Mutual Fund Liquidity Risk Management

VOLTAIRE ADVISORS BREAKFAST BRIEFING

NEW YORK ATHLETIC CLUB | 18TH OCTOBER 2017

> “Any applicable regulatory scheme should (take) a principles-based approach that leaves appropriate room for a range of good practices and the exercise of judgment.”

ICI Global Letter to IOSCO

September 2017

https://www.iciglobal.org/pdf/30875a.pdf

Agenda

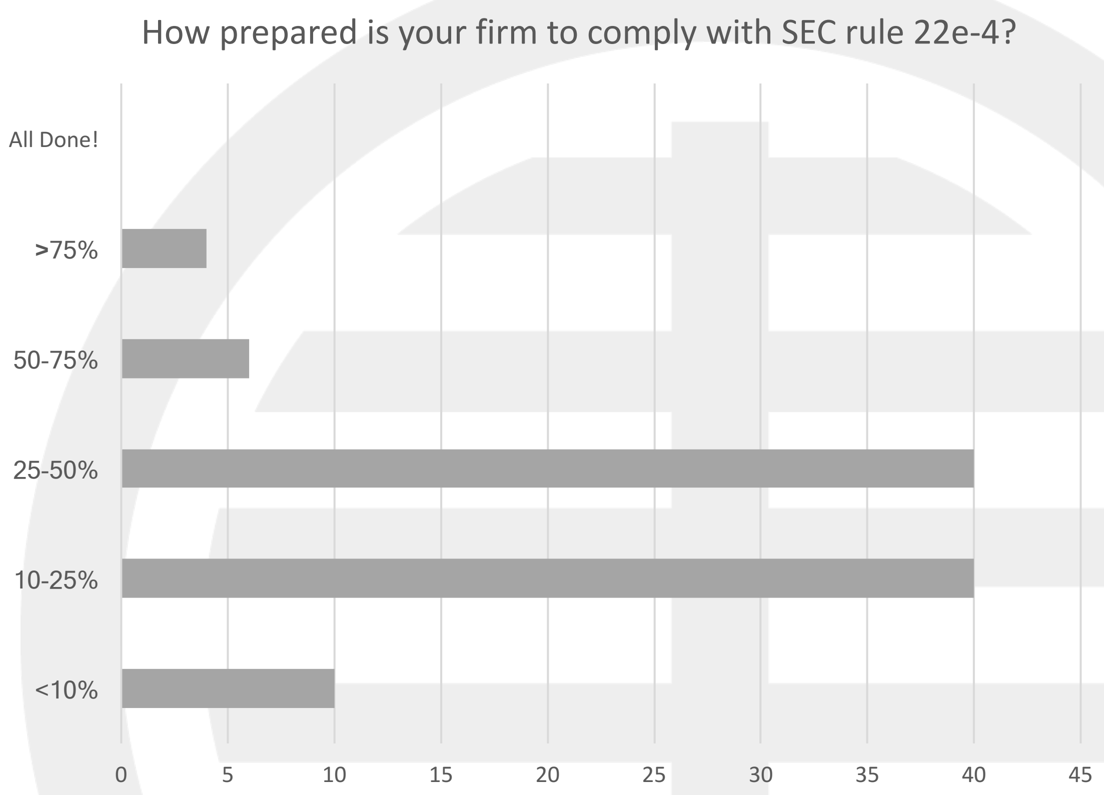
0800 - 0815	Welcome & Introduction | Diane Frost, Voltaire Advisors
0815 - 0845	New Liquidity Rules for US Mutual Funds | Nathan Greene, Shearman & Sterling
0850 - 0930	Panel Session | Operational & Implementation Challenges for Funds & Advisers
0930 - 1000	Coffee
1000 - 1030	Asset Management Regulation Under the Clayton SEC | Norm Champ, Kirkland & Ellis
1030 - 1110	Panel | Liquidity Management Data & Tools
1110 - 1140	New Reporting & Data Challenges | Tom Stock, GoldenSource
1140	Wrap Up & End of Briefing

Survey of Mutual Funds

- Surveyed 220 US Mutual Fund CCO’s June-September 2017
- Questioned on:
  - Preparedness for Rule 22e-4
  - Expected date of implementation
  - Preparedness for new reporting
  - Vendor usage
  - Data Requirements
- Full results available as a Special Report after this Briefing
- Highlights follow

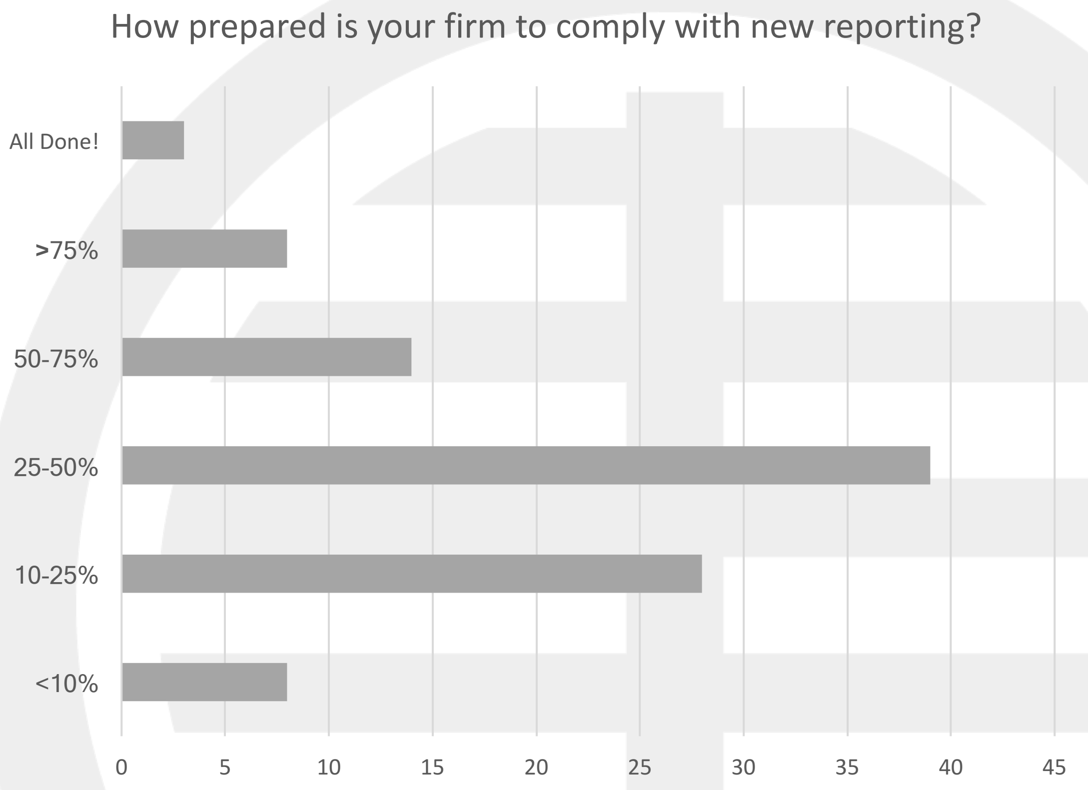
Survey Highlights (1)

- 71% said that they did not currently have a formal written Liquidity Risk Management program in place.
- 85% of firms estimated that they were between 10% and 50% complete
- 86% of firms expected implementing an LRM program in H1 2018



Survey Highlights (2)

- There was much better progress in complying with the new N-PORT and N-CEN reporting requirements.
- 29% of firms expected to perform a liquidity assessment daily, and a further 29% weekly. The remainder were planning to do it monthly.
- Firms generally felt that they were going to rely quite heavily on vendors to help them comply with the rules.



Survey Highlights (3)

- Respondents listed the following data elements as important for the liquidity assessment and bucketing:
  - Actual bid ask spread for each security
  - Inputs and assumptions of an evaluated price
  - Number and volume of trades over the past week and month
  - Number of broker quotes available
  - Number of days to liquidate
  - Breadth and depth of ownership by all other funds and public reported entities
  - Vendor specified liquidity score

Voltaire
ADVISORS

New Liquidity Rules for US Mutual Funds

Nathan Greene

Partner

Shearman & Sterling

Shearman & Sterling LLP

14 Months to D-Day: A Focus on the SEC's Mutual Fund Liquidity Rules

Nathan J. Greene

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October 2017

"Liquidity risk management program" rules become effective Dec. 2018

But two related developments from the summer remind us that the policy debates continue…

ICI LETTER TO CHAIR CLAYTON

Scrap or delay bucketing, please!

"[Bucketing] will overshadow the rest of the rule in ways the SEC likely did not contemplate or intend."

"[Bucketing] has proven to be—by far—the most costly and vexing piece of the rule to implement."

And it's "not essential" to a strong rule

IOSCO CONSULTATION PAPERS

Global regulators still worried about financial stability risk!

"Potential for liquidity mismatch between investments and redemption terms [remains a] structural vulnerability that FSB believes present potential financial stability risks."

Core ICI arguments might be said to "relitigate" the dispute, with one exception

COST - $$$$$

SEC analysis: Bucketing = 75% of liquidity rule compliance costs

ICI members: Yes, and those are big numbers … Individual firm implementation = $5-10M

"HERDING" AND FALSE COMFORT

Systems will either generate the same results (invite "herding") or different results (invite second guessing)

Investors, regulators and industry all can be "misled" by "subjective, conclusory" data

"Caveats will be forgotten"

WAIT! WE'RE NOT READY

Service provider offerings "not yet mature"

Late 2017 before technology even ready for evaluation and testing

Is cyber cause for a fresh look? ("Wait! You're not ready either")

"SINGLE POINT OF FAILURE"

"Immense volumes of fund data [will make the SEC] a potential single point of failure that undoubtedly will attract cybercriminals."

"A hack could expose the entire universe of funds to predatory trading practices"

YOU HAVE TO TEST FIRST

SEC should:

- Implement aggressive data protection measures … including independent third-party testing and verification of its information security programs
- That's prior to requiring firms to commence filings

REPORTS: QUARTERLY NOT MONTHLY

SEC should:

- Require funds report sensitive portfolio holdings information quarterly, not monthly
- That's at least until the SEC has implemented recommendations of the third-party expert

IOSCO consultation papers – actually, there's much to agree with

REITERATES THREE FEARS

Illiquid investments may…

- Be inappropriate for retail
- Be inconsistent with promised redemption features
- Drive "runs on the bank," potentially capsizing not just individual funds but market segments

RISK MANAGEMENT SHOULD

Reflect individual fund circumstances including:

- Investment strategy
- Market conditions
- Investor base
- "Available management tools" (borrowing, RIK, redemption / dilution fees, payment delays, etc.)

RISK MANAGEMENT SHOULD

- Strive for "early warning"
- Consider non-ordinary course risk (stress testing)
- Build on experience (feedback loops and back testing)
- Know what's possible (contingency planning)
- Educate stakeholders

Back to data

SEC: INSATIABLE APPETITE

SEC is making a huge push to invest in data collection and analysis tools

- *OCIE*
- *DERA*
- *Investment Management*

"

ICI: WITH N-PORT YOU HAVE IT

"Greatly elevates the SEC's ability to monitor the fund industry and share other interested regulators"

"Subjective and limited classification information [meaning buckets] add little to this picture"

What's still to come…

INDUSTRY

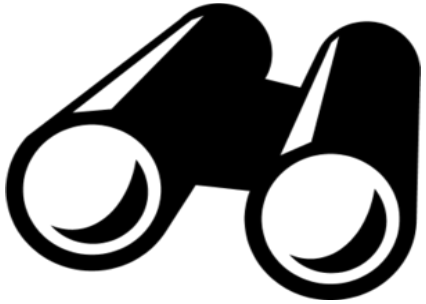
- Vendor selection
- Fit "regulatory" elements of LRMP with existing commercial risk analysis
- Information collection
  - Shareholder base and expected behavior?
- Judgment calls
  - "Significant dilution"
  - "Reasonably foreseeable"

SEC

- Delay?
- Revision?
- Plow ahead?
- FAQ?

Resources

- **Liquidity Rule – SEC Release**: https://www.sec.gov/rules/final/2016/33-10233.pdf
- **Liquidity Rule – Shearman & Sterling Friends and Clients Note**: http://www.shearman.com/en/newsinsights/publications/2016/11/sec-liquidity-risk-management-rule
- **ICI July 2017 Letter to Chair Clayton:** https://www.ici.org/pdf/liquidity_sec_clayton_ltr.pdf
- **IOSCO July 2017 Liquidity Consultations:**
  http://www.iosco.org/library/pubdocs/pdf/IOSCOPD573.pdf (recommendations)
  http://www.iosco.org/library/pubdocs/pdf/IOSCOPD574.pdf
  (good practices)



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These materials provide general information on our firm and the legal developments described above. They are intentionally summary in nature and cannot represent legal advice. These materials may constitute attorney advertising.

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Panel | Operational & Implementation Challenges for Funds & Advisers

Moderator |Jay Baris, Morrison & Foerster

Avi Nachmany | Strategic Insight

Stefano Pasquali |Blackrock

Robert Zakem | Managing Director, Deloitte Advisory

Discussion Topics

- What are the main challenges with implementing this rule?
- Will there be any changes to the rule?
- Will there be any delay in implementation?
- Is a ‘best practice’ approach emerging?
- What should funds be doing now?
- Audience Q&A

MORRISON FOERSTER

SEC LIQUIDITY RISK MANAGEMENT RULES: CHALLENGES FOR MUTUAL FUND BOARDS

MUTUAL FUND LIQUIDITY RISK MANAGEMENT
VOLTAIRE ADVISORS

OCTOBER 18, 2017

Jay G. Baris
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Overview

- Liquidity Risk Management Programs
- New Disclosure and Reporting Requirements
- Compliance Dates
- ICI Recommendations
- Challenges for Fund Boards
- Regulatory Prognosis

Liquidity Risk Management Programs

- October 2017 – SEC adopted rules to require mutual funds and other open-end investment companies, including ETFs, to establish liquidity risk management programs
  - The rule excludes money market funds and ETFs that qualify as "in-kind ETFs" from certain requirements
- Liquidity risk management program has multiple elements, including
  - Assessment, management and periodic review of fund's liquidity risk
  - Classification of the liquidity of a fund portfolio investment
  - Determination of a highly liquid investment minimum
  - Limitation on illiquid investments
  - Board oversight

Liquidity Risk Management Programs

- Assessment, management and periodic review of liquidity risk
  - Funds must assess, manage and periodically review liquidity risk, based on specific factors
  - Liquidity risk is the risk that a fund could not meet requests to redeem shares it issues without significant dilution of remaining investors' interests in the fund
- Classification of the liquidity of fund portfolio investments
  - Each fund must classify each portfolio investment
  - Classification based on number of days in which the fund reasonably expects the investment to be convertible to cash in current market conditions without significantly changing the market value of the investment
    - Determination must take into account the market depth of the investment
  - Four categories
    - Highly liquid investments
    - Moderately liquid investments
    - Less liquid investments
    - Illiquid investments

Liquidity Risk Management Programs

- Classification of the liquidity of fund portfolio investments (con't)
  - Funds may classify investments by asset class, unless market, trading or investment specific conditions with respect to a particular investment are expected to significantly affect the liquidity characteristics of that investment as compared to the fund's other portfolio holdings within that asset class
- Limitation on illiquid investments
  - A fund may not purchase illiquid investments if more than 15 percent of its net assets are illiquid
  - An illiquid investment is an investment that the fund reasonably expects cannot be sold in current market conditions in seven calendar days without significantly changing the market value of the investment
    - New requirement – may have to consider the likely size of the position sold
  - Determinations made following the same process as other liquidity classifications
  - Funds must review illiquid investments at least monthly
  - When a fund breaches the 15 percent limit, it must report to the board and explain how it plans to bring the illiquid investments into compliance within a reasonable period
  - If not resolved within 30 days, the board must assess whether the plan presented is in the best interests of the fund and its shareholders

Liquidity Risk Management Programs

- Board oversight
  - A fund’s board, including a majority of the fund’s independent directors, must approve
    - The fund’s liquidity risk management program
    - The designation of the fund’s adviser or officer to administer the program
  - The board must review, at least annually, a written report on the adequacy of the program and the effectiveness of its implementation
- Form N-LIQUID
  - This form requires a fund to confidentially notify the SEC when the fund’s level of illiquid assets exceeds 15 percent of its net assets or when its highly liquid investments fall below its minimum for more than a brief period

Disclosure and Reporting Requirements

- Form N-1A amendments require funds to disclose
  - Procedures for redeeming shares
  - The number of days in which the fund typically expects to pay redemption proceeds
  - The method for meeting redemption requests
- Form N-PORT amendments require funds to report monthly
  - Aggregate percentage of portfolio holdings in each of the four classifications (“buckets”)
  - Position-level liquidity classification to the SEC
  - Information regarding a fund’s highly liquid investment minimum (on a confidential basis)
- Form N-CEN amendments require funds to disclose
  - Information regarding use of lines of credit and inter-fund borrowing and lending
  - Whether an ETF is an “in-kind” ETF under the rule
  - Information about use of swing pricing, including the fund’s swing pricing factor

Compliance Dates

- June 1, 2017 – all initial registration statements and all annual updates must comply with Form N-1A amendments
- June 1, 2019 – all funds must comply with Form N-CEN reporting requirements
- December 1, 2018 – most funds must comply with liquidity risk management programs and N-PORT reporting

ICI Recommendations

- July 20, 2017: Investment Company Institute asked the SEC to delay implementation of certain aspects of the rule
  - Delay implementation of compliance schedule for asset classification and related requirements as soon as possible to allow for possible targeted rule amendments
    - ICI proposes to allow each fund to formulate its own policies and procedures as to how to classify liquidity of portfolio investments
  - Even if the SEC does not agree to amend the rule, the SEC should defer compliance requirements by at least one year
  - Require quarterly (instead of monthly) reporting of portfolio holdings on Form N-PORT until SEC can address security concerns
  - Even if SEC maintains monthly reporting requirements, delay implementation dates for Form N-PORT and N-CEN filing requirements for at least six months
- "Bucketing" is the most "costly and vexing piece of the rule"
- Keep reports on Form N-PORT and N-CEN non-public for six months

Challenges for Fund Boards

- Oversight versus micro-management
  - SEC: “We believe that this oversight role is consistent with the board’s historical responsibilities with respect to overseeing fund operations”
    - Some requirements of the rule, however may be viewed as coming close to micro-management
    - For example, the nature of new requirements to report to the Board (e.g., breaches of highly liquid investment minimum and 15 percent limit on illiquid securities) effectively brings the Board into the issues and the consequences of a breach
  - Liquidity risk management programs should establish a framework for evaluating the information contained in these reports that provides for carrying out its responsibilities but at the same time minimizes the potential for micro-management
    - Procedures should provide for appropriate documentation of Board oversight

Challenges for Fund Boards

- Appointment of Administrator of liquidity risk management program
  - The Board may designate a fund’s investment adviser, sub-adviser, officer or officers as Administrator
  - Portfolio managers cannot be solely responsible for administering the program, but may be part of a committee or group designated to administer the program
    - SEC: Consider the extent of influence on portfolio managers may have on the administration of the program and seek to provide independent voices as a check on potential conflicts of interest
- Classification of portfolio securities into buckets
  - Funds in the same complex may classify the same security in different buckets
  - Issue of whether funds may classify different lots of the same security held by a single fund in different buckets
    - For example, selling a half the fund’s holdings in a particular security may not affect the price of the investment, but selling the entire position may affect the price
  - No expectation of direct board involvement in classification
    - Board role should be limited to oversight and understanding the process

Challenges for Fund Boards

- Oversight of liquidity risk management program
  - Board must approve initial liquidity risk management program
    - The Board, however, is not required to approve material changes to the fund's liquidity risk management program
    - Exception – the Board must approve a change to the highly liquid investment minimum only when the fund is then below the established minimum
  - Board must review, at least annually, Administrator's report on adequacy and effectiveness of liquidity risk management program
    - Requirement analogous to requirement that CCO report on adequacy of Fund's compliance program
- Recordkeeping
  - Funds must keep records of materials provided to the Board in connection with approval of the program and written reports provided concerning the adequacy of the program
  - To be sure, OCIE examiners might review these records to evaluate the Board's involvement

Challenges for Fund Boards

- Multiple fund liquidity programs?
  - Advisers may be subject to different standards if they serve as sub-adviser for other fund complexes
  - Generally, the board-approved liquidity program should control how an adviser or sub-adviser carries out its responsibilities
- Sub-advised funds
  - A fund’s investment adviser and its sub-adviser may reach different conclusions regarding an investment’s appropriate liquidity category
    - A fund’s liquidity program should address how to resolve this difference

Challenges for Fund Boards

- ETFs
  - The rule excludes “in-kind” ETFs from the requirement to adopt a liquidity risk management program
  - If an ETF generally redeems in kind, when does it cross the line if it distributes cash from time to time in varying degrees?
- Oversight of highly liquid investment minimum
  - The rule requires funds to report short-term (less than seven day) breaches to the Board at the next regularly scheduled Board meeting
  - Funds must report longer-term breaches more quickly
  - The Board must evaluate the facts and circumstances, and the reasons for the breach, and determine what action, if any, is appropriate
  - Note that when a fund breaches the highly liquid investment minimum, the rule does not bar the fund from purchasing non-conforming assets
  - Thus, the fund has flexibility to address potentially adverse situations, including tracking error, that may arise as a result of complying with the highly liquid investment minimum
  - Note that the Board must approve changes to the highly liquid investment minimum if made when the fund is below the established minimum

Challenges for Fund Boards

- Oversight of 15 percent cap on illiquid investments
  - The rule requires funds immediately to report to the Board (and the SEC on a confidential basis) whenever the fund "breaches" the 15 percent limit on illiquid securities
    - The administrator of the liquidity risk management program must explain in a report to the Board the extent and causes of the occurrence, and how the fund plans to reduce illiquid investments to or below 15 percent of net assets within a reasonable period of time
  - For short-term breaches (less than 30 days), the Board can review the explanation and become satisfied reasonably quickly
  - For longer-term breaches (at least 30 days after the occurrence) the Board, including a majority of the independent directors must assess whether the plan presented to it continues to be in the best interests of the fund
  - Note the SEC adopted a new definition of "illiquid" investment (described above)
    - Funds must take into account "relevant market, trading and investment specific considerations" in identifying illiquid investments
    - Funds will be required to consider a "modified value impact standard" in determining if an investment is illiquid
  - Evaluation of report may require insight into portfolio management issues

Regulatory Prognosis

- The ICI and others have called for the SEC to ease certain requirements of the rule and to delay implementation
- The requests for delay of implementation may gain traction in light of recent highly publicized cybersecurity issues
- It is not certain at this point whether the SEC will propose a delay or any modifications
- For this reasons, funds, advisers and boards must proceed assuming the current compliance deadlines
- Best practices likely to evolve, but there is a lot of room for different funds to establish different practices

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Asset Management Regulation Under the Clayton SEC

Norm Champ

Partner

Kirkland & Ellis

KIRKLAND & ELLIS LLP

Asset Management Regulation Under the Clayton SEC

October 18, 2017

Norm Champ, P.C.

Agenda

1. INTRODUCTION

Norm Champ, P.C.

Partner, Investment Funds

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Former Director, SEC Division of Investment Management

Education

- Harvard Law School, J.D., 1989, *cum laude*
- King's College London, University of London, M.A., War Studies, 1986
  - Fulbright Scholar
- Princeton University, A.B., History, 1985, *summa cum laude*

Admissions & Qualifications

- 1990, New York

Profile

- Prior to joining Kirkland & Ellis LLP in 2016, Norm was the Director of the Division of Investment Management at the U.S. Securities and Exchange Commission (SEC)
- While at the SEC, Norm played a key role in the SEC's completion of landmark money market reforms in 2014 and led important structural and policy changes
- Prior to becoming Director of Investment Management, Norm was the Deputy Director of the SEC's Exam program. Norm supervised examinations of investment advisers and other entities across the United States and abroad
- Norm also worked on crisis management efforts at securities firms to protect customers of those firms

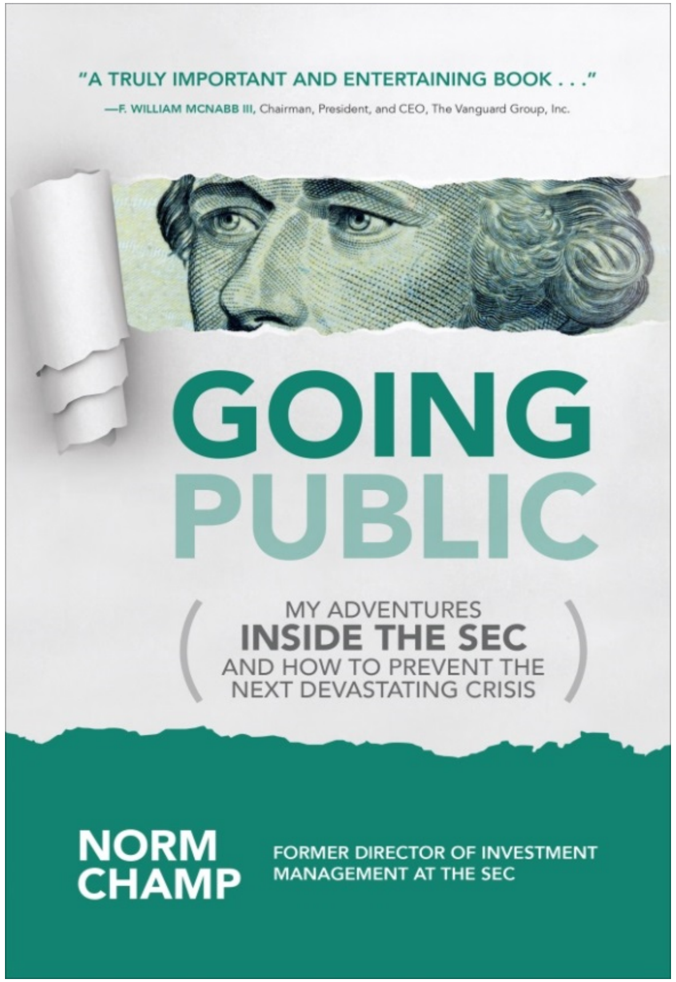
Prior Experience

- Director, Division of Investment Management, U.S. Securities and Exchange Commission, 2012–2015
- Deputy Director, Office of Compliance Inspections and Examinations, U.S. Securities and Exchange Commission, 2010–2012
- General Counsel, Chilton Investment Company, 1999–2009
- Davis Polk & Wardwell LLP, 1989-90, 1992-1998
- Law Clerk, Honorable Charles S. Haight, Jr., U.S. District Court for the Southern District of New York, 1990-1992

Key Accolades

- Harvard Law School Lecturer on Law, Fall Term 2017
- SEC Chairman's Award for Law and Policy, 2014
- SEC Chairman's Analytical Methods Award, 2013

Going Public: My Adventures Inside the SEC and How to Prevent the Next Devastating Crisis



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2. CHANGES IN LEADERSHIP

Focus of New SEC Leadership

SEC Chair Jay Clayton

- Clayton has laid out a capital formation agenda, that includes:
  - Easing rules relating to investor discussions prior to an IPO
  - Easing burdens for mid-sized companies related to accounting and compliance regulations
  - Streamlining disclosure requirements
- Anticipate less attention on investment management-related rulemakings
- Do not anticipate less attention on investment management-related examinations and enforcement
  - More than 50% of the FY 2018 Budget Request is devoted to enforcement and examination programs
  - On track for 30% increase in number of investment adviser examinations in FY 2017
  - OCIE anticipates a further 5% or greater increase in investment adviser exams in FY 2018

Commission in Transition: Recent Commissioner Nominations

Jay Clayton

Kara Stein
Term expires 2017

Michael Piwowar
Term expires 2018

Recently Nominated Commissioners

On July 18, the White House named Hester Peirce (R), senior fellow at the conservative-leaning Mercatus Center, as the nominee for the open Republican seat.

On September 1, the White House named Robert Jackson (D), Columbia University law professor and advocate for disclosure of political spending by public companies, as the nominee for the open Democrat seat.

To ensure that the Commission remains nonpartisan, no more than three Commissioners may belong to the same political party

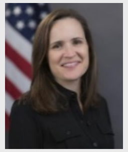
Commission in Transition: Recently Named Division Directors

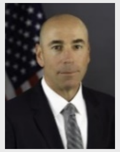
Division of Corporation Finance

- William Hinman named Director of Division of Corporation Finance on May 9, 2017.
- Mr. Hinman recently retired as a partner in the Silicon Valley office of Simpson Thacher & Bartlett, where he advised public and private companies in corporate finance matters.

Division of Enforcement

- Stephanie Avakian and Steven Peikin named Co-Directors of Division of Enforcement on June 8, 2017.
- Ms. Avakian served as Acting Director of Division (since Dec. 2016) after serving as Deputy Director (since June 2014).
- Mr. Peikin was Managing Partner of Sullivan & Cromwell's Criminal Defense and Investigations Group. From 1996-2004, he was an AUSA in SDNY and served as Chief of the Office's Securities and Commodities Fraud Task Force.



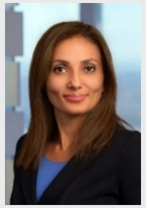


Division of Economic & Risk Analysis

- Jeffrey Harris named Director of Division of Economic and Risk Analysis on August 31, 2017
- Dr. Harris is currently a professor at the Kogod School of Business at American University in Washington, D.C. He recently served as Chief Economist at the CFTC, with prior experience as Visiting Academic at the Nasdaq Stock Market and at the SEC.

Division of Investment Management

- Dalia Blass named Director of the Division of Investment Management on August 31, 2017.
- Ms. Blass joins the SEC from Ropes & Gray.
- Ms. Blass previously served in a number of leadership roles in the Division of Investment Management, most recently as Assistant Chief Counsel.



Still awaiting new Directors:

- Division of Trading & Markets
- National Exam Program

3. REGULATION

Regulatory Expectations

- **Financial CHOICE Act / CHOICE Act 2.0**
  - CHOICE Act 2.0 (as approved by the House of Representatives on June 8th) would loosen regulations
  - Whether the CHOICE Act 2.0 will pass in the Senate is uncertain, but the bill raises concepts central to other ongoing regulatory efforts, including those related to the Fiduciary Rule, Volcker Rule, exemptive applications process, and other core issues
- **Fiduciary Rule**
  - Department of Labor (DOL) Fiduciary Rule
    - Would expand definition of “investment advice fiduciary” under the Employee Retirement Income Security Act of 1974 (ERISA)
    - Automatically elevates all financial professionals who work with retirement plans or provide retirement planning advice to the level of a fiduciary, thus imposing additional legal and ethical standards on such professionals
  - SEC Request for Comment on Fiduciary Rule
    - Seeking comments from retail investors and other interested parties on standards of conduct for investment advisers and broker-dealers
    - Currently no deadline for comments
- **Volcker Rule**
  - Agency staff working on targeted changes; OCC published a request for comment on how the rule should be revised to better accomplish the statute's purposes
  - Definition of foreign funds under particular review

Regulatory Expectations

- **Streamlining Exemptive Application Process**
  - “Plain Vanilla” ETF Rule
    - Remains in the SEC’s Regulatory Flexibility Act (“Reg Flex”) agenda
    - We expect the SEC could make progress on a “plain vanilla” ETF rule, particularly under the new SEC administration

- **Other regulatory efforts, outside the scope of the CHOICE Act 2.0**
  - Cryptocurrency
    - SEC 21(a) report warned that virtual organizations offering digital assets are subject to federal securities laws
  - Third Party Examinations
    - Written proposal by prior SEC Chair, Mary Jo White
    - On September 28, Chairman Clayton stated “it’s not a bad idea, but it’s not at the front of my mind right now.”

- **Broad Treasury Department sector reviews may inform additional regulation**
  - Report on Banks and Credit Unions, released on June 12, 2017
  - Report Capital Markets, released on October 6, 2017
  - Report on Asset Managers, anticipated for release in Fall 2017 (SEC Staff participating in drafting)

4. ENFORCEMENT AND EXAMINATIONS

Enforcement Trends

- **Enforcement results for SEC's fiscal year ended September 2016**
  - 868 total enforcement actions (807 in 2015), and the most ever – 160 – involving investment advisers or investment companies
  - Over $4 billion in aggregate disgorgement and penalties (approx. $4.2 billion in 2015)

SEC Enforcement Actions (investment advisers / investment companies)

Year	Civil Actions	Defendants	APs	Respondents	Total IA/IC Actions	Total Defendants / Respondents	% of Total Enforcement Actions
2016	TBA	TBA	TBA	TBA	160	TBA	18.4%
2015	19	60	107	171	126	231	15.6%
2014	10	34	120	171	130	205	17.2%
2013	21	61	119	163	140	224	20.7%
2012	35	81	112	149	147	230	20%

Examination Trends

- **Steady increase in portion of industry examined per year**

Percentage of Registrants Examined (investment advisers / investment companies)

Fiscal Year	2012	2013	2014	2015	2016
Investment Advisers	8%	9%	10%	10%	11%
Investment Companies	12%	11%	10%	15%	17%

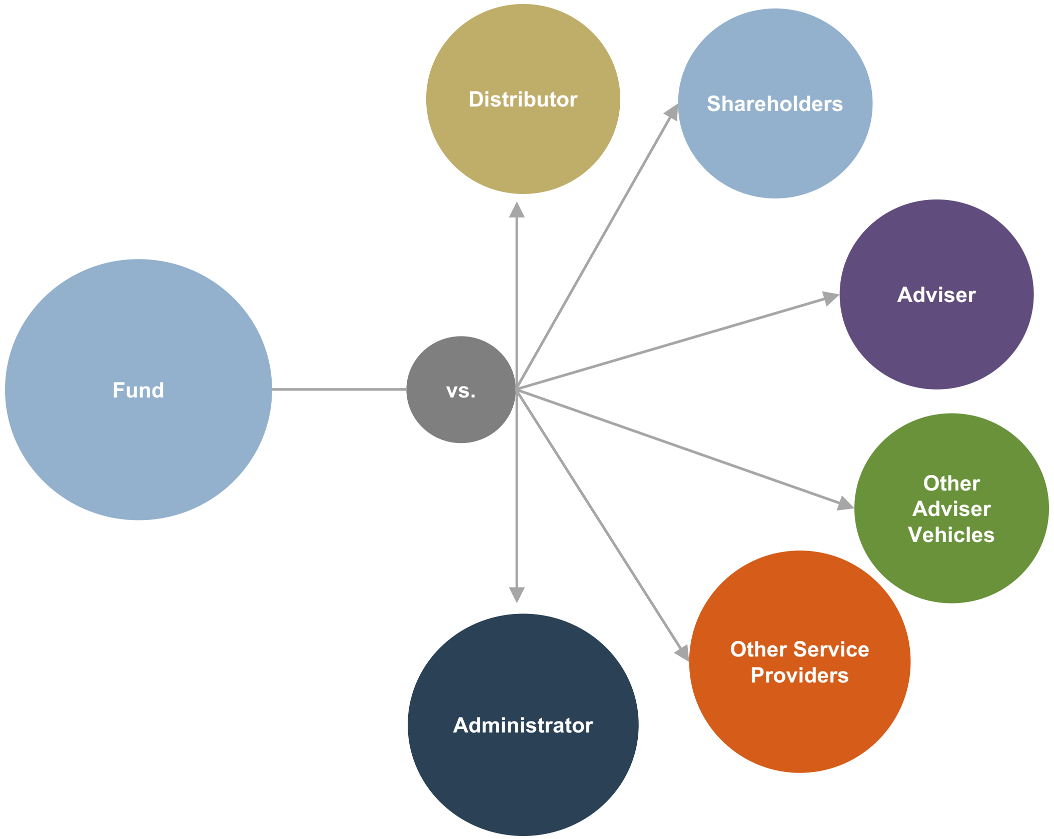
Impact of Leadership Changes on Enforcement and Examinations

- **Enforcement**
  - Caveats: predictions are hazardous, enforcement is largely bi-partisan, the SEC historically guards its independence aggressively, and one scandal can change everything, BUT some things are known:
    - Inflection point – financial crisis misconduct is largely in the past, and financial institutions have significantly de-risked, so changes in enforcement policy and priorities are inevitable, regardless of change in administration
    - At the margins can mean less aggressive cases since Commissioners vote on each enforcement action
  - Supreme Court ruled on June 5, 2017 that a five-year statute of limitations applies to disgorgement remedies imposed by the SEC

- **Examinations**
  - No Commissioner voting in exams, so process for selecting targets, conducting exams, and issuing deficiency letters is insulated from political disputes
  - OCIE is resourced to execute on its existing priorities; expect few short-term changes from current focus areas

SEC Examinations – Focus Areas

- **Fee and expense arrangements (Disclosure and Allocation) and related conflicts of interest**



SEC Examinations – Focus Areas

- **Cybersecurity**
  - Compliance procedures and controls; testing the implementation of those procedures and controls
- **Whistleblower Rule Compliance**
  - Including review of compliance manuals, Codes of Ethics, employment agreements and severance agreements
- **Continuation of Never-Before Examined Investment Advisers**
  - Targeted, risk-based examinations of newly-registered advisers as well as selected advisers that have never been examined
- **Political contributions / Pay-to-play**
- **Compliance Rule**
  - Compliance manuals must be current and reflect the adviser's actual business practices; annual reviews must be performed and adequately documented
- **Regulatory Filings**
  - Disclosure should be accurate, filings must be timely; emphasis on correctness of Form PF and Form D
- **Custody Rule**
  - Focus is on whether Adviser has "custody" as defined under the rule
- **Code of Ethics**
  - Accurately identify "access persons," ensure timely submission of reports, include disclosures in Form ADV Part 2A
- **Books and Records**
  - Maintain all required books and records; ensure records are accurate and updated

Cybersecurity – The SEC Hack

- Chairman Clayton disclosed in a statement on Sept. 20, 2017 that the EDGAR system had been hacked in 2016

THE WALL STREET JOURNAL.

SEC Draws Scrutiny for Slow Response to Hack

September 21, 2017 | Washington, D.C.

The SEC has spent millions of dollars trying to upgrade Edgar, which it began developing in 1983, according to "Going Public," a 2017 book by Norm Champ, a former SEC division director. "The outdated system continues to be used and, in fact, upgraded at costs of tens of millions of dollars even though Google and other corporations have far more effective storage systems," wrote Mr. Champ, now a partner at Kirkland & Ellis LLP.

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Panel | Liquidity Management Data & Tools

Moderator |Diane Frost, Voltaire Advisors

David Askin |FixtHub

Alie Diagne |FINRA

Robert Kane |BondView

Karl Mackelburg |Thomson Reuters

FixtHub

Find More, Search Less

LIQUIDITY MANAGEMENT DATA & TOOLS

OCTOBER 18, 2017

Panel | Liquidity Management Data & Tools

- Liquidity -- I Know It When I See It
- Data vs. Information
- OTC vs. Exchange-Traded Markets
- The Significance of Reduced Dealer Balance Sheets – “Market Makers?”
- Regulatory Liquidity = Market Liquidity? Not!
- Normal Distributions and Fat-Tailed Distributions and Black Swans, Oh My!
- Individual Securities vs. Portfolios– The Importance of Correlations

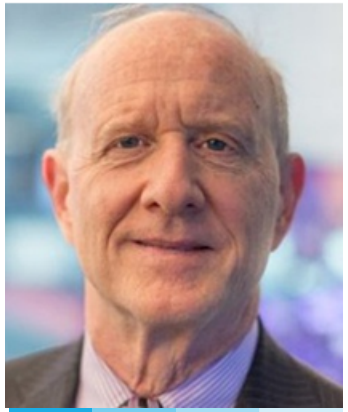
FixtHub

Panel | Liquidity Management Data & Tools

- The Importance of a Holistic View of the Market
- Segmenting Market Data Across Asset Class and Format
- The Need for Centralization
- Trades vs. Quotes
- How Much Does Timeliness Matter?
- The Role of Evaluated Pricing

FixtHub

Meet The Team



David Askin

Sales Director

Most recently, David was a co-founder of BVAL. Prior, he built successful fixed income portfolio management, sales, trading and analytics businesses that spanned the full spectrum of asset classes, strategies and functions at firms such as Merrill Lynch, Moody's, Drexel Burnham Lambert and Daiwa.

Brian Lane

CEO

Prior to FixtHub, spent 6 years as part of senior team at Codestreet, which was sold to TradeWeb in in March '16. There, he was the creator of the 1st dark pool in fixed income and pre-trade software tools. Previously, he was a trader/salesperson where he built internal software tools at both bulge bracket and research driven firms.

Mike Lopus

CTO

Mike spent the last 12 years running development for Advantage Data. There, Mike built very modern scalable fixed income tools that incorporate some of the newest technologies. Deeply experienced at delivering intuitive, modern software.

FixtHub

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WWW. FIXTHUB.COM

P: 888-505-9011

FINRA TRACE© Data

Mutual Fund Liquidity Risk Management
October 18, 2017

Financial Industry Regulatory Authority

TRACE Program Status

Segment	Trade Reporting	Approach	Current status	Scope
Corporate Debt	July 1, 2002	Phased in dissemination and gradually reduced reporting time	Reportable within 15 minutes, Real-time dissemination of all publicly traded securities. Dissemination of 144A implemented in June 2014.	Over 60,000 CUSIPs 56.9K average daily trades $32.8B average daily par value traded
Agency Debentures	March 1, 2010	Subject to immediate dissemination	Reportable within 15 minutes. Real-time dissemination implemented in March 2010	Just under 20,000 CUSIPs 1.9K average daily trades $4.1B average daily par value traded
To-Be-Announced	May 16, 2011	Initially reporting only, FINRA to study the data to propose dissemination policy	GD reportable in 15 minutes. NGD reportable in 1 hour. Disseminated as of November 12, 2012	Over 43,000 CUSIPs 7.2K average daily trades $191.8B average daily par value traded
Specified Pools			Reportable within 1 hour of execution. Dissemination based on pool characteristics as of July 22, 2013.	Over 1 million CUSIPs 3.2K average daily trades $17.6B average daily par value traded
Asset Backed Securities			Reportable within 15 minutes of execution Dissemination as of June 1, 2015	Over 11,000 CUSIPs 424 average daily trades $2.5B average daily par value traded
CMO/REMIC/RMBS			Reportable in 1hr. Dissemination implemented on March 20, 2017. Trades under $1 million disseminated real-time. Information on trades over $1 million provided in weekly and monthly reports.	Over 288,000 CUSIPs 1.8K average daily trades $11.1B average daily par value traded
CDO & CMBS			Reportable on T Dissemination TBD	Over 55,000 CUSIPs 403 average daily trades $3.3B average daily par value traded
U.S. Treasury	July 10, 2017	Transaction reporting only	Reportable on T No Dissemination	Just under 1,200 CUSIPs

TRACE Security Activity Report

Security	Issuer Name	TRACE Grade	Industry / Sector	Total Number of Trades	Customer buy Trades	Customer Sell Trades	Interdealer Trades	Number of Capped Trade	# of Trades 0 to Cap Size	# of Trades Cap to 10MM	# of Trades > 10MM	Displaying only Capped Volume
CUSIP1	Security Name 1	IG	OTHF	428	226	26	176	1				x
CUSIP2	Security Name 2	IG	INFO	428	166	72	190	2				x
CUSIP3	Security Name 3	HY	CABL	427	137	137	153	2				x
CUSIP4	Security Name 4	IG	OTHF	427	219	72	136	13	414	≤10	≤5	
CUSIP5	Security Name 5	HY	OTHF	426	226	85	115	3				x
CUSIP6	Security Name 6	IG	OILG	426	100	115	211	1				x
CUSIP7	Security Name 7	IG	INFO	426	167	84	175	0	426	≤5	≤5	
CUSIP8	Security Name 8	HY	OTHF	425	132	109	184	5				x
CUSIP9	Security Name 9	IG	BANK	425	125	145	155	9	416	≤10	≤5	
CUSIP10	Security Name 10	HY	OTHF	425	189	58	178	11	414	≤5	≤10	

Security	Total Par Value Traded	Customer Buy Par value	Customer Sell Par Value	Interdealer Par Value	Par Value 0 - Cap	Par Value Cap - 10mm	Par Value > 10mm	# of Unique Dealers	# of Unique Capped Deale	Top 5 Firms % of Trades	Top 5 Firms % of Par
CUSIP1	$ 55,909,000							62	4	46.26%	68.67%
CUSIP2	$ 73,224,000							61	≤3	29.67%	49.60%
CUSIP3	$ 35,963,000							41	5	50.35%	81.31%
CUSIP4	$ 306,709,000	119,899,000	140,820,000	45,990,000	127,626,000	77,551,000	101,532,000	59	8	38.41%	74.20%
CUSIP5	$ 133,154,000							34	≤3	70.89%	59.92%
CUSIP6	$ 37,654,000							52	≤3	47.18%	76.02%
CUSIP7	$ 48,249,000	19,340,000	22,484,000	6,425,000	48,249,000	-	-	55	0	41.08%	70.58%
CUSIP8	$ 35,757,000							40	5	57.41%	79.01%
CUSIP9	$ 220,587,000	101,769,000	95,657,000	23,161,000	73,425,000	47,214,000	99,948,000	56	≤3	37.88%	89.26%
CUSIP10	$ 223,088,167	78,754,273	92,052,894	52,281,000	96,786,167	23,924,000	102,378,000	63	4	30.12%	69.45%

Security	Issuer Name	TRACE Grade	Industry / Sector	Total Number of Trades	Customer buy Trades	Customer Sell Trades	Interdealer Trades	Number of Capped Trade	# of Trades 0 to Cap Size	# of Trades Cap to 10MM	# of Trades > 10MM	Displaying only Capped Volume

Total Par Value Traded	Customer Buy Par value	Customer Sell Par Value	Interdealer Par Value	Par Value 0 - Cap	Par Value Cap - 10mm	Par Value > 10mm	# of Unique Dealers	# of Unique Capped Deale	Top 5 Firms % of Trades	Top 5 Firms % of Par

BondView

Liquidity Assessment: Municipal Bonds & Funds

Robert Kane, CEO

Email: Robert@Bondview.com

PH 866 261 9533

Big Data For Municipal Bond Analysis

- **About BondView:**

  - Those Who Know Bonds, Probably Know BondView.

    - 15k Users Including The Top 10 Investment Banks, Brokers, Accountants, Insurance

About BondView:

- In Business 10 Yrs+.

- Launched BondView Pro (2012): **Cloud-Based Bond Analyst**
  - Presents Detailed Holdings Data on 2mm+ Muni Bonds, 2,400 Funds, Pension Holdings, Private Portfolios And Pre-Trade Offers.
  - Real Time & Historical Pricing Engine (Proprietary)
  - Quickly Identifying Trading Opportunities & Used By Many User Types

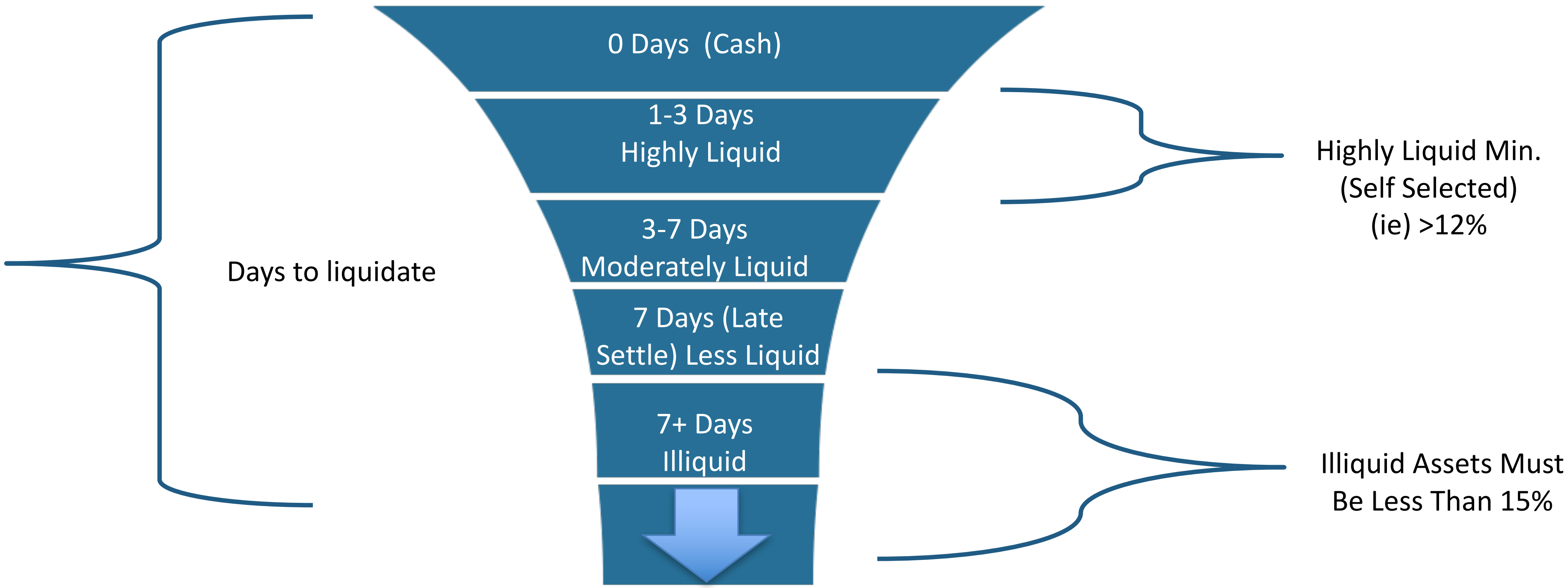
  - BondView Uniquely Positioned To Offer Liquidity Assessment.

Coming Soon:

- **Liquidity Assessment Tool** (Release Date: Jan. 2018)
    - Solving The "Big Data Liquidity Task" With 1 Click
        - 2 Product Offerings
    - A) All Muni Funds: Currently Performing Daily Liquidity Assessment On 2400 Funds
        - Daily Summary and Position Level Liquidity Assessment
        - Global View To Compare Funds By Peer Group & Identify Trends, Outliers and Compliance Issues
    - B) Single Fund View: Private Best Practice Methodology. Can Be Customized & Optimized To Create A Unique & Defensible Liquidity Policy.
        - Customization Includes:
            - -Days To Liquidate, Bid/Ask -Summary and Position Level Assessment
            - -Value Impact & Price Cuff -Confidence Intervals
            - -Daily Reporting & Re-Classification -Normal vs. Reasonably Stressed Markets
    - Any 2 Funds Managers Define Liquidity Differently

What Is Your Liquidity Funnel?

SEC Rule 22e-4 Requires Fund Companies To Regularly Assess & Report Fund Liquidity.



• **Product:** Get A Clear Answer Daily - Either Its Sufficient Or Its Not

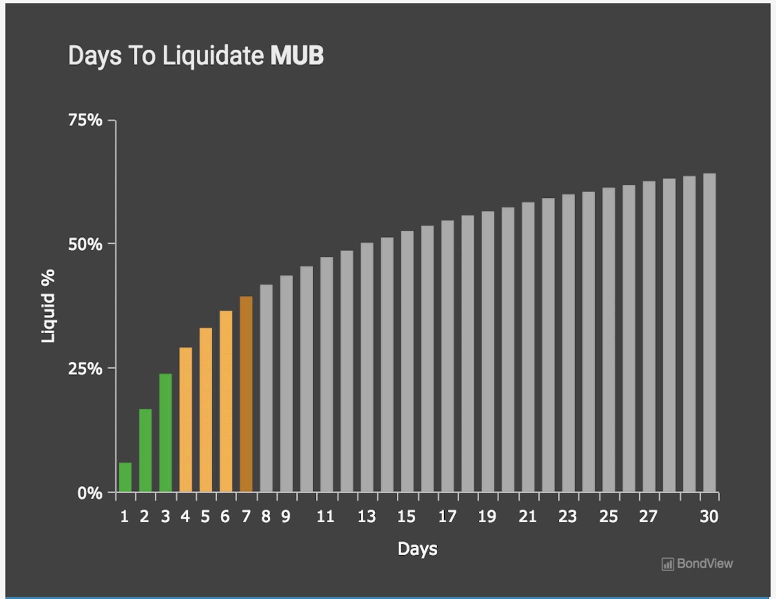
iShares National AMT-Free Muni Bond (MUB)

Sufficient Liquidity — **MUB** Can Liquidate **25.11%** In 3 Days Which Meets The Fund's 15% Minimum For Highly Liquid Assets. Meets SEC Requirements.

Unacceptable Illiquidity — **MUB** Fails The 15% Maximum Illiquid Assets Test. Does Not Meet SEC Requirements.

38122NZF2	GOLDEN ST TOB SECURITIZATION UNREFUNDED BALANCE	5,050,000.00	[illegible]		[illegible]	[illegible]%	5.750%	2047-06-01	1
594751AM1	MICHIGAN TOB SETTLEMENT FIN AUTH TOB SETTLEMENT ASSET CAP APPREC-TURBO-SER C	5,000,000.00	[illegible]		[illegible]	[illegible]%	0.000%	2058-06-01	1
254842BB2	DISTRICT COLUMBIA TOB CAP APPREC-ASSET-BKD-A	4,647,333.33	56,785,000		13 days	0.3997%	0.000%	2046-06-15	1
130923BQ7	CALIFORNIA STATEWIDE FING AUTH CAP APPREC-TURBO-POOLED PROG-D	4,416,666.67	69,500,000		16 days	0.1201%	0.000%	2055-06-01	1

Highly Liquid (0-3 days)
Moderately Liquid (3-7 days)
Less Liquid (3-7 days, settle later)
Illiquid (7+ days)



SEC Category	% Of Fund Value	Value	Liquidity Bucket
Highly Liquid	25.11%	$1,936,884,216.77	0-3 Days
Moderately Liquid	16.54%	$1,275,751,264.10	3-7 Days
Less Liquid	2.5%	$193,105,675.35	3-7 Days (Settle Later)
Illiquid	55.84%	$4,306,358,843.79	7+ Days

Fund Details

Market Value	$7,712,100,000
Cash	5.95%
Positions	3341
Not Covered	521 (15.59%)
Covered	2820 (84.41%)
Type	ETF
Reporting Date	2016-09-28
Highly Liquid Target	15%

Recommended Actions

Download Your N-Port Report

Next Steps:

- *If You Are Interested…*

- Beta Testing Currently Underway w/ Industry Muni Market Participants
    - A Few Spots Left For Additional Beta Testers : Contact Sales@bondview.com

    - Sec Rule 22E4 is Complex. Many Moving Parts & Players
        - We Hope To Partner With All Funds, Administrators, Accountants, Lawyers & Vendors.

Contact:
Robert Kane, CEO
Email: Robert@bondview.com
Ph 866 261 9533

Making Liquidity Assessment For Municipal Bonds Simple

Evaluation Services: Data and Tools

Karl Mackelburg
Head of Sovereign, Corporate, and Money Market Evaluations
Thomson Reuters Pricing Service

Evaluation Services: Data and Tools

Fair Market Evaluations

- Fair Value definition consistent with Topic 820 definition
- Mark to Market or Market to Model?
- Inputs: Terms, Benchmark Curves, Analytics, Trades, Quotes.
- Evaluation Team
- Quality Control

Evaluation Scores

- Attempt to quantify evaluation difficulty
- Considers bond attributes, available quotes, trade prices
- TRPS Score 1 -10
- Serves as transparency tool

Liquidity Scores

- Quantifies the ability to liquidate a position
- Score, Days to liquidate, Price range
- Considers many factors
- Thomson Reuters Implied Bid/Ask Spread

Liquidity Factors

Amount Outstanding
Credit Rating
Tenor / Seasoning
Redemption Features
Number of Owners
Distance From Par
Size of Position
Date of Liquidation

Discussion Topics

- What are the key datasets that funds will need to be able to implement rule 22e-4?
- Where is this data available?
- What tools are available to process it?
- What key data is not readily available?
- How will funds deal with data gaps?
- Audience Q&A

New Reporting & Data Challenges

Tom Stock

SVP

GoldenSource

GoldenSource®

DATA CHALLENGES IN MUTUAL FUND LIQUIDITY RISK MANAGEMENT REPORTING

TOM STOCK
JUNE 2017

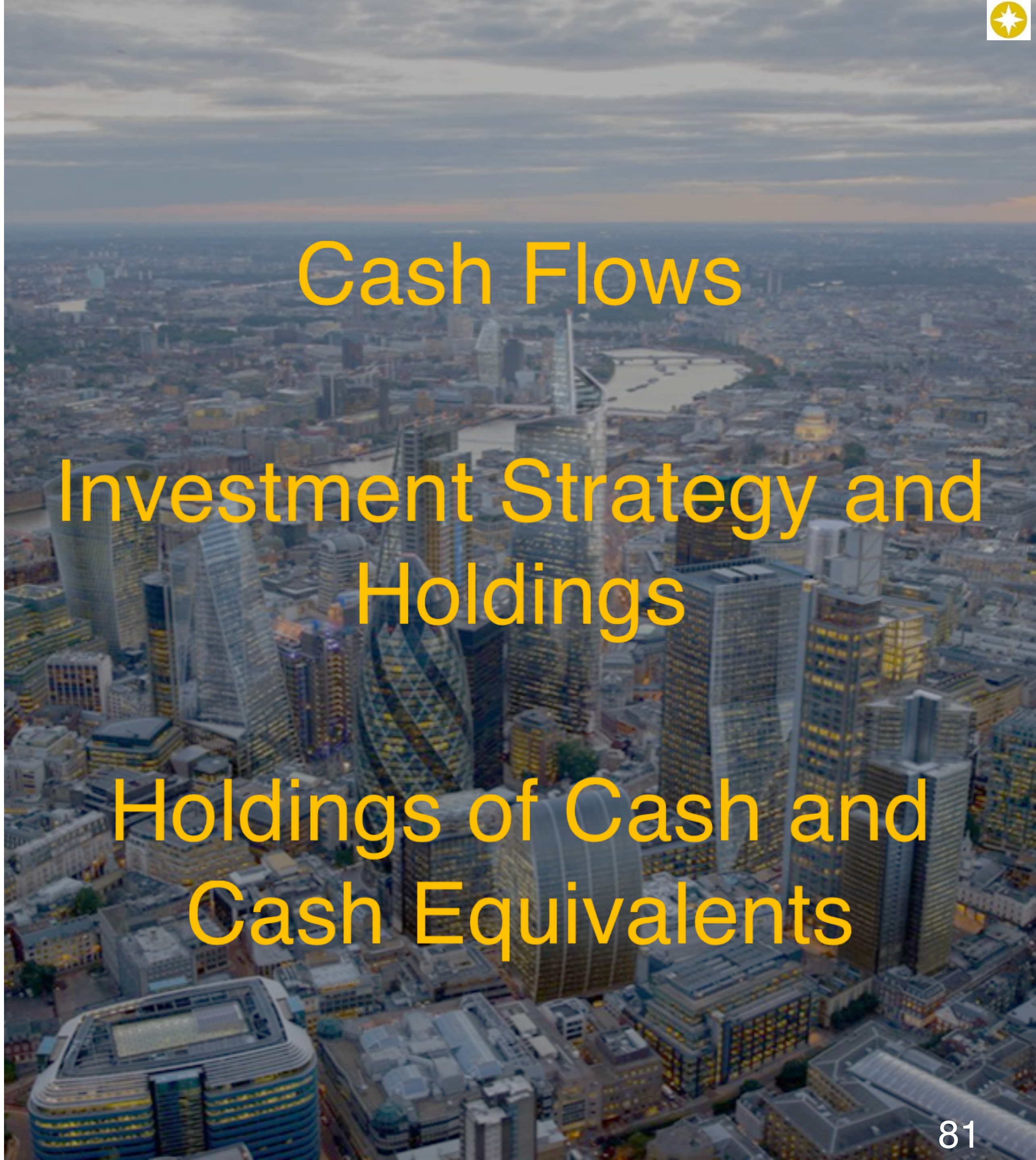
GoldenSource Corporation
115 Broadway, 4th Fl
New York, NY 10006
United States

Asset Managers of eligible funds must:

- **Adopt and implement a written liquidity risk management program**, under board oversight, designed to assess and manage the fund's liquidity risk
- **Establish liquidity risk management programs**, including classifying and monitoring each portfolio asset's level of liquidity and designating a minimum amount of highly liquid investments
- **Track the ratio of liquid and illiquid holdings** as percentage of the overall net asset value of the fund; funds are limited in holding no more than 15% of illiquid securities within a fund and variances must be reported to board and SEC if threshold breach persists
- **Provide additional reporting** related to fund liquidity to SEC (Forms N-CEN, N-PORT, N-LIQUID, N-1A)
- **Enhance disclosure to investors** regarding the liquidity of fund portfolios and how funds manage liquidity risk and redemption obligations

Liquidly Risk Framework Must Consider the Following Risk Factors:

- **Short-term and long-term cash flow projections during both normal and reasonably foreseeable stressed conditions**
  - Primary driver of need for Liquidly
- **Investment Strategy and Portfolio Holding during normal and reasonably foreseeable stressed conditions**
  - Primary driver of Liquidity Risk
  - Is the strategy appropriate for an open ended fund
  - Does the Strategy involve a relatively concentrated portfolio or large positions in particular issuers
  - Use of borrowing for investment purposes or Derivatives
- **Holdings of cash and cash equivalents, as well as borrowing arrangements and other funding sources**
  - Mitigators of Liquidly risk



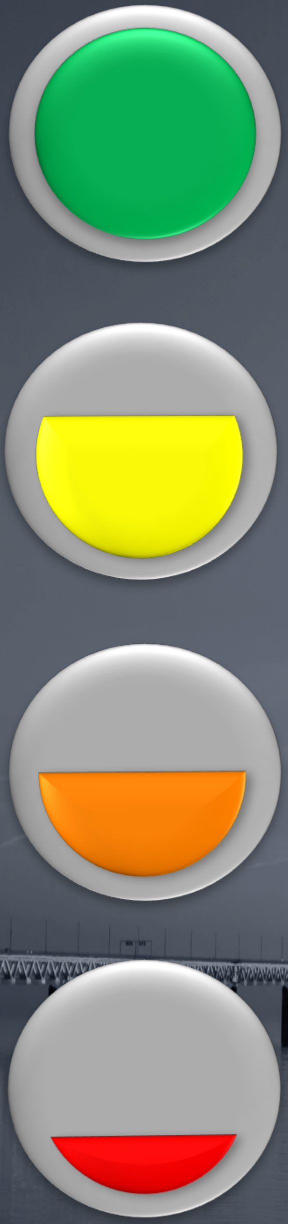
Cash Flow Projections for normal and reasonably foreseeable stressed conditions

- **What drives stress conditions is portfolio specific e.g.**
  - Interest rate fluctuations for bond funds
  - FX rate changes for unhedged foreign funds
- **Need to have a validated time series of these stress factors available for analysis**
- **Time series data on the size, frequency and volatility of purchases and redemptions will also be required**
- **Additional Considerations**
  - Fund redemption policies
  - Fund Shareholder concentration
  - Distributions Channels
  - Degree of certainty associated with these cash flow projections
    - How long has the fund been in business
    - Consider proxying
- **With this data set**
  - Statistical models can be constructed which provides insight into
    - Anticipated cash flows under different conditions
    - Volatility of those flows
  - **Anticipated cash flow projections under different conditions can be constructed based off of insights obtained from this data**

Classifying Liquidity: Requirements

- **SEC now require** funds to use a methodology to classify liquidity of securities in their portfolio into 4 liquidity buckets
- **“Liquidity Bucketing”** considers time to liquidation and a definition of acceptable market impact where a position can be converted to cash within 3 business days or cannot be sold or disposed of in 7 calendar days
- **Not limited to Fixed Income products** – all securities including equities will also require liquidity classification
- **Bid-ask spread is not sufficient** and changes with notional size of trade
- **Primary challenge** - no universally agreed upon and adopted measure or model that adequately captures cost and time to liquidation in bond markets
- **SEC proposal** to permit funds (except money market funds and ETFs) to use “swing pricing” which transfers the market impact or dilution costs of trade activity caused by redeeming shareholders

Liquidity Bucketing



Highly Liquid - Convert to cash in less than 3 business days

Moderately Liquid - Convert to cash in 3-7 calendar days

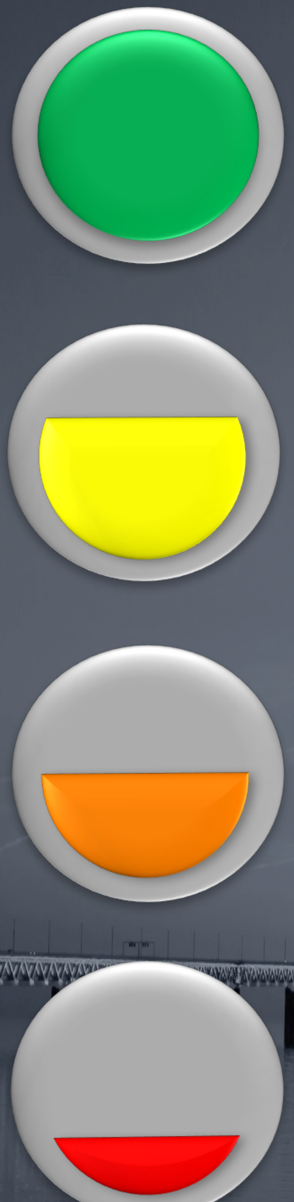
Less Liquid – Sold within 7 calendar days

Illiquid – More than 7 calendar days to sell

Classifying Liquidity: Liquidity Factors

- **Liquidity Factors**
  - Existence of an active market for the asset, including whether the asset is listed on an exchange, as well as the number, diversity, and quality of market participants**;**
  - Frequency of trades or quotes for the asset and average daily trading volume of the asset Volatility of trading prices for the asset**;**
  - Bid-ask spreads for the asset;
  - Whether the asset has a relatively standardized and simple structure;
  - For fixed income securities, maturity and date of issue;
  - Restrictions on trading of the asset and limitations on transfer of the asset;
  - The size of the fund’s position in the asset relative to the asset’s average daily trading volume and, as applicable, the number of units of the asset outstanding; and relationship of the asset to another portfolio asset
- **Other Possible Factors to Consider**
  - Fed Repo Haircuts
  - Opinion of Traders

Liquidity Bucketing



Highly Liquid - Convert to cash in less than 3 business days

Moderately Liquid - Convert to cash in 3-7 calendar days

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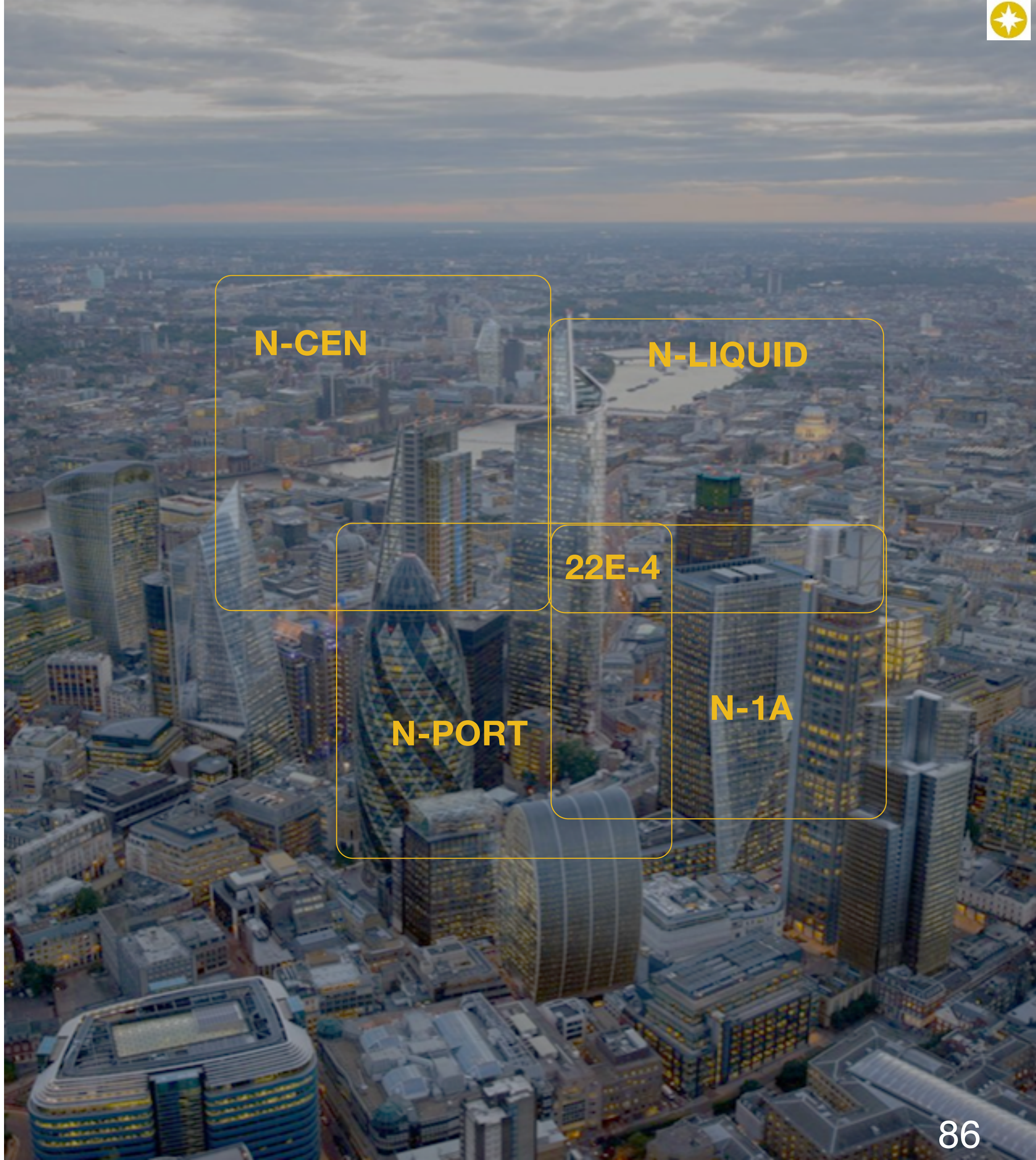
22E-4 IMPACT ON ASSET MANAGERS

- **Other Considerations**
  - Position Size and what fund would normally be trading
  - Classification of liquidity of individual assets vs. asset class
  - Use of Vendor data
  - Frequency of determination of liquidity of individual instruments/asset classes (monthly unless conditions change)
  - Current Market conditions and volatility
- **Approaches to Bucketing**
  - Create a statistical classification model
    - Difficult for most firms due to data and data science expertise
  - Use a combination of information
    - Vendor provided buckets
    - Insight gained from data analysis
    - Internal expertise
    - Most likely approach

- **Reporting Requirements**
  - N-PORT
    - Liquidity classification of each holding
    - Aggregated % of the holdings in each bucket
    - Percent of highly liquid assets segregated for Margin for derivatives
  - N-CEN
    - Use of lines of credit and inter-fund lending
  - N-1A
    - Information regarding Funds redemption procedures
  - N-LIQUID
    - Required when non-liquid asset greater than 15%
    - Highly liquid asset % goes below minimum

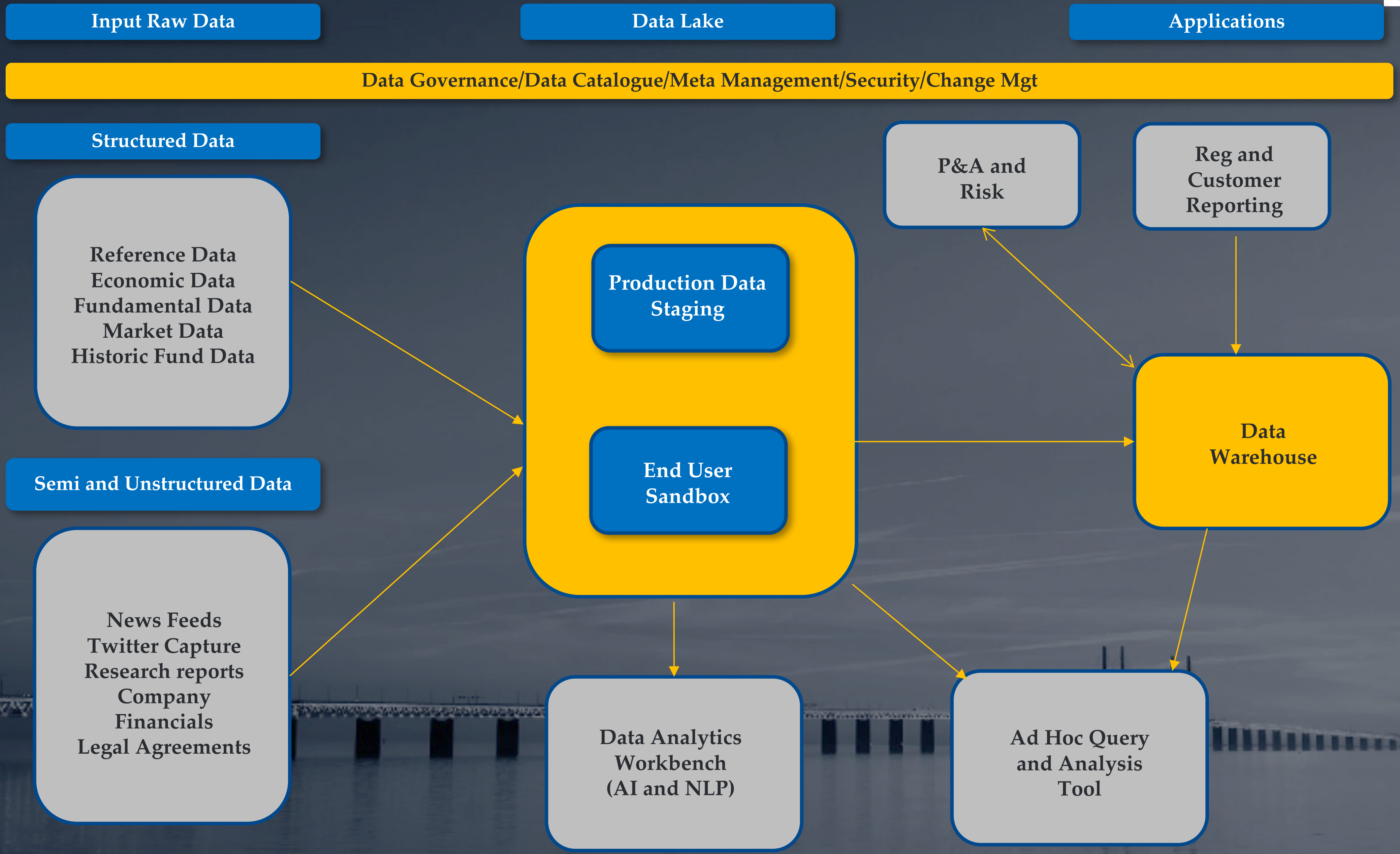


OVERCOMING THE DATA CHALLENGES

- **The Challenge**
  - How to support flexible analytics and structured regularity reporting in a single environment
  - Sophisticated enough for Data Scientists
  - Simple enough for end user to gain insight from their data

- **The Solution**
  - Modern Data Architecture combining the best of Big Data tools and a traditional Data Warehouse
    - Empowers end user to interact with their data directly through simple easy to use tools
    - Provides a platform powerful enough for Data Scientists to perform complex modeling
    - Proves the structure, standardization, audit trail and data lineage needed to consolidate information from multiple sources for regulatory reporting

High Level Data Architecture



OVERCOMING THE DATA CHALLENGES

- **Data Warehouse for reporting and bi-temporal historical data**

- **A Data Lake is a repository and set of tools**
  - To allow end users to quick bring structured and unstructured data into a sandbox environment
  - To provide an analytics framework for data visualization and reports as well as to provide the ability to parse unstructured data and run AI type analytics
  - To provide a mechanism to promote selected data workflows to a controlled production state
  - To provide a means to wrangle data to a production state data and interface to other systems including GS
  - To provide a data governance framework to catalog all data and control meta data across the Data Warehouse and the Data Lake

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