

VENTURA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

BOARD OF RETIREMENT

DISABILITY MEETING

January 9, 2017

AGENDA

PLACE: Ventura County Employees' Retirement Association
Second Floor Boardroom
1190 South Victoria Avenue
Ventura, CA 93003

TIME: 9:00 a.m.

Members of the public may comment on any item under the Board's jurisdiction by filling out a speaker form and presenting it to the Clerk. Unless otherwise directed by the Chair, comments related to items on the agenda will be heard when the Board considers that item. Comments related to items not on the agenda will generally be heard at the time designated for Public Comment.

ITEM:

- | | Master
Page No. |
|--|--------------------|
| I. <u>CALL TO ORDER</u> | |
| II. <u>APPROVAL OF AGENDA</u> | 1 – 5 |
| III. <u>APPROVAL OF MINUTES</u> | |
| A. Disability/Business Meeting of December 12, 2016. | 6 – 19 |
| IV. <u>RECEIVE AND FILE PENDING DISABILITY APPLICATION STATUS REPORT</u> | 20 – 51 |
| V. <u>APPLICATIONS FOR DISABILITY RETIREMENT</u> | |
| A. Application for Service-Connected Disability Retirement, John E. Barbic; Case No. 16-025. | 52 – 127 |
| 1. Application for Service-Connected Disability Retirement. | |
| 2. Medical Analysis and Recommendation by County of Ventura, Risk Management, to grant Application for Service-Connected Disability Retirement and supporting documentation. | |

V. APPLICATIONS FOR DISABILITY RETIREMENT (continued)

3. Hearing Notice, dated December 29, 2016.
- B. Application for Service-Connected Disability Retirement, Gregory Teran Jr.; Case No. 16-010. 128 – 182
1. Application for Service-Connected Disability Retirement.
 2. Medical Analysis and Recommendation by County of Ventura, Risk Management, to grant Application for Service-Connected Disability Retirement and supporting documentation.
 3. Hearing Notice, dated December 29, 2016.
- C. Application for Service-Connected Disability Retirement, Karen M. Hoffstadt; Case No. 14-009. 183 – 259
1. Application for Non-Service Connected Disability Retirement.
 2. Medical Analysis and Recommendation by County of Ventura, Risk Management, to grant Application for Non-Service Connected Disability Retirement and supporting documentation, including request to amend the Application to Non-service Connected Disability, by Karen Hoffstadt, dated March 8, 2016.
 3. Hearing Notice, dated December 29, 2016.
- D. Application for Service-Connected and Non-Service Connected Disability Retirement, Carol Kilbey; Case No. 12-045. 260 – 275
1. Proposed Summary of Evidence, Findings of Fact and Conclusion and Recommendation, dated November 17, 2016, by Louis M. Zigman, Hearing Officer.
 2. Letter from B. Derek Straatsma, Attorney for County of Ventura-Risk Management, stating they do not object to the proposed Recommendations of Hearing Officer, Lou Zigman.
 3. Hearing Notice, dated December 8, 2016.
- E. Application for Service-Connected and Non-Service Connected Disability Retirement, Josie Y. Garcia; Case No. 13-019. 276 – 397

V. APPLICATIONS FOR DISABILITY RETIREMENT (continued)

1. Proposed Summary of Evidence, Conclusion of Law and Recommendation, dated December 4, 2015, by Louis Zigman, Hearing Officer.
2. Legal Memorandum by Respondent, County of Ventura/Risk Management, Objecting to Proposed Summary of Evidence, Conclusion of Law and Recommendation of Hearing Officer, Louis M. Zigman, Esq. dated December 10, 2015, by Stephen D. Roberson, Attorney for County of Ventura/Risk Management.
3. Letter from VCERA Board Counsel, Lori Nemiroff, to Hearing Officer Louis M. Zigman, dated April 29, 2016.
4. Supplemental Report received from Hearing Officer Louis M. Zigman, dated August 10, 2016.
5. Legal Memorandum by Respondent, County of Ventura/Risk Management, Objecting to Supplemental Report of Hearing Officer, Louis M. Zigman, Esq. by Stephen D. Roberson, Attorney for County of Ventura/Risk Management, dated December 13, 2016.
6. Applicant's Brief in Support of Hearing Officer's Finding of Permanent Incapacity and Service Connection, by David G. Schumaker, Attorney for Applicant, dated January 3, 2017.
7. Hearing Notice, dated December 6, 2016.

VI. OLD BUSINESS

- A. Consider Meeting and Conferring with VCERA Management Employees Concerning Potential Changes to VCERA Management Employees' Resolution Provisions for Leave Redemption
- B. Consider Changes to VCERA Management Employees' Resolution Re: Leave Redemption

VII. **CLOSED SESSION**

A. **CONFERENCE WITH LABOR NEGOTIATORS,
GOVT. CODE SECTION 54957.6**

Agency Designated Representatives:
Tracy Towner

Unrepresented VCERA Employees:
Retirement Administrator
General Counsel
Chief Investment Officer
Chief Financial Officer
Chief Operations Officer

VIII. **NEW BUSINESS**

A. Re-Establish Personnel Committee

1. Staff Letter 398

B. Recommendation to Approve Application for Reinstatement to
Active Membership Pursuant to GC 31680.4 & 31680.5 –
Martin Hernandez

Recommended Action: Approve

1. Staff Letter 399

2. Letter from Mr. Hernandez 400

3. Offer of Employment 401

4. Medical Clearance 402

C. Recommendation to Approve Application for Reinstatement to
Active Membership Pursuant to GC 31680.4 & 31680.5 –
Paul Grossgold

Recommended Action: Approve

1. Staff Letter 403

2. Letter from Mr. Grossgold 404

3. Offer of Employment 405

4. Medical Clearance 406

IX. INFORMATIONAL

- A. Investment Article: Is it Science or Baloney? 407 – 418
- B. Investment Article: Floods and Deserts: Why the Dream of Secure Pension for Everyone is Still Unattained 419 – 433

X. PUBLIC COMMENT

XI. STAFF COMMENT

XII. BOARD MEMBER COMMENT

XIII. ADJOURNMENT

VENTURA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

BOARD OF RETIREMENT

DISABILITY & BUSINESS MEETING

December 12, 2016

MINUTES

DIRECTORS Tracy Towner, Chair, Alternate Safety Employee Member
PRESENT: William W. Wilson, Vice Chair, Public Member
Mike Sedell, Public Member
Deanna McCormick, General Employee Member
Chris Johnston, Safety Employee Member
Arthur E. Goulet, Retiree Member
Will Hoag, Alternate Retiree Member
Robert Bianchi, Alternate Public Member

DIRECTORS Steven Hintz, Treasurer-Tax Collector
ABSENT: Peter C. Foy, Public Member
Craig Winter, General Employee Member

STAFF Linda Webb, Retirement Administrator
PRESENT: Lori Nemiroff, General Counsel
Dan Gallagher, Chief Investment Officer
Julie Stallings, Chief Operations Officer
Shalini Nunna, Retirement Benefits Manager
Vickie Williams, Retirement Benefits Manager
Karen Scanlan, Accounting Manager I
Donna Edwards, Retirement Benefits Specialist
Stephanie Berkley, Retirement Benefits Specialist
Chris Ayala, Program Assistant

PLACE: Ventura County Employees' Retirement Association
Second Floor Boardroom
1190 South Victoria Avenue
Ventura, CA 93003

TIME: 9:00 a.m.

ITEM:

I. CALL TO ORDER

Chair Towner called the Disability and Business Meeting of December 12, 2016, to order At 9:05 a.m.

II. APPROVAL OF AGENDA

MOTION: Approve.

Moved by Goulet, seconded by Bianchi.

Vote: Motion carried

Yes: Bianchi, Goulet, Johnston, McCormick, Sedell, Wilson, Towner

No: -

Absent: Foy, Hintz, Winter

III. APPROVAL OF MINUTES

A. Business Meeting of November 7, 2016.

Trustee Goulet stated the there were a few amendments needed in the minutes.

1. On master page 9, item V.B., the vote should not have included former Trustee Henderson.

2. On master page 10, item VI.B., in the sentence, "Mr. Gallagher also mentioned that he and Mr. Martin tried to get an In-Kind Transfer to avoid the fee, but was unsuccessful." The word was should be were.

3. On master page 15, item XI., in the sentence, "Mr. Gallagher informed the Board that Dan LeBeau from NEPC has resigned and as a result NEPC as promoted, Tony Ferrera from Consultant Service Analyst to Consultant." The word as should be has.

MOTION: Approve with amendments.

Moved by Goulet, seconded by Johnston.

Vote: Motion carried

Yes: Bianchi, Goulet, Johnston, McCormick, Sedell, Wilson, Towner

No: -

Absent: Foy, Hintz, Winter

A. Business Meeting of November 21, 2016.

Trustee Goulet stated the there were a few amendments needed in the minutes.

1. On master page 22, item IV.A., in the sentence, "Ms. Webb replied yes, but would have not enough time." Instead the sentence should have said, "but would not have enough time."

2. On master page 23, item VII.B., in the sentence, "Trustee Goulet said that he was troubled with using Linea's master service agreement and preferred." The sentence was incomplete and should have said, "and preferred a separate agreement."

3. On master page 23, item VII.B., in the sentence, "Ms. Webb said that one of the things I try to do as the Retirement Administrator is to look after the staff and I think that trying to move forward without this resource is going to put much on them." The sentence should have said, "Ms. Webb said that one of the things she tries to do as the Retirement Administrator is to look after the staff and she thinks that trying to move forward without this resource is going to put too much on them."

4. On master page 5, item X., the word Harborvest, should be spelled Harbourvest.

MOTION: Approve with amendments.

Moved by Goulet, seconded by Johnston.

Vote: Motion carried

Yes: Bianchi, Goulet, Johnston, McCormick, Sedell, Wilson, Towner

No: -

Absent: Foy, Hintz, Winter

IV. CONSENT AGENDA

MOTION: Receive and file.

Moved by Johnston, seconded by Sedell.

Vote: Motion carried

Yes: Bianchi, Goulet, Johnston, McCormick, Sedell, Wilson, Towner

No: -

Absent: Foy, Hintz, Winter

V. RECEIVE AND FILE PENDING DISABILITY APPLICATION STATUS REPORT

MOTION: Receive and file.

Moved by Goulet, seconded by Johnston.

Vote: Motion carried

Yes: Bianchi, Goulet, Johnston, McCormick, Sedell, Wilson, Towner

No: -

Absent: Foy, Hintz, Winter

VI. APPLICATIONS FOR DISABILITY RETIREMENT

A. Application for Service Connected Disability Retirement, Osler, Ryan
(Deceased); Case No. 16-032.

1. Application for Service Connected Disability Retirement
2. Medical Analysis and Recommendation by County of Ventura, Risk
 Management, to grant Applicant's Application for Service Connected
 Disability Retirement, including supporting documentation.
3. Hearing Notice, dated November 22, 2016.

Paul Hilbun was present on behalf of County of Ventura Risk Management.
The applicant's surviving spouse was not present.

Paul Hilbun, of Risk Management declined to make a statement.

After discussion by the Board, the following motion as made:

MOTION: Grant the Applicant, Ryan Osler, a service connected disability
retirement.

Moved by Johnston, seconded by Bianchi.

Vote: Motion carried

Yes: Bianchi, Goulet, Johnston, McCormick, Sedell, Wilson, Towner

No: -

Absent: Foy, Hintz, Winter

Paul Hilbun, on behalf of Risk Management agreed to waive preparation of
findings of fact and conclusions of law. General Counsel requested that
Operations Specialist, Donna Edwards send Ms. Osler a waiver of
preparation of findings of fact and conclusions of law.

B. Application for Service-Connected Disability Retirement, Saenz, Arsenio Jr.; Case No. 14-017.

1. Application for Service-Connected Disability Retirement.
2. Medical Analysis and Recommendation by County of Ventura, Risk Management, to grant Applicant's Application for Service-Connected Disability Retirement, including supporting documentation.
3. Hearing Notice, dated November 22, 2016.

Stephen D. Roberson, Attorney at Law was present on behalf of County of Ventura Risk Management. Thomas J. Wicke, Attorney at Law was present on behalf of the applicant.

Both parties declined to make a statement.

The following motion was made:

MOTION: Grant the Applicant, Arsenio Saenz Jr., a service connected disability retirement.

Moved by Johnston, seconded by Bianchi.

Vote: Motion carried

Yes: Bianchi, Goulet, Johnston, McCormick, Sedell, Wilson, Towner

No: -

Absent: Foy, Hintz, Winter

Both parties agreed to waive preparation of findings of fact and conclusions of law.

C. Application for Non-service Connected Disability Retirement, Sheridan R. Wright; Case No. 16-009.

1. Application for Non-service Connected Disability Retirement.
2. Medical Analysis and Recommendation by County of Ventura, Risk Management, to grant Application for Non-Service Connected Disability Retirement and supporting documentation.
3. Hearing Notice, dated November 22, 2016.

Paul Hilbun was present on behalf of County of Ventura Risk Management. The applicant, Sheridan R. Wright was also present.

Both parties declined to make a statement.

Trustee Goulet asked Mr. Wright if, as his application indicated, he was willing to take another position, if he had ever been offered another position by the County of Ventura. Mr. Wright replied, yes, he could have requested a demotion to a Sheriff Service Technician (SST) position. Trustee Goulet asked Mr. Wright if he had been offered positions in other agencies, besides the Sheriff's Department. Mr. Wright replied he had not.

After discussion by the Board, the following motion was made:

MOTION: Grant the Applicant, Sheridan R. Wright, a non-service connected disability retirement.

Moved by Sedell, seconded by Wilson.

Vote: Motion carried

Yes: Bianchi, Johnston, McCormick, Sedell, Wilson, Towner

No: -

Abstain: Goulet

Absent: Foy, Hintz, Winter

Both parties agreed to waive preparation of findings of fact and conclusions of law.

- D. Application for Service Connected Disability Retirement, Karla Dean; Case No. 13-010.
1. Proposed Findings of Fact, Conclusions of Law and Recommendation, dated September 15, 2016, by Kenneth A. Perea, Hearing Officer.
 2. Objection to Proposed Finding of Hearing Officer, received from Timothy Ehritt, Attorney for Applicant, dated September 15, 2016.
 3. Legal Memorandum in support of the Hearing Officer's Recommended Decision that Applicant, Karla Dean, be denied a Service-Connected Disability Retirement, received from Stephen Roberson, Attorney for County of Ventura-Risk Management, dated October 6, 2016.
 4. Hearing Notice, dated November 23, 2016.

Stephen D. Roberson, Attorney at Law was present on behalf of County of Ventura Risk Management. Timothy Ehritt, Attorney at Law was present on behalf of the applicant.

Chair Towner asked if the parties accepted into the record the following items:

Proposed Findings of Fact, Conclusions of Law and Recommendation, dated September 15, 2016, by Kenneth A. Perea, Hearing Officer.

VI.D.2. Objection to Proposed Finding of Hearing Officer, received from Timothy Ehritt, Attorney for Applicant, dated September 15, 2016.

VI.D.3. Legal Memorandum in support of the Hearing Officer's Recommended Decision that Applicant, Karla Dean, be denied a Service-Connected Disability Retirement, received from Stephen Roberson, Attorney for County of Ventura-Risk Management, dated October 6, 2016.

VI.D.4. Hearing Notice, dated November 23, 2016.

Both Mr. Ehritt and Mr. Roberson stated they accepted those items.

Mr. Ehritt stated that he did not agree with the findings and conclusions of the Hearing Officer. Mr. Ehritt stated the case represented both orthopedic and psychiatric issues, but the key was the psychiatric. He said the primary objection was with Dr. Dorman's report, which he did not believe constituted medical evidence. He indicated the other report from Dr. Malik was more comprehensive and that Dr. Malik's specific experience and familiarity with the job duties made that analysis more accurate. In that report, Dr. Malik opined that the applicant could not perform many of the duties. Mr. Ehritt said Dr. Dorman's said the applicant could do a number of daily activities, but these were not job related in nature. Mr. Ehritt said he did not believe the County could accommodate the psychiatric issues. Mr. Ehritt suggested the Board consider appointing an independent psychiatric consultant to review this case.

Mr. Roberson stated that there was no basis to overturn the Hearing Officer's decision. The County had accommodated the orthopedic issues and in 2012 the applicant signed a document under penalty of perjury that psychiatric issues were not work related. He said the Hearing Officer has the discretion on which report to consider.

After additional discussion by the parties above and Board, the following motion was made:

MOTION: Adopt the Hearing Officer's recommendation and deny the applicant, Karla Dean, a service connected disability retirement.

Moved by Wilson, seconded by Goulet.

Vote: Motion carried

Yes: Bianchi, Goulet, Johnston, Sedell, Wilson, Towner

No: McCormick

Absent: Foy, Hintz, Winter

Both parties agreed to waive preparation of findings of fact and conclusions of law.

VII. INVESTMENT INFORMATION

A. VCERA – Dan Gallagher, Chief Investment Officer

1. NEPC Regional Conference Attendee Approval

a. Staff Letter

b. Agenda

Mr. Gallagher asked the Board to approve up to three members to attend the NEPC Regional Conference.

Chair Towner asked any Board members interested in attending, to please let Mr. Gallagher know.

MOTION: Approve.

Moved by Wilson, seconded by Bianchi.

Vote: Motion carried

Yes: Bianchi, Goulet, Johnston, McCormick, Sedell, Wilson, Towner

No: -

Absent: Foy, Hintz, Winter

VIII. ACTUARIAL INFORMATION

A. Report on Status of the June 30, 2016 Actuarial Valuation

Ms. Webb stated the timeline for the valuation was a bit behind because staff had spent considerable time auditing the data, and that there should still be time to approve the report at the January business meeting. Ms. Webb said staff requested the Board approve distribution of the report to stakeholders once it had been received from Segal. Trustee Goulet said he believed it should be sent to stakeholders when it became available.

IX. OLD BUSINESS

A. Update on VCERA Request to County Auditor-Controller for Access to Member Retirement Data

Ms. Webb said that the last update was just prior to staff's meeting with the Steering Committee, to receive their counter proposal for access to

retirement data. Ms. Webb said that the Auditor-Controller was still denying VCERA access to the retirement tables in VCHRP. Ms. Webb said the committee had walked staff through their alternate proposal. Staff later sent the committee questions regarding the plan and we are still waiting their response.

B. VCERA Board Communication to Governor Brown Regarding Veto of AB 1853

1. Board Letter from Trustee Goulet
2. Letter to Governor

Chair Towner stated that at the November 21, 2016 Business Meeting the Board authorized a letter to be drafted by Trustee Goulet regarding the veto of AB 1853, to be reviewed by the Board, prior to sending it to Governor Brown.

After discussion by the Board, the following motion as made:

MOTION: Table the Item.

Moved by Sedell, seconded by Bianchi.

Vote: Motion carried

Yes: Bianchi, Goulet, Johnston, McCormick, Sedell, Wilson, Towner

No: -

Absent: Foy, Hintz, Winter

X. NEW BUSINESS

A. Annual Appointment of Chair and Vice-Chair

1. Staff Letter

Trustee McCormick nominated Chair Towner to serve as Board Chair.

MOTION: Appoint Tracy Towner as Chair.

Moved by McCormick, seconded by Johnston.

Vote: Motion carried

Yes: Bianchi, Goulet, Johnston, McCormick, Sedell, Wilson

No: -

Absent: Foy, Hintz, Winter

Trustee Sedell nominated Trustee Wilson to serve as Vice Chair.

MOTION: Appoint William Wilson as Vice Chair.

Moved by Sedell, seconded by Johnston.

Vote: Motion carried

Yes: Bianchi, Goulet, Johnston, McCormick, Sedell, Wilson, Towner

No: -

Absent: Foy, Hintz, Winter

- B. Recommendation to Amend the VCERA Management Employees' Resolution & Compensation Schedule and Request for Legal Review
1. Letter from Chair Towner
 2. Exhibit A: Proposed Changes to VCERA Management Employees' Resolution (redline)
 3. Exhibit B: Data for MBA Recommendation
 4. Exhibit C: County of Ventura Full MBA Study, Approved by Board of Supervisors on December 6, 2016

Chair Towner apologized for the lateness of presenting this item to the Board, but that it was due to the timing in receiving the item. Chair Towner stated that the intent of this resolution was to benchmark the items presented and to grant the VCERA employees covered by the VCERA Management Employees' Resolution the same proposed General Salary Increases and Market Based Adjustments, as the benchmarked positions covered under the County of Ventura Management Resolution. Chair Towner said that this resolution was also presented to address the leave redemption changes adopted by the County of Ventura. He requested that the Board authorize outside counsel to review the changes to leave redemption for the employees covered by the VCERA Management Employees' Resolution.

After discussion by the Board and staff, the following motion as made:

MOTION: Approve the Requested Changes to the Management Resolution with the Exception of the 80 hours provision, and Authorize Chair Towner to Engage Outside Legal Counsel to review Questions Related to the Leave Redemption Program Changes made by the County of Ventura.

Moved by Bianchi, seconded by McCormick.

Vote: Motion carried

Yes: Bianchi, Goulet, Johnston, McCormick, Sedell, Wilson, Towner

No: -

Absent: Foy, Hintz, Winter

MOTION: Authorize Chair Towner to Seek Legal Counsel to Review any New Issues Triggered by Initial Legal Review.

Moved by Sedell, seconded by Bianchi.

Vote: Motion carried

Yes: Bianchi, Goulet, Johnston, McCormick, Sedell, Towner

No: -

Abstain: Wilson

Absent: Foy, Hintz, Winter

Trustee McCormick left after the vote at 10:35 a.m.

Chair Towner requested a 10 minute break at 10:35 a.m.

The Board returned from break at 10:45 a.m.

- C. Recommendation to Approve Application for Reinstatement to Active Membership Pursuant to GC 31680.4 & 31680.5 – Mary Quinting
Recommended Action: Approve
1. Staff Letter
 2. Letter from Rexalena Deros-Cooper
 3. Offer of Employment
 4. Medical Clearance
- D. Recommendation to Approve Application for Reinstatement to Active Membership Pursuant to GC 31680.4 & 31680.5 – Deros-Cooper, Rexalena
Recommended Action: Approve
1. Staff Letter
 2. Letter from Rexalena Deros-Cooper
 3. Offer of Employment
 4. Medical Clearance

Ms. Webb stated that both of the applicants had met the requirements for reinstatement.

After discussion by the Board and staff, the following motion as made:

MOTION: Approve Reinstatement of Mary Quinting and Rexalena Deros-Cooper to Active Membership.

Moved by Goulet, seconded by Johnston.

Vote: Motion carried

Yes: Bianchi, Goulet, Johnston, Sedell, Wilson, Towner

No: -

Absent: Foy, Hintz, McCormick, Winter

- E. Request for Trustee Johnston to Attend ILPA Level I – Private Equity Course March 6th – 8th, in San Francisco, California

1. Staff Letter

2. Agenda

MOTION: Approve.

Moved by Sedell, seconded by Bianchi.

Vote: Motion carried

Yes: Bianchi, Goulet, Johnston, Sedell, Wilson, Towner

No: -

Absent: Foy, Hintz, McCormick, Winter

- F. Request for Ms. Nemiroff to Attend the NAPPA 2017 Winter Seminar February 22nd – 24th, in Tempe, Arizona

1. Staff Letter

2. Agenda

MOTION: Approve.

Moved by Johnston, seconded by Wilson.

Vote: Motion carried

Yes: Bianchi, Goulet, Johnston, Sedell, Wilson, Towner

No: -

Absent: Foy, Hintz, McCormick, Winter

- G. Recommendation on Post-PAS Vitech Engagement

1. Staff Letter
Materials to be provided
2. Vitech Cost/Hours Proposal on IRS Model Regulation Programming
Materials to be provided

Ms. Webb recommended to the Board that VCERA purchase Post Implementation hours from Vitech and such decision be made before the end of 2016. Ms. Webb said that you might recall that when the Board met in June 2016 to discuss the budget, these items were not listed, because staff was still determining how many hours VCERA would need to purchase for the IRS Model Regulations and certain enhancements. Ms. Webb also stated that because of the possible changes to V3 to accommodate the data transmittal from the Auditor-Controller, there may also be a need for Vitech to address these as well. Ms. Webb said that during the negotiations with Vitech for she had requested a fixed price for IRS Model Regulations work and she presented the Board four different options for acquiring the hours needed.

After discussion by the Board and staff, the following motion as made:

MOTION: Approve Purchase of Two-Thousand Hours, If Payable in Six Months, but Otherwise Engage them on a Time and Materials Basis and Rate.

Moved by Sedell, seconded by Johnston.

Vote: Motion carried

Yes: Bianchi, Goulet, Johnston, Sedell, Wilson, Towner

No: -

Absent: Foy, Hintz, McCormick, Winter

- H. 2017 Proposed Schedule of Investment Manager Presentations
Recommended Action: Approve

MOTION: Approve.

Moved by Johnston, seconded by Wilson.

Vote: Motion carried

Yes: Bianchi, Goulet, Johnston, Sedell, Wilson, Towner

No: -

Absent: Foy, Hintz, McCormick, Winter

- I. 2017 Proposed Due Diligence Calendar
Recommended Action: Approve

MOTION: Approve.

Moved by Johnston, seconded by Sedell.

Vote: Motion carried

Yes: Bianchi, Goulet, Johnston, Sedell, Wilson, Towner

No: -

Absent: Foy, Hintz, McCormick, Winter

XI. INFORMATIONAL

- A. Save the Date on NEPC Conference
- B. Due Diligence Report for Adams Street
- C. Due Diligence Report for Parametric

XI. PUBLIC COMMENT

None.

XIII. STAFF COMMENT

None.

XIV. BOARD MEMBER COMMENT

None.

XV. ADJOURNMENT

The meeting was adjourned at 11:11 a.m.

Respectfully submitted,



LINDA WEBB, Retirement Administrator

Approved,

TRACY TOWNER, Chairman

VENTURA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

1190 South Victoria Avenue, Suite 200
Ventura, CA 93003-6572
(805) 339-4250 • Fax: (805) 339-4269
www.vcera.org

January 9, 2017

Board of Retirement
Ventura County Employees' Retirement Association
1190 South Victoria Avenue, Suite 200
Ventura, CA 93003

SUBJECT: ESTABLISHMENT OF PERSONNEL REVIEW COMMITTEE

Dear Board Members:

The Retirement Administrator Performance Evaluation Policy requires that an ad hoc Personnel Review Committee be established at the beginning of each year. Members of the last committee in 2013 were Trustee Hoag (Chair), Trustee Johnston and Trustee Sedell.

Since the committee was last established, two (2) additional employees report directly to the Board with the addition of the Chief Investment Officer in 2015 and recently the General Counsel as a result of AB 1291.

Please appoint three Trustees to serve on this committee and designate a Chair.

I would be happy to answer any questions you may have at the January 9, 2017 disability meeting.

Sincerely,



Linda Webb
Retirement Administrator

VENTURA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

1190 South Victoria Avenue, Suite 200
Ventura, CA 93003-6572
(805) 339-4250 • Fax: (805) 339-4269
<http://www.ventura.org/vcera>

January 9, 2017

Board of Retirement
Ventura County Employees' Retirement Association
1190 South Victoria Avenue, #200
Ventura, CA 93003

SUBJECT: REINSTATEMENT TO ACTIVE MEMBERSHIP: MARTIN HERNANDEZ

Dear Board Members,

Staff recommends that VCERA retired member Mr. Hernandez be reinstated to active membership, pursuant to Government Code Sections 31680.4 & 31680.5. Mr. Hernandez has filed his application for reinstatement pursuant to section 31680.4, a medical determination that he is not incapacitated for the duties assigned, and a letter indicating an offer of full-time employment.

VCERA staff members will be pleased to answer any questions you may have on this item at the Disability meeting of January 9, 2017.

Sincerely,



Linda Webb
Retirement Administrator

SCANNED

Martin Hernandez
1110 Mariposa Dr.
Santa Paula, CA 93060
(805) 390-2077

RECEIVED

DEC 13 2016

VENTURA COUNTY EMPLOYEES'
RETIREMENT ASSOCIATION

December 12, 2016

Ventura County Employee Retirement Board
1190 S. Victoria Ave. Suite 200
Ventura, CA. 93003

Subject: REQUEST FOR REINSTATEMENT TO ACTIVE EMPLOYMENT

To Whom It May Concern:

I am writing this letter to request from your Board, reinstatement to active employment in order to have my pension reinstated to where it was when I left full time employment with the County of Ventura in August of 2016.

I would like to acknowledge that I have received no unemployment compensation in the last twelve months. I also acknowledge that this reinstatement will take effect the 1st day of pay period following your decision of approval.

Lastly, I have attached a copy of signed offer letter for full time employment, and a letter from my attending physician stating I am of sound physical condition to accept position.

Sincerely,



Martin F. Hernandez

December 9, 2016

Martin Hernandez
1110 Mariposa Dr.
Santa Paula, CA 93060

RECEIVED

DEC 13 2016

VENTURA COUNTY EMPLOYEES'
RETIREMENT ASSOCIATION

J. Matthew Carroll
Assistant County Executive Officer

Catherine Rodriguez
County Chief Financial Officer

Shawn Atin
Assistant County Executive Officer/
Human Resources Director
Labor Relations

Dear Mr. Martin Hernandez

RE: OFFER OF EMPLOYMENT

I am pleased to inform you that you have been selected for our current position of Supervisor Sr. Administrative Assistant. Your salary for this appointment will be \$3,461.538462 per Biweekly. Your annual salary will be \$ 90,000.00. A Flexible Benefits package may be made available to you based on your employment status and biweekly work schedule.

As a condition of your employment, you may be subject to a routine background investigation (standard procedure for all outside hired employees), and your employment will be contingent upon successful completion of the background investigation. You may also be subject to a routine "Fit for Duty" medical examination (for all outside hired employees) and your employment will be contingent upon successful completion of the medical examination.

You will report to Supervisor Kelly Long at 8:00am on January 3, 2017 (first date of employment). Our Human Resources Administrative Officer may be in contact with you to coordinate necessary documentation for your hire prior to your start date.

Please sign, date and return this letter as confirmation of your acceptance of this offer of employment.

Signature Martin F. Hernandez Date 12-10-16

Sincerely,

Anna Ford
Administrative Officer
County Executive Office

cc: Department Personnel File

Clear Form

Santa Paula Medical Clinic, Inc.

Affiliated with Ventura County Medical Center

Connell Davis, M.D.
Jaehun Byun, M.D.
Maria Delgadillo, F.N.P.
Ramon Gomez, M.D.

Nicole Kehoe, M.D.
Natalie M. Ladine, M.D.
Nancy Lu, M.D.
Jerold A. Noah, M.D.

RECEIVED

DEC 13 2016

SCANNED VENTURA COUNTY EMPLOYEES'
RETIREMENT ASSOCIATION

12/12/16

To whom it may concern:

I have been treating Martin Hernandez DOB 4/7/61 for the past eight years. Martin is not incapacitated and is able to perform the duties of a Senior Administrator Assistant to the third district office.

If you have any questions please feel free to contact me at (805)933-1122



Thank you,

Maria Delgadillo FNP

VENTURA COUNTY EMPLOYEES' RETIREMENT ASSOCIATION

1190 South Victoria Avenue, Suite 200
Ventura, CA 93003-6572
(805) 339-4250 • Fax: (805) 339-4269
<http://www.ventura.org/vcera>

January 9, 2017

Board of Retirement
Ventura County Employees' Retirement Association
1190 South Victoria Avenue, #200
Ventura, CA 93003

SUBJECT: REINSTATEMENT TO ACTIVE MEMBERSHIP: PAUL GROSSGOLD

Dear Board Members,

Staff recommends that VCERA retired member Mr. Grossgold be reinstated to active membership, pursuant to Government Code Sections 31680.4 & 31680.5. Mr. Hernandez has filed his application for reinstatement pursuant to section 31680.4, a medical determination that he is not incapacitated for the duties assigned, and a letter indicating an offer of full-time employment.

VCERA staff members will be pleased to answer any questions you may have on this item at the Disability meeting of January 9, 2017.

Sincerely,



Linda Webb
Retirement Administrator

Paul Grossgold
989 Garrido Dr
Camarillo, CA 93010
(805) 320-6650

December 12, 2016

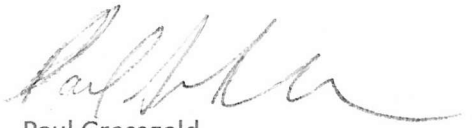
Ventura County Board of Retirement
1190 S Victoria Avenue, Suite 200
Ventura, CA 93003

I hereby request reinstatement to active employment.

I acknowledge that I have received no unemployment insurance compensation in the past twelve months. I further acknowledge that the hire date will be the first date of the pay period following approval of this letter.

Enclosed please find a physician's statement and written offer of employment.

Sincerely,

A handwritten signature in black ink, appearing to read 'Paul Grossgold', written in a cursive style.

Paul Grossgold

county of ventura

COUNTY EXECUTIVE OFFICE
MICHAEL POWERS
County Executive Officer

December 9, 2016

Paul Grossgold
989 Garrido Dr.
Camarrillo, CA 93010

J. Matthew Carroll
Assistant County Executive Officer

Catherine Rodriguez
County Chief Financial Officer

Shawn Atin
Assistant County Executive Officer/
Human Resources Director
Labor Relations

Dear Mr. Paul Grossgold

RE: OFFER OF EMPLOYMENT

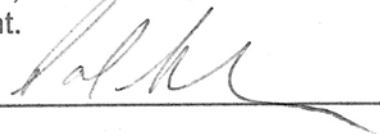
I am pleased to inform you that you have been selected for our current position of Board of Supervisor's Chief of Staff. Your salary for this appointment will be \$3,653.85 per Biweekly. Your annual salary will be \$ 95,000.00. A Flexible Benefits package may be made available to you based on your employment status and biweekly work schedule.

As a condition of your employment, you may be subject to a routine background investigation (standard procedure for all outside hired employees), and your employment will be contingent upon successful completion of the background investigation. You may also be subject to a routine "Fit for Duty" medical examination (for all outside hired employees) and your employment will be contingent upon successful completion of the medical examination.

You will report to Supervisor Kelly Long at 8:00am on January 3, 2017 (first date of employment). Our Human Resources Administrative Officer may be in contact with you to coordinate necessary documentation for your hire prior to your start date.

Please sign, date and return this letter as confirmation of your acceptance of this offer of employment.

Signature



Date

12/9/2016

Sincerely,

Anna Ford
Administrative Officer
County Executive Office

cc: Department Personnel File

Clear Form

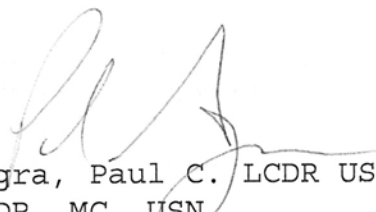
08 DEC 2016

From: Algra, Paul C., LCDR USN, NBHC Port Hueneme
162 First Street, Port Hueneme, CA 93043-4316

To: Whom it may concern

Subj: Medical Status

1. This letter is to confirm that Grossgold, Paul Scott; DOB 23NOV1953 was examined on 08DEC2016 and found to be physically fit and without any physical disabilities.
2. Please contact RN Civyl Nakho at (805)982-6342 for any questions.



Algra, Paul C. LCDR USN
LCDR, MC, USN
Family Medicine Physician, Staff
Medical Homeport Green Team

Paul C. Algra, DO
LCDR, MC (UMO/DMO) USN
Physician, Family Medicine
NPI#: 1598076424

MEMORANDUM

TO: Dan Gallagher
FROM: Ted Aronson
DATE: October 19, 2016
RE: IS IT SCIENCE OR IS IT BALONEY?

Larry Siegel takes aim at popular investment fads with three targeted questions:

- Is it grounded in real theory?
- Is it scalable?
- Does it work after implementation costs?

Spoiler alert:

Science, applied to markets to generate superior returns, is worth its weight in gold. Baloney is worth its weight in baloney (emphasis mine).



TRA
aronson@ajopartners.com

gce



"Strike 'baloney, horsefeathers, and hogwash.'"

IS IT SCIENCE OR IS IT BALONEY?

Laurence B. Siegel

September 2016¹

Which currently popular investment fads are flashes in the pan, and which are actually worthy innovations? Which are somewhere in between?

Because the theoretical or academic pedigree of an investment strategy helps mightily to sell it, marketers often represent whatever they're selling as "real science," with roots in the work of Nobel Prize-winning financial economists. Some of these claims are entirely justified. Some are almost entirely hype. More often, they're in between — good investment ideas that, sooner or later, take on the shape of fads and become crowded trades that lose their effectiveness.

Let's look, through this lens, at some strategies that are currently receiving attention from investors. Before starting, I'll state my biases: indexing is usually a very good way for investors to obtain access to an asset class, because it is hard to pick successful active managers and active strategies — but active management is *not* useless.² Far from it! Many strategies, especially value strategies, have delivered superior returns over long periods of time. Given the behavioral biases and information asymmetries that we observe almost everywhere, value investing can be expected to continue to perform well on average over time (although not all the time!). The effort to distinguish good active strategies from doubtful ones is well worth one's while.

Because most strategies start out as plausibly good ideas, at least in a backtest, and because no active strategy can "work" everywhere and always, most of the investment ideas covered in this article are in-betweeners. They are neither exact science nor pure baloney. But, as practiced and marketed, they sometimes lean to one side or the other.

For each strategy, several questions should be asked:

- Is it grounded in real theory?
- Is it scalable, that is, will it still work more often than not after it becomes popular? It is not necessarily bad to pursue a strategy that fails as more and more people attempt it, but at least you should know that a strategy has that characteristic, and you should have some indication of when to stop.

¹ Laurence B. Siegel is the Gary P. Brinson director of research at the CFA Institute Research Foundation (Charlottesville, VA) and can be reached at lbsiegel@uchicago.edu. I live and work in Wilmette, IL and Del Mar, CA.

This article is based on a panel discussion in which I participated at the Commonfund Forum, Orlando, Florida, March 16, 2015. I am greatly indebted to AJO (Philadelphia, PA) for its financial, moral, and practical support of this article and of my work in general; to Paul Kaplan (Morningstar Canada), Stephen Sexauer (San Diego County Employees Retirement Association), Rodney Sullivan (AQR Capital Management), and Barton Waring (Barclays Global Investors, retired) for their critical and always helpful comments; and, especially, to Thomas Idzorek of Morningstar for allowing me to recycle some of the ideas in his great article, "Caveat Emptor!" [Idzorek 2014], in the present work.

² There are some strategies, such as private equity, private real estate, and certain natural resources investments, for which an index fund cannot realistically be constructed (mostly because positions, or deals, have to be individually negotiated and there is not enough liquidity to rebalance the index). In these asset classes one must select active managers.

- Does it work (have a reasonable prospect of producing alpha) after all transaction costs and reasonable fees have been subtracted?

Let's go through a few of the major currently popular strategies.

CAPITALIZATION-WEIGHTED INDEXING

Cap-weighted indexing is the base case to which all active strategies must be compared. For a strategy to be considered active, it is necessary to define what is not active. A number of passive strategies can be imagined, including buy-and-hold-forever-without-rebalancing. But the only passive strategy — in fact, the only strategy of any kind — that *everyone* can follow without any stocks or bonds or other assets being "left over" is cap-weighted indexing. Cap-weighted indexing is *macroconsistent*.³

Cap-weighted indexing has been criticized mightily by proponents of the active, non-cap-weighted strategies discussed below. One author said it was worse than Marxism.⁴ (It's not.) The primary criticism is that one can do better by observing the fundamental values of securities. Cap-weighted indexing is said to overweight the stocks that are the most overpriced, to bet on momentum or the "greater fool theory," or to be demonstrably inefficient. (This last criticism usually involves some sort of look-back to see what would have been a better investment.)

Of course it's always possible to find an investment better than the cap-weighted benchmark with the benefit of hindsight! But we do not select securities for future holding periods with that kind of foreknowledge. So the cap-weighted index, demonstrably *efficient* when we use neutral return, risk, correlation forecasts that do not embody any special foreknowledge, is the benchmark for evaluating all other (that is, all *active*) strategies.

But indexing has recently become massively popular, not just as a benchmark but as a portfolio to be held for long-term investment. Is this trend hazardous? Someone has to set the prices of securities on the margin, and that "someone" has to be the community of active managers. They need to be paid for their work and risk. Are we at the point where there's so much indexing that no one is setting the prices?

Not nearly. If not enough people are setting security prices, active management should be easy and alphas should be huge.⁵ The difficulty that both traditional active managers and hedge funds in the 21st century are having in extracting alpha is testimony to the fact that indexing is at least fairly efficient and active management is not easy. (We'd also note that we do not know the optimal amount of effort to devote

³ See my book, *Benchmarks and Investment Management* [Siegel 2003] for an extended discussion of cap-weighted indexes (benchmarks), indexing, and macroconsistency,

⁴ Fraser-Jenkins *et al.* [2016]. See <http://www.bloomberg.com/news/articles/2016-08-23/bernstein-passive-investing-is-worse-for-society-than-marxism> for a discussion.

⁵ To be completely clear, even in a very inefficient market alphas are huge only for those with above-average skill; active management still a zero-sum game, no matter how efficient or inefficient the market. See Sharpe [1991], which, by the way, has the great virtue of being only two pages long, with no math. A must read.

to alpha production, if the objective is allocating resources so as to maximize long-term economic growth. This is a worthy topic for future research.)

Cliff Asness argues that index fund investors, free-riding on the price discovery efforts of their active brethren, are taking advantage of capitalism's greatest gift — the information in prices.⁶ This is exactly what they should be doing. The ability to use this information without paying for it, Asness concludes, is not a defect of capitalism, but one of its most valuable features. That's where I come out too.⁷

In extremis, the world doesn't need conventional active managers at all. As Rex Sinquefeld pointed out a generation ago, corporations can set the prices of their own securities by deciding whether to issue more stock, buy some back, or leave well enough alone. (They know more about the value of their stock than managers do.)

But don't worry, this is not about to happen. There is no shortage of active managers or of active management ideas.

Science or baloney? Cap-weighted indexing is firmly rooted in science

FUNDAMENTAL INDEXING

Fundamental indexing (of equities) is just like cap-weighted indexing except that you don't use cap weights; you use other data about the sizes of companies as the weights. These other data can be sales, earnings, dividends, number of employees, book value, or a combination of these. What is not used is the market's own assessment of the stock's value, in the hope that stocks which are overpriced by the market (relative to their fundamental value) get a smaller allocation than they do in a cap-weighted index.

What an appealing idea for beating benchmarks! We all know that markets are not perfect at pricing securities, and avoiding those that are overpriced, while giving generous weights to those that are underpriced, would seem to be an almost surefire formula for success.

It's not a bad strategy, but *it's just value investing*. As Paul Kaplan, of Morningstar, shows, a fundamental index is just a yield tilt applied to a cap-weighted index: "the fundamentally weighted index underweights stocks that have lower yields than the market-cap-weighted portfolio and overweights stocks that have higher yields than the market-cap-weighted portfolio."⁸

⁶<https://www.bloomberg.com/view/articles/2016-09-02/indexing-is-capitalism-at-its-best>

⁷ Consider a hardware store owner who is trying to figure out how to price an item, say, a power saw. He can perform fundamental analysis, studying his cost for the saw, labor costs, rent, the normal rate of profit in the hardware business, and so forth, and repeat this process for each item in the store; good luck with that. Or he can see what other stores are charging and charge a dollar less, or try to provide slightly better customer service. The strategy of using price information that has already been generated by others is obviously better and more efficient.

⁸ Kaplan [2008], p. 36. At least, that is the case if yield (dividend yield or earnings yield) is the sole variable used by the fundamental indexer. If the fundamental indexer uses a different variable, such as book value, or a combination of variables, the same principle applies.

What is good about fundamental indexing, relative to most other value indexes, is that it does not segment the market into two halves (value and growth) and throw away the growth stocks. It reweights them just like it does the value stocks. This practice reflects an appropriate degree of humility about which stocks are really growth and which are value — it is impossible to know for sure.

Science or baloney? Fundamental indexing is science in an elegant marketing wrapper. But the wrapper doesn't tell the full story that it is just a tilt to value and, like any other value strategy, it won't work in every period.

LOW VOLATILITY

Back in 1972, the great finance professor Fischer Black said that if investors cannot leverage or sell short, the security market line (the line expressing the relationship between beta and expected return) should be flatter than predicted by the Capital Asset Pricing Model (CAPM), so that low-beta stocks will generate a positive alpha.⁹ (The reason is that investors wanting to increase their returns will buy high-beta stocks as a substitute for leveraging up their portfolios, leaving low-beta stocks undersubscribed and underpriced.) Robert Haugen, another professor, made a career out of studying this phenomenon. Many firms now manage low-volatility portfolios, and the low-volatility or low-beta anomaly has produced good results up through the present day.

But why hasn't it been arbitrated away? Now that hedge funds, ETF managers, and other investors *can* use leverage and sell short, why don't investors just hold portfolios that are efficiently balanced between low- and high-volatility stocks, and leverage them up if they want higher risk and higher expected returns?

One reason may be that the leveraged fund industry (including hedge funds) manages "only" a couple of trillion dollars, tiny compared to the overall size of markets and not enough to bring the prices of low-volatility stocks into parity with the rest of the market. A careful analysis by Ilmanen *et al.* [2015] shows that, as recently as two years ago, there was little sign of overpricing or crowding in low-volatility U.S. equities. The limits of arbitrage — the fact that smart investors rarely have enough capital to correct large market mispricings — make it possible for factors that everybody knows about, such as value and low-volatility, to deliver positive excess returns for a very long time.¹⁰

But another possibility is that the anomaly *is* being arbitrated away; we just can't see it yet in the data. When Bloomberg Markets calls low-volatility investing a "craze," it just might be too late.¹¹

⁹ See Black [1972].

¹⁰ See also Asness [2015].

¹¹ <http://www.bloomberg.com/news/articles/2016-06-22/performance-is-trumping-safety-in-the-low-volatility-etf-craze>

Science or baloney? Low volatility has been a winning factor bet for a very long time. There is a scientific basis for it. Still, with large capital flows into the strategy, there is legitimate concern that it can't work indefinitely.

RISK PARITY

Risk parity is just “low volatility” for asset classes. But consider how it’s typically implemented: you borrow short (that is, at short-term interest rates) and lend long (by buying bonds and other long-dated assets)...what could possibly go wrong?

Joking aside, risk parity has a bit of a scientific pedigree. With risk parity, each asset class is held in a weight that causes it to make the same contribution to total portfolio risk (standard deviation) as every other asset. The portfolio may then be — but does not have to be — leveraged up or down to the volatility level that the client prefers.

According to Kaplan [2015], the risk parity portfolio “sit[s]...between the minimum variance portfolio and the equally weighted portfolio in that it is the solution to an optimization program that assigns equal weight to...two diversification measures... [namely] the standard deviation [and the] average log-weight.”¹² If you’re still following this, I can simplify by saying that the risk parity portfolio is optimal under a carefully defined set of conditions.

Here is the analogy to low-volatility investing within an asset class: it works if assets (or asset classes) are mispriced relative to one another because investor can’t or don’t want to use leverage. In the absence of leverage, investors overweight high-risk asset classes to increase their expected return. Investors who *can* leverage take the other side of this trade through risk parity, which overweights low-risk assets such as bonds, then leverages the whole portfolio.

So, is risk parity a sensible strategy? Yes, for the same reason as low volatility within equities — safer assets have tended to outperform on a risk-adjusted basis — but, like low volatility within equities, it has a *peso problem*.

A peso problem has nothing to do with the feeling you get when you’ve drunk too much tequila, or spent too many pesos. It is the economist’s term for a risk that is present in an asset but that cannot be found in the historical data. It comes from the Mexican peso’s behavior around the time of the 1982 crisis: the yield on peso-denominated assets was very high, but the peso had never crashed, so the high yield appeared to deliver a free lunch (presumably with *pico de gallo* on the side). After the peso had provided a high yield for a while, however, it did crash — just as the market had predicted.

With risk parity, the peso problem occurs if long rates spike up and one’s fat position in bonds loses value, or if the yield curve inverts, raising borrowing costs. (Risk parity can perform well when rates rise slowly, because the gain from leveraging higher-yielding assets outweighs the capital loss from the overall rise in yields. However,

¹² Kaplan credits Maillard, Roncalli, and Teiletche [2010] with this insight.

when yields rise quickly, risk parity can be expected to lose.¹³) To this “peso” risk one must add leverage, liquidity, and counterparty risks. These are the risks for which risk parity’s apparent return premium is compensation.

Leverage only presents a serious risk if used carelessly. Many well-designed investment products include leverage. But we have heard of risk-parity products that had an unleveraged volatility of 3% being leveraged to a volatility target of 15% — that’s five-to-one, a disaster waiting to happen. Careful risk management is essential to the success of risk parity or, for that matter, any leveraged strategy.

Science or baloney? Using leverage when other investors cannot is science, but it’s risky unless risks are managed very carefully. Do it if you’re confident that bond yields won’t spike up during your intended holding period. However, claims that risk parity portfolios are structurally or inherently better than other portfolios are mostly baloney. You also need to decide whether the use of leverage presents a risk that you cannot tolerate.

FACTOR INVESTING AND SMART BETA

Quant is dead, long live the quant.

When quantitative investing — as then practiced — hit a very rough patch starting around 2007, quants didn’t die; they became factor investors, assembling factor-based index funds and ETFs (fundamental indexing is one) and marketing them, in some firms, as “smart beta.” (A quant, after all, is just someone who is skilled in math; presumably some, or most, of them are general-purpose soldiers who can be redeployed in solving a new problem when an old one goes away.) The factors include the usual suspects — size, value, and momentum — as well as some new ones, such as “carry” (yield), quality, and low volatility.

Old fogeys will remember when yield was the only factor anyone knew about — as John Burr Williams said in his 1938 attempt at writing poetry, “A cow for her milk / A hen for her eggs / And a stock, by heck, for her dividends.” (He should be glad he kept his day job at Harvard.) Everything old is new again.

As practiced by the more naïve managers, factor investing is chasing your tail, betting on past factor performance; it is data mining. But if you can make at least partially accurate forecasts of factor returns, it’s much better. At bottom, factor investing is just a claim that you can add alpha, but at the factor level rather than the security level.

Stephen Sexauer, the CIO of the San Diego County pension fund, has pointed out that most quantitative active strategies can be thought of as a highly intelligent “bot” wandering through the securities markets.¹⁴ There is also a mother bot, or perhaps a committee of human beings, constantly monitoring the bot to see if it is doing anything useful. The criteria for usefulness are whether it’s making a profit and whether its success is attracting a swarm of competing bots big enough to take the

¹³ See Hurst, Mendelson, and Ooi [2013].

¹⁴ Personal communication.

profits away. If the latter, or if it's not producing a profit, the bot gets retired and replaced.

This isn't a bad way to try to make money; it just has its limits. Investment managers — being human — tend to pursue each quant active opportunity identified by the bot well past its limits, as we saw from the "quant crash" of August 2007.

Factors and "quant" investing, then, are just active management, subject to Barton Waring's Two Conditions needed for justifying active management. These are: (1) you have to believe that managers skillful at adding alpha exist, in the future and not just in past performance data; and (2) you have to, yourself, have the skill needed to select them from among a population of managers that underperforms on average.¹⁵

Science or baloney? Factor investing is science if there is fair reason to believe the manager can identify factors with a positive expected alpha — until the factor becomes a crowded trade and the expected excess return flips to negative. Then, unless you change your factor bets, it's baloney. It's hard to see how any factor can work forever.

UNCONSTRAINED INVESTING: HEDGE FUNDS, ABSOLUTE RETURN, MARKET NEUTRAL, LONG/SHORT, AND PORTABLE ALPHA

Thomas Idzorek [2014] beautifully characterizes these strategies as ways to "enable managers to maximize the benefit of their skill." He also discusses the differences among them in some detail, so I don't have to. Please refer to http://www.nxtbook.com/nxtbooks/morningstar/magazine_20140405_global/index.php?startid=5.

Most of these strategies increase the impact of manager skill by relaxing the long-only constraint and/or the no-leverage constraint (where security positions have to add to 100% and no more). In the case of portable alpha, the convention is relaxed that says alpha has to be delivered to the investor in the asset class in which it was produced by the manager. Note that these strategies aren't fully unconstrained, but the relaxing of traditional constraints is the distinguishing feature that they have in common.

The catch, as always, is that you have to have skill in the first place. Managers who are lousy at alpha production in traditional (long-only, unleveraged) investing are unlikely to become better at it when the constraints are removed. Given the small number of traditional active managers who consistently beat their benchmarks over time, there are way too many nontraditional active managers claiming that they'll do so now that they've been liberated from the long-only constraint...after all, they're the same guys (and girls). Removing a constraint does not make you smarter.

But constraints do reduce the potential for earning return. So why are they there? For risk control. They protect the investor from the manager's mistakes, some of which, as enough time accumulates, are likely to be big enough to destroy a completely unconstrained portfolio.

¹⁵ See Waring, Whitney, Pirone, and Castille [2000], Appendix C on pp. 101-103.

If investors didn't care about risk, unconstrained investing would be the bee's knees. But, as Harry Markowitz said more than 60 years ago, "That afternoon in the library, I was struck by the notion that you should be interested in risk as well as return."¹⁶ Thank goodness for Markowitz's afternoon in the library, and for constraints.

Science or baloney? If you truly can add alpha after transaction costs and fees, in the future when you are managing real money and not just in a backtest, then unconstrained investing is science. If your active process is really just a random number generator, then it's baloney. But the fees can be spectacular...for the manager.

THE ENDOWMENT MODEL

In the 1990s the great investment managers Jack Meyer at the Harvard Management Company and David Swensen at the Yale University investment office became famous and popular for earning very high returns for their institutions. Their secret was large allocations to unconventional investments such as venture capital, private equity (buyout) funds, hedge funds, timber, and commodities. In Meyer's case these were supplemented by aggressive internal management of conventional asset classes, conducted by highly paid specialists.

The word quickly got out that top universities, and some other institutions such as charitable foundations, had discovered a new model of investing, focused on alternatives. Many smaller endowments and foundations, and some pension funds, tried to copy the Harvard and Yale models. This first met with some success, but later — especially after the crash of 2008 — these institutions found that the new strategies consumed a lot of liquidity (due to capital calls from venture and private equity firms), required hiring expensive and finicky staffs, and sometimes lost dramatic amounts of money.

By June 2008, about the peak of the alternatives craze, 60% of the total assets of a group of eight top universities were invested in hedge funds and nonmarketable securities (mostly private equity). Including expected capital calls as well as hedge funds and nonmarketable securities, the number rises to a stunning 91%.

This could not end well. As I wrote in 2013, "We don't have data on exactly how these endowment funds performed in the crash or how hard they had to scramble for liquidity in 2009. The anecdotal evidence is that the results weren't pretty. A number of universities had to go to the capital markets to borrow, while others made drastic adjustments to spending. Liquidity is more than just a theoretical concern!"¹⁷

Crashes and liquidity crises aside, we can't all earn huge alphas at the expense of each other. If the endowment model is implemented successfully on a large scale by many investors, that means there has to also be a large population of investors willing to earn negative alphas relative to the world's overall capital market benchmark. In

¹⁶ Quoted in Bernstein [1993].

¹⁷ See Siegel [2013].

this age of accurate performance measurement and hypercompetitive investment organizations, it is more of a stretch than it used to be to assume that such a population of willing losers will always be there. For all but the most skilled investors, endowment-model investing may be a good idea whose time has passed.

Science or baloney? The endowment model is science if you're Jack Meyer or David Swensen; otherwise, beware. (Just ask Harvard after the last few years of underperformance.) It also helps to have friendly markets, with low prices and glaring inefficiencies. If you can start 25 years ago, you'll be way ahead.

ENVIRONMENTAL, SOCIAL, AND GOVERNANCE INVESTING (ESG)

I am reluctant to address this topic because I am swimming against the tide. However, my conscience is gnawing at me. I know, as do most investors deep down, that ESG investing is almost always suboptimal from a pure investment, or risk-adjusted return, standpoint. In fact, Elroy Dimson, Paul Marsh, and Mike Staunton, a celebrated trio of British economists and financial historians, show that an anti-ESG strategy, buying the stocks shunned by ESG investors, delivered superior returns over 2002-2014.¹⁸ Such a “bad guy” strategy does make some sense. All other things equal, divestment lowers a stock’s price, raising its expected return to those who do not participate in the divestment.

Moreover, ESG investing is unlikely to achieve the social goals it purports to promote. The stock doesn’t know you don’t own it. On a massive scale, divestment could raise the cost of capital for an issuer, but not if there are enough bad-guy investors taking the other side of the trade. And, at some level of enhanced return, the bad-guy investors will come out of the woodwork.

Why is ESG investing likely to be suboptimal? Businesses always try to externalize — that is, to get third parties to pay part of their costs if they can. An example is pollution, where a business and its customers impose a cost on other users of the atmosphere, water, and so forth. That may not be very nice, but it is what the business’ competitors are allowed to do — so, in an economic sense, it’s fair, because one business should not have to pay costs that its competitors can legally avoid. That is why we need laws and regulations that all businesses are equally required to comply with.

Thus, companies that voluntarily do not pollute, or that operate in other ways deemed desirable by ESG investors, will make less money and be less desirable investments.¹⁹

If you think it’s immoral to buy a security, don’t buy it, at least not with your own money — it’s your conscience that you have to live with. But, if you’re a fiduciary,

¹⁸ See Dimson, Marsh, and Staunton [2015].

¹⁹ If you want to use ESG indicators as an input to fundamental analysis — for example, if you think well-governed companies deliver higher profits — you may be onto something, but that is not what most people think of as ESG.

remember that it's other people's money you're using to assuage your conscience. You have to live with the consequences of that too.

Science or baloney? ESG investing is mostly baloney

OTHER STRATEGIES

Investment innovations and fads come and go, but a few seem to stick around through thick and thin: All Equities All The Time, liability-driven investing, the free lunch in diversification, global investing, and dividend growth. We'll slay these dragons — or show how they're supported by real science — in future articles.

CONCLUSION

The investment management industry has made a great many managers rich beyond imagining. Many of them have earned their riches, but investors would be well served to understand better the difference between science and baloney in investment management. Science, applied to markets to generate superior returns, is worth its weight in gold. Baloney is worth its weight in baloney.

By distinguishing science from baloney, one can deal better with the vast asymmetry between the interests of the manager, who needs to get it right once to become very rich, and those of the investor, who needs sustained and repeatable successes to build wealth over time.²⁰ Where are the customers' yachts?

²⁰ This asymmetry is especially large for high-fee, high-active-risk managers. It is much less for index fund managers and for low-fee active managers who build diversified portfolios intended to be held for the long run.

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FLOODS AND DESERTS: WHY THE DREAM OF A SECURE PENSION FOR EVERYONE IS STILL UNATTAINED

Stephen C. Sexauer and Laurence B. Siegel
November 2016¹

Why have defined benefit (DB) pension plans, arguably the most elegantly engineered financial service ever created, stumbled so badly? Less than fifty years after achieving wide acceptance and providing predictable and secure benefits to their participants, many DB plans have been terminated, while others struggle to attain adequate funding levels.

Many of the terminated DB plans have been replaced with defined-contribution (DC) plans, which offer a very different and, some argue, inferior set of characteristics. Were DB plans undone by evildoers? Did misaligned incentives overwhelm the governance of well-designed plans? Are DB plans doomed by design? What went wrong?

We argue that the current wave of pensions in crisis is due to predictable human behavioral shortcomings, not evildoers or a fundamental flaw in DB pension plans. Specifically, when pension sponsors, employees, and investment managers "anchored" on an extremely rare event, the 18.5% compound annual return that the U.S. stock market enjoyed from 1982 to 1999, they mentally projected these returns forward into the future. Then, they funded the plans accordingly. In their imagining, the markets, not the sponsors and employees, were going to pay for the benefits.

But markets do not rise at 18.5% per year indefinitely, and performance in this young century has been well below average. At the same time, the employers and employees kept negotiating pay and pension agreements that only worked if paid for by high market returns. And, while transitioning from high to low equity returns, we experienced another, even more unlikely dislocation: from high real interest rates to low or negative ones, causing the pension liability to mushroom.

So far, the goal of providing secure, predictable retirement benefits for long-lived employees is unfulfilled for many. But "unfulfilled" is not "unattainable." Going forward, well-run and successful DB plans will be the ones that work to align incentives and anchor on realistic pension promises, contribution rates, and expected market returns so that the goal of lifetime income is achieved.

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DON'T KILL THE GOLDEN GOOSE²

If attaining reliable lifetime income is the goal, let's start with this: The DB pension architecture is the best system yet devised for spreading the income from one's working life over one's whole life.³

Successful DB plans have three savings and investment parts in common: (1) a savings process, with rates high enough to spread wages earned while working over a lifetime; (2) returns on the savings until they are spent in retirement; and (3) longevity pooling — where the total plan is managed to the average (not maximum) life expectancy and benefits are paid out over each beneficiary's lifetime, providing certainty of lifetime income with far less savings than an individual would need.

The reason longevity pooling is so powerful is simple: Individuals face a very wide range of years in retirement. Some individuals will even have more retirement years than working years. Each individual needs to provide for his or her maximum possible lifespan. But the longevity pool, which is the DB plan, requires only enough money for the *average* number of years in retirement.⁴ The short retirements offset the long retirements — individuals forgo a possible bequest balance when they die, but they gain assured lifetime income no matter how long they live. There are no fundamental reasons this cannot be achieved.

DB plans also provide overwhelming economies in administration and purchasing of the core services of actuarial calculations, investment management, and recordkeeping. Essentially, all the employee needs to do is to work and save during his or her working years and then get up each morning in retirement. The DB plan does the rest reliably and at low costs.

UNATTAINED RETURNS AND UNATTAINED DREAMS

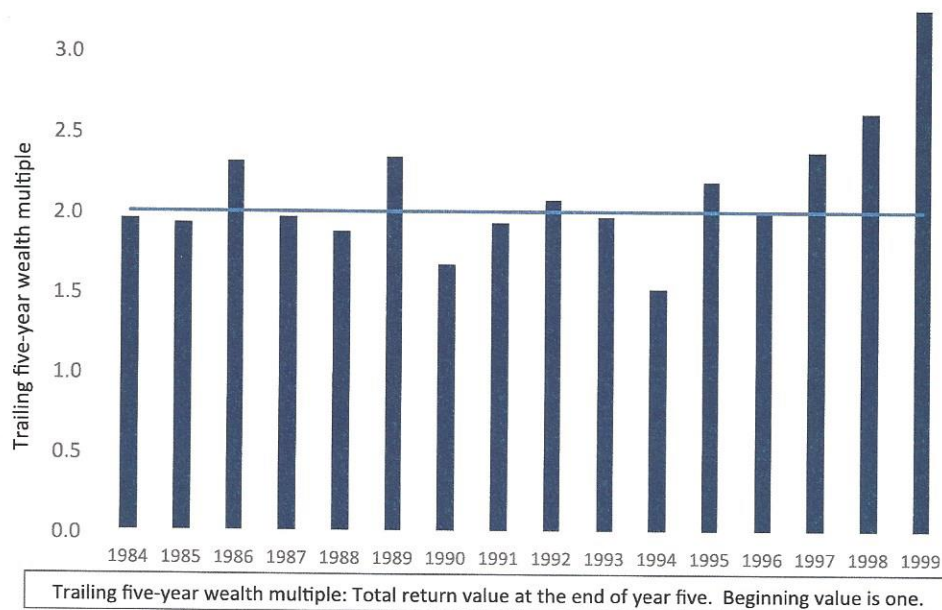
The desire to have pension benefits mostly pay for themselves through market returns became a "new age" expectation after the 1980s and 1990s, when earning 15% to 20% per year in the capital markets was the "normal" experience. These extraordinary results doubled wealth during this period about every five years, creating an aura of abundance that flooded pension systems with wealth year after seemingly endless year.

² "Don't Kill the Golden Goose" is the title of an article by Laurence Siegel with Barton Waring. See Waring and Siegel [2007]. And it's not really a golden goose. It's the goose that laid the golden eggs.

³ Longevity pooling, low costs, and the scaling of actuarial and investment expertise make a DB plan superior to other investment solutions. A rigorous and accessible review of DB economics can be found in Ennis [1988], Waring and Siegel [2007], and Waring [2011]. See also the January/February 2015 special issue of the *Financial Analysts Journal*, especially the articles by Siegel [2015], Ezra [2007, 2015], Ambachtsheer [2007, 2015], and Sexauer and Siegel [2012, 2015].

⁴ Over time, life expectancy has increased for most segments of the population. This trend can be estimated and priced into the plan. What cannot be priced in are unexpected changes in the trend. The sudden surge in life expectancy after the introduction of antibiotics in the 1940s is a good example. Well-run plans will need feedback loops to contribution rates and benefits levels if future unexpected changes are large and persistent.

EXHIBIT 1
S&P 500 TOTAL RETURNS: TRAILING FIVE-YEAR WEALTH MULTIPLES, 1980–1999



Source: Constructed by the authors using data from Morningstar Ibbotson S&P 500 2016 Yearbook. Used with permission.

Expectations of returns like these will almost always be defeated in the long term, and the defeat began in 2000. But by then, almost everyone — employers, employees, consultants, actuaries, and investment managers — had anchored on these halcyon years of abundance.

ANCHORING AND UNATTAINED RETURNS

Anchoring is the behavioral tendency to overemphasize the most recent or seemingly most important observation. The founding fathers of behavioral economics and finance, Amos Tversky and Daniel Kahneman, wrote in 1974:

In many situations, people make estimates by starting from an initial value which is adjusted to yield the final answer. The initial value, or starting point, may be suggested by the formulation of the problem, or else it may be the result of a partial computation. Whatever the source of the initial value, adjustments are typically insufficient.⁵

In psychological experiments, subjects have come up with some very silly answers through anchoring. Asked to guess when Albert Einstein first visited the United States, they were first given possible answers of 1215 or 1992. These “initial values” or anchors influenced the subjects’ answers significantly, even though these suggestions are ridiculous and most people know that Einstein was a fixture of the early 20th century. (He lived from 1879 to 1955 and first visited the U.S. in 1921.)⁶

⁵ Tversky and Kahneman [1974].

⁶ Yudkowsky [2008].

ANCHORING ON A MIRACLE ... OR ON A LUCKY DRAW FROM A WIDE DISTRIBUTION?

Now imagine how heavily influenced one might be if the initial value, or suggestion, contains a grain of truth. An investor, pension sponsor, or pension fund manager at the end of 1999, trying to develop a funding and investment plan for the next decade based on the returns on the U.S. equity market, would observe this picture:

EXHIBIT 2

NOMINAL AND REAL TOTAL RETURNS ON THE S&P 500, 1982–2000



Source: Constructed by the authors using data from Morningstar Ibbotson SBBI 2016 Yearbook. Used with permission.

The S&P 500, including dividends, grew at 18.5% per year from the end of December 1981 to the end of December 1999; in real terms, the growth rate was 14.7%. Investors would be forgiven for anchoring on the idea that this is what stock markets do in the lucrative new era of rapidly advancing technology, burgeoning democracy, and increasingly free global markets — instead of thinking this was a once-in-a-lifetime event that drove stock prices to unsupportable highs that could not be repeated — especially if the funding picture for their plan looked much prettier with an optimistic view of the market.

ASSESSING THE LIKELIHOOD OF THE 1982–1999 BULL MARKET

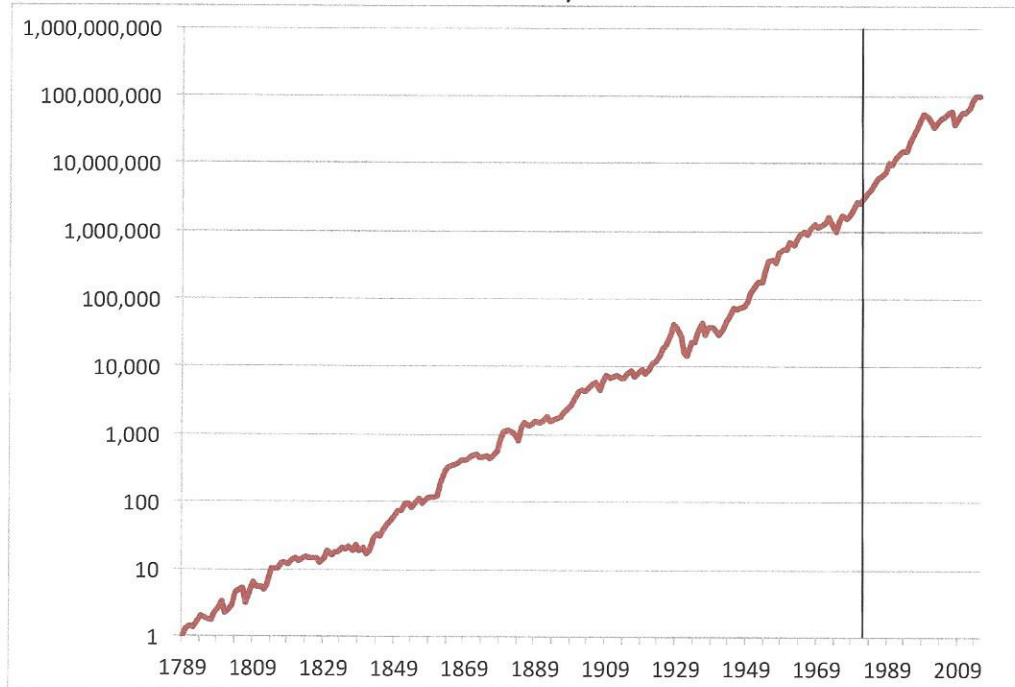
Now, just how unusual or unexpected is an 18-year stock market return (using whole years) of 18.5% per year, summing to a 21-fold increase in the index?

The usual way to approach this question is to ask: by how many standard deviations does this return exceed the mean or expected return? However, if we use the stock market data that are ordinarily available, which start in 1926, we can't reliably calculate a standard deviation. As of 1981, when our assessment starts, there are only three independent 18-year observations. Rolling-period-observations are not useful because they are not independent; they count the same returns over and over.

Fortunately, a number of scholars have collected U.S. stock market returns all the way back to 1790, giving us ten independent 18-year observations and most of an eleventh one prior to 1982.⁷ This is a large enough data set to get an estimate of the range of 18-year outcomes. We can calculate a standard deviation that is somewhat meaningful. While we have doubts about the exactness of the early data, they are good enough to give us a sense of the market's overall return and volatility over time.

Exhibit 3 shows the data from 1790 to 2015, with a vertical line at July 1982 (when one might have tried to guess the likelihood of an 18-year bull market that gains at the nominal rate of 18.5%). The visual appearance of the graph does not give us any reason to believe that market volatility has materially changed over time, so it's reasonable to use this long period to estimate the likelihood of the Great Bull Market's 18.5% annual return.

EXHIBIT 3
CUMULATIVE TOTAL RETURN ON U.S. STOCKS, 1789–2015 (GRAY LINE AT BEGINNING OF 1982–1999 BULL MARKET)



Source: 1789–1814 data from Ibbotson and Brinson [1993]; 1815–1824 capital appreciation data from Morningstar Ibbotson SBBI 2016 Yearbook, with dividend estimate of 4% added annually; 1825–2015 data from Morningstar Ibbotson SBBI 2016 Yearbook. Used with permission.

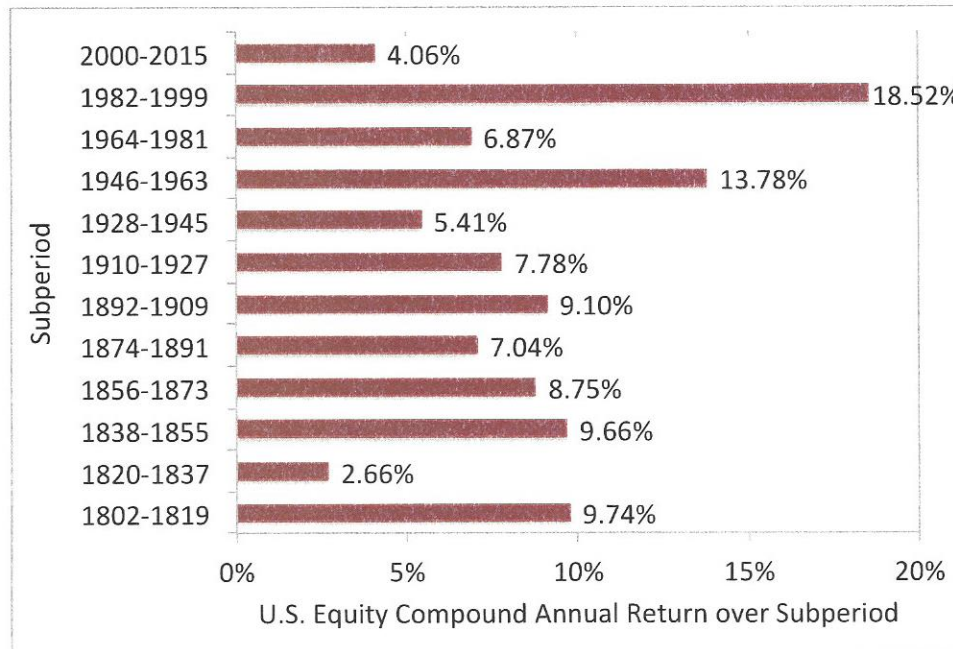
On the grand scale of Exhibit 3, what happened after 1982 does not look all that different from what happened before, since the whole history of stock market returns resembles a squiggly variation around a straight line (which, on a log scale, represents constant growth).

⁷ The measured standard deviation is somewhat sensitive to the choice of a date to start the first 18-year period. We use 1802 because that gives us exactly ten 18-year periods before 1982, and ignore the 1790–1801 data.

However, the 1982–1999 period really was exceptional. We see this when we examine Exhibits 4 and 5, which show each of the 18-year returns in a graph and numerically.

EXHIBIT 4

TOTAL NOMINAL RETURNS ON U.S. STOCKS BY 18-YEAR PERIODS, 1802–2015



Source: See Exhibit 3.

EXHIBIT 5

SUMMARY STATISTICS OF U.S. EQUITY RETURNS BY 18-YEAR PERIOD

<u>Period</u>	<u>Mean of 18-year returns*</u>	<u>Standard deviation of 18-year returns</u>
1802-1981	8.08%	2.95%
1802-1999	9.03%	4.21%
1802-2015**	8.62%	4.26%

* Arithmetic mean of compound annual 18-year returns

** Last period (2000-2015) is a 16-year period

Source: See Exhibit 3.

Because the mean return over the ten 18-year periods is 8.08% and the standard deviation of the ten 18-year returns is 2.95%, the 18.5% bull market return is 3.5 standard deviations above the mean.

Thus, the return that happened over 1982–1999 seems very unlikely indeed; if the 18-year periods prior to 1982 are representative and the tails are “normal,” not fat, we should expect it to come along only once in every 90,000 years. (This is the estimate for a population or large sample. For a small sample, Student’s T-distribution applies, and the estimate is once in every 13,000 years.)

Yet it happened! Maybe our model is wrong, so we should dig a little deeper. As it turns out, the model is “wrong” — more precisely, the very fact that the bull market happened shows that the 1802–1981 period wasn’t fully representative. With the 1982–1999 results in hand, one can update the z-score using eleven 18-year returns (the ten periods we already have plus the 1982–1999 period itself). Performing this calculation, the 18-year return is 2.2 standard deviations above the updated mean.

Ah ... much better! A bull market of this size and duration should occur every 1,300 years (or 874 years using Student’s distribution), not every 13,000 or 90,000.

So, we can see that it’s *normal* to have a very high return: the 1981–1999 result is a two standard-deviation event (in this case a little more than that but not much more). It’s also normal to have a *negative* two standard-deviation event. Pension sponsors should be prepared for both.

What to do? A fully rational investor would probably plan for a return around the long-term mean — which was 9% at the time, although today we’d adjust that downward because interest rates and inflation are very low — and put in place a well thought-out backup plan in case the market turns out to be mean-reverting and the return in the subsequent few years is well below the mean.

But, as Kahneman and Tversky observed, in every sphere of human activity, people are not fully rational. It is entirely understandable that pension sponsors and managers, facing strong incentives to minimize contributions, would have leaned toward an interpretation of the 1982–1999 data that suggest much of that period’s rate of return is repeatable.

In other words, plan sponsors saw a more than two-standard-deviation event and thought it was perhaps a one-standard-deviation event. And they budgeted accordingly, funding the plans as though their mistaken assessment was correct.

More fully, sponsors anchored on the following sequence of events: the pension community, after decades of predominantly fixed-income investing, bet big on equities in the 1980s and 1990s. This bet had a huge payoff and made it look as though market returns, not plan contributions, would pay for the lion’s share of pension promises and actually allow the promises to be enriched after the fact.

There is nothing more dangerous to a beginning gambler than winning. The “win” taught pension sponsors not only that equities were the best asset class, but that they, the pension community, were superior investors whose ability to foretell the future was worth a fortune.

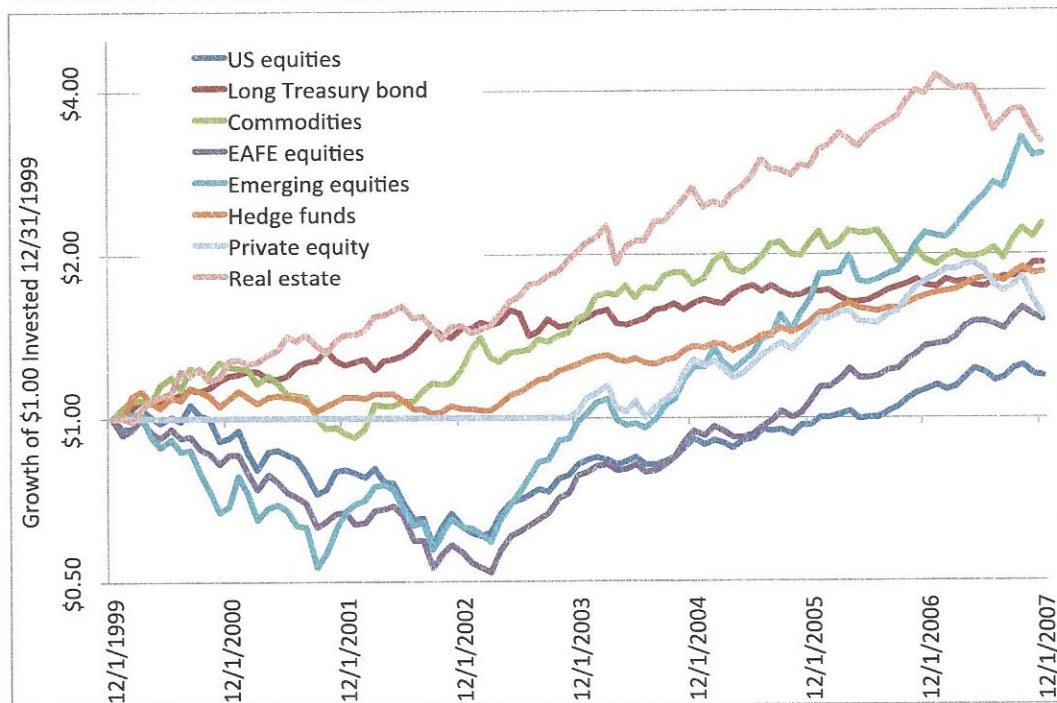
WHAT HAPPENED NEXT? FROM FLOOD TO DESERT

Search for the unattainable: 2000–2007

We all know what happened next. The TMT (technology, media, and telecommunications) “crash” of 2000–2002 was an orderly dissolution of the silliness that pervaded late-1990s equity investing. There was no actual crash; prices fell about as quickly as they had risen, with the S&P 500 losing half its value between March 2000 and September 2002.

Markets then rebounded, with the United States doing well but almost every other market in the world doing better. Exhibit 6 shows returns on selected asset classes over 2000–2007. The return on emerging-market equities, led by China, was unprecedented: a six-to-one increase in a five-year period. Hedge funds and private equity also boomed. Return was very closely related to beta, with the riskiest investments — emerging markets, commodities, leveraged hedge funds, and private capital — performing best. Real estate returns were simply out of sight, making many ordinary homeowners paper millionaires.

EXHIBIT 6
CUMULATIVE TOTAL RETURNS ON PRINCIPAL ASSET CLASSES, 2000–2007



Note: US equities: Russell 1000. Commodities: CRB index. Emerging equities: MSCI EM. Hedge funds: HFRI Equity Hedge (Total) Index. Private equity (data start December 2003): S&P Listed Private Equity index. Real estate is Dow Jones U.S. Real Estate index.

Source: Barclays Live (long Treasury); Bloomberg (all other).

We call this period the Second Flood. It was like a repeat, in miniature, of the Great Bull Market of 1982–1999, but with exaggerated features in some sectors and with sluggish participation by the old-economy S&P 500. It stimulated pension managers to redouble their efforts to achieve unattainable returns, this time with greater emphasis on “alternatives” (largely hedge funds and private equity) and “the endowment model” (the ambitious, alternatives-laden strategies popularized by Harvard and Yale).

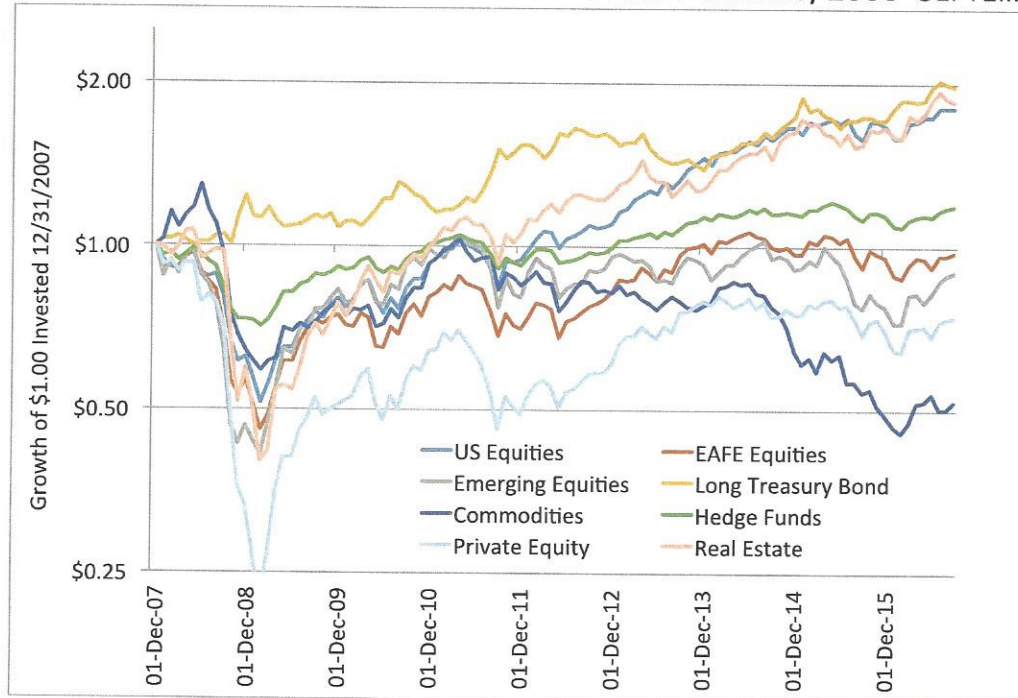
Pension funds, searching for the rich returns of the prior period, poured assets into both private equity and hedge funds. Total hedge fund assets expanded from \$500 billion in 2000 to an astounding \$2.8 trillion in 2016. Private equity assets experienced a similar leap, going from \$400 billion to \$2.6 trillion. Over \$5 trillion of mostly pension assets were invested in illiquid, opaque, and leveraged assets in search of high returns.

2008–2016: The Global Financial Crisis and the Return Desert

Then, in a story too often retold, the bottom fell out of the stock market and other risky markets worldwide. The S&P 500 fell by 57%. Interestingly, bonds rallied, recalling earlier eras when stocks and bonds were negatively correlated, instead of positively correlated as they have been in most of this century. Exhibit 7 shows returns on principal asset classes over this period.

EXHIBIT 7

CUMULATIVE TOTAL RETURNS ON PRINCIPAL ASSET CLASSES, 2008–SEPTEMBER 2016



Notes and source: See Exhibit 6.

Off the 2009 market lows, stocks and bonds have delivered large annual returns, 16% for stocks, 4.4% for bonds, and 12% for a basic 60–40 balanced fund. But the high expected returns to hedge funds, which had recently gathered trillions of assets, have been unattained. Private equity returns, while positive, are decidedly below the success of the 1980s and 1990s, when the industry was much smaller and the deal competition much lower.

The effort to engineer a recovery from the 2008–2009 recession was based on Keynesian principles of stimulus, but used the monetary tools of ever-lower interest rates and central bank purchases of all kinds of securities.⁸ We call this set of policies “Monetary Keynesianism.” The stock market and real estate markets recovered but the economy didn’t.

Interest rates have fallen so low as to erode the real value of savings by two or three percent per year.⁹ Reinhart *et al.* [2011] call this set of policies and outcomes

⁸ Exclusively bonds in the U.S., but including equities in some other countries.

⁹ See Siegel and Sexauer [2017] and Siegel and Kaplan [2016].

“financial repression,” a term that vividly captures the current mood: given the current pricing of equities and, especially, bonds and bills, nobody can make any money.¹⁰ We are in a return desert.

THE LIABILITY CRISIS: DEFYING 3800 YEARS OF HISTORY

At roughly the same time as the transition from high to low equity returns, we experienced another, even more unlikely transition that was less visible — yet every pension officer knew about it. It was from high real interest rates to low or negative ones, causing the pension liability to mushroom.

Today’s savings are invested and reinvested at prevailing market interest rates, plus an equity risk premium if equities are held, to grow to meet the pension promises. If this era of very low, even negative, interest rates persists, it will reset everything, as there is no way for the savings to grow enough to make the large future payments embedded in today’s pension promises. To offset low rates, a plan requires higher contribution rates (savings), lowered pension promises, or both.

If a plan is to be run without the risk of future defaults, the real interest rate that prevails in the market should be used as the *real discount rate* used for reducing future real pension liabilities to a present value. If the amount accumulated in the pension fund is equal to the present value of the liability, then the plan is fully funded and default risk to the participant is minimized.¹¹

But almost no plans do this. To access the gains from long-term economic growth, most plans invest in equities and equity-like investments that offer higher expected returns and higher risks. This policy allows for lower contributions and higher benefits: The employers and employees accept some shortfall risk and intergenerational inequity in exchange for higher wages today and higher retirement income tomorrow.

Even with adding equity to the pension calculations, a very large drop in interest rates substantially changes the levels of annual pension contributions and long-term funding measures. A plan that was in balance with 6.5% long-term treasury rates (1999) becomes spectacularly underfunded when rates drop to 2.2% (2016). Exhibit 8 shows the decline in rates in the U.S. and in a representative non-U.S. market (Germany).

¹⁰ See Siegel and Coleman [2015]. While Reinhart *et al.* popularized the term “financial repression” in the current decade, it was originated by McKinnon [1973] and Shaw [1973] in response to the negative real rates of an earlier era.

¹¹ See Society of Actuaries [2015].

EXHIBIT 8
U.S. AND GERMAN 10-YEAR BOND YIELDS AND 90-DAY U.S. TREASURY BILL YIELDS, 1989–2016



Source: Bloomberg.

How unusual is today's plunge in interest rates and the corresponding rise in the pension liability (that is, in its discounted present value)? Sidney Homer and Richard Sylla [2005] have documented interest rates going back 3800 years, to the era of Hammurabi in ancient Babylon. *Never before* have nominal interest rates gone negative; today, they're negative in half the world.¹² Real interest rates have gone negative before, for example in the United States and the United Kingdom in the 1970s, but today's negative real interest rates are deeper and more widespread. We don't have enough independent observations to calculate the z-score or number of standard deviations by which today's real interest rates differ from the historical average, but we can say confidently that it's a large number.

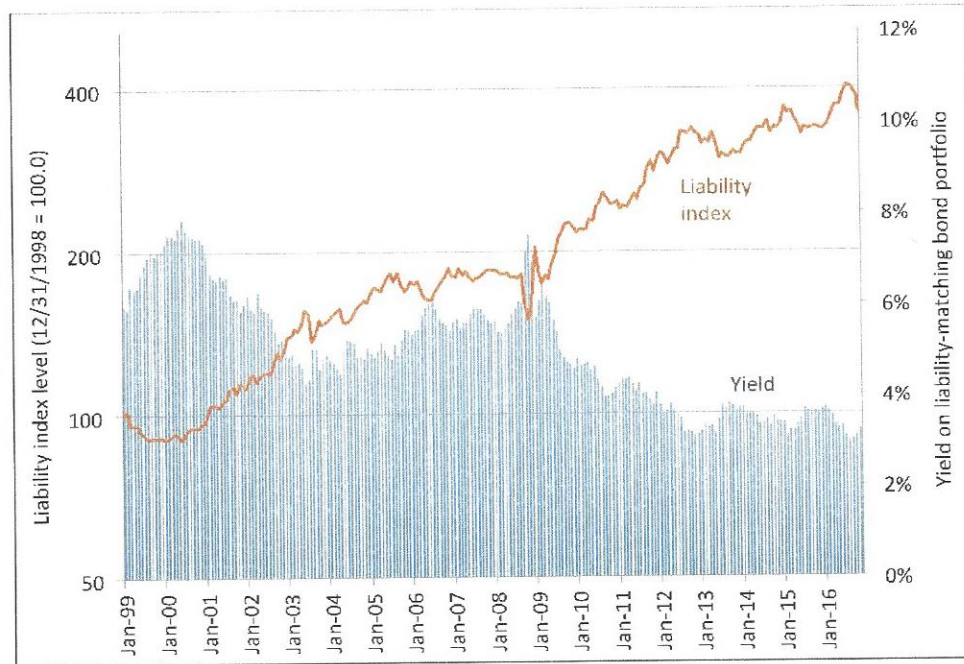
Exhibit 9 shows the pension liability index compiled by Ryan Labs, a respected pension consultant and data provider. Ryan Labs' data don't go back 3800 years, but we can see that, in just the last 18 years, the cost of pre-funding a given pension promise has quadrupled, as shown by the liability index, which rose from 100 to about 400. (The bars toward the bottom of the chart show the yield on a portfolio of high-quality, that is Aaa, Aa, and A-rated, corporate bonds with a duration matching that of a typical pension liability, as specified by the Pension Protection Act of 2006.¹³

¹²Yields on U.S. Treasury bonds and notes sometimes went negative in the Great Depression as they came close to maturing. Cecchetti [2009] famously found that the bonds contained an embedded option to exchange the bond for another security, and that the yield after adjustment for this option was not negative.

¹³ The documentation of the required yield curve methodology is at https://www.treasury.gov/resource-center/economic-policy/corp-bond-yield/Documents/hqm_pres.pdf.

The upper line, or liability index, is constructed by calculating the cumulative total return on the same bond portfolio.)

EXHIBIT 9
YIELDS AND CUMULATIVE TOTAL RETURNS OF THE RYAN LABS PPA PENSION LIABILITY INDEX, 1998-2016



Source: Constructed by the authors using data from Ryan Labs, Inc. Used with permission.

Liabilities exploding upward and record-low asset returns provide for a perfect storm in the DB pension world, which depends on managing assets to keep up with the growth in liabilities. The only way to survive such an episode without making either massive additional contributions or benefit cuts is to go into it fully hedged; that is, with a very long asset duration, intended to be equal to the liability duration. Because of the volatility of long-term bonds and the fact that even the longest bonds have typically had lower expected returns than equities, almost nobody invested that way — hence the pension crisis, with no need for intervention by evildoers.

LOOKING AHEAD AND WHAT TO DO

This will not last forever. Just as the circumstances that led to the return flood eventually created a return desert, the circumstances that created the desert will someday lead to another flood. As long as people try to better themselves and innovate, and as long as policies do not get in the way excessively, growth is not dead. With innovations in food supplies, health care, technology, and the continued spread of basic freedoms and higher incomes, the far future looks brighter than any period in the past.

But, meanwhile, we need a pension strategy.

First, recognize and build upon the value of well-run DB plans. We should keep them. We should fix them. We should not throw them away. Recognizing that DB plans are enormously valuable, and far superior to the next best option, is the most important strategy step: The goal is managing a successful and sustainable DB plan.

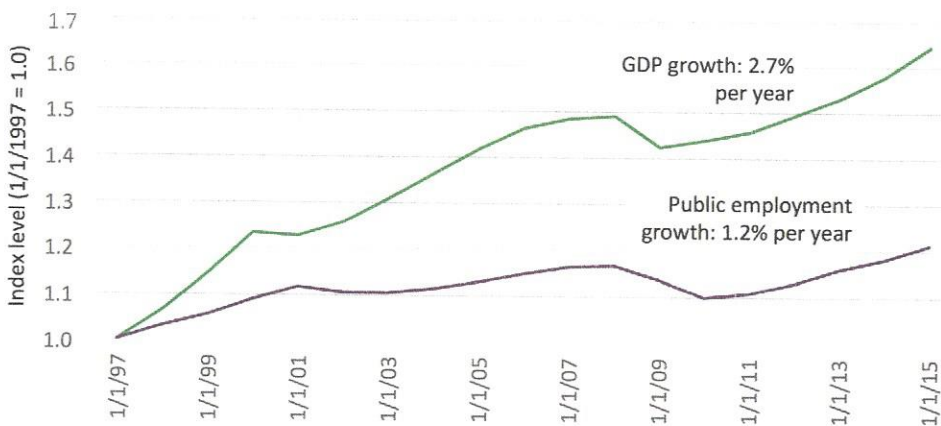
Second, do not anchor on today's ultra-low rates. The lesson to be learned, once again, is *not to anchor on the current situation*. What happened so far in this century is very unlikely to happen again. Pension managers should decide on their funding and asset management strategies by looking forward, not by fighting the last war.

If the West has entered an extended period of ultra-low Japan-like growth, then most pension systems will need to be restructured, because the core goal of substituting market returns for higher savings rates and low retirement income will be unattainable. But anchoring on these extraordinarily low rates, some not seen in over 5,000 years, is as big of a mistake as anchoring on the 18.5% returns of the 1980s and 1990s. Most likely we revert back to 2% to 3% real growth and 4% to 6% nominal growth.

Third, for public plans, both the employers and the employees should consider the future value of productivity gains to be an untapped resource. Typically, productivity gains are not associated with public sector work. But there is no reason that common goals cannot be established to deliver a growing stream of services with fewer resources. Over a generation, the savings from public-sector productivity gains can easily fund most unfunded pensions.

The chart below shows California state GDP and public (state) employment since 1997. When California grows, so does state employment. Over this period, real output grew 2.7% per year and public sector employment grew 1.2% per year — so if public sector employment remained constant as a share of total employment, this represents an annual productivity gain of roughly 1.5%.

EXHIBIT 10
CALIFORNIA STATE GDP AND PUBLIC EMPLOYMENT, 1997–2015

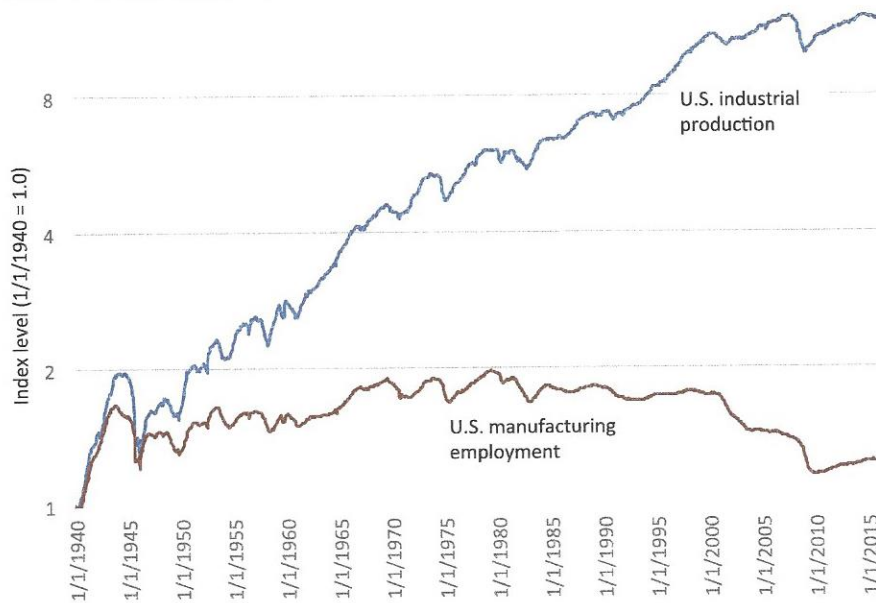


Source: Saint Louis Federal Reserve Bank, FRED.

Can the public sector do even better than it has in the past? If so, can the gains be applied to pension payments? Pensions are for the long term. So are innovations that lead to more services with the same staffing.

Exhibit 11 shows total U.S. industrial production and U.S. industrial employment since 1940. The huge cumulative difference between the two lines can be summed up in two words: productivity gains. American industrial workers are amazingly productive. These types of gains in manufacturing do not directly apply to government work, but they demonstrate the long-term gains in innovation and efficiency that can be achieved. There is no reason innovation and efficiency cannot be pursued in government work, and the savings shared with employees (wages and pensions) and taxpayers (more services).

EXHIBIT 11
U.S. INDUSTRIAL PRODUCTION AND EMPLOYMENT, 1940–2016



Source: US Department of Census and Bureau of Economic Analysis

CONCLUSION

Pension systems are not in crisis because they are structurally flawed, or because they have been looted by evildoers. The crisis comes from sponsors anchoring on periods of extraordinarily high returns to overpromise and underfund pension promises and then applying the ultra-low interest rates of this era of financial repression to those same pension promises.

Pensions are just wages delayed. By tying together wages today, wages tomorrow, and growth-producing productivity gains, pensions gain access to long-term economic growth and the power of compounding. This worthwhile goal can best be achieved within the legal structure — the DB plan — that naturally links these and provides a framework for trading off wages and savings today, pensions tomorrow, and work rules that lead to productivity gains and long-term growth. Incentives matter, and a reliable pension should be a large enough carrot to bring forth the needed change.

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