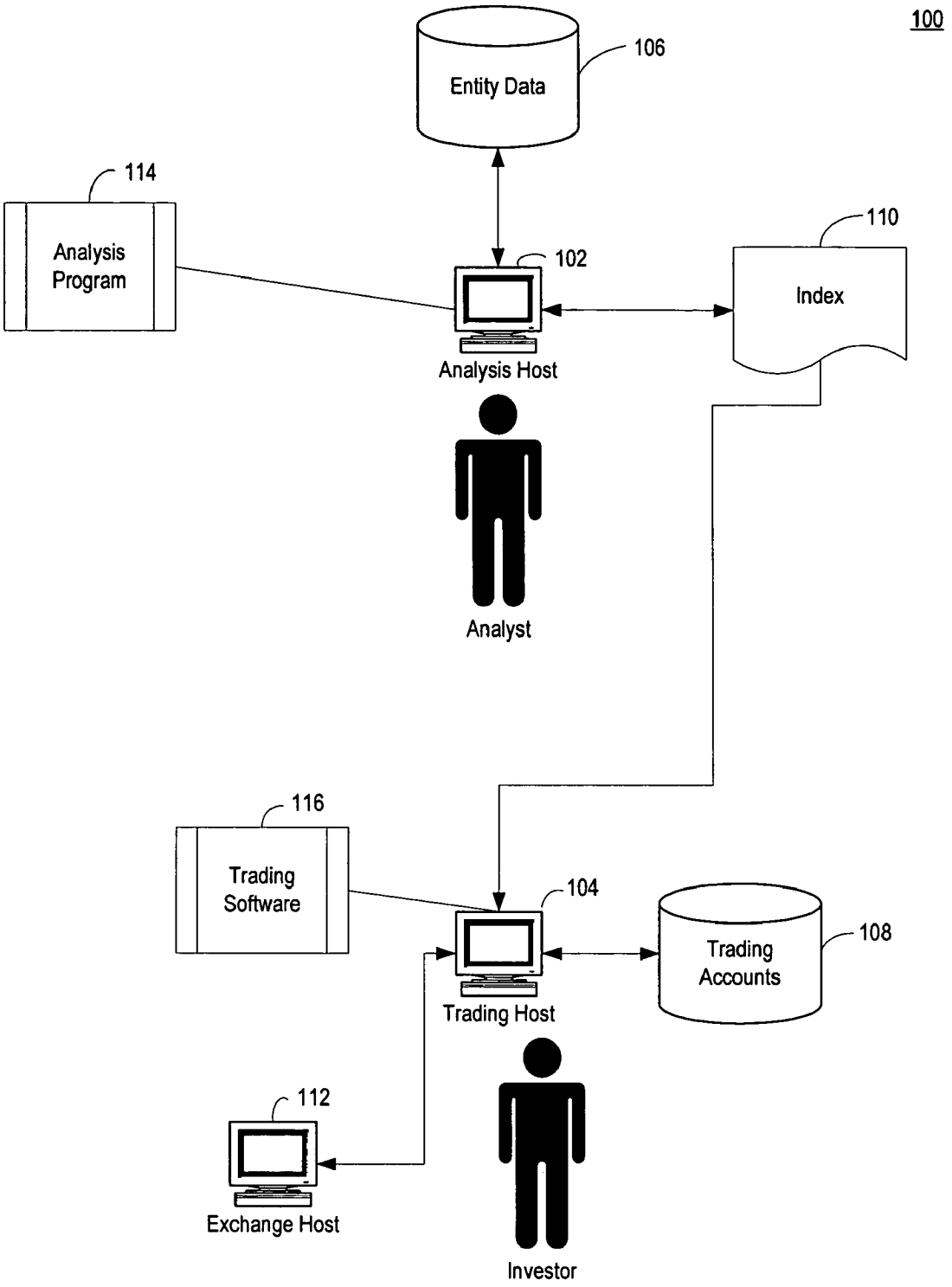
100
Entity Data
106
114
Analysis Program
102
110
Index
Analysis Host
Analyst
116
Trading Software
104
Trading Accounts
108
Trading Host
112
Exchange Host
Investor

FIG. 1

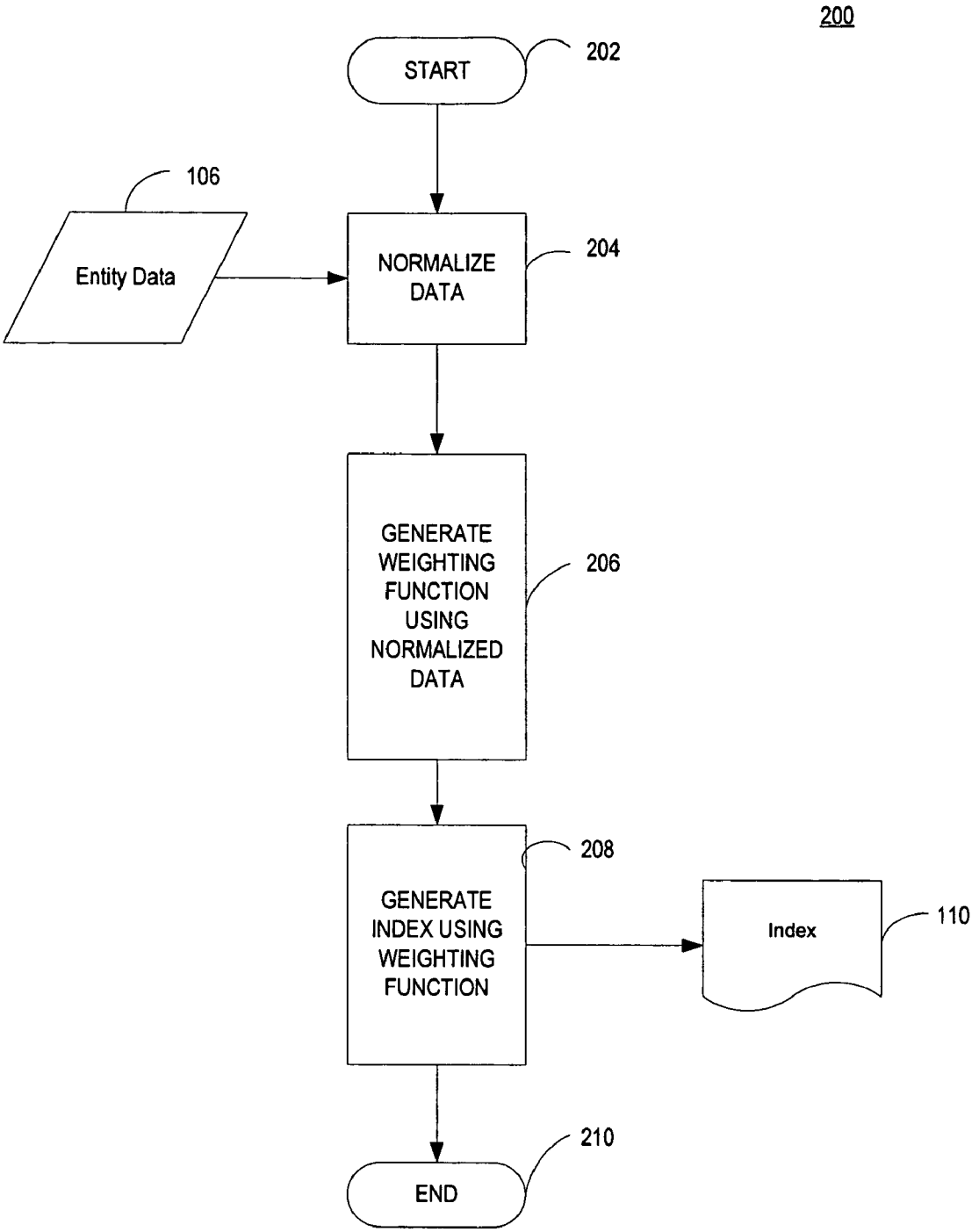
200
START
202
106
Entity Data
NORMALIZE DATA
204
GENERATE WEIGHTING FUNCTION USING NORMALIZED DATA
206
GENERATE INDEX USING WEIGHTING FUNCTION
208
Index
110
END
210

FIG. 2

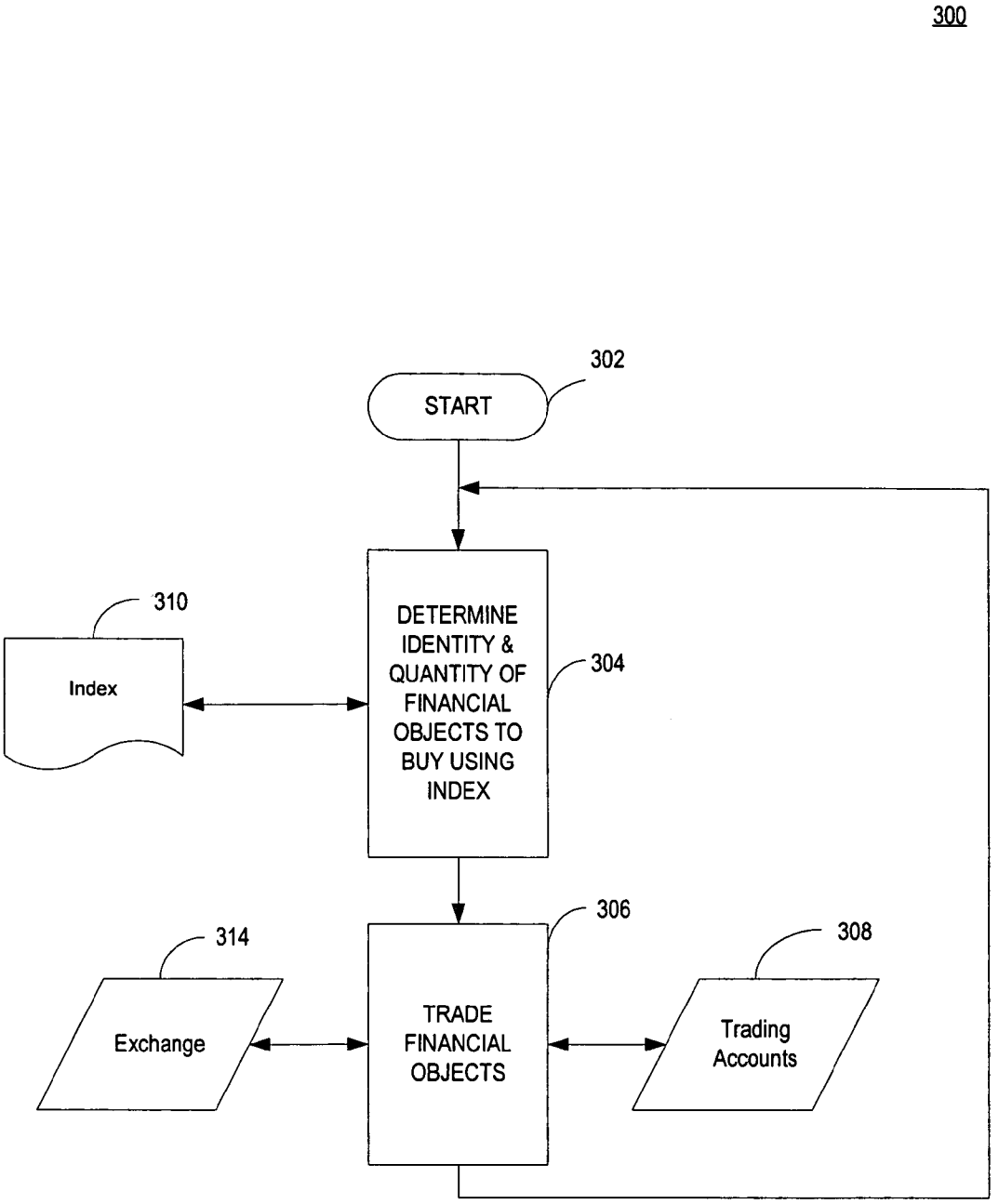
300
302
START
DETERMINE IDENTITY & QUANTITY OF FINANCIAL OBJECTS TO BUY USING INDEX
304
310
Index
306
TRADE FINANCIAL OBJECTS
308
Trading Accounts
314
Exchange

FIG. 3

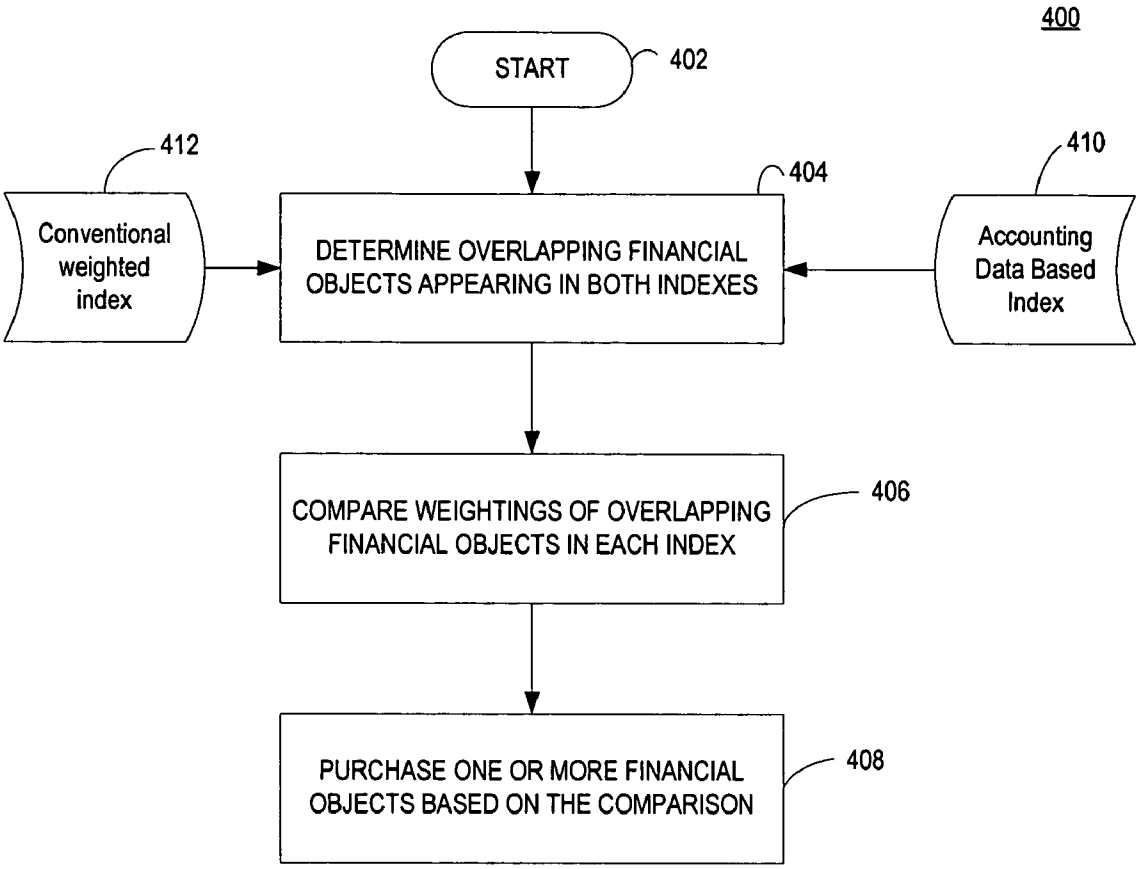
400
START
402
412
404
410
Conventional weighted index
DETERMINE OVERLAPPING FINANCIAL OBJECTS APPEARING IN BOTH INDEXES
Accounting Data Based Index
COMPARE WEIGHTINGS OF OVERLAPPING FINANCIAL OBJECTS IN EACH INDEX
406
PURCHASE ONE OR MORE FINANCIAL OBJECTS BASED ON THE COMPARISON
408

FIG. 4

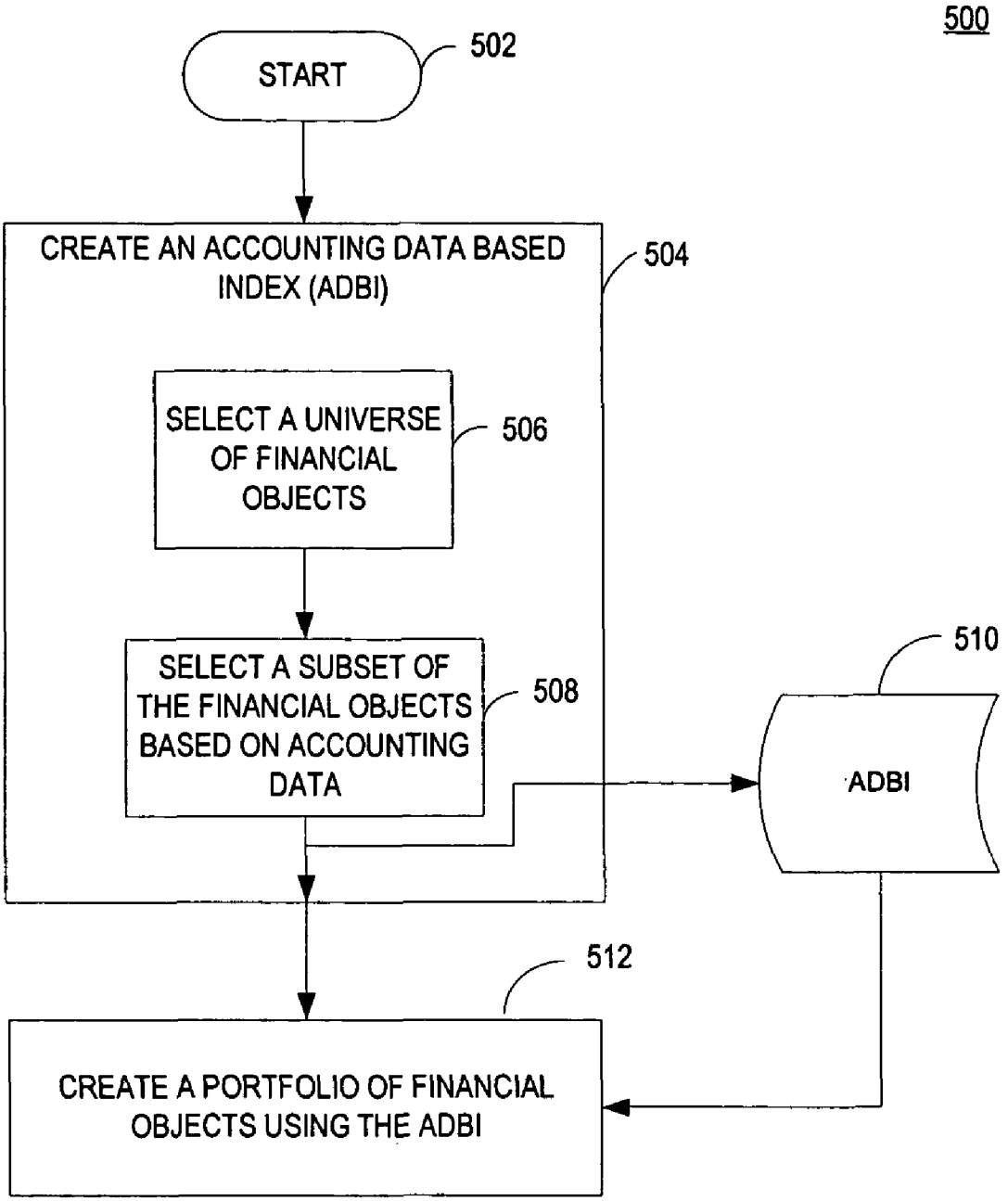
500
START
502
CREATE AN ACCOUNTING DATA BASED INDEX (ADBI)
504
SELECT A UNIVERSE OF FINANCIAL OBJECTS
506
SELECT A SUBSET OF THE FINANCIAL OBJECTS BASED ON ACCOUNTING DATA
508
510
ADBI
512
CREATE A PORTFOLIO OF FINANCIAL OBJECTS USING THE ADBI

FIG. 5

USING ACCOUNTING DATA BASED INDEXING TO CREATE A PORTFOLIO OF ASSETS

CROSS-REFERENCE TO RELATED APPLICATION

The present application claims the benefit of U.S. Patent Application No. 60/751,212, Confirmation No. 7679, filed Dec. 19, 2005 previously entitled "Using a Fundamental Index to Create a Portfolio of Assets," entitled "Using Accounting Data Based Indexing to Create a Portfolio of Assets" to Robert D. Arnott, of common assignee to the present invention, the contents of which are incorporated herein by reference in their entirety.

The present application also claims the benefit of and is also a continuation-in-part of U.S. patent application Ser. No. 11/196,509, filed Aug. 4, 2005, which is a continuation-in-part of U.S. patent application Ser. No. 10/961,404, entitled "Non-Capitalization Weighted Fundamental Indexing System, Method and Computer Program Product," to Arnott, filed Oct. 12, 2004, (which claims the benefit of U.S. Provisional Patent Application No. 60/541,733, entitled "Securities Indexing," to Arnott, and U.S. patent application Ser. No. 10/159,610, entitled "Fundamental Stock Market Index and Index Fund or Funds," filed Jun. 3, 2002, all of which are of common assignee to the present invention, and all of the contents of which are incorporated herein by reference in their entireties.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates generally to securities investing, and more particularly to construction and use of indexes and portfolios based on indexes.

2. Related Art

Conventionally, there are various broad categories of securities portfolio management. One conventional securities portfolio management category is active management wherein the securities are selected for a portfolio individually based on economic, financial, credit, and/or business analysis; on technical trends; on cyclical patterns; etc. Another conventional category is passive management, also called indexing, wherein the securities in a portfolio duplicate those that make up an index. The securities in a passively managed portfolio are conventionally weighted by relative market capitalization weighting or equal weighting. Another middle ground conventional category of securities portfolio management is called enhanced indexing, in which a portfolio's characteristics, performance and holdings are substantially dominated by the characteristics, performance and holdings of the index, albeit with modest active management departures from the index.

The present invention relates generally to the passive and enhanced indexing categories of portfolio management. A securities market index, by intent, reflects an entire market or a segment of a market. A passive portfolio based on an index may also reflect the entire market or segment. Often every security in an index is held in the passive portfolio. Sometimes statistical modeling is used to create a portfolio that duplicates the profile, risk characteristics, performance characteristics, and securities weightings of an index, without actually owning every security included in the index. (Examples could be portfolios based on the Wilshire 5000 Equity Index or on the Lehman Aggregate Bond Index.) Sometimes statistical modeling is used to create the index itself such that it duplicates the profile, risk characteristics, performance characteristics, and securities weightings of an entire class of securities. (The Lehman Aggregate Bond Index is an example of this practice.)

Indexes are generally all-inclusive of the securities within their defined markets or market segments. In most cases indexes may include each security in the proportion that its market capitalization bears to the total market capitalization of all of the included securities. The only common exceptions to market capitalization weighting are equal weighting of the included securities (for example the Value Line index or the Standard & Poors 500 Equal Weighted Stock Index, which includes all of the stocks in the S&P 500 on a list basis; each stock given equal weighting as of a designated day each year) and share price weighting, in which share prices are simply added together and divided by some simple divisor (for example, the Dow Jones Industrial Average). Conventionally, passive portfolios are built based on an index weighted using one of market capitalization weighting, equal weighting, and share price weighting.

Most commonly used stock market indices are constructed using a methodology that is based upon either the relative share prices of a sample of companies (such as the Dow Jones Industrial Average) or the relative market capitalization of a sample of companies (such as the S&P 500 Index or the FTSE 100 Index). The nature of the construction of both of these types of indices means that if the price or the market capitalization of one company rises relative to its peers it is accorded a larger weighting in the index. Alternatively, a company whose share price or market capitalization declines relative to the other companies in the index is accorded a smaller index weighting. This can create a situation where the index, index funds, or investors who desire their funds to closely track an index, are compelled to have a higher weighting in companies whose share prices or market capitalizations have already risen and a lower weighting in companies that have seen a decline in their share price or market capitalization.

Advantages of passive investing include: a low trading cost of maintaining a portfolio that has turnover only when an index is reconstituted, typically once a year; a low management cost of a portfolio that requires no analysis of individual securities; and no chance of the portfolio suffering a loss—relative to the market or market segment the index reflects—because of misjudgments in individual securities selection.

Advantages of using market capitalization weighting as the basis for a passive portfolio include that the index (and therefore a portfolio built on it) remains continually 'in balance' as market prices for the included securities change, and that the portfolio performance participates in (i.e., reflects) that of the securities market or market segment included in the index.

The disadvantages of market capitalization weighting passive indexes, which can be substantial, center on the fact that any under-valued securities are underweighted in the index and related portfolios, while any over-valued securities are over weighted. Also, the portfolio based on market capitalization weighting follows every market (or segment) bubble up and every market crash down. Finally, in general, portfolio securities selection is not based on a criteria that reflects a better opportunity for appreciation than that of the market or market segment overall.

Most commonly used stock market indices are constructed using a methodology that is based upon either the relative share prices of a sample of companies (such as the Dow Jones Industrial Average) or the relative market capitalization of a sample of companies (such as the S&P 500 Index or the FTSE 100 Index). The nature of the construction of both of these types of indices means that if the price or the market capitali-

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Price or market capitalization based indices can contribute to a 'herding' behavior on the behalf of investors by effectively compelling any of the funds that attempt to follow these indices to have a larger weighting in shares as their price goes up and a lower weighting in shares that have declined in price. This creates unnecessary volatility, which is not in the interests of most investors. It may also lead to investment returns that have had to absorb the phenomenon of having to repeatedly increase weightings in shares after they have risen and reduce weightings in them after they have fallen.

Capitalization-weighted indexes ("cap-weighted indexes") dominate the investment industry today, with approximately $2 trillion currently invested. Unfortunately, cap-weighted indexes suffer from an inherent flaw as they overweight all overvalued stocks and underweight all undervalued stocks. This causes cap-weighted indexes to underperform relative to indexes that are immune to this shortcoming. In addition, cap-weighted indexes are vulnerable to speculative bubbles and emotional bear markets which may unnaturally drive up or down stock prices respectively.

It is a well established empirical conclusion of investment theory that cap-weighting is not mean-variance optimal. This conclusion holds because weighting schemes based on market price, including cap-weighting, overweight 100% of overvalued stocks and underweight 100% of undervalued stocks. Both mathematically and empirically, this over and under weighting problem inherent to cap-weighting leads to a return drag of 200 bps per year in the U.S. and more than 200 bps per year internationally.

One example of the phenomenon comes from the recent stock market bubble of 1997-2000, when, e.g., Internet network service provider Cisco comprised nearly 5% of the S&P 500. At its peak in 2000, Cisco traded at $70 per share. Since March 2000, Cisco has fallen to approximately 12% of its peak, dragging down S&P 500 performance of which it comprised 5%.

While it is difficult or impossible to know the true fair value of a company, what is known is that if an overvalued company's weight in an index is determined by market capitalization, then the company will be over-weighted in the index. Conversely, if a company's weight is determined by market capitalization and it is undervalued, it will be underweighted in a capitalization-weighted index.

Over the past 40 years, the largest stock by market capitalization in the S&P 500 has underperformed the average stock in the index over a 10-year time period by an average of 40%. The largest 10 stocks by market capitalization have underperformed the average stock over the subsequent 10-year time frame by an average of 26%. Yet, cap-weighted indexes continue to invest 20-30% of their value in the largest 10 stocks by market cap, despite the fact that they underperform the average stock in the index, because the stocks are selected and weighted using market capitalization, which by its nature over-weights over valued stocks and under-weights undervalued stocks.

Equal-weighted indexation is a popular alternative to cap-weighting but one that suffers from its own shortcomings. One significant problem with equal-weighted indexes is that they come out of the same cap-weighted universes as cap-weighted indexes. For example, the S&P Equal Weighted Index simply re-weights the 500 equities that comprise the S&P 500, retaining the bias already inherent to cap-weighted indexes.

High turnover and associated high costs are additional problems of equal-weighted indexes. Equal-weighted indexes include small illiquid stocks, which are required to be held in equal proportion to the larger, more liquid stocks in the index. These small illiquid stocks must be traded as often as the larger stocks but at a higher cost because they are less liquid.

What is needed then is an improved method of weighting financial objects in a portfolio based on an index that overcomes shortcomings of conventional solutions.

SUMMARY OF THE INVENTION

In an exemplary embodiment of the present invention a system, method and computer program product for index construction and/or portfolio weighting is disclosed.

Exemplary embodiments of the present invention may use accounting data based indexing, i.e., accounting data based measures of firm size, rather than market capitalization, to construct a stock index. By avoiding the inherent valuation bias of cap-weighted indexes, accounting data based indexes (ADBI) may outperform cap-weighted indexes by as much as 200 bps in the US and by more than 250 bps internationally, based on extensive back testing (to 1962 in the US and to 1988 internationally).

An exemplary embodiment may use four specific metrics in ADBI construction: book equity value; income (free cash flow); sales; and gross dividends. An ADBI construction strategy may offer several advantages. For example, ADBI may outperform cap-weighted indexes. Additionally, ADBI may be adaptable to distinct strategies. ADBI may be used to construct either large or small company indexes, industry sector indexes, geographic indexes and others. ADBI may also effectively limit portfolio risk by providing the benefits of traditional cap-weighted indexes, including diversification, broad market participation, liquidity and low turnover, while generating incrementally higher returns with somewhat lower volatility than comparable cap-weighted indexes. ADBI may also provide protection against market bubbles and fads because a stock's weight in the index is immune to errors in stock valuation.

In an exemplary embodiment, the present invention may be a method of constructing a portfolio of financial objects, including the steps of: purchasing a portfolio of a plurality of mimicking financial objects to obtain and/or create a mimicking portfolio, where performance of the portfolio of mimicking financial objects substantially mirrors the performance of an accounting data based index based portfolio without substantially replicating the accounting data based index based portfolio.

The embodiment may further include: obtaining and/or using a risk model for the portfolio of mimicking financial objects, where the risk model mirrors a risk model of the accounting data based index.

The performance of the portfolio of mimicking financial objects may substantially mirror the performance of the accounting data based index based portfolio without substantially replicating financial objects and/or weightings in the accounting data based index based portfolio. The risk model may be substantially similar to the Fama-French factors,

where the Fama-French factors may include at least one of size effect, value effect, and/or momentum effect.

A financial object may include: at least one unit of interest in at least one of: an asset; a liability; a tracking portfolio; a financial instrument and/or a security, where the financial instrument and/or the security denotes a debt, an equity interest, and/or a hybrid; a derivatives contract, including at least one of: a future, a forward, a put, a call, an option, a swap, and/or any other transaction relating to a fluctuation of an underlying asset, notwithstanding the prevailing value of the contract, and notwithstanding whether such contract, for purposes of accounting, is considered an asset or liability; a fund; and/or an investment entity or account of any kind, including an interest in, or rights relating to: a hedge fund, an exchange traded fund (ETF), a fund of funds, a mutual fund, a closed end fund, an investment vehicle, and/or any other pooled and/or separately managed investments.

In another exemplary embodiment, the present invention may be a method of constructing a portfolio of financial objects, including the steps of: purchasing a plurality of financial objects according to weightings substantially similar to the weightings of an accounting data based index, where performance of the plurality of financial objects substantially mirrors the performance of the accounting data based index without using substantially the same financial objects in the accounting data based index.

The financial object may include: at least one unit of interest in at least one of: an asset; a liability; a tracking portfolio; a financial instrument and/or a security, where the financial instrument and/or the security denotes a debt, an equity interest, and/or a hybrid; a derivatives contract, including at least one of: a future, a forward, a put, a call, an option, a swap, and/or any other transaction relating to a fluctuation of an underlying asset, notwithstanding the prevailing value of the contract, and notwithstanding whether such contract, for purposes of accounting, is considered an asset or liability; a fund; and/or an investment entity or account of any kind, including an interest in, or rights relating to: a hedge fund, an exchange traded fund (ETF), a fund of funds, a mutual fund, a closed end fund, an investment vehicle, and/or any other pooled and/or separately managed investments.

In another exemplary embodiment, the present invention may be a method of constructing a portfolio of financial objects, including the steps of: determining overlapping financial objects appearing in both an accounting data based index (ADBI) and a conventional weighted index, where the conventionally weighted index may includes an index weighted based on at least one of capitalization, equal weighting, and/or share price weighting, and where the ADBI may includes weighting based on at least one accounting data based factor and not based on any of capitalization, equal weighting, and/or share price weighting index; comparing weightings of the overlapping financial objects in the ADBI with weightings of the overlapping financial objects in the conventionally weighted index; and purchasing at least one financial object based on the comparing.

The purchasing may include at least one of: purchasing a long position in at least one overlapping financial object when the comparing indicates the at least one overlapping financial object is over weighted in the non-capitalization weighted index relative to the conventional index; and/or purchasing a short position in at least one overlapping financial object when the comparing indicates the at least one overlapping financial object is underweighted in the non-capitalization weighted index relative to the conventional index.

The purchasing of the long and/or short positions may be implemented by using total return swaps. The long and/or short positions may be held for one year.

The embodiment may further include rebalancing the portfolio. The rebalancing may include: at least one of creating new long and/or short positions using cash flow from new capital contributions, and/or altering existing long and/or short positions using cash flow from new capital contributions.

The embodiment may further include using leverage to obtain the long and/or short positions.

The comparing may include calculating a difference between the weightings, and/or calculating a difference between arithmetically modified values of the weightings. The arithmetically modified values of the weightings may include square roots of the weightings.

The comparing may include calculating a difference based on tiers of weightings using stratified sampling.

The financial object may include: at least one unit of interest in at least one of: an asset; a liability; a tracking portfolio; a financial instrument and/or a security, where the financial instrument and/or the security denotes a debt, an equity interest, and/or a hybrid; a derivatives contract, including at least one of: a future, a forward, a put, a call, an option, a swap, and/or any other transaction relating to a fluctuation of an underlying asset, notwithstanding the prevailing value of the contract, and notwithstanding whether such contract, for purposes of accounting, is considered an asset or liability; a fund; and/or an investment entity or account of any kind, including an interest in, or rights relating to: a hedge fund, an exchange traded fund (ETF), a fund of funds, a mutual fund, closed end fund, an investment vehicle, and/or any other pooled and/or separately managed investments.

In another exemplary embodiment, the present invention may be a method of constructing a portfolio of financial objects, including the steps of: determining non-overlapping financial objects appearing in only one of either an accounting data based index (ADBI) or a conventional weighted index by comparing financial objects in an ADBI with financial objects in a conventionally weighted index, where the conventionally weighted index may includes conventionally weighting based on at least one of capitalization, equal weighting, and/or share price weighting, and where the ADBI may includes accounting data based weighting on at least one accounting data based factor and not based on any of capitalization, equal weighting, and/or share price weighting index; weighting the non-overlapping financial objects appearing only in the ADBI by accounting data based weighting; weighting the non-overlapping financial objects appearing only in the conventionally weighted index by the conventional weighting; and purchasing financial objects based on the weightings.

The accounting data based weighting may include: (a) gathering data about a plurality of financial objects; (b) selecting a plurality of financial objects to create an index of financial objects; and (c) weighting each of the plurality of financial objects selected in the index based on an objective measure of scale based on accounting data of a company associated with each of the plurality of financial objects, where the weighting may include: (i) weighting at least one of the plurality of financial objects based on accounting data; and (ii) weighting other than weighting based on at least one of market capitalization, equal weighting, and/or share price weighting.

The embodiment may further include weighting each of the plurality of financial objects, where the each of the financial objects may include: at least one unit of interest in at least

one of: an asset; a liability; a tracking portfolio; a financial instrument and/or a security, where the financial instrument and/or the security denotes a debt, an equity interest, and/or a hybrid; a derivatives contract, including at least one of: a future, a forward, a put, a call, an option, a swap, and/or any other transaction relating to a fluctuation of an underlying asset, notwithstanding the prevailing value of the contract, and notwithstanding whether such contract, for purposes of accounting, is considered an asset or liability; a fund; and/or an investment entity or account of any kind, including an interest in, or rights relating to: a hedge fund, an exchange traded fund (ETF), a fund of funds, a mutual fund, closed end fund, an investment vehicle, and/or any other pooled and/or separately managed investments.

The embodiment may further include weighting each of the plurality of financial objects, where the each of the financial objects may include a stock.

The objective measures of scale may include weighting based on any dividends, book value, cash flow, and/or revenue. The embodiment may further include equally weighting each objective measure of scale.

The embodiment may further include weighting based on the objective measure of scale, where the objective measure of scale may include a measure of company size associated with each of the plurality of financial objects.

The measure of company size may include at least one of: inventory, revenue, sales, income, book income, taxable income, earnings growth rate, earnings before interest and tax (EBIT), earnings before interest, taxes, depreciation and amortization (EBITDA), retainer earnings, number of employees, capital expenditures, salaries, book value, assets, fixed assets, current assets, quality of assets, operating assets, intangible assets, dividends, gross dividends, dividend yields, cash flow, liabilities, losses, long term liabilities, short term liabilities, liquidity, long term debt, short term debt, bonds, corporate bonds, net worth, shareholder equity, goodwill, research and development expenditures, costs, cost of goods sold (COGS), and/or research and development costs.

The financial object may include: at least one unit of interest in at least one of: an asset; a liability; a tracking portfolio; a financial instrument and/or a security, where the financial instrument and/or the security denotes a debt, an equity interest, and/or a hybrid; a derivatives contract, including at least one of: a future, a forward, a put, a call, an option, a swap, and/or any other transaction relating to a fluctuation of an underlying asset, notwithstanding the prevailing value of the contract, and notwithstanding whether such contract, for purposes of accounting, is considered an asset or liability; a fund; and/or an investment entity or account of any kind, including an interest in, or rights relating to: a hedge fund, an exchange traded fund (ETF), a fund of funds, a mutual fund, a closed end fund, an investment vehicle, and/or any other pooled and/or separately managed investments.

In another exemplary embodiment, the present invention may be a method, executed on a data processing system, including the steps of: creating an accounting data based index (ADBI) based on accounting data including: selecting a universe of financial objects, and selecting a subset of the universe based on the accounting data to obtain the ADBI; creating a portfolio of financial objects using the ADBI, including weighting the financial objects in the portfolio according to a measure of value of a company associated with each financial object in the portfolio.

The universe may include at least one of: a sector; a market; a market sector; an industry sector; a geographic sector; an international sector; a sub-industry sector; a government issue; and/or a tax exempt financial object.

The accounting based data used in weighting as a measure of value of the company associated with the financial object, may include at least one of: any dividends; revenue; cash flow; and/or book value.

The accounting based data may be weighted relatively dependent on the geography of the company associated with the financial object.

The financial object may include: at least one unit of interest in at least one of: an asset; a liability; a tracking portfolio; a financial instrument and/or a security, where the financial instrument and/or the security denotes a debt, an equity interest, and/or a hybrid; a derivatives contract, including at least one of: a future, a forward, a put, a call, an option, a swap, and/or any other transaction relating to a fluctuation of an underlying asset, notwithstanding the prevailing value of the contract, and notwithstanding whether such contract, for purposes of accounting, is considered an asset or liability; a fund; and/or an investment entity or account of any kind, including an interest in, or rights relating to: a hedge fund, an exchange traded fund (ETF), a fund of funds, a mutual fund, a closed end fund, an investment vehicle, and/or any other pooled and/or separately managed investments.

In another exemplary embodiment, the present invention may be a computer-implemented method for construction and management of an index and at least one index fund containing a portfolio of financial objects based on the index, where weighting of the index is based on accounting based data rather than on stock prices or market capitalization or equal weighting, the computer-implemented method including the steps of: creating an index, and at least one index fund containing a portfolio of financial objects, where the constituent weightings of the companies issuing the financial objects in the index fund are based upon accounting based data regarding the companies associated with the financial objects, where the accounting based data may includes any dividends, cash flow, revenues, and/or book value.

The embodiment may further include: creating the index, and the at least one index fund containing a portfolio of financial objects where the constituent weightings are based upon any ratio of accounting based data, or any manipulation of accounting based data, that is contained within a standard company annual report and accounts.

The embodiment may further include: creating the index, and the at least one index fund containing a portfolio of financial objects where the constituent weightings are based upon any ratio of accounting based data per share, or any manipulation of accounting based data, that is contained within a standard company annual report and accounts.

The embodiment may further include: managing an accounting based data index, and at least one index fund containing a portfolio of financial objects based on the index including: altering the relative weightings of the financial objects within the at least one index fund as the accounting based data concerning the companies associated with the financial objects changes.

The altering may include at least one of: altering based on at least one of: changes in relative weightings of financial objects in the index; and/or changes in the financial objects that are members of the index outside the sample changes; and/or altering at the time of at least one of when, and/or after at least one company associated with a financial object of the index reports its accounting information.

The financial object may include: at least one unit of interest in at least one of: an asset; a liability; a tracking portfolio; a financial instrument and/or a security, where the financial instrument and/or the security denotes a debt, an equity interest, and/or a hybrid; a derivatives contract, including at least

one of: a future, a forward, a put, a call, an option, a swap, and/or any other transaction relating to a fluctuation of an underlying asset, notwithstanding the prevailing value of the contract, and notwithstanding whether such contract, for purposes of accounting, is considered an asset or liability; a fund; and/or an investment entity of any kind, including an interest in, or rights relating to: a hedge fund, an exchange traded fund (ETF), a fund of funds, a mutual fund, an investment vehicle, and/or any other pooled and/or separately managed investments.

The measure of company size may include at least one of: a financial ratio of a company; a ratio of accounting based data; a ratio of accounting based data per share; a ratio of a first accounting based data to a second accounting based data; a liquidity ratio; a working capital ratio; a current ratio; a quick ratio; a cash ratio; an asset turnover ratio; a receivables turnover ratio; an average collection period ratio; an average collection period ratio; an inventory turnover ratio; an inventory period ratio; a leverage ratio; a debt ratio; a debt-to-equity ratio; an interest coverage ratio; a profitability ratio; a return on common equity (ROCE) ratio; profit margin ratio; an earnings per share (EPS) ratio; a gross profit margin ratio; a return on assets ratio; a return on equity ratio; a dividend policy ratio; a dividend yield ratio; a payout ratio; a capital market analysis ratio; a price to earnings (PE) ratio; and/or a market to book ratio.

Further features and advantages of the invention, as well as the structure and operation of various embodiments of the invention, are described in detail below with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

The foregoing and other features and advantages of the invention will be apparent from the following, more particular description of exemplary embodiments of the invention, as illustrated in the accompanying drawings. In the drawings, like reference numbers generally indicate identical, functionally similar, and/or structurally similar elements. The drawing in which an element first appears is indicated by the leftmost digits in the corresponding reference number. A preferred exemplary embodiment is discussed below in the detailed description of the following drawings:

FIG. **1** is a deployment diagram of an index generation and use process in accordance with an exemplary embodiment of the present invention;

FIG. **2** is a process flow diagram of an index generation process in accordance with an exemplary embodiment of the present invention;

FIG. **3** is a process flow diagram of an index use process in accordance with an exemplary embodiment of the present invention;

FIG. **4** is a process flow diagram of a method of creating a portfolio of financial objects; and

FIG. **5** is a process flow diagram of a method of constructing an ADBI and a portfolio of financial objects using the ADBI.

DETAILED DESCRIPTION OF EMBODIMENTS OF THE PRESENT INVENTION

Various exemplary embodiments of the invention are discussed in detail below including a preferred embodiment. While specific implementations are discussed, it should be understood that this is done for illustration purposes only. A person skilled in the relevant art can recognize that other components, configurations, accounting data, and ratios may be used without parting from the spirit and scope of the invention.

An exemplary embodiment of the invention may be implemented on a computing device(s), processor(s), computer(s) and/or communications device(s).

The computer, in an exemplary embodiment, may comprise one or more central processing units (CPUs) or processors, which may be coupled to a bus. The processor may, e.g., access main memory via the bus. The computer may be coupled to an input/output (I/O) subsystem such as, e.g., but not limited to, a network interface card (NIC), or a modem for access to a network. The computer may also be coupled to a secondary memory directly via bus, or via a main memory, for example. Secondary memory may include, e.g., but not limited to, a disk storage unit or other storage medium. Exemplary disk storage units may include, but are not limited to, a magnetic storage device such as, e.g., a hard disk, an optical storage device such as, e.g., a write once read many (WORM) drive, or a compact disc (CD), or a magneto optical device. Another type of secondary memory may include a removable disk storage device, which may be used in conjunction with a removable storage medium, such as, e.g. a CD-ROM, a floppy diskette or flash drive, etc. In general, the disk storage unit may store an application program for operating the computer system referred to commonly as an operating system. The disk storage unit may also store documents of a database (not shown). The computer may interact with the I/O subsystems and disk storage unit via bus. The bus may also be coupled to a display for output, and input devices such as, but not limited to, a keyboard and a mouse or other pointing/selection device.

In this document, the terms "computer program medium" and "computer readable medium" may be used to generally refer to media such as, e.g., but not limited to, a removable storage drive, a hard disk installed in hard disk drive, and signals, etc. These computer program products may provide software to the computer system. The invention may be directed to such computer program products.

References to "one embodiment," "an embodiment," "example embodiment," "various embodiments," etc., may indicate that the embodiment(s) of the invention so described may include a particular feature, structure, or characteristic, but not every embodiment necessarily includes the particular feature, structure, or characteristic. Further, repeated use of the phrase "in one embodiment," or "in an exemplary embodiment," do not necessarily refer to the same embodiment, although they may.

In the following description and claims, the terms "coupled" and "connected," along with their derivatives, may be used. It should be understood that these terms are not intended as synonyms for each other. Rather, in particular embodiments, "connected" may be used to indicate that two or more elements are in direct physical or electrical contact with each other. "Coupled" may mean that two or more elements are in direct physical or electrical contact. However, "coupled" may also mean that two or more elements are not in direct contact with each other, but yet still co-operate or interact with each other.

An algorithm is here, and generally, considered to be a self-consistent sequence of acts or operations leading to a desired result. These include physical manipulations of physical quantities. Usually, though not necessarily, these quantities take the form of electrical or magnetic signals capable of being stored, transferred, combined, compared, and otherwise manipulated. It has proven convenient at times, principally for reasons of common usage, to refer to these signals as bits, values, elements, symbols, characters, terms,

numbers or the like. It should be understood, however, that all of these and similar terms are to be associated with the appropriate physical quantities and are merely convenient labels applied to these quantities.

Unless specifically stated otherwise, as apparent from the following discussions, it is appreciated that throughout the specification discussions utilizing terms such as "processing," "computing," "calculating," "determining," or the like, refer to the action and/or processes of a computer or computing system, or similar electronic computing device, that manipulate and/or transform data represented as physical, such as electronic, quantities within the computing system's registers and/or memories into other data similarly represented as physical quantities within the computing system's memories, registers or other such information storage, transmission or display devices.

In a similar manner, the term "processor" may refer to any device or portion of a device that processes electronic data from registers and/or memory to transform that electronic data into other electronic data that may be stored in registers and/or memory. A "computing platform" may comprise one or more processors.

Embodiments of the present invention may include apparatuses for performing the operations herein. An apparatus may be specially constructed for the desired purposes, or it may comprise a general purpose device selectively activated or reconfigured by a program stored in the device.

Constructing Accounting Data Based Indexes

A financial object, as discussed herein, may include at least one unit of interest in an asset; a liability; a tracking portfolio; and/or a financial instrument and/or a security, where the financial instrument and/or security denotes a debt, an equity interest, and/or a hybrid. A financial object, as discussed herein, may also include at least one unit of interest in a derivatives contract, including but not limited to at least one of: a future, a forward, a put, a call, an option, a swap, or other financial instrument whose price is derived from the price of the underlying financial asset, and/or any other transaction relating to a fluctuation of an underlying asset, notwithstanding the prevailing value of the contract, and notwithstanding whether such contract, for purposes of accounting, is considered an asset or liability. A financial object, as discussed herein, may also include at least one unit of interest in a fund; and/or in an investment entity or account of any kind, including an interest in, or rights relating to: a hedge fund, an exchange traded fund (ETF), a fund of funds, a mutual fund, a closed end fund, an investment vehicle, and/or any other pooled and/or separately managed investments.

FIG. **1** depicts an exemplary deployment diagram **100** of an index generation and use process in accordance with an exemplary embodiment of the present invention. According to the exemplary embodiment, an analyst may use a computer system **102** to generate an index **110**. The analyst may do so by using analysis software **114** to examine data **106** about entities offering different kinds of financial objects that may be traded by investors. An example of an entity that may be offering financial objects may be a publicly held company whose shares trade on an exchange. However, the present invention also applies to any entity that may have any type of financial object that may be traded where information about the entity and/or its financial objects is available (or capable of being made available) for analysis.

In an exemplary embodiment, once index **110** has been generated by an analyst using the entity data **106**, index **110** may be used to build investment portfolios. An investor, advisor, manager or broker may then manage the purchased financial objects as a mutual fund, an electronic traded fund, a hedge fund or other portfolio or account of assets for one or for a plurality of individual and/or institutional investors. The investor, advisor, manager or broker may use a trading computer **104** with trading software **116** to manage one or more trading accounts **108**. Alternatively, the purchased financial objects may be managed for one or more investors. In the latter case, financial objects may be purchased based on the index for inclusion in an individual or an institutional investor's portfolio. One or more trades may be effected or closed in cooperation with and via communication with an exchange host **112**.

FIG. **2** depicts an exemplary process flow diagram **200** of an index generation process in accordance with an exemplary embodiment of the present invention. In an exemplary embodiment, starting at block **202**, to generate index **110**, an analyst using analysis software **114** may access entity data **106** about various entities that have financial objects that are traded. For example, publicly traded companies must disclose information about certain financial aspects of their operations. This information may be aggregated for a plurality of entities. Market sectors and corresponding indices may then be identified and generated using the aggregate data.

In slightly more detail, an index **110** may be generated by normalizing entity data for a particular non-market capitalization metric in block **204**. The normalized entity data may be used to generate a weighting function, in block **206**, describing the contribution of each entity to a business sector as defined by the metric, in an exemplary embodiment. Index **110** may be generated using the weighting function in block **208**. The process ends at block **210**. Once index **110** is generated, according to an exemplary embodiment, index **110** may be used to track the business sector defined by the metric or to create a portfolio of financial objects offered by the entities whose information was used to generate the index.

For example, in an exemplary embodiment of the invention a method of constructing a non-capitalization weighted portfolio of financial objects may include, e.g., gathering data about various financial objects; selecting a group of financial objects to create the index of financial objects; and weighting each of the group of financial objects selected in the index based on an objective measure of scale of each member of the group of financial objects, where the weighting may include weighting all or a subset of the group of financial objects, and weighting based on other than market capitalization, equal weighting, or share price weighting.

In one exemplary embodiment, the weighting of each member of the group of financial objects, may include weighting financial objects of any of various types. Examples of various types of financial objects may include, e.g., but not limited to, a stock type; a commodity type; a futures contract type; a bond type; a mutual fund type; a hedge fund type; a fund of funds type; an exchange traded fund (ETF) type; a derivative type asset, and any other portfolio or account of financial objects. The weighting may also include, e.g., but not limited to, a negative weighting on any of the various types of financial objects.

According to exemplary embodiments of the present invention, the index **110** may be weighted based on an objective measure of scale, where the objective measure of scale may include a measure relating to an underlying asset itself. The financial object may include a municipality, a municipality issuing bonds, or a commodity. An objective measure of scale associated with the financial object may include any combination or ratios of: revenue, profitability, sales, total sales, foreign sales, domestic sales, net sales, gross sales, profit margin, operating margin, retained earnings, earnings

per share, book value, book value adjusted for inflation, book value adjusted for replacement cost, book value adjusted for liquidation value, dividends, assets, tangible assets, intangible assets, fixed assets, property, plant, equipment, goodwill, replacement value of assets, liquidation value of assets, liabilities, long term liabilities, short term liabilities, net worth, research and development expense, accounts receivable, earnings before interest, taxes, dividends, and amortization (EBITDA), accounts payable, cost of goods sold (CGS), debt ratio, budget, capital budget, cash budget, direct labor budget, factory overhead budget, operating budget, sales budget, inventory method, type of stock offered, liquidity, book income, tax income, capitalization of earnings, capitalization of goodwill, capitalization of interest, capitalization of revenue, capital spending, cash, compensation, employee turnover, overhead costs, credit rating, growth rate, dividends, dividends per share, dividend yields, tax rate, liquidation value of company, capitalization of cash, capitalization of earnings, capitalization of revenue, cash flow, and/or future value of expected cash flow.

Ratios too may be used. In an exemplary embodiment, the weighting of financial objects in the index based on objective measures of scale may include a ratio of any combination of the objective measures of scale of the financial object other than ratios based on weighting the financial objects based on market capitalization, equal weighting, or share price weighting. For example, the ratio of any combination of the objective measures of scale may include, e.g., but not limited to, current ratio, debt ratio, overhead expense as a percent of sales, or debt service burden ratio.

In an exemplary embodiment, the portfolio of financial objects may include, e.g., but not limited to, one or more of, a fund; a mutual fund; a fund of funds; an asset account; an exchange traded fund (ETF); a separate account, a pooled trust; a limited partnership or other legal entity, fund or account.

In an exemplary embodiment, a measure of company size may include one of, or a combination of one or more of, gross revenue, sales, income, earnings before interest and tax (EBIT), earnings before interest, taxes, depreciation and amortization (EBITDA), number of employees, book value, assets, liabilities, net worth, cash flow or dividends.

In one exemplary embodiment, the measure of company size may include a demographic measure of the financial object. The demographic measure of the financial object may include, e.g., one of, or any combination of one or more of a non-financial metric, a non-market related metric, a number of employees, floor space, office space, or other demographics of the financial object.

In an exemplary embodiment, weighting may be based on the objective measure of scale, where the measure may include a geographic metric. The geographic metric in an exemplary embodiment may include a geographic metric other than gross domestic product (GDP) weighting.

FIG. **3** depicts an exemplary process flow diagram **300** of an index use process in accordance with an exemplary embodiment of the present invention. The process starts at block **302**. An index **310** may be received from an index generation process and may be used to determine the identity and quantity of securities to purchase for a portfolio in block **304**, according to an exemplary embodiment. The securities may be purchased, in block **306**, from an exchange **314** or other market and may be held on account for an investor or group of investors in trading accounts **308**. The index **310** may be updated on, e.g., but not limited to, a periodic basis and may be used as a basis to rebalance the portfolio, according to an exemplary embodiment. According to another exemplary embodiment, the portfolio can be rebalanced when, e.g., a pre-determined threshold is reached. In this way, a portfolio may be created and maintained based on a non-market capitalization index.

Rebalancing can be based on financial objects reaching a threshold condition or value. For example, but not limited to, rebalancing may occur upon reaching a threshold such as, e.g., 'when the portfolio of financial objects increases in market value by 20%,' or 'when the financial objects on a sub-category within the portfolio exceed 32% of the size of the portfolio,' or 'when a U.S. President is elected from a different party than the incumbent,' etc. Rebalancing may take place periodically, e.g., quarterly, or annually.

The present invention, in an exemplary embodiment, may be used for investment management, or investment portfolio benchmarking.

Another exemplary embodiment of the present invention may include an Accounting Data Based Index (ADBI) such as, e.g., but not limited to, a FUNDAMENTAL INDEX™ and Index Fund or Funds.

This exemplary embodiment may utilize a new series of accounting data based stock market indices in which the index weightings may be determined by company accounting data such as, e.g., but not limited to, the relative size of a company's profits, or its pre-exceptional profits, or sales, or return on investment or any accounting data based accounting item, or ratio, may help to address some of the issues raised above. An index that is weighted based on company accounting data, rather than the share price, or market capitalization or equal weighting, may have a stabilizing element within it that can help to remove excess volatility generated by indices constructed on the basis of price or market capitalization alone. Over the medium to longer term, such accounting data based indices have the potential to outperform price or market capitalization-based indices, and may do so with less volatility.

The exemplary inventive method may create a new class of stock market indices and index funds that may be implemented on, e.g., but not limited to, a computing device or a processor, or as a computer software or hardware, or as an algorithm. This new class of stock market indices may base its weightings on the accounting data of the companies that make up that index. One possible version of an accounting data based stock market index may be an index that is based on the relative size of a sample of the companies' pre-exceptional profits. If the chosen sample of companies was determined to be one hundred and the accounting data based criteria that the index manager decided to use was to be 'largest pre-exceptional profits,' then the index may contain, e.g., the one hundred largest companies as defined by the size of their pre-exceptional profits. As an example, if the total pre-exceptional profits of the largest one hundred companies, as measured by their pre-exceptional profits, was 100 dollars, pound, or other currency, in a defined time period (such as a quarter or year) and in the same time period the pre-exceptional profits of theoretical company 'A' were $2, then theoretical company A would be allocated a 2% weighting in the accounting data based index, in an exemplary embodiment. If theoretical company B had pre-exceptional profits of $1.5 in over the same time period then it would have a weighting of 1.5% in the accounting data based index according to an exemplary embodiment.

The index weightings may be managed based on how the fundamentals of the companies within, or outside, the chosen index sample may change. As an example, the index manager could choose to rebalance the weightings from time to time such as, e.g., but not limited to, periodically, aperiodically,

quarterly, as company pre-exceptional profits change, and/or on an annual basis, etc., and enter their choice into, e.g., a computing device. If, for instance, by the time of the next rebalancing period the total pre-exceptional profits of the largest one hundred companies, as measured by their pre-exceptional profits, had grown to $120, and theoretical company A now had pre-exceptional profits of $1.2, the computing device may calculate the weighting of company in the accounting data based index such as, e.g., the accounting data based index down to 1% from 2% in the previous period. Creating such accounting data based indices may give an investor the opportunity to follow, or invest, passively in an index which may be anchored to the economic realities of the companies within it. This new accounting data based index construction technique by a computing device may produce an index and related index fund products with increased stability and with increased economically rational behavior as compared with known methods of investing.

Accounting Data Based Indexation

In one exemplary embodiment, a computing device may create an accounting data based stock market index (ADBI) such as, e.g., an accounting data based stock market index by using any of the accounting data based data points regarding a company or a group of companies that can be found in a company's annual report and accounts. In one exemplary embodiment, the computing device may create an index of companies based on the relative size of the companies' sales, assets, profits, cash flow or the shareholders equity. In addition, the computing device can also create the ADBI by using a ratio of any of the data concerning a company or group of companies that may be contained in a company report and accounts. In one exemplary embodiment, this could include the relative size of the return on financial objects of a selection of companies, their return on investment, or their return on capital compared to their cost of capital.

Once the index manager has decided and entered which accounting data based criteria to use and how many constituents the manager may decide that he or she wants to include in the index, the computing device may create the index in the following way. If, for example, the index manager decides to construct an accounting data based stock market index of one hundred constituent members and decides to use pre-exceptional profit as the chosen accounting data based criteria, the computing device may create the index as follows. First, the computing device may perform a search to find which are the largest one hundred listed companies as defined by the size of their pre-exceptional profits. Once the computing device has identified this information, the computing device may be ready to construct the index. Companies may be accorded index weightings based on the relative size of their pre-exceptional profits. If the combined pre-exceptional profits of the one hundred companies is $100 and theoretical company A has pre-exceptional profits of $2, then it may have an index weighting of 2%. Once the one hundred companies may have been accorded their weightings, the computing device may begin to calculate future index performance as the share prices of the different companies in the index changes from day to day. This may be achieved by assuming a starting value for the index, or index portfolio, and then calculating how each of the index constituents may perform going forward.

The computing device may then rebalance the index weightings as the accounting data based data points change over time as desired by the investor. For instance, if at the end of the next company reporting season the combined pre-exceptional profits of the one hundred largest companies had grown from $100 to $120 and the pre-exceptional profits of theoretical company A had declined from $2 to $1.2, the computing device may determine its weighting in the index would decline from 2% in the prior period to 1% in the current period. Also, some of the original companies in the first one hundred may be eliminated from the index if their pre-exceptional profits fall below a certain level while new companies that were not in the original sample may be included. The computing device, under the direction of an investor, may choose to rebalance the weightings in the index, e.g., but not limited to, as individual companies report their pre-exceptional profits on a quarterly basis, and/or waiting until the majority of companies have reported their pre-exceptional profits and then adjusting them all at once. Also, the computing device, under the direction of an investor, could choose to determine the weightings based on, e.g., but not limited to, either the total nominal amount of pre-exceptional profit each quarter or on a cumulative rolling basis.

Constructing a stock market index according to an exemplary embodiment using accounting data based company accounts data or a ratio, or manipulation of that data may provide a series of genuine alternatives for investors who want to invest in a passive style while focusing on fundamentals that they believe are important. For instance, according to an exemplary embodiment an investor may always want to own an index of U.S. or foreign equities that are, e.g., the largest five hundred companies as measured by sales, or by profits, or by growth in sales, or by return on investment, or any accounting data based company accounts data or ratio of that data.

Long-Short Equity Strategies

An exemplary embodiment of the present invention may take long and short positions based on an extent to which accounting data based indexation suggests that equities are under or over valued.

FIG. **4** illustrates an exemplary process flow diagram **400** of a method of creating a portfolio of financial objects according to an embodiment of the present invention. In block **402** the process starts. In block **404**, a determination is made of overlapping financial objects that appear in both an accounting data based index (ADBI) **410** and a conventional weighted index **412**. In block **406**, the weightings of the overlapping financial objects in the ADBI are compared with the weightings of the overlapping financial objects in the conventionally weighted index. Then, in block **408**, one or more of the overlapping financial object may be purchased based on the result of the comparison.

In the alternative, exemplary embodiments of the present invention may determine non-overlapping financial objects appearing in only one of either an accounting data based index (ADBI) or a conventional weighted index by comparing financial objects in an ADBI with financial objects in a conventionally weighted index. Non-overlapping financial objects appearing only in the ADBI may be weighted by accounting data based weighting. Non-overlapping financial objects appearing only in the conventionally weighted index may be weighted by the conventional weighting. Financial objects may then be purchased based on the resulting weightings.

In an exemplary embodiment, an index of the largest 1,000 U.S. equities, weighted by accounting data, may overlap an index of the largest 1,000 U.S. capitalization-weighted companies by approximately 80%. The 20% of non-overlapping companies may drive the 2.0% increase in return of an accounting data based index such as, e.g., but not limited to, RESEARCH AFFILIATES FUNDAMENTAL INDEX™ (RAFI™) available from Research Affiliates, LLC of Pasa-

dena, Calif., versus a cap-weighted index. A long-short strategy according to an exemplary embodiment is designed to leverage this 20% of companies that do not overlap, and may capture the expected alpha from the accounting data based indexation. An exemplary long-short U.S. equity strategy may be approximately beta and dollar neutral and can replace or complement market neutral or long-short strategies, or as part of a portfolio's alternative strategies bucket.

Accounting data based indexation may use economic measures of company size in constructing indexes. Using accounting data based economic measures of firm size may create an index that is indifferent to price. Accounting data based indexes may avoid flaws inherent in capitalization (price)-weighted indexes. Capitalization-weighted indexes naturally overweight overvalued stocks and underweight undervalued stocks. Accounting data based indexes may more accurately estimate a true fair value of a company, allowing the weight of a company's stock in the index to rise or fall only to the extent that the underlying economic value of the issuing company may rise or fall.

ADBI Portfolio Construction

FIG. **5** illustrates an exemplary flow process diagram **500** of a method of constructing an ADBI and a portfolio of financial objects using the ADBI, starting at block **502**. In block **504**, the ADBI **510** is created. Creating the ADBI may include, in block **506**, selecting a universe of financial objects, and, in block **508**, selecting a subset of the universe based on the accounting data to obtain the ADBI **510**. Then, in block **512**, a portfolio of financial objects is created using the ADBI **510**, including weighting the financial objects in the portfolio according to a measure of value of a company associated with each financial object in the portfolio.

To construct an exemplary accounting data based index (ADBI), such as, e.g., but not limited to, the RESEARCH AFFILIATES FUNDAMENTAL INDEX™ (RAFI™), some number of financial objects, e.g., 1000 US equities, may be selected and/or weighted based on the following four accounting data based measures of firm size: book equity value, free cash flow, sales, and gross dividends.

An exemplary embodiment of an accounting data based index such as, e.g., but not limited to, the RAFI™ index may first weight all US equities by each of the four accounting data based measures of firm size detailed above. According to an exemplary embodiment, an optimal relative weighting between the four factors may differ by geography of the stock market from which the equities are selected such as, e.g., an equal weighting may be optimal in one country or industry sector, while a different relative weighting between the factors may make sense in another country or industry sector. The index may then compute an overall weight for each holding by equally-weighting each of the four accounting data based measure of firm size according to an exemplary embodiment. For example, assume that a company has the following weights: 2.8% of total US book values, 2% of total US cash flow, 3% of total US sales, and 2.2% of total US dividends.

Equally-weighting these four accounting data based measures of firm size (i.e., book value, cashflow, sales and dividends) may produce a weight of 2.5%. According to an exemplary embodiment, for companies that have never paid dividends, one may exclude dividends from the calculation of the company's accounting data based weight. Finally, in an exemplary embodiment, the 1000 equities with the highest accounting data based weights may be selected and may be assigned a weight in the RAFI™ portfolio equal to its accounting data based weight.

According to another exemplary embodiment, an accounting data based index such as, e.g., but not limited to, RAFI™ maybe constructed using aggregate (not per-share) measures of firm size. For example, RAFI™ may use total firm cash flow instead of cash flow per share and total book value instead of book value per share in its construction.

In an exemplary embodiment, the accounting data may include the following four factors, book value, sales/revenue, cash flow and dividends. In another exemplary embodiment, only one or more of these factors may be used. In another exemplary embodiment, additional factors may be used, such as, e.g., any other accounting data. In one exemplary embodiment, the weightings of each of these factors may be equal relative to one another, i.e., 25% of each of book value, sales/revenue, cash flow and dividends. In one exemplary embodiment, if there are no dividends, then the other three factors may be weighted in equal parts, i.e., 33% each to book value, sales/revenue, and cash flow. In another exemplary embodiment, dividends may be weighted in a greater part such as, e.g., but not limited to, weighting dividends at 50% and book value, sales/revenue, and cash flow at ⅙th each, etc. In one exemplary embodiment, weightings may be the same, depending on the country or sovereign of origin or the industry sector of the stock or other financial object. In another exemplary embodiment, weightings may vary depending on the country or sovereign of origin or the industry sector of the stock or other financial object. In another exemplary embodiment, weightings may vary based on other factors, such as, e.g., but not limited to, types of assets, industry sectors, geographic sectors, sizes of companies, profitability of companies, amount of revenue generated by the company, etc.

An accounting data based index may be available in several varieties to meet the unique needs of different classes of retail and institutional investors, including, e.g., but not limited to, as enhanced portfolios, Exchange Traded Funds (ETFs), open-end mutual funds, tax managed portfolios, a collection of financial objects managed collectively but tracked separately, and closed-end mutual funds. Various US and international investment managers may offer, e.g., but not limited to, a suite of products.

A limited partnership or other fund or account investing in assets based on an Accounting Data Based Index, such as, e.g., Research Affiliates Fundamental Index, L.P. (RAFI LP) may increase the alpha generated by accounting data based indexation in the US through improvements or enhancements, including, e.g., but not limited to, monthly cash rebalancing and quality of earnings and corporate governance screens. The additional enhancements available through the LP may be expected to add an additional 40-70 bps of annual outperformance above the 200 basis points (bps) of annual out performance that may be achieved through the use of accounting data based indexing in portfolio construction.

A limited partnership or other fund or account investing in assets based on an ADBI international LP such as, RAFI International LP (RAFI™-I may apply accounting data based indexation to the international equity space in an exemplary embodiment to create an enhanced portfolio of, e.g., but not limited to 1000 international (ex-US) equities. RAFI-I may be expected to outperform capitalization weighted indexes by approximately 250 bps per year. Like the other RA Fundamental Index LP's, RAFI-I is an enhanced portfolio that may use monthly cash rebalancing and quality of earnings and corporate governance screens to improve upon the performance of the RAFI International index.

Open-end mutual funds may manage financial objects employing a fixed income strategy and portable alpha using the Accounting Data Based Index (ADBI) according to an exemplary embodiment.

An Exchange Traded Fund (ETF) of the ADBI such as, e.g., but limited to, POWERSHARES FTSE RAFI US 1000 Portfolio ETF (ticker symbol: PRF) may meet needs of retail and institutional investors interested in a low-cost means of accessing the power of accounting data based indexing in another exemplary embodiment.

Another exemplary embodiment includes a closed-end fund implementing accounting data based indexing such as, e.g., Canadian Fundamental Income 100, a closed-end mutual fund of the largest 100 accounting data based equities in Canada which attracted investments from retail and institutional investors in 2005, one of the most difficult closed end markets in recent history, demonstrating the strength of the accounting data based indexation strategy.

Accounting Data Based Indexation Long-Short (ADBI-LS)

Accounting data based indexation long-short (ADBI-LS) such as, e.g., but not limited to, RAFI-LS, is a long-short U.S. equity strategy that leverages ADBI such as RAFI™ innovation. The RAFI U.S. 1000 portfolio is designed to outperform the Russell 1000 (and the S&P 500) by about 200 bps per annum. By going long in stocks that have greater weight in the RAFI U.S. 1000 portfolio relative to the Russell 1000 and short in the stocks that are underweight in the RAFI U.S. 1000 relative to the Russell 1000, the RAFI-LS strategy captures the RAFI alpha process and enhances that alpha source.

ADBI-LS such as, e.g., RAFI-LS according to an exemplary embodiment, is designed to be roughly dollar and beta neutral, but not sector neutral. The sector bet can be significant if the ADBI strategy determines that a sector is substantially overvalued.

In general the overlap between ADBI RAFI U.S. 1000 and capitalization based index Russell 1000 may be about 75%. This may give 25% weights for the long portfolio and 25% weights for the short portfolio. The portfolio may be applied to 300% long and 300% short, which may magnify the RAFI alpha and the portfolio volatility. Leverage may be applied tactically, and can range from about 200% long/short to about 400% long/short according to exemplary embodiments.

ADBI-LS such as, e.g., RAFI-LS according to an exemplary embodiment may be designed to achieve an annual volatility of 15-25%. Volatility of the exemplary RAFI-LS, since inception, has been about 15%.

According to an exemplary embodiment, ADBI-LS, such as, e.g., RAFI-LS may use leverage in both its short and long positions. On average, $100 invested in RAFI-LS may result in a $300 notional long position and a $300 notional short position.

Implementation of an ADBI-LS's Long and Short Positions

According to an exemplary embodiment, one does not necessarily directly need to hold long or short positions in the underlying stocks, nor does it need to access a direct line of credit for the portfolio leverage. Instead, according to an exemplary embodiment, derivatives, such as a total return swaps may be used to implement the long and short positions. It may be possible to achieve minimal counterparty default risk exposure by entering into swaps with large Wall Street firms in an exemplary embodiment. Investors in an ADBI-LS may not be physically shorting any U.S. equities; rather, investors may merely hold OTC derivative contracts. This may provide both tax benefits and efficiency in investment logistics.

ADBI-LP such as, e.g., RAFI-LP™, may be a full-market ADBI. ADBI-LS such as, e.g., RAFI-LS™, may be a fund that uses the differences between company weights in ADBI such as, e.g., RAFI™ and in a capitalization-weighted index to establish long and short positions according to an exemplary embodiment.

ADBI-LS may be designed to be dollar neutral and equity beta neutral in an exemplary embodiment. Therefore, one may expect ADBI-LS returns to be largely uncorrelated with the equity market return in an exemplary embodiment. However, ADBI may not be market neutral in the traditional sense as it is not industry sector neutral in an exemplary embodiment.

ADBI-LS does not pair positions, and thus is different from traditional equity long-short strategies whereby e.g., but not limited to, a short General Motors (GM) position is paired with a long Ford position. Instead, ADBI-LS may acquire both long and short positions based on the relative difference between the ADB Index such as, e.g., FUNDAMENTAL INDEX™ weights and those of a cap-weighted index, such as, e.g., but not limited to the Russell 1000.

An exemplary embodiment of ADBI-LS may rebalance periodically and/or aperiodically. For example, on average, the ADBI-LS, such as, e.g., RAFI-LS portfolio may hold its long-short bets for about one year. The cash flow from new capital contributed to the strategy may be used to rebalance the portfolio to create new or alter existing long-short bets according to an exemplary embodiment.

In an exemplary embodiment, the present invention may be a method of constructing a portfolio of financial objects, comprising: purchasing a portfolio of a plurality of mimicking financial objects to obtain and/or create a mimicking portfolio, wherein performance of the portfolio of mimicking financial objects substantially mirrors the performance of the accounting data based index based portfolio without substantially replicating the accounting data based index based portfolio. The method may further obtain and/or use a risk model for the portfolio where the risk model mirrors a risk model of the accounting data based index. The risk model may be substantially similar to the Fama-French factors, wherein the Fama-French factors may comprise at least one of size effect (e.g., where small cap beats large cap), value effect (e.g., where high B/P beats low B/P), and/or momentum effect (e.g. where strong momentum beats weak momentum in very long run, e.g. 10 or more years). The performance of the portfolio of mimicking financial objects may substantially mirror the performance of the accounting data based index based portfolio without substantially replicating financial objects and/or weightings in the accounting data based index based portfolio.

In another exemplary embodiment, the present invention may include purchasing a plurality of financial objects according to weightings substantially similar to the weightings of an accounting data based index (ADBI), where performance of the financial objects substantially mirrors the performance of the ADBI without using substantially the same financial objects in the ADBI.

While various embodiments of the present invention have been described above, it should be understood that they have been presented by way of example only, and not limitation. Thus, the breadth and scope of the present invention should not be limited by any of the above-described exemplary embodiments, but should instead be defined only in accordance with the following claims and their equivalents.

What is claimed is:

1. A computer-implemented method for construction of an index of financial objects, the computer-implemented method comprising:

creating, by at least one computer, the index of the financial objects, said creating comprises:

selecting, by the at least one computer, financial objects as constituents of the index based upon at least one accounting data regarding entities issuing the financial objects rather than price of the financial objects, wherein the at least one accounting data comprises at least one of: cash flow of the entities issuing the financial objects, sales of the entities issuing the financial objects, book value of the entities issuing the financial objects or any dividends of the entities issuing the financial objects; and

weighting, by the at least one computer, the constituents of the index based upon at least one accounting data regarding the entities issuing the financial objects rather than price of the financial objects, to obtain constituent weightings of the constituents of the index, wherein the at least one accounting data comprises at least one of: cash flow of the entities issuing the financial objects, sales of the entities issuing the financial objects, book value of the entities issuing the financial objects or any dividends of the entities issuing the financial objects, and

managing, by the at least one computer, the index, and managing at least one portfolio of financial objects based on the index comprising:

altering, by the at least one computer, the relative weightings of the financial objects within said at least one portfolio of financial objects based on the index as the at least one accounting data concerning the entities of the financial objects changes or the constituents of the index change over time.

2. The computer-implemented method of claim **1**, wherein the computer implemented method comprises:

creating, by the at least one computer, said index of financial objects wherein the constituent weightings are based upon any ratio of at least one accounting data, or any manipulation of at least one accounting data, that is contained within a company financial report.

3. The computer-implemented method of claim **1**, wherein the computer implemented method comprises:

creating, by the at least one computer, said index of financial objects wherein the constituent weightings are based upon any ratio of at least one accounting data per share, or any manipulation of at least one accounting data, that is contained within a company financial report.

4. The computer implemented method of claim **1**, wherein said altering comprises at least one of:

altering based on at least one of: changes in relative weightings of financial objects in said index; or changes in said financial objects that are members of said index; or

altering at the time of at least one of: when, or after, at least one entity associated with a given financial object of said index reports its accounting information.

5. The computer-implemented method of claim **1**, wherein said financial object comprises:

at least one unit of interest in at least one of:

an asset;

a liability;

a tracking portfolio;

a financial instrument or a security, wherein said financial instrument or said security denotes a debt, an equity interest, or a hybrid;

a derivatives contract, including at least one of:

a future, a forward, a put, a call, an option, a swap, or any other transaction relating to a fluctuation of an underlying asset, notwithstanding the prevailing value of the contract, and notwithstanding whether such contract, for purposes of accounting, is considered an asset or liability;

a fund; or

an investment entity of any kind, including an interest in, or rights relating to at least one of:

a hedge fund, an exchange traded fund (ETF), a fund of funds, a mutual fund, an investment vehicle, or any other pooled or separately managed investments.

6. The method of claim **1**, wherein said at least one accounting data further comprises at least one of:

inventory of the entity;
revenue of the entity;
sales of the entity;
income of the entity;
book income of the entity;
taxable income of the entity;
earnings growth rate of the entity;
earnings before interest and tax (EBIT) of the entity;
earnings before interest, taxes, depreciation, and amortization (EBITDA) of the entity;
expected earnings of the entity;
retained earnings of the entity;
expected revenue of the entity;
number of employees of the entity;
capital expenditures of the entity;
salaries of the entity;
book value of the entity;
assets of the entity;
fixed assets of the entity;
current assets of the entity;
quality of assets of the entity;
operating assets of the entity;
intangible assets of the entity;
dividends of the entity;
gross dividends of the entity;
dividend yields of the entity;
expected dividends of the entity;
cash flow of the entity;
expected cash flow of the entity;
liabilities of the entity;
losses of the entity;
long term liabilities of the entity;
short term liabilities of the entity;
liquidity of the entity;
long term debt of the entity;
short term debt of the entity;
bonds of the entity;
corporate bonds of the entity;
net worth of the entity;
shareholder equity of the entity;
goodwill of the entity;
research and development expenditures of the entity;
costs of the entity;
cost of goods sold (COGS) of the entity; or
research and development costs of the entity.

7. The computer-implemented method of claim **1**, wherein the computer implemented method comprises:

creating, by the at least one computer, said index wherein the constituent weightings are based upon weighting of said cash flows of the entities issuing the financial

objects, said sales of the entities issuing the financial objects, and said book value of the entities issuing the financial objects.

8. The computer-implemented method of claim **1**, wherein the computer implemented method comprises:

creating, by the at least one computer, said index wherein the constituent weightings are based upon equally weighting said cash flows of the entities issuing the financial objects, said sales of the entities issuing the financial objects, and said book value of the entities issuing the financial objects.

9. The computer-implemented method of claim **1**, wherein the constituent weightings are based upon equally weighting said cash flows of the entities issuing the financial objects, said sales of the entities issuing the financial objects, and said book value of the entities issuing the financial objects, at ⅓ each.

10. The computer-implemented method of claim **1**, wherein the computer implemented method comprises:

creating, by the at least one computer, said index wherein the constituent weightings are based upon weighting of said cash flows of the entities issuing the financial objects, said sales of the entities issuing the financial objects, said book value of the entities issuing the financial objects, and said any dividends of the entities issuing the financial objects.

11. The computer-implemented method of claim **1**, wherein the computer implemented method comprises:

creating, by the at least one computer, said index wherein the constituent weightings are based upon equally weighting of said cash flows of the entities issuing the financial objects, said sales of the entities issuing the financial objects, said book value of the entities issuing the financial objects, and said any dividends of the entities issuing the financial objects.

12. The computer-implemented method of claim **1**, wherein the constituent weightings are based upon:

equally weighting by the at least one computer, said cash flows of the entities issuing the financial objects, said sales of the entities issuing the financial objects, said book value of the entities issuing the financial objects, and said any dividends of the entities issuing the financial objects, at ¼ each, for financial objects with dividends; and

equally weighting by the at least one computer, said cash flows of the entities issuing the financial objects, said sales of the entities issuing the financial objects, and said book value of the entities issuing the financial objects, at ⅓ each, for financial objects with no dividends.

13. The computer-implemented method of claim **1**, wherein the constituent weighting of the entity of the financial object is based upon the at least one accounting data of the entity of the financial object relative to the total at least one accounting data of the entities of the financial objects.

14. The computer-implemented method of claim **1**, wherein the constituent weightings are adjusted based on at least one of: a country, a sovereign of origin of the entity of the financial object, or an industry sector of the entity of the financial object.

15. The computer-implemented method of claim **1**, wherein said selecting comprises selecting, by the at least one computer, a set of the entities of the financial objects of a universe of financial objects.

16. The computer-implemented method of claim **15**, wherein said selecting is relative to the at least one accounting data of the entities of the financial objects of the universe.

17. The computer-implemented method of claim **16**, wherein said selecting comprises:

selecting by the at least one computer, the set of the entities of the financial objects based on weighting the relative size of the at least one accounting data of the entity of each financial object relative to a total of the at least one accounting data of the entities of the financial objects of the universe.

18. The computer-implemented method of claim **15**, wherein said any dividends of the entities of the financial objects comprise the averaged total dividend distributions of the entities of the financial objects for a period of time, said cash flows of the entities of the financial objects comprise the averaged cash flow of the entities of the financial objects for the period of time, and said sales of the entities of the financial objects comprise the averaged sales of the entities of the financial objects for the period of time.

19. The computer-implemented method of claim **18**, wherein the period of time comprises at least one of: at least a quarter, at least a year, or at least five years.

20. The computer-implemented method of claim **15**, wherein said selecting comprises:

selecting, by the at least one computer, a set of the entities of the financial objects based upon weighting the relative size of an average of the at least one accounting data of the entity of the financial object relative to a total of the averaged at least one accounting data of the entities of the financial objects of said universe.

21. The computer-implemented method of claim **15**, wherein said selecting the set comprises:

calculating, by the at least one computer, measures of value for the entities of the financial objects based upon said at least one accounting data regarding the entities of the financial objects; and

selecting, by the at least one computer, a set of the entities of the financial objects based on the measures of value.

22. The computer-implemented method of claim **21**, wherein said selecting the set of the entities of the financial objects comprises selecting, by the at least one computer, a fixed number of the entities of the financial objects with the largest measures of value from the universe.

23. The computer-implemented method of claim **15**, wherein said universe comprises at least one of:

publicly traded companies;
a sector;
a market;
a market sector;
an industry sector;
a geographic sector;
an international sector;
a sub-industry sector;
a government issue; or
a tax exempt financial object.

24. The computer-implemented method of claim **15**, wherein said weighting comprises:

determining by the at least one computer, the constituent weighting of the entities of the financial objects of the set, by the at least one computer, based upon weighting the relative size of an average of the at least one accounting data of entities issuing financial objects for a period of time relative to a total of the averaged at least one accounting data of the entities of the financial objects of said universe.

25. The computer-implemented method of claim **1**, wherein the constituent weightings of the entities of the finan-

cial objects are based on a proportion of types of financial objects issued by the same entity.

26. The computer-implemented method of claim **1**, further comprising:

(a) gathering, by the at least one computer, the at least one accounting data about a plurality of the financial objects;

(b) selecting, by the at least one computer, a plurality of financial objects based on an objective measure of scale comprising at least one accounting data of the entity associated with each of said plurality of financial objects to create said index of financial objects; and

(c) weighting, by the at least one computer, each of said plurality of financial objects selected in said index based on an objective measure of scale comprising at least one accounting data of the entity associated with each of said plurality of financial objects,

wherein said weighting comprises:

(i) weighting by the at least one computer at least one of said plurality of financial objects based on said at least one accounting data; and

(ii) weighting is exclusive of weighting based on market capitalization, equal weighting, and share price weighting.

27. The method according to claim **26**, wherein said weighting based on the objective measure of scale comprises weighting by the at least one computer based on said any dividends of the entities issuing the financial objects, said book value of the entities issuing the financial objects, said cash flows of the entities issuing the financial objects, or said sales of the entities issuing the financial objects.

28. The method of claim **27**, further comprising equally weighting by the at least one computer, each objective measure of scale.

29. The method of claim **26**, wherein (c) comprises weighting by the at least one computer based on said objective measure of scale, wherein said objective measure of scale comprises a measure of the entity size associated with each of said plurality of financial objects.

30. The method of claim **29**, wherein said measure of the entity size comprises at least one of:

inventory of the entity;
revenue of the entity;
sales of the entity;
income of the entity;
book income of the entity;
taxable income of the entity;
earnings growth rate of the entity;
earnings before interest and tax (EBIT) of the entity;
earnings before interest, taxes, depreciation, and amortization (EBITDA) of the entity;
expected earnings of the entity;
retained earnings of the entity;
expected revenue of the entity;
number of employees of the entity;
capital expenditures of the entity;
salaries of the entity;
book value of the entity;
assets of the entity;
fixed assets of the entity;
current assets of the entity;
quality of assets of the entity;
operating assets of the entity;
intangible assets of the entity;
dividends of the entity;
gross dividends of the entity;
dividend yields of the entity;
expected dividend of the entity;
cash flow of the entity;
expected cash flow of the entity;
liabilities of the entity;
losses of the entity;
long term liabilities of the entity;
short term liabilities of the entity;
liquidity of the entity;
long term debt of the entity;
short term debt of the entity;
bonds of the entity;
corporate bonds of the entity;
net worth of the entity;
shareholder equity of the entity;
goodwill of the entity;
research and development expenditures of the entity;
costs of the entity;
cost of goods sold (COGS) of the entity; or
research and development costs of the entity.

31. A computer-implemented method of claim **1**, further comprising:

creating, by at least one computer, a portfolio of financial objects comprising purchasing constituent financial objects of the index in proportion to the constituent weightings of the constituents of the index.

32. The method of claim **1**, wherein said at least one accounting data further comprises at least one of:

a financial ratio of a company;
a ratio of accounting based data;
a ratio of accounting based data per share;
a ratio of a first accounting based data to a second accounting based data;
a liquidity ratio;
a working capital ratio;
a current ratio;
a quick ratio;
a cash ratio;
an asset turnover ratio;
a receivables turnover ratio;
an average collection period ratio;
an average collection period ratio;
an inventory turnover ratio;
an inventory period ratio;
a leverage ratio;
a debt ratio;
a debt-to-equity ratio;
an interest coverage ratio;
a profitability ratio;
a return on common equity (ROCE) ratio;
profit margin ratio;
an earnings per share (EPS) ratio;
a gross profit margin ratio;
a return on assets ratio;
a return on equity ratio;
a dividend policy ratio;
a dividend yield ratio; or
a payout ratio.

33. The computer-implemented method of claim **1**, further comprising: selecting a subset of a universe of financial objects based on at least one of: a liquidity of the financial objects, or a minimum size of said entity of said financial object.

34. The computer-implemented method of claim **1**, wherein said at least one accounting data regarding entities issuing the financial objects further comprises net income of the entities issuing the financial objects.

35. The computer-implemented method of claim 1, wherein said selecting comprises:
calculating a first weight of a first accounting data of said at least one accounting data regarding an entity;
calculating a second weight of a second accounting data of said at least one accounting data regarding the entity;
averaging the first weight and the second weight to obtain an averaged weight; and
selecting the entity based on the averaged weight.

36. The computer-implemented method of claim 1, wherein said weighting comprises:
calculating a first weight of a first accounting data of said at least one accounting data regarding an entity;
calculating a second weight of a second accounting data of said at least one accounting data regarding the entity;
averaging the first weight and the second weight to obtain an averaged weight; and
weighting the entity based on the averaged weight.

37. The computer-implemented method of claim 1, further comprising:
quarterly rebalancing the index of financial objects.

38. The method according to claim 1, wherein said selecting said financial objects further comprises selecting a universe and selecting a subset of said universe.

39. The method according to claim 38, wherein said subset comprises at least one of:
a subset based upon at least one criteria;
a sector;
a market;
a market sector;
an industry sector;
a geographic sector;
an international sector;
a sub-industry sector;
a government issue; or
a tax exempt financial object.

40. The method according to claim 38, wherein said universe comprises at least one of:
publicly traded stocks of at least one of: at least one country, or at least one country's at least one stock market;
at least one sector;
at least one market;
at least one market sector;
at least one growth market sector;
at least one value market sector;
at least one industry sector;
at least one geographic sector;
at least one international sector;
at least one sub-industry sector;
at least one government issue;
at least one measure of value;
at least one price-based ratio sector;
at least one size of an entity;
at least one market size of an entity;
any measure of size of an entity;
at least one size of a company; or
at least one tax exempt financial object.

41. The method according to claim 38, wherein said selecting said subset of said universe comprises selecting upon at least one of: a liquidity of the financial objects, or a minimum size of the entity of the financial object.

42. The method according to claim 38, wherein said selecting said subset comprises selecting, by the at least one processor based on user input, said subset based on any measure of company size.

43. The method according to claim 42, wherein said selecting said subset comprises selecting, by the at least one processor based on user input, said subset based on at least one of: a maximum measure of company size, a minimum measure of company size, or a range of measures of company size.

44. The method according to claim 38, wherein said selecting said universe comprises selecting a universe based on any measure of company size.

45. The method according to claim 44, wherein said selecting said subset comprises selecting, by the at least one processor based on user input, said subset based upon at least one of: a minimum measure of said company size; a maximum measure of said company size, or a range of measures of said company size.

46. The method according to claim 38, wherein at least one of said selecting said universe or said selecting said subset, comprises: selecting, by the at least one processor based on user input, based upon a measure of company size comprising at least one of: a large cap, a mid cap, or a small cap.

47. The method according to claim 38, further comprising:
dividing, by the at least one processor based on user input, said index into at least one partition of said index based upon at least one measure of scale of entities of the financial objects in said index.

48. The method according to claim 38, further comprising:
selecting, by the at least one processor based on user input, at least a portion of said index based upon any measure of scale of entities of the financial objects in said index.

49. The method according to claim 38, wherein said universe comprises publicly traded stocks of all companies in at least one of: a given country; or at least one stock market of a given country.

50. The method according to claim 38, wherein said subset is selected based upon a measure of company size comprising at least one of:
a financial ratio of a company;
a ratio of accounting based data;
a ratio of accounting based data per share;
a ratio of a first accounting based data to a second accounting based data;
a liquidity ratio;
a working capital ratio;
a current ratio;
a quick ratio;
a cash ratio;
an asset turnover ratio;
a receivables turnover ratio;
an average collection period ratio;
an average collection period ratio;
an inventory turnover ratio;
an inventory period ratio;
a leverage ratio;
a debt ratio;
a debt-to-equity ratio;
an interest coverage ratio;
a profitability ratio;
a return on common equity (ROCE) ratio;
profit margin ratio;
an earnings per share (EPS) ratio;
a gross profit margin ratio;
a return on assets ratio;
a return on equity ratio;
a dividend policy ratio;
a dividend yield ratio; or
a payout ratio.

51. The method according to claim 1, further comprising:
selecting, by the at least one processor based on user input, a subset of an accounting data based index (ADBI) based on a measure of scale of entities in said ADBI.

52. The method according to claim 1, wherein said creating said index, said managing said index, and said managing said at least one portfolio are performed by at least one of: a same entity as, or one or more separate entities.

53. A computer-implemented method for construction of a portfolio based on an index, wherein selecting financial objects as constituents of the index and weighting of the constituents of the index is based upon at least one accounting data regarding entities issuing the financial objects rather than price data of the financial object, the computer-implemented method comprising:

creating, by at least one computer, the portfolio of financial objects comprising purchasing constituent financial objects of the index in proportion to constituent weightings of the constituents of the index, wherein the index was created by an index provider having:

selected, by the at least one computer, financial objects as said constituents of the index based upon at least one accounting data regarding entities issuing the financial objects rather than price of the financial objects, wherein the at least one accounting data comprises at least one of: cash flow of the entities issuing the financial objects, sales of the entities issuing the financial objects, book value of the entities issuing the financial objects or any dividends of the entities issuing the financial objects; and

weighted, by the at least one computer, the constituents of the index based on at least one accounting data related to the entities of the financial objects rather than price of the financial objects, to obtain the constituent weightings of the constituents of the index, wherein the at least one accounting data comprises at least one of: cash flow of the entities issuing the financial objects, sales of the entities issuing the financial objects, book value of the entities issuing the financial objects or any dividends of the entities issuing the financial objects, and

managing the portfolio comprising:

purchasing, by the at least one computer, financial objects at least one of: added to the index or having increased constituent weighting over time; and

selling, by the at least one computer, financial objects at least one of: removed from the index or having decreased constituent weighting over time.

54. The computer-implemented method of claim 53, wherein said at least one accounting data regarding entities issuing the financial objects further comprises net income of the entities issuing the financial objects.

55. The method according to claim 53, wherein said creating said portfolio, said purchasing, said selling, and said managing are performed by at least one of: a same entity as, or one or more separate entities other than, the index provider.

56. A computer-implemented method for construction of an index and portfolio of financial objects based upon cash flow, sales, book value, and any dividends of the financial objects, the computer-implemented method comprising:

creating, by at least one computer, an index of the financial objects, comprising:

selecting, by the at least one computer, a plurality of selected financial objects to be placed in said index wherein said selecting comprises:

selecting, by the at least one computer, financial objects to be placed in said index based upon a cash flow, or a ratio of said cash flow, of an entity associated with a given financial object,

selecting, by the at least one computer, the financial objects to be placed in said index based upon sales, or a ratio of said sales, of the entity associated with the given financial object,

selecting, by the at least one computer, the financial objects to be placed in said index based upon a book value, or a ratio of said book value, of the entity associated with the given financial object, and

selecting, by the at least one computer, the financial objects to be placed in said index based upon any dividends, or a ratio of said any dividends, of the entity associated with the given financial object; and

weighting, by the at least one computer, said plurality of selected financial objects placed in said index,

wherein said weighting comprises:

weighting, by the at least one computer, said selected financial objects placed in said index based upon a cash flow, or a ratio of said cash flow, of an entity associated with a given financial object,

weighting, by the at least one computer, said selected financial objects placed in said index based upon sales, or a ratio of said sales, of the entity associated with the given financial object,

weighting, by the at least one computer, said selected financial objects placed in said index based upon a book value, or a ratio of said book value, of the entity associated with the given financial object, and

weighting, by the at least one computer, said selected financial objects placed in said index based upon any dividends, or a ratio of said any dividends, of the entity associated with the given financial object; and

creating, by the at least one computer, at least one portfolio of financial objects based on said index comprising:

purchasing, by the at least one computer, said selected financial objects placed in said index in proportion to said weightings based upon said cash flow, said sales, said book value, and said any dividends, or said ratio of said cash flow, said ratio of said sales, said ratio of said book value, and said ratio of said any dividends, and placing said purchased financial objects into said at least one portfolio.

57. The computer-implemented method of claim 56, wherein the computer implemented method comprises:

creating, by the at least one computer, said index of financial objects, and said at least one portfolio of financial objects based on said index wherein said weightings are based upon at least one of: any ratio of at least one accounting data, any ratio of at least one accounting data per share, or any manipulation of at least one accounting data, wherein the at least one accounting data is contained within a company financial report.

58. The computer implemented method of claim 56, wherein the computer implemented method comprises:

managing, by the at least one computer, said index, and said at least one portfolio of financial objects based on said index comprising:

altering, by the at least one computer, said at least one portfolio based on said index as the at least one accounting data concerning the entities of the financial objects changes or said plurality of selected financial objects placed in said index change over time.

59. The computer implemented method of claim **58**, wherein said altering comprises at least one of:

altering based on at least one of: changes in said weightings of financial objects in said index or changes in said financial objects that are placed in said index; or

altering at the time of at least one of: when, or after, at least one entity associated with a given financial object of said index reports its accounting information.

60. The computer-implemented method of claim **56**, wherein said financial object comprises:

at least one unit of interest in at least one of:

an asset;

a liability;

a tracking portfolio;

a financial instrument or a security, wherein said financial instrument or said security denotes a debt, an equity interest, or a hybrid;

a derivatives contract, including at least one of:

a future, a forward, a put, a call, an option, a swap, or any other transaction relating to a fluctuation of an underlying asset, notwithstanding the prevailing value of the contract, and notwithstanding whether such contract, for purposes of accounting, is considered an asset or liability;

a fund; or

an investment entity of any kind, including an interest in, or rights relating to at least one of:

a hedge fund, an exchange traded fund (ETF), a fund of funds, a mutual fund, an investment vehicle, or any other pooled or separately managed investments.

61. The computer-implemented method of claim **56**, further comprising:

quarterly rebalancing the index.

* * * * *

EXHIBIT B

US007792719B2

(12) United States Patent
Arnott

(10) Patent No.: US 7,792,719 B2
(45) Date of Patent: Sep. 7, 2010

(54) **VALUATION INDIFFERENT NON-CAPITALIZATION WEIGHTED INDEX AND PORTFOLIO**

(75) Inventor: **Robert D. Arnott**, Pasadena, CA (US)

(73) Assignee: **Research Affiliates, LLC**, Newport Beach, CA (US)

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G06Q 40/00 (2006.01)

(52) **U.S. Cl.** ..... **705/35**; 705/36 R; 705/37

(58) **Field of Classification Search** ..... 705/35, 705/36, 36 R

See application file for complete search history.

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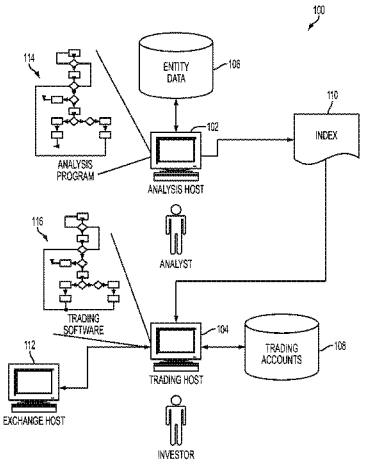
Primary Examiner—Alexander Kalinowski
Assistant Examiner—Gregory Johnson
(74) *Attorney, Agent, or Firm*—Albrecht Tousi & Farnum PLLC; Ralph P. Albrecht; Cameron H. Tousi

(57) **ABSTRACT**

A passive investment system based on indices created from various metrics is disclosed. The indexes may be built by selecting and weighting securities by an objective measure of scale such as accounting metrics rather than market capitalization weighting, price weighting or equal weighting. Various financial, accounting, and non-financial metrics may be used to build an index. Additionally, a combination of financial non-market capitalization metrics may be used along with non-financial metrics to create passive investment systems. Once the index is built, it may be used as a basis to purchase securities for a portfolio.

88 Claims, 3 Drawing Sheets



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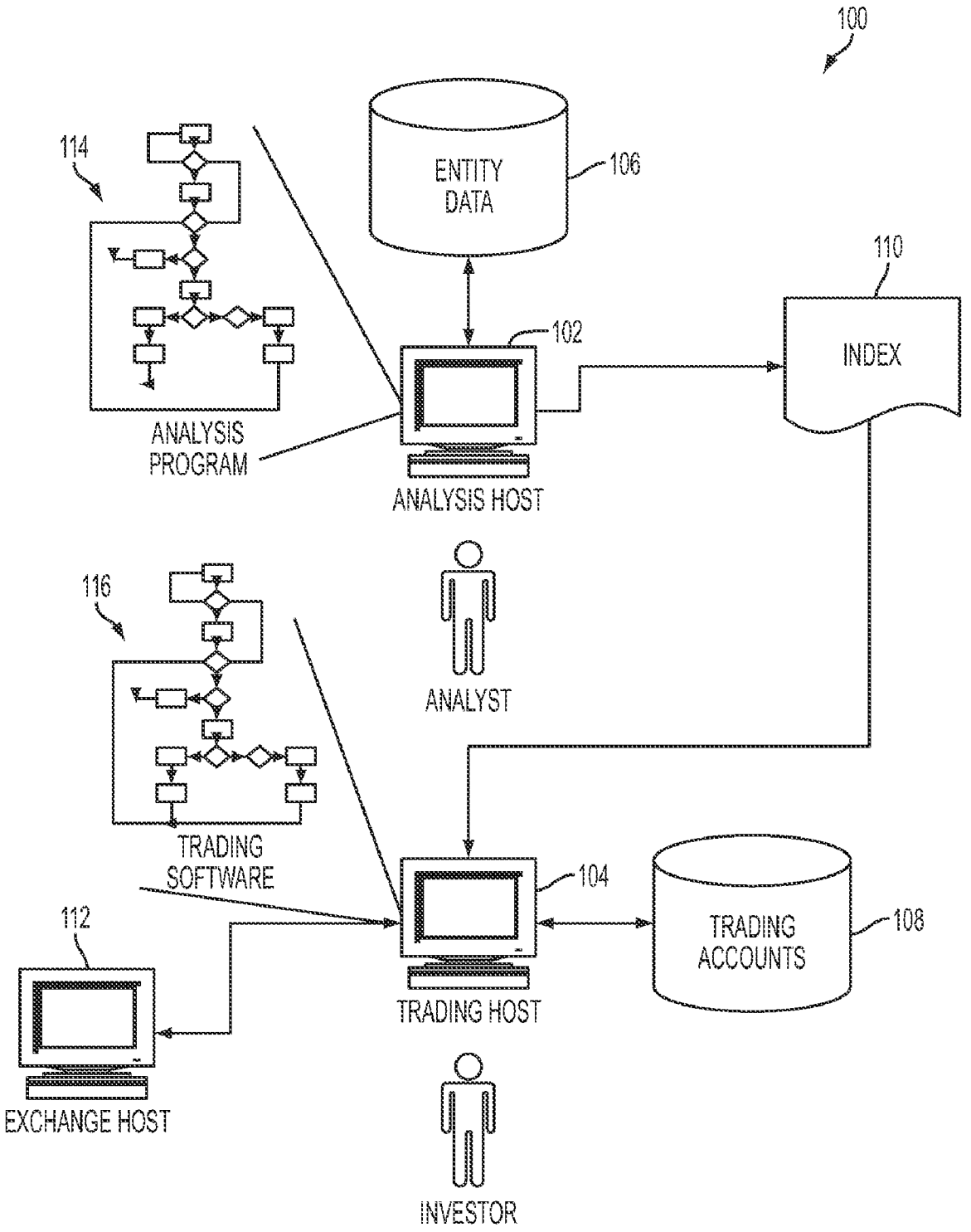
100
114
ENTITY DATA
106
110
102
INDEX
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ANALYSIS HOST
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TRADING SOFTWARE
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112
TRADING ACCOUNTS
108
TRADING HOST
EXCHANGE HOST
INVESTOR

FIG. 1

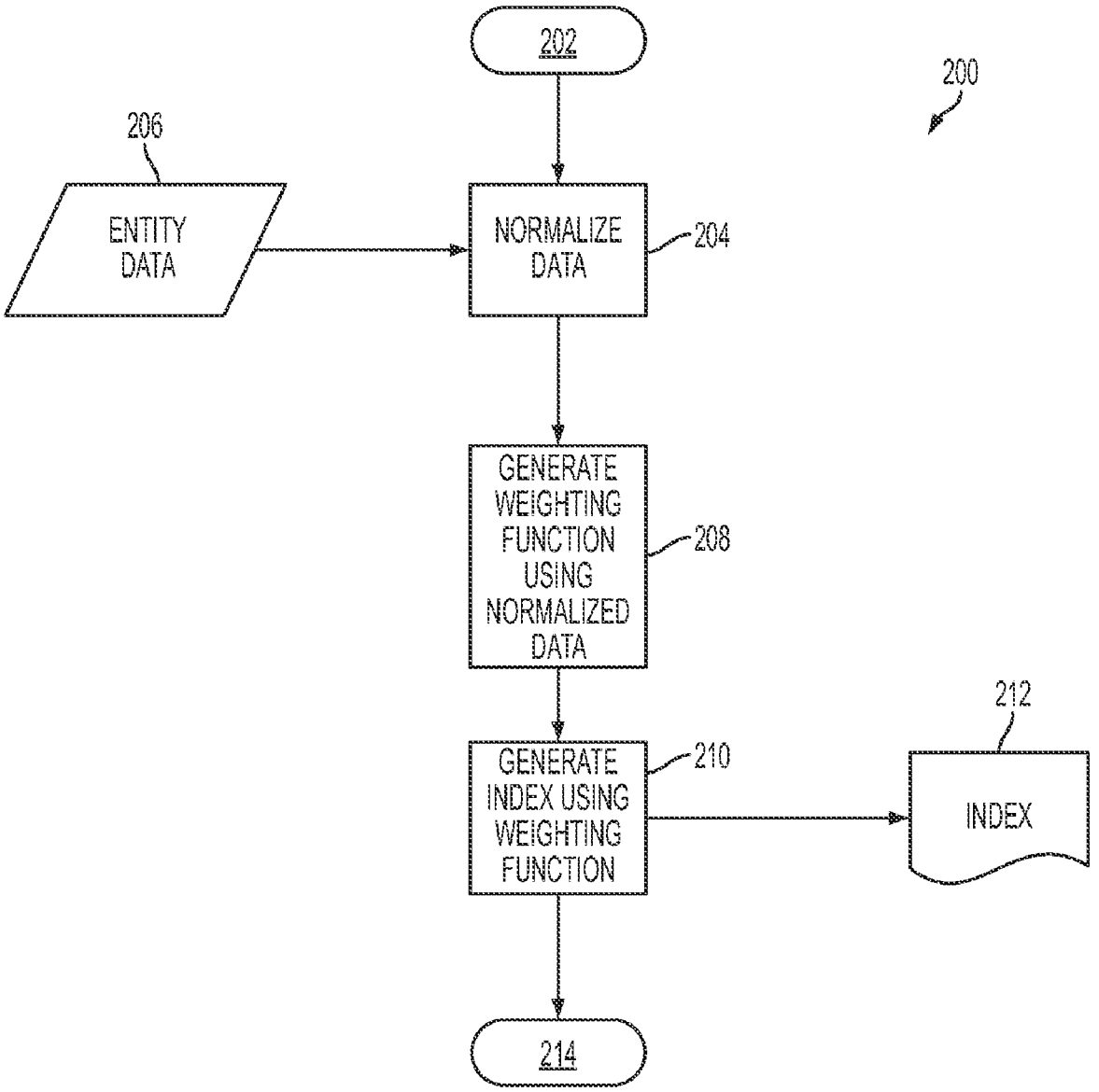
202
200
206
ENTITY DATA
NORMALIZE DATA
204
GENERATE WEIGHTING FUNCTION USING NORMALIZED DATA
208
212
GENERATE INDEX USING WEIGHTING FUNCTION
210
INDEX
214

FIG. 2

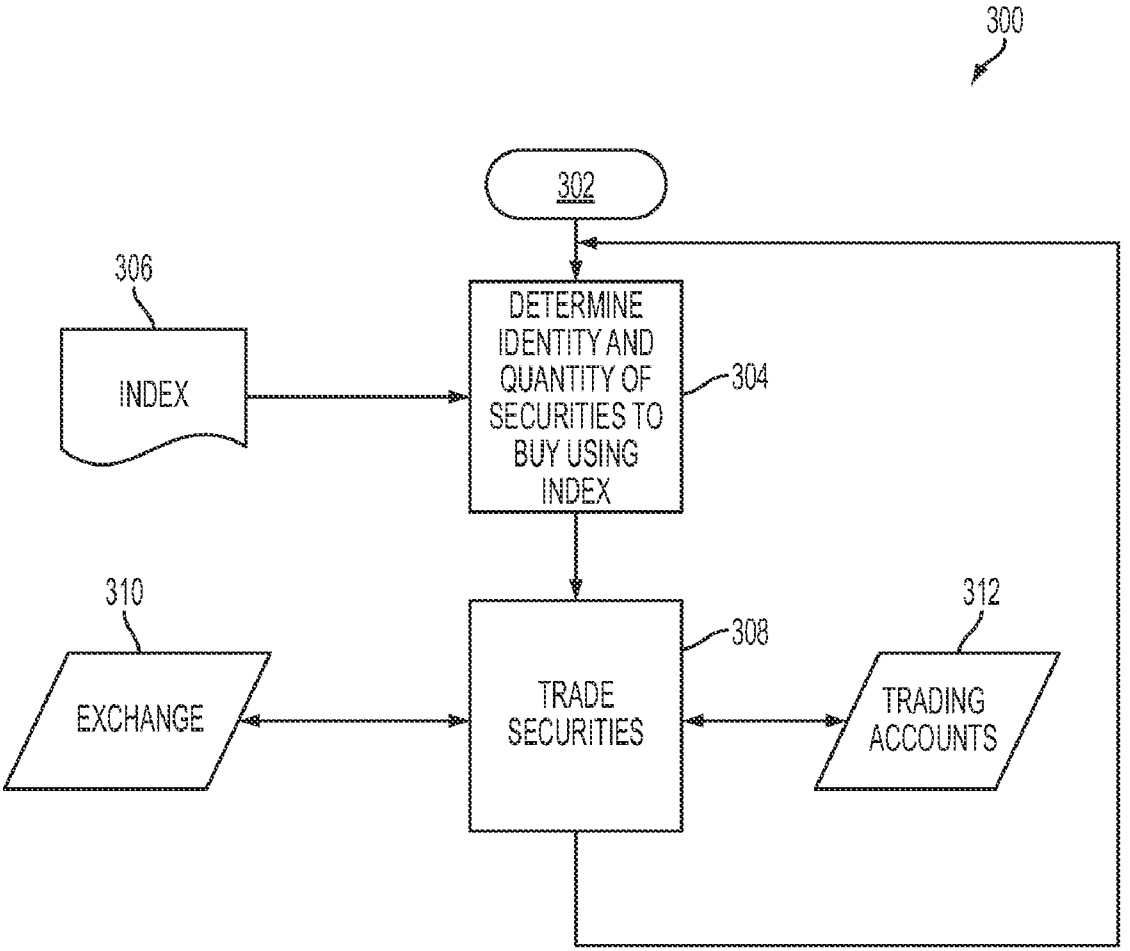
300
302
306
INDEX
DETERMINE IDENTITY AND QUANTITY OF SECURITIES TO BUY USING INDEX
304
310
EXCHANGE
TRADE SECURITIES
308
312
TRADING ACCOUNTS

FIG. 3

VALUATION INDIFFERENT NON-CAPITALIZATION WEIGHTED INDEX AND PORTFOLIO

CROSS-REFERENCE TO RELATED APPLICATIONS

The present application is a non-provisional application claiming priority to U.S. Provisional Patent Application No. 60/541,733 entitled, "Securities Indexing," to Arnott, filed Feb. 4, 2004, the contents of which is incorporated herein by reference in its entirety.

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention pertains generally to securities investing and more specifically to construction and use of passive portfolios and indexes.

2. Related Art

Conventionally, there are various broad categories of securities portfolio management. One conventional securities portfolio management category is active management wherein the securities are selected for a portfolio individually based on economic, financial, credit, and/or business analysis; on technical trends; on cyclical patterns; etc. Another conventional category is passive management, also called indexing, wherein the securities in a portfolio duplicate those that make up an index. The securities in a passively managed portfolio are conventionally weighted by relative market capitalization weighting or equal weighting. Another middle ground conventional category of securities portfolio management is called enhanced indexing, in which a portfolio's characteristics, performance and holdings are substantially dominated by the characteristics, performance and holdings of the index, albeit with modest active management departures from the index.

The present invention relates generally to the passive and enhanced indexing categories of portfolio management. A securities market index, by intent, reflects an entire market or a segment of a market. A passive portfolio based on an index may also reflect the entire market or segment. Often every security in an index is held in the passive portfolio. Sometimes statistical modeling is used to create a portfolio that duplicates the profile, risk characteristics, performance characteristics, and securities weightings of an index, without actually owning every security included in the index. (Examples could be portfolios based on the Wilshire 5000 Equity Index or on the Lehman Aggregate Bond Index.) Sometimes statistical modeling is used to create the index itself such that it duplicates the profile, risk characteristics, performance characteristics, and securities weightings of an entire class of securities. (The Lehman Aggregate Bond Index is an example of this practice.)

Indexes are generally all-inclusive of the securities within their defined markets or market segments. In most cases indexes may include each security in the proportion that its market capitalization bears to the total market capitalization of all of the included securities. The only common exceptions to market capitalization weighting are equal weighting of the included securities (for example the Value Line index or the Standard & Poors 500 Equal Weighted Stock Index, which includes all of the stocks in the S&P 500 on a list basis; each stock given equal weighting as of a designated day each year) and share price weighting, in which share prices are simply added together and divided by some simple divisor (for example, the Dow Jones Industrial Average). Conventionally, passive portfolios are built based on an index weighted using one of market capitalization weighting, equal weighting, and share price weighting.

Advantages of passive investing include: a low trading cost of maintaining a portfolio that has turnover only when an index is reconstituted, typically once a year; a low management cost of a portfolio that requires no analysis of individual securities; and no chance of the portfolio suffering a loss—relative to the market or market segment the index reflects—because of misjudgments in individual securities selection.

Advantages of using market capitalization weighting as the basis for a passive portfolio include that the index (and therefore a portfolio built on it) remains continually 'in balance' as market prices for the included securities change, and that the portfolio performance participates in (i.e., reflects) that of the securities market or market segment included in the index.

The disadvantages of market capitalization weighting passive indexes, which can be substantial, center on the fact that any under-valued securities are underweighted in the index and related portfolios, while any over-valued securities are over weighted. Also, the portfolio based on market capitalization weighting follows every market (or segment) bubble up and every market crash down. Finally, in general, portfolio securities selection is not based on a criteria that reflects a better opportunity for appreciation than that of the market or market segment overall.

SUMMARY OF THE INVENTION

An exemplary embodiment of the present invention is directed to a new method, system and computer program product for passive investing that is based on indexes which are built with metrics other than market capitalization weighting, share price weighting or equal weighting. Among these metrics are various financial data of the company issuing securities, including but not limited to book value, sales, revenue, earnings, earnings per share, income, income growth rate, dividends, dividends per share, earnings before interest, tax, depreciation and amortization, etc. In another exemplary embodiment, other nonfinancial and non-market capitalization metrics can be used as the basis for compiling an index, such as, e.g., but not limited to, an index of companies with chief executive officers (CEOs) having graduated from a particular university.

A common element included in an exemplary embodiment of the present invention, which is entirely missing from conventionally available forms of index construction, is that the indexes of the present invention are "valuation-indifferent." That is, conventional indexes do not take account of classical valuation ratios, which causes the conventional indexes to create a natural tendency to over-weight the over-valued and under-weight the under-valued securities in the conventional indexes and portfolios based on them. While this cause also holds true for equal weighting, we exclude that as an already-extant (and trivial) exception.

The use of these non-market capitalization metrics according to the exemplary embodiment of the present invention, allows the construction of indexes and resulting passive portfolios that better reflect the economic scale and/or long-term growth potential of the individual securities within a market or market segment than do conventional capitalization weighting, share price weighting, or equal weighting. The non-market capitalization metrics according to an exemplary embodiment of the present invention, allow construction of indexes and resulting passive portfolios that offer to an investor who wishes to participate in a market or market segment a choice of passive portfolio alternatives with different risk

characteristics. The indexes and portfolios based on them according to the exemplary embodiment of the present invention, also provide these additional advantages while maintaining the conventional benefits of passive investing. In historical testing, these non-market capitalization metrics are found to outperform the conventional capitalization-weighted indexes over extended periods of time, with similar or lower portfolio risk.

Overall, the availability of non-market capitalization indexes, and the passive and enhanced index portfolios based on them, have the potential to reduce investment costs through more widespread use of low-cost passive and enhanced-index investing. The present invention has the potential to improve investment returns versus the securities markets through the use of a securities weighting framework which is not subject to a natural tendency to overemphasize over-valued securities and underemphasize under-valued securities. The present invention also has the potential to reduce portfolio volatility through the use of securities weighting criteria that are less reflective of 'irrational exuberance.' An exemplary embodiment of the present invention also has the potential to offer 'customized' passive portfolios as each metric may have its own specific performance and risk characteristics.

An exemplary embodiment of the present invention sets forth a system, method, and computer program product for constructing a non-capitalization weighted portfolio of assets. In an exemplary embodiment, the method may include: (a) gathering data about a plurality of assets; (b) selecting a plurality of assets to create the index of assets; and (c) weighting each of the plurality of assets selected in the index based on an objective measure of scale of each of the plurality of assets, wherein the weighting may include: (i) weighting at least one of the plurality of assets; and (ii) weighting other than weighting based on market capitalization, equal weighting, and/or share price weighting.

In one exemplary embodiment, (c) may include weighting each of the plurality of assets, where each of the assets may include a stock; a commodity; a futures contract; a bond; a mutual fund; a hedge fund; a fund of funds; an exchange traded fund (ETF); a derivative; or a negative weighting on any asset.

In one exemplary embodiment, (c) may include weighting each of the plurality of assets, where each of the assets may include a stock.

In one exemplary embodiment, (c) may include weighting each of the plurality of assets, where each of the assets may include a commodity.

In one exemplary embodiment, (c) may include weighting each of the plurality of assets, where each of the assets may include a futures contract.

In one exemplary embodiment, (c) may include weighting each of the plurality of assets, wherein each of the assets may include a bond.

In one exemplary embodiment, (c) may include weighting each of the plurality of assets, where each of the assets may include a mutual fund.

In one exemplary embodiment, (c) may include weighting each of the plurality of assets, where each of the assets may include a hedge fund.

In one exemplary embodiment, (c) may include weighting each of the plurality of assets, where each of the assets may include a fund of flunds.

In one exemplary embodiment, (c) may include weighting each of the plurality of assets, where each of the assets may include an exchange traded fund (ETF).

In one exemplary embodiment, (c) may include weighting each of the plurality of assets, where each of the assets may include a derivative.

In one exemplary embodiment, (c) may include a negative weighting on any asset.

In one exemplary embodiment, the negative weighting may be performed for purposes of establishing, or measuring, performance for any security, a portfolio of assets, a hedge fund, and/or a long/short position.

In one exemplary embodiment, (c) may include weighting based on the objective measure of scale, where the objective measure of scale may include a measure of company size associated with each of the plurality of assets.

In one exemplary embodiment, the measure of company size may include one or more of: gross revenue, sales, income, earnings before interest and tax (EBIT), earnings before interest, taxes, depreciation and amortization (EBITDA), number of employees, book value, assets, liabilities, and/or net worth.

In one exemplary embodiment, (c) may include weighting based on the objective measure of scale, where the objective measure of scale includes a measure relating to an underlying asset itself.

In one exemplary embodiment, the asset may include a municipality, a municipality issuing bonds, or a commodity.

In one exemplary embodiment, the objective measure of scale associated with the asset may include one or more of: revenue, profitability, sales, total sales, foreign sales, domestic sales, net sales, gross sales, profit margin, operating margin, retained earnings, earnings per share, book value, book value adjusted for inflation, book value adjusted for replacement cost, book value adjusted for liquidation value, dividends, assets, tangible assets, intangible assets, fixed assets, property, plant, equipment, goodwill, replacement value of assets, liquidation value of assets, liabilities, long term liabilities, short term liabilities, net worth, research and development expense, accounts receivable, earnings before interest, taxes, dividends, and amortization (EBITDA), accounts payable, cost of goods sold (CGS), debt ratio, budget, capital budget, cash budget, direct labor budget, factory overhead budget, operating budget, sales budget, inventory method, type of stock offered, liquidity, book income, tax income, capitalization of earnings, capitalization of goodwill, capitalization of interest, capitalization of revenue, capital spending, cash, compensation, employee turnover, overhead costs, credit rating, growth rate, tax rate, liquidation value of company, capitalization of cash, capitalization of earnings, capitalization of revenue, cash flow, and/or future value of expected cash flow.

In one exemplary embodiment, (c) may include weighting each of the assets in the index based on the objective measure of scale, where the objective measure may include a ratio of any combination of the objective measures of scale of the asset other than ratios based on weighting the assets based on market capitalization, equal weighting, or share-price weighting.

In one exemplary embodiment, the ratio of any combination of the objective measures of scale may include one or more of: current ratio, debt ratio, overhead expense as a percent of sales, and/or debt service burden ratio.

In one exemplary embodiment, the objective measure of scale may include a demographic measure of the asset.

In one exemplary embodiment, the demographic measure of scale may include one or more of: employees, floor space, office space, location, and/or other demographics of an asset.

In one exemplary embodiment, the measure of company size may include one or more demographic measure of the asset.

In one exemplary embodiment, the demographic measure of the asset may include one or more of a non-financial metric, a non-market related metric, a number of employees, floor space, office space, and/or other demographics of the asset.

In one exemplary embodiment, (c) may include weighting based on the objective measure of scale, where the objective measure of scale may include a geographic metric.

In one exemplary embodiment, the geographic metric may include a geographic metric other than gross domestic product (GDP) weighting.

In one exemplary embodiment, the method may include a passive investing method that may include: constructing the portfolio of assets according to the index.

In one exemplary embodiment, the portfolio of assets may include one or more of: a fund; a mutual fund; a fund of funds; an asset account; an exchange traded fund (ETF); a separate account, a pooled trust; and/or a limited partnership.

In one exemplary embodiment, the method may further include: selecting a plurality of assets for trading according to the index; and trading one or more of said plurality of assets based on said weighting of the index.

In one exemplary embodiment, the trading may include: rebalancing the portfolio based on the index.

In one exemplary embodiment, rebalancing may include: rebalancing on a periodic basis.

In one exemplary embodiment, rebalancing may include: rebalancing based on the assets reaching a threshold.

In one exemplary embodiment, the method may further include applying rules associated with the index.

In one exemplary embodiment, the method of constructing the non-market capitalization weighted portfolio may be used for one or more of: investment management, and/or investment portfolio benchmarking.

In one exemplary embodiment, the method may include an enhanced index investing method. The method may include constructing the portfolio of assets in a fashion in which at least one of holdings, performance, or characteristics, are substantially similar to the index.

In one exemplary embodiment, the method may be a computer-implemented method and (a) may include: gathering data using computerized databases.

In one exemplary embodiment, (c) may include weighting based on a non-market capitalization financial metric associated with each of the plurality of assets, and a non-financial metric associated with each of said plurality of assets.

In another exemplary embodiment, a system for constructing a non-capitalization weighted portfolio of assets may include: means for gathering data about a plurality of assets; means for selecting a plurality of assets to create the index of assets; and weighting means for weighting each of said plurality of assets selected in the index based on an objective measure of scale of said each of said plurality of assets, wherein said weighting means may include: means for weighting at least one of said plurality of assets; and means for weighting other than weighting based on at least one of market capitalization, equal weighting, or share price weighting.

In yet another exemplary embodiment, a non-capitalization weighted portfolio of assets construction system, may include: a processor adapted to gather data about a plurality of assets; adapted to select a plurality of assets to create the index of assets; adapted to weight each of the plurality of assets selected in the index based on an objective measure of scale of the each of said plurality of assets; adapted to weight at least one of the plurality of assets; and adapted to weight other than based on at least one of market capitalization, equal weighting, or share price weighting.

In another exemplary embodiment, a machine readable medium that provides instructions which when executed by a computing platform, cause the computing platform to perform operations may include a method of constructing a non-capitalization weighted portfolio of assets, the method may include: (a) gathering data about a plurality of assets; (b) selecting a plurality of assets to create the index of assets; and (c) weighting each of said plurality of assets selected in the index based on an objective measure of scale of said each of said plurality of assets, wherein said weighting comprises: (i) weighting at least one of said plurality of assets; and (ii) weighting other than weighting based on at least one of market capitalization, equal weighting, or share price weighting.

Further features and advantages of the invention, as well as the structure and operation of various embodiments of the invention, are described in detail below with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

The foregoing and other features and advantages of the invention will be apparent from the following, more particular description of exemplary embodiments of the invention, as illustrated in the accompanying drawings. In the drawings, like reference numbers generally indicate identical, functionally similar, and/or structurally similar elements. The drawing in which an element first appears is indicated by the leftmost digits in the corresponding reference number. A preferred exemplary embodiment is discussed below in the detailed description of the following drawings:

FIG. **1** is a deployment diagram of an index generation and use process in accordance with an exemplary embodiment of the present invention;

FIG. **2** is a process flow diagram of an index generation process in accordance with an exemplary embodiment of the present invention; and

FIG. **3** is a process flow diagram of an index use process in accordance with an exemplary embodiment of the present invention.

DETAILED DESCRIPTION OF EXEMPLARY EMBODIMENTS OF THE PRESENT INVENTION

Various exemplary embodiments of the invention are discussed in detail below including a preferred embodiment. While specific implementations are discussed, it should be understood that this is done for illustration purposes only. A person skilled in the relevant art can recognize that other components and configurations may be used without parting from the spirit and scope of the invention.

FIG. **1** depicts an exemplary deployment diagram of an index generation and use process in accordance with an exemplary embodiment of the present invention. According to the exemplary embodiment, an analyst may use a computer system to generate an index. The analyst may do so by using analysis software to examine data about entities offering different kinds of securities that may be traded by investors. An example of an entity that may be offering securities may be a publicly held company whose shares trade on an exchange. However, the present invention also applies to any entity that may have any type of security that may be traded where information about the entity and/or its security is available (or capable of being made available) for analysis.

In an exemplary embodiment, once an index has been generated by an analyst using the entity date, the index may be used to build investment portfolios. An investor, advisor, manager or broker may then manage the purchased securities as a mutual fund for a plurality of individual and institutional investors. Alternatively, the purchased securities may be managed for one or more investors. In the latter case, securities may be purchased based on the index for inclusion in an individual or an institutional investor's portfolio.

FIG. **2** depicts an exemplary process flow diagram of an index generation process in accordance with an exemplary embodiment of the present invention. In an exemplary embodiment, to generate an index, an analyst using analysis software may access entity data about various entities that have securities that are traded. For example, publicly traded companies must disclose information about certain financial aspects of their operations. This information may be aggregated for a plurality of entities. Market sectors and corresponding indices may then be identified and generated using the aggregate data.

In slightly more detail, an index may be generated by normalizing entity data for a particular non-market capitalization metric. The normalized entity data may be used to generate a weighting function describing the contribution of each entity to a business sector as defined by the metric, in an exemplary embodiment. An index may be generated using the weighting function. Once an index is generated, according to an exemplary embodiment, the index may be used to track the business sector defined by the metric or to create a portfolio of securities offered by the entities whose information was used to generate the index.

For example, in an exemplary embodiment of the invention a method of constructing a non-capitalization weighted portfolio of assets may include, e.g., gathering data about various assets; selecting a group of assets to create the index of assets; and weighting each of the group of assets selected in the index based on an objective measure of scale of each member of the group of assets, where the weighting may include weighting all or a subset of the group of assets, and weighting based on other than market capitalization, equal weighting, or share price weighting.

In one exemplary embodiment, the weighting of each member of the group of assets, may include weighting assets of any of various types. Examples of various types of assets may include, e.g., but not limited to, a stock type; a commodity type; a futures contract type; a bond type; a mutual find type; a hedge fund type; a fund of funds type; an exchange traded fund (ETF) type; and a derivative type assets. The weighting may also include, e.g., but not limited to, a negative weighting on any of the various types of assets.

According to exemplary embodiments of the present invention, the index may be weighted based on an objective measure of scale, where the objective measure of scale may include a measure relating to an underlying asset itself. The asset may include a municipality, a municipality issuing bonds, or a commodity. An objective measure of scale associated with the asset may include any combination of: revenue, profitability, sales, total sales, foreign sales, domestic sales, net sales, gross sales, profit margin, operating margin, retained earnings, earnings per share, book value, book value adjusted for inflation, book value adjusted for replacement cost, book value adjusted for liquidation value, dividends, assets, tangible assets, intangible assets, fixed assets, property, plant, equipment, goodwill, replacement value of assets, liquidation value of assets, liabilities, long term liabilities, short term liabilities, net worth, research and development expense, accounts receivable, earnings before interest, taxes, dividends, and amortization (EBITDA), accounts payable, cost of goods sold (CGS), debt ratio, budget, capital budget, cash budget, direct labor budget, factory overhead budget, operating budget, sales budget, inventory method, type of stock offered, liquidity, book income, tax income, capitalization of earnings, capitalization of goodwill, capitalization of interest, capitalization of revenue, capital spending, cash, compensation, employee turnover, overhead costs, credit rating, growth rate, tax rate, liquidation value of company, capitalization of cash, capitalization of earnings, capitalization of revenue, cash flow, and/or future value of expected cash flow.

Ratios too may be used. In an exemplary embodiment, the weighting of assets in the index based on objective measures of scale, may include a ratio of any combination of the objective measures of scale of the asset other than ratios based on weighting the assets based on market capitalization, equal weighting, or share-price weighting. For example, the ratio of any combination of the objective measures of scale may include, e.g., but not limited to, current ratio, debt ratio, overhead expense as a percent of sales, or debt service burden ratio.

In an exemplary embodiment, the portfolio of assets may include, e.g., but not limited to, one or more of, a fund; a mutual fund; a fund of funds; an asset account; an exchange traded fund (ETF); a separate account, a pooled trust; or a limited partnership.

In an exemplary embodiment, a measure of company size may include one of, or a combination of one or more of gross revenue, sales, income, earnings before interest and tax (EBIT), earnings before interest, taxes, depreciation and amortization (EBITDA), number of employees, book value, assets, liabilities, or net worth.

In one exemplary embodiment, the measure of company size may include a demographic measure of the asset. The demographic measure of the asset may include, e.g., one of, or any combination of one or more of a non-financial metric, a non-market related metric, a number of employees, floor space, office space, or other demographics of the asset.

In an exemplary embodiment, weighting may be based on the objective measure of scale, where the measure may include a geographic metric. The geographic metric in an exemplary embodiment may include a geographic metric other than gross domestic product (GDP) weighting.

FIG. **3** depicts an exemplary process flow diagram of an index use process in accordance with an exemplary embodiment of the present invention. An index may be received from an index generation process and may be used to determine the identity and quantity of securities to purchase for a portfolio, according to an exemplary embodiment. The securities may be purchased from an exchange or other market and may be held on account for an investor or group of investors. The index may be updated on, e.g., but not limited to, a periodic basis and may be used as a basis to rebalance the portfolio, according to an exemplary embodiment. According to another exemplary embodiment, the portfolio can be rebalanced when, e.g., a pre-determined threshold is reached. In this way, a portfolio may be created and maintained based on a non-market capitalization index.

Rebalancing can be based on assets reaching a threshold condition or value. For example, but not limited to, rebalancing may occur upon reaching a threshold such as, e.g., 'when the portfolio of assets increases in market value by 20%,' or 'when the assets on a sub-category within the portfolio exceed 32% of the size of the portfolio,' or 'when a U.S. President is elected from a different party than the incumbent,' etc.

The present invention, in an exemplary embodiment may be used the non-market capitalization weighted portfolio may be used for investment management, or investment portfolio benchmarking.

An exemplary embodiment of the invention may be implemented on a computing device(s), processor(s), computer(s) and/or communications device(s).

The computer, in an exemplary embodiment, may comprise one or more central processing units (CPUs) or processors, which may be coupled to a bus. The processor may, e.g., access main memory via the bus. The computer may be coupled to an input/output (I/O) subsystem such as, e.g., but not limited to, a network interface card (NIC), or a modem for access to a network. The computer may also be coupled to a secondary memory directly via bus, or via a main memory, for example. Secondary memory may include, e.g., but not limited to, a disk storage unit or other storage medium. Exemplary disk storage units may include, but are not limited to, a magnetic storage device such as, e.g., a hard disk, an optical storage device such as, e.g., a write once read many (WORM) drive, or a compact disc (CD), or a magneto optical device. Another type of secondary memory may include a removable disk storage device, which may be used in conjunction with a removable storage medium, such as, e.g. a CD-ROM, or a floppy diskette. In general, the disk storage unit may store an application program for operating the computer system referred to commonly as an operating system. The disk storage unit may also store documents of a database (not shown). The computer may interact with the I/O subsystems and disk storage unit via bus. The bus may also be coupled to a display for output, and input devices such as, but not limited to, a keyboard and a mouse or other pointing/selection device.

In this document, the terms "computer program medium" and "computer readable medium" may be used to generally refer to media such as, e.g., but not limited to removable storage drive, a hard disk installed in hard disk drive, and signals, etc. These computer program products may provide software to computer system. The invention may be directed to such computer program products.

References to "one embodiment," "an embodiment," "example embodiment," "various embodiments," etc., may indicate that the embodiment(s) of the invention so described may include a particular feature, structure, or characteristic, but not every embodiment necessarily includes the particular feature, structure, or characteristic. Further, repeated use of the phrase "in one embodiment," or "in an exemplary embodiment," do not necessarily refer to the same embodiment, although they may.

In the following description and claims, the terms "coupled" and "connected," along with their derivatives, may be used. It should be understood that these terms are not intended as synonyms for each other. Rather, in particular embodiments, "connected" may be used to indicate that two or more elements are in direct physical or electrical contact with each other. "Coupled" may mean that two or more elements are in direct physical or electrical contact. However, "coupled" may also mean that two or more elements are not in direct contact with each other, but yet still co-operate or interact with each other.

An algorithm is here, and generally, considered to be a self-consistent sequence of acts or operations leading to a desired result. These include physical manipulations of physical quantities. Usually, though not necessarily, these quantities take the form of electrical or magnetic signals capable of being stored, transferred, combined, compared, and otherwise manipulated. It has proven convenient at times, principally for reasons of common usage, to refer to these signals as bits, values, elements, symbols, characters, terms, numbers or the like. It should be understood, however, that all of these and similar terms are to be associated with the appropriate physical quantities and are merely convenient labels applied to these quantities.

Unless specifically stated otherwise, as apparent from the following discussions, it is appreciated that throughout the specification discussions utilizing terms such as "processing," "computing," "calculating," "determining," or the like, refer to the action and/or processes of a computer or computing system, or similar electronic computing device, that manipulate and/or transform data represented as physical, such as electronic, quantities within the computing system's registers and/or memories into other data similarly represented as physical quantities within the computing system's memories, registers or other such information storage, transmission or display devices.

In a similar manner, the term "processor" may refer to any device or portion of a device that processes electronic data from registers and/or memory to transform that electronic data into other electronic data that may be stored in registers and/or memory. A "computing platform" may comprise one or more processors.

Embodiments of the present invention may include apparatuses for performing the operations herein. An apparatus may be specially constructed for the desired purposes, or it may comprise a general purpose device selectively activated or reconfigured by a program stored in the device.

While various embodiments of the present invention have been described above, it should be understood that they have been presented by way of example only, and not limitation. Thus, the breadth and scope of the present invention should not be limited by any of the above-described exemplary embodiments, but should be defined only in accordance with the following claims and their equivalents. While this invention has been particularly described and illustrated with reference to a preferred embodiment, it will be understood to those having ordinary skill in the art that changes in the above description or illustrations may be made with respect to formal detail without departing from the spirit and scope of the invention.

What is claimed is:

1. A method of constructing an index of assets (I), the method implemented by at least one analysis host processor, the at least one analysis host processor comprising at least one computer processor, the method comprising:

(a) accessing by the at least one analysis host processor of one or more databases storing and permitting retrieval of data (D) about a plurality of entities (E) and a plurality of corresponding assets (A) each issued by or having been issued by at least one of the plurality of entities (E);

(b) receiving by the at least one analysis host processor at least one objective measure of scale (O) regarding one or more of the plurality of said assets, or one or more of the plurality of said entities (E) associated with said corresponding assets (A);

(c) retrieving by the at least one analysis host processor one or more of said data (D) about said plurality of said entities (E) and said corresponding assets (A);

(d) selecting by the at least one analysis host processor a selection from said plurality of said assets (A) and said entities (E) to comprise a plurality of constituent index assets (IA) comprising the index of assets (I), wherein said selecting comprises:

(i) selecting by the at least one analysis host processor said one or more data (D) to be a quantitative data (Q) reflecting the amount of said at least one objective

measure of scale (O) associated with each of said entities, wherein said at least one objective measure of scale (O) is substantially independent of the market prices (P) of any of said assets (A) and is substantially independent of a market capitalization (MC) of any of said entities (E),

wherein said at least one objective measure of scale (O) comprises a measure of size (SZ) of each said entity (E) associated with each said given asset (A), and wherein said measure of the size (SZ) of each said entity (E) corresponding to each said asset (A) comprises at least one of:

a demographic measure of a said entity (E) associated with said asset (A);

a financial metric of a said entity (E) associated with said asset (A);

a metric from information disclosures of a publicly traded entity; or

a metric from information about a said entity (E) associated with said asset (A);

(ii) ranking by the at least one analysis host processor said entities (E) based upon at least one of a said quantitative data (Q) associated with the at least one objective measure of scale (O) of each of said entities (E); and

(iii) selecting by the at least one analysis host processor said selection from said plurality of said assets (A) or said entities (E) to comprise said plurality of constituent index assets (IA) based on said ranking; and

(e) calculating by the at least one analysis host processor proportional weights for the index of assets to be objective measure of scale weights (OW) substantially independent of the market prices (P) of any of said assets (A) and substantially independent of a market capitalization (MC) of any of said entities (E), wherein said calculating comprises:

(i) adding by the at least one analysis host processor the quantitative data (Q) of each of said at least one objective measure of scale (O) for all of said constituent index assets (IA) to yield a sum total quantitative data (SUMQ) for said at least one objective measure of scale (O); and

(ii) determining by the at least one analysis host processor a relative size of the quantitative data (Q) of a said at least one objective measure of scale (O) for each said constituent index asset (IA) as a proportion of said sum total quantitative data (SUMQ) for said at least one objective measure of scale (O) to yield the objective measure of scale weight (OW) of each of the constituent index assets (IA) comprising the index of assets (I),

wherein said at least one objective measure of scale (O) comprises a measure of size (SZ) of each said entity (E) associated with each said given constituent index asset (IA), and wherein said measure of the size (SZ) of each said entity (E) corresponding to each said constituent index asset (IA) comprises at least one of:

a demographic measure of a said entity (E) associated with said constituent index asset (IA);

a financial metric of a said entity (E) associated with said constituent index asset (IA);

a metric from information disclosures of a publicly traded entity; or

a metric from information about a said entity (E) associated with said constituent index asset (IA).

2. The analysis host implemented method according to claim **1**, wherein each of said assets comprises at least one of a stock; a commodity; a futures contract; a bond; a municipal bond; a corporate bond; a mutual fund; a hedge fund; a fund of funds; an exchange traded fund (ETF); or a derivative.

3. The analysis host implemented method according to claim **1**, wherein each of said assets comprises a stock.

4. The analysis host implemented method according to claim **1**, wherein each of said assets comprises a commodity.

5. The analysis host implemented method according to claim **1**, wherein each of said assets comprises a futures contract.

6. The analysis host implemented method according to claim **1**, wherein each of said assets comprises a bond.

7. The analysis host implemented method according to claim **1**, wherein each of said assets comprises a mutual fund.

8. The analysis host implemented method according to claim **1**, wherein each of said assets comprises a hedge fund.

9. The analysis host implemented method according to claim **1**, wherein each of said assets comprises a fund of funds.

10. The analysis host implemented method according to claim **1**, wherein each of said assets comprises an exchange traded fund (ETF).

11. The analysis host implemented method according to claim **1**, wherein each of said assets comprises a derivative.

12. The analysis host implemented method according to claim **1**, wherein said (e) comprises performing a negative weighting on any of said assets.

13. The analysis host implemented method according to claim **12**, wherein said performing said negative weighting comprises at least one of: establishing or measuring performance, for at least one of: any security; a portfolio; a hedge fund; or at least one of: a long or a short position.

14. The analysis host implemented method according to claim **1**, wherein said objective measure of scale comprises a measure relating to at least one of an underlying attribute of one of the assets, or the entity associated with the asset.

15. The analysis host implemented method according to claim **1**, wherein said entity comprises at least one of: a company; a municipality; a municipality issuing bonds; a country; or an issuer of the asset.

16. The analysis host implemented method according to claim **1**, wherein said objective measure of scale comprises at least one of a mathematical transformation of at least one objective measure of scale, or a ratio of any combination of objective measures of scale relating to one or more of said assets and the ratio is not based on any one of: weighting said one or more assets based on market capitalization; equal weighting; or weighting in proportion to the price of said one or more assets.

17. The analysis host implemented method according to claim **16**, wherein said ratio of any combination of said objective measures of scale comprises at least one of:

a current ratio,

a debt ratio,

an overhead expense as a percent of sales, or

a debt service burden ratio.

18. The analysis host implemented method according to claim **1**, wherein said (e) comprises weighting based on said objective measure of scale, wherein said objective measure of scale comprises an economic indicator.

19. The analysis host implemented method according to claim **1**, wherein said objective measure of scale comprises a measure tied to a particular geography associated with the assets.

20. The analysis host implemented method of claim **1**, wherein the method comprises constructing a portfolio of assets based upon the index of assets (I).

21. The analysis host implemented method of claim 20, wherein the portfolio of assets comprises at least one of:
a fund;
a mutual fund;
a fund of funds;
an asset account;
an exchange traded fund (ETF);
a separate account;
a pooled trust; or
a limited partnership.

22. The analysis host implemented method according to claim 20, further comprising:
selecting the portfolio of assets for trading according to the index of assets (I); and
trading via at least one trading host processor one or more of said portfolio of assets based on said selecting or said weighting of the constituent index assets (IA) of the index of assets (I).

23. The analysis host implemented method according to claim 22, wherein said trading comprises: rebalancing the portfolio of assets based on the index of assets (I).

24. The analysis host implemented method according to claim 23, wherein said rebalancing is performed on a periodic basis.

25. The analysis host implemented method according to claim 23, wherein said rebalancing is based upon the constituent index assets (IA) crossing a threshold value.

26. The analysis host implemented method according to claim 22, further comprising: applying one or more rules associated with the index of assets (I).

27. The analysis host implemented method according to claim 1, wherein the method of constructing the index is used for at least one of: investment management; or investment portfolio benchmarking.

28. The analysis host implemented method of claim 1, wherein the method further comprises an enhanced valuation indifferent non-capitalization weighted index investing method, comprising:
constructing a portfolio of assets in a fashion in which at least one of: holdings; performance; or characteristics, are substantially similar to the index of assets (I).

29. The analysis host implemented method according to claim 1, wherein said (a) comprises: gathering data about the plurality of entities using computerized databases.

30. The analysis host implemented method according to claim 1, wherein said objective measure of scale comprises a non-financial metric.

31. The analysis host implemented method according to claim 1, wherein the analysis host implemented method comprises at least one of: a passive investing method; an active investing method; or an enhanced type of active investing method.

32. The analysis host implemented method according to claim 1, wherein said measure of the size (SZ) of each said entity (E) corresponding to each said asset (A) comprises at least one of:
revenue of a said entity (E) associated with said asset (A);
gross revenue of a said entity (E) associated with said asset (A);
profitability of a said entity (E) associated with said asset (A);
sales of a said entity (E) associated with said asset (A);
total sales of a said entity (E) associated with said asset (A);
foreign sales of a said entity (E) associated with said asset (A);
domestic sales of a said entity (E) associated with said asset (A);
net sales of a said entity (E) associated with said asset (A);
gross sales of a said entity (E) associated with said asset (A);
profit margin of a said entity (E) associated with said asset (A);
operating margin of a said entity (E) associated with said asset (A);
retained earnings of a said entity (E) associated with said asset (A);
earnings per share of a said entity (E) associated with said asset (A);
book value of a said entity (E) associated with said asset (A);
book value adjusted for inflation of a said entity (E) associated with said asset (A);
book value adjusted for replacement cost of a said entity (E) associated with said asset (A);
book value adjusted for liquidation value of a said entity (E) associated with said asset (A);
dividends of a said entity (E) associated with said asset (A);
assets of a said entity (E) associated with said asset (A);
tangible assets of a said entity (E) associated with said asset (A);
intangible assets of a said entity (E) associated with said asset (A);
fixed assets of a said entity (E) associated with said asset (A);
property of a said entity (E) associated with said asset (A);
plant of a said entity (E) associated with said asset (A);
equipment of a said entity (E) associated with said asset (A);
goodwill of a said entity (E) associated with said asset (A);
replacement value of assets of a said entity (E) associated with said asset (A);
liquidation value of assets of a said entity (E) associated with said asset (A);
liabilities of a said entity (E) associated with said asset (A);
long term liabilities of a said entity (E) associated with said asset (A);
short term liabilities of a said entity (E) associated with said asset (A);
net worth of a said entity (E) associated with said asset (A);
research and development expense of a said entity (E) associated with said asset (A);
accounts receivable of a said entity (E) associated with said asset (A);
earnings before interest and tax (EBIT) of a said entity (E) associated with said asset (A);
earnings before interest, taxes, dividends, and amortization (EBITDA) of a said entity (E) associated with said asset (A);
accounts payable of a said entity (E) associated with said asset (A);
cost of goods sold (CGS) of a said entity (E) associated with said asset (A);
debt ratio of a said entity (E) associated with said asset (A);
budget of a said entity (E) associated with said asset (A);
capital budget of a said entity (E) associated with said asset (A);
cash budget of a said entity (E) associated with said asset (A);
direct labor budget of a said entity (E) associated with said asset (A);
factory overhead budget of a said entity (E) associated with said asset (A);
operating budget of a said entity (E) associated with said asset (A);

sales budget of a said entity (E) associated with said asset (A);
inventory method of a said entity (E) associated with said asset (A);
type of stock offered of a said entity (E) associated with said asset (A);
liquidity of a said entity (E) associated with said asset (A);
book income of a said entity (E) associated with said asset (A);
tax income of a said entity (E) associated with said asset (A);
capitalization of earnings of a said entity (E) associated with said asset (A);
capitalization of goodwill of a said entity (E) associated with said asset (A);
capitalization of interest of a said entity (E) associated with said asset (A);
capitalization of revenue of a said entity (E) associated with said asset (A);
capital spending of a said entity (E) associated with said asset (A);
cash of a said entity (E) associated with said asset (A);
compensation of a said entity (E) associated with said asset (A);
employee turnover of a said entity (E) associated with said asset (A);
overhead costs of a said entity (E) associated with said asset (A);
credit rating of a said entity (E) associated with said asset (A);
growth rate of a said entity (E) associated with said asset (A);
tax rate of a said entity (E) associated with said asset (A);
liquidation value of entity of a said entity (E) associated with said asset (A);
capitalization of cash of a said entity (E) associated with said asset (A);
capitalization of earnings of a said entity (E) associated with said asset (A);
capitalization of revenue of a said entity (E) associated with said asset (A);
cash flow of a said entity (E) associated with said asset (A),
a demographic measure of a said entity (E) associated with said asset (A);
a measure relating to a demographic attribute of a said entity (E) associated with said asset (A);
a non-financial metric of a said entity (E) associated with said asset (A);
a non-market related metric of a said entity (E) associated with said asset (A);
number of employees of a said entity (E) associated with said asset (A);
floor space of a said entity (E) associated with said asset (A); or office space of a said entity (E) associated with said asset (A); and
wherein said measure of the size (SZ) of each said entity (E) corresponding to each said constituent index asset (IA) comprises at least one of:
revenue of a said entity (E) associated with said constituent index asset (IA);
gross revenue of a said entity (E) associated with said constituent index asset (IA);
profitability of a said entity (E) associated with said constituent index asset (IA);
sales of a said entity (E) associated with said constituent index asset (IA);
total sales of a said entity (E) associated with said constituent index asset (IA);
foreign sales of a said entity (E) associated with said constituent index asset (IA);
domestic sales of a said entity (E) associated with said constituent index asset (IA);
net sales of a said entity (E) associated with said constituent index asset (IA);
gross sales of a said entity (E) associated with said constituent index asset (IA);
profit margin of a said entity (E) associated with said constituent index asset (IA);
operating margin of a said entity (E) associated with said constituent index asset (IA);
retained earnings of a said entity (E) associated with said constituent index asset (IA);
earnings per share of a said entity (E) associated with said constituent index asset (IA);
book value of a said entity (E) associated with said constituent index asset (IA);
book value adjusted for inflation of a said entity (E) associated with said constituent index asset (IA);
book value adjusted for replacement cost of a said entity (E) associated with said constituent index asset (IA);
book value adjusted for liquidation value of a said entity (E) associated with said constituent index asset (IA);
dividends of a said entity (E) associated with said constituent index asset (IA);
assets of a said entity (E) associated with said constituent index asset (IA);
tangible assets of a said entity (E) associated with said constituent index asset (IA);
intangible assets of a said entity (E) associated with said constituent index asset (IA);
fixed assets of a said entity (E) associated with said constituent index asset (IA);
property of a said entity (E) associated with said constituent index asset (IA);
plant of a said entity (E) associated with said constituent index asset (IA);
equipment of a said entity (E) associated with said constituent index asset (IA);
goodwill of a said entity (E) associated with said constituent index asset (IA);
replacement value of assets of a said entity (E) associated with said constituent index asset (IA);
liquidation value of assets of a said entity (E) associated with said constituent index asset (IA);
liabilities of a said entity (E) associated with said constituent index asset (IA);
long term liabilities of a said entity (E) associated with said constituent index asset (IA);
short term liabilities of a said entity (E) associated with said constituent index asset (IA);
net worth of a said entity (E) associated with said constituent index asset (IA);
research and development expense of a said entity (E) associated with said constituent index asset (IA);
accounts receivable of a said entity (E) associated with said constituent index asset (IA);
earnings before interest and tax (EBIT) of a said entity (E) associated with said constituent index asset (IA);
earnings before interest, taxes, dividends, and amortization (EBITDA) of a said entity (E) associated with said constituent index asset (IA);
accounts payable of a said entity (E) associated with said constituent index asset (IA);

cost of goods sold (CGS) of a said entity (E) associated with said constituent index asset (IA);
debt ratio of a said entity (E) associated with said constituent index asset (IA);
budget of a said entity (E) associated with said constituent index asset (IA);
capital budget of a said entity (E) associated with said constituent index asset (IA);
cash budget of a said entity (E) associated with said constituent index asset (IA);
direct labor budget of a said entity (E) associated with said constituent index asset (IA);
factory overhead budget of a said entity (E) associated with said constituent index asset (IA);
operating budget of a said entity (E) associated with said constituent index asset (IA);
sales budget of a said entity (E) associated with said constituent index asset (IA);
inventory method of a said entity (E) associated with said constituent index asset (IA);
type of stock offered of a said entity (E) associated with said constituent index asset (IA);
liquidity of a said entity (E) associated with said constituent index asset (IA);
book income of a said entity (E) associated with said constituent index asset (IA);
tax income of a said entity (E) associated with said constituent index asset (IA);
capitalization of earnings of a said entity (E) associated with said constituent index asset (IA);
capitalization of goodwill of a said entity (E) associated with said constituent index asset (IA);
capitalization of interest of a said entity (E) associated with said constituent index asset (IA);
capitalization of revenue of a said entity (E) associated with said constituent index asset (IA);
capital spending of a said entity (E) associated with said constituent index asset (IA);
cash of a said entity (E) associated with said constituent index asset (IA);
compensation of a said entity (E) associated with said constituent index asset (IA);
employee turnover of a said entity (E) associated with said constituent index asset (IA);
overhead costs of a said entity (E) associated with said constituent index asset (IA);
credit rating of a said entity (E) associated with said constituent index asset (IA);
growth rate of a said entity (E) associated with said constituent index asset (IA);
tax rate of a said entity (E) associated with said constituent index asset (IA);
liquidation value of entity of a said entity (E) associated with said constituent index asset (IA);
capitalization of cash of a said entity (E) associated with said constituent index asset (IA);
capitalization of earnings of a said entity (E) associated with said constituent index asset (IA);
capitalization of revenue of a said entity (E) associated with said constituent index asset (IA);
cash flow of a said entity (E) associated with said constituent index asset (IA),
a demographic measure of a said entity (E) associated with said constituent index asset (IA);
a measure relating to a demographic attribute of a said entity (E) associated with said constituent index asset (IA);
a non-financial metric of a said entity (E) associated with said constituent index asset (IA);
a non-market related metric of a said entity (E) associated with said constituent index asset (IA);
number of employees of a said entity (E) associated with said constituent index asset (IA);
floor space of a said entity (E) associated with said constituent index asset (IA); or
office space of a said entity (E) associated with said constituent index asset (IA).

33. The analysis host implemented method according to claim **1**, wherein at least one of: said measure of the size (SZ) of each said entity (E) corresponding to each said asset (A) comprises a future value of expected cash flow of a said entity (E) associated with said asset (A); or

said measure of the size (SZ) of each said entity (E) corresponding to each said constituent index asset (IA) comprises a future value of expected cash flow of a said entity (E) associated with said constituent index asset (IA).

34. The analysis host implemented method according to claim **1**, further comprising: generating a subset of said data to obtain said plurality of said assets (A) and said plurality of said entities (E).

35. The analysis host implemented method according to claim **34**, wherein said generating the subset comprises generating a sector.

36. The analysis host implemented method according to claim **34**, wherein said generating the subset comprises generating a subcategory of said entities or assets, to obtain said plurality of said entities, or said plurality of said assets.

37. The analysis host implemented method according to claim **34**, wherein said generating said subset of said data by the at least one analysis host processor comprises selecting based on at least one of: a metric of liquidity of said assets, or any metric of size of said entities.

38. The analysis host implemented method according to claim **37**, wherein said generating said subset of said data by said selecting comprises selecting a subset of said assets or said entities at least one of, before, during, or after said selecting of said (d).

39. The analysis host implemented method according to claim **1**, further comprising:

selecting a portion of at least one of said assets or said entities based on any criterion to obtain said plurality of said entities, or said plurality of said assets.

40. The analysis host implemented method according to claim **1**, further comprising constructing said index further comprising at least one of:

minimizing trading costs;
minimizing turnover;
minimizing management costs;
avoiding misjudgments in selection;
avoiding following a market bubble;
taking account of classical valuation ratios;
constructing a valuation indifferent index; or
reducing portfolio volatility.

41. The computer-implemented method according to claim **1**, further comprising constructing a portfolio based on an index of assets, the method comprising:

f) receiving the index of assets from an index provider, where the index provider previously constructed the index of assets and stored the index of assets on at least one analysis host,

the at least one analysis host comprising at least one processor, and a memory coupled to said at least one processor, wherein said analysis host is configured to:

access one or more databases storing and permitting retrieval of data (D) about a plurality of entities (E) and a plurality of corresponding assets (A) each issued by or having been issued by at least one of the plurality of entities (E);

receive at least one objective measure of scale (O) regarding one or more of the plurality of the assets or one or more of the plurality of the entities (E) associated with the corresponding assets (A);

retrieve one or more of the data (D) about the plurality of the entities (E) and the corresponding assets (A);

generate a subset of the data to obtain the plurality of the assets (A) or the plurality of the entities (E) based on at least one criterion;

select a selection from the plurality of the assets (A) or the entities (E) to comprise a plurality of constituent index assets (IA) comprising the index of assets (I), wherein said select comprises wherein said analysis host is configured to:

select the one or more data (D) to be a quantitative data (Q) reflecting the amount of the at least one objective measure of scale (O) associated with each of the entities, wherein the at least one objective measure of scale (O) is substantially independent of the market prices (P) of any of the assets (A) and is substantially independent of a market capitalization (MC) of any of the entities (E),

wherein the at least one objective measure of scale (O) comprises a measure of size (SZ) of each the entity (E) associated with each the given asset (A), and wherein the measure of the size (SZ) of each the entity (E) corresponding to each the asset (A) comprises at least one of:

a demographic measure of a the entity (E) associated with the asset (A);

a financial metric of a the entity (E) associated with the asset (A);

a metric from information disclosures of a publicly traded entity; or

a metric from information about a the entity (E) associated with the asset (A);

rank the entities (E) based upon at least one of the quantitative data (Q) associated with the at least one objective measure of scale (O) of each of the entities (E); and

select the selection from the plurality of the assets (A) and the entities to comprise the plurality of constituent index assets (IA) based on the ranking; and

calculate proportional weights for the index of assets to be objective measure of scale weights (OW) substantially independent of the market prices (P) of any of the assets (A) and substantially independent of a market capitalization (MC) of any of the entities (E), wherein said calculate comprises wherein said analysis host is configured to:

add the quantitative data (Q) of each of the at least one objective measure of scale (O) for all of the constituent index assets (IA) to yield a sum total quantitative data (SUMQ) for the at least one objective measure of scale (O); and

determine a relative size of the quantitative data (Q) of a the at least one objective measure of scale (O) for each the constituent index asset (IA) as a proportion of the sum total quantitative data (SUMQ) for the at least one objective measure of scale (O) to yield the objective measure of scale weight (OW) of each of the constituent index assets (IA) comprising the index of assets (I),

wherein the at least one objective measure of scale (O) comprises a measure of size (SZ) of each the entity (E) associated with each the given constituent index asset (IA), and wherein the measure of the size (SZ) of each the entity (E) corresponding to each the constituent index asset (IA) comprises at least one of:

a demographic measure of a the entity (E) associated with the constituent index asset (IA);

a financial metric of a the entity (E) associated with the constituent index asset (IA);

a metric from information disclosures of a publicly traded entity; or

a metric from information about a the entity (E) associated with the constituent index asset (IA);

g) purchasing a portfolio of assets by at least one trading host comprising at least one processor and at least one memory coupled to said at least one processor, said portfolio of assets comprising the plurality of constituent assets of the index of assets in proportion to the constituent weights of the index of assets received; and

h) altering said portfolio of assets by said at least one trading host comprising said at least one processor, when the index of assets received from the index provider changes over time, said altering comprising at least one of:

i) purchasing by said at least one trading host any new constituent assets of the index of assets over time;

ii) purchasing by said at least one trading host any additional constituent assets based on changes in the constituent weights of the constituent assets making up the index of assets over time;

iii) selling by said at least one trading host any previous constituent assets no longer components of the index of assets over time; or

iv) selling by said at least one trading host any previous constituent assets necessitated by changes in the calculated weights of the index of assets over time.

42. A system for constructing an index of assets (I), comprising:

at least one analysis host comprising at least one computer processor; and

at least one memory coupled to said at least one processor, wherein said analysis host is configured to:

access by the at least one processor one or more databases storing and permitting retrieval of data (D) about a plurality of entities (E) and a plurality of corresponding assets (A) each issued by or having been issued by at least one of the plurality of entities (E);

receive by the at least one processor at least one objective measure of scale (O) regarding one or more of the plurality of assets (A), or one or more of the plurality of entities (E) associated with said corresponding assets (A);

retrieve by the at least one processor one or more of said data (D) about said plurality of said entities (E) and said corresponding assets (A);

select by the at least one processor a selection from said plurality of said assets (A) or said entities (E) to comprise a plurality of constituent index assets (IA) comprising the index of assets (I), wherein said select comprises wherein said analysis host is configured to:

select by the at least one processor said one or more data (D) to be a quantitative data (Q) reflecting the

amount of said at least one objective measure of scale (O) associated with each of said entities, wherein said at least one objective measure of scale (O) is substantially independent of the market prices (P) of any of said assets (A) and is substantially independent of a market capitalization (MC) of any of said entities (E),

wherein said at least one objective measure of scale (O) comprises a measure of size (SZ) of each said entity (E) associated with each said given asset (A), and wherein said measure of the size (SZ) of each said entity (E) corresponding to each said asset (A) comprises at least one of:

a demographic measure of a said entity (E) associated with said asset (A);

a financial metric of a said entity (E) associated with said asset (A);

a metric from information disclosures of a publicly traded entity; or

a metric from information about a said entity (E) associated with said asset (A);

rank by the at least one processor said entities (E) based upon at least one of a said quantitative data (Q) associated with the at least one objective measure of scale (O) of each of said entities (E); and

select by the at least one processor said selection from said plurality of said assets (A) or said entities (E) to comprise said plurality of constituent index assets (IA) based on said ranking; and

calculate by the at least one processor proportional weights for the index of assets to be objective measure of scale weights (OW) substantially independent of the market prices (P) of any of said assets (A) and substantially independent of a market capitalization (MC) of any of said entities (E), wherein said calculate comprises wherein said analysis host is configured to:

add by the at least one processor the quantitative data (Q) of each of said at least one objective measure of scale (O) for all of said constituent index assets (IA) to yield a sum total quantitative data (SUMQ) for said at least one objective measure of scale (O); and

determine by the at least one processor a relative size of the quantitative data (Q) of a said at least one objective measure of scale (O) for each said constituent index asset (IA) as a proportion of said sum total quantitative data (SUMQ) for said at least one objective measure of scale (O) to yield the objective measure of scale weight (OW) of each of the constituent index assets (IA) comprising the index of assets (I),

wherein said at least one objective measure of scale (O) comprises a measure of size (SZ) of each said entity (E) associated with each said given constituent index asset (IA), and wherein said measure of the size (SZ) of each said entity (E) corresponding to each said constituent index asset (IA) comprises at least one of:

a demographic measure of a said entity (E) associated with said constituent index asset (IA);

a financial metric of a said entity (E) associated with said constituent index asset (IA);

a metric from information disclosures of a publicly traded entity; or

a metric from information about a said entity (E) associated with said constituent index asset (IA).

43. The system according to claim **42**, wherein said measure of the size (SZ) of each said entity (E) corresponding to each said asset (A) comprises at least one of:

revenue of a said entity (E) associated with said asset (A);

gross revenue of a said entity (E) associated with said asset (A);

profitability of a said entity (E) associated, with said asset (A);

sales of a said entity (E) associated with said asset (A);

total sales of a said entity (E) associated with said asset (A);

foreign sales of a said entity (E) associated with said asset (A);

domestic sales of a said entity (E) associated with said asset (A);

net sales of a said entity (E) associated with said asset (A);

gross sales of a said entity (E) associated with said asset (A);

profit margin of a said entity (E) associated with said asset (A);

operating margin of a said entity (E) associated with said asset (A);

retained earnings of a said entity (E) associated with said asset (A);

earnings per share of a said entity (E) associated with said asset (A);

book value of a said entity (E) associated with said asset (A);

book value adjusted for inflation of a said entity (E) associated with said asset (A);

book value adjusted for replacement cost of a said entity (E) associated with said asset (A);

book value adjusted for liquidation value of a said entity (E) associated with said asset (A);

dividends of a said entity (E) associated with said asset (A);

assets of a said entity (E) associated with said asset (A);

tangible assets of a said entity (E) associated with said asset (A);

intangible assets of a said entity (E) associated with said asset (A);

fixed assets of a said entity (E) associated with said asset (A);

property of a said entity (E) associated with said asset (A);

plant of a said entity (E) associated with said asset (A);

equipment of a said entity (E) associated with said asset (A);

goodwill of a said entity (E) associated with said asset (A);

replacement value of assets of a said entity (E) associated with said asset (A);

liquidation value of assets of a said entity (E) associated with said asset (A);

liabilities of a said entity (E) associated with said asset (A);

long term liabilities of a said entity (E) associated with said asset (A);

short term liabilities of a said entity (E) associated with, said asset (A);

net worth of a said entity (E) associated with said asset (A);

research and development expense of a said entity (E) associated with said asset (A);

accounts receivable of a said entity (E) associated with said asset (A);

earnings before interest and tax (EB IT) of a said entity (E) associated with said asset (A);

earnings before interest, taxes, dividends, and amortization (EBITDA) of a said entity (E) associated with said asset (A);

accounts payable of a said entity (E) associated with said asset (A);

cost of goods sold (CGS) of a said entity (E) associated with said asset (A);
debt ratio of a said entity (E) associated with said asset (A);
budget of a said entity (E) associated with said asset (A);
capital budget of a said entity (E) associated with said asset (A);
cash budget of a said entity (E) associated with said asset (A);
direct labor budget of a said entity (E) associated with said asset (A);
factory overhead budget of a said entity (E) associated with said asset (A);
operating budget of a said entity (E) associated with said asset (A);
sales budget of a said entity (E) associated with said asset (A);
inventory method of a said entity (E) associated with said asset (A);
type of stock offered of a said entity (E) associated with said asset (A);
liquidity of a said entity (E) associated with said asset (A);
book income of a said entity (E) associated with said asset (A);
tax income of a said entity (E) associated with said asset (A);
capitalization of earnings of a said entity (E) associated with said asset (A);
capitalization of goodwill of a said entity (E) associated with said asset (A);
capitalization of interest of a said entity (E) associated with said asset (A);
capitalization of revenue of a said entity (E) associated with said asset (A);
capital spending of a said entity (E) associated with said asset (A);
cash of a said entity (E) associated with said asset (A);
compensation of a said entity (E) associated with said asset (A);
employee turnover of a said entity (E) associated with said asset (A);
overhead costs of a said entity (E) associated with said asset (A);
credit rating of a said entity (E) associated with said asset (A);
growth rate of a said entity (E) associated with said asset (A);
tax rate of a said entity (E) associated with said asset (A);
liquidation value of entity of a said entity (E) associated with said asset (A);
capitalization of cash of a said entity (E) associated with said asset (A);
capitalization of earnings of a said entity (E) associated with said asset (A);
capitalization of revenue of a said entity (E) associated with said asset (A);
cash flow of a said entity (E) associated with said asset (A),
a demographic measure of a said entity (E) associated with said asset (A);
a measure relating to a demographic attribute of a said entity (E) associated with said asset (A);
a non-financial metric of a said entity (E) associated with said asset (A);
a non-market related metric of a said entity (E) associated with said asset (A);
number of employees of a said entity (E) associated with said asset (A);
floor space of a said entity (E) associated with said asset (A); or
office space of a said entity (E) associated with said asset (A); and

wherein said measure of the size (SZ) of each said entity (E) corresponding to each said constituent index asset (IA) comprises at least one of:

revenue of a said entity (E) associated with said constituent index asset (IA);
gross revenue of a said entity (E) associated with said constituent index asset (IA);
profitability of a said entity (E) associated with said constituent index asset (IA);
sales of a said entity (E) associated with said constituent index asset (IA);
total sales of a said entity (E) associated with said constituent index asset (IA);
foreign sales of a said entity (E) associated with said constituent index asset (IA);
domestic sales of a said entity (E) associated with said constituent index asset (IA);
net sales of a said entity (E) associated with said constituent index asset (IA);
gross sales of a said entity (E) associated with said constituent index asset (IA);
profit margin of a said entity (E) associated with said constituent index asset (IA);
operating margin of a said entity (E) associated with said constituent index asset (IA);
retained earnings of a said entity (E) associated with said constituent index asset (IA);
earnings per share of a said entity (E) associated with said constituent index asset (IA);
book value of a said entity (E) associated with said constituent index asset (IA);
book value adjusted for inflation of a said entity (E) associated with said constituent index asset (IA);
book value adjusted for replacement cost of a said entity (E) associated with said constituent index asset (IA);
book value adjusted for liquidation value of a said entity (E) associated with said constituent index asset (IA);
dividends of a said entity (E) associated with said constituent index asset (IA);
assets of a said entity (E) associated with said constituent index asset (IA);
tangible assets of a said entity (E) associated with said constituent index asset (IA);
intangible assets of a said entity (E) associated with said constituent index asset (IA);
fixed assets of a said entity (E) associated with said constituent index asset (IA);
property of a said entity (E) associated with said constituent index asset (IA);
plant of a said entity (E) associated with said constituent index asset (IA);
equipment of a said entity (E) associated with said constituent index asset (IA);
goodwill of a said entity (E) associated with said constituent index asset (IA);
replacement value of assets of a said entity (E) associated with said constituent index asset (IA);
liquidation value of assets of a said entity (E) associated with said constituent index asset (IA);
liabilities of a said entity (E) associated with said constituent index asset (IA);
long term liabilities of a said entity (E) associated with said constituent index asset (IA);

short term liabilities of a said entity (E) associated with said constituent index asset (IA);
net worth of a said entity (E) associated with said constituent index asset (IA);
research and development expense of a said entity (E) associated with said constituent index asset (IA);
accounts receivable of a said entity (E) associated with said constituent index asset (IA);
earnings before interest and tax (EBIT) of a said entity (E) associated with said constituent index asset (IA);
earnings before interest, taxes, dividends, and amortization (EBITDA) of a said entity (E) associated with said constituent index asset (IA);
accounts payable of a said entity (E) associated with said constituent index asset (IA);
cost of goods sold (CGS) of a said entity (E) associated with said constituent index asset (IA);
debt ratio of a said entity (E) associated with said constituent index asset (IA);
budget of a said entity (E) associated with said constituent index asset (IA);
capital budget of a said entity (E) associated with said constituent index asset (IA);
cash budget of a said entity (E) associated with said constituent index asset (IA);
direct labor budget of a said entity (E) associated with said constituent index asset (IA);
factory overhead budget of a said entity (E) associated with said constituent index asset (IA);
operating budget of a said entity (E) associated with said constituent index asset (IA);
sales budget of a said entity (E) associated with said constituent index asset (IA);
inventory method of a said entity (E) associated with said constituent index asset (IA);
type of stock offered of a said entity (E) associated with said constituent index asset (IA);
liquidity of a said entity (E) associated with said constituent index asset (IA);
book income of a said entity (E) associated with said constituent index asset (IA);
tax income of a said entity (E) associated with said constituent index asset (IA);
capitalization of earnings of a said entity (E) associated with said constituent index asset (IA);
capitalization of goodwill of a said entity (E) associated with said constituent index asset (IA);
capitalization of interest of a said entity (E) associated with said constituent index asset (IA);
capitalization of revenue of a said entity (E) associated with said constituent index asset (IA);
capital spending of a said entity (E) associated with said constituent index asset (IA);
cash of a said entity (E) associated with said constituent index asset (IA);
compensation of a said entity (E) associated with said constituent index asset (IA);
employee turnover of a said entity (E) associated with said constituent index asset (IA);
overhead costs of a said entity (E) associated with said constituent index asset (IA);
credit rating of a said entity (E) associated with said constituent index asset (IA);
growth rate of a said entity (E) associated with said constituent index asset (IA);
tax rate of a said entity (E) associated with said constituent index asset (IA);
liquidation value of entity of a said entity (E) associated with said constituent index asset (IA);
capitalization of cash of a said entity (E) associated with said constituent index asset (IA);
capitalization of earnings of a said entity (E) associated with said constituent index asset (IA);
capitalization of revenue of a said entity (E) associated with said constituent index asset (IA);
cash flow of a said entity (E) associated with said constituent index asset (IA),
a demographic measure of a said entity (E) associated with said constituent index asset (IA);
a measure relating to a demographic attribute of a said entity (E) associated with said constituent index asset (IA);
a non-financial metric of a said entity (E) associated with said constituent index asset (IA);
a non-market related metric of a said entity (E) associated with said constituent index asset (IA);
number of employees of a said entity (E) associated with said constituent index asset (IA);
floor space of a said entity (E) associated with said constituent index asset (IA); or
office space of a said entity (E) associated with said constituent index asset (IA).

44. The system according to claim **42**, wherein at least one of: said measure of the size (SZ) of each said entity (E) corresponding to each said asset (A) comprises a future value of expected cash flow of a said entity (E) associated with said asset (A); or said measure of the size (SZ) of each said entity (E) corresponding to each said constituent index asset (IA) comprises a future value of expected cash flow of a said entity (E) associated with said constituent index asset (IA).

45. A computer-implemented index construction system, comprising:

at least one analysis host comprising at least one processor; and

at least one memory coupled to said at least one processor, wherein said analysis host is configured to:

access one or more databases storing and permitting retrieval of data (D) about a plurality of entities (E) and a plurality of corresponding assets (A) each issued by or having been issued by at least one of the plurality of entities (E);

receive at least one objective measure of scale (O) regarding one or more of the plurality of said assets, or one or more of the plurality of entities (E) associated with said corresponding assets (A);

retrieve one or more of said data (D) about a plurality of said entities (E) and said corresponding assets (A);

select a selection from said plurality of said assets (A) or said entities (E) to comprise a plurality of constituent index assets (IA) comprising the index of assets (I), wherein said select comprises wherein said analysis host is configured to:

select said one or more data (D) to be a quantitative data (Q) reflecting the amount of said at least one objective measure of scale (O) associated with each of said entities, wherein said at least one objective measure of scale (O) is substantially independent of the market prices (P) of any of said assets (A) and is substantially independent of a market capitalization (MC) of any of said entities (E),

wherein said at least one objective measure of scale (O) comprises a measure of size (SZ) of each said entity (E) associated with each said given asset (A), and wherein said measure of the size (SZ) of each

said entity (E) corresponding to each said asset (A) comprises at least one of:

a demographic measure of a said entity (E) associated with said asset (A);

a financial metric of a said entity (E) associated with said asset (A);

a metric from information disclosures of a publicly traded entity; or

a metric from information about a said entity (E) associated with said asset (A);

rank said entities (E) based upon at least one of a said quantitative data (Q) associated with the at least one objective measure of scale (O) of each of said entities (E); and

select said selection from said plurality of said assets (A) or said entities (E) to comprise said plurality of constituent index assets (IA) based on said ranking; and

calculate proportional weights for the index of assets to be objective measure of scale weights (OW) substantially independent of the market prices (P) of any of said assets (A) and substantially independent of a market capitalization (MC) of any of said entities (E), wherein said calculate comprises wherein said analysis host is configured to:

add the quantitative data (Q) of each of said at least one objective measure of scale (O) for all of said constituent index assets (IA) to yield a sum total quantitative data (SUMQ) for said at least one objective measure of scale (O); and

determine a relative size of the quantitative data (Q) of a said at least one objective measure of scale (O) for each said constituent index asset (IA) as a proportion of said sum total quantitative data (SUMQ) for said at least one objective measure of scale (O) to yield the objective measure of scale weight (OW) of each of the constituent index assets (IA) comprising the index of assets (I),

wherein said at least one objective measure of scale (O) comprises a measure of size (SZ) of each said entity (E) associated with each said given constituent index asset (IA), and wherein said measure of the size (SZ) of each said entity (E) corresponding to each said constituent index asset (IA) comprises at least one of:

a demographic measure of a said entity (E) associated with said constituent index asset (IA);

a financial metric of a said entity (E) associated with said constituent index asset (IA);

a metric from information disclosures of a publicly traded entity; or

a metric from information about a said entity (E) associated with said constituent index asset (IA).

46. The computer implemented index construction system according to claim **45**, further comprising:

at least one trading host comprising at least one processor, and at least one memory coupled to said at least one processor, said at least one trading host configured to:

select a plurality of assets for trading according to the index of assets; and

trade one or more of said plurality of assets based on said select or said calculation of weights of the constituent index assets of the index.

47. A computer-implemented index construction system according to claim **45**, wherein said measure of the size (SZ) of each said entity (E) corresponding to each said asset (A) comprises at least one of:

revenue of a said entity (E) associated with said asset (A);

gross revenue of a said entity (E) associated with said asset (A);

profitability of a said entity (E) associated with said asset (A);

sales of a said entity (E) associated with said asset (A);

total sales of a said entity (E) associated with said asset (A);

foreign sales of a said entity (E) associated with said asset (A);

domestic sales of a said entity (E) associated with said asset (A);

net sales of a said entity (E) associated with said asset (A);

gross sales of a said entity (E) associated with said asset (A);

profit margin of a said entity (E) associated with said asset (A);

operating margin of a said entity (E) associated with said asset (A);

retained earnings of a said entity (E) associated with said asset (A);

earnings per share of a said entity (E) associated with said asset (A);

book value of a said entity (E) associated with said asset (A);

book value adjusted for inflation of a said entity (E) associated with said asset (A);

book value adjusted for replacement cost of a said entity (E) associated with said asset (A);

book value adjusted for liquidation value of a said entity (E) associated with said asset (A);

dividends of a said entity (E) associated with said asset (A);

assets of a said entity (E) associated with said asset (A);

tangible assets of a said entity (E) associated with said asset (A);

intangible assets of a said entity (E) associated with said asset (A);

fixed assets of a said entity (E) associated with said asset (A);

property of a said entity (E) associated with said asset (A);

plant of a said entity (E) associated with said asset (A);

equipment of a said entity (E) associated with said asset (A);

goodwill of a said entity (E) associated with said asset (A);

replacement value of assets of a said entity (E) associated with said asset (A);

liquidation value of assets of a said entity (E) associated with said asset (A);

liabilities of a said entity (E) associated with said asset (A);

long term liabilities of a said entity (E) associated with said asset (A);

short term liabilities of a said entity (E) associated with said asset (A);

net worth of a said entity (E) associated with said asset (A);

research and development expense of a said entity (E) associated with said asset (A);

accounts receivable of a said entity (E) associated with said asset (A);

earnings before interest and tax (EBIT) of a said entity (E) associated with said asset (A);

earnings before interest, taxes, dividends, and amortization (EBITDA) of a said entity (E) associated with said asset (A);

accounts payable of a said entity (E) associated with said asset (A);

cost of goods sold (CGS) of a said entity (E) associated with said asset (A);

debt ratio of a said entity (E) associated with said asset (A);

budget of a said entity (E) associated with said asset (A);

capital budget of a said entity (E) associated with said asset (A);
cash budget of a said entity (E) associated with said asset (A);
direct labor budget of a said entity (E) associated with said asset (A);
factory overhead budget of a said entity (E) associated with said asset (A);
operating budget of a said entity (E) associated with said asset (A);
sales budget of a said entity (E) associated with said asset (A);
inventory method of a said entity (E) associated with said asset (A);
type of stock offered of a said entity (E) associated with said asset (A);
liquidity of a said entity (E) associated with said asset (A);
book income of a said entity (E) associated with said asset (A);
tax income of a said entity (E) associated with said asset (A);
capitalization of earnings of a said entity (E) associated with said asset (A);
capitalization of goodwill of a said entity (E) associated with said asset (A);
capitalization of interest of a said entity (E) associated with said asset (A);
capitalization of revenue of a said entity (E) associated with said asset (A);
capital spending of a said entity (E) associated with said asset (A);
cash of a said entity (E) associated with said asset (A);
compensation of a said entity (E) associated with said asset (A);
employee turnover of a said entity (E) associated with said asset (A);
overhead costs of a said entity (E) associated with said asset (A);
credit rating of a said entity (E) associated with said asset (A);
growth rate of a said entity (E) associated with said asset (A);
tax rate of a said entity (E) associated with said asset (A);
liquidation value of entity of a said entity (E) associated with said asset (A);
capitalization of cash of a said entity (E) associated with said asset (A);
capitalization of earnings of a said entity (E) associated with said asset (A);
capitalization of revenue of a said entity (E) associated with said asset (A);
cash flow of a said entity (E) associated with said asset (A),
a demographic measure of a said entity (E) associated with said asset (A);
a measure relating to a demographic attribute of a said entity (E) associated with said asset (A);
a non-financial metric of a said entity (E) associated with said asset (A);
a non-market related metric of a said entity (E) associated with said asset (A);
number of employees of a said entity (E) associated with said asset (A);
floor space of a said entity (E) associated with said asset (A); or office space of a said entity (E) associated with said asset (A); and

wherein said measure of the size (SZ) of each said entity (E) corresponding to each said constituent index asset (IA) comprises at least one of:
revenue of a said entity (E) associated with said constituent index asset (IA);
gross revenue of a said entity (E) associated with said constituent index asset (IA);
profitability of a said entity (E) associated with said constituent index asset (IA);
sales of a said entity (E) associated with said constituent index asset (IA);
total sales of a said entity (E) associated with said constituent index asset (IA);
foreign sales of a said entity (E) associated with said constituent index asset (IA);
domestic sales of a said entity (E) associated with said constituent index asset (IA);
net sales of a said entity (E) associated with said constituent index asset (IA);
gross sales of a said entity (E) associated with said constituent index asset (IA);
profit margin of a said entity (E) associated with said constituent index asset (IA);
operating margin of a said entity (E) associated with said constituent index asset (IA);
retained earnings of a said entity (E) associated with said constituent index asset (IA);
earnings per share of a said entity (E) associated with said constituent index asset (IA);
book value of a said entity (E) associated with said constituent index asset (IA);
book value adjusted for inflation of a said entity (E) associated with said constituent index asset (IA);
book value adjusted for replacement cost of a said entity (E) associated with said constituent index asset (IA);
book value adjusted for liquidation value of a said entity (E) associated with said constituent index asset (IA);
dividends of a said entity (E) associated with said constituent index asset (IA);
assets of a said entity (E) associated with said constituent index asset (IA);
tangible assets of a said entity (E) associated with said constituent index asset (IA);
intangible assets of a said entity (E) associated with said constituent index asset (IA);
fixed assets of a said entity (E) associated with said constituent index asset (IA);
property of a said entity (E) associated with said constituent index asset (IA);
plant of a said entity (E) associated with said constituent index asset (IA);
equipment of a said entity (E) associated with said constituent index asset (IA);
goodwill of a said entity (E) associated with said constituent index asset (IA);
replacement value of assets of a said entity (E) associated with said constituent index asset (IA);
liquidation value of assets of a said entity (E) associated with said constituent index asset (IA);
liabilities of a said entity (E) associated with said constituent index asset (IA);
long term liabilities of a said entity (E) associated with said constituent index asset (IA);
short term liabilities of a said entity (E) associated with said constituent index asset (IA);
net worth of a said entity (E) associated with said constituent index asset (IA);

research and development expense of a said entity (E) associated with said constituent index asset (IA);
accounts receivable of a said entity (E) associated with said constituent index asset (IA);
earnings before interest and tax (EBIT) of a said entity (E) associated with said constituent index asset (IA);
earnings before interest, taxes, dividends, and amortization (EBITDA) of a said entity (E) associated with said constituent index asset (IA);
accounts payable of a said entity (E) associated with said constituent index asset (IA);
cost of goods sold (CGS) of a said entity (E) associated with said constituent index asset (IA);
debt ratio of a said entity (E) associated with said constituent index asset (IA);
budget of a said entity (E) associated with said constituent index asset (IA);
capital budget of a said entity (E) associated with said constituent index asset (IA);
cash budget of a said entity (E) associated with said constituent index asset (IA);
direct labor budget of a said entity (E) associated with said constituent index asset (IA);
factory overhead budget of a said entity (E) associated with said constituent index asset (IA);
operating budget of a said entity (E) associated with said constituent index asset (IA);
sales budget of a said entity (E) associated with said constituent index asset (IA);
inventory method of a said entity (E) associated with said constituent index asset (IA);
type of stock offered of a said entity (E) associated with said constituent index asset (IA);
liquidity of a said entity (E) associated with said constituent index asset (IA);
book income of a said entity (E) associated with said constituent index asset (IA);
tax income of a said entity (E) associated with said constituent index asset (IA);
capitalization of earnings of a said entity (E) associated with said constituent index asset (IA);
capitalization of goodwill of a said entity (E) associated with said constituent index asset (IA);
capitalization of interest of a said entity (E) associated with said constituent index asset (IA);
capitalization of revenue of a said entity (E) associated with said constituent index asset (IA);
capital spending of a said entity (E) associated with said constituent index asset (IA);
cash of a said entity (E) associated with said constituent index asset (IA);
compensation of a said entity (E) associated with said constituent index asset (IA);
employee turnover of a said entity (E) associated with said constituent index asset (IA);
overhead costs of a said entity (E) associated with said constituent index asset (IA);
credit rating of a said entity (E) associated with said constituent index asset (IA);
growth rate of a said entity (E) associated with said constituent index asset (IA);
tax rate of a said entity (E) associated with said constituent index asset (IA);
liquidation value of entity of a said entity (E) associated with said constituent index asset (IA);
capitalization of cash of a said entity (E) associated with said constituent index asset (IA);
capitalization of earnings of a said entity (E) associated with said constituent index asset (IA);
capitalization of revenue of a said entity (E) associated with said constituent index asset (IA);
cash flow of a said entity (E) associated with said constituent index asset (IA),
a demographic measure of a said entity (E) associated with said constituent index asset (IA);
a measure relating to a demographic attribute of a said entity (E) associated with said constituent index asset (IA); 1
a non-financial metric of a said entity (E) associated with said constituent index asset (IA);
a non-market related metric of a said entity (E) associated with said constituent index asset (IA);
number of employees of a said entity (E) associated with said constituent index asset (IA);
floor space of a said entity (E) associated with said constituent index asset (IA); or
office space of a said entity (E) associated with said constituent index asset (IA).

48. The computer-implemented index construction system according to claim **45**, wherein at least one of:
said measure of the size (SZ) of each said entity (E) corresponding to each said asset (A) comprises a future value of expected cash flow of a said entity (E) associated with said asset (A); or
said measure of the size (SZ) of each said entity (E) corresponding to each said constituent index asset (IA) comprises a future value of expected cash flow of a said entity (E) associated with said constituent index asset (IA).

49. The computer-implemented index construction system according to claim **45**, wherein each of said assets comprises at least one of a stock; a commodity; a futures contract; a bond; a municipal bond; a corporate bond; a mutual fund; a hedge fund; a fund of funds; an exchange traded fund (ETF); or a derivative.

50. The computer-implemented index construction system according to claim **45**, wherein each of said assets comprises a stock.

51. The computer-implemented index construction system according to claim **45**, wherein each of said assets comprises a commodity.

52. The computer-implemented index construction system according to claim **45**, wherein each of said assets comprises a futures contract.

53. The computer-implemented index construction system according to claim **45**, wherein each of said assets comprises a bond.

54. The computer-implemented index construction system according to claim **45**, wherein each of said assets comprises a mutual fund.

55. The computer-implemented index construction system according to claim **45**, wherein each of said assets comprises a hedge fund.

56. The computer-implemented index construction system according to claim **45**, wherein each of said assets comprises a fund of funds.

57. The computer-implemented index construction system according to claim **45**, wherein each of said assets comprises an exchange traded fund (ETF).

58. The computer-implemented index construction system according to claim **45**, wherein each of said assets comprises a derivative.

59. The computer-implemented index construction system according to claim **45**, wherein said calculate comprises

wherein said analysis host is configured to perform a negative weighting on any of said assets.

60. The computer-implemented index construction system according to claim **59**, wherein said analysis host is configured to perform said negative weighting comprises wherein said analysis host is configured to at least one of: establish or measure performance, for at least one of: any security; a portfolio; a hedge fund; or at least one of: a long or a short position.

61. The computer-implemented index construction system according to claim **45**, wherein said objective measure of scale comprises a measure relating to at least one of an underlying attribute of one of the assets, or the entity associated with the asset.

62. The computer-implemented index construction system according to claim **45**, wherein said entity comprises at least one of: a company; a municipality; a municipality issuing bonds; a country; or an issuer of the asset.

63. The computer-implemented index construction system according to claim **45**, wherein said objective measure of scale comprises at least one of: a mathematical transformation of at least one objective measure of scale, or a ratio of any combination of objective measures of scale relating to said assets or said entities.

64. The computer-implemented index construction system according to claim **63**, wherein said ratio of said any combination of said objective measures of scale comprises at least one of:

a current ratio,

a debt ratio,

a overhead expense as a percent of sales, or

a debt service burden ratio.

65. The computer-implemented index construction system according to claim **45**, wherein said calculate comprises wherein said analysis host is configured to weight based on said objective measure of scale; wherein said objective measure of scale comprises an economic indicator.

66. The computer-implemented index construction system according to claim **45**, wherein said objective measure of scale comprises a measure tied to a particular geography associated with the assets.

67. The computer-implemented index construction system according to claim **45**, further comprising wherein said analysis host is configured to construct a portfolio of assets based upon the index of assets (I).

68. The computer-implemented index construction system of claim **67**, wherein the portfolio of assets comprises at least one of:

a fund;

a mutual fund;

a fund of funds;

an asset account;

an exchange traded fund (ETF);

a separate account;

a pooled trust; or

a limited partnership.

69. The computer-implemented index construction system according to claim **67**, further comprising wherein said analysis host is configured to:

select the portfolio of assets for trading according to the index of assets (I); and

trade via at least one trading host processor one or more of said portfolio of assets based on said selecting or said weighting of the constituent index assets (IA) of the index of assets (I).

70. The computer-implemented index construction system according to claim **69**, wherein said analysis host is configured to trade comprises wherein said analysis host is configured to rebalance the portfolio of assets based on the index of assets (I).

71. The computer-implemented index construction system according to claim **70**, wherein said analysis host is configured to rebalance on a periodic basis.

72. The computer-implemented index construction system according to claim **70**, wherein said analysis host is configured to rebalance based upon the constituent index assets (IA) crossing a threshold value.

73. The computer-implemented index construction system according to claim **69**, further comprising wherein said analysis host is configured to:

apply one or more rules associated with the index of assets (I).

74. The computer-implemented index construction system according to claim **45**, wherein the index construction system is used for at least one of: investment management; or investment portfolio benchmarking.

75. The computer-implemented index construction system of claim **45**, wherein the index construction system further comprises wherein said analysis host is configured to enhance valuation indifferent non-capitalization weighted index investing, comprising wherein said analysis host is configured to:

construct a portfolio of assets in a fashion in which at least one of: holdings; performance; or characteristics, are substantially similar to the index of assets (I).

76. The computer-implemented index construction system according to claim **45**, wherein said access comprises wherein said analysis host is configured to: gather data about at least one of the plurality of assets or the plurality of entities using computerized databases.

77. The computer-implemented index construction system according to claim **45**, wherein said objective measure of scale comprises a non-financial metric.

78. The computer-implemented index construction system according to claim **45**, wherein the system comprises at least one of: a passive investing system; an active investing system; or an enhanced type of active investing system.

79. The computer-implemented index construction system according to claim **45**, further comprising wherein said analysis host is configured to:

generate a subset of said data to obtain said plurality of said assets (A) and said plurality of said entities (E).

80. The computer-implemented index construction system according to claim **79**, wherein said analysis host is configured to generate the subset comprises wherein said analysis host is configured to generate a sector.

81. The computer-implemented index construction system according to claim **79**, wherein said analysis host is configured to generate the subset comprises wherein said analysis host is configured to generate a subcategory.

82. The computer-implemented index construction system according to claim **45**, further comprising wherein said analysis host is configured to:

select a portion of at least one of said assets or said entities based on any criterion to obtain said plurality of said entities or said plurality of said assets.

83. The computer-implemented index construction system according to claim **45**, further comprising wherein said analysis host is configured to construct said index further comprising wherein said analysis host is configured to at least one of:

minimize trading costs;

minimize turnover;

minimize management costs;

avoid misjudgments in selection;

avoid following a market bubble;
take account of classical valuation ratios;
construct a valuation indifferent index; or
reduce portfolio volatility.

84. The system according to claim **45**, wherein said analysis host is configured to select comprises wherein said analysis host is configured to select based on at least one of a liquidity of said assets or any metric of size of said entities.

85. A computer program product embodied on a machine readable storage medium that provides instructions which when executed by at least one analysis host processor, causes said at least one analysis host processor to perform operations comprising a method of constructing an index of assets, the method comprising:

(a) accessing by the at least one analysis host processor of one or more databases storing and permitting retrieval of data (D) about a plurality of entities (E) and a plurality of corresponding assets (A) each issued by or having been issued by at least one of the plurality of entities (E);

(b) receiving by the at least one analysis host processor at least one objective measure of scale (O) regarding one or more of the plurality of said assets, or one or more of the plurality of entities (E) associated with said corresponding assets (A);

(c) retrieving by the at least one analysis host processor one or more of said data (D) about said plurality of said entities (E) and said corresponding assets (A);

(d) selecting by the at least one analysis host processor a selection from said plurality of said assets (A) or said entities (E) to comprise a plurality of constituent index assets (IA) comprising the index of assets (I), wherein said selecting comprises:

(i) selecting by the at least one analysis host processor said one or more data (D) to be a quantitative data (Q) reflecting the amount of said at least one objective measure of scale (O) associated with each of said entities, wherein said at least one objective measure of scale (O) is substantially independent of the market prices (P) of any of said assets (A) and is substantially independent of a market capitalization (MC) of any of said entities (E),

wherein said at least one objective measure of scale (O) comprises a measure of size (SZ) of each said entity (E) associated with each said given asset (A), and wherein said measure of the size (SZ) of each said entity (E) corresponding to each said asset (A) comprises at least one of:

a demographic measure of a said entity (E) associated with said asset (A);

a financial metric of a said entity (E) associated with said asset (A);

a metric from information disclosures of a publicly traded entity; or

a metric from information about a said entity (E) associated with said asset (A);

(ii) ranking by the at least one analysis host processor said entities (E) based upon at least one of a said quantitative data (Q) associated with the at least one objective measure of scale (O) of each of said entities (E); and

(iii) selecting by the at least one analysis host processor said selection from said plurality of said assets (A) or said entities (E) to comprise said plurality of constituent index assets (IA) based on said ranking; and

(e) calculating by the at least one analysis host processor proportional weights for the index of assets to be objective measure of scale weights (OW) substantially independent of the market prices (P) of any of said assets (A) and substantially independent of a market capitalization (MC) of any of said entities (E), wherein said calculating comprises:

(i) adding by the at least one analysis host processor the quantitative data (Q) of each of said at least one objective measure of scale (O) for all of said constituent index assets (IA) to yield a sum total quantitative data (SUMQ) for said at least one objective measure of scale (O); and

(ii) determining by the at least one analysis host processor a relative size of the quantitative data (Q) of a said at least one objective measure of scale (O) for each said constituent index asset (IA) as a proportion of said sum total quantitative data (SUMQ) for said at least one objective measure of scale (O) to yield the objective measure of scale weight (OW) of each of the constituent index assets (IA) comprising the index of assets (I),

wherein said at least one objective measure of scale (O) comprises a measure of size (SZ) of each said entity (E) associated with each said given constituent index asset (IA), and wherein said measure of the size (SZ) of each said entity (E) corresponding to each said constituent index asset (IA) comprises at least one of:

a demographic measure of a said entity (E) associated with said constituent index asset (IA);

a financial metric of a said entity (E) associated with said constituent index asset (IA);

a metric from information disclosures of a publicly traded entity; or

a metric from information about a said entity (E) associated with said constituent index asset (IA).

86. The computer program product embodied on a machine readable storage medium of claim **85**, the method further comprising:

selecting a plurality of assets for trading according to the index of assets; and

trading one or more of said plurality of assets based on said selecting or said calculating of said objective measure of scale weights of the constituent index assets of the index.

87. The computer program product embodied on a machine readable storage medium according to claim **85**, wherein said measure of the size (SZ) of each said entity (E) corresponding to each said asset (A) comprises at least one of:

revenue of a said entity (E) associated with said asset (A);
gross revenue of a said entity (E) associated with said asset (A);
profitability of a said entity (E) associated with said asset (A);
sales of a said entity (E) associated with said asset (A);
total sales of a said entity (E) associated with said asset (A);
foreign sales of a said entity (E) associated with said asset (A);
domestic sales of a said entity (E) associated with said asset (A);
net sales of a said entity (E) associated with said asset (A);
gross sales of a said entity (E) associated with said asset (A);
profit margin of a said entity (E) associated with said asset (A);
operating margin of a said entity (E) associated with said asset (A);
retained earnings of a said entity (E) associated with said asset (A);
earnings per share of a said entity (E) associated with said asset (A);

book value of a said entity (E) associated with said asset (A);
book value adjusted for inflation of a said entity (E) associated with said asset (A);
book value adjusted for replacement cost of a said entity (E) associated with said asset (A);
book value adjusted for liquidation value of a said entity (E) associated with said asset (A);
dividends of a said entity (E) associated with said asset (A);
assets of a said entity (E) associated with said asset (A);
tangible assets of a said entity (E) associated with said asset (A);
intangible assets of a said entity (E) associated with said asset (A);
fixed assets of a said entity (E) associated with said asset (A);
property of a said entity (E) associated with said asset (A);
plant of a said entity (E) associated with said asset (A);
equipment of a said entity (E) associated with said asset (A);
goodwill of a said entity (E) associated with said asset (A);
replacement value of assets of a said entity (E) associated with said asset (A);
liquidation value of assets of a said entity (E) associated with said asset (A);
liabilities of a said entity (E) associated with said asset (A);
long term liabilities of a said entity (E) associated with said asset (A);
short term liabilities of a said entity (E) associated with said asset (A);
net worth of a said entity (E) associated with said asset (A);
research and development expense of a said entity (E) associated with said asset (A);
accounts receivable of a said entity (E) associated with said asset (A);
earnings before interest and tax (EBIT) of a said entity (E) associated with said asset (A);
earnings before interest, taxes, dividends, and amortization (EBITDA) of a said entity (E) associated with said asset (A);
accounts payable of a said entity (E) associated with said asset (A);
cost of goods sold (CGS) of a said entity (E) associated with said asset (A);
debt ratio of a said entity (E) associated with said asset (A);
budget of a said entity (E) associated with said asset (A);
capital budget of a said entity (E) associated with said asset (A);
cash budget of a said entity (E) associated with said asset (A);
direct labor budget of a said entity (E) associated with said asset (A);
factory overhead budget of a said entity (E) associated with said asset (A);
operating budget of a said entity (E) associated with said asset (A);
sales budget of a said entity (E) associated with said asset (A);
inventory method of a said entity (E) associated with said asset (A);
type of stock offered of a said entity (E) associated with said asset (A);
liquidity of a said entity (E) associated with said asset (A);
book income of a said entity (E) associated with said asset (A);
tax income of a said entity (E) associated with said asset (A);
capitalization of earnings of a said entity (E) associated with said asset (A);
capitalization of goodwill of a said entity (E) associated with said asset (A);
capitalization of interest of a said entity (E) associated with said asset (A);
capitalization of revenue of a said entity (E) associated with said asset (A);
capital spending of a said entity (E) associated with said asset (A);
cash of a said entity (E) associated with said asset (A);
compensation of a said entity (E) associated with said asset (A);
employee turnover of a said entity (E) associated with said asset (A);
overhead costs of a said entity (E) associated with said asset (A);
credit rating of a said entity (E) associated with said asset (A);
growth rate of a said entity (E) associated with said asset (A);
tax rate of a said entity (E) associated with said asset (A);
liquidation value of entity of a said entity (E) associated with said asset (A);
capitalization of cash of a said entity (E) associated with said asset (A);
capitalization of earnings of a said entity (E) associated with said asset (A);
capitalization of revenue of a said entity (E) associated with said asset (A);
cash flow of a said entity (E) associated with said asset (A),
a demographic measure of a said entity (E) associated with said asset (A);
a measure relating to a demographic attribute of a said entity (E) associated with said asset (A);
a non-financial metric of a said entity (E) associated with said asset (A);
a non-market related metric of a said entity (E) associated with said asset (A);
number of employees of a said entity (E) associated with said asset (A);
floor space of a said entity (E) associated with said asset (A); or
office space of a said entity (E) associated with said asset (A); and

wherein said measure of the size (SZ) of each said entity (E) corresponding to each said constituent index asset (IA) comprises at least one of:

revenue of a said entity (E) associated with said constituent index asset (IA);
gross revenue of a said entity (E) associated with said constituent index asset (IA);
profitability of a said entity (E) associated with said constituent index asset (IA);
sales of a said entity (E) associated with said constituent index asset (IA);
total sales of a said entity (E) associated with said constituent index asset (IA);
foreign sales of a said entity (E) associated with said constituent index asset (IA);
domestic sales of a said entity (E) associated with said constituent index asset (IA);
net sales of a said entity (E) associated with said constituent index asset (IA);
gross sales of a said entity (E) associated with said constituent index asset (IA);

profit margin of a said entity (E) associated with said constituent index asset (IA);
operating margin of a said entity (E) associated with said constituent index asset (IA);
retained earnings of a said entity (E) associated with said constituent index asset (IA);
earnings per share of a said entity (E) associated with said constituent index asset (IA);
book value of a said entity (E) associated with said constituent index asset (IA);
book value adjusted for inflation of a said entity (E) associated with said constituent index asset (IA);
book value adjusted for replacement cost of a said entity (E) associated with said constituent index asset (IA);
book value adjusted for liquidation value of a said entity (E) associated with said constituent index asset (IA);
dividends of a said entity (E) associated with said constituent index asset (IA);
assets of a said entity (E) associated with said constituent index asset (IA);
tangible assets of a said entity (E) associated with said constituent index asset (IA);
intangible assets of a said entity (E) associated with said constituent index asset (IA);
fixed assets of a said entity (E) associated with said constituent index asset (IA);
property of a said entity (E) associated with said constituent index asset (IA);
plant of a said entity (E) associated with said constituent index asset (IA);
equipment of a said entity (E) associated with said constituent index asset (IA);
goodwill of a said entity (E) associated with said constituent index asset (IA);
replacement value of assets of a said entity (E) associated with said constituent index asset (IA);
liquidation value of assets of a said entity (E) associated with said constituent index asset (IA);
liabilities of a said entity (E) associated with said constituent index asset (IA);
long term liabilities of a said entity (E) associated with said constituent index asset (IA);
short term liabilities of a said entity (E) associated with said constituent index asset (IA);
net worth of a said entity (E) associated with said constituent index asset (IA);
research and development expense of a said entity (E) associated with said constituent index asset (IA);
accounts receivable of a said entity (E) associated with said constituent index asset (IA);
earnings before interest and tax (EBIT) of a said entity (E) associated with said constituent index asset (IA);
earnings before interest, taxes, dividends, and amortization (EBITDA) of a said entity (E) associated with said constituent index asset (IA);
accounts payable of a said entity (E) associated with said constituent index asset (IA);
cost of goods sold (CGS) of a said entity (E) associated with said constituent index asset (IA);
debt ratio of a said entity (E) associated with said constituent index asset (IA);
budget of a said entity (E) associated with said constituent index asset (IA);
capital budget of a said entity (E) associated with said constituent index asset (IA);
cash budget of a said entity (E) associated with said constituent index asset (IA);
direct labor budget of a said entity (E) associated with said constituent index asset (IA);
factory overhead budget of a said entity (E) associated with said constituent index asset (IA);
operating budget of a said entity (E) associated with said constituent index asset (IA);
sales budget of a said entity (E) associated with said constituent index asset (IA);
inventory method of a said entity (E) associated with said constituent index asset (IA);
type of stock offered of a said entity (E) associated with said constituent index asset (IA);
liquidity of a said entity (E) associated with said constituent index asset (IA);
book income of a said entity (E) associated with said constituent index asset (IA);
tax income of a said entity (E) associated with said constituent index asset (IA);
capitalization of earnings of a said entity (E) associated with said constituent index asset (IA);
capitalization of goodwill of a said entity (E) associated with said constituent index asset (IA);
capitalization of interest of a said entity (E) associated with said constituent index asset (IA);
capitalization of revenue of a said entity (E) associated with said constituent index asset (IA);
capital spending of a said entity (E) associated with said constituent index asset (IA);
cash of a said entity (E) associated with said constituent index asset (IA);
compensation of a said entity (E) associated with said constituent index asset (IA);
employee turnover of a said entity (E) associated with said constituent index asset (IA);
overhead costs of a said entity (E) associated with said constituent index asset (IA);
credit rating of a said entity (E) associated with said constituent index asset (IA);
growth rate of a said entity (E) associated with said constituent index asset (IA);
tax rate of a said entity (E) associated with said constituent index asset (IA);
liquidation value of entity of a said entity (E) associated with said constituent index asset (IA);
capitalization of cash of a said entity (E) associated with said constituent index asset (IA);
capitalization of earnings of a said entity (E) associated with said constituent index asset (IA);
capitalization of revenue of a said entity (E) associated with said constituent index asset (IA);
cash flow of a said entity (E) associated with said constituent index asset (IA),
a demographic measure of a said entity (E) associated with said constituent index asset (IA);
a measure relating to a demographic attribute of a said entity (E) associated with said constituent index asset (IA);
a non-financial metric of a said entity (E) associated with said constituent index asset (IA);
a non-market related metric of a said entity (E) associated with said constituent index asset (IA);
number of employees of a said entity (E) associated with said constituent index asset (IA);
floor space of a said entity (E) associated with said constituent index asset (IA); or
office space of a said entity (E) associated with said constituent index asset (IA).

88. The computer program product embodied on a machine readable storage medium according to claim **85**, wherein at least one of:

said measure of the size (SZ) of each said entity (E) corresponding to each said asset (A) comprises a future value of expected cash flow of a said entity (E) associated with said asset (A); or

said measure of the size (SZ) of each said entity (E) corresponding to each said constituent index asset (IA) comprises a future value of expected cash flow of a said entity (E) associated with said constituent index asset (IA).

* * * * *

EXHIBIT C

US008005740B2

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

(10) **Patent No.: US 8,005,740 B2**
(45) **Date of Patent: *Aug. 23, 2011**

(54) **USING ACCOUNTING DATA BASED INDEXING TO CREATE A PORTFOLIO OF FINANCIAL OBJECTS**

(75) Inventors: **Robert D. Arnott**, Pasadena, CA (US); **Paul C. Wood**, Waltham (GB)

(73) Assignee: **Research Affiliates, LLC**, Newport Beach, CA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 563 days.

This patent is subject to a terminal disclaimer.

(21) Appl. No.: **11/931,913**

(22) Filed: **Oct. 31, 2007**

(65) **Prior Publication Data**

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Related U.S. Application Data

(63) Continuation-in-part of application No. 11/509,002, filed on Aug. 24, 2006, now Pat. No. 7,747,502, which is a continuation-in-part of application No. 11/196,509, filed on Aug. 4, 2005, now Pat. No. 7,620,577, which is a continuation-in-part of application No. 10/159,610, filed on Jun. 3, 2002, now abandoned, and a continuation-in-part of application No. 10/961,404, filed on Oct. 12, 2004, now Pat. No. 7,792,719.

(60) Provisional application No. 60/541,733, filed on Feb. 4, 2004, provisional application No. 60/751,212, filed on Dec. 19, 2005, provisional application No. 60/896,867, filed on Mar. 23, 2007.

(51) **Int. Cl.**
G06Q 40/00 (2006.01)

(52) **U.S. Cl.** ..... **705/36 R**; 705/35

(58) **Field of Classification Search** ..... 705/36 R, 705/35

See application file for complete search history.

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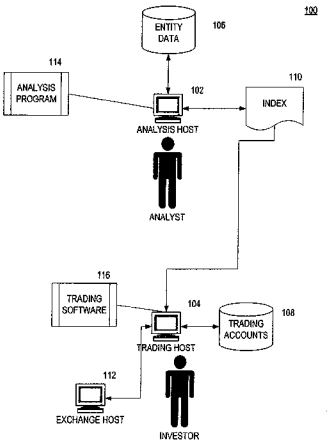
Primary Examiner — Gregory Johnson
(74) *Attorney, Agent, or Firm* — Albrecht Tousi & Farnum PLLC; Ralph P. Albrecht

(57) **ABSTRACT**

A system, method and computer program product creates an index based on accounting based data, as well as a portfolio of financial objects based on the index where the portfolio is weighted according to accounting based data. A passive investment system may be based on indices created from various metrics. The indexes may be built with metrics other than market capitalization weighting, price weighting or equal weighting. Non-financial metrics may also be used to build indexes to create passive investment systems. Additionally, a combination of financial non-market capitalization metrics may be used along with non-financial metrics to create passive investment systems. Once the index is built, it may be used as a basis to purchase securities for a portfolio. Specifically excluded are widely-used capitalization-weighted indexes and price-weighted indexes, in which the price of a security contributes in a substantial way to the calculation of the weight of that security in the index or the portfolio, and equal weighting weighted indexes. Valuation indifferent indexes avoid overexposure to overvalued securities and underexposure to undervalued securities, as compared with conventional capitalization-weighted and price-weighted.

119 Claims, 11 Drawing Sheets



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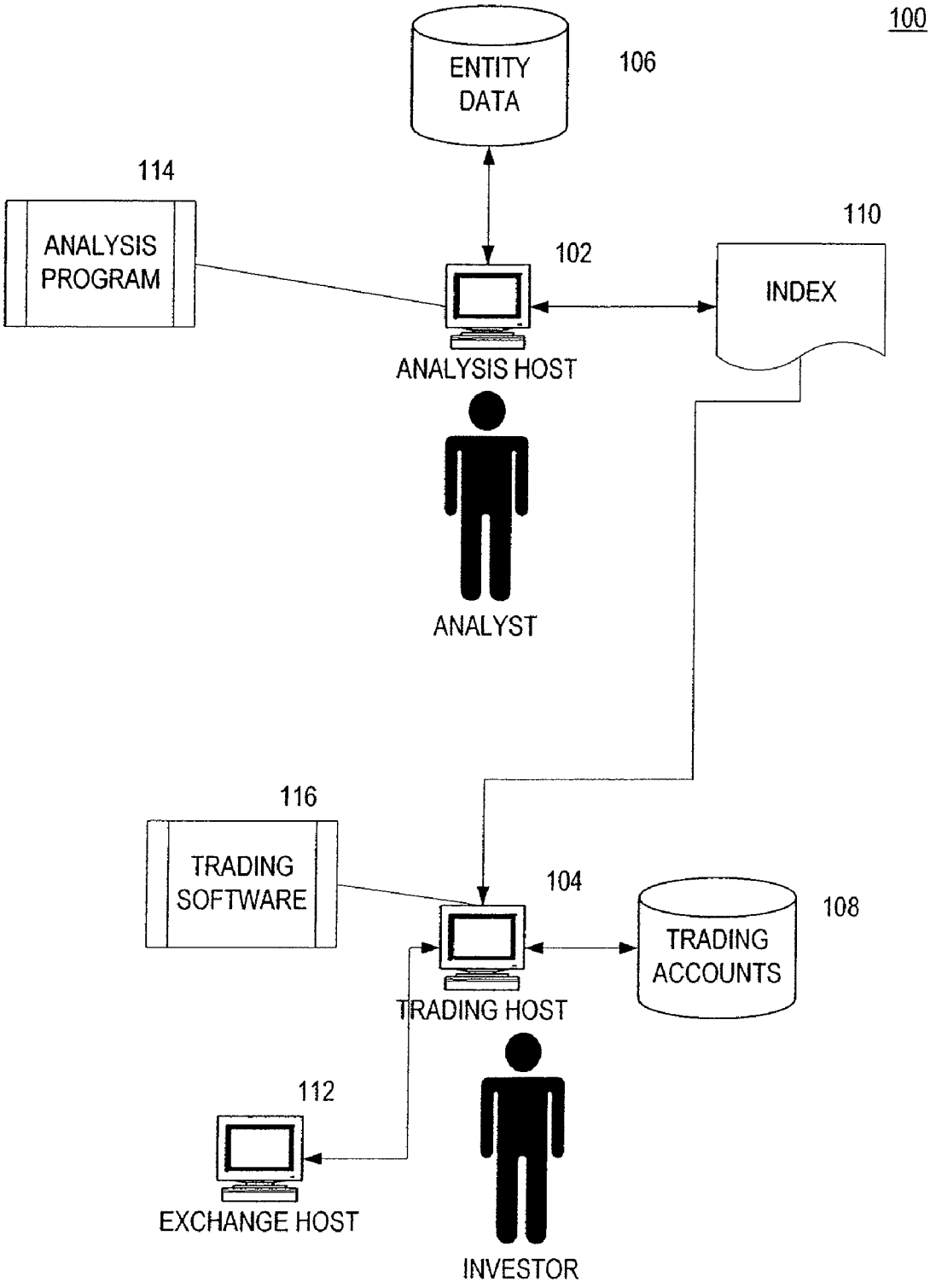
100
ENTITY DATA
106
114
ANALYSIS PROGRAM
110
102
INDEX
ANALYSIS HOST
ANALYST
116
TRADING SOFTWARE
104
108
TRADING ACCOUNTS
TRADING HOST
112
EXCHANGE HOST
INVESTOR

FIG. 1

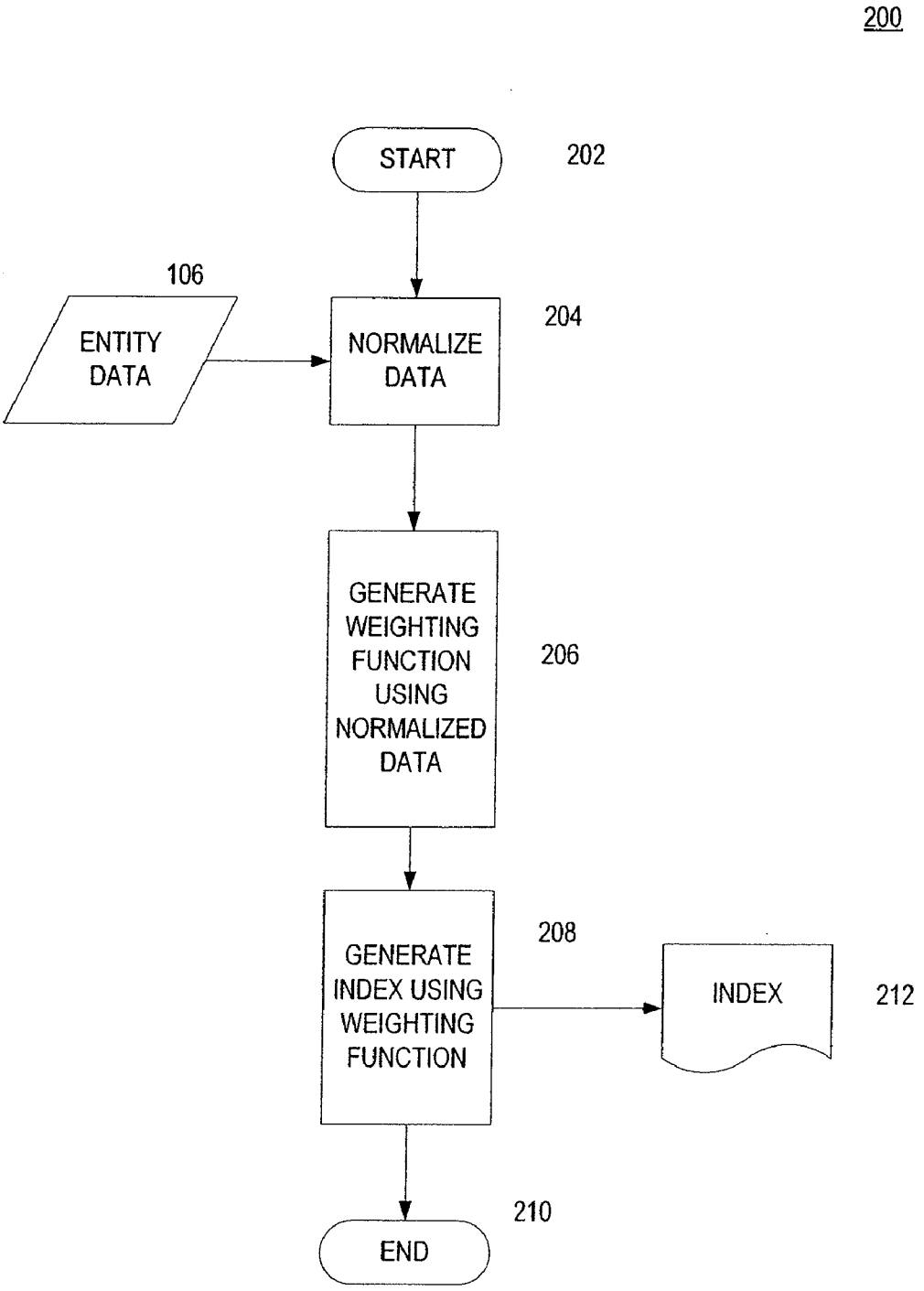
200
START
202
106
ENTITY DATA
NORMALIZE DATA
204
GENERATE WEIGHTING FUNCTION USING NORMALIZED DATA
206
GENERATE INDEX USING WEIGHTING FUNCTION
208
INDEX
212
END
210

FIG. 2

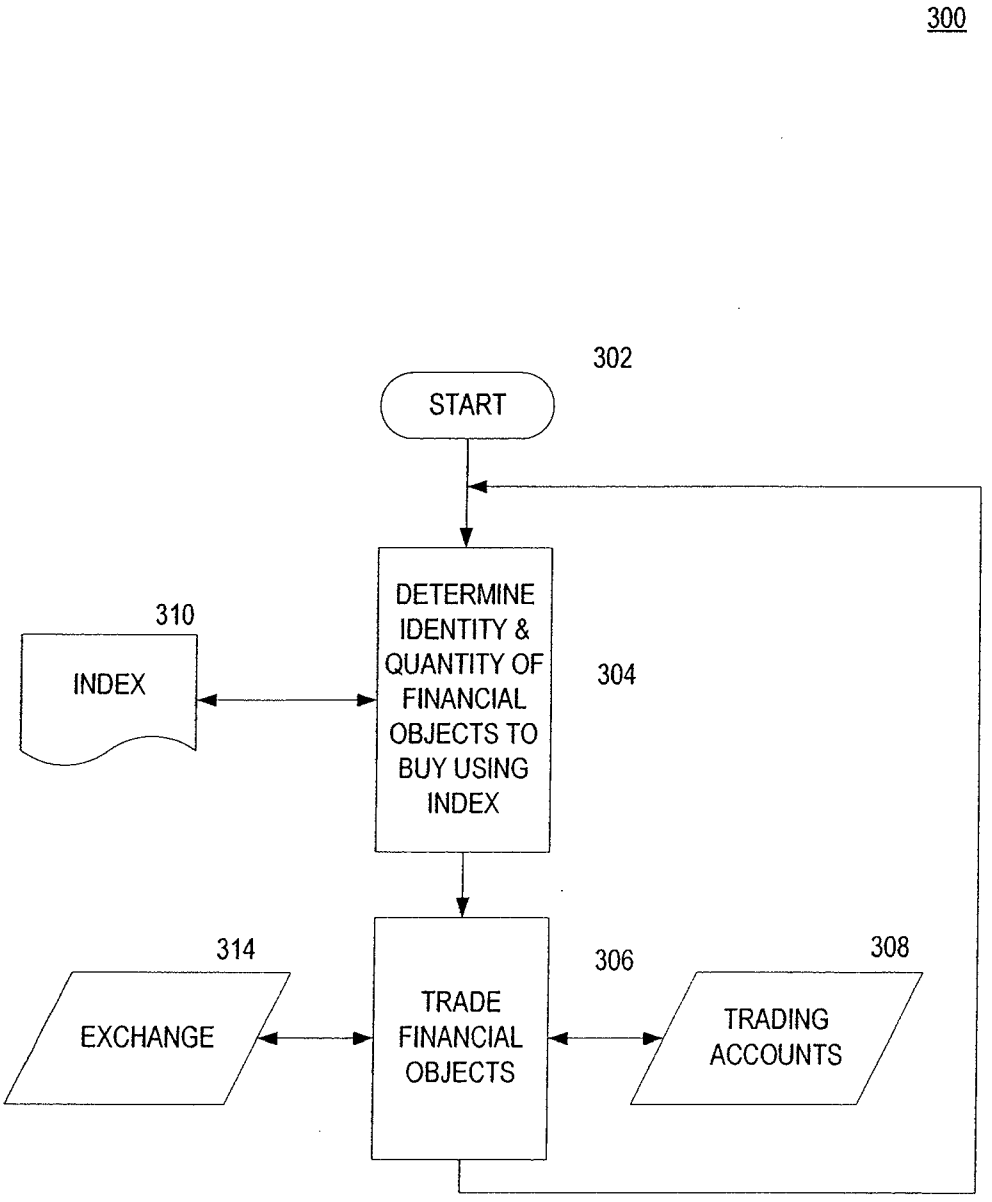
300
302
START
DETERMINE IDENTITY & QUANTITY OF FINANCIAL OBJECTS TO BUY USING INDEX
304
310
INDEX
314
EXCHANGE
TRADE FINANCIAL OBJECTS
306
308
TRADING ACCOUNTS

FIG. 3

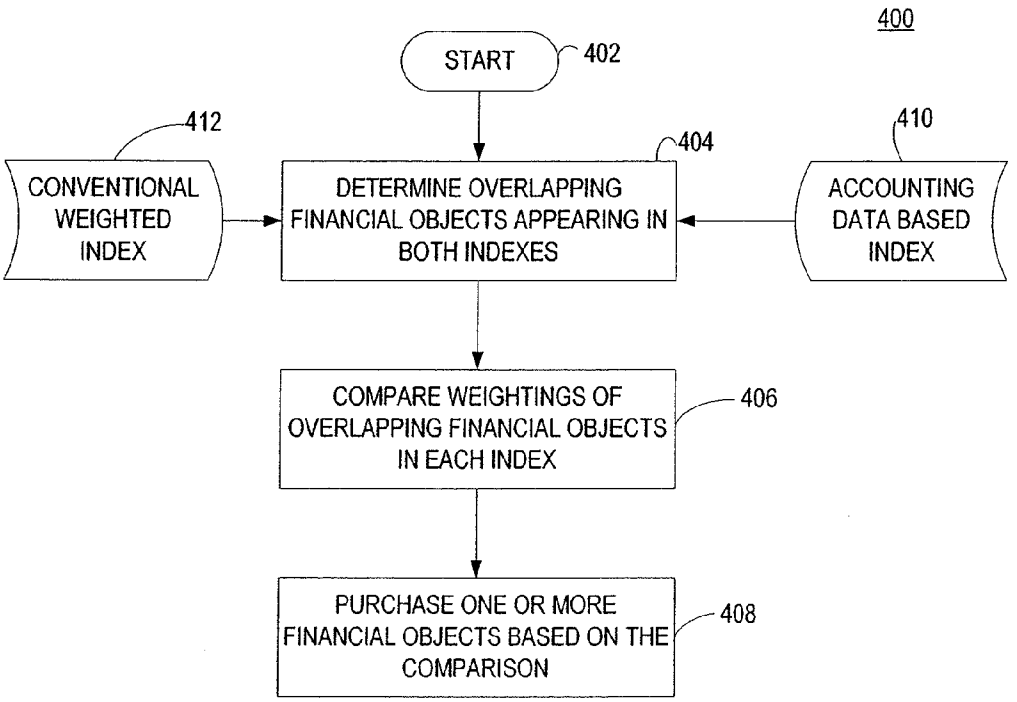
400
START
402
412
CONVENTIONAL WEIGHTED INDEX
404
DETERMINE OVERLAPPING FINANCIAL OBJECTS APPEARING IN BOTH INDEXES
410
ACCOUNTING DATA BASED INDEX
COMPARE WEIGHTINGS OF OVERLAPPING FINANCIAL OBJECTS IN EACH INDEX
406
PURCHASE ONE OR MORE FINANCIAL OBJECTS BASED ON THE COMPARISON
408

FIG. 4

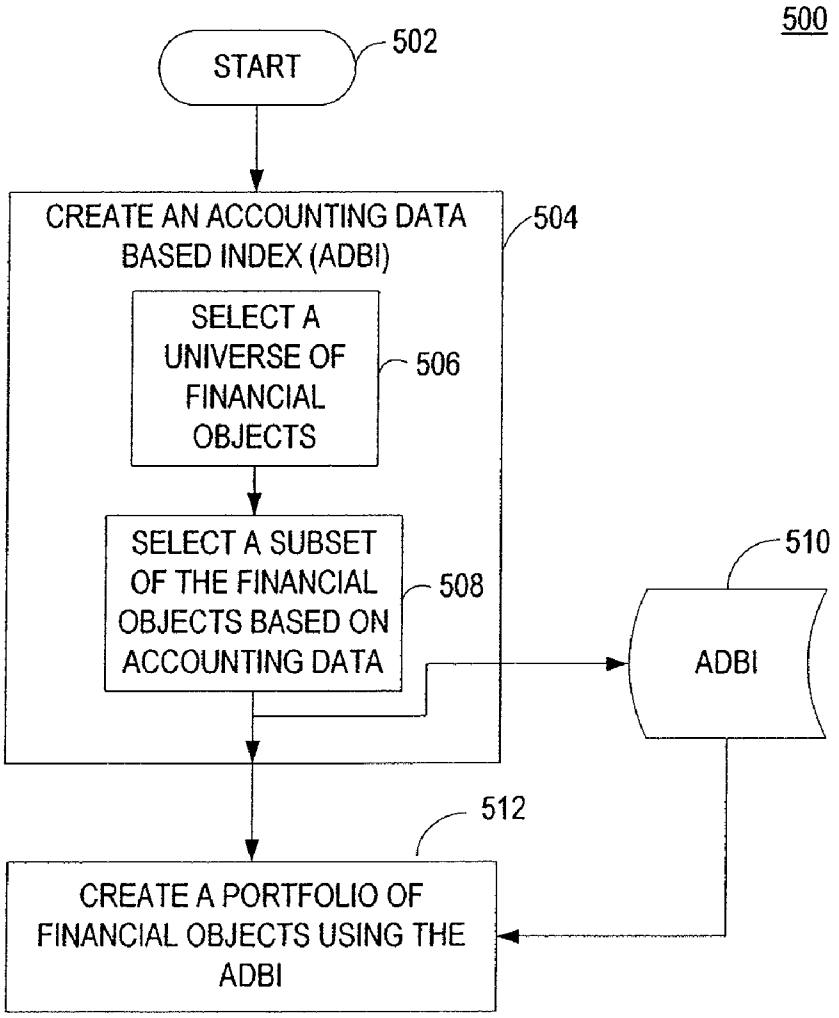
500
START
502
CREATE AN ACCOUNTING DATA BASED INDEX (ADBI)
504
SELECT A UNIVERSE OF FINANCIAL OBJECTS
506
SELECT A SUBSET OF THE FINANCIAL OBJECTS BASED ON ACCOUNTING DATA
508
ADBI
510
CREATE A PORTFOLIO OF FINANCIAL OBJECTS USING THE ADBI
512

FIG. 5

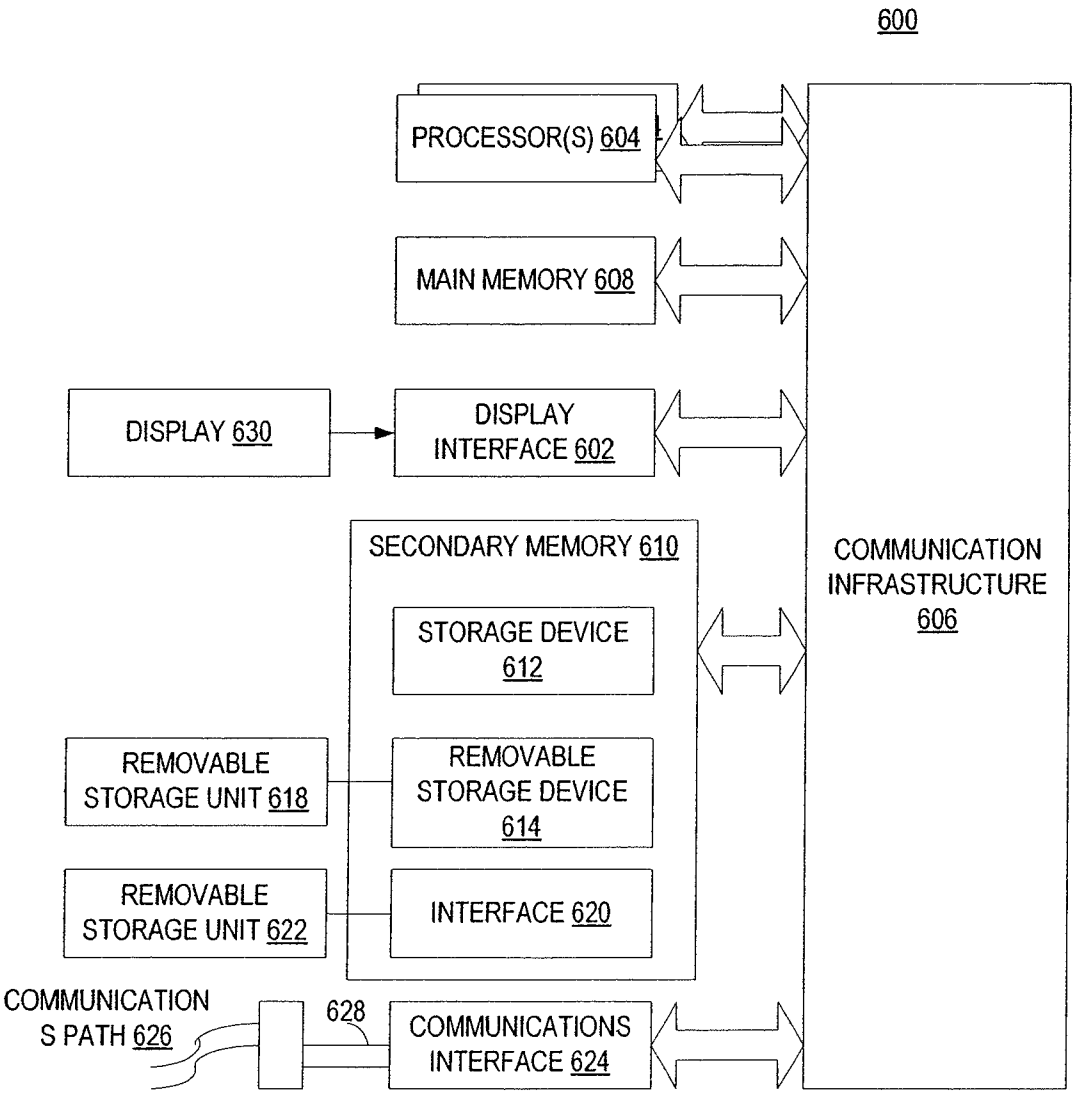
600
PROCESSOR(S) 604
MAIN MEMORY 608
DISPLAY 630
DISPLAY INTERFACE 602
SECONDARY MEMORY 610
STORAGE DEVICE 612
REMOVABLE STORAGE UNIT 618
REMOVABLE STORAGE DEVICE 614
REMOVABLE STORAGE UNIT 622
INTERFACE 620
COMMUNICATION INFRASTRUCTURE 606
COMMUNICATION S PATH 626
628
COMMUNICATIONS INTERFACE 624

FIG. 6

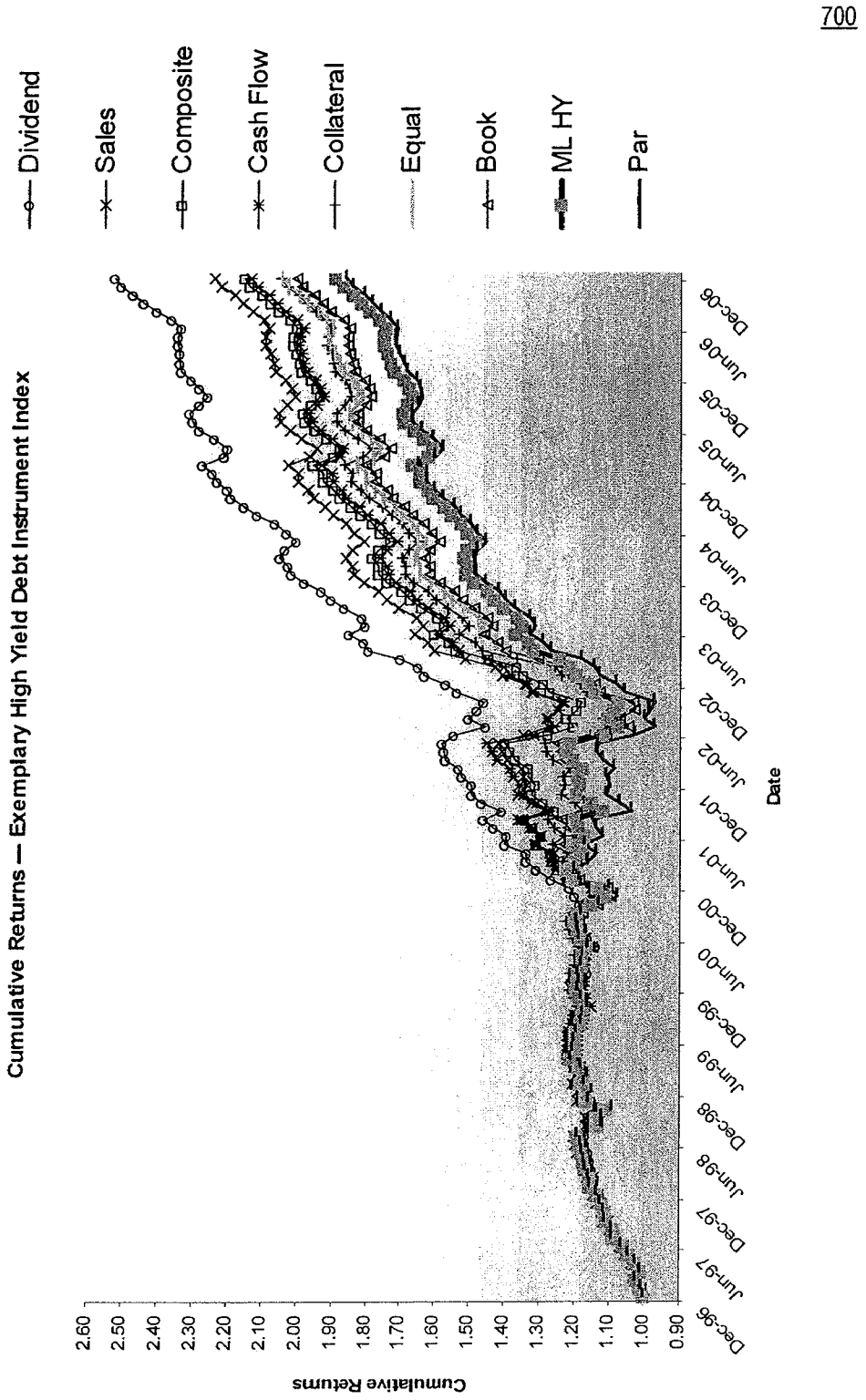
700
Dividend
Sales
Composite
Cash Flow
Collateral
Equal
Book
ML HY
Par
Cumulative Returns — Exemplary High Yield Debt Instrument Index
Cumulative Returns
2.60
2.50
2.40
2.30
2.20
2.10
2.00
1.90
1.80
1.70
1.60
1.50
1.40
1.30
1.20
1.10
1.00
0.90
Dec-96
Jun-97
Dec-97
Jun-98
Dec-98
Jun-99
Dec-99
Jun-00
Dec-00
Jun-01
Dec-01
Jun-02
Dec-02
Jun-03
Dec-03
Jun-04
Dec-04
Jun-05
Dec-05
Jun-06
Dec-06
Date

FIG. 7

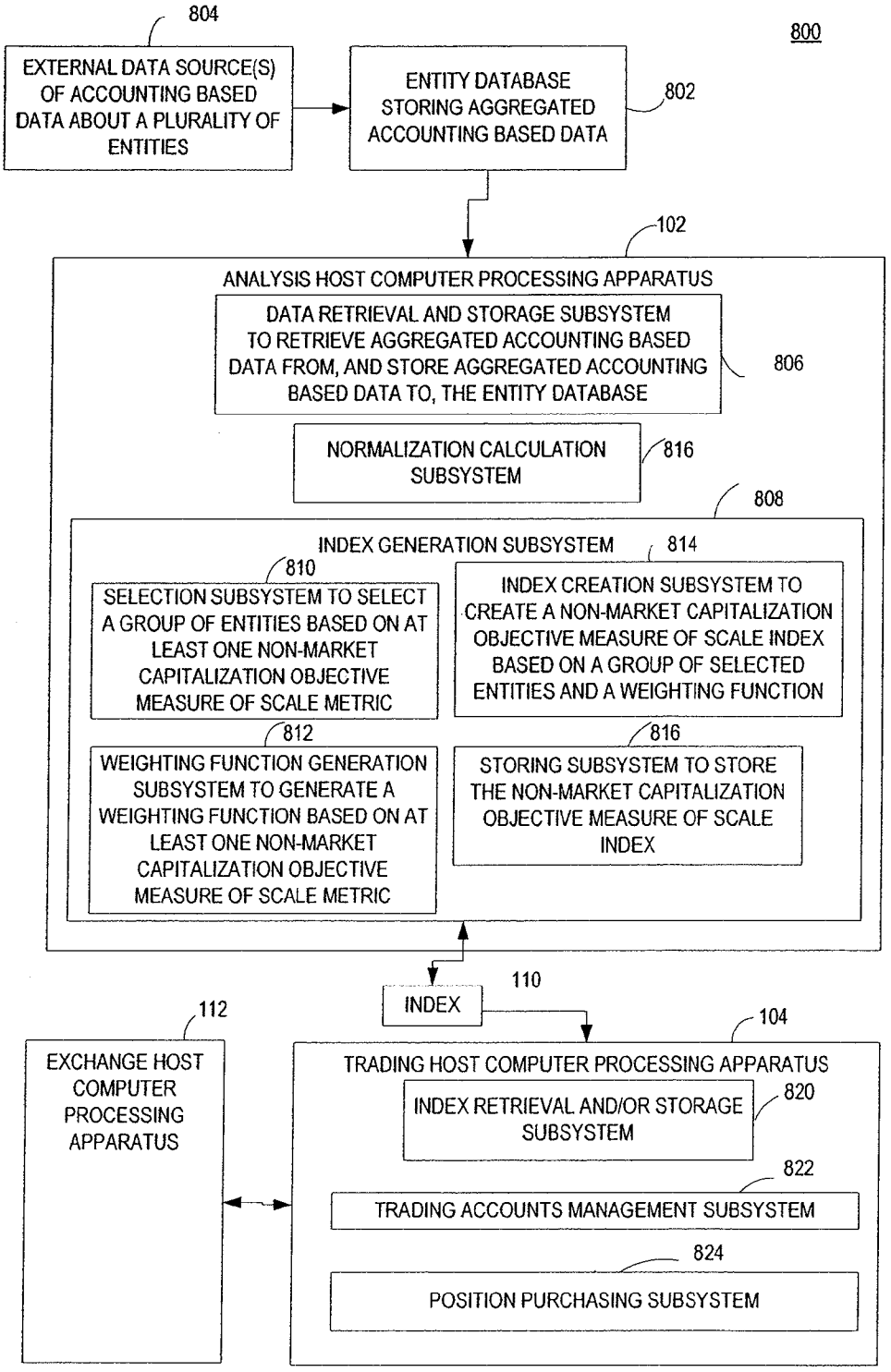
804
800
EXTERNAL DATA SOURCE(S) OF ACCOUNTING BASED DATA ABOUT A PLURALITY OF ENTITIES
ENTITY DATABASE STORING AGGREGATED ACCOUNTING BASED DATA
802
102
ANALYSIS HOST COMPUTER PROCESSING APPARATUS
DATA RETRIEVAL AND STORAGE SUBSYSTEM TO RETRIEVE AGGREGATED ACCOUNTING BASED DATA FROM, AND STORE AGGREGATED ACCOUNTING BASED DATA TO, THE ENTITY DATABASE
806
NORMALIZATION CALCULATION SUBSYSTEM
816
808
INDEX GENERATION SUBSYSTEM
814
810
SELECTION SUBSYSTEM TO SELECT A GROUP OF ENTITIES BASED ON AT LEAST ONE NON-MARKET CAPITALIZATION OBJECTIVE MEASURE OF SCALE METRIC
INDEX CREATION SUBSYSTEM TO CREATE A NON-MARKET CAPITALIZATION OBJECTIVE MEASURE OF SCALE INDEX BASED ON A GROUP OF SELECTED ENTITIES AND A WEIGHTING FUNCTION
812
WEIGHTING FUNCTION GENERATION SUBSYSTEM TO GENERATE A WEIGHTING FUNCTION BASED ON AT LEAST ONE NON-MARKET CAPITALIZATION OBJECTIVE MEASURE OF SCALE METRIC
816
STORING SUBSYSTEM TO STORE THE NON-MARKET CAPITALIZATION OBJECTIVE MEASURE OF SCALE INDEX
110
INDEX
112
104
EXCHANGE HOST COMPUTER PROCESSING APPARATUS
TRADING HOST COMPUTER PROCESSING APPARATUS
INDEX RETRIEVAL AND/OR STORAGE SUBSYSTEM
820
822
TRADING ACCOUNTS MANAGEMENT SUBSYSTEM
824
POSITION PURCHASING SUBSYSTEM

FIG. 8

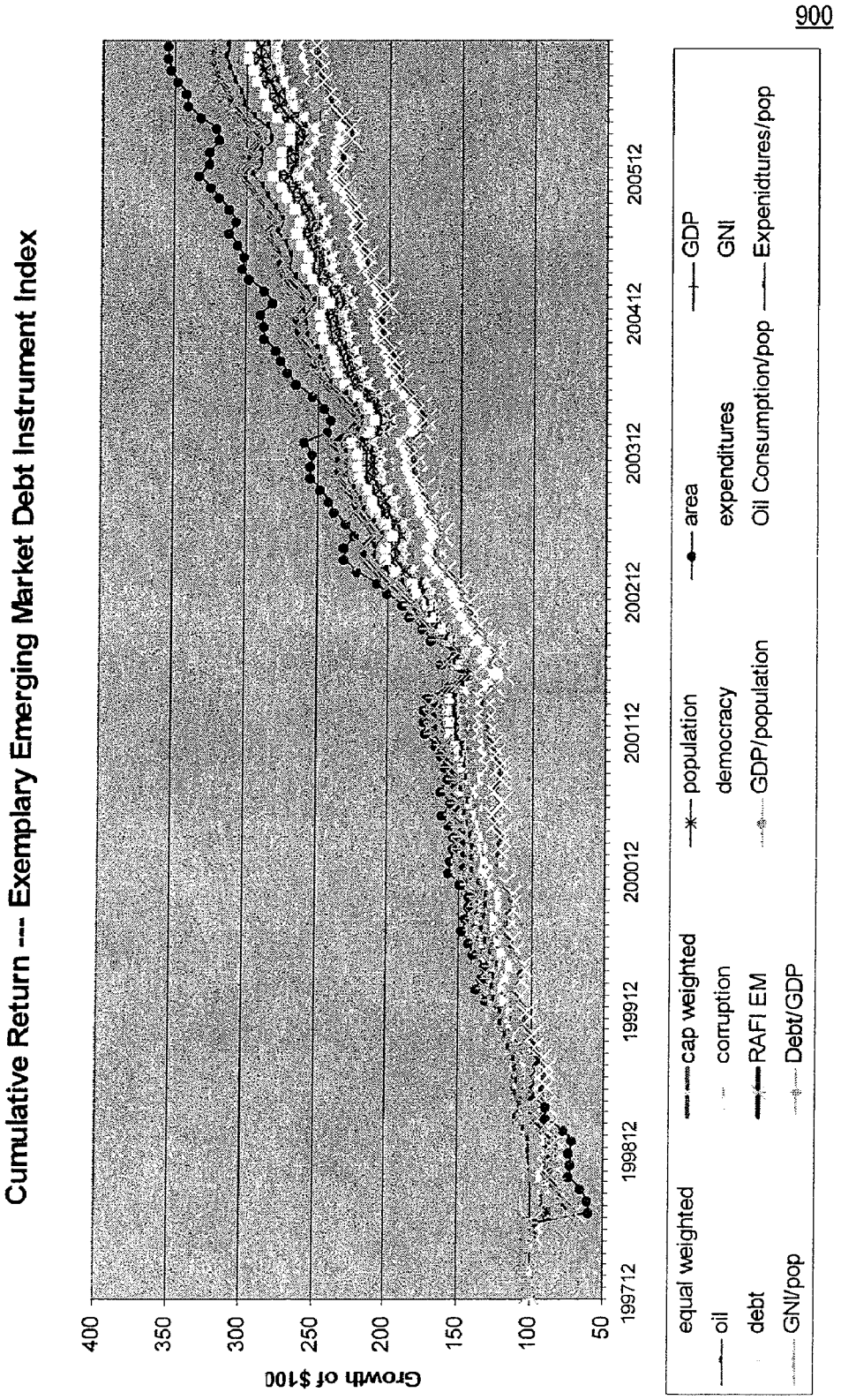
900
Cumulative Return --- Exemplary Emerging Market Debt Instrument Index
Growth of $100
400
350
300
250
200
150
100
50
199712
199812
199912
200012
200112
200212
200312
200412
200512
equal weighted
cap weighted
population
area
GDP
oil
corruption
democracy
expenditures
GNI
debt
RAFI EM
GDP/population
Oil Consumption/pop
Expenidtures/pop
GNI/pop
Debt/GDP

FIG. 9

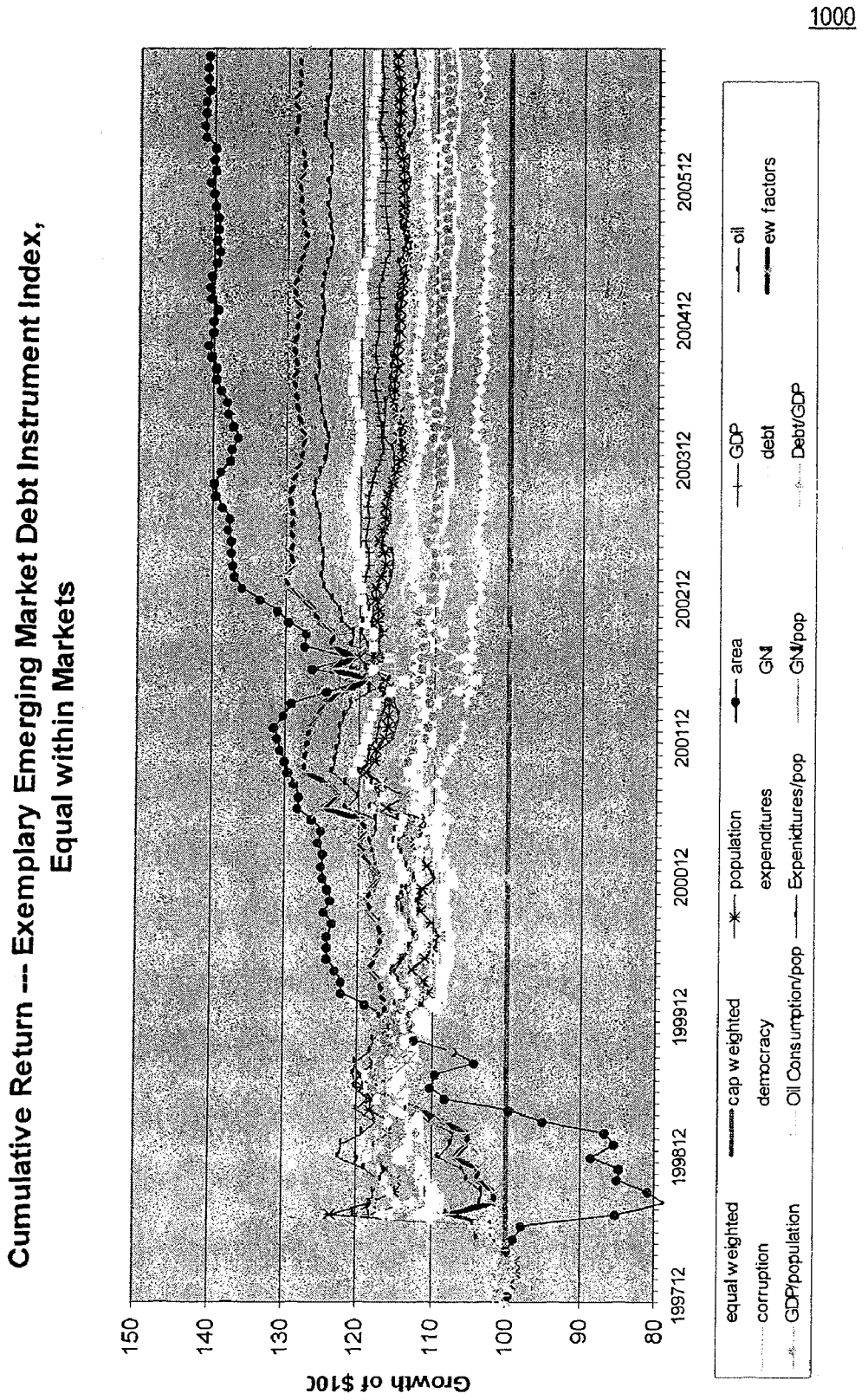
1000
Cumulative Return --- Exemplary Emerging Market Debt Instrument Index,
Equal within Markets
Growth of $10(
150
140
130
120
110
100
90
80
199712
199812
199912
200012
200112
200212
200312
200412
200512
equal weighted
cap weighted
population
area
GDP
oil
corruption
democracy
expenditures
GNI
debt
ew factors
GDP/population
Oil Consumption/pop
Expenidtures/pop
GNI/pop
Debt/GDP

FIG. 10

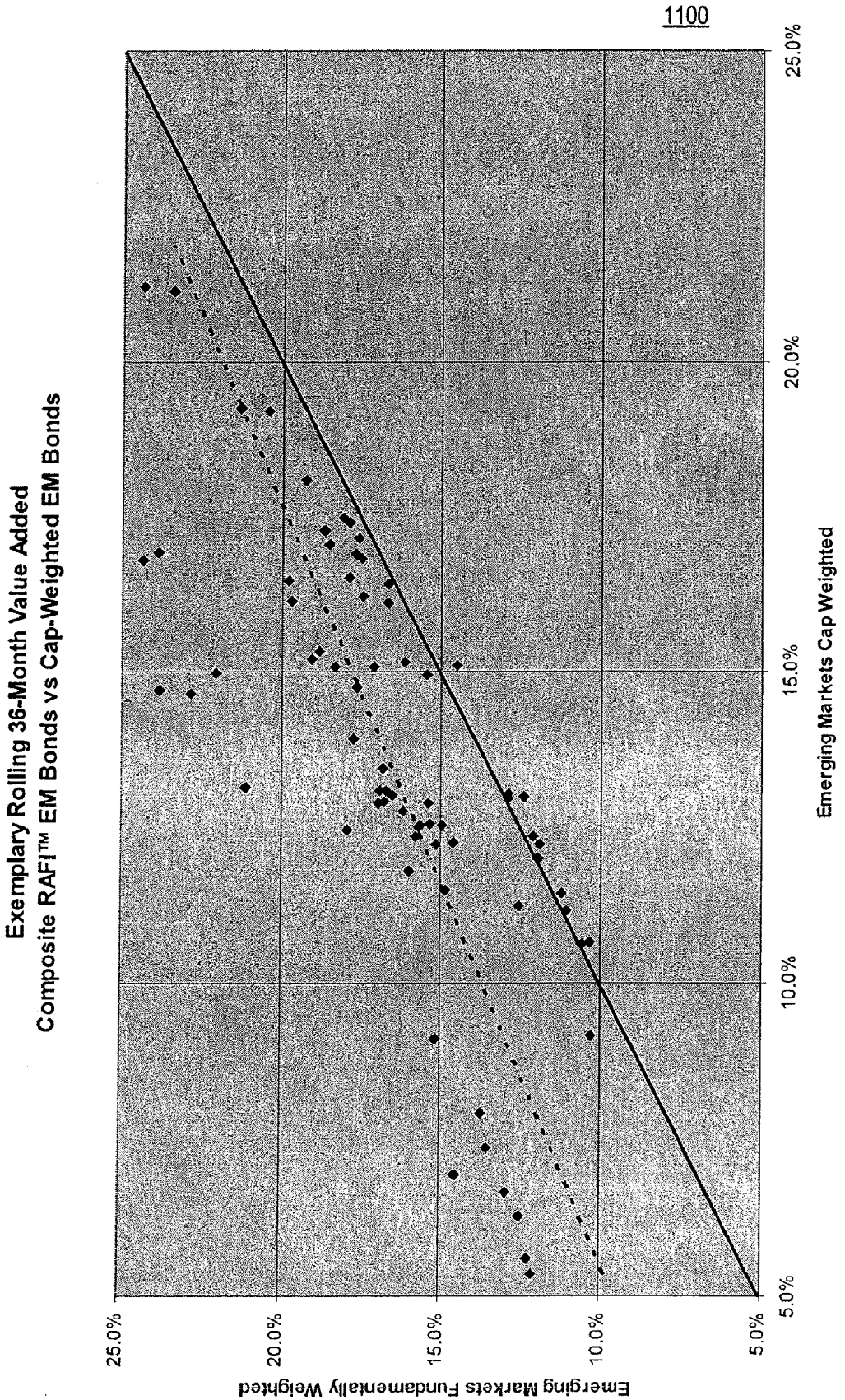
1100
Exemplary Rolling 36-Month Value Added
Composite RAFI™ EM Bonds vs Cap-Weighted EM Bonds
Emerging Markets Cap Weighted
25.0%
20.0%
15.0%
10.0%
5.0%
Emerging Markets Fundamentally Weighted
25.0%
20.0%
15.0%
10.0%
5.0%

FIG. 11

USING ACCOUNTING DATA BASED INDEXING TO CREATE A PORTFOLIO OF FINANCIAL OBJECTS

CROSS-REFERENCE TO RELATED APPLICATIONS

The present application is a continuation-in-part of and claims the benefit of U.S. Patent Application No. 60/896,867, filed Mar. 23, 2007, the contents of which are incorporated herein by reference in their entirety and are of common assignee.

The present application also claims the benefit of U.S. patent application Ser. No. 11/509,002, filed Aug. 24, 2006, the contents of which are incorporated herein by reference in their entirety and are of common assignee, which claims the benefit of (i) U.S. Patent Application No. 60/751,212, filed Dec. 19, 2005, the contents of which are incorporated herein by reference in their entirety and are of common assignee, and (ii) U.S. patent application Ser. No. 11/196,509, filed Aug. 4, 2005, the contents of which are incorporated herein by reference in their entirety and are of common assignee, which claims the benefit (a) of U.S. patent application Ser. No. 10/159,610, filed Jun. 3, 2002, the contents of which are incorporated herein by reference in their entirety and are of common assignee, and (b) U.S. patent application Ser. No. 10/961,404, filed Oct. 12, 2004, the contents of which are incorporated herein by reference in their entirety and are of common assignee, which in turn claims the benefit of (A) U.S. Patent Application No. 60/541,733, filed Feb. 4, 2004, the contents of which are incorporated herein by reference in their entirety and are of common assignee.

BACKGROUND OF THE INVENTION

1. Field of the Invention

Exemplary embodiments relate generally to securities investing, and more particularly to construction and use of indexes and portfolios based on indexes.

2. Related Background

Conventionally, there are various broad categories of securities portfolio management. One conventional securities portfolio management category is active management wherein the securities are selected for a portfolio individually based on economic, financial, credit, and/or business analysis; on technical trends; on cyclical patterns; etc. Another conventional category is passive management, also called indexing, wherein the securities in a portfolio duplicate those that make up an index. The securities in a passively managed portfolio are conventionally weighted by relative market capitalization weighting or equal weighting. Another middle ground conventional category of securities portfolio management is called enhanced indexing, in which a portfolio's characteristics, performance and holdings are substantially dominated by the characteristics, performance and holdings of the index, albeit with modest active management departures from the index.

The present invention relates generally to the passive and enhanced indexing categories of portfolio management. A securities market index, by intent, reflects an entire market or a segment of a market. A passive portfolio based on an index may also reflect the entire market or segment. Often every security in an index is held in the passive portfolio. Sometimes statistical modeling is used to create a portfolio that duplicates the profile, risk characteristics, performance characteristics, and securities weightings of an index, without actually owning every security included in the index. (Examples could be portfolios based on the Wilshire 5000 Equity Index or on the Lehman Aggregate Bond Index.) Sometimes statistical modeling is used to create the index itself such that it duplicates the profile, risk characteristics, performance characteristics, and securities weightings of an entire class of securities. (The Lehman Aggregate Bond Index is an example of this practice.)

Indexes are generally all-inclusive of the securities within their defined markets or market segments. In most cases indexes may include each security in the proportion that its market capitalization bears to the total market capitalization of all of the included securities. The only common exceptions to market capitalization weighting are equal weighting of the included securities (for example the Value Line index or the Standard & Poors 500 Equal Weighted Stock Index, which includes all of the stocks in the S&P 500 on a list basis; each stock given equal weighting as of a designated day each year) and share price weighting, in which share prices are simply added together and divided by some simple divisor (for example, the Dow Jones Industrial Average). Conventionally, passive portfolios are built based on an index weighted using one of market capitalization weighting, equal weighting, and share price weighting.

Most commonly used stock market indices are constructed using a methodology that is based upon either the relative share prices of a sample of companies (such as the Dow Jones Industrial Average) or the relative market capitalization of a sample of companies (such as the S&P 500 Index or the FTSE 100 Index). The nature of the construction of both of these types of indices means that if the price or the market capitalization of one company rises relative to its peers it is accorded a larger weighting in the index. Alternatively, a company whose share price or market capitalization declines relative to the other companies in the index is accorded a smaller index weighting. This can create a situation where the index, index funds, or investors who desire their funds to closely track an index, are compelled to have a higher weighting in companies whose share prices or market capitalizations have already risen and a lower weighting in companies that have seen a decline in their share price or market capitalization.

Advantages of passive investing include: a low trading cost of maintaining a portfolio that has turnover only when an index is reconstituted, typically once a year; a low management cost of a portfolio that requires no analysis of individual securities; and/or no chance of the portfolio suffering a loss—relative to the market or market segment the index reflects—because of misjudgments in individual securities selection.

Advantages of using market capitalization weighting as the basis for a passive portfolio include that the index (and therefore a portfolio built on it) remains continually 'in balance' as market prices for the included securities change, and that the portfolio performance participates in (i.e., reflects) that of the securities market or market segment included in the index.

The disadvantages of market capitalization weighting passive indexes, which can be substantial, center on the fact that any under-valued securities are underweighted in the index and related portfolios, while any over-valued securities are over weighted. Also, the portfolio based on market capitalization weighting follows every market (or segment) bubble up and every market crash down. Finally, in general, portfolio securities selection is not based on a criteria that reflects a better opportunity for appreciation than that of the market or market segment overall.

Most commonly used stock market indices are constructed using a methodology that is based upon either the relative share prices of a sample of companies (such as the Dow Jones Industrial Average) or the relative market capitalization of a

sample of companies (such as the S&P 500 Index or the FTSE 100 Index). The nature of the construction of both of these types of indices means that if the price or the market capitalization of one company rises relative to its peers it is accorded a larger weighting in the index. Alternatively, a company whose share price or market capitalization declines relative to the other companies in the index is accorded a smaller index weighting. This can create a situation where the index, index funds, or investors who desire their funds to closely track an index, are compelled to have a higher weighting in companies whose share prices or market capitalizations have already risen and a lower weighting in companies that have seen a decline in their share price or market capitalization.

Price or market capitalization based indices can contribute to a 'herding' behavior on the behalf of investors by effectively compelling any of the funds that attempt to follow these indices to have a larger weighting in shares as their price goes up and a lower weighting in shares that have declined in price. This creates unnecessary volatility, which is not in the interests of most investors. It may also lead to investment returns that have had to absorb the phenomenon of having to repeatedly increase weightings in shares after they have risen and reduce weightings in them after they have fallen.

Capitalization-weighted indexes ("cap-weighted indexes") dominate the investment industry today, with approximately $2 trillion currently invested. Unfortunately, cap-weighted indexes suffer from an inherent flaw as they overweight all overvalued stocks and underweight all undervalued stocks. This causes cap-weighted indexes to underperform relative to indexes that are immune to this shortcoming. In addition, cap-weighted indexes are vulnerable to speculative bubbles and emotional bear markets which may unnaturally drive up or down stock prices respectively.

Equal-weighted indexation is a popular alternative to cap-weighting but one that suffers from its own shortcomings. One significant problem with equal-weighted indexes is that they come out of the same cap-weighted universes as cap-weighted indexes. For example, the S&P Equal Weighted Index simply re-weights the 500 equities that comprise the S&P 500, retaining the bias already inherent to cap-weighted indexes.

High turnover and associated high costs are additional problems of equal-weighted indexes. Equal-weighted indexes include small illiquid stocks, which are required to be held in equal proportion to the larger, more liquid stocks in the index. These small illiquid stocks must be traded as often as the larger stocks but at a higher cost because they are less liquid.

What is needed then is an improved method of weighting financial objects in a portfolio based on an index that overcomes shortcomings of conventional solutions.

SUMMARY

In an exemplary embodiment a system, method and computer program product for index construction and/or portfolio weighting of financial objects for the purpose of investing in the index is disclosed.

Exemplary embodiments may use accounting data based indexing, i.e., accounting data based measures of firm size, rather than market capitalization, to construct an index of financial objects Construction of an index, according to an exemplary embodiment, may include selecting financial objects to be included in an index, and weighting the financial objects in the index. By avoiding the inherent valuation bias of cap-weighted indexes, accounting data based indexes (ADBI) may outperform cap-weighted indexes by as much as 200 bps in the US and by more than 250 bps internationally, based on extensive back testing (to 1962 in the US and to 1988 internationally).

An exemplary embodiment may use four specific metrics in ADBI construction: book equity value; income (free cash flow); sales; and/or gross dividends, if any. Another exemplary embodiment may include additional and/or alternative metrics. Metrics may be varied by country according to another exemplary embodiment. An ADBI construction strategy may offer several advantages. For example, ADBI may outperform cap-weighted indexes. Additionally, ADBI may be adaptable to distinct strategies. ADBI may be used to construct either large or small company indexes, industry sector indexes, geographic indexes and others. ADBI may also effectively limit portfolio risk by providing the benefits of traditional cap-weighted indexes, including diversification, broad market participation, liquidity and low turnover, while generating incrementally higher returns with somewhat lower volatility than comparable cap-weighted indexes. ADBI may also provide protection against market bubbles and fads because a stock's weight in the index is immune to errors in stock valuation.

An exemplary embodiment may be a method of constructing a portfolio of financial objects, including the steps of: purchasing a portfolio of a plurality of mimicking or resampling of financial objects to obtain and/or create a mimicking portfolio, where performance of the portfolio of mimicking or resampled financial objects substantially mirrors the performance of an accounting data based index based portfolio without substantially replicating the accounting data based index based portfolio.

The embodiment may further include: obtaining and/or using a risk model for the portfolio of mimicking or resampled financial objects, where the risk model mirrors a risk model of the accounting data based index.

The performance of the portfolio of mimicking or resampled financial objects may substantially mirror the performance of the accounting data based index based portfolio without substantially replicating financial objects and/or weightings in the accounting data based index based portfolio. The risk model may be substantially similar to the Fama-French factors, where the Fama-French factors may include at least one of size effect, value effect, and/or momentum effect.

A financial object, according to one exemplary embodiment, may include: at least one unit of interest in at least one of: an asset; a liability; a tracking portfolio; a resampled portfolio, a financial instrument and/or a security, where the financial instrument and/or the security denotes a debt, an equity interest, and/or a hybrid; a financial position, a currency position, a trust, a real estate investment trust (REIT), a portfolio of trusts and/or REITS, a security instrument, an equitizing instrument, a commodity, an exchange traded note, a derivatives contract, including at least one of: a future, a forward, a put, a call, an option, a swap, and/or any other transaction relating to a fluctuation of an underlying asset, notwithstanding the prevailing value of the contract, and notwithstanding whether such contract, for purposes of accounting, is considered an asset or liability; a fund; and/or an investment entity or account of any kind, including an interest in, or rights relating to: a hedge fund, an exchange traded fund (ETF), a fund of funds, a mutual fund, a closed end fund, an investment vehicle, and/or any other pooled and/or separately managed investments. In an exemplary embodiment, the financial object may include a debt instrument, including, according to one exemplary embodiment, any one or more of a bond, a debenture, a subordinated debenture, a mortgage

bond, a collateral trust bond, a convertible bond, an income bond, a guaranteed bond, a serial bond, a deep discount bond, a zero coupon bond, a variable rate bond, a deferred interest bond, a commercial paper, a government security, a certificate of deposit, a Eurobond, a corporate bond, a government bond, a municipal bond, a treasury-bill, a treasury bond, a foreign bond, an emerging market bond, a developed market bond, a high yield bond, a junk bond, a collateralized instrument, an exchange traded note (ETN), and/or other agreements between a borrower and a lender.

Another exemplary embodiment, may be a method of constructing a portfolio of financial objects, including the steps of: purchasing a plurality of financial objects according to weightings substantially similar to the weightings of an accounting data based index, where performance of the plurality of financial objects substantially mirrors the performance of the accounting data based index without using substantially the same financial objects in the accounting data based index.

The financial object may include: at least one unit of interest in at least one of: an asset; a liability; a tracking portfolio; a financial instrument and/or a security, where the financial instrument and/or the security denotes a debt, an equity interest, and/or a hybrid; a derivatives contract, including at least one of: a future, a forward, a put, a call, an option, a swap, and/or any other transaction relating to a fluctuation of an underlying asset, notwithstanding the prevailing value of the contract, and notwithstanding whether such contract, for purposes of accounting, is considered an asset or liability; a fund; and/or an investment entity or account of any kind, including an interest in, or rights relating to: a hedge fund, an exchange traded fund (ETF), a fund of funds, a mutual fund, a closed end fund, an investment vehicle, and/or any other pooled and/or separately managed investments.

Another exemplary embodiment, the may be a method of constructing a portfolio of financial objects, including the steps of: determining overlapping financial objects appearing in both an accounting data based index (ADBI) and a conventional weighted index, where the conventionally weighted index may include an index weighted based on at least one of capitalization, equal weighting, and/or share price weighting, and where the ADBI may include weighting based on at least one accounting data based factor and not based on any of capitalization, equal weighting, and/or share price weighting index; comparing weightings of the overlapping financial objects in the ADBI with weightings of the overlapping financial objects in the conventionally weighted index; and/or purchasing at least one financial object based on the comparing.

The purchasing may include at least one of: purchasing a long position in at least one overlapping financial object when the comparing indicates the at least one overlapping financial object is over weighted in the non-capitalization weighted index relative to the conventional index; and/or purchasing a short position in at least one overlapping financial object when the comparing indicates the at least one overlapping financial object is underweighted in the non-capitalization weighted index relative to the conventional index.

The purchasing of the long and/or short positions may be implemented by using total return swaps. The long and/or short positions may be held for one year.

The embodiment may further include rebalancing the portfolio. The rebalancing may include: at least one of creating new long and/or short positions using cash flow from new capital contributions; and/or altering existing long and/or short positions using cash flow from new capital contributions.

The embodiment may further include using leverage to obtain the long and/or short positions.

The comparing may include calculating a difference between the weightings, and/or calculating a difference between arithmetically modified values of the weightings. The arithmetically modified values of the weightings may include square roots of the weightings.

The comparing may include calculating a difference based on tiers of weightings using stratified sampling.

The financial object may include: at least one unit of interest in at least one of: an asset; a liability; a tracking portfolio; a financial instrument and/or a security, where the financial instrument and/or the security denotes a debt, an equity interest, and/or a hybrid; a derivatives contract, including at least one of: a future, a forward, a put, a call, an option, a swap, and/or any other transaction relating to a fluctuation of an underlying asset, notwithstanding the prevailing value of the contract, and notwithstanding whether such contract, for purposes of accounting, is considered an asset or liability; a fund; and/or an investment entity or account of any kind, including an interest in, or rights relating to: a hedge fund, an exchange traded fund (ETF), a fund of funds, a mutual fund, closed end fund, an investment vehicle, and/or any other pooled and/or separately managed investments or accounts.

In another exemplary embodiment, the present invention may be a method of constructing a portfolio of financial objects, including the steps of: determining non-overlapping financial objects appearing in only one of either an accounting data based index (ADBI) or a conventional weighted index by comparing financial objects in an ADBI with financial objects in a conventionally weighted index, where the conventionally weighted index may include conventionally weighting based on at least one of capitalization, equal weighting, and/or share price weighting, and where the ADBI may include accounting data based weighting on at least one accounting data based factor and not based on any of capitalization, equal weighting, and/or share price weighting index; weighting the non-overlapping financial objects appearing only in the ADBI by accounting data based weighting; weighting the non-overlapping financial objects appearing only in the conventionally weighted index by the conventional weighting; and/or purchasing financial objects based on the weightings.

The accounting data based weighting may include: (a) gathering data about a plurality of financial objects; (b) selecting a plurality of financial objects to create an index of financial objects; and/or (c) weighting each of the plurality of financial objects selected in the index based on an objective measure of scale and/or size based on accounting data of a company associated with each of the plurality of financial objects, where the weighting may include: (i) weighting at least one of the plurality of financial objects based on accounting data; and/or (ii) weighting other than weighting based on at least one of market capitalization, equal weighting, and/or share price weighting.

The embodiment may further include weighting each of the plurality of financial objects, where each of the financial objects may include: at least one unit of interest in at least one of: an asset; a liability; a tracking portfolio; a financial instrument and/or a security, where the financial instrument and/or the security denotes a debt, an equity interest, and/or a hybrid; a derivatives contract, including at least one of: a future, a forward, a put, a call, an option, a swap, and/or any other transaction relating to a fluctuation of an underlying asset, notwithstanding the prevailing value of the contract, and notwithstanding whether such contract, for purposes of accounting, is considered an asset or liability; a fund; and/or an

investment entity or account of any kind, including an interest in, or rights relating to: a hedge fund, an exchange traded fund (ETF), a fund of funds, a mutual fund, closed end fund, an investment vehicle, and/or any other pooled and/or separately managed investments.

An exemplary embodiment may further include weighting each of the plurality of financial objects, where the each of the financial objects may include a stock.

Exemplary objective measures of scale and/or size may include weighting based on any dividends, book value, cash flow, and/or revenue. An exemplary embodiment may include additional metrics. The embodiment may further include equally weighting each objective measure of scale and/or size.

The embodiment may further include weighting based on the objective measure of scale and/or size, where the objective measure of scale and/or size may include a measure of company size and/or country or industry sector size associated with each of the plurality of financial objects.

The measure of company size may include at least one of: inventory, revenue, sales, income, book income, taxable income, earnings growth rate, earnings before interest and tax (EBIT), earnings before interest, taxes, depreciation and amortization (EBITDA), retainer earnings, number of employees, capital expenditures, salaries, book value, assets, fixed assets, current assets, quality of assets, operating assets, intangible assets, dividends, gross dividends, dividend yields, cash flow, liabilities, losses, long term liabilities, short term liabilities, liquidity, long term debt, short term debt, bonds, corporate bonds, net worth, shareholder equity, goodwill, research and development expenditures, costs, cost of goods sold (COGS), liquidity and/or research and development costs.

The measure of country size may include measures relating to the economy, demographics, geographic scale, population, area, gross domestic product and its growth, oil consumption, inflation, unemployment, reserves of natural and/or man-made resources and/or products, relative corruption (as perhaps measured by indices), expenditures, democracy and/or political factors, social and/or religious factors, expenditures, gross national income (GNI), gross national product (GNP), and/or gross national debt (GND). Derivatives of the foregoing may also be included, such as, for example, changes, averages and ratio between any of the foregoing measures, as well as per capita numbers thereof.

The financial object may include: at least one unit of interest in at least one of: an asset; a liability; a tracking portfolio; a financial instrument and/or a security, where the financial instrument and/or the security denotes a debt, an equity interest, and/or a hybrid; a derivatives contract, including at least one of: a future, a forward, a put, a call, an option, a swap, and/or any other transaction relating to a fluctuation of an underlying asset, notwithstanding the prevailing value of the contract, and notwithstanding whether such contract, for purposes of accounting, is considered an asset or liability; a fund; and/or an investment entity or account of any kind, including an interest in, or rights relating to: a hedge fund, an exchange traded fund (ETF), a fund of funds, a mutual fund, a closed end fund, an investment vehicle, and/or any other pooled and/or separately managed investments.

Another exemplary embodiment may be a method, executed on a data processing system, including the steps of: creating an accounting data based index (ADBI) based on accounting data including: selecting a universe of financial objects, and selecting a subset of the universe based on the accounting data to obtain the ADBI; and/or creating a portfolio of financial objects using the ADBI, including weighting the financial objects in the portfolio according to a measure of value of a company associated with each financial object in the portfolio.

The universe according to an exemplary embodiment may include at least one of: a sector; a market; a market sector; an industry sector; a geographic sector; an international sector; a sub-industry sector; a government issue; and/or a tax exempt financial object.

The accounting based data used in weighting as a measure of value of the company associated with the financial object, may include at least one of: any dividends; revenue; cash flow; and/or book value. An exemplary embodiment may include selecting and/or weighting constituents based on industry sector based metrics.

The accounting based data may be weighted relatively dependent on the geography and/or other country metric of the company associated with the financial object

The financial object may include: a debt instrument; at least one unit of interest in at least one of: an asset; a liability; a tracking portfolio; a financial instrument and/or a security, where the financial instrument and/or the security denotes a debt, an equity interest, and/or a hybrid; a derivatives contract, including at least one of: a future, a forward, a put, a call, an option, a swap, and/or any other transaction relating to a fluctuation of an underlying asset, notwithstanding the prevailing value of the contract, and notwithstanding whether such contract, for purposes of accounting, is considered an asset or liability; a fund; and/or an investment entity or account of any kind, including an interest in, or rights relating to: a hedge fund, an exchange traded fund (ETF), a fund of funds, a mutual fund, a closed end fund, an investment vehicle, and/or any other pooled and/or separately managed investments.

Another exemplary embodiment may be a computer-implemented method for construction and management of an index and at least one index fund containing a portfolio of financial objects based on the index, where weighting of the index is based on accounting based data rather than on stock prices or market capitalization or equal weighting, the computer-implemented method including the steps of: creating an index, and at least one index fund containing a portfolio of financial objects, where the constituent weightings of the companies issuing the financial objects in the index fund are based upon accounting based data regarding the companies associated with the financial objects, where the accounting based data may includes any dividends, cash flow, revenues, and/or book value.

The embodiment may further include: creating the index, and the at least one index fund containing a portfolio of financial objects where the constituent weightings are based upon any ratio of accounting based data, or any manipulation of accounting based data, that is contained within a standard company annual report and accounts.

The embodiment may further include: creating the index, and the at least one index fund containing a portfolio of financial objects where the constituent weightings are based upon any ratio of accounting based data per share, or any manipulation of accounting based data, that is contained within a standard company annual report and accounts.

The embodiment may further include: managing an accounting based data index, and at least one index fund containing a portfolio of financial objects based on the index including: altering the relative weightings of the financial objects within the at least one index fund as the accounting based data concerning the companies associated with the financial objects changes.

The altering may include at least one of: altering based on at least one of: changes in relative weightings of financial objects in the index; and/or changes in the financial objects that are members of the index outside the sample changes; and/or altering at the time of at least one of when, and/or after at least one company associated with a financial object of the index reports its accounting information.

The financial object may include: at least one unit of interest in at least one of: an asset; a liability; a tracking portfolio; a financial instrument and/or a security, where the financial instrument and/or the security denotes a debt, an equity interest, and/or a hybrid; a derivatives contract, including at least one of: a future, a forward, a put, a call, an option, a swap, and/or any other transaction relating to a fluctuation of an underlying asset, notwithstanding the prevailing value of the contract, and notwithstanding whether such contract, for purposes of accounting, is considered an asset or liability; a fund; and/or an investment entity of any kind, including an interest in, or rights relating to: a hedge fund, an exchange traded fund (ETF), a fund of funds, a mutual fund, an investment vehicle, and/or any other pooled and/or separately managed investments.

The measure of company size may include at least one of: a financial ratio of a company; a ratio of accounting based data; a ratio of accounting based data per share; a ratio of a first accounting based data to a second accounting based data; a liquidity ratio; a working capital ratio; a current ratio; a quick ratio; a cash ratio; an asset turnover ratio; a receivables turnover ratio; an average collection period ratio; an average collection period ratio; an inventory turnover ratio; an inventory period ratio; a leverage ratio; a debt ratio; a debt-to-equity ratio; an interest coverage ratio; a profitability ratio; a return on common equity (ROCE) ratio; profit margin ratio; an earnings per share (EPS) ratio; a gross profit margin ratio; a return on assets ratio; a return on equity ratio; a dividend policy ratio; a dividend yield ratio; a payout ratio; a capital market analysis ratio; a price to earnings (PE) ratio; and/or a market to book ratio.

In accordance with present embodiments, a method, executed on a data processing system, includes: creating an accounting data based index (ADBI) based on accounting data including: selecting a universe of financial objects, selecting a subset of the financial objects of the universe based on at least one of the accounting data, and weighting the subset of the universe according to at least one of the accounting data to obtain the ADBI; and creating a portfolio of financial objects using the ADBI, including the subset of selected and weighted financial objects.

In an embodiment, the universe may include at least one of: a sector; a market; a market sector; an industry sector; a geographic sector; an international sector; a sub-industry sector; a government issue; and/or a tax exempt financial object; agriculture, forestry, fishing and/or hunting industry sector; mining industry sector; utilities industry sector; construction industry sector; manufacturing industry sector; wholesale trade industry sector; retail trade industry sector; transportation and/or warehousing industry sector; information industry sector; finance and/or insurance industry sector; real estate and/or rental and/or leasing industry sector; professional, scientific, and/or technical services industry sector; management of companies and/or enterprises industry sector; administrative and/or support and/or waste management and/or remediation services industry sector; education services industry sector; health care and/or social assistance industry sector; arts, entertainment, and/or recreation industry sector; accommodation and/or food services industry sector; other services (except public administration) industry sector; and/or public administration industry sector.

In an embodiment, the accounting based data used in weighting as a measure of value of the company associated with the financial object, may include at least one of: dividends, if any; revenue; cash flow; book value; collateral; assets; distributions; funds from operations; adjusted funds from operations; earnings; income; liquidity; country metrics including at least one of: economic metrics, area, population, unemployment rate, reserves, resource consumption, democracy index, corruption index, government debt, private debt, government expenditures, nominal interest rate, commercial paper yield, consumer price index (CPI), purchasing power, relation of purchasing power to nominal exchange rate and any deviations from historical trend, and/or country current account flow; the economic metrics including at least one of: a gross domestic product (GDP), a gross national product (GNP), a gross net income (GNI), and/or a gross national debt (GND); industry metrics including at least one of: industry growth rate, total capital expenditures, inventories total—end of year, average industry dividends, supplemental labor costs, inventories finished products—end of year, new orders for manufactured goods, fuel costs, inventories work in process—end of year, shipments, electric energy used, inventories, materials, supplies, fuels, etc.—end of year, unfilled orders, inventories by stage of fabrication, value of manufacturers inventories by stage of fabrication—beginning of year, Inventories Number of production workers, inventories total—beginning of year, inventories-to-shipments ratio, payroll of production workers, inventories finished products—beginning of year, value of product shipments, hours of production workers, inventories work in process—beginning of year, statistics from department of commerce, industry associations, for industry groups and industries, cost of purchased fuels and electric energy, inventories, materials, supplies, fuels,—beginning of year, geographic area statistics, electric energy quantity purchased, value of shipments—total, annual survey of manufacturers (ASM), electric energy cost, value of shipments—products, employment, electric energy generated, value of shipments—total miscellaneous receipts, all employees payroll, electric energy sold and/or transferred, total miscellaneous receipts—value of resales, all employees hours, cost of purchased fuels, total miscellaneous receipts—contract receipts, all employees total, compensation, capital expenditure for plant and/or equipment total, other total miscellaneous receipts, all employees total fringe benefit costs, capital expenditure for plant and/or equipment—buildings and/or other structures, interplant transfers, total cost of materials, capital expenditure for plant and equipment—machinery and/or equipment total, costs of materials—total, payroll, capital expenditure for plant and equipment—autos, trucks, etc for highway use, costs of materials—materials, parts, containers, packaging, value added by manufacture, capital expenditure for plant and equipment—computers, peripheral data processing equipment, costs of materials—resales, cost of materials consumed, capital expenditure for plant and equipment—all other expenditures, costs of materials—purchased fuels, value of shipments, value of manufacturers inventories by stage of fabrication—end of year, costs of materials—purchased electricity, costs of materials—contract work, industry cost of capital, and/or average industry dividend; employees; margin; profit margin; term structure; interest rate; seasonal factor; a financial ratio of a company; a ratio of accounting based data; a ratio of accounting based data per share; a ratio of a first accounting based data to a second accounting based data; a liquidity ratio; a working capital ratio; a current ratio; a quick ratio; a cash

ratio; an asset turnover ratio; a receivables turnover ratio; an average collection period ratio; an average collection period ratio; an inventory turnover ratio; an inventory period ratio; a leverage ratio; a debt ratio; a debt-to-equity ratio; an interest coverage ratio; a profitability ratio; a return on common equity (ROCE) ratio; profit margin ratio; an earnings per share (EPS) ratio; a gross profit margin ratio; a return on assets ratio; a return on equity ratio; a dividend policy ratio; a dividend yield ratio; a payout ratio; a capital market analysis ratio; a price to earnings (PE) ratio; and/or a market to book ratio.

In an embodiment, the accounting based data may be weighted relatively dependent on the geography of the company associated with the financial object.

In an embodiment, the financial object may include: at least one unit of interest in at least one of: an asset; a liability; a tracking portfolio; financial instrument and/or a security, wherein the financial instrument and/or the security denotes a debt, an equity interest, and/or a hybrid; a derivatives contract, including at least one of: a future, a forward, a put, a call, an option, a swap, and/or any other transaction relating to a fluctuation of an underlying asset, notwithstanding the prevailing value of the contract, and notwithstanding whether such contract, for purposes of accounting, is considered an asset or liability; a commodity; a financial position; a currency position; a trust, a real estate investment trust (REIT), real estate operating company (REOC), and/or a portfolio of trusts; a debt instrument including at least one of: a bond, a debenture, a subordinated debenture, a mortgage bond, a collateral trust bond, a convertible bond, an income bond, a guaranteed bond, a serial bond, a deep discount bond, a zero coupon bond, a variable rate bond, a deferred interest bond, a commercial paper, a government security, a certificate of deposit, a Eurobond, a corporate bond, a government bond, a municipal bond, a treasury-bill, a treasury bond, a foreign bond, an emerging market bond, a high yield bond, a developed market bond, a junk bond, a collateralized instrument, an exchange traded note (ETN), and/or other agreements between a borrower and a lender; a fund; and/or an investment entity or account of any kind, including an interest in, or rights relating to: hedge fund, an exchange traded fund (ETF), a fund of funds, a mutual fund, a closed end fund, an investment vehicle, and/or any other pooled and/or separately managed investments.

In an embodiment, a computer-implemented method for constructing at least one of a high-yield debt instruments index and/or a portfolio of high-yield debt instruments based on the high yield debt instruments index is provided, the method including: selecting constituent high-yield debt instruments of the high-yield debt instruments index based upon at least one metric regarding the companies associated with the high-yield debt instruments, wherein the at least one metric includes at least one of sales, book value, cash flow, dividends if any, collateral, a composite of the other metrics, and/or ratios pertaining thereto; and weighting the constituent high-yield debt instruments based upon at least one metric regarding the size of the companies associated with the high-yield debt instruments to obtain constituent weightings for each respective constituent high-yield debt instrument, wherein the at least one metric includes at least one of sales, book value, cash flow, dividends if any, collateral, a composite of the other metrics, and/or ratios pertaining thereto.

In an embodiment, the weighting is substantially exclusive of an influence of price of the companies. In another embodiment, the weighting is not based on any of equal weighting, weighting in proportion to price, weighting in proportion to market capitalization, and/or weighting in proportion to free float. In another embodiment, the at least one metric includes data found within a generally accepted accounting principles (GAAP) company annual report and accounts (GAAP reports). In an embodiment, the method further includes basing the constituent weightings of the high-yield debt instruments upon at least one of a ratio or a manipulation of the accounting data. In another embodiment, the constituent weightings are based upon at least one of a ratio or a manipulation of the accounting data including basing the constituent weightings on at least one of: a relative size of the return on assets of the selected companies, the return on investment thereof, and/or the return on capital thereof compared to the cost of capital thereof, wherein the return is determined based on cash flow. In another embodiment, the constituent weightings of the high-yield debt instruments within the high-yield debt instruments index or high yield debt instruments fund are altered as the accounting data concerning the companies in or outside the index changes. In another embodiment, the constituent weightings of the high-yield debt instruments within the fund are altered when at least one of: one or more of the companies report their quarterly and/or annual accounting information; and/or at a pre-determined time after which the majority of the companies in the index have reported their quarterly and/or annual accounting data. In an embodiment, the weighting includes calculating the constituent weightings based upon the at least one accounting data. In another embodiment, the calculating is performed by an index manager calculator.

In an embodiment, a computer-implemented method for constructing at least one of an emerging markets financial objects index and/or an emerging markets financial objects portfolio of emerging market financial objects based on the emerging markets financial objects index is provided, the method including: selecting constituent emerging market financial objects of the emerging markets financial objects index based upon at least one accounting data regarding a company relating to the emerging market financial object and/or demographic data regarding the region, country, and/or sovereign associated with the emerging market financial object; and weighting the constituent emerging market financial objects based upon at least one accounting and/or demographic data regarding the region, country and/or sovereign associated with the emerging market financial objects to obtain constituent weightings for each respective constituent emerging market financial object, wherein the emerging market financial object includes at least one of an emerging market debt instrument and/or an emerging market equity instrument, and wherein the at least one accounting data and/or demographic data includes at least one of a demographic measure, a population level, an area, a geographic area, an economic factor, a gross domestic product (GDP), GDP growth, a natural resource characteristic, an energy metric, a petroleum characteristic, a resource consumption metric, a petroleum consumption amount, a liquid natural gas (LNG) characteristic, a liquefied petroleum gas (LPG) characteristic, an expenditures characteristic, gross national income (GNI), a debt characteristic, a rate of inflation, a rate of unemployment, a reserves level, a population characteristic, a corruption characteristic, a democracy characteristic, a social metric, a political metric, a per capita ratio of any of the foregoing or any other characteristic, a derivative of any foregoing or any other characteristic and/or a ratio of two of the foregoing or any other characteristics.

In an embodiment, the weighting is not based on any of equal weighting, weighting in proportion to share price, weighting in proportion to market capitalization, and/or weighting in proportion to free float. The demographic data

may include data found within a database of information pertaining to at least one of regions, sovereigns and/or countries. In an embodiment, the method may further include basing the constituent weightings of the emerging market financial objects upon at least one of a ratio or a manipulation of the accounting and/or demographic data. In an embodiment, the constituent weightings of the emerging market financial objects within the emerging markets financial objects index and/or emerging markets financial objects portfolio are altered as the accounting data and/or demographic data concerning the regions, countries and/or sovereigns in or outside the index changes. In an embodiment, the weighting includes calculating the constituent weightings based upon the at least one accounting data and/or demographic data. In another embodiment, the calculating is performed by an index manager calculator.

In an embodiment, a computer-implemented method for constructing at least one of a Real Estate Investment Trust (REIT) and/or Real Estate Operating Company (REOC) index or a REIT and/or REOC fund including a portfolio of REITs and/or REOCs based on the REIT and/or REOC index is provided, the method including: selecting constituent REITs and/or REOCs for the REIT and/or REOC index based upon at least one data metric of REIT and/or REOC size, wherein the data metric includes at least one of revenues, adjusted funds from operations (AFFO), funds from operations (FFO), distributions, dividends, and/or assets; and weighting the constituent REITs based upon at least one data metric of REIT and/or REOC size, wherein the data metric includes at least one of revenues, adjusted funds from operations (AFFO), funds from operations (FFO), distributions, dividends, and/or assets, to obtain constituent weightings for each respective constituent REIT and/or REOC.

In an embodiment, the weighting is substantially exclusive of an influence of REIT and/or REOC price. In another embodiment, the weighting is not based on any of equal weighting, weighting in proportion to REIT and/or REOC price, weighting in proportion to market capitalization, and/or weighting in proportion to free float. In another embodiment, at least one accounting data includes at least one of total assets, funds from operations (FFO), adjusted funds from operations (AFFO), revenues, total dividend distributions, and/or ratios pertaining thereto. In another embodiment, the accounting data includes data found within a. generally accepted accounting principles (GAAP) company annual report and accounts (GAAP reports). In another embodiment, the method further includes basing the constituent weightings of the REITs upon at least one of a ratio or a manipulation of the accounting data.

In an embodiment, the basing of the constituent weightings upon at least one of a ratio or a manipulation of the accounting data includes basing the constituent weightings on at least one of: a relative size of the return on assets of the selected companies, the return on investment thereof, and/or the return on capital thereof compared to the cost of capital thereof, wherein the return is determined based on at least one of funds from operations (FFO) or adjusted funds from operations (AFFO). In another embodiment, the constituent weightings of the REITs within the REIT index or REIT fund are altered as the accounting data concerning the companies in or outside the index changes. In another embodiment, the constituent weightings of the REITs within the fund are altered when at least one of: one or more of the companies report their quarterly and/or annual accounting information; and/or at a predetermined time after which the majority of the companies in the index have reported their quarterly and/or annual accounting data.

In another embodiment, the weighting includes calculating the constituent weightings based upon the at least one accounting data. In another embodiment, the step of calculating is performed by an index manager computer system. In another embodiment,

In an embodiment, a computer-implemented method for constructing at least one of a currency instrument index and/or a currency instrument portfolio of currency and/or related foreign exchange (FX) instruments based on the currency instrument index is provided, the method including: selecting constituent currencies and/or FX instruments of the currency index based upon at least one accounting and/or demographic data regarding at least one of the regions, countries, and/or sovereigns associated with the currencies and/or FX instruments; and weighting the constituent currencies and/or FX instruments based upon at least one accounting and/or demographic data regarding at least one of the regions, countries and/or sovereigns associated with the currencies and/or FX instruments to obtain constituent weightings for each respective constituent currency and/or FX instrument.

In an embodiment, the weighting is not based on any of equal weighting, weighting in proportion to share price, weighting in proportion to market capitalization, and/or weighting in proportion to free float.

In another embodiment, the at least one accounting or demographic data includes at least one of a demographic measure; a population level; an area; a geographic area; an economic factor; a gross domestic product (GDP); GDP growth; a natural resource characteristic; a petroleum characteristic; a resource consumption metric; a petroleum consumption amount; a liquid natural gas (LNG) characteristic; a liquefied petroleum gas (LPG) characteristic; an expenditures characteristic; gross national income (GNI); a debt characteristic; a rate of inflation; a rate of unemployment; a reserves level; a population characteristic; a corruption characteristic; a democracy characteristic; a social metric; a political metric; nominal interest rates and the ratios of nominal interest rates between issuing sovereign entities; commercial paper yield metric; credit rating metric; consumer price index (CPI); purchasing power of local currency metric; metrics measuring relations between the purchasing power of local currency metric and nominal exchange rates and deviations from historical trends in such metrics; government exchange rate regime; a per capita ratio of any of the foregoing or any other characteristic; a derivative of any foregoing or any other characteristic and/or a ratio of two of the foregoing or any other characteristics.

In an embodiment, the demographic data includes data found within a database of information pertaining to regions, sovereigns and/or countries. In another embodiment, the method further includes basing the constituent weightings of the currency and related FX instruments upon at least one of a ratio or a manipulation of the accounting data. In another embodiment, the constituent weightings of the currency and related FX instruments within the currency index or currency fund are altered as the demographic data concerning the regions, countries, or sovereigns associated with currency or related debt instruments in or outside the index changes.

In another embodiment, the constituent weightings of the currency and related FX instruments within the FX fund are altered when at least one of: one or more of the regions, countries or sovereigns report their quarterly and/or annual accounting or demographic information; and/or at a pre-determined time after which the majority of the regions, countries, or sovereigns in the index have reported their quarterly and/or annual accounting or demographic data. In another embodiment, the weighting includes calculating the constitu-

ent weightings based upon the at least one accounting data. In another embodiment, the calculating is performed by an index manager calculator.

In an embodiment, a computer-implemented method for constructing at least one of a commodities index and/or a commodities portfolio of commodities and/or derivative instruments based on the commodities index is provided, the method including: selecting constituent commodities and/or derivative instruments of the commodities index based upon at least one accounting data regarding the companies or industries associated with the commodities; and weighting the constituent commodities and/or derivative instruments based upon at least one accounting data regarding the companies and/or industries associated with production and consumption of the commodities to obtain constituent weightings for each respective commodity and/or derivative instrument. In an embodiment, the weighting is substantially exclusive of an influence of share price of the companies or industries. In another embodiment, the weighting is not based on any of equal weighting, weighting in proportion to share price, weighting in proportion to market capitalization, and/or weighting in proportion to free float. In another embodiment, the at least one accounting data includes at least one of sales, book value, cash-flow, any dividends, total assets, revenue, number of employees, profit margins, and/or collateral, and/or ratios pertaining thereto of the companies or industries responsible for the production and consumption of a commodity, total per unit cost of production of the commodity, the commodity reserves value, term structure of the commodity's futures, momentum in price of the commodity, and any seasonal factors that affect the valuation of the commodity.

In another embodiment, the accounting data includes data found within a generally accepted accounting principles (GAAP) company annual report and accounts (GAAP reports). In another embodiment, the method further includes basing the constituent weightings of the commodities and related derivative instruments upon at least one of a ratio or a manipulation of the accounting data. In another embodiment, the basing of the constituent weightings upon at least one of a ratio or a manipulation of the accounting data includes basing the constituent weightings on at least one of: a relative size of the return on assets of the companies or industries responsible for producing and consuming selected commodities, the return on investment thereof, and/or the return on capital thereof compared to the cost of capital thereof, wherein the return is determined based on cash flow.

In another embodiment, the constituent weightings of the commodities and related derivative instruments within the commodities index or commodities fund are altered as the accounting data concerning the companies or industries responsible for producing and consuming the commodities in or outside the index changes. In another embodiment, the constituent weightings of the commodities and related derivative instruments within the fund are altered when at least one of: one or more of the companies or industries report their quarterly and/or annual accounting information; and/or at a pre-determined time after which the majority of the companies or industries responsible for producing and consuming the commodities in the index have reported their quarterly and/or annual accounting data.

In another embodiment, the weighting includes calculating the constituent weightings based upon the at least one accounting data. In another embodiment, the calculating is performed by an index manager calculator.

In an embodiment, a computer-implemented method for the construction and management of a financial object index and/or a financial object market index fund containing a portfolio of financial objects based on the financial object market index is provided, the method including: creating a financial object market index, and/or at least one financial object market index fund including a portfolio of financial objects, wherein the creating includes: selecting constituent financial object of the financial object market index based upon at least one accounting data about the entities associated with the financial object, wherein the selecting is exclusive of a material influence of price, and weighting the constituent financial object of the financial object market index to obtain constituent weightings based upon at least one accounting data regarding the entities associated with the financial objects, wherein the weighting is exclusive of a material influence of price of the financial object associated with the entity, and wherein the weighting is not based on any of equal weighting, weighting in proportion to share price of the stocks of the companies, weighting in proportion to market capitalization of the entities associated with the financial object, and/or weighting in proportion to free float.

In another embodiment, the method further includes basing the constituent weightings of the financial object upon at least one of: a ratio and/or a manipulation of the accounting data. In another embodiment, the constituent weightings of the financial object within the financial object market index fund are altered as the accounting data concerning the companies in or outside the index changes.

In another embodiment, the constituent weightings of the financial object within the financial object fund are altered when at least one of: one or more of the companies report their quarterly and/or annual accounting information; and/or at a pre-determined time after which the majority of the companies in the index have reported their quarterly and/or annual accounting data. In another embodiment, the accounting data may include data found within a generally accepted accounting principles (GAAP) company annual report and accounts (GAAP reports). In another embodiment, the accounting data may include at least one of: relative size of profit of a company, and/or pre-exceptional profits, sales, assets, cash flow, shareholders' equity, and/or a return on investment of the entity.

In another exemplary embodiment, the accounting data may include: a weighted combination of sales, cash flow, and any other generally accepted accounting data. In another embodiment, the data includes at least one of any dividends, profit, assets and/or ratios pertaining thereto. In another embodiment, the another accounting data includes at least one of any dividends, profit, assets, and any fundamental accounting item, and/or ratio pertaining thereto. In another embodiment, the basing of the constituent weightings upon at least one of a ratio and/or a manipulation of the accounting data includes basing the constituent weightings on at least one of: a relative size of the return on assets of the selected companies, the return on investment thereof, and/or the return on capital thereof compared to the cost of capital thereof.

In another exemplary embodiment, the creating including calculating the constituent weightings based upon the at least one accounting data. In another embodiment, the calculating is performed by an index manager calculator.

In an exemplary embodiment, a computer-implemented system for construction and management of a financial index and a portfolio based on the financial index is provided, where the financial index is generated based on accounting data, the system including: an index manager configured to create the financial index, and at least one portfolio based on the financial index, wherein constituent weightings of constituents of the portfolio are based upon at least one accounting data regarding a company associated with each of the constituents

of the financial portfolio, the selection of the constituents of the financial index based upon at least one accounting data about the companies exclusive of a material influence of share price, and wherein the constituent weightings are exclusive of a material influence of share price of the companies and wherein the constituent weightings are not based on any of equal weighting, weighting in proportion to share price, weighting in proportion to market capitalization, and/or weighting in proportion to free float. In an embodiment, the accounting based data includes at least one of: dividends and/or ratios related thereto.

In another embodiment, a computer readable medium is provided embodying program logic which when executed by a computer performs a method including: creating a financial index, and at least one portfolio based on the financial index, wherein constituent weightings of constituents of the portfolio are based upon at least one accounting data regarding a company associated with each of the constituents of the portfolio, the creating including: selecting constituents of the financial index based upon at least one accounting data about the companies exclusive of a material influence of share price, and weighting the constituents based on at least one accounting data exclusive of a material influence of share price of the companies to obtain constituent weightings, wherein the constituent weightings are not based on any of equal weighting, weighting in proportion to share price, weighting in proportion to market capitalization, and/or weighting in proportion to free float.

In an embodiment, the method further includes: creating the financial index, and the at least one portfolio, wherein the at least one accounting data includes at least one of: dividends and/or ratios pertaining thereto. In another embodiment, the another accounting data includes at least one of: any dividends and/or ratios pertaining thereto. In another embodiment, the accounting data includes at least one of: any dividends and/or ratios pertaining thereto. In another embodiment, the accounting data includes at least one of: any dividends and/or ratios pertaining thereto.

In another embodiment, the financial object market index is based on accounting data, the method including: creating a financial object market index including: selecting constituent financial objects of the financial object market index based upon at least one accounting data regarding the companies associated with the financial objects, wherein the selecting is substantially exclusive of an influence of price, and weighting the constituent financial object based upon at least one accounting data regarding the entities associated with the financial object to obtain constituent weightings, wherein the weighting is substantially exclusive of an influence of price of the financial object associated with the entity, and wherein the weighting is not based on any of equal weighting, weighting in proportion to share price, weighting in proportion to market capitalization, and/or weighting in proportion to free float.

In another embodiment, a financial object market index fund containing a portfolio of stocks based on a stock market index is provided, the method including: creating a stock market index fund including a portfolio of financial objects based on the financial objects market index wherein the financial objects market index is created by selecting constituent stocks of the financial objects market index based upon at least one accounting data about the companies exclusive of a material influence of price, and by weighting the constituent financial objects of the financial objects market index based upon at least one accounting data regarding the companies whose financial objects are in the financial objects market index, wherein the weighting is exclusive of a material influence of price of the entities, and wherein the weighting is not based on any of equal weighting, weighting in proportion to share price, weighting in proportion to market capitalization, and/or weighting in proportion to free float.

In another embodiment, the financial objects market index fund is held by, or on behalf of, one or a plurality of investors. In another embodiment, the selecting includes selecting based upon at least one of: a ratio of the accounting data; and/or a manipulation of the accounting data. In another embodiment, the accounting data includes at least one of: relative size of a profits of a the entity; and/or pre-exceptional profits, sales, assets, cash flow, shareholders' equity, and/or a return on investment of a the entity. In another embodiment, the accounting data includes any generally accepted accounting data. In another embodiment,

In another embodiment, creating the stock market index includes selecting stocks from a set of entities having a publicly available periodic financial report. In another embodiment, the set of companies is not substantially equivalent to any one of the S&P 500 Index, and/or the Dow Jones Industrial Average. In another embodiment, selecting includes: selecting a subset from the set, wherein the set includes at least one of substantially all of the companies having a publicly available periodic financial report, and/or a plurality of subsets of the set. In another embodiment, the set includes a collection of a plurality of partitioned subsets of financial objects. In another embodiment, wherein the index includes a collection of a plurality of partitioned subindexes. In another embodiment, the index is partitioned into subindexes based on any criterion. In another embodiment, the set includes a group of entities greater than 500 companies. In another embodiment, the set includes substantially all entities having publicly available periodic financial reports.

In another embodiment, the selecting includes eliminating from the set a subset of entities chosen according to at least one accounting data substantially independent of price. In another embodiment, the weighting includes weighting the remaining companies after the eliminating, according to at least one accounting data. In another embodiment, the eliminating includes eliminating based on illiquidity. In another embodiment, the financial objects include at least one of: substantially all U.S. financial objects, all financial objects in a market, all stocks in a sector of a market, and/or all stocks in a subset of a market. In another embodiment, the stocks include U.S. stocks. In another embodiment, the financial objects include securities. In another embodiment, the financial objects include common financial objects. In yet another embodiment, the financial objects market index fund is held by, or on behalf of, one or a plurality of investors.

In an embodiment, a system is provided, including: an entity database storing aggregated accounting based data about a plurality of entities obtained from an external data source, each of the entities having at least one asset type associated therewith, the aggregated accounting based data including at least one non-market capitalization objective measure of scale metric associated with each the entity; and an analysis host computer processing apparatus coupled to the entity database, the analysis host computer processing apparatus including: a data retrieval and storage subsystem operative to retrieve the aggregated accounting based data from the entity database and store the aggregated accounting based data to the entity database; an index generation subsystem including: a selection subsystem operative to select a group of the entities based on at least one non-market capitalization objective measure of scale metric; a weighting function generation subsystem operative to generate a weighting function based on at least one non-market capitalization objective measure of scale metric; a index creation

subsystem operative to create a non-market capitalization objective measure of scale index based on the group of selected entities and the weighting function; and a storing subsystem operative to store the non-market capitalization objective measure of scale index. An asset type may include a financial object, as well as any other asset type.

In another embodiment, the analysis host computer processing apparatus further includes: a normalization calculation sub-system operative to normalize the data for the at least one non-market capitalization objective measure of scale across the plurality of entities. In another embodiment, the at least one non-market capitalization objective measure of scale metric used by the selection subsystem differs from the at least one non-market capitalization objective measure of scale metric used by the weighting function generating subsystem. In another embodiment, the at least one non-market capitalization objective measure of scale metric used by the selection subsystem excludes any combination of: market capitalization; and/or share price.

In another embodiment, the at least one non-market capitalization objective measure of scale metric used by the weighting function generation subsystem excludes any combination of: market capitalization weighting; equal weighting; and/or share price weighting. In another embodiment, the selection subsystem is operative to: (i) for each entity, assign a percentage factor to each of a plurality of the at least one non-market capitalization objective measure of scale metric, each percentage factor corresponding to the importance of the at least one non-market capitalization objective measure of scale metric to the selection; (ii) for each entity, multiply each of the percentage factors with the corresponding non-market capitalization objective measure of scale metric thereof, to compute a selection relevance factor for the entity; (iii) determine the selected group of entities by: (A) comparing the selection relevance factors for the entities; (B) ranking the entities based on the comparison; (C) selecting a predetermined number of the entities having highest rankings to be the selected group of entities.

In another embodiment, the weighting function generating subsystem is operative to: (i) for each entity including the selected group of entities, assign a percentage factor to each of a plurality of the at least one non-market capitalization objective measure of scale metric, each percentage factor corresponding to the importance of the at least one non-market capitalization objective measure of scale metric to the weighting; and (ii) for each entity including the selected group of entities, multiply each of the percentage factors with the corresponding non-market capitalization objective measure of scale metric thereof, the corresponding non-market capitalization objective measure of scale metric being a member of the plurality, to compute an entity function; and (iii) set the weighting function as a combination of the totality of the entity functions.

In another embodiment, each of asset type includes at least one of: a stock; a commodity; a futures contract; a bond; a mutual fund; a hedge fund; a fund of funds; an exchange traded fund (ETF); a derivative; and/or a negative weighting on any asset. In another embodiment, the at least one asset type includes a stock. In another embodiment, the at least one asset type includes a commodity. In another embodiment, the at least one asset type includes a futures contract. In another embodiment, the at least one asset type includes a bond. In another embodiment, the at least one asset type includes a mutual fund. In another embodiment, the at least one asset type includes a hedge fund. In another embodiment, the at least one asset type includes a fund of funds. In another embodiment, the at least one asset type includes an exchange traded fund (ETF). In another embodiment, the at least one asset type includes a derivative. In another embodiment, the at least one asset type includes a negative weighting on any asset type. In another embodiment, the negative weighting is performed for purposes of at least one of establishing and/or measuring performance for at least one of: any security; a portfolio of assets; a hedge fund; and/or a long/short position. In another embodiment, the at least one non-market capitalization objective measure of scale metric includes a measure of size of the entity. In another embodiment, the measure of size of the entity includes at least one of: gross revenue; sales; income; earnings before interest and tax (EBIT); earnings before interest, taxes, depreciation and amortization (EBITDA); number of employees; book value; assets; liabilities; and/or net worth. In another embodiment, the non-market capitalization objective measure of scale metric includes a metric relating to an underlying asset type itself.

In an embodiment, the asset type includes at least one of: a municipality; a municipality issuing bonds; and/or a commodity. In another embodiment, the at least one non-market capitalization objective measure of scale metric includes at least one of: revenue; profitability; sales; total sales; foreign sales, domestic sales; net sales; gross sales; profit margin; operating margin; retained earnings; earnings per share; book value; book value adjusted for inflation; book value adjusted for replacement cost; book value adjusted for liquidation value; dividends; assets; tangible assets; intangible assets; fixed assets; property; plant; equipment; goodwill; replacement value of assets; liquidation value of assets; liabilities; long term liabilities; short term liabilities; net worth; research and development expense; accounts receivable; earnings before interest and tax (EBIT); earnings before interest, taxes, dividends, and amortization (EBITDA); accounts payable; cost of goods sold (CGS); debt ratio; budget; capital budget; cash budget; direct labor budget; factory overhead budget; operating budget; sales budget; inventory system; type of stock offered; liquidity; book income; tax income; capitalization of earnings; capitalization of goodwill; capitalization of interest; capitalization of revenue; capital spending; cash; compensation; employee turnover; overhead costs; credit rating; growth rate; tax rate; liquidation value of entity; capitalization of cash; capitalization of earnings; capitalization of revenue; cash flow; and/or future value of expected cash flow.

In an embodiment, the at least one non-market capitalization objective measure of scale metric includes a ratio of any combination of two or more non-market capitalization objective measure of scale metrics. In another embodiment, the ratio of any combination of the objective measure of scale metrics comprise at least one of: current ratio; debt ratio; overhead expense as a percent of sales; and/or debt service burden ratio. In another embodiment, the at least one non-market capitalization objective measure of scale metric includes a demographic measure.

In an embodiment, the demographic measure of scale includes at least one of: a measure relating to employees; floor space; office space; location; and/or other demographics of an asset. In another embodiment, the measure of size of the entity includes at least a demographic measure. In another embodiment, the demographic measure includes at least one of: a non-financial metric; a non-market related metric; a number of employees; floor space; office space; and/or other demographics of the asset. In another embodiment, the at least one non-market capitalization objective metric includes a metric relating to geography. In another embodiment, the geographic metric relating to geography includes a geographic metric other than gross domestic product (GDP).

In an embodiment, the system further includes a trading host computer processing apparatus, coupled to the analysis host computer processing apparatus, and operative to construct a portfolio of assets including one or more trading assets, the trading host computer processing apparatus including: an index retrieval subsystem operative to retrieve the non-market capitalization objective measure of scale index; a trading accounts management subsystem operative to receive one or more data indicative of investment amounts from one or more investors; a purchasing subsystem operative to permit purchasing of one or more of the trading assets using the investment amounts based on the non-market capitalization objective measure of scale index.

In an embodiment, the system further includes a trading accounts database coupled to the trading accounts management subsystem, the trading accounts database operative to store the one or more data indicative of the investment amounts. In another embodiment, the system further includes an exchange host computer processing apparatus coupled to the purchasing subsystem, the exchange host computer processing apparatus operative to perform one or more functions of the purchasing subsystem. In another embodiment, the asset type includes at least one of: a fund; a mutual fund; a fund of funds; an asset account; an exchange traded fund (ETF); a separate account, a pooled trust; and/or a limited partnership.

In an embodiment, the system further includes: rebalancing a pre-selected group of trading assets based on the non-market capitalization objective measure of scale index. In another embodiment, the rebalancing is performed on a periodic basis. In another embodiment, the rebalancing is based on the group of assets reaching a predetermined threshold.

In an embodiment, the system further includes: applying one or more rules associated with the non-market capitalization objective measure of scale index. In another embodiment, the system may be used for at least one of: investment management, and/or investment portfolio benchmarking. In another embodiment, the selection sub-system is operative to perform enhanced index investing, including: computing the portfolio of assets in a fashion wherein at least one of: holdings; performance; and/or characteristics, are substantially similar to an external index. In another embodiment, the weighting subsystem is further operative to weight based on a non-financial metric associated with each of the selected group of entities.

In an embodiment, a system is operative to produce data indicative of the state of a plurality of entities, including: (i) an entity database storing aggregated entity data about the plurality of entities obtained from an external data source, each of the entities having at least one object type associated therewith, the aggregated entity data including at least one objective metric associated with each entity; (ii) an input/output subsystem; and (iii) an analysis host computer processing apparatus coupled to the entity database via the input/output subsystem, the analysis host computer processing apparatus including: (A) a data retrieval and storage subsystem operative to retrieve the aggregated entity data from the entity database and store the aggregated entity data to the entity database; (B) a data generation apparatus subsystem including: (1) an object selection subsystem operative to select a group of the entities based on a the at least one objective metric; (2) an object weighting function generating subsystem operative to generate a weighting function based on the at least one objective metric; (3) a data creating subsystem operative to create the data based on the group of selected entities and the weighting function; (4) an object storing subsystem operative to store the data; and (5) a displaying subsystem operative to generate for visual display the data indicative of the state of the plurality of entities.

In another embodiment, (i) the data includes an index; (ii) each objective metric includes a non-market capitalization objective measure of scale metric; (iii) each entity data includes a corporate entity data; and (iv) each object type includes an asset data of the entity.

In another embodiment, the analysis host computer processing apparatus further includes: a normalization calculation subsystem operative to normalize the data for the at least one non-market capitalization objective measure of scale metric across the plurality of entities. In another embodiment, the at least one objective metric used by the object selection subsystem differs from the at least one objective metric used by the object weighting function generating subsystem. In another embodiment, the at least one object metric used by the object selection subsystem excludes any combination of data regarding: market capitalization; and/or share price.

In another embodiment, the at least one object used by the object weighting function generating subsystem excludes any combination of data regarding: market capitalization weighting; equal weighting; and/or share price weighting. In another embodiment, the object selection subsystem includes a selection subsystem operative to: (i) for each entity, assigning a percentage factor to each of a plurality of the at least one objective metric, each percentage factor corresponding to the importance of the at least one objective metric to the selection; (ii) for each entity, multiplying each of the percentage factors with the corresponding objective metric thereof, to compute a selection relevance factor for the entity; (iii) determining the selected group of entities by: (A) comparing the selection relevance factors for the entities; (B) ranking the entities based on the comparison; (C) selecting a predetermined number of the entities having highest rankings to be the selected group of entities.

In another embodiment, the object weighting function generating subsystem is operative to: (i) for each entity including the selected group of entities, assigning a percentage factor to each of a plurality of the at least one objective metric, each percentage factor corresponding to the importance of the at least one objective metric to the weighting; (ii) for each entity including said selected group of entities, multiplying each of the percentage factors with the corresponding objective metric thereof, the corresponding objective metric being a member of the plurality, to compute an entity function; and (iii) setting the weighting function as a combination of the totality of the entity functions.

In another embodiment, each of the object types includes data regarding an asset of the entity, said asset including at least one of: a stock; a commodity; a futures contract; a bond; a mutual fund; a hedge fund; a fund of funds; an exchange traded fund (ETF); a derivative; and/or a negative weighting on any asset. In another embodiment, the at least one objective metric includes data regarding the entity, the data including data regarding at least one of: revenue; profitability; sales; total sales; foreign sales, domestic sales; net sales; gross sales; profit margin; operating margin; retained earnings; earnings per share; book value; book value adjusted for inflation; book value adjusted for replacement cost; book value adjusted for liquidation value; dividends; assets; tangible assets; intangible assets; fixed assets; property; plant; equipment; goodwill; replacement value of assets; liquidation value of assets; liabilities; long term liabilities; short term liabilities; net worth; research and development expense; accounts receivable; earnings before interest and tax (EBIT); earnings before interest, taxes, dividends, and amortization (EBITDA); accounts payable; cost of goods sold (CGS); debt

ratio; budget; capital budget; cash budget; direct labor budget; factory overhead budget; operating budget; sales budget; inventory system; type of stock offered; liquidity; book income; tax income; capitalization of earnings; capitalization of goodwill; capitalization of interest; capitalization of revenue; capital spending; cash; compensation; employee turnover; overhead costs; credit rating; growth rate; tax rate; liquidation value of entity; capitalization of cash; capitalization of earnings; capitalization of revenue; cash flow; and/or future value of expected cash flow.

In another embodiment, the system further includes a trading host computer processing apparatus, coupled to the analysis host computer processing apparatus, and operative to construct a portfolio of assets including one or more trading assets, the trading host computer processing apparatus including: a data retrieval subsystem operative to retrieve the data; a trading accounts management subsystem operative to receive one or more data indicative of investment amounts from one or more investors; a purchasing subsystem operative to permit purchasing of one or more of the trading assets using the investment amounts based on the data.

In another embodiment, the system further includes a trading accounts database coupled to the trading accounts management subsystem, the trading accounts database operative to store the one or more data indicative of the investment amounts. In another embodiment, the system further includes an exchange host computer processing apparatus coupled to the purchasing subsystem, the exchange host computer processing apparatus operative to perform one or more functions of the purchasing subsystem.

In an embodiment, the system may also further include: a rebalancing computational subsystem operative to rebalance a pre-selected group of trading assets based on the data. In another embodiment, the rebalancing computational subsystem performs rebalancing on a periodic basis. In yet another embodiment, the rebalancing computational subsystem performs rebalancing based on the trading assets reaching a predetermined threshold.

Further features and advantages of, as well as the structure and operation of, various embodiments, are described in detail below with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

The foregoing and other features and advantages of the invention will be apparent from the following, more particular description of exemplary embodiments of the invention, as illustrated in the accompanying drawings. In the drawings, like reference numbers generally indicate identical, functionally similar, and/or structurally similar elements. The drawing in which an element first appears is indicated by the leftmost digits in the corresponding reference number. A preferred exemplary embodiment is discussed below in the detailed description of the following drawings:

FIG. **1** is a deployment diagram of an index generation and use process in accordance with an exemplary embodiment of the present invention;

FIG. **2** is a process flow diagram of an index generation process in accordance with an exemplary embodiment of the present invention;

FIG. **3** is a process flow diagram of an index use process in accordance with an exemplary embodiment of the present invention;

FIG. **4** is a process flow diagram of a method of creating a portfolio of financial objects;

FIG. **5** is a process flow diagram of a method of constructing an ADBI and a portfolio of financial objects using the ADBI;

FIG. **6** depicts an exemplary embodiment of a computer system as may be used in the analysis host, trading host, or exchange host, according to an exemplary embodiment;

FIG. **7** depicts an exemplary embodiment of a chart graphing cumulative returns by date for exemplary high yield debt instrument metrics according to an exemplary embodiment;

FIG. **8** depicts a block diagram of an exemplary embodiment of a system according to an exemplary embodiment;

FIG. **9** depicts an exemplary embodiment of a chart graphing cumulative returns by date for exemplary emerging market debt instrument metrics according to an exemplary embodiment;

FIG. **10** depicts an exemplary embodiment of a chart graphing cumulative returns by date for exemplary emerging market debt instrument metrics illustrating growth of an exemplary investment, according to an exemplary embodiment; and

FIG. **11** depicts an exemplary embodiment of a chart graphing a rolling 36-month value added composite exemplary emerging market debt instrument metrics vs. cap-weighted emerging market bonds, according to an exemplary embodiment.

DETAILED DESCRIPTION OF EXEMPLARY EMBODIMENTS

Various exemplary embodiments are discussed in detail below including a preferred embodiment. While specific implementations are discussed, it should be understood that this is done for illustration purposes only. A person skilled in the relevant art can recognize that other components, configurations, accounting data, and ratios may be used without parting from the spirit and scope of the invention.

Exemplary Conclusions

The inventors have arrived at numerous conclusions upon which the embodiments are established, including that cap-weighting is not mean-variance optimal. The latter conclusion holds because weighting schemes based on market price, including cap-weighting, overweight 100% of overvalued stocks and underweight 100% of undervalued stocks. Both mathematically and empirically, this over and under weighting problem inherent to cap-weighting leads to a return drag of 200 bps per year in the U.S. and more than 200 bps per year internationally.

One example of the phenomenon comes from the recent stock market bubble of 1997-2000, when, e.g., Internet network service provider Cisco comprised nearly 5% of the S&P 500. At its peak in 2000, Cisco traded at $70 per share. Since March 2000, Cisco has fallen to approximately 12% of its peak, dragging down S&P 500 performance of which it comprised 5%.

While it is difficult or impossible to know the true fair value of a company, what is known is that if an overvalued company's weight in an index is determined by market capitalization, then the company will be over-weighted in the index. Conversely, if a company's weight is determined by market capitalization and it is undervalued, it will be underweighted in a capitalization-weighted index.

Over the past 40 years, the largest stock by market capitalization in the S&P 500 has underperformed the average stock in the index over a 10-year time period by an average of 40%. The largest 10 stocks by market capitalization have underperformed the average stock over the subsequent 10-year time frame by an average of 26%. Yet, cap-weighted

indexes continue to invest 20-30% of their value in the largest 10 stocks by market cap, despite the fact that they underperform the average stock in the index, because the stocks are selected and weighted using market capitalization, which by its nature over-weights over valued stocks and under-weights undervalued stocks. The various exemplary embodiments overcome the shortcomings of the investment community.

Various Exemplary Embodiments Further Described

As used herein, references to "one embodiment," "an embodiment," "example embodiment," "various embodiments," etc., may indicate that the embodiment(s) of the invention so described may include a particular feature, structure, or characteristic, but not every embodiment necessarily includes the particular feature, structure, or characteristic. Further, repeated use of the phrase "in one embodiment," or "in an exemplary embodiment," do not necessarily refer to the same embodiment, although they may.

In the following description and claims, the terms "coupled" and "connected," along with their derivatives, may be used. It should be understood that these terms are not intended as synonyms for each other. Rather, in particular embodiments, "connected" may be used to indicate that two or more elements are in direct physical or electrical contact with each other. "Coupled" may mean that two or more elements are in direct physical or electrical contact. However, "coupled" may also mean that two or more elements are not in direct contact with each other, but yet still co-operate or interact with each other.

One or more exemplary embodiments of various exemplary embodiments, including but not limited to a trading system, a selecting system, a weighting system, an investment system, a portfolio management system, an index manager system, a database system, a metric storage and/or analysis system, to name a few, may be implemented on, with, or in relation to a computing device(s), processor(s), computer(s) and/or communications device(s).

The computer, in an exemplary embodiment, may comprise one or more central processing units (CPUs) or processors, which may be coupled to a bus. The processor may, e.g., access main memory via the bus. The computer may be coupled to an input/output (I/O) subsystem such as e.g., but not limited to, a network interface card (NIC), or a modem for access to a network. The computer may also be coupled to a secondary memory directly via bus, or via a main memory, for example. Secondary memory may include, e.g., but not limited to, a disk storage unit or other storage medium. Exemplary disk storage units may include, but are not limited to, a magnetic storage device such as, e.g., a hard disk, an optical storage device such as, e.g., a write once read many (WORM) drive, or a compact disc (CD), a digital versatile disk (DVD), and/or a magneto optical device. Another type of secondary memory may include a removable disk storage device, which may be used in conjunction with a removable storage medium, such as, e.g. a CD-ROM, a floppy diskette or flash drive, etc. In general, the disk storage unit may store an application program for operating the computer system referred to commonly as an operating system. The disk storage unit may also store documents of a database (not shown). The computer may interact with the I/O subsystems and disk storage unit via bus. The bus may also be coupled to a display for output, and input devices such as, but not limited to, a keyboard and a mouse or other pointing/selection device.

In this document, the terms "computer program medium" and "computer readable medium" may be used to generally refer to storage media such as, e.g., but not limited to, a removable storage drive, or a hard disk installed in hard disk drive, etc. These computer program products may provide software to the computer system. The invention may be directed to such computer program products.

An algorithm is here, and generally, considered to be a self-consistent sequence of acts or operations leading to a desired result. These include physical manipulations of physical quantities. Usually, though not necessarily, these quantities take the form of electrical or magnetic signals capable of being stored, transferred, combined, compared, and otherwise manipulated. It has proven convenient at times, principally for reasons of common usage, to refer to these signals as bits, values, elements, symbols, characters, terms, numbers or the like. It should be understood, however, that all of these and similar terms are to be associated with the appropriate physical quantities and are merely convenient labels applied to these quantities.

Unless specifically stated otherwise, as apparent from the following discussions, it is appreciated that throughout the specification discussions utilizing terms such as "processing," "computing," "calculating," "determining," or the like, refer to the action and/or processes of a computer or computing system, or similar electronic computing device, that manipulate and/or transform data represented as physical, such as electronic, quantities within the computing system's registers and/or memories into other data similarly represented as physical quantities within the computing system's memories, registers or other such information storage, transmission or display devices.

In a similar manner, the term "processor" may refer to any device or portion of a device that processes electronic data from registers and/or memory to transform that electronic data into other electronic data that may be stored in registers and/or memory. A "computing platform" may comprise one or more processors.

Embodiments of the present invention may include apparatuses for performing the operations herein. An apparatus may be specially constructed for the desired purposes, or it may comprise a general purpose device selectively activated or reconfigured by a program stored in the device. The foregoing computer and/or communications related embodiments are described with greater specificity in the embodiments that follow.

Exemplary Process of Constructing Exemplary Accounting Data Based Indexes

A financial object, according to one exemplary embodiment, may include: at least one unit of interest in at least one of: an asset; a liability; a tracking portfolio; a financial instrument and/or a security, where the financial instrument and/or the security denotes a debt, an equity interest, and/or a hybrid; a financial position, a currency position, a trust, a real estate investment trust (REIT), a portfolio of trusts and/or REITS, a security instrument, an equitizing instrument, a commodity, a derivatives contract, including at least one of: a future, a forward, a put, a call, an option, a swap, and/or any other transaction relating to a fluctuation of an underlying asset, notwithstanding the prevailing value of the contract, and notwithstanding whether such contract, for purposes of accounting, is considered an asset or liability; a fund; and/or an investment entity or account of any kind, including an interest in, or rights relating to: a hedge fund, an exchange traded fund (ETF), a fund of funds, a mutual fund, a closed end fund, an investment vehicle, and/or any other pooled and/or separately managed investments. In an exemplary embodiment, the financial object may include a debt instrument, including, according to one exemplary embodiment, any one or more of a bond, a debenture, a subordinated debenture, a mortgage bond, a collateral trust bond, a convertible bond, an income bond, a guaranteed bond, a serial bond, a deep discount bond,

a zero coupon bond, a variable rate bond, a deferred interest bond, a commercial paper, a government security, a certificate of deposit, a Eurobond, a corporate bond, a government and/or institutional debt instrument, a municipal bond, a treasury-bill, a treasury bond, a foreign bond, an emerging market bond, a high yield bond, a junk bond, a collateralized instrument, an exchange traded note (ETN), and/or other agreements between a borrower and a lender. The foregoing list is non-exhaustive, and a financial object may include at least the types of objects listed throughout this document as qualifying as a financial object, respectively.

FIG. **1** depicts an exemplary deployment diagram **100** of an index generation and use process in accordance with an exemplary embodiment of the present invention. According to the exemplary embodiment, an analyst may use a computer system **102** to generate an index **110**. The analyst may do so by using analysis software **114** to examine data **106** about entities offering different kinds of financial objects that may, for example, be traded by investors. An example of an entity that may be offering financial objects may be a publicly held company whose shares trade on an exchange. However, the present embodiments also apply to any entity that may have any type of financial object that may, for example, be traded, and where, for example, information about the entity and/or its financial objects may be available (or capable of being made available) for analysis.

In an exemplary embodiment, once index **110** has been generated by an analyst using the entity data **106**, index **110** may be used to build one or more portfolios, for example, investment portfolios. An investor, advisor, manager or broker may then manage the purchased financial objects, for example, as a mutual fund, an electronic traded fund, a hedge fund or other portfolio or account of assets for one or for a plurality of, for example, individual and/or institutional investors. The investor, advisor, manager or broker may use a trading computer system **104** with trading software **116** to manage one or more trading accounts **108**. Alternatively, the purchased financial objects may be managed for one or more investors. In the latter case, financial objects may be purchased based on the index for inclusion in an individual or an institutional investor's portfolio. One or more trades may be effected or closed in cooperation with and via communication with an exchange host system **112**. The present embodiments are not limited to the foregoing technologies, and may include at a minimum, the various technologies, including computer and/or communications systems specified elsewhere herein.

FIG. **2** depicts an exemplary process flow diagram **200** of an index generation process in accordance with an exemplary embodiment of the present invention. In an exemplary embodiment, starting at block **202**, to generate index **110**, an analyst using analysis software and/or hardware system **114** may access entity data **106** about various entities that have financial objects that are traded. For example, publicly traded companies must disclose information about certain financial aspects of their operations. This information may be aggregated for a plurality of entities. Market sectors and corresponding indices may then be identified and generated using the aggregate data.

In slightly more detail, an index **110** may be generated and/or stored by, for example, normalizing entity data for a particular non-market capitalization metric in block **204**. The normalized entity data may be used to generate a weighting function, in block **206**, describing the contribution of each entity to a business sector as defined by the metric, in an exemplary embodiment. Index **110** may be generated using the weighting function in block **208**. The process may end at block **210**. Once index **110** is generated, according to an exemplary embodiment, index **110** may be used to track the business sector defined by the metric or to create a portfolio of financial objects offered by the entities whose information was used to generate the index.

For example, in an exemplary embodiment a method of constructing a non-capitalization weighted portfolio of financial objects may include, e.g., gathering data about various financial objects; selecting a group of financial objects to create the index of financial objects; and/or weighting each of the group of financial objects selected in the index based on an objective measure of scale and/or size of each member of the group of financial objects, where the weighting may include weighting all or a subset of the group of financial objects, and weighting based on factors other than market capitalization, equal weighting, or share price weighting.

In one exemplary embodiment, the weighting of each member of the group of financial objects may include weighting financial objects of any of various types. Examples of various types of financial objects may include, for example, but not be limited to, a stock type; a commodity type; a futures contract type; a bond type; a currency type; a mutual fund type; a hedge fund type; a fund of funds type; an exchange traded fund (ETF) type; and/or a derivative type asset, and/or any other portfolio or account of financial objects, to name a few. In fact, any of the types of financial objects specified above and elsewhere herein may be weighted. The weighting may also include, e.g., but not limited to, a negative weighting on any of the various types of financial objects.

According to exemplary embodiments of the present invention, the index **110** may be weighted based on an objective measure of scale and/or size, where the objective measure of scale and/or size may include a measure relating to an underlying asset itself. The financial object may include, for example, a government and/or a municipality, a government and/or municipality issuing bonds, a government and/or municipality issuing currency, a government and/or municipality issuing a commodity, and/or a government and/or municipality issuing a commodity, to name a few. An objective measure of scale and/or size associated with the financial object may include, for example, any combination or ratios of: revenue, profitability, sales, total sales, foreign sales, domestic sales, net sales, gross sales, profit margin, operating margin, retained earnings, earnings per share, book value, book value adjusted for inflation, book value adjusted for replacement cost, book value adjusted for liquidation value, dividends, assets, tangible assets, intangible assets, fixed assets, property, plant, equipment, goodwill, replacement value of assets, liquidation value of assets, liabilities, long term liabilities, short term liabilities, net worth, research and development expense, accounts receivable, earnings before interest, taxes, dividends, and amortization (EBITDA), accounts payable, cost of goods sold (CGS), debt ratio, budget, capital budget, cash budget, direct labor budget, factory overhead budget, operating budget, sales budget, inventory method, type of stock offered, liquidity, book income, tax income, capitalization of earnings, capitalization of goodwill, capitalization of interest, capitalization of revenue, capital spending, cash, compensation, employee turnover, overhead costs, credit rating, growth rate, dividends, dividends per share, dividend yields, tax rate, liquidation value of company, capitalization of cash, capitalization of earnings, capitalization of revenue, cash flow, and/or future value of expected cash flow. Further, if the financial object is associated with country or sovereign, such as, for example, emerging market debt instruments or currency and currency related debt instruments, an objective measure of scale and/or size associated with the financial object may include any combination or ratio

of: economic factors, demographic factors, social factors political factors, the population, area, geographic area gross domestic product (GDP), GDP growth, natural resources, oil (or any other energy source) consumption, expenditures, government expenditures, gross national income (GNI), measures of freedom, democracy, and corruption, rate of inflation, rate of unemployment, reserves level, and/or total debt, nominal interest rates and the ratios of nominal interest rates between issuing sovereign entities; commercial paper yield metric; credit rating metric; consumer price index (CPI); purchasing power of local currency metric; metrics measuring relations between the purchasing power of local currency metric and nominal exchange rates and deviations from historical trends in such metrics; and/or government exchange rate regime; a per capita ratio of any of the foregoing or any other characteristic.

Ratios too may be used. In an exemplary embodiment, the weighting of financial objects in the index based on objective measures of scale and/or size may include a ratio of any combination of the objective measures of scale and/or size of the financial object other than ratios based on weighting the financial objects based on market capitalization, equal weighting, or share price weighting. For example, the ratio of any combination of the objective measures of scale and/or size may include, e.g., but not limited to, current ratio, debt ratio, overhead expense as a percent of sales, or debt service burden ratio.

In an exemplary embodiment, the portfolio of financial objects may include, e.g., but not limited to, one or more of, a fund; a mutual fund; a fund of funds; an asset account; an exchange traded fund (ETF); and/or a separate account, a pooled trust; a limited partnership and/or other legal entity, fund or account.

In an exemplary embodiment, a measure of company size may include one of, or a combination of one or more of, gross revenue, sales, income, earnings before interest and tax (EBIT), earnings before interest, taxes, depreciation and amortization (EBITDA), number of employees, book value, assets, liabilities, net worth, cash flow or dividends.

In one exemplary embodiment, the measure of company size may include a demographic measure of the financial object. The demographic measure of the financial object may include, e.g., one of, or any combination of one or more of a non-financial metric, a non-market related metric, a number of employees, floor space, office space, or other demographics of the financial object.

In an exemplary embodiment, weighting may be based on the objective measure of scale and/or size, where the measure may include a geographic metric. The geographic metric in an exemplary embodiment may include a geographic metric other than gross domestic product (GDP) weighting.

FIG. **3** depicts an exemplary process flow diagram **300** of an index use process in accordance with an exemplary embodiment of the present invention. The process starts at block **302**. An index **310** may be received from an index generation process and may be used to determine the identity and quantity of securities to purchase for a portfolio in block **304**, according to an exemplary embodiment. The securities may be purchased, in block **306**, from an exchange **314** or other market and may be held on account for an investor or group of investors in trading accounts **308**. The index **310** may be updated on, e.g., but not limited to, a periodic basis and may be used as a basis to rebalance the portfolio, according to an exemplary embodiment. According to another exemplary embodiment, the portfolio can be rebalanced when, e.g., a pre-determined threshold is reached. In this way, a portfolio may be created and maintained based on a non-market capitalization index.

Rebalancing can be based on financial objects reaching a threshold condition or value. For example, but not limited to, rebalancing may occur upon reaching a threshold such as, e.g., 'when the portfolio of financial objects increases in market value by 20%,' or 'when the financial objects on a sub-category within the portfolio exceed 32% of the size of the portfolio,' or 'when a U.S. President is elected from a different party than the incumbent,' etc. Rebalancing may take place periodically, e.g., quarterly, or annually.

The present invention, in an exemplary embodiment, may be used for investment management, or investment portfolio benchmarking.

Another exemplary embodiment of the present invention may include an Accounting Data Based Index (ADBI) such as, e.g., but not limited to, a FUNDAMENTAL INDEX® and Index Fund or Funds.

This exemplary embodiment may utilize a new series of accounting data based stock market indices in which the index weightings may be determined by company accounting data such as, e.g., but not limited to, the relative size of a company's profits, or its pre-exceptional profits, or sales, or return on investment or any accounting data based accounting item, or ratio, may help to address some of the issues raised above. An index that is weighted based on company accounting data, rather than the share price, or market capitalization or equal weighting, may have a stabilizing element within it that can help to remove excess volatility generated by indices constructed on the basis of price or market capitalization alone. Over the medium to longer term, such accounting data based indices have the potential to outperform price or market capitalization-based indices, and may do so with less volatility.

The exemplary method may create a new class of stock market indices and index funds that may be implemented on, e.g., but not limited to, a computing device or a processor, or as a computer software or hardware, or as an algorithm. This new class of stock market indices may base its weightings on the accounting data of the companies that make up that index. One possible version of an accounting data based stock market index may be an index that is based on the relative size of a sample of the companies' pre-exceptional profits. If the chosen sample of companies was determined to be one hundred and the accounting data based criteria that the index manager decided to use was to be 'largest pre-exceptional profits,' then the index may contain, e.g., the one hundred largest companies as defined by the size of their pre-exceptional profits. As an example, if the total pre-exceptional profits of the largest one hundred companies, as measured by their pre-exceptional profits, was 100 dollars, pounds, or other currency, in a defined time period (such as a quarter or year) and in the same time period the pre-exceptional profits of theoretical company 'A' were $2, then theoretical company A would be allocated a 2% weighting in the accounting data based index, in an exemplary embodiment. If theoretical company B had pre-exceptional profits of $1.5 over the same time period then it would have a weighting of 1.5% in the accounting data based index according to an exemplary embodiment.

The index weightings may be managed based on how the "fundamentals" of the companies within, or outside, the chosen index sample may change. As an example, the index manager could choose to rebalance the weightings from time to time such as, e.g., but not limited to, periodically, aperiodically, quarterly, as company pre-exceptional profits change,

and/or on an annual basis, etc., and enter their choice into, e.g., a computing device. If, for instance, by the time of the next rebalancing period the total pre-exceptional profits of the largest one hundred companies, as measured by their pre-exceptional profits, had grown to $120, and theoretical company A now had pre-exceptional profits of $1.2, the computing device may calculate the weighting of company in the accounting data based index such as, e.g., the accounting data based index down to 1% from 2% in the previous period. Creating such accounting data based indices may give an investor the opportunity to follow, or invest, passively in an index which may be anchored to the economic realities of the companies within it. This new accounting data based index construction technique by a computing device may produce an index and related index fund products with increased stability and with increased economically rational behavior as compared with known methods of investing.

The foregoing index weighting and rebalancing as performed on a computing device may also be applied to indices constructed of financial objects including emerging market debt instruments, or currency and related debt instruments, or commodities and related debt instruments, or Real Estate Investment Trusts. Each index may be based on the one or more accounting metrics relevant to the financial object of which the index is composed. For example, an index of currency and related debt instruments may be based on the GDP of the country or sovereign responsible for issuing the currency.

Accounting Data Based Indexation (ADBI)

In one exemplary embodiment, a computing device may create an accounting data based stock market index (ADBI) such as, for example, an accounting data based stock market index by using any of the accounting data based data points regarding a company or a group of companies that can be found in a company's annual report and accounts. In one exemplary embodiment, the computing device may create an index of companies based on the relative size of the companies' sales, assets, profits, cash flow or the shareholders equity. In addition, the computing device can also create the ADBI by using a ratio of any of the data concerning a company or group of companies that may be contained in a company report and accounts. In one exemplary embodiment, this could include the relative size of the return on financial objects of a selection of companies, their return on investment, or their return on capital compared to their cost of capital. In another exemplary embodiment, the computing device may create an index of objects, wherein the objects are associated, for example, with a country or sovereign, where the index is created based on any of the foregoing metrics for countries and sovereigns.

Once the index manager system has decided and entered which accounting data based criteria to use and how many constituents the manager system may decide to include in the index, the computing device may create the index in the following way. If, for example, the index manager decides to construct an accounting data based stock market (or other securities or financial object) index of one hundred constituent members and decides to use pre-exceptional profit as the chosen accounting data based criteria, the computing device may create the index as follows. First, the computing device may perform a search to find which are the largest one hundred listed companies as defined by the size of their pre-exceptional profits. Once the computing device has identified this information, the computing device may be ready to construct the index. Companies may be accorded index weightings based on the relative size of their pre-exceptional profits. If the combined pre-exceptional profits of the one hundred companies is $100 and theoretical company A has pre-exceptional profits of $2, then it may have an index weighting of 2%. Once the one hundred companies may have been accorded their weightings, the computing device may begin to calculate future index performance as the share prices of the different companies in the index changes from day to day. This may be achieved by assuming a starting value for the index, or index portfolio, and then calculating how each of the index constituents may perform going forward.

The computing device may then rebalance the index weightings as the accounting data based data points change over time as desired by the investor. For instance, if at the end of the next company reporting season the combined pre-exceptional profits of the one hundred largest companies had grown from $100 to $120 and the pre-exceptional profits of theoretical company A had declined from $2 to $1.2, the computing device may determine its weighting in the index would decline from 2% in the prior period to 1% in the current period. Also, some of the original companies in the first one hundred may be eliminated from the index if their pre-exceptional profits fall below a certain level while new companies that were not in the original sample may be included. The computing device, under the direction of an investor, may choose to rebalance the weightings in the index, e.g., but not limited to, as individual companies report their pre-exceptional profits on a quarterly basis, and/or waiting until the majority of companies have reported their pre-exceptional profits and then adjusting them all at once. Also, the computing device, under the direction of an investor, could choose to determine the weightings based on, e.g., but not limited to, either the total nominal amount of pre-exceptional profit each quarter or on a cumulative rolling basis.

Constructing a stock market (or other security or financial object) index according to an exemplary embodiment using accounting data based company accounts data or a ratio, or manipulation of that data may provide a series of genuine alternatives for investors who want to invest in a passive style while focusing on fundamentals that they believe are important. For instance, according to an exemplary embodiment an investor may always want to own an index of U.S. or foreign equities that are, e.g., the largest five hundred companies as measured by sales, or by profits, or by growth in sales, or by return on investment, or any accounting data based company accounts data or ratio of that data.

In accordance with certain embodiments, a portfolio generated based on an ADBI index may be passively managed, actively managed, and/or may be managed partially passively and/or or actively. In an exemplary embodiment, a passively managed portfolio may be categorized as objective, rules-based, transparent, and/or replicable.

Exemplary Long-Short Equity Strategies

An exemplary embodiment of the present invention may take long and short positions based on an extent to which accounting data based indexation suggests that equities are under or over valued.

FIG. **4** illustrates an exemplary process flow diagram **400** of a method of creating a portfolio of financial objects according to an embodiment of the present invention. In block **402** the process starts. In block **404**, a determination is made of overlapping financial objects that appear in both an accounting data based index (ADBI) **410** and a conventional weighted index **412**. In block **406**, the weightings of the overlapping financial objects in the ADBI are compared with the weightings of the overlapping financial objects in the conventionally weighted index. Then, in block **408**, one or more of the overlapping financial object may be purchased based on the result of the comparison.

In the alternative, exemplary embodiments of the present invention may determine non-overlapping financial objects appearing in only one of either an accounting data based index (ADBI) or a conventional weighted index by comparing financial objects in an ADBI with financial objects in a conventionally weighted index. Non-overlapping financial objects appearing only in the ADBI may be weighted by accounting data based weighting. Non-overlapping financial objects appearing only in the conventionally weighted index may be weighted by the conventional weighting. Financial objects may then be purchased based on the resulting weightings.

In an exemplary embodiment, an index of the largest 1,000 U.S. equities, weighted by accounting data, may overlap an index of the largest 1,000 U.S. capitalization-weighted companies by approximately 80%. The 20% of non-overlapping companies may drive the 2.0% increase in return of an accounting data based index such as, e.g., but not limited to, RESEARCH AFFILIATES Fundamental Index® (RAFI®) available from Research Affiliates, LLC of Pasadena, Calif., versus a cap-weighted index. A long-short strategy according to an exemplary embodiment is designed to leverage this 20% of companies that do not overlap, and may capture the expected alpha from the accounting data based indexation. An exemplary long-short U.S. equity strategy may be approximately beta and dollar neutral and can replace or complement market neutral or long-short strategies, or as part of a portfolio's alternative strategies bucket.

Accounting data based indexation may use economic measures of company size in constructing indexes. Using accounting data based economic measures of firm size may create an index that is indifferent to price. Accounting data based indexes may avoid flaws inherent in capitalization (price)-weighted indexes. Capitalization-weighted indexes naturally overweight overvalued stocks and underweight undervalued stocks. Accounting data based indexes may more accurately estimate a true fair value of a company, allowing the weight of a company's stock in the index to rise or fall only to the extent that the underlying economic value of the issuing company may rise or fall.

ADBI Portfolio Construction

FIG. **5** illustrates an exemplary flow process diagram **500** of a method of constructing an ADBI and a portfolio of financial objects using the ADBI, starting at block **502**. In block **504**, the ADBI **510** may be created. Creating the ADBI may include, in block **506**, selecting a universe of financial objects, and, in block **508**, selecting a subset of the universe based on the accounting data to obtain the ADBI **510**. Step **504** (not shown) may include weighting the selected financial objects according to a measure of value of an entity (for example, a company and/or government) associated with each financial object. (Refer to step **206**.) Then, in block **512**, a portfolio of financial objects may be created using the ADBI **510**, including using the weighting of the financial objects in the portfolio according to a measure of value of a company and/or issuer of the financial object associated with each financial object in the portfolio.

In one or more embodiments, stratified sampling may be used. For example, the portfolio may not purchase all of the financial objects in the ADBI, and instead utilize a sampling methodology in order to obtain a portfolio correlation objective. An exemplary sampling may use quantitative analysis to select securities from the ADBI universe to obtain a representative sample of financial objects, that, for example, resemble the ADBI with respect to a number of factors, including for example, key risk factors, performance attributes, and other characteristics. Exemplary additional characteristics may include industry weightings (see Table 1); market capitalization; and/or other financial characteristics of the financial objects. The quantity of holdings in the portfolio may be based, for example, on a number of factors, including asset size of the portfolio, and other factors. The portfolio may be managed to hold less than or equal to the total number of financial objects in the ADBI. In an exemplary embodiment, in purchasing a portfolio based on the ADBI a correlation goal between the portfolio's performance and the performance of the ADBI may be set, such as, for example, 0.95 or better. A figure of 1.00 would represent perfect correlation between the portfolio's performance and ADBI.

According to an exemplary embodiment, a factor may be used to divide up the universe of financial objects of the ADBI into sub-universes (groups/strata) and one may expect the measurement of interest to vary among the different sub-universes. This variance may have to be accounted for when selecting the sample from the universe in order that the sample obtained is representative of the universe. This may be achieved by stratified sampling. A stratified sample may be obtained by taking samples from each of a plurality of stratum or sub-groups of a universe. When one samples a universe with several strata, generally the proportion of each stratum in the sample should be the same as in the universe. Stratified sampling techniques may be used when the population of the universe is heterogeneous, or dissimilar, where certain homogeneous, or similar, sub-populations (i.e., sub-universes) can be isolated (strata). Simple random sampling is most appropriate when the entire population from which the sample is taken is homogeneous. Some reasons for using stratified sampling over simple random sampling may include: (i) the cost per observation in the survey may be reduced; (ii) estimates of the population parameters may be wanted for each sub-population; and/or (iii) increased accuracy at given cost.

To construct an exemplary accounting data based index (ADBI), such as, e.g., but not limited to, the RESEARCH AFFILIATES FUNDAMENTAL INDEX® (RAFI®), some number of financial objects, e.g., 1000 US equities, may be selected and/or weighted based on the following four accounting data based measures of company size: book equity value, free cash flow, sales, and actual gross dividends paid, if any. In an exemplary embodiment, when calculating the variable for dividends, actual dividends paid plus stock buybacks minus new issues of stock are calculated. According to another exemplary embodiment, additional factors, including but not limited to, country factors, industry metrics, accounting data metrics, non-financial metrics, etc., may be used. In an exemplary embodiment, weighting may include weighting by current and/or trailing historical accounting data, and in a related embodiment, a five year weighted average and equal weighting for each of objective metrics (for example, book value, revenue, cash flow and dividends) may be used. In another related embodiment, such metrics may be weighted to include any one of current fundamental accounting measures, past fundamental accounting measures, and/or a mathematical blend of the two.

In an exemplary embodiment for debt instruments, weighting by metrics relating to governmental and/or institutional debt instruments may include, but not be limited to, duration, credit rating, convexity, credit risk, spread, optionality factors, yields, collateralization, priority, interest rate, financing restrictions, maturity date, limitations on dividends and/or market interest rates, the latter which may be inversely related to debt instrument prices.

An exemplary embodiment of an accounting data based index such as, for example, but not limited to, the RAFI® index may weight all the securities (financial objects) by each

of the at least four accounting data based measures of scale and/or size detailed above. According to an exemplary embodiment, an optimal relative weighting between the four factors may differ by geography of the market from which the financial objects are selected such as, e.g., an equal weighting may be optimal in one country or industry sector, while a different relative weighting between the factors may make sense in another country or industry sector. The index may then compute an overall weight for each holding by equally-weighting each of the four accounting data based measure of firm size according to an exemplary embodiment. For example, assume that a company has the following weights: 2.8% of total US book values, 2% of total US cash flow, 3% of total US sales, and 2.2% of total US dividends. Relative weightings of each factor or metric may be varied, in one exemplary embodiment, such as, e.g., but not limited to, increased weighting for one of the selected variables,

Equally-weighting any of these at least four accounting data based measures of firm size (i.e., book value, cashflow, sales and dividends) may produce a weight of 2.5%. According to an exemplary embodiment, for companies that have never paid dividends, one may exclude dividends from the calculation of the company's accounting data based weight and may weight the remaining variables equally. Finally, in an exemplary embodiment, the 1000 equities with the highest accounting data based weights may be selected and may be assigned a weight in the RAFI® portfolio equal to its accounting data based weight.

According to another exemplary embodiment, an accounting data based index such as, e.g., but not limited to, RAFI® may be constructed using aggregate (not per-share) measures of firm size. For example, RAFI® may use total firm cash flow instead of cash flow per share and total book value instead of book value per share in its construction.

In an exemplary embodiment, the accounting data may include at least the following four factors, book value, sales/revenue, cash flow and dividends. In another exemplary embodiment, only one or more of these factors may be used. In another exemplary embodiment, additional factors may be used, such as, e.g., any other accounting data. In one exemplary embodiment, the weightings of each of these factors may be equal relative to one another, i.e., 25% of each of book value, sales/revenue, cash flow and actual paid dividends, if any. In another exemplary embodiment the weightings of each of these factors may be based on either current fundamental accounting measures, past fundamental accounting measures, or a mathematical blend of the two In one exemplary embodiment, if there are no dividends, then the other three factors may be weighted in equal parts, i.e., 33% each to book value, sales/revenue, and cash flow. In another exemplary embodiment, dividends may be weighted in a greater part such as, e.g., but not limited to, weighting dividends at 50% and book value, sales/revenue, and cash flow at ⅙th each, etc. In one exemplary embodiment, weightings may be the same, depending on the country or sovereign of origin or the industry sector of the stock or other financial object. In another exemplary embodiment, weightings may vary depending on the country or sovereign of origin or the industry sector of the stock or other financial object. In another exemplary embodiment, weightings may vary based on other factors, such as, e.g., but not limited to, types of assets, industry sectors, geographic sectors, countries, sizes of companies, profitability of companies, amount of revenue generated by the company, etc.

An accounting data based index may be available in several varieties to meet the unique needs of different classes of retail and institutional investors, including, e.g., but not limited to, as enhanced portfolios, Exchange Traded Funds (ETFs), passively managed funds, enhanced funds, active funds, collective investment trusts, open-end mutual funds, tax managed portfolios, a collection of financial objects managed collectively but tracked separately, separately managed accounts, other comingled funds/accounts and/or closed-end mutual funds. Various US and international investment managers may offer, e.g., but not limited to, a suite of products.

A comingled account or other fund or separately managed account investing in assets based on an Accounting Data Based Index, such as, e.g., Research Affiliates Fundamental Index®, L.P. (RAFI® LP) may increase the alpha generated by accounting data based indexation in the US through improvements or enhancements, including, e.g., but not limited to, monthly cash rebalancing and quality of earnings and corporate governance screens. The additional enhancements may be expected to add additional performance above what may be achieved through the use of accounting data based indexing in portfolio construction.

A comingled account or other fund or separately managed account investing in assets based on an ADBI international LP such as, RAFI® International LP (RAFI®-I may apply accounting data based indexation to the international equity space in an exemplary embodiment to create an enhanced portfolio of, e.g., but not limited to 1000 international (ex-US) equities. RAFI®-I may be expected to outperform capitalization weighted indexes. RAFI®-I is an enhanced portfolio that may use monthly cash rebalancing and quality of earnings and corporate governance screens to improve upon the performance of the RAFI® International index.

Open-end mutual funds may manage financial objects employing a fixed income strategy and portable alpha using the Accounting Data Based Index (ADBI) according to an exemplary embodiment.

An Exchange Traded Fund (ETF) of the ADBI such as, e.g., but limited to, POWERSHARES FTSE RAFI® US 1000 Portfolio ETF (ticker symbol: PRF) may meet needs of retail and institutional investors interested in a low-cost means of accessing the power of accounting data based indexing in another exemplary embodiment.

Another exemplary embodiment includes a closed-end fund implementing accounting data based indexing such as, e.g., Canadian Fundamental Income 100, a closed-end mutual fund of the largest 100 accounting data based equities in Canada which attracted investments from retail and institutional investors in 2005, one of the most difficult closed end markets in recent history, demonstrating the strength of the accounting data based indexation strategy.

Exemplary Sector ADBI Indexes

According to one exemplary embodiment, a universe may be selected where the universe includes one or more sectors, and the weightings may be based on one or more sector metrics or measures. A non-exclusive list of exemplary sectors is shown in Table 1, which is based on North American Industry Classification System (NAICS) sectors. A non-exclusive list of industry sector metrics that be used in selecting and/or weighting, for example, financial objects, is shown in Table 2.

TABLE 1

Exemplary List of Sectors (based on NAICS sectors)
Agriculture, Forestry, Fishing and Hunting
Mining
Utilities
Construction

TABLE 1-continued

Exemplary List of Sectors (based on NAICS sectors)
Manufacturing
Wholesale Trade
Retail Trade
Transportation and Warehousing
Information
Finance and Insurance
Real Estate and Rental and Leasing
Professional, Scientific, and Technical Services
Management of Companies and Enterprises
Administrative and Support and Waste Management and Remediation Services
Education Services
Health Care and Social Assistance
Arts, Entertainment, and Recreation
Accommodation and Food Services
Other Services (except Public Administration)
Public Administration

Index, available from PowerShares Global Exchange Traded Fund Trust of Houston, Tex. A brief, non-exhaustive list of exemplary sectors is provided in Table 3.

An exemplary process for construction of the aforementioned FTSE® RAFI® Developed ex US Mid Small 1500 Index comprises the following. First, the securities universe of companies of the index may be calculated, based on any exemplary objective metrics. The exemplary objective metrics may include, for example: (i) the percentage representation of each security using only sales figures; (ii) the percentage representation of each security using cash flow figures; (iii) the percentage representation of each security using book value; and/or (iv) the percentage representation of each security using dividends. (A security that has not paid a dividend in the past five years will have a percentage representation of zero.)

Next, the securities may be ranked, for example in order based on the fundamental value. For example, the securities may be ordered in descending order of their fundamental value, and the fundamental value of each company may be divided, for example, by its free-float adjusted market capitalization. The largest small and medium capitalization securities may then be selected. The latter will be the FTSE RAFI® Developed ex US Mid Small 1500 Index constituents. The weights of the constituents in the underlying index may be set proportional to their fundamental value, for example.

Exemplary industry metrics that may be used in weighting financial objects may be found in Table 3.

TABLE 2

Exemplary List of Sector Metrics		
Industry growth rate	Total capital expenditures	Inventories total - end of year
Average industry dividends	Supplemental labor costs	Inventories finished products - end of year
New orders for manufactured goods	Fuel costs	Inventories work in process - end of year
Shipments	Electric energy used	Inventories materials supplies fuels, etc - end of year
Unfilled orders	Inventories by stage of fabrication	Value of manufacturers inventories by stage of fabrication - beginning of year
Inventories	Number of production workers	Inventories total - beginning of year
Inventories-to-shipments ratio	Payroll of production workers	Inventories finished products - beginning of year
Value of product shipments	Hours of production workers	Inventories work in process - beginning of year
Statistics from department of commerce, industry associations, for industry groups and industries	Cost of purchased fuels and electric energy	Inventories materials supplies fuels, etc - beginning of year
Geographic area statistics	Electric energy quantity purchased	Value of shipments - total
Annual survey of manufacturers (ASM)	Electric energy cost	Value of shipments - products
Employment	Electric energy generated	Value of shipments - total miscellaneous receipts
All employees payroll	Electric energy sold or transferred	total miscellaneous receipts - Value of resales
All employees hours	Cost of purchased fuels	total miscellaneous receipts - contract receipts
All employees total compensation	Capital expenditure for plant and equipment total	Other total miscellaneous receipts
All employees total fringe benefit costs	Capital expenditure for plant and equipment - buildings and other structures	Interplant transfers
Total cost of materials	Capital expenditure for plant and equipment - machinery and equipment total	Costs of materials - total
Payroll	Capital expenditure for plant and equipment - autos, trucks, etc for highway use	Costs of materials - materials, parts, containers, packaging, etc
Value added by manufacture	Capital expenditure for plant and equipment - computers, peripheral data processing equipment	Costs of materials - resales
Cost of materials consumed	Capital expenditure for plant and equipment - all other expenditures	Costs of materials - purchased fuels
Value of shipments	Value of manufacturers inventories by stage of fabrication - end of year	Costs of materials - purchased electricity
Costs of materials - contract work	Industry cost of capital	Average industry dividend

As set forth herein, the universe may refer to a complete set of a group of financial objects, for example. Within the group, there may be sub-groups, termed sectors. Each sector may include additional sub-portions, termed sub-sectors. This process may be reiterated for finer degrees of granularity as well.

As one example, the universe may comprise all publicly traded stocks. A sector within the universe may comprise all publicly traded stocks for the developed world except the United States. An exemplary ADBI using the foregoing sector is the FTSE® RAFI® Developed ex US Mid Small 1500

TABLE 3

Exemplary Industry Metrics
FTSE RAFI ® Utilities Sector Portfolio
FTSE RAFI ® Basic Materials Sector Portfolio
FTSE RAFI ® Consumer Goods Sector Portfolio
FTSE RAFI ® Consumer Services Sector Portfolio
FTSE RAFI ® Energy Sector Portfolio
FTSE RAFI ® Financials Sector Portfolio
FTSE RAFI ® Industrials Sector Portfolio
FTSE RAFI ® Health Care Sector Portfolio
FTSE RAFI ® Telecom & Technology Sector Portfolio

Exemplary ADBI Index Computation Processes

According to an exemplary embodiment, the ADBI index may be created by a selection subsystem and a weighting function generating subsystem.

According to an exemplary embodiment, the selection subsystem may be operative to: (i) for each entity, assign a percentage factor to each of a plurality of the at least one non-market capitalization objective measure of scale and/or size metric, each of the percentage factors corresponding to the importance of the at least one non-market capitalization objective measure of scale and/or size metric to the selection; (ii) for each entity, multiply each of the percentage factors with the corresponding non-market capitalization objective measure of scale and/or size metric thereof, to compute a selection relevance factor for the entity; and/or (iii) determine the selected group of entities by: (a) comparing the selection relevance factors for the entities; (b) ranking the entities based on the comparison; and/or (c) selecting a predetermined number of the entities having highest rankings to be the selected group of entities.

According to an exemplary embodiment, the weighting function generating subsystem may be operative to: (i) for each entity including the selected group of entities, assign a percentage factor to each of a plurality of the at least one non-market capitalization objective measure of scale and/or size metric, each percentage factor corresponding to the importance of the at least one non-market capitalization objective measure of scale and/or size metric to the weighting; (ii) for each entity including the selected group of entities, multiply each of the percentage factors with the corresponding non-market capitalization objective measure of scale and/or size metric thereof, the corresponding non-market capitalization objective measure of scale and/or size metric being a member of the plurality, to compute an entity function; and/or (iii) set the weighting function as a combination of the totality of the entity functions.

According to an exemplary embodiment, the selection subsystem may be operative to: (i) for each entity, assigning a percentage factor to each of a plurality of the at least one objective metric, each percentage factor corresponding to the importance of the at least one objective metric to the selection; (ii) for each entity, multiplying each of the percentage factors with the corresponding objective metric thereof, to compute a selection relevance factor for the entity; and/or (iii) determining the selected group of entities by: (a) comparing the selection relevance factors for the entities; (b) ranking the entities based on the comparison; and/or (c) selecting a predetermined number of the entities having highest rankings to be the selected group of entities.

According to an exemplary embodiment, the object weighting function generating subsystem may be operative to: (i) for each entity including the selected group of entities, assigning a percentage factor to each of a plurality of the at least one objective metric, each percentage factor corresponding to the importance of the at least one objective metric to the weighting; (ii) for each entity including the selected group of entities, multiplying each of the percentage factors with the corresponding objective metric thereof, the corresponding objective metric being a member of the plurality, to compute an entity function; and/or (iii) setting the weighting function as a combination of the totality of the entity functions.

Exemplary Accounting Data Based Indexation Long-Short (ADBI-LS)

Accounting data based indexation long-short (ADBI-LS) such as, e.g., but not limited to, RAFI®-LS, is a long-short U.S. equity strategy that leverages ADBI such as RAFI® innovation. The RAFI® U.S. 1000 portfolio is designed to outperform traditional capitalization-based indexes By going long in stocks that have greater weight in the RAFI® U.S. 1000 portfolio relative to a traditional index, such as the Russell 1000 and short in the stocks that are underweight in the RAFI® U.S. 1000 relative to the Russell 1000, the RAFI®-LS strategy captures the RAFI® alpha process and enhances that alpha source.

ADBI-LS such as, e.g., RAFI®-LS according to an exemplary embodiment, is designed to be roughly dollar and beta neutral, but not sector neutral. The sector bet can be significant if the ADBI strategy determines that a sector is substantially overvalued.

In general the overlap between ADBI RAFI® U.S. 1000 and a traditional capitalization based index, such as the Russell 1000 may be about 75%. This may give 25% weights for the long portfolio and 25% weights for the short portfolio. The portfolio may be applied to 300% long and 300% short, which may magnify the RAFI® alpha and the portfolio volatility. Leverage may be applied tactically, and can range from about 200% long/short to about 400% long/short according to exemplary embodiments.

ADBI-LS such as, e.g., RAFI®-LS according to an exemplary embodiment may be designed to achieve an annual volatility of 15-25%. Volatility of the exemplary RAFI®-LS, since inception, has been about 15%.

According to an exemplary embodiment, ADBI-LS, such as, e.g., RAFI®-LS may use leverage in both its short and long positions. On average, $100 invested in RAFI®-LS may result in a $300 notional long position and a $300 notional short position.

Exemplary Implementation of an Exemplary ADBI-LS's Long and Short Positions

According to an exemplary embodiment, one does not necessarily directly need to hold long or short positions in the underlying stocks, nor does it need to access a direct line of credit for the portfolio leverage. Instead, according to an exemplary embodiment, derivatives, such as a total return swaps may be used to implement the long and short positions. It may be possible to achieve minimal counterparty default risk exposure by entering into swaps with large Wall Street firms in an exemplary embodiment. Investors in an ADBI-LS may not be physically shorting any U.S. equities; rather, investors may merely hold OTC derivative contracts. This may provide both tax benefits and efficiency in investment logistics.

ADBI-LP such as, e.g., RAFI®-LP, may be a full-market ADBI. ADBI-LS such as, e.g., RAFI®-LS, may be a fund that uses the differences between company weights in ADBI such as, e.g., RAFI® and in a capitalization-weighted index to establish long and short positions according to an exemplary embodiment.

ADBI-LS may be designed to be dollar neutral and equity beta neutral in an exemplary embodiment. Therefore, one

may expect ADBI-LS returns to be largely uncorrelated with the equity market return in an exemplary embodiment. However, ADBI may not be market neutral in the traditional sense as it is not industry sector neutral in an exemplary embodiment.

ADBI-LS does not pair positions, and thus is different from traditional equity long-short strategies whereby, e.g., but not limited to, a short General Motors (GM) position is paired with a long Ford position. Instead, ADBI-LS may acquire both long and short positions based on the relative difference between the ADB Index such as, e.g., FUNDAMENTAL INDEX® weights and those of a cap-weighted index, such as, e.g., but not limited to the Russell 1000.

An exemplary embodiment of ADBI-LS may rebalance periodically and/or aperiodically. For example, on average, the ADBI-LS, such as, e.g., RAFI®-LS portfolio may hold its long-short bets for about one year. The cash flow from new capital contributed to the strategy may be used to rebalance the portfolio to create new or alter existing long-short bets according to an exemplary embodiment.

In an exemplary embodiment, the present invention may be a method of constructing a portfolio of financial objects, comprising: purchasing a portfolio of a plurality of mimicking financial objects to obtain and/or create a mimicking or resampled portfolio, wherein performance of the portfolio of mimicking financial objects substantially mirrors the performance of the accounting data based index based portfolio without substantially replicating the accounting data based index based portfolio. The method may further obtain and/or use a risk model for the portfolio where the risk model mirrors a risk model of the accounting data based index. The risk model may be substantially similar to the Fama-French factors, wherein the Fama-French factors may comprise at least one of size effect (e.g., where small cap beats large cap), value effect (e.g., where high B/P beats low B/P), and/or momentum effect (e.g. where strong momentum beats weak momentum in very long run, e.g. 10 or more years). The performance of the portfolio of mimicking financial objects may substantially mirror the performance of the accounting data based index based portfolio without substantially replicating financial objects and/or weightings in the accounting data based index based portfolio.

In another exemplary embodiment, the present invention may include purchasing a plurality of financial objects according to weightings substantially similar to the weightings of an accounting data based index (ADBI), where performance of the financial objects substantially mirrors the performance of the ADBI without using substantially the same financial objects in the ADBI.

Exemplary Embodiment of High Yield Debt Instrument Index

In one or more exemplary embodiments, the index of financial objects may include an index of debt instruments. In one exemplary embodiment, the index of debt instruments may include a bond index, and an exemplary bond index may include a high yield bond index.

An exemplary debt instrument may include any debt instruments issued by any type of entity or organization. Exemplary issuing organizations may include, for example, a company, a state, a sovereign, a municipality, and/or a country, to name a few. A bond may entitle a holder of the bond to receive, for example, interest payments on the purchase price of the bond for as long as the holder holds the bond. Further, a bond may have a maturity date, at which the issuer of the bond may be required to repay the purchase price of the bond to the current holder of the bond. A bond may be bought, sold, and/or swapped as any other security or debt instrument.

High-yield bonds may include debt instruments, such as, for example, bonds, rated below investment grade by bond rating organizations, such as, for example, Moody's or Standard and Poor's. High-yield bonds may consequently carry a higher interest rate than investment grade bonds. For example, according to one exemplary embodiment, a bond rated at BBB or below may be considered to be a high-yield bond, and may carry a higher interest rate than a bond rated above BBB. Debt instruments receiving below investment grade ratings may be, for example, debt instruments issued by companies with poor credit ratings due to, for example, negative cash flow, excessive debt, and/or poor market conditions, etc., as they pertain to the company.

In an exemplary embodiment, a construction technique for creating a bond index may include selecting high yield bonds from a universe of bonds using a selective metric related to the issuer of the bond, and weighting the selected high yield bond constituents according to at least one objective metric related to the issuer. The constituents may be weighted in relative proportion to, the objective metric, which may include, e.g., but not be limited to, an accounting data metric, such as, e.g., but not limited to, sales and/or dividends associated with the issuer of the bonds, i.e., accounting data associated with the debt issuer. In one exemplary embodiment, a weighted combination such as, e.g., an equally weighted combination of sales, book value, any dividends, cash flow (how much cash is going in and out, ignoring capital expenditures), and/or collateral may used to weight. Other metrics such as, e.g., EBITDA, may also be used in an exemplary embodiment. A composite measure may also be created as a combination of a group of such factors.

According to another exemplary embodiment, other accounting data metrics may be used, however in no case will a metric be used which is materially influenced by price, such as, e.g., but not limited to, market capitalization. Further, weighting is not to be based on the product of the total number of bonds and face value. In an exemplary embodiment, the universe of bonds may be partially, or all, below investment grade bonds, such as, e.g., but not limited to, BBB or less. An exemplary investment grade bond may include bonds contained in or associated with the Merrill Lynch Master High Yield Bond Index. In one exemplary embodiment, high yield bonds may include bonds with at most a BBB bond rating. In another exemplary embodiment, high yield bonds may include, e.g., but are not limited to, bonds with a BB or less rating, etc.

In an exemplary embodiment, the index weight for each issuer may be based on, e.g., but not limited to, a composite company accounting data measure created from a weighting, such as, e.g., equal weighting of one or a plurality of data metrics. In one such exemplary embodiment, the factor may be any one or more of: (i) normalized, (ii) for a 5-year span, (iii) an average value, and/or (iv) non-zero. Exemplary factors may include, without limitation, factors based at least partially on any one or more of: sales, book value, cash-flow, any dividends, and/or collateral, etc.

In an exemplary embodiment, for each debt issue associated with each issuer, the issuer weight may be assigned to each corresponding debt issue and, according to an exemplary embodiment, may be pro-rated for the face value of the debt issue relative to the firm's total debt outstanding. For example, in the entire Merrill Lynch bond universe, bonds that cannot be matched to underlying company accounting data may be omitted from the RAFI® High Yield Index.

Table 4 depicts a summary correlation matrix for an exemplary embodiment of an high yield bond index. In this embodiment, gains may be somewhat concentrated during times when high yield-bonds may have been weak, but, the statistical significance in so short a span was remarkable for these embodiments.

TABLE 4

Correlation Matrix (1997 - June 2006)

			Correlation Matrix					
Index	Ann. TR	Std Dev	H0A0	G5O2	Sales	Div	Book	CF
ML HY	6.23%	7.33%	1.00					
ML Gov 1-10	5.17%	2.96%	−0.11	1.00				
Sales	8.03%	7.05%	0.90	−0.11	1.00			
Dividend	9.22%	6.15%	0.80	0.00	0.89	1.00		
Book	6.97%	8.74%	0.95	−0.14	0.95	0.82	1.00	
Cash Flow	7.54%	7.05%	0.94	−0.08	0.95	0.87	0.97	1.00
Collateral	7.21%	8.47%	0.94	−0.13	0.95	0.81	0.98	0.96
Composite	7.68%	7.57%	0.93	−0.12	0.98	0.87	0.98	0.98
Par	6.18%	9.07%	0.99	−0.15	0.90	0.79	0.96	0.93
Equal	7.09%	7.08%	0.96	−0.14	0.93	0.82	0.93	0.92
Equity Market*	8.99%	16.23%	0.54	−0.26	0.42	0.31	0.49	0.46

*Market - monthly cap-weighted returns from NYSE, AMEX, and NASDAQ (not excess return)

Table 5 depicts exemplary regression results for an exemplary embodiment of a high yield bond index.

TABLE 5

Regression Results (1997 - June 2006)

LHS	α (bp)	ML Gov 1-10 yr	ML HY*	Mkt	SMB	HML	UMD	R^2
RAFI ® HY Sales	26.95	−0.08	0.87					0.84
	3.01	−0.88	23.73					
	28.67	−0.13	0.91	−0.04				0.84
	3.24	−1.41	21.58	−2.12				
	24.64	−0.11	0.89	−0.02	0.02	0.05	0.00	0.85
	2.70	−1.18	19.78	−0.70	0.73	1.75	0.00	
	26.18	−0.07	0.87	−0.02	0.03	0.05	−0.03	0.85
	2.89	−0.74	18.92	−0.84	1.21	1.72	−1.87	
RAFI ® HY Dividend	21.38	0.01	0.87					0.84
	2.70	0.07	23.92					
	22.59	−0.04	0.90	−0.03				0.84
	2.87	−0.44	22.60	−1.76				
	21.11	−0.05	0.91	−0.01	−0.04	0.03	0.00	0.86
	2.77	−0.65	21.31	−0.32	−2.28	1.42	0.00	
	20.44	−0.07	0.92	0.00	−0.05	0.03	0.01	0.86
	2.67	−0.84	20.83	−0.25	−2.43	1.41	0.87	
RAFI ® HY Book	8.14	−0.17	1.13					0.93
	1.10	−2.30	37.36					
	8.87	−0.19	1.15	−0.02				0.93
	1.19	−2.50	32.42	−1.09				
	11.49	−0.22	1.18	−0.03	−0.03	−0.02	0.00	0.93
	1.50	−2.76	30.87	−1.41	−1.68	−1.04	0.00	
	12.06	−0.20	1.17	−0.03	−0.03	−0.02	−0.01	0.93
	1.56	−2.50	29.63	−1.46	−1.39	−1.05	−0.81	
RAFI ® HY Cash flow	7.71	−0.01	1.00					0.95
	1.53	−0.22	45.41					
	8.09	−0.02	1.01	−0.01				0.95
	1.60	−0.46	40.11	−0.94				
	9.87	−0.04	1.03	−0.02	−0.02	−0.02	0.00	0.95
	1.89	−0.74	36.97	−1.43	−1.52	−1.23	0.00	
	10.20	−0.03	1.03	−0.02	−0.02	−0.02	−0.01	0.95
	1.94	−0.57	35.41	−1.46	−1.27	−1.22	−0.64	
RAFI ® HY Collateral	10.85	−0.14	1.08					0.91
	1.39	−1.73	34.19					
	12.13	−0.17	1.11	−0.03				0.92
	1.57	−2.15	30.45	−1.8				
	13.20	−0.19	1.13	−0.03	−0.02	−0.01	0.00	0.92
	1.64	−2.26	28.71	−1.56	−1.05	−0.29	0.00	
	13.41	−0.18	1.12	−0.03	−0.02	−0.01	0	0.92
	1.65	−2.13	27.58	−1.57	−0.93	−0.29	−0.28	
RAFI ® HY Composite	8.67	−0.11	1.07					0.94
	1.51	−1.95	42.55					
	9.22	−0.13	1.09	−0.01				0.94
	1.60	−2.20	38.04	−1.20				
	11.72	−0.15	1.11	−0.03	−0.03	−0.03	0.00	0.95
	2.00	−2.55	35.73	−1.79	−1.98	−1.53	0.00	
	12.03	−0.15	1.11	−0.03	−0.03	−0.03	0	0.95
	2.03	−2.35	34.12	−1.81	−1.74	−1.52	−0.51	

TABLE 5-continued

Regression Results (1997 - June 2006)

LHS	α (bp)	ML Gov 1-10 yr	ML HY*	Mkt	SMB	HML	UMD	R^2
RAFI ® HY Par	−7.05	−0.11	1.22					0.98
weighted	−1.83	−2.82	77.06					0
	−6.55	−0.13	1.24	−0.01				0.98
	−1.71	−3.17	66.59	−1.68				
	−6.94	−0.13	1.23	−0.01	0.00	0.00	0.00	0.98
	−1.74	−3.06	61.93	−1.12	0.11	0.40	0.00	
	−6.37	−0.11	1.23	−0.01	0.00	0.00	−0.01	0.98
	−1.59	−2.68	59.87	−1.22	0.50	0.37	−1.46	
RAFI ® HY Equal	14.43	−0.08	0.93					0.93
weighted	2.45	−1.35	38.27					0
	15.33	−0.11	0.96	−0.03				0.93
	2.63	−1.81	33.86	−1.99				
	10.77	−0.08	0.92	−0.01	0.05	0.04	0.00	0.94
	1.87	−1.29	32.12	−0.34	3.47	2.61	0.00	
	11.77	−0.05	0.91	−0.01	0.05	0.04	−0.02	0.94
	2.06	−0.87	30.94	−0.47	3.85	2.59	−1.78	

ML 1-10 yr Government bond index

ML HY* - Modified Merrill Lynch High Yield Master II Index (only includes bonds considered in LHS)

In an exemplary embodiment, one aspect of index construction may include data acquisition, i.e., for example, collecting, compiling, normalizing, and/or associating data regarding a debt issuer and a given debt instrument. Here, according to an exemplary embodiment, a comprehensive database may be built, i.e. constructed, of high-yield bonds and accounting data metrics related to the companies issuing the debt instruments. This database may be linked to an existing database of related fundamental metrics, such as accounting data that may include accounting data indicative of relative company size, other than market capitalization and price, with all the normal complications of ticker and Committee on Uniform Security Identification Procedures (CUSIP) differences.

In exemplary embodiments, the high yield bond universe may include all bonds, and/or all issues within a particular bond space. An exemplary bond space according to one exemplary embodiment may include the Merrill High Yield Bond space. Then, a selection of bonds having ratings below a predefined threshold may be selected. For example, bonds rated BBB or less by a bonds rating organization may be selected. Then, according to one exemplary embodiment, a further selection may be made using at least one accounting data metric associated with the issuer company, wherein the metric is not materially influenced by price. In an exemplary embodiment, the full below-investment-grade universe may be used, subject to the investability constraints imposed by a company, such as, for example, but not limited to, Merrill Lynch. In an exemplary embodiment, such constraints and/or others may be lifted, and further improved results may be gained. In one such exemplary embodiment, the liquidity thereof may be degraded, for example.

Table 6 depicts a correlation matrix for an exemplary embodiment of a high yield bond index. Table 6 illustrates statistical significance witnessed by the various exemplary weighting metrics. The following parameters are included: (i) Mean refers to a mean monthly return; (ii) Std Dev refers to a standard deviation from the mean; (iii) H0A0 refers to Merrill Lynch High Yield Master II Index; (iv) G502 refers to Merrill Lynch U.S. Treasuries 1-10 YR; (v) Sales, Dividend, Book (value), Cash Flow refer to exemplary objective metrics of scale and/or size in relation to the entity; (vi) Collateral refers to assets used to pay debt holders, e.g., for secured debt instruments; (vii) Composite refers to a composite of two or more other metrics, which in the particular case, refers to Sales, Dividend, Book, Cash Flow and Collateral; (viii) Par refers to Face Value of the security; (ix) Equal refers to an equal weighting of all the qualified securities in the universe; and (x) Market refers to a proxy for the market, where data may be used as a benchmark capitalization weighted universe provided by the Center for Research in Securities (CRS), available from the University of Chicago and Standard & Poor's.

TABLE 6

Correlation Matrix (1997 - June 2006)

Index	Mean	Std Dev	Correlation Matrix H0A0	G5O2	Sales	Div	Book	CF	Colltrl	Cpsit	Par	Equal	Mkt
H0A0	0.52%	2.12%	1.00	−0.11	0.90	0.80	0.95	0.94	0.94	0.93	0.99	0.96	0.54
G5O2	0.43%	0.86%	−0.11	1.00	−0.11	0.00	−0.14	−0.08	−0.13	−0.12	−0.15	−0.14	−0.26
Sales	0.67%	2.03%	0.90	−0.11	1.00	0.89	0.95	0.95	0.95	0.98	0.90	0.93	0.42
Dividend	0.77%	1.77%	0.80	0.00	0.89	1.00	0.82	0.87	0.81	0.87	0.79	0.82	0.31
Book	0.58%	2.52%	0.95	−0.14	0.95	0.82	1.00	0.97	0.98	0.98	0.96	0.93	0.49
Cash Flow	0.63%	2.03%	0.94	−0.08	0.95	0.87	0.97	1.00	0.96	0.98	0.93	0.92	0.46
Collateral	0.60%	2.44%	0.94	−0.13	0.95	0.81	0.98	0.96	1.00	0.98	0.95	0.93	0.46
Composite	0.64%	2.19%	0.93	−0.12	0.98	0.87	0.98	0.98	0.98	1.00	0.93	0.93	0.45
Par	0.51%	2.62%	0.99	−0.15	0.90	0.79	0.96	0.93	0.95	0.93	1.00	0.97	0.52
Equal	0.59%	2.04%	0.96	−0.14	0.93	0.82	0.93	0.92	0.93	0.93	0.97	1.00	0.48
Market*	0.75%	4.69%	0.54	−0.26	0.42	0.31	0.49	0.46	0.46	0.45	0.52	0.48	1.00

*Market - monthly cap-weighted returns from NYSE, AMEX, and NASDAQ (not excess return)

In an exemplary embodiment, the index may be reconstituted/rebalanced on a periodic and/or aperiodic basis such as, e.g., but not limited to, every month as bonds mature, and may fall out of the index, and as new issues are listed and/or issued.

Exemplary Embodiment of Emerging Markets Financial Objects Index

In one or more exemplary embodiments, an index may be created by selecting and weighting emerging market debt instruments, such as, for example, but not limited to, bonds, using metrics not materially influenced by price, e.g., face value for the debt instrument. In an exemplary embodiment, a developed market debt and/or a developed market except the US debt instrument, for example, may be provided. An exemplary embodiment of an emerging market bond index may include an Emerging Market Bond Fundamental Index® available from Research Affiliates, LLC of Pasadena, Calif. USA. In addition to the written description and figures hereof, Tables 7, 8 and 9, below, provide detailed support for exemplary embodiments. Various metrics may be used to select and/or weight financial objects, where the objects may include debt instruments. In an exemplary embodiment, if an issuer of the bond is, e.g., a country, country-based metrics may be used.

In some cases, particular numerical metrics may first need to be derived from publicly accessible data sources (see, e.g., Table 8). For example, a rating universe may be converted, according to an exemplary embodiment, into a numeric value as shown in an exemplary embodiment, see Table 8. For example, BBB debt may be given a value of, e.g., but not limited to, 1, BB debt may be assigned a value of, e.g., but not limited to, 2, CCC debt may be assigned a value of, e.g., but not limited to, 4, etc. Once debt has been assigned to at least one debt rating, by at least one rating agency, then debt may be segmented according to rating, for example.

Weighting according to an exemplary embodiment may include averaging over a given time period, such as, e.g., but not limited to 1 year, 2 years, 5 years, or any other suitable time period. In certain cases, if a bond has been recently issued, some data may not yet be available, thus data using a time lag may be used to provide more complete data, such as, e.g. but not limited to, a 1 year, 2 year, 3 year or more lag, or one or more days, weeks, and/or months of time lag may be used.

The issuing governments of debt instruments from regions considered to be emerging markets may issue emerging market debt instruments, such as, for example, emerging market bonds. Emerging market debt instruments may be purchased, held, and traded just as any debt instruments from any other market. An emerging market debt instrument may be different from any other debt instrument only in that the issuer of the emerging market debt instrument may be the government of a region considered to be an emerging market and/or may be issued from a company from an emerging market and/or developing country, for example.

In exemplary embodiments, emerging market debt instrument data from one or more countries and/or sovereigns which issue bonds may be used. For example, in certain exemplary embodiments, JP Morgan and/or Merrill Lynch emerging market data may be used, though any type of market data relating to debt instruments issued in all markets may be used, and a selection of these debt instruments may be made from the universe of debt instrument data using a predefined threshold for example, for any entity, any issuer, any organization, region, individual, country, sovereign municipality, geographic region or the like.

In an exemplary embodiment, a first entity's emerging market data may be correlated with a second company's emerging market data. For example, in an exemplary embodiment, a Merrill Lynch emerging market debt instrument data may be used, and a correlation (for example, 99.6% in certain exemplary embodiments) may be established with the data of JP Morgan.

In an exemplary embodiment, unlike with stocks, there may not be traditional accounting data metrics associated with, e.g., a country which issues a debt instrument. Accordingly, no "sales," "book values," and the like may be associated with or related to, for example, the emerging market (EM) debt for a region, such as a sovereign entity. In one or more exemplary embodiments, a broad range of data may be used to measure characteristics or factors. According to one exemplary embodiment, data associated with the issuing entity may be used as a data metric according to which a selection of debt instruments may be selected, and according to which weighting may be calculated for selected constituents of the index. According to an exemplary embodiment, data regarding an entity such as, e.g., a geographic region such as a country may be used. A data source may be created and maintained, or may be used if available from a third party. For example, a CIA database about country data may be used as a data source from which debt instruments associated with countries may be selected and weighted according to data values of fields of a country record in the database. In certain exemplary embodiments, such characteristics or factors may be referred to as fundamentals, data metrics, measures, or elements available from one or more sources (for example, databases such as the CIA World Factbook, a Farmer's Almanac, State Department statistics, Population: US Census Bureau (2005), Area: CIA World Factbook (2006), GDP: World Bank Statistics (2004), Oil Consumption: CIA World Factbook (2005), Corruption: Transparency International, Democracy: Freedom House, Freedom in the World (2001), Expenditures: CIA World Factbook (2006), GNI: World Bank Statistics (2004), Debt: CIA World Factbook (2005), Merrill Lynch Emerging Markets Data: IGOV from Bloomberg (Foreign Sovereign debt BBB+ and lower) and any other publicly available data pertaining to countries or sovereigns) from which information retrieval may be performed.

Table 7 depicts an exemplary summary of metrics and observed results for exemplary emerging market bonds. The following parameters are included: (i) Mean refers to a mean monthly return; (ii) Min refers to a minimum monthly return; (iii) Max refers to a maximum monthly return; (iv) Std Dev refers to a standard deviation from the mean; (v) RMSE is the root mean squared error, i.e., a tracking error; (vi) Rating 1 and Rating 2 are numerical ratings, as defined in Table 8; (vii) OAS (option adjusted spread, or optionality factor) is an adjusted measure of the spread of the yield of a given bond over the treasury yield; (viii) Modified Dur (duration) represents the time-weighted average of cash payments scaled by the bond yield, providing a measure of sensitivity of the bond price to interest rate movements; and/or (ix) Observations are the number of data points based on an exemplary 9 years of data (with an exemplary monthly frequency). In an exemplary embodiment, modified duration is an adjustment of a Macaulay duration, which is a discounted cash flow weighted duration.

TABLE 7

Merrill Lynch Emerging Markets Data (Foreign Sovereign debt BBB+ and lower)

Sample: January 1998-January 2007	Mean	Min	Max	Stderr	RMSE	rating1	rating2	OAS	Modified Dur	Observations
Reported Benchmark	0.950	−29.17	8.60	0.394						
Cap Weighted (Constructed)	0.950	−29.26	8.61	0.395	0.078	1.17	1.99	498.4	5.53	108
Equal Weighted (constructed)	0.999	−23.93	7.94	0.333	0.858	1.17	2.38	506.9	4.96	108
1-yr Lagged	1.070	−24.95	10.82	0.379	0.808	1.15	1.83	542.2	5.23	108
2-yr Lagged	1.053	−23.35	10.79	0.380	1.001	1.17	1.64	496.1	5.13	108
3-yr Lagged	0.942	−22.50	9.89	0.362	1.019	1.20	1.46	470.2	5.10	108
Fundamental Measures (1)										
Population	1.029	−15.51	8.40	0.262		0.86	2.03	401.4	4.73	108
Area	1.355	−38.16	16.64	0.541		1.34	3.23	714.5	4.58	108
GDP	1.059	−18.65	9.79	0.303		0.91	2.15	434.9	4.78	108
Oil Consumption	1.143	−24.92	11.67	0.377		1.08	2.54	514.3	4.85	108
Corruption Index	0.986	−21.83	7.59	0.316		1.11	2.56	471.3	5.07	108
Democracy Index	0.955	−21.99	8.16	0.329		1.12	2.53	477.0	5.28	108
Expenditures	1.076	−20.93	10.79	0.335		1.00	2.36	457.3	4.92	108
GNI	1.026	−20.27	12.01	0.346		0.98	2.30	450.9	5.05	108
Debt	1.197	−26.83	13.06	0.413		1.11	2.60	544.8	4.97	108
EW Each Factor	1.177	−25.12	11.77	0.385		1.03	2.40	520.6	4.86	108
GDP/Population	0.996	−22.69	8.15	0.328		1.10	2.55	479.6	5.06	108
Oil Consumption/Population	1.032	−24.59	8.02	0.333		1.25	2.98	508.4	4.92	108
Expenditures/Population	1.103	−18.20	6.84	0.271		1.04	2.42	427.2	4.93	108
GNI/Population	0.876	−19.66	8.02	0.312		1.08	2.54	453.9	5.20	108
Debt/GDP	0.936	−21.86	8.65	0.295		1.23	2.92	510.8	4.76	108
Fundamental Measures (2)										
Population	0.934	−14.37	6.39	0.209		0.82	1.93	366.0	4.49	108
Area	1.232	−34.59	15.00	0.452		1.11	2.62	614.0	4.44	108
GDP	0.957	−16.12	6.36	0.231		0.78	1.81	360.4	4.56	108
Oil Consumption	1.039	−21.35	7.71	0.288		0.93	2.16	428.2	4.64	108
Corruption Index	0.933	−18.34	7.19	0.251		0.90	2.06	403.9	5.06	108
Democracy Index	0.951	−18.37	7.01	0.264		0.98	2.20	430.1	5.13	108
Expenditures	0.984	−17.45	6.50	0.250		0.82	1.89	372.6	4.71	108
GNI	0.968	−17.29	6.64	0.259		0.84	1.97	382.5	4.93	108.
Debt	1.061	−22.70	8.51	0.308		0.96	2.23	458.9	4.80	108
EW Combination	1.035	−21.46	8.08	0.293		0.87	2.00	439.2	4.67	108
GDP/Population	0.949	−17.55	6.34	0.243		0.87	2.00	391.4	4.86	108
Oil Consumption/Population	0.967	−18.37	6.89	0.244		1.01	2.35	414.5	4.87	108
Expenditures/Population	0.915	−12.59	4.93	0.187		0.71	1.62	332.1	4.69	108
GNI/Population	0.867	−14.08	5.33	0.222		0.89	2.07	386.1	5.10	108
Debt/GDP	0.877	−17.53	7.73	0.244		1.00	2.36	476.3	4.80	108

Fundamental measures (1) applies the country weight directly to each security issued by the country
Fundamental measures (2) splits the country weight equally amongst all securities issued by that country in a given month
(all returns in percent per month)

Table 8 depicts an exemplary numerical identification for bond ratings.

TABLE 8

Exemplary Numerical Key for Bond Ratings

credit rating 1:		credit rating 2:	
1	BBB	1	BBB1
2	BB	2	BBB2
3	B	3	BBB3
4	CCC	4	BB1
5	CC	5	BB2
6	C	6	BB3
7	D	7	B1
		8	B2
		9	B3

TABLE 8-continued

Exemplary Numerical Key for Bond Ratings

credit rating 1:		credit rating 2:	
		10	CCC1
		11	CCC2
		12	CCC3
		13	CC
		14	C
		15	D

Table 9 depicts exemplary country metrics as may be used for weighting emerging market and/or currency financial objects.

TABLE 9

Exemplary Country Metrics

Country	Code	Population	Area sq M	GDP	Oil Consumption	Corruption	Democracy	Expenditures	GNI	Debt
Algeria	1	32531853	919590	212300000000	209000	2.8	1.5	30750000000	51028000000	22710000000
Argentina	3	39537943	1068296	483500000000	486000	2.8	5.5	39980000000	260000000000	

TABLE 9-continued

Exemplary Country Metrics

Country	Code	Population	Area sq M	GDP	Oil Consumption	Corruption	Democracy	Expenditures	GNI	Debt
Bahrain	5	688345	257	13010000000	40000	5.8		3447000000	7246280000	4682000000
Barbados	7	279254	166	4569000000	10900	6.9		886000000	2613990000	668000000
Brazil	10	186112794	3286470	1492000000000	2199000	3.7	4.0	172400000000	529000000000	214900000000
Bulgaria	8	7450349	42822	61630000000	94000	4.0	4.5	10900000000	13240800000	12050000000
Chile	11	15980912	292258	169100000000	240000	7.3	5.0	24750000000	70619200000	43150000000
China	12	1306313812	3705386	7262000000000	4956000	3.2	0.5	424300000000	1130000000000	197800000000
Colombia	13	42954279	439733	281100000000	252000	4.0	3.0	48770000000	81551500000	38260000000
Costa Rica	14	4016173	19730	37970000000	37000	4.2	5.5	3195000000	15715300000	5366000000
Cote d'Ivoire	22	17298040	124502	24780000000	32000	1.9	1.5	2830000000	10258500000	11850000000
Croatia	15	4495904	21831	50330000000	89000	3.4	4.5	19350000000	19916700000	23560000000
Dominican Republic	16	8950034	18815	55680000000	129000	3.0		5485000000	18954900000	6567000000
Ecuador	17	13363593	109483	49510000000	129000	2.5	4.0		13957900000	15690000000
Egypt	2	77505756	386660	316300000000	562000	3.4	1.5	27680000000		30340000000
El Salvador	18	6704932	8124	32350000000	39000	4.2	4.5	3167000000	13030700000	6575000000
Greece	19	10668354	50942	226400000000	405700	4.3	5.0	103400000000	121000000000	65510000000
Guatemala	36	14655189	42042	59470000000	61000	2.5	3.5	4041000000	19569100000	4957000000
Hungary	20	10006835	35919	149300000000	140700	5.0	5.5	58340000000	49161600000	42380000000
Indonesia	21	241973879	741096	827400000000	1183000	2.2	3.5	57700000000	145000000000	135700000000
Iraq	39	26074906	168753	89800000000	383000	2.2	0.0	24000000000	0	93950000000
Jamaica	23	2731832	4244	11130000000	66000	3.6	5.0	3210000000	7256730000	4962000000
Jordan	24	5759732	35637	25500000000	103000	5.7	3.0	4688000000	8784960000	7683000000
Kazakhstan	25	15185844	1049150	118400000000	189400	2.6	1.5	12440000000	20078200000	24450000000
Lebanon	26	3826018	4015	18830000000	107000	3.1	1.5	6595000000	17585000000	20790000000
Malaysia	27	42909464	261969	74300000000	60950	5.1	2.0	34620000000	79326600000	48840000000
Mexico	28	106202903	761602	1006000000000	1752000	3.5	4.5	184000000000	550000000000	159800000000
Morocco	29	32725847	172413	134600000000	167000	3.2	2.5	16770000000	34681400000	17320000000
Nigeria	30	128771988	356667	125700000000	275000	1.9	3.0	13540000000	37132000000	31070000000
Pakistan	38	162419946	310401	347300000000	365000	2.1	1.5	20070000000	60047300000	33540000000
Panama	31	3039150	30193	20570000000	40520	3.5	5.5	3959000000	9455180000	8834000000
Peru	32	27925628	496223	155300000000	161000	3.5	3.5	22470000000	52209300000	29950000000
Philippines	33	87857473	115830	430600000000	338000	2.5	4.5	15770000000	80844900000	57960000000
Poland	34	38635144	120728	463000000000	424100	3.4	5.5	63220000000	164000000000	86820000000
Qatar	35	863051	4416	19490000000	30000	5.9		11310000000		17500000000
Russia	41	143420309	6592735	1408000000000	2310000	2.4	2.0	125600000000	253000000000	175900000000
Serbia and Montenegro	42	10829175	39517	26270000000	64000	2.8		11120000000		
Slovakia	43	5431363	18859	78890000000	82000	4.3	5.5	23200000000	20307200000	
South Africa	44	44344136	471008	491400000000	460000	4.5	5.5	70620000000	122000000000	
South Korea	37	48422644	38023	925100000000	2070000	5.0	5.0	189000000000		130300000000
Thailand	45	65444371	198455	524800000000	785000	3.8	4.5	31760000000	118000000000	
Trinidad and Tobago	46	1088644	1980	11480000000	24000	3.8	5.0	4060000000	7808790000	
Tunisia	9	10074951	63170	70880000000	87000	4.9	1.5	8304000000	19984500000	
Turkey	47	69660559	301382	508700000000	619500	3.5	2.5	115300000000	167000000000	
Ukraine	48	47425336	233089	299100000000	303000	2.6	3.0	22980000000	35185000000	
Uruguay	49	3415920	68039	49270000000	41500	5.9	6.0	4845000000	19189400000	
Venezuela	50	25375281	352143	145200000000	500000	2.3	3.0	41270000000		
Vietnam	51	83535576	127243	227200000000	185000	2.6	0.5	12950000000	32761600000	

In accordance with one or more exemplary embodiments, such data elements or fundamentals may comprise any one of: an economic metric; a population or demographic based measure; a population level; an area; a geographic area; an economic factor; a gross domestic product (GDP); GDP growth; a natural resource characteristic; a petroleum characteristic; a resource consumption metric; a petroleum consumption amount; a liquid natural gas (LNG) characteristic; a liquefied petroleum gas (LPG) characteristic; an expenditures characteristic; gross national income (GNI); a debt characteristic; a rate of inflation; a rate of unemployment; a reserves level; a population characteristic; a corruption characteristic; a democracy characteristic; a social metric; a political metric; a religious metric; a per capita ratio of any of the foregoing or any other characteristic; a rate change in any of the foregoing metrics; a derivative of any foregoing or any other characteristic and/or a ratio of two of the foregoing or any other characteristics. Examples of the foregoing, not to be interpreted by way of limitation, are provided in the following table. In certain exemplary embodiments, certain of the foregoing may not be proper measures of the relative size (and/or other characteristics) pertaining to an entity, region, country, or the like but may be indicative of useful measures for selecting and weighting constituents of a index according to an exemplary embodiment.

In an exemplary embodiment, one or more such factors, data metrics, measures, characteristics and/or fundamentals may be applied to select and to weight constituents to construct a bond index in one of a number of ways. A fundamental weight into, for example, a sovereign debt, may be a first

such way. One or more metrics may be used to select debt instruments and one or more metrics may be used to weight the constituent selected debt instruments to construct the index. However, the data metric does not use a price-based metric, i.e., the metric will not be the selection and weighting according to products of total debt and market price. An exemplary first way is in a way that applies, for example, to a weight associated with (i) an issuer; (ii) an entity (including a region or country) associated with such issuer; (iii) where such issuer and such entity are the same; and/or (iv) where a combination of the foregoing, may be applied directly (or indirectly in an alternative embodiment) to each financial object (including, for example, a bond, or a security) issued by such foregoing entity(ies). As one example, a fundamental metric may be used to select weight, and may be applied to determine or calculate a constituent weighting for a given debt instrument issued by a sovereign in a first way, wherein in such first way, the country weight is directly applied to each financial object (for example, a security and/or a bond) issued by the country. According to an exemplary embodiment, a plurality of data measures may be used. A weighted average such as, for example, an equally weighted average of data factors, may be used. In one exemplary embodiment, if a given data metric is believed to be suspect, such as, e.g., geographic area, so that use of the data factor may result in taking on too much risk, a particular rules based threshold such as a predetermined maximum or minimum weighting ceiling or floor may be used to prevent overexposure to a suspected excess risk factor.

An exemplary second way of weighting debt instruments may apply, for example, to a weight associated with (i) an issuer; (ii) an entity (including a region or country) associated with such issuer; (iii) where such issuer and such entity may be the same; and/or (iv) where a combination of the foregoing, is applied in an apportioned manner among either all (or in an alternative embodiment, a portion of) the foregoing, in relation to one or more additional parameters. As one example, a fundamental weight may be applied to the debt instruments issued by of a sovereign in a second way, wherein in such a second way, the country weight may be split such as, e.g., but not limited to equally amongst all the debt instruments (for example, a security and/or a bond) issued by a country in a given month.

In certain exemplary embodiments, a number of methods may be employed so as to select, weight, or to measure certain characteristics and/or factors associated with one of the foregoing entities (i)-(iv). In an exemplary such embodiment, a factor, data metric, and/or characteristic associated with a geographic region (such as a country, in an exemplary embodiment thereof) may be measured. In order to select emerging market data, a predetermined data element value may be used, such as, e.g., countries with per capita oil consumption of less then or equal to a given value, for example, or per capita GDP of a given amount or less. For example, there may be many ways to measure a country's scale and/or size as compared to the rest of the world. Examples include, without limitation, any factors and/or characteristics associated with or related to, without limitation, any one or combination of the foregoing: economic factors, demographic factors, social factors political factors, the population, area, geographic area gross domestic product (GDP), GDP growth, natural resources, oil (or any other energy source) consumption, expenditures, government expenditures, gross national income (GNI), measures of freedom, democracy, and corruption, rate of inflation, rate of unemployment, reserves level, and/or total debt, etc. Additional examples may include any ratio of the foregoing or other factors and/or characteristics, as derived solely from one or more of the foregoing or other factors and/or characteristics, and/or as derived in combination with one or more additional factors and/or characteristics.

In one or more exemplary embodiments, the foregoing methods and/or systems employing such methods exhibited positive results. For example, in an exemplary embodiment, a RAFI® emerging markets measure may outperform a value weighting measure. For example, in one such exemplary embodiment, such emerging markets measure may outperform value weighting to add a certain amount (in one embodiment, 3.3% or the like) per annum above a cap-weighted emerging markets index.

In certain exemplary embodiments, not by way of limitation, the foregoing exemplary geographic area metric may provide superior results as a fundamental metric. In an exemplary embodiment, a RAFI® equal weighted measure using an exemplary equal weighting of 9 exemplary data metrics, namely population, area, etc (see table 10) outperforms all (or in alternative embodiments, one or more of) other single metrics of a factor and/or characteristic for one of the foregoing categories (i)-(iv), such as for example the size of a country. In an exemplary embodiment, results are not quite statistically significant, but t-statistics of approximately 1.8 on a multi-year (for example, 9 year or the like) sampling of data are found.

In varying exemplary embodiments, factors and/or characteristics either not associated with, not related to, or alternatively, not the same as a given measure may be used. As one example thereof, a measure that is either not or not associated with size may be used. As one such example, such non-size measures as one or more indices associated with or related to the corruption (for example, a corruption index) and/or the relative amount of democracy (for example, a democracy index) may be used. As noted, in one or more exemplary embodiments, a ratio of any and/or all of the foregoing factors and/or characteristics may be used, in combination with one another and/or with other factors. As one example, ratios of such items such as, e.g., but not limited to population adjusted per capita measures of GDP, oil consumption, expenditures, GNI, debt, in any combination thereof, may be used. Similarly, ratios of a measure to geographic area may be calculated and maybe added to a weighted average, such as, e.g., but not limited to, an equal, and/or non-equal weighting of a plurality of factors. In exemplary embodiments, the market may efficiently factor the foregoing into pricing, such that the foregoing do not add value to the weighting. In exemplary embodiments, size measures may relatively add value because over- or under-valuation of a country's debt may be more-or-less independent of such measures. In some cases if a given measure may skew to a limited diversification, a proportional weighting factor may be used to avoid undue risk. In certain embodiments, the foregoing applies to the description hereof with respect to equities.

Once an index is created by selecting and weighting debt instruments from emerging markets in proportion to weighting factors, then a portfolio of debt instruments may be purchased as selected by the index in proportion to the weightings as indicated by the index In such exemplary embodiments, the RAFI® debt instrument portfolio system may perform strongest in weak equity markets, though in alternative embodiments, the RAFI® debt instrument portfolio system may perform strongest in strong equity markets. In exemplary embodiments, the former embodiments apply to embodiments incorporating emerging markets.

Table 10 depicts exemplary alpha (risk adjusted return) and t-stats (point estimation coefficient divided by standard error) for exemplary country related objective metrics.

TABLE 10

Measure	Alpha	t-Stat
Population	2.1%	0.8
Area	4.7%	1.5
GDP	2.2%	1.0
Oil Consumption	2.8%	1.8
Expenditures	2.2%	1.2
GNI	1.5%	0.8
Total Debt	3.3%	1.9
RAFI ® EM	3.3%	1.8
Equal Wgt Countries	1.1%	0.9
Corruption	1.0%	0.7
Democracy	0.5%	0.4
GDP per capita	1.1%	0.8
Oil per capita	1.5%	1.3
Exp per capita	1.7%	0.8
GNI per capita	−0.3%	−0.2
Debt/GDP	0.6%	0.3

Exemplary Embodiments of Currency

In one or more exemplary embodiments, an index may be created by selecting and/or weighting currency, including hard currencies and/or related currency instruments, such as, for example, but not limited to, bonds or currency derivatives, using metrics not materially influenced by currency value. Weighting according to an exemplary embodiment may include averaging over a given time period, such as, e.g., but not limited to 1 year, 2 years, 5 years, or any other suitable time period.

Currency may be a primary economic unit of exchange. All items that may be purchased, such as, for example, but not limited to, goods, services, raw materials, land, financial objects, etc. may be valued in terms of currency, and currency may be exchanged for any of the foregoing and vice versa. Organizations such as, for example, but not limited to, countries, states, provinces, municipalities, sovereigns, and/or organizations composed of any number of the foregoing, may issue and/or control their own forms of currency. For example, the United States of America issues the United States Dollar. The European Union, composed of various countries, issues the Euro-dollar. Japan uses the Yen. Britain uses the Pound Sterling. The currency of an issuer may generally, but not always, be the only currency accepted in most day-to-day economic transactions, such as, for example, but not limited to, the purchase of goods and services, within the boundaries of the issuer's authority. For example, in the area in which the US government has governing authority, US dollars are generally the only acceptable currency for the purchase of items from stores or for the purchase of services. Currencies from different issuers may be exchanged for each other according to prevailing exchange rates. The exchange rates may indicate the value of currencies relative to other currencies.

One may invest in currency through the purchase of one or more currencies by a purchaser, using one or more other currencies. For example, a purchaser may use US dollars to purchase Euros, according to the prevailing exchange rates, if the purchaser believes the Euro will appreciate against the US dollar. There may also be a number of financial objects, or foreign exchange (currency or FX) instruments associated with currencies. For example, there may a number of currency derivatives including, for example, but not limited to, currency options such as currency puts and currency calls, currency futures, etc.

In exemplary embodiments, currency data from one or more countries and/or sovereigns which issue currency may be used. Any type of market data relating to currency related instruments issued in any and/or all markets may be used, and a selection of the currency related instruments may be made from the universe of currency related instrument data using a predefined threshold such as, for example, but not limited to, for any entity, any issuer, any organization, region, individual, country, sovereign municipality, geographic region and/or the like. Exemplary currency data for the spot exchange rate may be obtained from, e.g. the Board of Governors of the Federal Reserve System, and may be downloaded, for example, from Bloomberg of New York, N.Y., among other services. Exemplary pricing and returns data for currency futures and/or other derivatives may be obtained from, e.g., but not limited to, Commodity Research Bureau (CRB), and/or from Bloomberg, etc. Exemplary data for government fixed income instruments may be obtained from, e.g., Bloomberg. Information on a country's characteristics and economic variables may be obtained from, for example, the U.S. Central Intelligence Agency (CIA) World Factbook, Global Financial Data, Bloomberg, and/or Center for International Comparisons at the University of Pennsylvania, etc.

In an exemplary embodiment, a first entity's currency related instrument data may be correlated with a second country's currency and related instruments.

Unlike with stocks, a currency instrument may not have traditional accounting data metrics associated with the instrument, or with the country that issues the currency. Accordingly, no "sales", "book value" or the like may be associated with or related to, for example, the currency for a region, or a sovereign entity. In an exemplary embodiment, a broad range of data may be used to measure characteristics or factors. According to one exemplary embodiment, data associated with the currency-issuing entity may be used for selecting and/or weighting currency or currency-related instruments to construct the index. According to an exemplary embodiment, data regarding an entity such as, e.g., a geographic region such as, e.g., but not limited to, a country may be used. A data source may be created and maintained, and/or may be used if available from a third party. For example, a CIA factbook and/or other databases about country data may be used as a data source from which currency instruments associated with countries may be selected and weighted according to data values of fields of a country record in the database. In certain exemplary embodiments, such characteristics, metrics, measures and/or factors may be referred to as data metrics, measures, parameters and/or elements available from one or more sources (for example, databases such as, e.g., but not limited to, the CIA World Factbook, etc.) from which information may be retrieved.

In accordance with one or more exemplary embodiments, such data elements, measures, and/or metrics may comprise any one or more of, e.g., but not limited to: a demographic measure; a population level; an area; a geographic area; an economic factor; a gross domestic product (GDP); GDP growth; a natural resource characteristic; a petroleum characteristic; a resource consumption metric; a petroleum consumption amount; a liquid natural gas (LNG) characteristic; a liquefied petroleum gas (LPG) characteristic; an expenditures characteristic; gross national income (GNI); a debt characteristic; a rate of inflation; a rate of unemployment; a reserves level; a population characteristic; a corruption characteristic; a democracy characteristic; a social metric; a political metric; nominal interest rates and the ratios of nominal interest rates between issuing sovereign entities; commercial paper yield metric; credit rating metric; consumer price index (CPI);

purchasing power of local currency metric; country current account flow; metrics measuring relations between the purchasing power of local currency metric and nominal exchange rates and deviations from historical trends in such metrics; government exchange rate regime; a per capita ratio of any of the foregoing or any other characteristic; and/or a derivative of any foregoing or any other characteristic and/or a ratio of two of the foregoing or any other characteristics. In certain exemplary embodiments, certain of the foregoing may not be proper measures of the relative size (and/or other characteristics) pertaining to an entity, region, country, or the like but may be useful measures for selecting and weighting constituents of a index according to an exemplary embodiment.

In an exemplary embodiment, one or more such metrics and/or measures, parameters and/or characteristics may be applied to select and/or to weight constituents to construct a currency and/or currency related instrument index in any of a number of ways. A currency may be selected and/or weighted using a combination of one or more metrics. One or more metrics may be used to select currency and/or related currency instruments and one or more metrics may be used to weight the selected constituent selected instruments to construct the index. An exemplary method of selecting or waiting may include applying, for example, a weight associated with (i) an issuer; (ii) an entity (including a region or country) associated with such issuer; (iii) where such issuer and such entity are the same; and/or (iv) where a combination of the foregoing, may be applied directly (or indirectly in an alternative embodiment) to each currency related instrument (including, for example, a currency derivative) issued by such foregoing entity(ies). As one example, a fundamental metric may be used to select weight, and may be applied to determine, compute, and/or calculate a constituent weighting for a given currency issued by a sovereign or related currency instrument in a given way, wherein in such way, the country weight may be directly applied to each currency and/or related currency instrument (such as, for example, but not limited to, a currency derivative) issued by a country or other entity. According to an exemplary embodiment, a plurality of data measures and/or metrics may be used. A weighted average such as, for example, an equally weighted average of data factors, may be used. In one exemplary embodiment, if a given data metric is believed to be suspect, such as, e.g., geographic area, so that use of the data factor may result in taking on too much risk, a particular rules based threshold such as, e.g., but not limited to, a predetermined maximum and/or minimum weighting ceiling and/or floor may be used to prevent overexposure to a suspected excess risk factor.

Another exemplary embodiment of selecting and/or weighting currency and/or currency related instruments may apply, for example, to a weight a metric associated with (i) an issuer; (ii) an entity (including a region and/or country) associated with such issuer; (iii) where such issuer and such entity may be the same; and/or (iv) where a combination of the foregoing, may be applied in an apportioned manner among either all (or in an alternative embodiment, a portion of) the foregoing, in relation to one or more additional parameters.

Various exemplary embodiments, or combinations of others noted herein, may also be used.

In certain exemplary embodiments, a number of methods may be employed so as to select, weight, and/or to measure certain characteristics, metrics, measures, parameters and/or factors associated with one of the foregoing entities (i)-(iv). In an exemplary such embodiment, a factor, data metric, measure, parameter, and/or characteristic associated with, e.g., but not limited to, a geographic region (such as a country, in an exemplary embodiment thereof) may be measured. In order to select currency data, a predetermined data element value may be used, such as, e.g., but not limited to, countries with an inflation rate of, e.g., but not limited to, less than or equal to a given value, for example, or, e.g., but not limited to, per capita GDP of a given amount or less. For example, there may be many ways to measure a country's scale or size relative to the rest of the world, or a relevant portion of the world, for example. Exemplary embodiments may include, without limitation, any metrics, measures, parameters, factors and/or characteristics associated with and/or related to, without limitation, any one or combination of the foregoing: economic factors, demographic factors, social factors political factors, the population, area, geographic area gross domestic product (GDP), GDP growth, natural resources, oil (or any other energy source) consumption, expenditures, government expenditures, gross national income (GNI), measures of freedom, democracy, and corruption, rate of inflation, rate of unemployment, reserves level, and/or total debt, etc. Additional examples may include, e.g., but not limited to, any ratio of the foregoing or other factors and/or characteristics, as derived solely from one or more of the foregoing or other factors and/or characteristics, and/or as derived in combination with one or more additional factors and/or characteristics.

In one or more exemplary embodiments, the foregoing methods and/or systems employing such methods to select or weight a currency instrument index may exhibit positive results as compared to conventional weighting measures.

In certain exemplary embodiments, not by way of limitation, the foregoing exemplary geographic area metric may provide superior results as an accounting data and/or country-data based metric.

In varying exemplary embodiments, factors and/or characteristics either not associated with, not related to, or alternatively, not the same as, a given measure may be used. As one example thereof, a measure that is not size, or not associated with size, may be used. As one such example, such non-size related measures may include, e.g., but not limited to, a metric related to corruption (e.g., but not limited to, a corruption index) and/or the relative amount of democracy (e.g., but not limited to, a democracy index) may be used. As noted, in one or more exemplary embodiments, a ratio of any one or more, and/or all of the foregoing metrics, measures, parameters, factors and/or characteristics may be used, in combination with one another and/or with other factors. As one example, ratios of such items such as, e.g., but not limited to, population adjusted per capita measures of GDP, oil consumption, expenditures, GNI, debt, in any combination thereof, may be used. Similarly, ratios of a measure to, e.g., but not limited to, geographic area, may be calculated and maybe added to a weighted average, such as, e.g., but not limited to, an equal, and/or non-equal weighting of a plurality of factors. In exemplary embodiments, the market may efficiently factor the foregoing into pricing, such that the foregoing does not add value to the weighting. In exemplary embodiments, size measures may relatively add value because over- or under-valuation of a country's debt may be more-or-less independent of such measures. In some cases if a given measure may skew to a limited diversification, a proportional weighting factor may be used to avoid undue risk. In certain exemplary embodiments, the foregoing may apply to the description hereof with respect to other financial objects.

Once an index is created by selecting and/or weighting currency and/or currency related instruments in proportion to weighting factors, then a portfolio of currency and/or related instruments may be purchased as selected by the index in

proportion to the weightings as indicated by the index. In such exemplary embodiments, the currency portfolio system may form part of a diversified portfolio of portfolios to help take advantage of positive currency market impacts.

Exemplary Embodiments of Commodities

In one or more exemplary embodiments, the index may be a commodities index.

Commodities may be raw materials such as, e.g., but not limited to, wheat, corn sugar, soybeans, soybean oil, oats, rough rice, cocoa, coffee, cotton, lean hogs, pork bellies, live cattle, feeder cattle, WTI crude oil, light sweet crude oil, brent crude, natural gas, heating oil, gasoline, Gulf Coast gasoline, propane, uranium, iron, gold, platinum, palladium, silver, copper, lead, zinc, tin, aluminum, aluminum alloy, nickel, recycled steel, ethanol, rubber, palm oil, wool, coal, and/or polypropylene coal etc. Industries may use commodities, e.g., but not limited to, in the production of goods. For example, cereal makers may use wheat in the production of, e.g., but not limited to, cereal, and gasoline companies may use light sweet crude oil in the production of, e.g., but not limited to, automotive gasoline. Treasury bills may also be considered to be related to commodities. Although treasury bills are a fixed income instrument, in the context of investment in commodity treasury bills may be collateral for the derivative investment.

One may invest in commodities through the purchase of quantities of the commodities themselves, or through the purchase of derivative instruments, or other financial objects related to the commodities, such as, e.g., but not limited to, commodities futures, commodities options such as, e.g., but not limited to, commodities puts and/or commodity calls, and/or commodity forwards. Further, investments may be made in the producer of a commodity, such as, e.g., but not limited to, mining companies with respect to a mined product commodity.

The following is an exemplary summary of a construction method for creating an exemplary commodities index, including selecting commodities (including commodities, such as, e.g., but not limited to, oil, corn, and/or gold, etc. and related derivative instruments, such as, e.g., but not limited to, commodities futures), and from a universe of commodities using a selective metric related to the companies and/or industries responsible for the production and/or consumption of the commodity, and/or weighting the commodity according to at least one objective metric related to the size of the companies and/or industries (including, e.g., but not limited to, industry metrics as noted in Table 2) responsible for the production and/or consumption of the commodity. In an exemplary embodiment the constituents may be selected and/or weighted in relative proportion to, e.g., but not limited to, sales and/or dividends, if any, associated with companies and/or industries responsible for the production and/or consumption of the commodity. According to another exemplary embodiment, other accounting data metrics may be used, however in no case will a metric be used which is materially influenced by share price, such as, e.g., but not limited to, the measure of the market value of the total amount of commodities produced and/or traded; the measure of total value of the related financial instruments traded; and/or the market capitalization of the companies and/or industries responsible for the production and/or consumption of the commodities.

In an exemplary embodiment, the metric used for selection and/or weighting for each group of companies and/or industries responsible for the production and/or consumption of a commodity may be based on a composite company accounting data measure created from, e.g., but not limited to, a weighting, such as, e.g., but not limited to, equal weighting, of one or a plurality of data metrics. In one such exemplary embodiment, the metrics may be any one, or more of in combination, (i) normalized, (ii) for a 5-year span, and/or (iii) an average value. Exemplary factors, measures, parameters, metrics and/or characteristics, may include, e.g., but not limited to, factors based at least partially on any one or more of: sales, book value, cash-flow, dividends if any, total assets, revenue, number of employees, profit margins, and/or collateral, etc.

Further, in an exemplary embodiment, the metric used for selection and/or weighting for each commodity may be a combination of the foregoing the metric for selection or weighting for each group of companies or industries responsible for the production and/or consumption of a commodity, and an index weight based on the total per unit cost of production of a commodity, commodity reserves value, term structure of a future and/or commodity, momentum in price, any seasonal factors that may affect the valuation of the commodity, such as, for example, but not limited to, effect on oil usage and/or crop yields, and/or interest rate, etc.

In an exemplary embodiment, data acquisition may be time consuming. Here, according to an exemplary embodiment, a comprehensive database may be assembled, compiled, and/or built, i.e. constructed, of companies and/or industries responsible for the production and/or consumption of commodities, and the data may be linked to an existing database of metrics, such as, e.g., but not limited to, accounting data which may include non-market capitalization and non-price related accounting data indicative of relative company size, with all the normal complications of ticker and Committee on Uniform Security Identification Procedures (cuisp) differences. In alternative exemplary embodiments, expansion of the data through 2006, or other time period, and beyond may be performed.

In exemplary embodiments, the commodities universe may include, e.g., but not limited to, all issues within a particular commodities space. An exemplary commodities space according to one exemplary embodiment may include, e.g., but not limited to, the Merrill Lynch Global Commodities space. According to one exemplary embodiment, one may begin with a universe of, e.g., but not limited to, all commodities and/or related derivative instruments. Then, a selection of commodities and/or related derivative instruments may be made using at least one accounting data metric associated with the companies and/or industries responsible for the production and/or consumption of the commodity, wherein the metric is not materially influenced by share price.

In an exemplary embodiment, the index may be reconstituted, and/or rebalanced on a periodic and/or an aperiodic basis such as, e.g., but not limited to, every, e.g., but not limited to, month, etc., as futures expire and may fall out of the index.

Exemplary Embodiments of Real Estate Investment Trust (REIT) Indexes

According to an exemplary embodiment of the invention, an exemplary financial object may include, e.g., but not limited to, a Real Estate Investment Trust (REIT), and/or a Real Estate Holding and Development Company (including, e.g., but not limited to, Real Estate Operating Companies (REOC)). An accounting data based index (ADBI) may be provided, according to one exemplary embodiment, including one or more Real Estate Investment Trusts (REITs), in which the REITs may be selected based on one or more objective metrics and/or measures. In accordance with an exemplary embodiment, REITs may include, e.g., but not limited to, a special tax designation for a corporation that may invest, own, and/or manage real estate. As used herein, REITs

may be publicly traded and may be listed on national stock exchanges, including, e.g., but not limited to, the New York Stock Exchange (NYSE), National Association of Securities Dealers Automated Quotations system (NASDAQ), and/or American Stock Exchange (AMEX), (and comparable instruments, to the extent available, on foreign exchanges), etc. A REIT may be publicly traded, or may also be privately held. The Real Estate Holding & Development subsector may include, e.g., but not limited to, companies that may invest directly, and/or indirectly in real estate through development, management and/or ownership, including, e.g., but not limited to, property agencies. A Real Estate Operating Company (REOC) is similar to a real estate investment trust (REIT), except that an REOC may reinvest its earnings into the business, rather than distributing them to unit holders as REITs do. Also, REOCs may be more flexible than REITs in terms of what types of real estate investments they may be able to make.

In accordance with one or more exemplary embodiments, ownership of REIT instruments may be similar to ownership in any other instrument, but in order to qualify for the tax benefits of a REIT, a real-estate company may be required, according to an exemplary embodiment, to distribute a percentage of the income of the REIT, for example, 90%, to its investors, which may be in form of dividends, for example. The REIT status may allow the entity to avoid income tax altogether, or may receive a reduction in taxes, as a result.

In accordance with various exemplary embodiments, a REIT may include, e.g., but not limited to, an equity REIT and/or a mortgage REIT. An equity REIT, e.g., may own and operate real estate such as, e.g., but not limited to, apartment buildings, regional malls, office buildings, and/or lodging facilities, etc. A mortgage REIT, in an exemplary embodiment, may issue loans secured by real estate, though mortgage REITs usually do not own or operate real estate. As used herein, the REIT may be a hybrid REIT, which may be involved in both real estate operations as well as mortgage transactions, in one exemplary embodiment.

According to an exemplary embodiment of the invention, an index such as, e.g., but not limited to, RAFI® REIT available from Research Affiliates, LLC of Pasadena, Calif. USA, may be constructed by selecting and/or weighting REITs using one or more objective metrics that, in an exemplary embodiment, may not be materially influenced by share price of the REIT company itself. In one exemplary embodiment, an ADBI composite index may include REITs exclusively, and/or a combination of REITs and other financial objects.

In an exemplary embodiment of the invention, a REIT index may be constructed by selecting and/or weighting REITs based one or more accounting data based metrics and/or measures including, e.g., but not limited to, total assets, adjusted funds from operations (AFFO), revenues, and/or distributions, where distributions may include, e.g., but may not be limited to, dividends.

In an exemplary embodiment, the total assets for a REIT, as with any other type of entity, may include, for example, but may not be limited to, the gross assets (e.g., real estate assets) minus the accumulated depreciation in real estate value and/or amortization, as may be required by accounting principles such as the generally accepted accounting principles (GAAP). However, in an exemplary embodiment, funds from operations (FFO) may include, for example, but may not be limited to, the net income (e.g., revenue minus expenses) plus depreciation and/or amortization. Thus, the AFFO, in an exemplary embodiment, may represent the cash performance of the REIT, which, in an exemplary embodiment, may be a better indicator of the company's performance than earnings, which may include, e.g., but not limited to, non-cash items. In an exemplary embodiment, the AFFO may be subject to varying methods of computation, and may be generally equal to the AFFO of the REIT, with adjustments made for recurring capital expenditures used to maintain the quality of the underlying assets of the REIT, which may include, e.g., but may not be limited to, adjustments to straight-line depreciation of, e.g., but not limited to, rent, leasing costs and/or other material factors.

In an exemplary embodiment, one or more financial object metric selection and/or weighting metrics may be determined for each REIT for a predetermined period of time, which may be, e.g., but not be limited to, five years, etc. For example, each of one or more of the metrics, and/or any combination thereof, including the revenues of a REIT, AFFO, the total assets, and/or the total dividend distribution, may be averaged for the prior predetermined (e.g., but not limited to, five (5)) years, etc.

In an exemplary embodiment, an overall weight may be calculated for each REIT in the index by, for example, but not limited to, equally and/or otherwise weighting each selection and/or weighting metric. Alternatively, each selection and/or weighting metric may be given a different weight. In an exemplary embodiment, once weights have been determined for each REIT based on the selection and/or weighting metrics, the REITs may then be sorted in, e.g., but not limited to, descending order of the composite selection and/or weighting metrics and may be assigned weights equal to their previously determined weights, as previously described in greater detail.

Exemplary Modeled Economy Embodiment

In this exemplary embodiment, a continuous time one factor economy is modeled where stock prices are noisy proxies of informationally efficient stock values. The pricing error process is modeled as a mean-reverting process, which provides a well-defined notion of over-pricing (positive pricing error) and under-pricing (negative pricing error) in the market. In this modeled economy embodiment, cap-weighting may be a sub-optimal portfolio strategy. This is because, in a cap-weighting scheme, portfolio weights are driven by market prices. Accordingly, more weights may be allocated to overvalued stocks and less weight to undervalued stocks. It is also shown that the capital asset pricing model (CAPM) may be rejected in this one factor economy with noise. Additionally, a value tilted or size tilted portfolio may be predicted to outperform (risk-adjusted). By construction, value and size may not be risk factors in this one factor economy embodiment. However, in the cross-section, large cap stocks and high price-to-book stocks (growth stocks) may tend to underperform. This is because higher capitalization stocks and higher price-to-books stocks may be more likely to be stocks with positive pricing errors. Prices may be explicitly inefficient in this economy embodiment. However, the inefficiency may not lead to arbitrage opportunities. Mean-reversion in stock returns and the Fama-French size and value effects may be driven by the same market defect-pricing noise. This may suggest that models, such as disposition effect and information herding, which can generate stock price over-reaction and therefore mean-reversion in stock prices, can also explain the value and size question.

In an embodiment, Fama-French value and size factors can be explained quite simply if informational inefficiency in stock prices may be assumed. A simple one factor economy with price noise, where pricing errors are mean-reverting, can generate the Fama-French return anomalies as well as mean-reversion in stock returns. Given the strong support in the empirical and the behavioral literature that point to excess price volatility (price overshooting) and contrarian profits,

the explanation of the Fama-French size and value anomalies may be considered more authentic than explanations based on rational models with hidden risk factors. In one or more embodiments, the model is able to simultaneously explain stock price mean-reversion and the size and value effects and is able to offer reasonable explanation for the empirical findings from existing literature regarding CAPM, including: (i) the value and size factors may arise empirically (even in a one factor economy) if the market portfolio is a poor proxy for the one hidden risk factor; (ii) the value and size question and the stock price mean-reversion may be anomalies driven by the same market imperfection and may arise quite naturally when stock prices are noisy; and/or (iii) behavioral and rational models which may generate stock price overreactions resulting in contrarian strategy profits, may also explain the value and size effect. The aforementioned one factor modeled economy embodiment is described with greater specificity below.

In this embodiment, the risk premium for a stock may depend singularly on its exposure to one unobserved source of aggregate risk (F). Furthermore, it may be assumed that the mark-to-market prices, P_t (market prices), deviate from the informationally efficient stock values, V_t. For example, $P_t=V_t+e_t$—that is, market prices are noisy proxies for the informationally efficient values, which are assumed unobservable. In addition, idiosyncratic pricing errors (e_t) may be assumed to mean-revert to zero at the speed ρ. Consequently, a stock, with a market price greater than its efficient value, may be over-valued and deliver less than its risk-adjusted fair return and vice versa as e_t mean-reverts. Since e_t may be mean zero, on the average, this price inefficiency may have no impact on expected stock returns. Additionally, since e_t may be idiosyncratic, a broad based portfolio equally weighted would have almost no aggregate mispricing relative to the efficient valuation. By assumption, in an embodiment the market may not be informationally efficient, so alpha strategies exist; though there may be no arbitrage opportunities. In an embodiment, it may therefore, be tacitly assumed that investors are not aware of the alpha opportunity (or do not take advantage of it sufficiently) and thus allow such opportunity to persist. Both the pricing error process and the efficient stock value process may be given exogenously. It may be assumed that the exemplary economy has one aggregate source of risk and a finite number of securities. However, many of the key results may not depend on the pricing model nor the one fact assumption. The true stock value may not be unobservable. The dynamics may be described by

$$\frac{dV_i}{V_i} = \mu_i dt + \beta_i \sigma_F dW_F + \sigma_{vi} dW_{vi}, \quad (1)$$

where, (1) μ_i is the drift term and is the instantaneous return for the true value process and is described by

$$\mu_i = r_f + \beta_i \lambda_F, \quad (2)$$

where r_f is the instantaneous risk free rate and λ_F is the risk premium for holding one unit of the factor risk exposure. It may be noted that the risk premium formula may be assumed. If the true stock price were observable and tradable, then the above equation (2) may arise naturally in equilibrium in the limit following the APT argument. The latter explicit relationship between factor exposure and expected returns may not be needed to drive most of the provided results. However, this relationship between factor loading and return may be considered intuitively appealing and may be necessary for analyzing the cross-section return variance and time series analysis in a CAPM context.

(2) β_i is stock i's factor loading.

(3) dW_F is an increment to a standard Wiener process and represents the common factor to all stocks.

(4) dW_{vi} is an increment to a standard Wiener process and represent idiosyncratic shocks to the true stock value. Additionally, it may be assumed that $E[dW_{vi}dW_{vj}]=0$ for $i \neq j$ and $E[dW_{vi}dW_F]=0$.

It may be noted that in an embodiment, there is only one risk factor in the exemplary modeled economy and risk premium may only be earned from holding exposure to this one factor risk.

It may further be assumed that the observed market price may be a noisy proxy for the true stock value. The market price may be defined by

$$P_i = V_i U_i, \quad (3)$$

where U_t is defined by

$$U_i = 1 + \tilde{U}_i, \quad (4)$$

where $\tilde{U}_t$ is a mean-reverting process defined by

$$d\tilde{U}_i = (1+\tilde{U}_i)(-\rho_i \tilde{U}_i dt + \sigma_{\tilde{U}i} dW_{\tilde{U}i}), \quad (5)$$

where $0 \leqq \rho_i < 1$ and $dW_{\tilde{U}i}$ is an increment to a standard Wiener process. It may be noted that when $\tilde{U}_i > 0$, the market price may be overvalued relative to the fair price. Additionally, it may be assumed that $E[dW_{\tilde{U}i}dW_{\tilde{U}j}]=0$ for $i \neq j$, $E[dW_{\tilde{U}i}dW_{vj}]=0$ for all i and j, and $E[dW_{\tilde{U}i}dW_F]=0$.

The market price dynamics can then be written as

$$dP_i = V_i dU_i + U_i dV_i. \quad (6)$$

Substituting, the following may be obtained

$$dP_i = V_i U_i(-\rho_i \tilde{U}_i dt + \sigma_{\tilde{U}i} dW_{\tilde{U}i}) + U_i V_i(\mu_i dt + \beta_i \sigma_F dW_F + \sigma_{vi} dW_{vi}). \quad (7)$$

Rearranging, the mark-to-market return process is given by

$$dr_i \frac{dP_i}{P_i} = (\mu_i - \rho_i \tilde{U}_i)dt + \beta_i \sigma_F dW_F + \sigma_{ri} dW_{ri}, \quad (8)$$

where

$$\sigma_{ri} dW_{ri} = \sigma_{\tilde{U}i} dW_{\tilde{U}i} + \sigma_{vi} dW_{vi}, \quad (9)$$

and where

$$\sigma_{ri} = \sqrt{\sigma_{\tilde{U}i}^2 + \sigma_{vi}^2}. \quad (10)$$

It may be noted from equation (8), that the mean-reverting pricing error process does not have an impact on the equity premium, though the cumulative return does suffer from the increased volatility. From equation (8), the mark-to-market return process may be mean-reverting, suggesting that observed stock returns are negatively autocorrelated. While empirical evidences may support negative autocorrelation, the literature may also conclude that the magnitude may be too small or the effect too unreliable to be profitably exploited given the volatility in stock returns. However, in an embodiment, it may be conceded that the mean-reversion in returns can be an uncomfortable prediction, especially in a partial equilibrium model. The 1986 teaching of Summers may be used to argue that standard statistical tests cannot reject the random walk hypothesis even when the true process is

strongly mean-reverting; as such investors may not take large positions to trade on any perceived mean-reversion in stock returns.

The return on a portfolio Ω defined by a vector of weights $\{\omega_1,\omega_2, \ldots \omega_N\}$ can be written as

$$dr_\Omega = \sum_{i=1}^{N} \omega_i dr_i = (\mu_\Omega - \rho\tilde{U}_\Omega)dt + \beta_\Omega \sigma_F dF + \sigma_\Omega dW_\Omega, \tag{11}$$

where

$$\mu_\Omega = \sum_{i=1}^{N} \omega_i \mu_i = r_f + \beta_\Omega \lambda, \tag{12}$$

$$\rho\tilde{U}_\Omega = \sum_{i=1}^{N} \omega_i \rho_i \tilde{U}_i, \tag{13}$$

$$\beta_\Omega = \sum_{i=1}^{N} \omega_i \beta_i, \tag{14}$$

$$\sigma_\Omega dW_\Omega = \sum_{i=1}^{N} \omega_i \sigma_{ri} dW_{ri}, \tag{15}$$

where

$$\sigma_\Omega = \sqrt{\sum_{i=1}^{N} \omega_i^2 \sigma_{ri}^2}, \tag{16}$$

and where in the limiting case $\sigma_\Omega dW_\Omega \to 0$ as $N \to \infty$.

To derive additional portfolio implications it may be needed to make explicit the portfolio weighting scheme. In the following two sections, the portfolio return dynamics for a cap-weighted portfolio and a non-cap-weighted portfolio are considered.

For simplicity and without loss of generality, it may be assumed each company issues only 1 share of stock (therefore market price and market cap are the same). The cap-weighted portfolio may be the defined by the following vector of weights

$$CW = \left\{\frac{P_1}{P_\Sigma}, \frac{P_2}{P_\Sigma}, \ldots \frac{P_N}{P_\Sigma}\right\}, \tag{17}$$

where

$$P_\Sigma = \sum_{i=1}^{N} P_i, \tag{18}$$

The return on the cap-weighted portfolio may then be

$$dr_{CW} = (\mu_{CW} - \rho\tilde{U}_{CW})dt + \beta_{CW}\sigma_F dF + \sigma_{CW} dW_{CW}, \tag{19}$$

where

$$\mu_{CW} = \sum_{i=1}^{N} \frac{P_i}{P_\Sigma} \mu_i = r_f + \beta_{CW}\lambda, \tag{20}$$

$$\rho\tilde{U}_{CW} = \sum_{i=1}^{N} \frac{P_i}{P_\Sigma} \rho_i \tilde{U}_i = \sum_{i=1}^{N} \frac{V_i}{P_\Sigma} \rho_i (1 + \tilde{U}_i)\tilde{U}_i, \tag{21}$$

$$\beta_{CW} = \sum_{i=1}^{N} \frac{P_i}{P_\Sigma} \beta_i, \tag{22}$$

-continued

$$\sigma_{CW} dW_{CW} = \sum_{i=1}^{N} \frac{P_i}{P_\Sigma} \sigma_{ri} dW_{ri}, \tag{23}$$

and where $\sigma_{CW} dW_{CW} \to 0$ as $N \to \infty$.

Rewriting the drift term for the portfolio dynamics in (19), the following may be obtained

$$\left(\mu_{CW} - \sum_{i=1}^{N} \frac{V_i}{P_\Sigma} \rho_i \tilde{U}_i^2\right) - \sum_{i=1}^{N} \frac{V_i}{P_\Sigma} \rho_i \tilde{U}_i, \tag{24}$$

where

$$-\sum_{i=1}^{N} \frac{1}{P_\Sigma} \rho_i V_i \tilde{U}_i^2$$

is strictly negative except when $\rho_i = 0$ for all i (when pricing errors are not mean-reverting but random walks). The latter may be used to assert that cap-weighting leads to a drag in portfolio expected return.

While there may be only a finite number of stocks (this is both realistic and necessary to prevent arbitrage in our economy), the exposition may be more clear when the limiting case expression is examined. Though not necessary for the results provided here, the latter format may be used throughout the explanation hereof for improvement of intuition.

In the limiting case,

$$\sum_{i=1}^{N} \frac{V_i}{P_\Sigma} \rho_i \tilde{U}_i \to 0 \text{ as } N \to \infty \text{ and } \sum_{i=1}^{N} \frac{V_i}{P_\Sigma} \rho_i \tilde{U}_i^2 \to \delta_{CW}.$$

Note δ_{CW} is monotone increasing in the average variance of the pricing noise in the stock cross-section. Equation (19) then reduces to

$$dr_{CW} = (\mu_{CW} - \delta_{CW})dt + \beta_{CW}\sigma_F dF. \tag{25}$$

And the holding period return is

$$E_t[r_{t,t+T}] = E_t e^{\int_t^{t+T} dr_{CW}} = e^{(r_f + \beta_{CW}\lambda - \delta_{CW} - 0.5\beta_{CW}^2 \sigma_F^2)T}. \tag{26}$$

Equation (25) may suggest that in a well diversified portfolio constructed from cap-weighting, the portfolio expected return may be the cap-weighted expected returns of the constituent stocks less a drag term δ_{CW}. This return drag may occur because portfolio weights are positively correlated with prices. Stocks that are overvalued may receive added weights in the portfolio and stocks that are undervalued may receive lesser weights. The greater the mispricing in the market, the more severe may be this problem and the larger the resulting drag (δ_{CW}) to the cap-weighted portfolio.

Portfolio weights which do not depend on market capitalizations (or market prices) may be considered. The weights could be as arbitrary as random weights or as simple as equal weights.

The vector of weights may be denoted as

$$NC = \{w_1, w_2, \ldots w_N\}, \tag{27}$$

The return on the non-cap-weighted portfolio may then be

$$dr_{NC} = (\mu_{NC} - \rho\tilde{U}_{NC})dt + \beta_{NC}\sigma_F dF + \sigma_{NC} dW_{NC}, \tag{28}$$

where

$$\mu_{NC} = \sum_{i=1}^{N} w_i \mu_i = r_f + \beta_{NC}\lambda, \tag{29}$$

$$\rho\tilde{U}_{NC} = \sum_{i=1}^{N} w_i \rho_i \tilde{U}_i, \tag{30}$$

$$\beta_{NC} = \sum_{i=1}^{N} w_i \beta_i, \tag{31}$$

$$\sigma_{NC} dW_{NC} = \sum_{i=1}^{N} w_i \sigma_{ri} dW_{ri}. \tag{32}$$

The non-cap-weighted portfolio drift term may be

$$\mu_{NC} - \sum_{i=1}^{N} w_i \rho \tilde{U}_i. \tag{33}$$

Comparing equation (33) to (24), it may be found that a non-cap-weighted portfolio does not suffer a drag in expected return.

In the limit, $\sigma_{NC}dW_{NC} \to 0$ and $\rho\tilde{U}_{NC} \to 0$ as $N \to \infty$. Equation (28) may then reduce to

$$dr_i = \left(\mu_i - \rho_i \tilde{U}_i - \frac{\beta_i}{\beta_{CW}}(\mu_{CW} - \rho\tilde{U}_{CW})\right)dt + \frac{\beta_i}{\beta_{CW}} dr_{CW} - \frac{\beta_i}{\beta_{CW}} \sigma_{CW} dW_{CW} + \sigma_{ri} dW_{ri}. \tag{37}$$

Additionally, a new process may be defined, the excess market return process

$$dR_M = dr_{CW} - r_f dt, \tag{38}$$

and a new variable

$$\gamma_i = \frac{\beta_i}{\beta_{CW}}.$$

Substituting into (37), the following is obtained

$$dr_i = (\mu_i - \rho_i \tilde{U}_i - \gamma_i(\mu_{CW} - r_f - \rho\tilde{U}_{CW}))dt + \gamma_i dR_M - \gamma_i \sigma_{CW} dW_{CW} + \sigma_{ri} dW_{ri}. \tag{39}$$

Recalling equation (2), where $\mu_i = r_f + \beta_i \lambda_F$, equation (39) can be rewritten as

$$dr_i = (r_f - \rho_i \tilde{U}_i + \gamma_i \rho \tilde{U}_{CW})dt + \gamma_i dR_M - \gamma_i \sigma_{CW} dW_{CW} + \sigma_{ri} dW_{ri}. \tag{40}$$

In the limiting case as $N \to \infty$, the following may be obtained

$$dr_i = (r_f - \rho_i \tilde{U}_i + \gamma_i \delta_{CW})d_t + \gamma_i dR_M + \sigma_{ri} dW_{ri}. \tag{41}$$

It may be noted that the average stock may be expected to show an "alpha" equal to $\gamma_i \delta_{CW}$ when its excess stock return is regressed against the excess market return.

For a non-cap-weighted portfolio, equation (28) can be expressed as

$$dr_{NC} = (r_f - \tilde{U}_{NC} + \gamma_{NC} \rho \tilde{U}_{CW})dt + \gamma_{NC} dR_M - \gamma_{NC} \sigma_{CW} dW_{CW} + \sigma_{NC} dW_{NC}. \tag{42}$$

$$dr_{NC} = \mu_N dt + \beta_{NC} \sigma_F dF. \tag{34}$$

And the holding period return may be

$$E_t[r_{t,t+T}] = E_t e^{\int_t^{t+T} dr_{NC}} = e^{(r_f + \beta_{NC}\lambda - \beta_{NC}^2 \sigma_F^2)T}. \tag{35}$$

Comparing the expected cumulative holding period return for a cap-weighted portfolio and a non-cap-weighted portfolio of the same factor exposure or same β (the limiting case shown in (26) and (35)), it may be found that the non-cap-weighted portfolio has a higher return. In fact, in the limit, there is arbitrage as indicated by (34) and (25). Therefore, in an embodiment it may be considered important that in the economy, N is sufficiently different from infinity and/or that the factor loading β cannot be measured with perfect precision.

In the following embodiment, return dynamics for stocks and portfolios are expressed relative to the observed cap-weighted "market" portfolio instead of the unobserved factor F. This shift in measure may lead naturally to the CAPM regression formula and predict that in the stock cross-section, the average stock will show a CAPM alpha.

Rewriting equation (19),

$$\sigma_F dF = \frac{1}{\beta_{CW}} dr_{CW} - \frac{(\mu_{CW} - \rho\tilde{U}_{CW})}{\beta_{CW}} dt - \frac{\sigma_{CW}}{\beta_{CW}} dW_{CW}. \tag{36}$$

For individual stocks, substituting into (8),

In the limiting case as $N \to \infty$,

$$dr_{NC} = (r_f + \gamma_{NC}\delta_{CW})dt + \gamma_{NC} dR_M. \tag{43}$$

A non-cap-weighted portfolio may be expected to show an "alpha" in a CAPM regression.

In the following embodiment, it may be shown that, in this economy, size and value exposure in a stock or portfolio can be used to predict future returns. Specifically, small size exposure and value exposure may lead to superior stock or portfolio returns, adjusting for "market" beta. By assumption, we may be in a one risk factor economy, and size and value may not be risk factors. The observed alpha in a CAPM regression may be driven purely by the return drag in the cap-weighted market portfolio.

Recalling from (40) that the individual stock return dynamics can be written as

$$dr_i = (r_f - \rho_i \tilde{U}_i + \gamma_i \rho \tilde{U}_{CW})dt + \gamma_i dR_M - \gamma_i \sigma_{CW} dW_{CW} + \sigma_{ri} dW_{ri}. \tag{44}$$

Examining equation (44), it may be seen that a larger stock would on average have a negative drift term in excess of the risk free r_f. It may be straightforward to show that a larger stock, denoted by $p_i > \bar{p}$, where $\bar{p}$ denote the capitalization of the average company, will have a greater chance of receiving a positive pricing error $\tilde{U}$ in the last period and therefore be more likely to underperform going forward as the positive pricing error reverts to zero.

More formally, since $\tilde{U}_i$ is a mean zero random variable, $E[\tilde{U}_i | P_i > \bar{P}] > 0$ if the conditional probability $\Pr\{\tilde{U}_i > 0 | P_i > \bar{P}\} > \Pr\{\tilde{U}_i > 0\}$.

Using Bayes rule of conditional probability:

$$Pr\{\tilde{U}_i > 0 \mid P_i > \overline{P}\} = \frac{Pr\{P_i > \overline{P} \mid \tilde{U}_i > 0\} \cdot Pr\{\tilde{U}_i > 0\}}{Pr\{P_i > \overline{P}\}}. \quad (45)$$

$$Pr\{\tilde{U}_i > 0 \mid P_i > \overline{P}\} = \frac{Pr\{P_i > \overline{P} \mid \tilde{U}_i > 0\} \cdot Pr\{\tilde{U}_i > 0\}}{Pr\{P_i > \overline{P}\}} > Pr\{\tilde{U}_i > 0\}, \quad (47)$$

which completes the proof that $E[\tilde{U}_i|P_t>\overline{P}]>0$. This in turn may prove that size predicts next period return, $E[\int_t^{t+\Delta} dr_i|P_{i,t}>\overline{P}_t]<E[\int_t^{t+\Delta} dr_i]$.

Similarly, it may be shown that, under some fairly general and reasonable assumptions on the book value process, a growth stock (as defined by above average price-to-book ratio or

$$\frac{P_i}{\beta_i} > \frac{\overline{P}}{B})$$

may be more likely to have received a positive pricing error and therefore have a negative drift term in excess of the risk free r_f.

It may now be shown that

$$E\left[\tilde{U}_i \,\middle|\, \frac{P_i}{\beta_i} < \frac{\overline{P}}{B}\right] < 0$$

and

$$E\left[\tilde{U}_i \,\middle|\, \frac{P_i}{\beta_i} > \frac{\overline{P}}{B}\right] > 0.$$

Again, it is shown that

$$Pr\left\{\tilde{U}_i > 0 \,\middle|\, \frac{P_i}{\beta_i} > \frac{\overline{P}}{B}\right\} > Pr\{\tilde{U}_i > 0\}$$

to prove that

$$E\left[\tilde{U}_i \,\middle|\, \frac{P_i}{\beta_i} > \frac{\overline{P}}{B}\right] > 0.$$

First, Bayes rule gives:

$$Pr\{\tilde{U}_i > 0 \mid P_i > \overline{P}\} = \frac{Pr\left\{\frac{P_i}{\beta_i} > \frac{\overline{P}}{B} \,\middle|\, \tilde{U}_i > 0\right\} \cdot Pr\{\tilde{U}_i > 0\}}{Pr\left\{\frac{P_i}{\beta_i} > \frac{\overline{P}}{B}\right\}}. \quad (48)$$

The following would need to be shown:

It is clear that:

$$Pr\{P_i>\overline{P}|\tilde{U}_i>0\}>Pr\{P_i>\overline{P}\} \quad (46)$$

Substituting (46) into (45):

$$Pr\left\{\frac{P_i}{\beta_i} > \frac{\overline{P}}{B}\tilde{U}_i > 0\right\} > Pr\left\{\frac{P_i}{\beta_i} > \frac{\overline{P}}{B}\right\}. \quad (49)$$

A sufficient condition for this inequality to hold may be that the book value process B is not influenced by market mispricing $\tilde{U}_i$ as strongly as the price process P_i. More specifically, as long as the process for P_i/B_i has a drift term that is negative in $\tilde{U}_i$, the inequality may bear true.

Hence, in an embodiment, if the book values of companies are not subjected to the effects of mispricings in stock prices, then

$$E\left[\tilde{U}_i \,\middle|\, \frac{P_i}{\beta_i} > \frac{\overline{P}}{B}\right] > 0,$$

which indicates that price-to-book ratio can predict next period return,

$$E\left[\int_t^{t+\Delta} dr_i \,\middle|\, \frac{P_{i,t}}{\beta_{i,t}} > \frac{\overline{P}_t}{B_t}\right] < E\left[\int_t^{t+\Delta} dr_i\right].$$

The inequality in equation (49) can be extended to include more than just price-to-book ration but also price-to-dividend and price-to-earnings ratios. This further explains the empirical observations that low yielding stocks and high P/E stocks tend to underperform.

Since conditional expectation may be considered linearly additive, based on the above, in another embodiment it may be straight forwardly shown that any portfolio which has smaller weighted average cap than the "market" portfolio would have a positive excess drift and would show a positive CAPM alpha in a time series regression. Similarly, any portfolio which has a lower price-to-book ratio (lower P/E or higher yield) than the "market" portfolio, would have a positive excess drift and show a positive CAPM alpha.

Exemplary Computer System Embodiments

FIG. **6** depicts an exemplary computer system that may be used in implementing an exemplary embodiment of the present invention. Specifically, FIG. **6** depicts an exemplary embodiment of a computer system **600** that may be used in computing devices such as, e.g., but not limited to, a client and/or a server, etc., according to an exemplary embodiment of the present invention. FIG. **6** depicts an exemplary embodiment of a computer system that may be used as client device **600**, or a server device **600**, etc. The present invention (or any part(s) or function(s) thereof) may be implemented using hardware, software, firmware, or a combination thereof and may be implemented in one or more computer systems or

other processing systems. In fact, in one exemplary embodiment, the invention may be directed toward one or more computer systems capable of carrying out the functionality described herein. An example of a computer system **600** may be shown in FIG. **6**, depicting an exemplary embodiment of a block diagram of an exemplary computer system useful for implementing the present invention. Specifically, FIG. **6** illustrates an example computer **600**, which in an exemplary embodiment may be, e.g., (but not limited to) a personal computer (PC) system running an operating system such as, e.g., (but not limited to) MICROSOFT® WINDOWS® NT/98/2000/XP/CE/ME/VISTA, etc. available from MICROSOFT® Corporation of Redmond, Wash., U.S.A. However, the invention may not be limited to these platforms. Instead, the invention may be implemented on any appropriate computer system running any appropriate operating system. In one exemplary embodiment, the present invention may be implemented on a computer system operating as discussed herein. An exemplary computer system, computer **600** may be shown in FIG. **6**. Other components of the invention, such as, e.g., (but not limited to) a computing device, a communications device, mobile phone, a telephony device, a telephone, a personal digital assistant (PDA), a personal computer (PC), a handheld PC, an interactive television (iTV), a digital video recorder (DVD), client workstations, thin clients, thick clients, proxy servers, network communication servers, remote access devices, client computers, server computers, routers, web servers, data, media, audio, video, telephony or streaming technology servers, etc., may also be implemented using a computer such as that shown in FIG. **6**. Services may be provided on demand using, e.g., but not limited to, an interactive television (iTV), a video on demand system (VOD), and via a digital video recorder (DVR), or other on demand viewing system.

The computer system **600** may include one or more processors, such as, e.g., but not limited to, processor(s) **604**. The processor(s) **604** may be connected to a communication infrastructure **606** (e.g., but not limited to, a communications bus, cross-over bar, or network, etc.). Various exemplary software embodiments may be described in terms of this exemplary computer system. After reading this description, it may become apparent to a person skilled in the relevant art(s) how to implement the invention using other computer systems and/or architectures.

Computer system **600** may include a display interface **602** that may forward, e.g., but not limited to, graphics, text, and other data, etc., from the communication infrastructure **606** (or from a frame buffer, etc., not shown) for display on the display unit **630**.

The computer system **600** may also include, e.g., but may not be limited to, a main memory **608**, random access memory (RAM), and a secondary memory **610**, etc. The secondary memory **610** may include, for example, (but not limited to) a hard disk drive **612** and/or a removable storage drive **614**, representing a floppy diskette drive, a magnetic tape drive, an optical disk drive, a compact disk drive CD-ROM, etc. The removable storage drive **614** may, e.g., but not limited to, read from and/or write to a removable storage unit **618** in a well known manner. Removable storage unit **618**, also called a program storage device or a computer program product, may represent, e.g., but not limited to, a floppy disk, magnetic tape, optical disk, compact disk, etc. which may be read from and written to by removable storage drive **614**. As may be appreciated, the removable storage unit **618** may include a computer usable storage medium having stored therein computer software and/or data. In some embodiments, a "machine-accessible medium" may refer to any storage device used for storing data accessible by a computer. Examples of a machine-accessible medium may include, e.g., but not limited to: a magnetic hard disk; a floppy disk; an optical disk, like a compact disk read-only memory (CD-ROM) or a digital versatile disk (DVD); a magnetic tape; and/or a memory chip, etc.

In alternative exemplary embodiments, secondary memory **610** may include other similar devices for allowing computer programs or other instructions to be loaded into computer system **600**. Such devices may include, for example, a removable storage unit **622** and an interface **620**. Examples of such may include a program cartridge and cartridge interface (such as, e.g., but not limited to, those found in video game devices), a removable memory chip (such as, e.g., but not limited to, an erasable programmable read only memory (EPROM), or programmable read only memory (PROM) and associated socket, and other removable storage units **622** and interfaces **620**, which may allow software and data to be transferred from the removable storage unit **622** to computer system **600**.

Computer **600** may also include an input device **616** such as, e.g., (but not limited to) a mouse or other pointing device such as a digitizer, and a keyboard or other data entry device (not shown).

Computer **600** may also include output devices, such as, e.g., (but not limited to) display **630**, and display interface **602**. Computer **600** may include input/output (I/O) devices such as, e.g., (but not limited to) communications interface **624**, cable **628** and communications path **626**, etc. These devices may include, e.g., but not limited to, a network interface card, and modems (neither are labeled). Communications interface **624** may allow software and data to be transferred between computer system **600** and external devices.

In this document, the terms "computer program medium" and "computer readable medium" may be used to generally refer to media such as, e.g., but not limited to removable storage drive **614**, a hard disk installed in hard disk drive **612**, and signals **628**, etc. These computer program products may provide software to computer system **600**. The invention may be directed to such computer program products.

References to "one embodiment," "an embodiment," "example embodiment," "various embodiments," etc., may indicate that the embodiment(s) of the invention so described may include a particular feature, structure, or characteristic, but not every embodiment necessarily includes the particular feature, structure, or characteristic. Further, repeated use of the phrase "in one embodiment," or "in an exemplary embodiment," do not necessarily refer to the same embodiment, although they may.

In the following description and claims, the terms "coupled" and "connected," along with their derivatives, may be used. It should be understood that these terms may be not intended as synonyms for each other. Rather, in particular embodiments, "connected" may be used to indicate that two or more elements are in direct physical or electrical contact with each other. "Coupled" may mean that two or more elements are in direct physical or electrical contact. However, "coupled" may also mean that two or more elements are not in direct contact with each other, but yet still co-operate or interact with each other.

An algorithm may be here, and generally, considered to be a self-consistent sequence of acts or operations leading to a desired result. These include physical manipulations of physical quantities. Usually, though not necessarily, these quantities take the form of electrical or magnetic signals capable of being stored, transferred, combined, compared, and otherwise manipulated. It has proven convenient at times, principally for reasons of common usage, to refer to these

signals as bits, values, elements, symbols, characters, terms, numbers or the like. It should be understood, however, that all of these and similar terms are to be associated with the appropriate physical quantities and are merely convenient labels applied to these quantities.

Unless specifically stated otherwise, as apparent from the following discussions, it may be appreciated that throughout the specification discussions utilizing terms such as "processing," "computing," "calculating," "determining," or the like, refer to the action and/or processes of a computer or computing system, or similar electronic computing device, that manipulate and/or transform data represented as physical, such as electronic, quantities within the computing system's registers and/or memories into other data similarly represented as physical quantities within the computing system's memories, registers or other such information storage, transmission or display devices.

In a similar manner, the term "processor" may refer to any device or portion of a device that processes electronic data from registers and/or memory to transform that electronic data into other electronic data that may be stored in registers and/or memory. A "computing platform" may comprise one or more processors.

Embodiments of the present invention may include apparatuses for performing the operations herein. An apparatus may be specially constructed for the desired purposes, or it may comprise a general purpose device selectively activated or reconfigured by a program stored in the device.

In yet another exemplary embodiment, the invention may be implemented using a combination of any of, e.g., but not limited to, hardware, firmware and software, etc.

In one or more embodiments, the present embodiments are embodied in machine-executable instructions. The instructions can be used to cause a processing device, for example a general-purpose or special-purpose processor, which is programmed with the instructions, to perform the steps of the present invention. Alternatively, the steps of the present invention can be performed by specific hardware components that contain hardwired logic for performing the steps, or by any combination of programmed computer components and custom hardware components. For example, the present invention can be provided as a computer program product, as outlined above. In this environment, the embodiments can include a machine-readable medium having instructions stored on it. The instructions can be used to program any processor or processors (or other electronic devices) to perform a process or method according to the present exemplary embodiments. In addition, the present invention can also be downloaded and stored on a computer program product. Here, the program can be transferred from a remote computer (e.g., a server) to a requesting computer (e.g., a client) by way of data signals embodied in a carrier wave or other propagation medium via a communication link (e.g., a modem or network connection) and ultimately such signals may be stored on the computer systems for subsequent execution).

Exemplary Communications Embodiments

In one or more embodiments, the present embodiments are practiced in the environment of a computer network or networks. The network can include a private network, or a public network (for example the Internet, as described below), or a combination of both. The network includes hardware, software, or a combination of both.

From a telecommunications-oriented view, the network can be described as a set of hardware nodes interconnected by a communications facility, with one or more processes (hardware, software, or a combination thereof) functioning at each such node. The processes can inter-communicate and exchange information with one another via communication pathways between them called interprocess communication pathways.

On these pathways, appropriate communications protocols are used. The distinction between hardware and software may not be easily defined, with the same or similar functions capable of being preformed with use of either, or alternatives.

An exemplary computer and/or telecommunications network environment in accordance with the present embodiments may include node, which include may hardware, software, or a combination of hardware and software. The nodes may be interconnected via a communications network. Each node may include one or more processes, executable by processors incorporated into the nodes. A single process may be run by multiple processors, or multiple processes may be run by a single processor, for example. Additionally, each of the nodes may provide an interface point between network and the outside world, and may incorporate a collection of subnetworks.

As used herein, "software" processes may include, for example, software and/or hardware entities that perform work over time, such as tasks, threads, and intelligent agents. Also, each process may refer to multiple processes, for carrying out instructions in sequence or in parallel, continuously or intermittently.

In an exemplary embodiment, the processes may communicate with one another through interprocess communication pathways (not labeled) supporting communication through any communications protocol. The pathways may function in sequence or in parallel, continuously or intermittently. The pathways can use any of the communications standards, protocols or technologies, described herein with respect to a communications network, in addition to standard parallel instruction sets used by many computers.

The nodes may include any entities capable of performing processing functions. Examples of such nodes that can be used with the embodiments include computers (such as personal computers, workstations, servers, or mainframes), handheld wireless devices and wireline devices (such as personal digital assistants (PDAs), modem cell phones with processing capability, wireless e-mail devices including BlackBerry™ devices), document processing devices (such as scanners, printers, facsimile machines, or multifunction document machines), or complex entities (such as local-area networks or wide area networks) to which are connected a collection of processors, as described. For example, in the context of the present invention, a node itself can be a wide-area network (WAN), a local-area network (LAN), a private network (such as a Virtual Private Network (VPN)), or collection of networks.

Communications between the nodes may be made possible by a communications network. A node may be connected either continuously or intermittently with communications network. As an example, in the context of the present invention, a communications network can be a digital communications infrastructure providing adequate bandwidth and information security.

The communications network can include wireline communications capability, wireless communications capability, or a combination of both, at any frequencies, using any type of standard, protocol or technology. In addition, in the present embodiments, the communications network can be a private network (for example, a VPN) or a public network (for example, the Internet).

A non-inclusive list of exemplary wireless protocols and technologies used by a communications network may include BlueTooth™, general packet radio service (GPRS), cellular

digital packet data (CDPD), mobile solutions platform (MSP), multimedia messaging (MMS), wireless application protocol (WAP), code division multiple access (CDMA), short message service (SMS), wireless markup language (WML), handheld device markup language (HDML), binary runtime environment for wireless (BREW), radio access network (RAN), and packet switched core networks (PS-CN). Also included are various generation wireless technologies. An exemplary non-inclusive list of primarily wireline protocols and technologies used by a communications network includes asynchronous transfer mode (ATM), enhanced interior gateway routing protocol (EIGRP), frame relay (FR), high-level data link control (HDLC), Internet control message protocol (ICMP), interior gateway routing protocol (IGRP), internetwork packet exchange (IPX), ISDN, point-to-point protocol (PPP), transmission control protocol/internet protocol (TCP/IP), routing information protocol (RIP) and user datagram protocol (UDP). As skilled persons will recognize, any other known or anticipated wireless or wireline protocols and technologies can be used.

The embodiments may be employed across different generations of wireless devices. This includes 1G-5G according to present paradigms. 1G refers to the first generation wide area wireless (WWAN) communications systems, dated in the 1970s and 1980s. These devices are analog, designed for voice transfer and circuit-switched, and include AMPS, NMT and TACS. 2G refers to second generation communications, dated in the 1990s, characterized as digital, capable of voice and data transfer, and include HSCSD, GSM, CDMA IS-95-A and D-AMPS (TDMA/IS-136). 2.5G refers to the generation of communications between 2G and 3 G. 3G refers to third generation communications systems recently coming into existence, characterized, for example, by data rates of 144 Kbps to over 2 Mbps (high speed), being packet-switched, and permitting multimedia content, including GPRS, 1xRTT, EDGE, HDR, W-CDMA. 4G refers to fourth generation and provides an end-to-end IP solution where voice, data and streamed multimedia can be served to users on an "anytime, anywhere" basis at higher data rates than previous generations, and will likely include a fully IP-based and integration of systems and network of networks achieved after convergence of wired and wireless networks, including computer, consumer electronics and communications, for providing 100 Mbit/s and 1 Gbit/s communications, with end-to-end quality of service and high security, including providing services anytime, anywhere, at affordable cost and one billing. 5G refers to fifth generation and provides a complete version to enable the true World Wide Wireless Web (WWWW), i.e., either Semantic Web or Web 3.0, for example. Advanced technologies may include intelligent antenna, radio frequency agileness and flexible modulation are required to optimize ad-hoc wireless networks.

As noted, each node **102-108** includes one or more processes **112**, **114**, executable by processors **110** incorporated into the nodes. In a number of embodiments, the set of processes **112**, **114**, separately or individually, can represent entities in the real world, defined by the purpose for which the invention is used.

Furthermore, the processes and processors need not be located at the same physical locations. In other words, each processor can be executed at one or more geographically distant processor, over for example, a LAN or WAN connection. A great range of possibilities for practicing the embodiments may be employed, using different networking hardware and software configurations from the ones above mentioned.

FIG. **7** depicts an exemplary embodiment of a chart **700** graphing cumulative returns by date for exemplary high yield debt instrument metrics according to an exemplary embodiment. FIG. **8** depicts block diagram **800** of an exemplary system according to an exemplary embodiment. The system may include an entity database **802** that, according to an exemplary embodiment, may store aggregated accounting based data and/or other data, metrics, measures, parameters, technical parameters, characteristics and/or factors about a plurality of entities, obtained from an external data source **804**. Each database **802** entity may have at least one object type associated with the entity. The aggregated accounting based data may include, according to an exemplary embodiment, at least one non-market capitalization, non-price related objective measure of scale and/or size metric associated with each entity. The system may include an analysis host computer processing apparatus **102** coupled to the entity database **802**. The analysis host computer processing apparatus **102** may include a data retrieval and storage subsystem **806**, according to an exemplary embodiment, which may retrieve the aggregated accounting based data from the entity database and may store the aggregated accounting based data to the entity database **802**. The analysis host computer processing apparatus **102** may include, according to an exemplary embodiment, an index generation subsystem **808**, which may include, according to an exemplary embodiment, a selection subsystem **810** operative to select a group of the entities based on at least one non-market capitalization objective measure of scale or size metric including one or more technical parameters and/or metrics; a weighting function generation subsystem **812**, according to an exemplary embodiment, may be operative to generate a weighting function based on at least one non-market capitalization, non-price related objective measure of scale and/or size metric; an exemplary index creation subsystem **814**, according to an exemplary embodiment, may be operative to create a non-market capitalization non-price objective measure of scale and/or size index based on the group of selected entities and/or the weighting function; and/or a storing subsystem **816**, according to an exemplary embodiment, operative to store the non-market capitalization, non-price related objective measure of scale and/or size based index, and/or multi-dimensional array of data objects. The index or array of data objects may be stored on a storage device, in one exemplary embodiment.

According to one exemplary embodiment, the system **800** may further include a normalization calculation and/or computation subsystem **818**, operative to normalize entity object data to be stored in the entity database **802**.

According to another exemplary embodiment, the system **800** may further include a trading host computer system **104** which may include, according to an exemplary embodiment, an index retrieval subsystem **820** operative to retrieve and/or store an instance of the non-market capitalization, non-price related objective measure of scale and/or size based index, and/or multi-dimensional array of data objects from a storage device; a trading accounts management subsystem **822** operative to manage accounts data relating to a plurality of accounts including positions data, position owner data, and position size data, any data of which may be stored in trading accounts database **108**; and/or a purchasing subsystem **824** operative to purchase from an exchange host system **112** one or more positions for the position owner, according to the index and/or array of data objects.

Exemplary Process Control System

According to an exemplary embodiment, the system **800** may be used to compute using data objects input via an

input/output subsystem, a multi-dimensional array storing database system for storage of a multi-dimensional array computed via a multi-dimensional object array creation subsystem comprising a selection subsystem operative to select one or more objects based on one or more technical parameters, and a weighting subsystem operative to weight the selected one or more objects based on one or more technical parameters, wherein the technical parameters are chosen such that the technical parameters avoid influence of an undesirable predetermined technical criterion and/or criteria, so as to avoid influence of the undesirable predetermined technical criterion and/or criteria. As a result of elimination of the undesirable predetermined technical criterion and/or criteria, the multi-dimensional array selected and/or weighted to avoid influence of the undesirable predetermined technical criterion and/or criteria may as a result perform processing from negative effects from the undesirable predetermined technical criterion and/or criteria. An exemplary embodiment of the selection subsystem may be operative to select objects from a predetermined universe of objects to obtain a subset of the universe, where the selection is based on a technical parameter that is not influenced by the undesirable technical criterion and/or criteria. Following execution of the selection subsystem, according to an exemplary embodiment, an exemplary weighting subsystem may operative to weight the resulting selected objects by a weighted combination of two or more technical weighting criteria, which are not influenced by the undesirable technical criterion and/or criteria. The process may be used for such technical processes as may include, e.g. but are not limited to, industrial automation, production process automation, a manufacturing process, and/or a chemical processing system, among others as described elsewhere, herein.

According to one exemplary embodiment, the weighting subsystem may further compute an algorithmically computed summation of a plurality of weighting factors, the plurality of weighting factors including a first of the plurality of weighting factors, where the first includes a first given computational product of a first object value and a first technical parameter value associated with the first object value, and a second of the plurality of weighting factors, where the second includes a second given computational product of a second object value and a second technical parameter value associated with the second object value, and/or any additional of the plurality of weighting factors, where the any additional includes an additional given computational product of an additional object value and an additional technical parameter value associated with the additional object value.

FIG. **9** depicts an exemplary embodiment of a chart **900** graphing cumulative returns by date for exemplary emerging market debt instrument metrics according to an exemplary embodiment.

FIG. **10** depicts an exemplary embodiment of a chart **1000** graphing cumulative returns by date for exemplary emerging market debt instrument metrics illustrating growth of an exemplary investment, according to an exemplary embodiment.

FIG. **11** depicts an exemplary embodiment of a chart **1100** graphing a rolling 36-month value added composite exemplary emerging market debt instrument metrics vs. cap-weighted emerging market bonds, according to an exemplary embodiment.

While various embodiments of the present invention have been described above, it should be understood that they have been presented by way of example only, and not limitation. Thus, the breadth and scope of the present invention should not be limited by any of the above-described exemplary embodiments, but should instead be defined only in accordance with the following claims and their equivalents.

What is claimed is:

1. A computer-implemented method for constructing data indicative of a financial object index, the method comprising:

constructing, by at least one computer processor, data indicative of the financial object index comprising:

selecting, by the at least one computer processor, data indicative of constituent financial objects of the financial object index based upon at least one accounting data rather than price of said financial objects, said at least one accounting data regarding at least one entity relating to each of said financial objects, the at least one entity comprising at least one of a region, a country, a company, or a sovereign associated with said each of said financial objects; and

weighting, by the at least one computer processor, data indicative of said constituent financial objects based upon at least one accounting data rather than price of said financial objects, said at least one accounting data regarding the at least one entity, to obtain data indicative of constituent weightings for each of said constituent financial objects, and

storing, by the at least one computer processor, said data indicative of said constituent financial objects and said constituent weightings on at least one computer storage device,

wherein each of said financial objects comprises at least one instrument,

wherein each of said financial objects comprises at least one of:

a bond;
a fixed income debt instrument;
a debt instrument;
an emerging market debt instrument;
a high yield debt instrument;
a corporate debt instrument;
an investment grade debt instrument;
a debenture;
a bank loan;
a convertible bond;
a senior debt;
a subordinated debt;
a term loan;
a government debt instrument;
a government bond;
a corporate bond;
a high yield bond;
an emerging market bond;
a municipal bond debt instrument;
a treasury bond debt instrument;
a treasury bill debt instrument;
a mortgage based debt instrument;
a securitized debt instrument;
a security;
a stock;
a commodity;
a futures contract;
a mutual fund;
a hedge fund;
a fund of funds;
an exchange traded fund (ETF);
a derivative;
a negative weighting on any asset;
an asset account;
a separate account;
a pooled trust; or

a limited partnership; and wherein said at least one accounting data comprises at least one of:

at least one financial metric of the at least one entity associated with each of said constituent financial objects; or

at least one metric, level, rate, or expenditure amount from information disclosures of the at least one entity.

2. The computer-implemented method of claim **1**, wherein said weighting is not based on any of: equal weighting, weighting in proportion to share price, weighting in proportion to market capitalization, or weighting in proportion to free float.

3. The computer-implemented method of claim **1**, wherein the accounting data comprises data found within a database of information pertaining to at least one of: regions, sovereigns or countries.

4. The computer-implemented method of claim **1**, further comprising: basing the constituent weightings of the financial objects, wherein the financial objects comprise emerging market financial objects, upon at least one of: a ratio, a mathematical transformation, or a manipulation of the accounting data.

5. The computer-implemented method of claim **1**, further comprising constructing, by the at least one computer processor, data indicative of a financial object portfolio based on the financial object index, wherein the constituent weightings of the constituent financial objects within at least one of the financial object index or the financial object portfolio are altered as at least one of the at least one accounting data about the at least one entity in or outside the financial object index changes.

6. The computer-implemented method of claim **1**, wherein said weighting comprises: calculating said constituent weightings based upon said at least one accounting data.

7. The computer-implemented method of claim **1**, wherein said at least one accounting data, comprises at least one of: total assets, funds from operations (FFO), adjusted funds from operations (AFFO), sales, revenues, total dividend distributions, or ratios pertaining thereto.

8. The computer-implemented method of claim **1**, wherein the at least one accounting data, comprises data found within a generally accepted accounting principles (GAAP) company annual report and accounts (GAAP reports).

9. The computer-implemented method of claim **1**, wherein said weighting based on said at least one accounting data further comprises weighting based on at least one demographic data comprising at least one of:

country metrics including at least one of: economic metrics, area, population, unemployment rate, reserves, resource consumption, democracy index, corruption index, government debt, private debt, government expenditures, nominal interest rate, commercial paper yield, consumer price index (CPI), purchasing power, relation of purchasing power to nominal exchange rate and any deviations from historical trend, or country current account flow; wherein said economic metrics including at least one of: a gross domestic product (GDP), a gross national product (GNP), a gross net income (GNI), or a gross national debt (GND); or

industry metrics including at least one of: industry growth rate, total capital expenditures, inventories total—end of year, average industry dividends, supplemental labor costs, inventories finished products—end of year, new orders for manufactured goods, fuel costs, inventories work in process—end of year, shipments, electric energy used, inventories, materials, supplies, or fuels, —end of year, unfilled orders, inventories by stage of fabrication, value of manufacturers inventories by stage of fabrication—beginning of year, Inventories Number of production workers, inventories total—beginning of year, inventories-to-shipments ratio, payroll of production workers, inventories finished products—beginning of year, value of product shipments, hours of production workers, inventories work in process—beginning of year, statistics from department of commerce, industry associations, for industry groups and industries, cost of purchased fuels and electric energy, inventories, materials, supplies, fuels, —beginning of year, geographic area statistics, electric energy quantity purchased, value of shipments—total, annual survey of manufacturers (ASM), electric energy cost, value of shipments—products, employment, electric energy generated, value of shipments—total miscellaneous receipts, all employees payroll, electric energy sold or transferred, total miscellaneous receipts—value of resales, all employees hours, cost of purchased fuels, total miscellaneous receipts—contract receipts, all employees total, compensation, capital expenditure for plant or equipment total, other total miscellaneous receipts, all employees total fringe benefit costs, capital expenditure for plant or equipment—buildings or other structures, interplant transfers, total cost of materials, capital expenditure for plant and equipment—machinery or equipment total, costs of materials—total, payroll, capital expenditure for plant and equipment—autos, or trucks, for highway use, costs of materials—materials, parts, containers, packaging, value added by manufacture, capital expenditure for plant and equipment—computers, peripheral data processing equipment, costs of materials—resales, cost of materials consumed, capital expenditure for plant and equipment—all other expenditures, costs of materials—purchased fuels, value of shipments, value of manufacturers inventories by stage of fabrication—end of year, costs of materials—purchased electricity, costs of materials—contract work, industry cost of capital, or average industry dividend.

10. The computer-implemented method of claim **1**, wherein said financial objects are selected from a universe comprising at least one of:

a sector;

a market;

a market sector;

an industry sector;

a geographic sector;

an international sector;

a sub-industry sector;

a government issue; or

a tax exempt financial object;

agriculture, forestry, fishing or hunting industry sector;

mining industry sector;

utilities industry sector;

construction industry sector;

manufacturing industry sector;

wholesale trade industry sector;

retail trade industry sector;

transportation or warehousing industry sector;

information industry sector;

finance or insurance industry sector;

real estate and/or rental or leasing industry sector;

professional, scientific, or technical services industry sector;

management of companies and/or enterprises industry sector;

administrative or support or waste management or remediation services industry sector;

education services industry sector;
health care or social assistance industry sector;
arts, entertainment, or recreation industry sector;
accommodation or food services industry sector;
other services (except public administration) industry sector; or
public administration industry sector.

11. The computer-implemented method of claim **1**, wherein said at least one accounting data comprises at least one of:
dividends, if any;
sales;
revenue;
cash flow;
book value;
collateral;
assets;
distributions;
funds from operations;
adjusted funds from operations;
earnings;
income;
liquidity;
employees;
margin;
profit margin;
term structure;
interest rate;
seasonal factor;
a financial ratio of a company;
a ratio of accounting based data;
a ratio of accounting based data per share;
a ratio of a first accounting based data to a second accounting based data;
a liquidity ratio;
a working capital ratio;
a current ratio;
a quick ratio;
a cash ratio;
an asset turnover ratio;
a receivables turnover ratio;
an average collection period ratio;
an average collection period ratio;
an inventory turnover ratio;
an inventory period ratio;
a leverage ratio;
a debt ratio;
a debt-to-equity ratio;
an interest coverage ratio;
a profitability ratio;
a return on common equity (ROCE) ratio;
profit margin ratio;
an earnings per share (EPS) ratio;
a gross profit margin ratio;
a return on assets ratio;
a return on equity ratio;
a dividend policy ratio;
a dividend yield ratio;
a payout ratio;
a capital market analysis ratio;
a price to earnings (PE) ratio; or
a market to book ratio.

12. The computer-implemented method of claim **1**, further comprising performing negative weighting for purposes of at least one of establishing or measuring performance for at least one of:
any security;
a portfolio of assets;
a hedge fund; or
a long/short position.

13. The computer-implemented method of claim **1**, wherein said at least one accounting data comprises a measure of size of the at least one entity.

14. The computer-implemented method of claim **1**, wherein said at least one accounting data is not market capitalization.

15. The computer-implemented method of claim **14**, wherein each of said financial objects comprises a financial object type.

16. The computer-implemented method of claim **15**, wherein said financial object type comprises at least one of:
a municipal bond;
a corporate bond;
a sovereign bond;
a government bond;
a fixed income instrument;
a real estate fixed income instrument;
an investment grade bond;
a high yield bond;
an emerging market bond
a debt instrument; or
a bond from a geographic region; and
the at least one entity comprises at least one of:
a company;
a country;
a government;
a geographic region;
a market;
a municipality;
a municipality issuing bonds;
a sovereign;
a sovereign issuing bonds; or
a commodity provider.

17. The computer-implemented method of claim **1**, wherein said at least one accounting data, comprises at least one of:
revenue;
profitability;
sales;
total sales;
foreign sales,
domestic sales;
net sales;
gross sales;
profit margin;
operating margin;
earnings;
retained earnings;
earnings per share;
book value;
book value adjusted for inflation;
book value adjusted for replacement cost;
book value adjusted for liquidation value;
dividends;
assets;
tangible assets;
intangible assets;
fixed assets;
property;
plant;
equipment;

goodwill;
replacement value of assets;
liquidation value of assets;
liabilities;
long term liabilities;
short term liabilities;
net worth;
research and development expense;
accounts receivable;
earnings before interest and tax (EBIT);
earnings before interest, taxes, dividends, and amortization (EBITDA);
accounts payable;
cost of goods sold (CGS);
debt ratio;
budget;
capital budget;
cash budget;
direct labor budget;
factory overhead budget;
operating budget;
sales budget;
inventory system;
type of stock offered;
liquidity;
book income;
tax income;
capitalization of earnings;
capitalization of goodwill;
capitalization of interest;
capitalization of revenue;
capital spending;
cash;
compensation;
employee turnover;
overhead costs;
credit rating;
growth rate;
tax rate;
liquidation value of entity;
capitalization of cash;
capitalization of earnings;
capitalization of revenue;
cash flow; or
future value of expected cash flow.

18. The computer-implemented method of claim **1**, wherein said at least one accounting data comprises a ratio of any combination of two or more non-market capitalization objective measure of scale metrics.

19. The computer-implemented method of claim **18**, wherein said ratio of any combination of said objective measure of scale metrics comprise at least one of:
current ratio;
debt ratio;
overhead expense as a percent of sales; or
debt service burden ratio.

20. The computer-implemented method of claim **1**, wherein said weighting comprises weighting based on at least one demographic data, comprising at least one of:
a measure relating to employees;
a financial metric;
a non-financial metric;
a non-market related metric;
a number of employees;
floor space;
office space;
a geographic metric;
an area;
a geographic area;
a measure of inhabitants;
a population;
location; or
other demographics of a financial object.

21. The computer-implemented method of claim **1**, wherein said at least one accounting data comprises a metric relating to a geographic area.

22. The computer-implemented method of claim **21**, wherein said metric relating to said geographic area comprises a geographic metric comprising at least one of: an economic metric; a gross domestic product; or an other than gross domestic product (GDP) metric.

23. The computer-implemented method of claim **1**, further comprising: rebalancing a pre-selected group of said financial objects based on said financial object index.

24. The computer-implemented method of claim **23**, wherein said rebalancing is performed on a periodic basis.

25. The computer-implemented method of claim **23**, wherein said rebalancing is based upon a predetermined threshold.

26. The computer-implemented method of claim **25**, further comprising: applying one or more rules associated with said index.

27. The computer-implemented method of claim **1**, wherein at least one of said selecting or said weighting are used for at least one of:
investment management, or
investment portfolio benchmarking.

28. The computer-implemented method of claim **1**, further comprising performing enhanced index investing, comprising: constructing, by the at least one computer processor, data indicative of a financial object portfolio of financial objects based on said financial object index, comprising at least one of purchasing or selling financial objects in said financial object portfolio based on said financial object index, wherein said enhanced index investing is performed in a fashion wherein at least one of: holdings; performance; or characteristics, are substantially similar to an external index.

29. The computer-implemented method of claim **1**, further comprising:
wherein said selecting based on said at least one accounting data comprises:
selecting based on at least one demographic data regarding the at least one entity.

30. The computer-implemented method of claim **29**, wherein the method further comprises:
wherein said at least one demographic data comprises at least one of:
a demographic measure,
a population level,
an area,
a geographic area,
an economic factor,
a gross domestic product (GDP),
GDP growth,
a natural resource characteristic,
an energy metric,
a petroleum characteristic,
a resource consumption metric,
a petroleum consumption amount,
a liquid natural gas (LNG) characteristic,
a liquefied petroleum gas (LPG) characteristic,
an expenditures characteristic,
gross national income (GNI),
a debt characteristic,

a rate of inflation,
a rate of unemployment,
a reserves level,
a population characteristic,
a corruption characteristic,
a democracy characteristic,
a social metric,
a political metric,
a per capita ratio of any of the foregoing;
a derivative of any foregoing; or
a ratio of any two or more of the foregoing.

31. The computer-implemented method of claim **1**, further comprising:

wherein said weighting based on said at least one accounting data comprises:

weighting based on at least one demographic data regarding the at least one entity.

32. The computer-implemented method of claim **31**, further comprising:

wherein said at least one demographic data comprises at least one of:

a demographic measure,
a population level,
an area,
a geographic area,
an economic factor,
a gross domestic product (GDP),
GDP growth,
a natural resource characteristic,
an energy metric,
a petroleum characteristic,
a resource consumption metric,
a petroleum consumption amount,
a liquid natural gas (LNG) characteristic,
a liquefied petroleum gas (LPG) characteristic,
an expenditures characteristic,
gross national income (GNI),
a debt characteristic,
a rate of inflation,
a rate of unemployment,
a reserves level,
a population characteristic,
a corruption characteristic,
a democracy characteristic,
a social metric,
a political metric,
a per capita ratio of any of the foregoing;
a derivative of any foregoing; or
a ratio of any two or more of the foregoing.

33. The computer-implemented method according to claim **1**, wherein the method is executed on a data processing system, the method further comprising:

wherein said constructing comprises:

creating an accounting data based index (ADBI) based on accounting data comprising wherein said selecting further comprises:

selecting a universe of financial objects,

selecting a subset of said financial objects of said universe based on at least one accounting data, and

weighting said subset of said universe according to at least one accounting data to obtain the ADBI; and

creating a portfolio of financial objects using the ADBI, including said subset of selected and weighted financial objects.

34. The computer-implemented method according to claim **33**, wherein said universe comprises at least one of:

a sector;
a market;
a market sector;
an industry sector;
a geographic sector;
an international sector;
a sub-industry sector;
a government issue; or
a tax exempt financial object;
agriculture, forestry, fishing or hunting industry sector;
mining industry sector;
utilities industry sector;
construction industry sector;
manufacturing industry sector;
wholesale trade industry sector;
retail trade industry sector;
transportation or warehousing industry sector;
information industry sector;
finance or insurance industry sector;
real estate or rental or leasing industry sector;
professional, scientific, or technical services industry sector;
management of companies or enterprises industry sector;
administrative or support or waste management or remediation services industry sector;
education services industry sector;
health care or social assistance industry sector;
arts, entertainment, or recreation industry sector;
accommodation or food services industry sector;
other services (except public administration) industry sector; or
public administration industry sector.

35. The computer-implemented method according to claim **33**, wherein said accounting based data used in weighting as a measure of value of the at least one entity associated with each of the financial objects, comprises at least one of:

dividends, if any;
revenue;
cash flow;
book value;
collateral;
assets;
distributions;
funds from operations;
adjusted funds from operations;
earnings;
income;
liquidity;
country metrics including at least one of: economic metrics, area, population, unemployment rate, reserves, resource consumption, democracy index, corruption index, government debt, private debt, government expenditures, nominal interest rate, commercial paper yield, consumer price index (CPI), purchasing power, relation of purchasing power to nominal exchange rate and any deviations from historical trend, or country current account flow;
said economic metrics including at least one of: a gross domestic product (GDP), a gross national product (GNP), a gross net income (GNI), or a gross national debt (GND);
industry metrics including at least one of: industry growth rate, total capital expenditures, inventories total—end of year, average industry dividends, supplemental labor costs, inventories finished products—end of year, new orders for manufactured goods, fuel costs, inventories work in process—end of year, shipments, electric energy used, inventories, materials, supplies, or fuels, —

end of year, unfilled orders, inventories by stage of fabrication, value of manufacturers inventories by stage of fabrication—beginning of year, Inventories Number of production workers, inventories total—beginning of year, inventories-to-shipments ratio, payroll of production workers, inventories finished products—beginning of year, value of product shipments, hours of production workers, inventories work in process—beginning of year, statistics from department of commerce, industry associations, for industry groups and industries, cost of purchased fuels and electric energy, inventories, materials, supplies, fuels, —beginning of year, geographic area statistics, electric energy quantity purchased, value of shipments—total, annual survey of manufacturers (ASM), electric energy cost, value of shipments—products, employment, electric energy generated, value of shipments—total miscellaneous receipts, all employees payroll, electric energy sold or transferred, total miscellaneous receipts—value of resales, all employees hours, cost of purchased fuels, total miscellaneous receipts—contract receipts, all employees total, compensation, capital expenditure for plant or equipment total, other total miscellaneous receipts, all employees total fringe benefit costs, capital expenditure for plant or equipment—buildings or other structures, interplant transfers, total cost of materials, capital expenditure for plant and equipment—machinery or equipment total, costs of materials—total, payroll, capital expenditure for plant and equipment—autos, or trucks, for highway use, costs of materials—materials, parts, containers, packaging, value added by manufacture, capital expenditure for plant and equipment—computers, peripheral data processing equipment, costs of materials—resales, cost of materials consumed, capital expenditure for plant and equipment—all other expenditures, costs of materials—purchased fuels, value of shipments, value of manufacturers inventories by stage of fabrication—end of year, costs of materials—purchased electricity, costs of materials—contract work, industry cost of capital, or average industry dividend;

employees;

margin;

profit margin;

term structure;

interest rate;

seasonal factor;

a financial ratio of a company;

a ratio of accounting based data;

a ratio of accounting based data per share;

a ratio of a first accounting based data to a second accounting based data;

a liquidity ratio;

a working capital ratio;

a current ratio;

a quick ratio;

a cash ratio;

an asset turnover ratio;

a receivables turnover ratio;

an average collection period ratio;

an average collection period ratio;

an inventory turnover ratio;

an inventory period ratio;

a leverage ratio;

a debt ratio;

a debt-to-equity ratio;

an interest coverage ratio;

a profitability ratio;

a return on common equity (ROCE) ratio;

profit margin ratio;

an earnings per share (EPS) ratio;

a gross profit margin ratio;

a return on assets ratio;

a return on equity ratio;

a dividend policy ratio;

a dividend yield ratio;

a payout ratio;

a capital market analysis ratio;

a price to earnings (PE) ratio; or

a market to book ratio.

36. The computer-implemented method according to claim **35**, wherein said accounting based data are weighted relatively dependent on the geography of the at least one entity associated with each of the financial objects.

37. The computer-implemented method of claim **33**, wherein each of said financial objects comprises:

at least one unit of interest in at least one of:

an asset;

a liability;

a tracking portfolio;

a financial instrument or a security, wherein said financial instrument or said security denotes a debt, an equity interest, or a hybrid;

a derivatives contract, including at least one of:

a future, a forward, a put, a call, an option, a swap, or any other transaction relating to a fluctuation of an underlying asset, notwithstanding the prevailing value of the contract, and notwithstanding whether such contract, for purposes of accounting, is considered an asset or liability;

a commodity;

a financial position;

a currency position;

a trust, a real estate investment trust (REIT), a real estate operating company (REOC), or a portfolio of trusts;

a debt instrument comprising at least one of: a bond, a debenture, a subordinated debenture, a mortgage bond, a collateral trust bond, a convertible bond, an income bond, a guaranteed bond, a serial bond, a deep discount bond, a zero coupon bond, a variable rate bond, a deferred interest bond, a commercial paper, a government security, a certificate of deposit, a Eurobond, a corporate bond, a government bond, a municipal bond, a treasury-bill, a treasury bond, a foreign bond, an emerging market bond, a high yield bond, a developed market bond, a junk bond, a collateralized instrument, an exchange traded note (ETN), or other agreements between a borrower and a lender;

a fund; or

an investment entity or account of any kind, including an interest in, or rights relating to:

a hedge fund, an exchange traded fund (ETF), a fund of funds, a mutual fund, a closed end fund, an investment vehicle, or any other pooled or separately managed investments.

38. The computer-implemented method of claim **1**, wherein said financial objects comprise at least one of:

a high-yield debt instruments index; or

a portfolio of high-yield debt instruments based on the high yield debt instruments index, the method further comprising:

selecting constituent high-yield debt instruments of said high-yield debt instruments index based upon at least one metric regarding the entities associated with said high-yield debt instruments,

wherein said at least one metric comprises at least one of sales, book value, cash flow, dividends if any, collateral, a composite of the other metrics, or ratios pertaining thereto; and

weighting said constituent high-yield debt instruments based upon at least one metric regarding the size of the entities associated with said high-yield debt instruments to obtain constituent weightings for each respective constituent high-yield debt instrument,

wherein said at least one metric comprises at least one of sales, book value, cash flow, dividends if any, collateral, a composite of the other metrics, or ratios pertaining thereto.

39. The computer-implemented method of claim **38**, wherein said at least one metric comprises data found within a generally accepted accounting principles (GAAP) company annual report and accounts (GAAP reports).

40. The computer-implemented method of claim **38**, further comprising basing the constituent weightings of the high-yield debt instruments upon at least one of a ratio or a manipulation of the accounting data.

41. The computer-implemented method of claim **40**, wherein the basing the constituent weightings upon at least one of a ratio or a manipulation of the accounting data comprises basing the constituent weightings on at least one of: a relative size of the return on assets of said selected companies, the return on investment thereof, or the return on capital thereof compared to the cost of capital thereof, wherein said return is determined based on cash flow.

42. The computer-implemented method of claim **38**, wherein the constituent weightings of the high-yield debt instruments within the high-yield debt instruments index or high yield debt instruments fund are altered as at least one of: the accounting data concerning the entities in or outside the index changes; or the constituents change.

43. The computer-implemented method of claim **42**, wherein the constituent weightings of the high-yield debt instruments within the fund are altered when at least one of: one or more of said entities report their at least one of: monthly, quarterly, biannually, or annual accounting information; or at a pre-determined time after which the majority of said entities in the index have reported their at least one of: monthly, quarterly, biannually, or annual accounting data.

44. The computer-implemented method of claim **38**, wherein said weighting comprises calculating said constituent weightings based upon said at least one accounting data.

45. The computer-implemented method of claim **44**, wherein said calculating is performed by an index construction manager device.

46. The computer-implemented method of claim **1**, wherein said weighting comprises:

determining, by the at least one computer processor, a proportional fundamental index weight for each of said index constituent financial objects based on at least one objective measure of scale associated with said entities or said financial objects;

wherein said at least one objective measure of scale comprises a financial metric associated with one of said entities or said financial objects other than the market capitalization of said entities or the price of said financial objects;

wherein said financial metric comprises at least one of: book value; sales; cash flow; or any dividends; and

managing, by the at least one computer processor, a portfolio of financial objects based on said index of financial objects, wherein said managing comprises at least one of:

adjusting, by the at least one computer processor, the financial objects that comprise said portfolio based on changes to the at least one objective measure of scale used to weight the plurality of financial objects used to construct the index of financial objects;

adjusting, by the at least one computer processor, the relative weightings of the financial objects that comprise said portfolio based on changes to the at least one objective measure of scale used to weight the plurality of financial objects used to construct the index of financial objects;

rebalancing, by the at least one computer processor, the relative weightings of the financial objects that comprise said portfolio when the weighting of one or more of said financial objects at least one of: exceeds a threshold value, or deviates from a target weight; or

rebalancing the relative weightings of the financial objects that comprise said portfolio to minimize turnover of said financial objects.

47. The computer-implemented method of claim **1**, wherein said weighting comprises:

determining, by the at least one computer processor, a proportional fundamental index weight for each of said index constituent financial objects based on at least one objective measure of scale associated with said entities or said financial objects;

wherein said at least one objective measure of scale comprises a financial metric associated with one of said entities or said financial objects other than the market capitalization of said entities or the price of said financial objects;

wherein said financial metric comprises at least one of: book value; sales; cash flow; or any dividends;

wherein said weighting comprises:

weighting, by the at least one computer processor, by a mathematical combination of a plurality of financial metric data for a given financial object of a given entity, said plurality of financial metric data of said given financial object of said given entity, comprising at least one:

a plurality of time periods;

a plurality of years;

a plurality of quarters;

a plurality of months; or

a plurality of accounting periods; and

wherein said mathematical combination of said plurality of financial metric data for said given financial object of said given entity, comprises at least one of:

calculating, by the at least one computer processor, a mathematical average of said plurality of financial metric data of said given financial object of said given entity;

calculating, by the at least one computer processor, a mathematical weighted average of said plurality of financial metric data of said given financial object of said given entity;

calculating, by the at least one computer processor, a statistical mean of said plurality of financial metric data of said given financial object of said given entity;

calculating, by the at least one computer processor, a statistical median of said plurality of financial metric data of said given financial object of said given entity; or

calculating, by the at least one computer processor, a midpoint of said plurality of financial metric data of said given financial object of said given entity.

48. The computer-implemented method of claim 1, further comprising:

receiving a plurality of historical data of a plurality of financial metrics of a plurality of financial objects, said plurality of financial objects comprising publicly traded entities; and

wherein said weighting comprises:

weighting, by the at least one computer processor, a plurality of index constituent financial objects, each of said plurality of index constituent financial objects associated with at least one entity, and

wherein said weighting comprises:

determining, by the at least one computer processor, a proportional fundamental index weight for each of said index constituent financial objects based on at least one objective measure of scale associated with said entities or said financial objects;

wherein said at least one objective measure of scale comprises at least one of:

at least one financial metric associated with one of said entities or said financial objects;

at least one demographic measure of one of said entities or said financial objects; or

at least one metric from information disclosures of a publicly traded entity; and

wherein said at least one objective measure of scale comprises a metric other than the market capitalization of said entities or the price of said financial objects; and

weighting, by the at least one computer processor, by a mathematical combination of a plurality of data for said at least one objective measure of scale of a given financial object of a given entity, said plurality of data for said at least one objective measure of scale of said given financial object of said given entity, comprising at least one:

a plurality of time periods;

a plurality of years;

a plurality of quarters;

a plurality of months; or

a plurality of accounting periods; and

wherein said mathematical combination of said plurality data for said given financial object of said given entity, comprises at least one of:

calculating, by the at least one computer processor, a mathematical average of said plurality of data for said given financial object of said given entity;

calculating, by the at least one computer processor, a mathematical weighted average of said plurality of financial metric data of said given financial object of said given entity;

calculating, by the at least one computer processor, a statistical mean of said plurality of financial metric data of said given financial object of said given entity;

calculating, by the at least one computer processor, a statistical median of said plurality of financial metric data of said given financial object of said given entity; or

calculating, by the at least one computer processor, a midpoint of said plurality of financial metric data of said given financial object of said given entity.

49. The computer-implemented method of claim 48, further comprising:

normalizing, by the at least one computer processor, data over a plurality of time periods.

50. The computer-implemented method of claim 48, further comprising:

rebalancing, by the at least one computer processor, said index on a periodic basis.

51. The computer-implemented method of claim 50, wherein said rebalancing said index on a periodic basis comprises at least one of:

rebalancing, by the at least one computer processor, on a yearly basis;

rebalancing, by the at least one computer processor, on a quarterly basis;

rebalancing, by the at least one computer processor, on a half year basis; or

rebalancing, by the at least one computer processor, on a multiple year basis.

52. The computer-implemented method of claim 48, further comprising:

recalculating, by the at least one computer processor, said index on a periodic basis.

53. The computer-implemented method of claim 52, wherein said recalculating said index on said periodic basis comprises at least one of:

recalculating, by the at least one computer processor, on a yearly basis;

recalculating, by the at least one computer processor, on a quarterly basis;

recalculating, by the at least one computer processor, on a half year basis; or

recalculating, by the at least one computer processor, on a multiple year basis.

54. The computer-implemented method of claim 48, further comprising:

adjusting, by the at least one computer processor, said index based on changes over time.

55. The computer-implemented method of claim 54, wherein said adjusting said index based on said changes comprises at least one of:

adjusting, by the at least one computer processor, said index upon a change in financial market status of an index constituent;

adjusting, by the at least one computer processor, said index upon an index constituent going bankrupt;

adjusting, by the at least one computer processor, said index upon an index constituent stock split;

adjusting, by the at least one computer processor, said index upon an index constituent modifying at least one class of stock;

adjusting, by the at least one computer processor, said index upon a price shift of an index constituent; or

adjusting, by the at least one computer processor, said index upon a delisting of an index constituent.

56. The computer-implemented method of claim 48, further comprising:

adjusting, by the at least one computer processor, said index based on missing data.

57. The computer-implemented method of claim 56, wherein said adjusting said index based on missing data comprises:

adjusting, by the at least one computer processor, said index if a plurality of metrics are being used, and for a given entity or financial object one of said plurality of metrics is missing.

58. The computer-implemented method of claim 57, wherein said adjusting said index based on missing data comprises:

averaging said remaining plurality of metrics, leaving out said missing metric.

59. The computer-implemented method of claim 1, further comprising:

receiving a plurality of historical data of a plurality of financial metrics of a plurality of financial objects, said plurality of financial objects each relating to an entity; and

wherein said weighting comprises:

weighting, by the at least one computer processor, a plurality of index constituent financial objects, each of said plurality of index constituent financial objects associated with an entity, and

wherein said weighting comprises:

determining, by the at least one computer processor, a proportional fundamental index weight for each of said index constituent financial objects based on at least one objective measure of scale associated with said entities or said financial objects;

wherein said at least one objective measure of scale comprises at least one of:

at least one financial metric associated with at least one of said entities or said financial objects;

at least one demographic measure of at least one of said entities or said financial objects; or

at least one metric from information disclosures of a publicly traded entity; and

wherein said at least one objective measure of scale comprises a metric other than the market capitalization of said entities or the price of said financial objects; and

weighting, by the at least one computer processor, by a mathematical combination of a plurality of data for said at least one objective measure of scale of a given financial object of a given entity, said plurality of data for said at least one objective measure of scale of said given financial object of said given entity, comprising at least one of:

a plurality of time periods;

a plurality of years;

a plurality of quarters;

a plurality of months; or

a plurality of accounting periods; and

wherein said mathematical combination of said plurality data for said given financial object of said given entity, comprises at least one of:

calculating, by the at least one computer processor, a mathematical average of said plurality of data for said given financial object of said given entity;

calculating, by the at least one computer processor, a mathematical weighted average of said plurality of financial metric data of said given financial object of said given entity;

calculating, by the at least one computer processor, a statistical mean of said plurality of financial metric data of said given financial object of said given entity;

calculating, by the at least one computer processor, a statistical median of said plurality of financial metric data of said given financial object of said given entity; or

calculating, by the at least one computer processor, a midpoint of said plurality of financial metric data of said given financial object of said given entity.

60. The computer-implemented method of claim 59, wherein said calculating said mathematical combination comprises reducing risk.

61. The computer-implemented method of claim 59, wherein said objective measure of scale comprises at least one of:

book value;

sales;

revenue;

profit;

earnings;

cash flow;

cash earnings; or

a fundamental accounting variable.

62. The computer-implemented method of claim 1, further comprising:

receiving fundamental accounting data about a plurality of entities, over a plurality of time periods, each of said entities associated with one of said financial objects;

receiving a plurality of index constituents;

wherein said weighting comprises:

weighting said plurality of said index constituents according to at least one financial metric of said fundamental accounting data, each of said at least one financial metrics having data for said plurality of time periods from said fundamental accounting data to obtain relative weightings, and wherein said weighting comprises:

averaging said fundamental accounting data over said plurality of said time periods for said each of said at least one financial metrics; and

weighting said index constituents using at least one economic-centric metric about said entities rather than a market-centric metric to obtain an economic-centric index,

wherein said at least one economic-centric metric comprises a metric comprising at least one of:

at least one economic size metric;

at least one economic impact metric; or

at least one economic footprint metric;

providing said economic-centric index to a third party, wherein said third party manages, by at least one computer processor, a portfolio of financial objects based on said index of financial objects, wherein said third party manages, comprising at least one of:

adjusts, by the at least one computer processor, the financial objects that comprise said portfolio based on changes to said one or more financial metrics used to weight the plurality of financial objects used to construct the economy-centric index of financial objects;

adjusts, by the at least one computer processor, the relative weightings of the financial objects that comprise said portfolio based on changes to the at least one objective measure of scale used to weight the plurality of financial objects used to construct the economy-centric index of financial objects;

rebalances, by the at least one computer processor, the relative weightings of the financial objects that comprise said portfolio when the weighting of one or more of said financial objects at least one of: exceeds a threshold value, or deviates from a target weight; or rebalances, by the at least one computer processor, the relative weightings of the financial objects that comprise said portfolio to minimize turnover of said financial objects.

63. The computer-implemented method according to claim 62, wherein said weighting comprises:

weighting based on a plurality of said economic-centric metrics.

64. The computer-implemented method according to claim 63, wherein said weighting based on said plurality of economic-centric metrics comprises:

weighting based on at least one of:

book value;

book value of operating assets;

sales;
revenue;
profit;
earnings;
cash flow;
cash earnings;
cash flow from operations; or
a fundamental accounting variable.

65. The computer-implemented method according to claim **63**, wherein said weighting based on said plurality of economic-centric metrics comprises:
weighting based on metrics comprising:
book value;
sales; and
cash flow.

66. The computer-implemented method according to claim **62**, wherein said third party further manages comprising:
rebalances on a periodic time basis; or
rebalances on a periodic accounting period basis.

67. The computer-implemented method according to claim **1**, further comprising:
receiving fundamental accounting data about a plurality of entities, over a plurality of accounting periods, each of said entities associated with one of said financial objects;
receiving a plurality of index constituents;
wherein said weighting comprises:
weighting said plurality of said index constituents according to one or more financial metrics of said fundamental accounting data, each of said one or more financial metrics having data for said plurality of accounting periods from said fundamental accounting data to obtain relative weightings, and wherein said weighting comprises:
averaging said fundamental accounting data over said plurality of said accounting periods for said each of said one or more financial metrics; and
weighting said index constituents using at least one economic-centric metric about said entities rather than market-centric metric to obtain an economic-centric index,
wherein said at least one economic-centric metric comprises a metric comprising at least one of:
at least one economic size metric;
at least one economic impact metric; or
at least one economic footprint metric;
providing said economic-centric index to a third party, wherein said third party manages, by at least one computer processor, a portfolio of financial objects based on said index of financial objects, wherein said third party manages, comprising at least one of:
adjusts, by the at least one computer processor, the financial objects that comprise said portfolio based on changes to said one or more financial metrics used to weight the plurality of financial objects used to construct the economy-centric index of financial objects;
adjusts, by the at least one computer processor, the relative weightings of the financial objects that comprise said portfolio based on changes to the at least one objective measure of scale used to weight the plurality of financial objects used to construct the economy-centric index of financial objects;
rebalances, by the at least one computer processor, the relative weightings of the financial objects that comprise said portfolio when the weighting of one or more of said financial objects at least one of: exceeds a threshold value, or deviates from a target weight; or
rebalances, by the at least one computer processor, the relative weightings of the financial objects that comprise said portfolio to minimize turnover of said financial objects.

68. The computer-implemented method according to claim **67**, wherein said weighting comprises:
weighting based on a plurality of said economic-centric metrics.

69. The computer-implemented method according to claim **68**, wherein said weighting based on said plurality of economic-centric metrics comprises:
weighting based on at least one of:
book value;
book value of operating assets;
sales;
revenue;
profit;
earnings;
cash flow;
cash earnings;
cash flow from operations; or
a fundamental accounting variable.

70. The computer-implemented method according to claim **68**, wherein said weighting based on said plurality of economic-centric metrics comprises:
weighting based on metrics comprising:
book value;
sales; and
cash flow.

71. The computer-implemented method according to claim **67**, wherein said third party further manages comprising:
rebalances on a periodic time basis; or
rebalances on a periodic accounting period basis.

72. The computer-implemented method according to claim **1**, further comprising:
receiving, by the at least one computer processor, data about a plurality of entities and a plurality of corresponding financial objects associated with the plurality of entities from at least one database storing and permitting retrieval of such data;
receiving, by the at least one computer processor, data indicative of a set of financial objects comprising a plurality of constituent financial objects;
wherein said weighting comprises:
weighting, by the at least one computer processor, said constituent financial objects, wherein said weighting comprises:
determining, by the at least one computer processor, a proportional fundamental weight for each said constituent financial object based on at least one objective measure of scale associated with said entities or said financial objects;
wherein said at least one objective measure of scale comprises at least one financial metric associated with one of said entities or said financial objects other than the market capitalization of said entities or the price of said financial objects;
wherein said at least one financial metric comprises at least one of: book value; sales; cash flow; or any dividends; and
managing, by the at least one computer processor, a portfolio of financial objects based on said set of financial objects, wherein said managing comprises at least one of:
adjusting, by the at least one computer processor, the financial objects that comprise said portfolio based on changes to the at least one objective measure of scale

used to weight the plurality of financial objects used to construct the set of financial objects;

adjusting, by the at least one computer processor, the proportional fundamental weight of the financial objects that comprise said portfolio based on changes to the at least one objective measure of scale used to weight the plurality of financial objects used to construct the set of financial objects;

rebalancing, by the at least one computer processor, the proportional fundamental weight of the financial objects that comprise said portfolio when the weighting of one or more of said financial objects at least one of: exceeds a threshold value, or deviates from a target weight; or

rebalancing the proportional fundamental weight of the financial objects that comprise said portfolio to minimize turnover of said financial objects.

73. A nontransitory computer processor readable storage medium having computer processor readable program code such that when executed by a computer processor in a data processing apparatus, performs a computer processor-implemented method for constructing data indicative of a financial object index, the method comprising:

constructing, by at least one computer processor, data indicative of the financial object index comprising:

selecting, by the at least one computer, data indicative of constituent financial objects of said financial object index based upon at least one accounting data rather than price of said financial objects, said at least one accounting data regarding at least one entity relating to each of said financial objects, the at least one entity comprising at least one of a region, a country, a company, or a sovereign associated with said financial objects; and

weighting, by the at least one computer processor, data indicative of said constituent financial objects based upon at least one accounting data rather than price of said financial objects, said at least one accounting data regarding the at least one entity, to obtain data indicative of constituent weightings for each of said constituent financial objects, and

storing, by the at least one computer processor, said data indicative of said constituent financial objects and said constituent weightings on at least one computer storage device,

wherein each of said financial objects comprises at least one instrument,

wherein each of said financial objects comprises at least one of:

a bond;
a fixed income debt instrument;
a debt instrument;
an emerging market debt instrument;
a high yield debt instrument;
a corporate debt instrument;
an investment grade debt instrument;
a debenture;
a bank loan;
a convertible bond;
a senior debt;
a subordinated debt;
a term loan;
a government debt instrument;
a government bond;
a corporate bond;
a high yield bond;
an emerging market bond;
a municipal bond debt instrument;
a treasury bond debt instrument;
a treasury bill debt instrument;
a mortgage based debt instrument;
a securitized debt instrument;
a security;
a stock;
a commodity;
a futures contract;
a mutual fund;
a hedge fund;
a fund of funds;
an exchange traded fund (ETF);
a derivative;
a negative weighting on any asset;
an asset account;
a separate account;
a pooled trust; or
a limited partnership; and

wherein said at least one accounting data comprises at least one of:

at least one financial metric of the at least one entity associated with each of said constituent financial objects; or

at least one metric, level, rate, or expenditure amount from information disclosures of the at least one entity.

74. The nontransitory computer processor readable storage medium of claim **73**, wherein the method further comprises:

wherein said selecting based on said at least one accounting data comprises:

selecting based on at least one demographic data regarding the at least one entity.

75. The nontransitory computer processor readable storage medium of claim **74**, wherein the method further comprises:

wherein said at least one demographic data comprises at least one of:

a demographic measure,
a population level,
an area,
a geographic area,
an economic factor,
a gross domestic product (GDP),
GDP growth,
a natural resource characteristic,
an energy metric,
a petroleum characteristic,
a resource consumption metric,
a petroleum consumption amount,
a liquid natural gas (LNG) characteristic,
a liquefied petroleum gas (LPG) characteristic,
an expenditures characteristic,
gross national income (GNI),
a debt characteristic,
a rate of inflation,
a rate of unemployment,
a reserves level,
a population characteristic,
a corruption characteristic,
a democracy characteristic,
a social metric,
a political metric,
a per capita ratio of any of the foregoing;
a derivative of any foregoing; or
a ratio of any two or more of the foregoing.

76. The nontransitory computer processor readable storage medium of claim **73**, wherein the method further comprises:

wherein said weighting based on said at least one accounting data comprises:

weighting based on at least one demographic data regarding the at least one entity.

77. The nontransitory computer processor readable storage medium of claim **76**, wherein the method further comprises:

wherein said at least one demographic data comprises at least one of:

a demographic measure,

a population level,

an area,

a geographic area,

an economic factor,

a gross domestic product (GDP),

GDP growth,

a natural resource characteristic,

an energy metric,

a petroleum characteristic,

a resource consumption metric,

a petroleum consumption amount,

a liquid natural gas (LNG) characteristic,

a liquefied petroleum gas (LPG) characteristic,

an expenditures characteristic,

gross national income (GNI),

a debt characteristic,

a rate of inflation,

a rate of unemployment,

a reserves level,

a population characteristic,

a corruption characteristic,

a democracy characteristic,

a social metric,

a political metric,

a per capita ratio of any of the foregoing;

a derivative of any foregoing; or

a ratio of any two or more of the foregoing.

78. A system for constructing data indicative of an investable index of financial objects, comprising:

an analysis host computer processing apparatus coupled to an entity database, wherein the entity database is operative to store aggregated accounting based data about a plurality of entities obtained from an external data source, said analysis host computer processing apparatus comprising:

a data retrieval and storage subsystem operative to at least one of access, or retrieve said aggregated accounting based data from the entity database and to at least one of access from, provide, or store said aggregated accounting based data to the entity database;

an index generation subsystem comprising:

a selection subsystem operative to select a group of said entities based on at least one accounting data;

a weighting function generation subsystem operative to generate a weighting function based on at least one accounting data;

an index creation subsystem operative to create an investable accounting data based index based on said group of selected entities and said weighting function; and

a storing subsystem operative to at least one of provide, or store said investable accounting data based index,

wherein said investable index generation subsystem is operative to construct data indicative of said investable accounting data based index, wherein said investable accounting data based index comprises a financial object index, said index generation subsystem comprising at least one computer processor, and at least one memory coupled to said at least one computer processor, said at least one computer processor operative to construct data indicative of said financial object index;

wherein said selection subsystem comprises at least one computer processor, and at least one memory coupled to said at least one computer processor, said at least one computer processor operative to select data indicative of constituent financial objects of said financial object index based upon at least one accounting data rather than price of said financial objects, said at least one accounting data regarding at least one entity relating to each of said financial objects, the at least one entity comprising at least one of a region, a country, a company, or a sovereign associated with said each of said financial objects; and

wherein said weighting function generation subsystem comprises at least one computer processor, and at least one memory coupled to said at least one computer processor, said at least one computer processor operative to weight data indicative of said constituent financial objects based upon at least one accounting data rather than price of said financial objects, said at least one accounting data regarding the at least one entity, to obtain data indicative of constituent weightings for each of said constituent financial objects, and

wherein said storing subsystem comprises at least one computer processor, and at least one memory coupled to said at least one computer processor, said at least one computer processor operative to at least one of access from, provide, or store said data indicative of said constituent financial objects and said constituent weightings on at least one computer storage device,

wherein each of said financial objects comprises at least one instrument,

wherein each of said financial objects comprises at least one of:

a bond;

a fixed income debt instrument;

a debt instrument;

an emerging market debt instrument;

a high yield debt instrument;

a corporate debt instrument;

an investment grade debt instrument;

a debenture;

a bank loan;

a convertible bond;

a senior debt;

a subordinated debt;

a term loan;

a government debt instrument;

a government bond;

a corporate bond;

a high yield bond;

an emerging market bond;

a municipal bond debt instrument;

a treasury bond debt instrument;

a treasury bill debt instrument;

a mortgage based debt instrument;

a securitized debt instrument;

a security;

a stock;

a commodity;

a futures contract;

a mutual fund;

a hedge fund;

a fund of funds;

an exchange traded fund (ETF);

a derivative;
a negative weighting on any asset;
an asset account;
a separate account;
a pooled trust; or
a limited partnership; and
wherein said at least one accounting data comprises at least one of:
at least one financial metric of the at least one entity associated with each of said constituent financial objects; or
at least one metric, level, rate or expenditure amount from information disclosures of the at least one entity.

79. The system according to claim **78**, wherein said analysis host computer processing apparatus further comprises:
a normalization calculation sub-system operative to normalize said data for said at least one accounting data across said plurality of entities.

80. The system according to claim **78**, wherein said at least one accounting data used by said selection subsystem at least one of differs from, or is the same as, said at least one accounting data used by said weighting function generating subsystem.

81. The system according to claim **78**, wherein said at least one accounting data comprises at least one of:
revenue;
profitability;
sales;
total sales;
foreign sales,
domestic sales;
net sales;
gross sales;
profit margin;
operating margin;
retained earnings;
earnings per share;
book value;
book value adjusted for inflation;
book value adjusted for replacement cost;
book value adjusted for liquidation value;
dividends;
assets;
tangible assets;
intangible assets;
fixed assets;
property;
plant;
equipment;
goodwill;
replacement value of assets;
liquidation value of assets;
liabilities;
long term liabilities;
short term liabilities;
net worth;
research and development expense;
accounts receivable;
earnings before interest and tax (EBIT);
earnings before interest, taxes, dividends, and amortization (EBITDA);
accounts payable;
cost of goods sold (CGS);
debt ratio;
budget;
capital budget;
cash budget;
direct labor budget;
factory overhead budget;
operating budget;
sales budget;
inventory system;
type of stock offered;
liquidity;
book income;
tax income;
capitalization of earnings;
capitalization of goodwill;
capitalization of interest;
capitalization of revenue;
capital spending;
cash;
compensation;
employee turnover;
overhead costs;
credit rating;
growth rate;
tax rate;
liquidation value of entity;
capitalization of cash;
capitalization of earnings;
capitalization of revenue;
cash flow; or
future value of expected cash flow.

82. The system according to claim **78**, wherein at least one accounting data comprises a ratio of any combination of two or more accounting data.

83. The system according to claim **82**, wherein said ratio of any combination of said accounting data comprise at least one of:
current ratio;
debt ratio;
overhead expense as a percent of sales; or
debt service burden ratio.

84. The system according to claim **78**, wherein said at least one accounting data further comprises at least one demographic measure.

85. The system according to claim **78**, wherein said at least one demographic measure comprises at least one of:
a financial metric;
a nonfinancial metric;
a market metric;
a nonmarket related metric;
a measure relating to employees;
floor space;
office space;
location;
other demographics of an asset;
a demographic measure,
a population level,
an area,
a geographic area,
an economic factor,
a gross domestic product (GDP),
GDP growth,
a natural resource characteristic,
an energy metric,
a petroleum characteristic,
a resource consumption metric,
a petroleum consumption amount,
a liquid natural gas (LNG) characteristic,
a liquefied petroleum gas (LPG) characteristic,
an expenditures characteristic,
gross national income (GNI),
a debt characteristic,

a rate of inflation,
a rate of unemployment,
a reserves level,
a population characteristic,
a corruption characteristic,
a democracy characteristic,
a social metric,
a political metric,
a per capita ratio of any of the foregoing;
a derivative of any foregoing; or
a ratio of any two or more of the foregoing.

86. The system of claim **78**, further comprising:

a trading host computer processing apparatus, coupled to said analysis host computer processing apparatus, and operative to construct a portfolio of assets comprising one or more trading assets based on said investable accounting data based index, said trading host computer processing apparatus comprising at least one of:

an index retrieval subsystem operative to retrieve said investable accounting data based index;

a trading accounts management subsystem operative to receive one or more data indicative of investment amounts from one or more investors; or

a purchasing subsystem operative to permit purchasing of one or more of said trading assets using said investment amounts based on said investable accounting data based index.

87. The system of claim **86**, further comprising:

a trading accounts database coupled to said trading accounts management subsystem, said trading accounts database operative to at least one of provide access to, or store said one or more data indicative of said investment amounts.

88. The system of claim **86**, further comprising:

an exchange host computer processing apparatus coupled to said purchasing subsystem, said exchange host computer processing apparatus operative to perform one or more functions of said purchasing subsystem.

89. The system of claim **86**, wherein said asset type comprises at least one of:

a fund;
a mutual fund;
a fund of funds;
an asset account;
an exchange traded fund (ETF);
a separate account, a pooled trust; or
a limited partnership.

90. The system according to claim **86**, further comprising:

a subsystem operative to rebalance a pre-selected group of trading assets based on said accounting data based index.

91. The system according to claim **90**, wherein said rebalancing is performed on at least one of: a periodic basis, or an aperiodic basis.

92. The system according to claim **90**, wherein said rebalancing is based on at least one of the group of assets crossing a predetermined threshold, or an occurrence of an event.

93. The system according to claim **86**, further comprising:

applying one or more rules associated with said accounting data based index.

94. The system according to claim **78**, wherein the system may be used for at least one of:

investment management, or
investment portfolio benchmarking.

95. The system of claim **78**, wherein the selection subsystem is operative to perform enhanced index investing, comprising: computing said portfolio of assets in a fashion wherein at least one of: holdings; performance; or characteristics, are substantially similar to an external index.

96. A computer-implemented method of constructing data indicative of an investable index of financial objects by at least one computer processor, the method comprising:

receiving by the at least one computer processor data about a plurality of entities and a plurality of corresponding financial objects associated with the plurality of entities from one or more databases storing and permitting retrieval of such data;

selecting by the at least one computer processor a plurality of said financial objects to construct an investable index of financial objects,

wherein said selecting comprises:

selecting a plurality of financial objects to construct an investable index of financial objects based on at least one objective measure of scale associated with said entities or said financial objects,

each of said entities comprising at least one of a region, a country, a company, or a sovereign associated with said each of said financial objects,

wherein said at least one objective measure of scale comprises at least one financial metric associated with one of said entities or said financial objects other than the market capitalization of said entities or the price of said financial objects;

weighting by the at least one computer processor the plurality of financial objects selected to construct the investable index of financial objects, wherein said weighting comprises:

determining a proportional weight for each financial object based on at least one objective measure of scale associated with said entities or said financial objects;

wherein said at least one objective measure of scale comprises at least one financial metric associated with one of said entities or said financial objects other than the market capitalization of said entities or the price of said financial objects;

storing or providing by the at least one computer processor the plurality of financial objects selected to construct the index and the proportional weight for each of said financial objects;

wherein each of said financial objects comprises at least one of:

a bond;
a fixed income debt instrument;
a debt instrument;
an emerging market debt instrument;
a high yield debt instrument;
a corporate debt instrument;
an investment grade debt instrument;
a debenture;
a bank loan;
a convertible bond;
a senior debt;
a subordinated debt;
a term loan;
a government debt instrument;
a government bond;
a corporate bond;
a high yield bond;
an emerging market bond;
a municipal bond debt instrument;
a treasury bond debt instrument;
a treasury bill debt instrument;
a mortgage based debt instrument;
a securitized debt instrument;

a security;
a stock;
a commodity;
a futures contract;
a mutual fund;
a hedge fund;
a fund of funds;
an exchange traded fund (ETF);
a derivative;
a negative weighting on any asset;
an asset account;
a separate account;
a pooled trust; or
a limited partnership; and

managing by the at least one computer processor a portfolio of financial objects based on said index of financial objects, wherein said managing comprises at least one of:

adjusting the financial objects that comprise said portfolio based on changes to the at least one objective measure of scale used to select the plurality of financial objects used to construct the investable index of financial objects;

adjusting the relative weightings of the financial objects that comprise said portfolio based on changes to the at least one objective measure of scale used to weight the plurality of financial objects used to construct the investable index of financial objects;

rebalancing the relative weightings of the financial objects that comprise said portfolio when the weighting of one or more of said financial objects at least one of: exceeds a threshold value, or deviates from a target weight; or

rebalancing the relative weightings of the financial objects that comprise said portfolio to minimize turnover of said financial objects.

97. The method of claim **96**, wherein:

said selecting based on said at least one objective measure of scale comprises selecting wherein said at least one financial metric comprises any dividends.

98. The method of claim **97**, wherein:

said selecting wherein said financial metric comprises any dividends comprises selecting based on a calculation based on said dividends exceeding a minimum value.

99. The method of claim **98**, wherein:

said selecting based on a calculation based on said dividends comprises selecting based on a calculation based on said dividends comprising a sum of total dividends paid over a period of time.

100. The method of claim **96**, wherein:

said selecting based on said at least one objective measure of scale comprises selecting wherein said at least one financial metric comprises earnings.

101. The method of claim **100**, wherein:

said selecting based on said at least one financial metric comprising earnings comprises selecting based on said earnings being positive over a period of time.

102. The method of claim **96**, wherein:

said selecting comprises sorting said plurality of financial objects into one or more sets of financial objects based on said at least one objective measure of scale.

103. The method of claim **96**, wherein:

said selecting comprises sorting said plurality of financial objects into one or more sets of financial objects based on a derivative of said at least one objective measure of scale.

104. The method of claim **96**, wherein:

said weighting based on said at least one objective measure of scale comprises weighting based on any dividends.

105. The method of claim **96**, wherein:

said weighting based on said at least one objective measure of scale comprises weighting based on earnings.

106. The method of claim **96**, wherein:

said selecting comprises selecting a plurality of said financial objects to construct an index of financial objects from a universe of said entities or said financial objects.

107. The method of claim **106**, wherein:

said universe comprises at least one of: a sector, a market, a market sector, an industry sector, a geographic sector, an international sector, a sub-industry sector, a government issue sector or a tax-exempt sector.

108. A system for constructing data indicative of an investable index of financial objects by at least one computer processor comprising:

the at least one computer processor being coupled to at least one data network;

wherein the at least one data network comprises a connection or a coupling to at least one database adapted to store and adapted to permit at least one of access or retrieval of data;

wherein said data comprises data about a plurality of entities and a plurality of corresponding financial objects associated with the plurality of entities;

the at least one computer processor being configured to:

receive from the at least one data network data about a plurality of entities and a plurality of corresponding financial objects associated with the plurality of entities from said one or more databases;

select a plurality of said financial objects to construct an index of financial objects based on said data received from the at least one data network, wherein said select comprises wherein the at least one computer processor being configured to:

select a plurality of financial objects to construct an index of financial objects based on at least one objective measure of scale associated with said entities or said financial objects,

said entity comprising at least one of a region, a country, a company, or a sovereign associated with said financial object,

wherein said at least one objective measure of scale comprises at least one financial metric associated with one of said entities or said financial objects other than the market capitalization of said entities or the price of said financial objects;

weight by the plurality of financial objects selected to construct the index of financial objects, wherein said weight comprises wherein the at least one computer processor being configured to:

determine a proportional weight for each financial object based on at least one objective measure of scale associated with said entities or said financial objects;

wherein said at least one objective measure of scale comprises at least one financial metric associated with one of said entities or said financial objects other than the market capitalization of said entities or the price of said financial objects;

store or provide wherein the at least one computer processor being configured to store or provide the plurality of financial objects selected to construct the index and the proportional weight for each of said financial objects;

wherein each of said financial objects comprises at least one of:

a bond;

a fixed income debt instrument;

a debt instrument;
an emerging market debt instrument;
a high yield debt instrument;
a corporate debt instrument;
an investment grade debt instrument;
a debenture;
a bank loan;
a convertible bond;
a senior debt;
a subordinated debt;
a term loan;
a government debt instrument;
a government bond;
a corporate bond;
a high yield bond;
an emerging market bond;
a municipal bond debt instrument;
a treasury bond debt instrument;
a treasury bill debt instrument;
a mortgage based debt instrument;
a securitized debt instrument;
a security;
a stock;
a commodity;
a futures contract;
a mutual fund;
a hedge fund;
a fund of funds;
an exchange traded fund (ETF);
a derivative;
a negative weighting on any asset;
an asset account;
a separate account;
a pooled trust; or
a limited partnership; and

manage a portfolio of financial objects based on said index of financial objects,

wherein said manage comprises wherein the at least one computer processor being configured to at least one of:

adjust the financial objects that comprise said portfolio based on changes to the at least one objective measure of scale used to select the plurality of financial objects used to construct the index of financial objects;

adjust the relative weightings of the financial objects that comprise said portfolio based on changes to the at least one objective measure of scale used to weight the plurality of financial objects used to construct the index of financial objects;

rebalance the relative weightings of the financial objects that comprise said portfolio when the weight of one or more of said financial objects at least one of:

exceeds a threshold value; or deviates from a target weight; or rebalance the relative weightings of the financial objects that comprise said portfolio to minimize turnover of said financial objects.

109. The system of claim **108**, wherein:

said select based on said at least one objective measure of scale comprises wherein the at least one computer processor being configured to select wherein said at least one financial metric comprises any dividends.

110. The system of claim **109**, wherein:

said select wherein said financial metric comprises any dividends and comprises wherein the at least one computer processor being configured to select based on a calculation based on said dividends exceeding a minimum value.

111. The system of claim **110**, wherein:

said select based on a calculation based on said dividends comprises wherein the at least one computer processor being configured to select based on a calculation based on said dividends comprising a sum of total dividends paid over a period of time.

112. The system of claim **108**, wherein:

said select based on said at least one objective measure of scale comprises wherein the at least one computer processor being configured to select wherein said at least one financial metric comprises earnings.

113. The system of claim **112**, wherein:

said select based on said at least one financial metric comprising earnings and comprises wherein the at least one computer processor being configured to select based on said earnings being positive over a period of time.

114. The system of claim **108**, wherein: said select comprises wherein the at least one computer processor being configured to sort said plurality of financial objects into one or more sets of financial objects based on said at least one objective measure of scale.

115. The system of claim **108**, wherein:

said select comprises wherein the at least one computer processor being configured to sort said plurality of financial objects into one or more sets of financial objects based on a derivative of said at least one objective measure of scale.

116. The system of claim **108**, wherein:

said weight based on said at least one objective measure of scale comprises wherein the at least one computer processor being configured to weight based on any dividends.

117. The system of claim **108**, wherein:

said weight based on said at least one objective measure of scale comprises wherein the at least one computer processor being configured to weight based on earnings.

118. The system of claim **108**, wherein:

said select comprises wherein the at least one computer processor being configured to select a plurality of said financial objects to construct an index of financial objects from a universe of said entities or said financial objects.

119. The system of claim **118**, wherein:

said universe comprises at least one of: a sector, a market, a market sector, an industry sector, a geographic sector, an international sector, a sub-industry sector, a government issue sector or a tax-exempt sector.

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