

Spring 2019

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New Trustee Session Planned for Annual Forum



15th Annual PAPERS Forum
May 29-30, 2019 – Harrisburg, PA

Educational Workshops & Networking for Public Pension
Plan Staff, Trustees and Consultants

Register Now at: <http://www.pa-pers.org/newweb/forum.html>

Don't Miss These Conferences

15th Annual PAPERS Forum

May 29-30, 2019

(Wednesday-Thursday)

*Hilton Hotel
Downtown Harrisburg*

13th Annual Fall Workshop

Nov. 20-21, 2019

(Wednesday-Thursday-)

*Wyndham Pittsburgh
University Center*

An exciting new feature has been added to this year's PAPERS Forum. A special session, appropriate for all attendees but of particular interest for new trustees, will be held Wednesday morning, May 29th. During the sessions that morning, many pension concepts will be introduced and explained to provide an introduction to the fiduciary roles and responsibilities for persons leading our public employee retirement plans. Following this introductory course and continuing through Thursday afternoon, May 30th, many presentations and workshops will be presented.

See the tentative Forum agenda inside on Page 3-5. Driving direction and hotel details may be found on Page 6. Hotel reservations made on or before 4/29/2019 receive a discounted conference rate.

PAPERS Directory

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From the Desk of PAPERS' Executive Director

Welcome to the Spring 2019 edition of the PAPERS newsletter.



I think spring is right around the corner. I'm not fond of snow and cold weather and I find the older I get the less tolerant I am of slippery roads and icy windshields. So imagine how happy I was last month to be invited to the Florida Trustee School to experience their high-quality sessions! Thanks to our board members Meredith Despins and Jonathon Davidson I was able to meet many presenters personally.

I came back home with great ideas for PAPERS. I am thrilled to announce our May Forum for the first time will have a designated section to review fiduciary fundamentals. The fiduciary fundamental section will be the beginning of our NEW Trustee School and promises to provide a comprehensive overview of basic responsibilities. The more seasoned trustee will have the opportunity renew their basic knowledge of trustee responsibilities as well. I am truly looking forward to everyone attending this new section and providing me feedback on what we need to add or what we may subtract. The afternoon and following day of the forum will, as typical, have high quality sessions for all our members. I am excited to see everyone in May and it certainly will be warmer!!

Warmly,

Karen Deklinski

PAPERS Executive Director

kdeklinski@msn.com

717-979-5788



Pennsylvania Association of Public Employee Retirement Systems

Tentative Agenda for 15th Annual Forum

(As of 4/2/2019 – Subject to Change)

Harrisburg Hilton Hotel

Tuesday, May 28, 2019

6:00-8:00 p.m.Registration (Juniata Pre-Function Area)

7:00 p.m. PAPERS Board Dinner Meeting (Governor Room)

All workshop sessions Wednesday and Thursday will be held in the Juniata-Delaware Rooms

Wednesday, May 29, 2019

7:30 a.m.Registration (Juniata Pre-Function Area)

8:00-8:30 a.m.Breakfast (Allegheny-Susquehanna Rooms)

8:00 a.m.-4:30 p.m. Sponsor Exhibits (Juniata Pre-Function Area)

8:30 a.m. *Welcome –Opening*

New Trustee Sessions 8:40 a.m.-12:20 p.m.

8:40-9:30 a.m. Session 1

9:30-10:20 a.m. Session 2

10:20-10:40 a.m. Break (Allegheny Pre-Function Area)

10:40-11:30 a.m. Session 3

11:30 a.m.-12:20 p.m. Session 4

12:30 – 1:30 p.m. Lunch (Allegheny-Susquehanna Rooms)

Wednesday, May 29, 2019 (continued)

1:30-2:20 p.m. "Consider this...." Best Practices & Fiduciary Standards

Speaker Ulf Skreppen – C.S. McKee

2:20-3:10 p.m. ESG (Environmental Social Governance) Considerations

Speaker Frances Barney - BNY Mellon
Second speaker – To be announced

3:10-3:30 p.m. Break (Allegheny Pre-Function Area)

3:30-4:20 p.m. 2008-2018-2028 – Dissolving Divides That Will Shape the Post-Crisis Investment Era

Speaker Erik Knutsen – Neuberger Berman

5:30-6:30 p.m. Visit Harsco Science Center, Whitaker Center

The hands-on exhibits of the Science Center will be open for your pleasure for one hour.

5:30-7:30 p.m. Reception in AMP Lobby, Whitaker Center

The lobby is just outside the Science Center. Feel free to drop in anytime during these two hours to enjoy a relaxed evening of appetizers, desserts, beverages and networking set in one of the capital city's most exciting facilities for all ages.



Whitaker Center for Science and the Arts, 222 Market St., Harrisburg

Just steps away from the Hilton Hotel – please use ground level Market Street Entrance. If you prefer, you may enter the Whitaker Center from the Strawberry Arcade Walkway connected to the second floor of the Hilton Hotel. Upon entering the Whitaker Center from the Arcade, please take the elevator or steps to the first level for the PAPERS events.

Thursday, May 30, 2019

- 7:30 a.m. **Registration** (Juniata Pre-Function Area)
- 8:00 a.m.-4:00 p.m. **Sponsor Exhibits** (Juniata Pre-Function Area)
- 8:00-8:30 a.m. **Breakfast** (Allegheny-Susquehanna Rooms)
- 8:40-9:30 am. **Trustee Roundtable – “A Day in the Life Of”**
Panelists To be announced
- 9:30-10:20 a.m. ***The Chance of Precipitation Is... The Economic Forecast You Have Been Waiting to Hear:***
Speaker Calvin Schnure – *Nareit*
- 10:20-10:40 a.m. **Break** (Allegheny Pre-Function Area)
- 10:40-11:30 a.m. ***The Nuts & Bolts of Defined Contribution Plans***
Speaker Christian Brokaw – *AndCo Consulting*
- 11:30 a.m.-12:20 p.m. **Investing in Microcap Equities**
Speaker Thomas Lettenberger, *BMO Global Asset Management*
- 12:30-1:30 p.m. **Lunch** (Allegheny-Susquehanna Rooms)
- 1:30-2:20 p.m. ***Good News with a Price Tag***
Panelists Greg Stump – *Boomershine Consulting*
Ben Holland – *Butler county*
Rich Hazzouri – *Hazzouri Group/Morgan Stanley*
- 2:20-3:10 p.m. ***Cyber Security***
Speaker Thomas Quinn - *T. Rowe Price*
- 3:10-4:00 p.m. **Legislative Update**
Speakers To be announced

Thanks for Coming; Safe Trip Home

See you at the PAPERS Fall Workshop, November 20-21, 2019 in Pittsburgh

2019 PAPERS Forum

Directions/Hotel Information

The 2019 PAPERS Forum returns to the Harrisburg Hilton on Market Square in downtown Harrisburg. The hotel is conveniently located at One North Second Street just steps away from Harrisburg's "Restaurant Row".

From New York/New Jersey

Take the George Washington Bridge to I-80 West, take 287 South to I-78 West to I-81 South, Exit 66. Take Front Street south approximately 5.5 miles to Market Street. Turn left onto Market Street; the hotel entrance is one block on the left just after crossing Second St.

From Philadelphia

Take PA Turnpike 76 West, get off at Exit 247, take I-283 North to I-83 south to Exit 43 (Second Street-Capitol complex). At the fourth traffic light, turn right onto Market Street and the hotel entrance is on the left.

From Baltimore/Washington

Take I-83 North to Exit 43 (Second Street-Capitol complex). At the fourth traffic light, turn right onto Market Street and the hotel entrance is on the left.

From Pittsburgh

Take PA Turnpike 76 to Exit 242, Take I-83 north to Exit 43 (Second Street-Capitol complex). At the fourth traffic light, turn right onto Market Street and the hotel entrance is on the left.

Parking - To access the Walnut Street Parking Garage connected to the hotel, travel on Market Street just past the hotel, turn left onto Court Street and follow the signs to enter the garage.

If you're interested in overnight lodging for the Forum

Harrisburg Hilton Hotel

One North Second Street (Market Square), Harrisburg, PA

Single or double rate - \$141/night plus tax

The 15th annual PAPERS Forum will begin with breakfast on Wednesday, May 29, 2019 and continue through the afternoon on Thursday, May 30, 2019. PAPERS has arranged a special room rate for attendees at the Forum who desire overnight lodging on May 28th and/or 29th. **A group rate of \$141 per night is available for reservations made on or before April 29, 2019.**

To make room reservations on-line, log onto:

<http://group.hilton.com/15thPapersForum>

To make room reservations by phone, please call Harrisburg Hilton at 888-370-0980, select Option 1 and provide the group code PAPE5

For more information (driving maps, parking information and hotel details), click on www.Harrisburg.Hilton.com.



2019 PAPERS Forum Registration

May 29-30, 2019 at The Hilton Hotel in downtown Harrisburg, PA

Each individual attending must submit a separate registration form.

The Forum this year begins with breakfast on Wednesday, May 29th and continues through afternoon on Thursday, May 30th. An *Introduction to Your Fiduciary Role* program will be held the first morning and is automatically included for all conference attendees. See below if you want to attend only this introductory program.

Please indicate appropriate category (check one only):

Pension Plan Representatives – Current (2019) PAPERS Participating Membership required

First individual from pension plan – complimentary

Each additional individual from pension plan

\$75 Early bird registration payment received or postmarked by 4/29/2019

\$100 Standard registration payment made on or after 4/30/2019

Associate Member Representatives – Current (2019) PAPERS Associate Membership required
Firms providing investment management and legal services

\$750 Early bird registration payment received or postmarked by 4/29/2019

\$825 Standard registration payment made on or after 4/30/2019

Affiliate Member Representatives - Current (2019) PAPERS Affiliate Membership required
Firms providing consulting services, exclusive of investment/legal

\$375 Early bird registration payment received or postmarked by 4/29/2019

\$425 Standard registration payment made on or after 4/30/2019

Sustaining Members - Current (2019) PAPERS Sustaining Membership required

Available only to those persons with an interest in public pensions but not affiliated with an organization which qualifies for group membership in any other category above

\$75 Early bird registration payment received or postmarked by 4/29/2019

\$100 Standard registration payment made on or after 4/30/2019

Platinum Sponsors - Current (2019) PAPERS Associate or Affiliate Membership required

Four complimentary registrations

Each additional individual from firm (refer to **Associate** or **Affiliate** Member rates above)

Gold or Silver Sponsors Current (2019) PAPERS Associate or Affiliate Membership required

Two complimentary registrations

Each additional individual from firm (refer to **Associate** or **Affiliate** Member rates above)

Introduction to Your Fiduciary Role – attending only this session on 5/29/2019; not attending rest of Forum

\$50 registration fee for all attendees (includes breakfast)

Registration form continues on reverse.

Individual's name _____

Preferred name for name tag _____

Representing (name of pension plan or firm) _____

Mailing address _____

City, State, Zip _____

Telephone number (____) _____ - _____ E-mail address _____

Please check all Forum events that you plan to attend

Wednesday, May 29, 2019

- Breakfast
- Morning sessions
Introduction to Your Fiduciary Role
- Lunch
- Afternoon sessions
- Reception/Tour – Whitaker Science Center .

Thursday, May 30, 2019

- Breakfast
- Morning sessions
- Lunch
- Afternoon sessions

Check if interested in *Certified PA Public Retirement Plan Professional Program*

Please include full payment of all fees due with this form.

Payment methods:

1. **To pay by check.** Please make check payable to: **PAPERS** and return with this application to: **PAPERS, P.O. Box 61543, Harrisburg, PA 17106-1543**
2. **To pay by credit card or PayPal.** Please access the PAPERS website (www.pa-pers.org) and click on the "Spring Forum" tab. Near the bottom of this page click on the drop down box, select the appropriate membership category/registration fee and follow the directions to pay the applicable amount electronically to PAPERS. To complete the registration process, this completed *Forum Registration* must be submitted and may either be mailed to: **PAPERS, PO Box 61543, Harrisburg, PA 17106-1543** or scanned, saved and e-mailed to: douglas.b@verizon.net.
3. **To pay by ACH transfer.** Please contact PAPERS by e-mail douglas.b@verizon.net to request the bank account and routing information you'll need to pay by this method. If you require a signed form to initiate the ACH transaction, please send the form to this e-mail address and it will be completed/returned promptly. Then, submit your completed *Forum Registration* as note in #2 above so it can be matched with the ACH payment.

Register early to save on both registration fees and hotel rates.

The PAPERS Forum group rate for overnight lodging of \$141 plus tax at The Harrisburg Hilton is available for reservations made on or before 4/29/2019.



Certified PA Public Retirement Plan Professional

Course Design

The certification program provides participants with exposure to a diverse and comprehensive curriculum of pension topics in a three-part process:

- **On-line introductory education modules develop by Fi360, Inc.**
 - *The Role of the Retirement Plan Fiduciary*
 - *Creating a Comprehensive Fiduciary Process – Parts 1 & 2*
- **Attendance at PAPERS conferences**
- **Continuing Education** – additional on-line education modules; on-line library resources

Program Enrollment

Please visit the PAPERS website www.papers.org to access the certification program application form. A link to this printable form may be found on the "Certification Program" page.

Submit the completed form either by mail or e-mail. See details below under "Program Cost" for more information about submitting the application and required payment.

Program Cost

The one-time enrollment fee of \$499 is payable by three methods:

1. **To pay by check.** Please make check payable to: **PAPERS** and return with application to: **PAPERS, P.O. Box 61543, Harrisburg, PA 17106-1543**
2. **To pay by credit card or PayPal.** Please access the PAPERS website www.papers.org and click on "Certification Program". Near the bottom of this page click on the drop down box and follow the directions to pay the registration fee. If a

completed application has not already been submitted, please do so either by mail to: **PAPERS, PO Box 61543, Harrisburg, PA 17106-1543** or scanned, saved and e-mailed to: douglas.b@verizon.net.

3. **To pay by ACH transfer.** Please contact PAPERS by e-mail douglas.b@verizon.net to request the bank account and routing information you'll need to pay by this method. If you require a signed form to initiate the ACH transaction, please send the form to this e-mail address and it will be completed/returned promptly. Then, submit your completed membership application as note in #2 above so it can be matched with the ACH payment.

Process

After submitting a course enrollment form and payment of the one-time fee, individuals will receive an authorization code giving access to the on-line modules. Modules may be taken at one's leisure to be completed within six months of enrollment.

At the conclusion of each module, participants will take an on-line test to check their understanding of the material. The test may be re-taken any number of times until a passing grade is received.

Participants will receive written notification upon successful completion of the three on-line modules. The next step in the certification process is attendance at three of the next four PAPERS conferences (held each spring and fall). After attending the required number of conferences, participants will be awarded the *Certified PA Public Retirement Plan Professional* designation. Public recognition of this achievement will be provided at PAPERS conferences, on the website and in newsletters.

Continuing education will be required to maintain this designation.



Application Form

Certified Pennsylvania Public Retirement Plan Professional

Participant Information:

Name: _____ Date: _____

(Please **print** your name the way you would like it on your final certification)

Organization: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____ E-Mail: _____

Payment Information:

The one-time registration fee is \$499. Please fill out the following only if different than above:

Billing Name: _____

Billing Address: _____

City: _____ State: _____ Zip: _____

Payment methods:

- 1. To pay by check.** Please make check payable to: **PAPERS** and return with this application to: **PAPERS, P.O. Box 61543, Harrisburg, PA 17106-1543**
- 2. To pay by credit card or PayPal.** (this function available after 6/1/2018) Please access the PAPERS website www.pa-pers.org and click on "Certification Program". Near the bottom of this page click on the drop down box and follow the directions to pay the registration fee. If a completed application has not already been submitted, please do so either by mail to: **PAPERS, PO Box 61543, Harrisburg, PA 17106-1543** or scanned, saved and e-mailed to: douglas.b@verizon.net.
- 3. To pay by ACH transfer.** Please contact PAPERS by e-mail douglas.b@verizon.net to request the bank account and routing information you'll need to pay by this method. If you require a signed form to initiate the ACH transaction, please send the form to this e-mail address and it will be completed/returned promptly. Then, submit your completed membership application as note in #2 above so it can be matched with the ACH payment.

Please submit this completed application and payment to:

PAPERS, P.O. Box 61543, Harrisburg, PA 17106-1543

Private Debt

Focus on Liquidity as Sector Scales New Heights

By: Dermot Finnegan, Brian McMahon and Tom Ahern – BNY Mellon

In the immediate aftermath of the financial crisis, debt was off limits for many investors but it is now the private market asset class of choice. By year-end 2017, it has grown to a \$667 billion market¹, and assets under management could hit \$1 trillion in 2019².

Involvement in private debt has grown especially rapidly among sovereign wealth funds (SWFs) and public pension funds. Average allocation to private debt by SWFs has grown from 1.89% in 2015 to 2.58% in November 2018, according to Preqin. A recent BNY Mellon survey shows that 49% of SWFs and pension schemes plan to invest in private debt this year; 96% describe performance as in line with, or better than, expectations³.

Global public investors, including central banks, SWFs and public pension funds, are a powerful force in global capital markets. They have assets under management of \$36 trillion, equivalent to 45% of global GDP, according to a recent report by BNY Mellon and the Official Monetary and Financial Institutions Forum⁴. As they increasingly focus on private markets, their scale could have a significant impact.

Investor allocations across all private markets are growing and private debt growth has been significant, despite tightening spreads. Private debt holds many specific attractions for SWFs compared to other public and private asset classes. It offers diversification from public markets, has high levels of due diligence (which is important given SWFs' stewardship of public money) and is often backed by assets as collateral, reducing the risk profile. As a result, it can act as an alternative to real estate, where finding suitable assets can be challenging. Additionally, private debt is an attractive alternative to private equity, which can be hard to deploy at current high valuations. In contrast, money can be quickly put to work in private debt, which is important for some investors.

The growth of the private debt industry has created significant challenges. Of the \$667 billion in private debt assets under management, \$246 billion is un-invested⁵: success will only be measured by how it is deployed. There is therefore a growing need for the industry to originate loans (the European Central Bank has also encouraged local regulators to support loan origination funds post-crisis given traditional lenders' cautious stance on providing credit)⁶. The potential scale of demand for private debt is vast. For example, there is a \$3.7 trillion a year infrastructure investment gap, according to the G20-backed Global Infrastructure Hub⁷.

Other growing pains relate to diversification, scalability, managing new technology, increased regulatory requirements and tighter margins. Many of these pressures are encouraging asset managers to outsource reporting. Outsourcing is not a panacea but it may improve efficiency and lower costs and, crucially, frees up asset managers to focus on their core business of managing assets.

¹<https://www.pionline.com/article/20180806/ONLINE/180809887/private-debt-aum-hits-667-billion-in-2017>

²<https://www.pionline.com/article/20171004/ONLINE/171009910/private-credit-market-expected-to-reach-1-trillion-by-2020-8212-report>

³https://www.bnymellon.com/_global-assets/pdf/our-thinking/the-race-for-assets-alternative-investments-surge-ahead.pdf

⁴https://www.bnymellon.com/us/en/_locale-assets/pdf/global-public-investors-and-the-real-assets-market.pdf

⁵<https://www.pionline.com/article/20180806/ONLINE/180809887/private-debt-aum-hits-667-billion-in-2017>

⁶https://www.bnymellon.com/_global-assets/pdf/our-thinking/private-debt-the-rise-of-an-asset-class.pdf

⁷<https://www.gihub.org/news/new-report-global-infrastructure-outlook-launches/>

(Continued on Page 12)

Private Debt: Focus on Liquidity as Sector Scales New Heights

(Continued from Page 11)

The private debt sector is in good health, with strong volumes, rapid growth and a broad and evolving product offering. Its characteristics are appealing to SWFs and many other investors while structural changes to the banking sector are expected to provide an ongoing supply. Continuing growth will require asset managers in the private debt market to address challenges associated with regulatory requirements and investors' demand for transparency – but solutions are already available to resolve such challenges.

Authors:



Dermot Finnegan is the BNY Mellon EMEA Lead for the Private Markets Solutions. Dermot is responsible for overseeing EMEA Private Markets strategy, product considerations and client experience in line with our global vision in AIS. He has oversight of the EMEA Private Markets team across Ireland, UK, Germany, Luxembourg and Poland.

Dermot has extensive operational and technology experience, implementing complex fund launches and conversions with senior oversight. Dermot joined BNY Mellon in 2012 and prior to this he worked with PwC in London and Dublin in financial services consulting, specifically focused on PERE. Dermot is a qualified Chartered Accountant.



Brian McMahon, Managing Director, is BNY Mellon's senior Alternative Investment Services Business Development executive in Luxembourg. Brian has particular expertise in private equity and real estate. Brian previously held roles at Citi and State Street in investment services and is an active member of a variety of industry groups.

Brian qualified as a Chartered Accountant in Ireland, and holds a Bachelor of Commerce (Accounting) and a Masters in Management Science from University College Dublin, Ireland.

Tom Ahern is the Regional Manager for the BNY Mellon Corporate Trust business in EMEA. Tom is responsible for creating and implementing region-specific strategy, employing appropriate governance oversight and for creating superior shareholder value for the company through business performance/P&L management.

Tom joined the organization in 2002 prior to which he worked with Bank of Ireland and Daiwa Securities, reviewing and implementing system and process enhancements within their Fund Administration businesses. He also spent three years in Sydney, Australia working in equivalent roles with Colonial First State Investments. Tom holds a degree in Computer Science from the University of Limerick.



LOOKING BENEATH THE HOOD

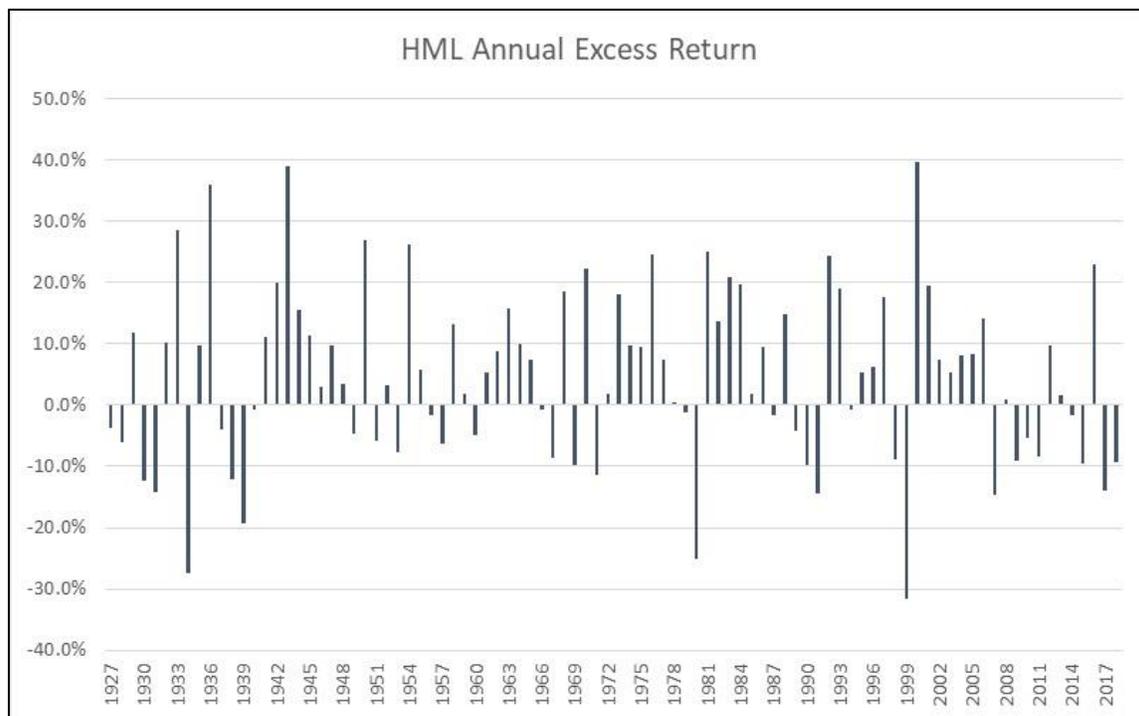
A Closer Look at Factor Investing

By: Kent Huang, Mount Lucas Management

Factor investing, particularly within the scope of risk premia strategies, has been a popular topic. Vanguard has convinced the investing community that beta can be achieved by buying passive indices and the cost of owning beta should be very low. Investors use risk premia strategies as a source of generating alpha. But....are people looking carefully enough when evaluating these strategies? Much gets hidden in broad risk and return statistics. We thought we would take a deeper dive into how factors behave over market cycles.

Factor investing is built on the premise that excess returns to stocks can be had by buying stocks that exhibit the factor and shorting those stocks that do not. To test the theory, a factor strategy is back-tested over a sufficiently long historical period and the excess return of the factor over the period is shown along with some statistical information on the robustness of the factor. For example, using the Fama/French 3 Factor monthly data on Professor Kenneth French's website, since July 1926 the HML factor (High book value to market capitalization stocks versus Low book value to market capitalization stocks, ie. the value factor) exhibited an annualized 3.8% excess return over the entire period. Since 1963, the HML factor exhibited an annualized 3.5% excess return over the entire period.

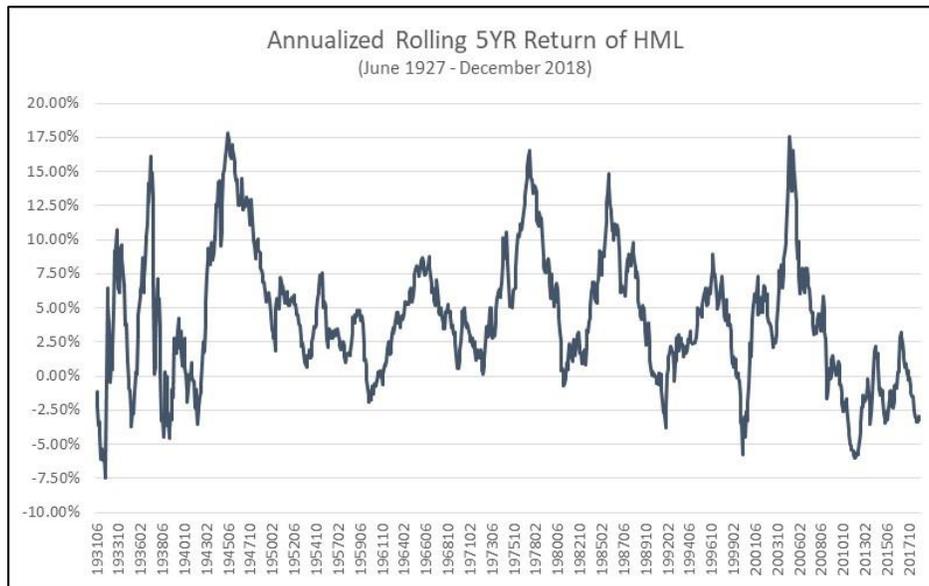
However, excess returns from factors are not stationary, a reality that isn't clear enough by looking at one number over an entire historical period. Like most investment strategies, excess returns from factor investing go through cycles, periods where the excess returns are quite good and periods where the excess returns are not good at all.



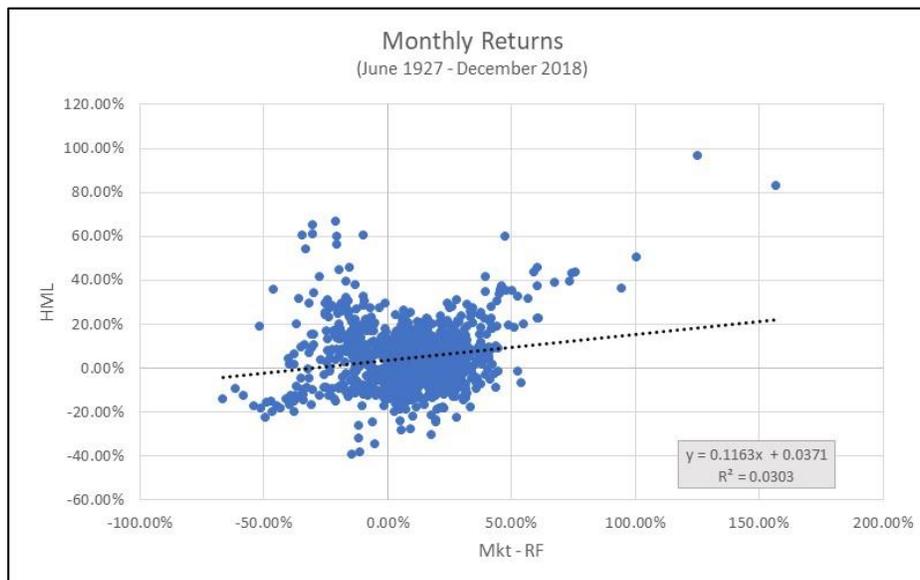
(Continued on Page 14)

Looking Beneath the Hood (Continued from Page 13)

Using the HML factor again, over the historical period available, the annualized rolling 5-year excess return of the factor ranges from up 18% to down 8%, with most observations occurring in the +12.5% to -2.5% range. While not shown here, you also see the variability of the HML factor's excess return in both shorter (e.g. the annualized rolling 3-year excess return) and longer (e.g. annualized rolling 10-year excess return) periods.



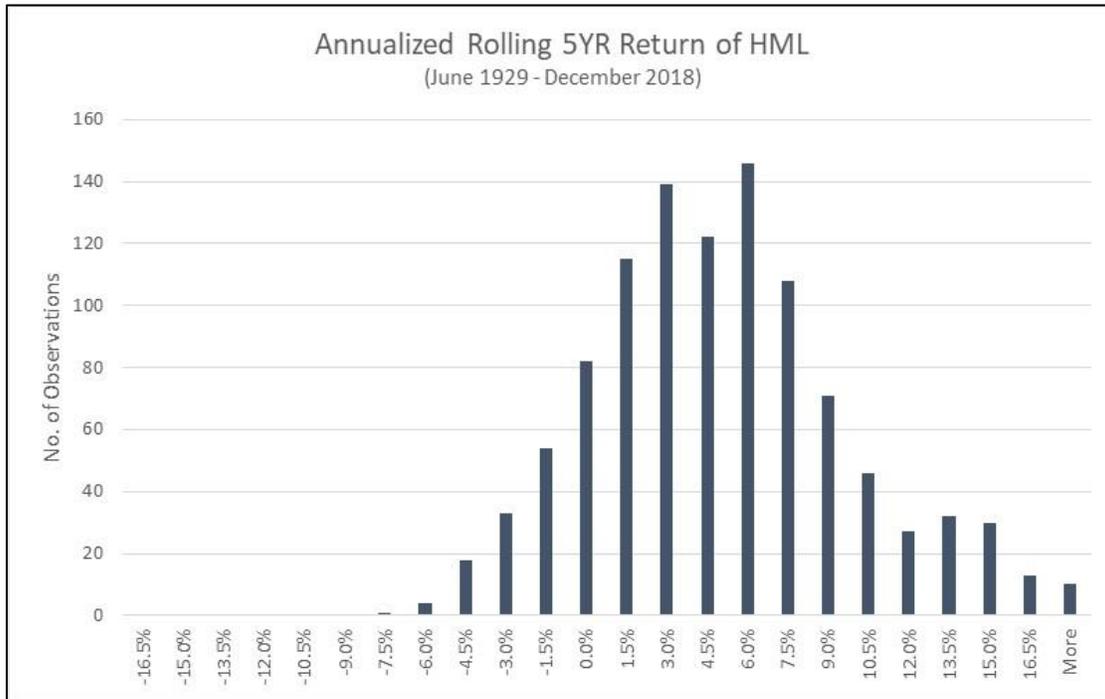
Furthermore, there is hardly any relationship between the rolling 12-month excess return of the HML factor versus the direction of the general equity market (less the risk-free rate or more precisely, the equity risk premium) over the same period. This means that the ex-ante alpha of the value factor should not necessarily be correlated to the equity risk premium return in any 12-month period since there is very little ex-post relationship between the two.



(Continued on Page 15)

Looking Beneath the Hood (Continued from Page 14)

While the benefit of using a single statistic of annualized excess return over the entire historical period is in its simplicity, a more relevant metric would be the distribution of the annualized rolling returns during the historical period as shown here:



From this distribution chart, you see that over the history of the HML factor, the excess returns of the factor in any 60-month period is usually between 0% to 9% annualized and the distribution of returns is positively skewed. However, there have been periods where the annualized excess returns of the factor have been negative and a few quite negative.

Quantitative investing strategies are built on testing a strategy over a historical period. The performance of the strategy is typically quantified by the return during the period, the volatility of the return stream, and a risk-adjusted return of the strategy. While this information is relevant, it may be biased by the starting and ending dates used in the analysis. As such, adding a distribution of returns helps an investor frame an appropriate expectation of the performance of the strategy, particularly for out of sample returns.

Kent Huang, CFA, FRM

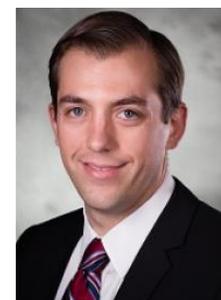
Mount Lucas Management is a Newtown, PA based investment management firm specializing in innovative alternative investment strategies for institutional investors that enhance and diversify traditional portfolios. Kent Huang is a portfolio manager for the firm's MLM Focused Large Cap Value strategy and the Chief Risk Officer for the firm. In these roles, Kent focuses on market and portfolio risk and quantitative equity research. Kent joined Mount Lucas in 2008 and became a partner in 2015. Prior to joining Mount Lucas, Kent worked at Goldman Sachs. Kent graduated cum laude in 2001 from Rutgers University with a B.S. in Finance and is a CFA® charter holder and Certified FRM.



Addressing the Funding Gap in Public Pension Plans

By: **Brian Kmetz -Vice President, Natixis Investment Managers**

Brian Kmetz is a Portfolio Consultant in the Portfolio Research and Consulting Group at Natixis Investment Managers. In this role, he provides portfolio research and construction consultation to wealth advisors using an array of quantitative tools. He has 12 years of investment industry experience. Prior to joining the firm, Mr. Kmetz worked in the hedge fund research group at Callan Associates, where he provided hedge-fund related research including asset allocation, manager structure, manager searches, performance evaluation and manager monitoring.



Public pension plans have faced notable headwinds over the past two decades, including insufficient cash contributions, a secular decline in interest rates, longer lifespans for beneficiaries and two significant equity bear markets. The average public pension has a funding gap - assets minus projected liabilities - of 28.5% as of year-end 2017. While higher investment returns will help close the funding gap, reaching for risk in this late cycle environment is a hazardous proposition.

Rather than focus on taking more risk to generate returns, public pensions may be wiser to focus on generating excess returns through the full market cycle. Capturing adequate upside while protecting to the downside preserves funded status and creates opportunities for more aggressive positioning at market bottoms. Strategies that help manage volatility and enhance downside protection come in many forms and possess a range of characteristics. To help define these risk-mitigating strategies, we bucket them into three categories: equity substitute, equity complement, and equity diversifier. Each bucket categorizes equity risk reducing strategies by their defining characteristics, shown below:

■ Equity Substitutes ■ Equity Complements ■ Equity Diversifiers	
Risk-Mitigating Category	Objective
Equity Substitute	Manage equity volatility while maintaining upside potential
Equity Complement	Reduce equity volatility while maintaining a reduced exposure to equity markets
Equity Diversifier	Diversify away equity risk and enhance downside protection at the expense of equity upside

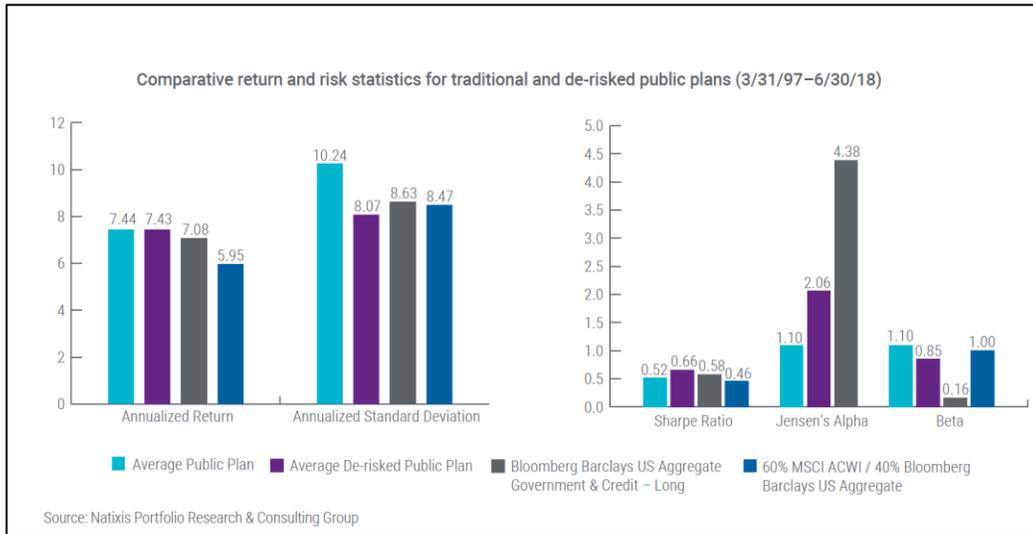
Source: Natixis Portfolio Research & Consulting Group

Using these risk-reducing strategies to supplement existing allocations helps manage risk and improves risk-adjusted returns over a full market cycle. Equity substitutes include strategies such as minimum volatility and defensive equity, equity complements are option strategies, long/short equity and credit strategies, and equity diversifiers include managed futures, long duration Treasuries, and absolute return strategies.

(Continued on Page 17)

Addressing the Funding Gap in Public Pension Plans (Continued from Page 16)

When implemented within the average public pension plan to create de-risked plan, the de-risked plan has the potential to maintain similar returns to the average plan but with a lower standard deviation. From March 1997 through June 2018, the standard deviation of the hypothetical de-risked plan was more than 2% less than the average public plan while maintaining a similar return.



Drawdowns were also significantly less, whether it was during the tech-bubble bear market starting in 2000, the financial crisis of 2008 or more modest drawdowns in 2011 and 2015/2016.



**Performance data shown represents past performance and is no guarantee of, and not necessarily indicative of, future results.*

Increasing funded status remains an ongoing challenge for public pension plans. Our research shows that over full market cycles, the de-risked plan provides a strategy for meeting return objectives, through a combination of adequate upside capture and enhanced downside protection. Reducing plan volatility and managing drawdowns over full market cycles affords a greater ability to remain solvent over the long run. Ignoring the reality of equity risk in the pursuit of more upside is most likely to lead to disappointment as the cycle turns down.

Big Data: Seeing Investments in an Entirely New Way

How ESG data may help enhance long-term value and manage risk

This article was authored by several investment professionals from Nuveen Asset Management in each of the firm's asset classes: Equities, Fixed Income, Real Assets and Real Estate.

READ OUR IN-DEPTH ANALYSIS

By applying big data to big investments with an ESG lens, we can see potential advantages for both performance and risk management.

https://www.nuveen.com/institutional/nuveenknowsri?utm_source=PAPRS&utm_medium=email&utm_campaign=nuveenknows_responsibleinvesting_bigdata&utm_content=institutional

Across American society, big data is shining a brilliant light on previously obscure relationships. Marketers use people's web searches and purchase histories to offer up their most irresistible offers. Political campaigns transform ages, education levels and zip codes into targeted messages that aim to boost support at the ballot box.

Data of every kind is allowing us to see and measure all aspects of our lives – including how people invest. At the same time, our ability to crunch and curate vast amounts of environmental, social and governance data is helping us see investment opportunities in an entirely new light. ***In fact, we just launched Nuveen's ESG Data Refinery - one of the first big data ESG technology platforms to enable more informed investment decisions making use of our 50 years of intellectual capital.***

We are big believers in big data's ability to demonstrate how good ESG practices may help performance, while managing risk and generating positive outcomes for society. Our investment and data science teams seek to uncover investment opportunities using big-data in multiple asset classes.

PUBLIC EQUITIES

ESG INFORMATION MAY PROVIDE AN INVESTMENT EDGE

As the old adage goes, "you cannot manage what you cannot measure." Traditional valuation models like discounted cash flow can help assess financial risks, but they often fail to capture the complete picture. Intangible assets—which are impacted by financially material ESG risks and opportunities—now compose as much as 87% of the market value of the S&P 500.¹ Using alternative data sets such as material ESG factors allows us to detect otherwise underappreciated opportunities for increasing alpha, as well as underestimated risks.

PUBLIC FIXED INCOME

NEW-FRONTIER IN ESG ANALYSIS SHINES A NEW LIGHT ON MUNICIPAL BOND VALUATIONS

Big data is also revolutionizing how we assess opportunities in the municipal bond market by uncovering relevant ESG metrics that can help sharpen our view of risk. Two seemingly identical cities with the same credit quality may suddenly reveal stark differences when we apply our proprietary analysis using FBI crime data, EPA climate data, housing affordability data and more. Our sophisticated head-to-head comparisons draw on extensive data sources to identify ESG leaders who have the potential to deliver sustainable value relative to their competitor groups.

(Continued on Page 19)

¹ Ocean Tomo LLC, 2018

Big Data: Seeing Investments in a New Way (Continued from Page 18)

Two seemingly identical cities with the same credit quality may suddenly reveal stark differences with ESG big data analysis

REAL ASSETS/PRIVATE MARKETS *NEW-FRONTIER IN ESG ANALYSIS SHINES A NEW LIGHT ON MUNICIPAL BOND VALUATIONS*

When it comes to investing in real assets—farmland, timber, energy and infrastructure—sustainability is essential for assessing risk and preserving long-term value. Where does big data come in? As just one example, we engage technology and data analysis in our due diligence for land purchases. We combine data from satellite imagery to understand historical land use patterns, while matching it to government global positioning system data used to substantiate land claims. This is particularly important in regions where we must adhere to regulatory frameworks that promote zero deforestation and sustainable agriculture.

REAL ESTATE

BIG DATA IS THE FUTURE OF INVESTMENT AND ASSET MANAGEMENT

Improving the sustainable performance of real estate may improve the attractiveness of the asset, help keep service charges lower and reduce operational costs for occupiers. Energy efficiency is a critical factor, which is why we seek to reduce the energy intensity of our real estate equity portfolio by 30% by 2030. Big-data analysis techniques are assisting us with this effort by helping us measure energy efficiency across a broad range of properties. We also are able to see relative performance of assets when it comes to water usage and other factors.

This material is not intended to be a recommendation or investment advice, does not constitute a solicitation to buy, sell, or hold a security or an investment strategy, and is not provided in a fiduciary capacity. The information provided does not take into account the specific objectives or circumstances of any particular investor, or suggest any specific course of action. Investment decisions should be made based on an investor's objectives and circumstances and in consultation with his or her advisors. Investing involves risk; principal loss is possible. There is no guarantee an investment's objectives will be achieved.

Investing involves risk; principal loss is possible. There is no guarantee an investment's objectives will be achieved. Nuveen provides investment advisory solutions through its investment specialists.

	California City 1	California City 2
Credit rating <i>(Moody's/S&P/Fitch)</i>	Aa1/AA+/AA+	Aa2/AA/AA-
Population	1 MM	3.9 MM
Full market value	\$166.5 B	\$532.9 B
Per capita income <i>(as a % of the nation)</i>	126.9%	100.2%
Direct debt <i>(as a % of full market value)</i>	0.6%	0.5%
Overall debt <i>(as a % of full market value)</i>	2.4%	2.9%
General fund reserves <i>(as a % of revenue)</i>	34.7%	17.7%
Days cash on hand	122	86
ESG eligibility	Eligible Scored in the top 14% of cities	Ineligible Scored in the bottom 26% of cities
Considerations include:		
Air pollution	Better performance than 58% of cities of a similar size	Better performance than 1% of cities of a similar size
Housing costs	Better performance than 48% of all cities	Better performance than 6% of all cities
Violent crime rate	Better performance than 100% of cities of a similar size	Better performance than 45% of cities of a similar size
<small>Source: Merritt Research Services, U.S. Census Bureau and Nuveen, as of 30 Jun 2018. Certain information was obtained from third-party sources we believe to be reliable, but is not guaranteed as to its accuracy or completeness. Past performance is no guarantee of future results.</small>		

PAPERS' Certification Program

*Certified PA Public Retirement
Plan Professional*

An educational certification opportunity for public pension trustees, pension administrators and staff, and industry professionals



Program Goals & Objectives

- *To provide an educational setting that is conducive to developing well informed public pension trustees, pension administrators and staff, as well as industry professionals who work closely with pension systems*
- *To provide an educational setting that enables participants to be actively and meaningfully involved in the management of the pension plans they represent*
- *To provide an educational setting to prepare participants to meet the standards their fiduciary role demands upon acceptance of their position with a pension system*
- *To develop a standard of education and industry competency so that each individual working with a retirement system in their capacity protects the retirement security of the Pennsylvania public pension plan beneficiaries*

**See Pages 9-10 for more information
about this program**

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- **Sustaining** (\$75/year) - *Individual membership open only to those persons with an interest in public pensions but not affiliated with an organization which qualifies for group membership in any other category above*

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Corporate (Associate & Affiliate) Members also have the additional opportunity to become sponsors for PAPERS' two annual conferences. Sponsors receive recognition in the printed and on-line materials produced for the conferences and also receive priority consideration to provide speakers and/or make presentations. The three categories of sponsorships for each conference are:

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- **Gold** - \$3,000
- **Silver** - \$2,500