NEPC, LLC

YOU DEMAND MORE. So do we.[SM]

2015 Survey Results

Hedge Fund Operational Due Diligence

November 2015

Bill Bogle, Partner
Erin Faccone, ODD Consultant
Kevin Lau-Hansen, ODD Analyst

255 State Street, Boston, MA 02109 | TEL: 617.374.1300 | FAX: 617.374.1313 | www.nepc.com
BOSTON | ATLANTA | CHARLOTTE | CHICAGO | DETROIT | LAS VEGAS | SAN FRANCISCO

Table of Contents

Background

- **NEPC's hedge fund research team consists of both investment specialists and a separate team focused on Operational Due Diligence ("ODD")**

- **Ongoing oversight includes an annual ODD survey, sent to all hedge funds utilized by NEPC clients and to additional funds rated "Preferred"**
  - Identifies key operational issues
    - Changes to the firm's ownership structure
    - Senior staff departures
    - Litigation or regulatory action
    - Dramatic decline in assets
    - Service provider changes
  - Allows NEPC to aggregate service providers used across all funds
    - Verify external service providers directly
    - Helps to flag any inaccurate responses
  - Highlights funds with operational "red flags" worthy of further investigation

- **Survey is sent annually in May-June, and the responses are compiled through the summer and fall**

- **NEPC's clients represent approximately 727 investment programs and approximately $927 billion in plan assets ***

* as of 9/30/2015. Includes both advisory and discretionary clients.

Survey Results

Survey Results

- **Each year we survey all hedge funds in place across all clients for whom NEPC advises on hedge funds**
- **The 2015 survey went to 285 managers and 251 responded (Response rate: 88%)**
- **Information on 453 funds was provided**
  - Highlights and trends are summarized herein
  - Each Administrator and Auditor was contacted independently by NEPC to verify the relationships reported by managers
  - Audited Financial Statements are being reviewed
- **Of the 34 non-responders …**
  - Most are in some form of liquidation or were terminated by the investor after the survey was sent
  - None are on NEPC's "Preferred" list
- **Per NEPC policy, non-responders cannot be included in future searches for clients**

- **Firm-level data**
  - 98% are registered with the SEC. This figure has risen dramatically (see p. 10) as regulatory requirements have evolved.
  - 19% have had a change in ownership in the past year.
  - 8% are involved in some form of litigation. This figure has fallen dramatically since last year because we changed the structure of the question this year.
    - Litigation brought against the management company or fund could indicate greater operational risk.
  - 43% have had senior personnel departures in the past year.
  - 27% have an affiliated broker/dealer.
    - Affiliated broker/dealers could present a conflict of interest.
  - 47% use a third-party marketing firm.

- **Product-level data**
  - 13 different audit firms are used, with the top two being PWC and Ernst & Young (30% each). We are seeing increased concentration here (see p. 12).
  - 42 different administrators are used, with the most-used being Citco (19%).
  - 3% of the funds are self-administered.
  - 23% have changed a service provider in the last year. This is up significantly from last year due to consolidation among auditors (e.g. KPMG acquiring Rothstein Kass) which technically qualified as a "change."
  - 4% put up gates or restricted liquidity in the past year. As expected, this figure is down significantly since 2010 (see p. 13).

- **Auditors**
  - Just 13 audit firms utilized by 451* funds
  - Highly concentrated: 91% in the Big Four firms

	Provider	
1	PwC	30%
2	Ernst & Young	30%
3	KPMG	17%
4	Deloitte	13%
	All other providers (9)	9%

91%

  - 98% of the funds utilize one of the Big Four or four other well-known firms (Grant Thornton, EisnerAmper, McGladrey LLP, and Anchin, Block & Anchin)

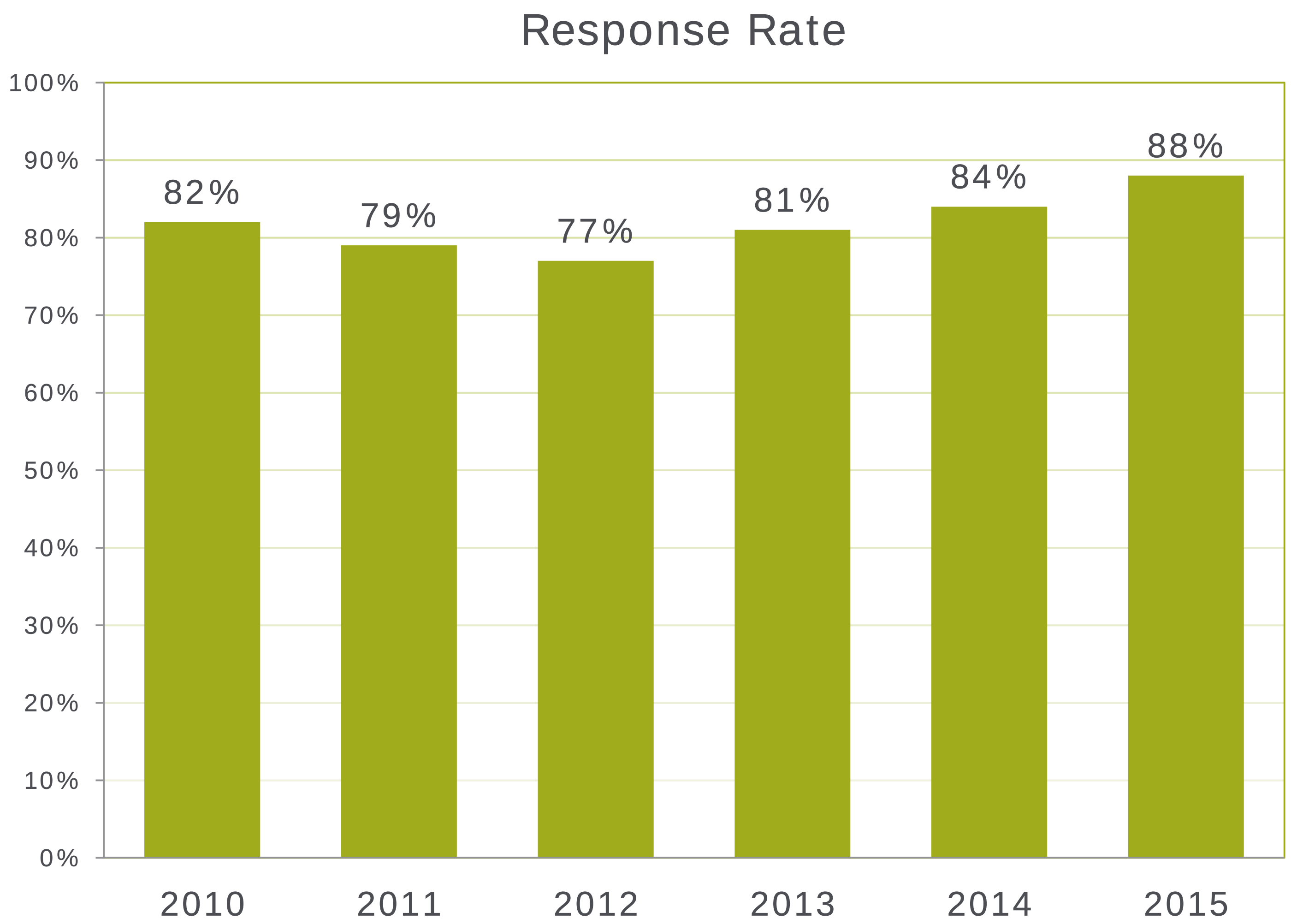
* Differs from total number of responses because the investor selects the service provider for some products

- **Administrators**
  - A diverse group of providers: 42 firms across 440* funds
  - Large concentration in the top 10 (75%)
  - 13 of the bottom 32 service just one fund used by NEPC clients

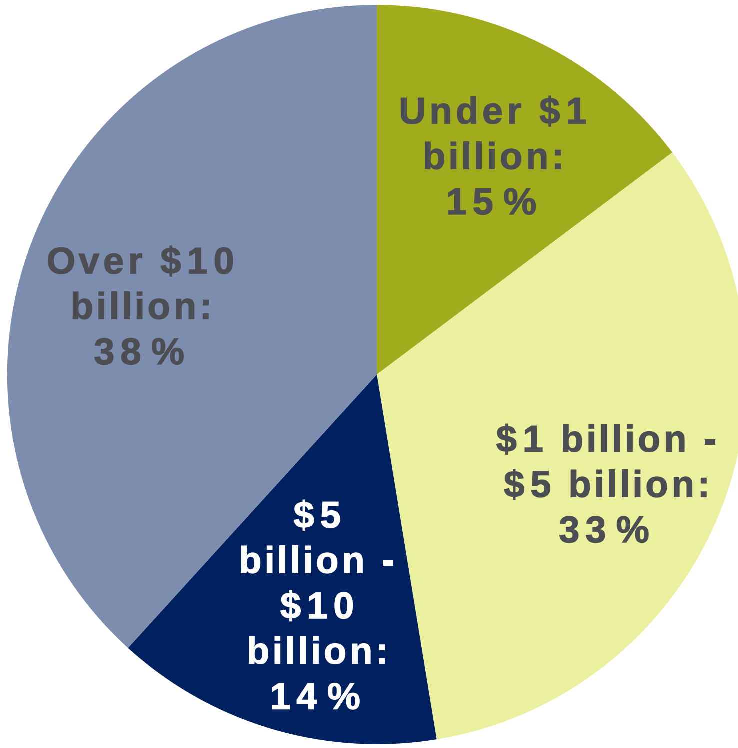
	Provider	
1	Citco Fund Services	19%
2	IFS (International Fund Services)	14%
3	BNY Mellon	11%
4	SS&C GlobeOp	8%
5	Citi Fund Administration	5%
6	Morgan Stanley Fund Services	4%
7	JPMorgan Hedge Fund Services	4%
8	SEI Fund Administration	4%
9	HedgeServ	4%
10	Mitsubishi UFJ Fund Services	2%
	Self-Administered	3%
	All other providers (32)	22%

75%

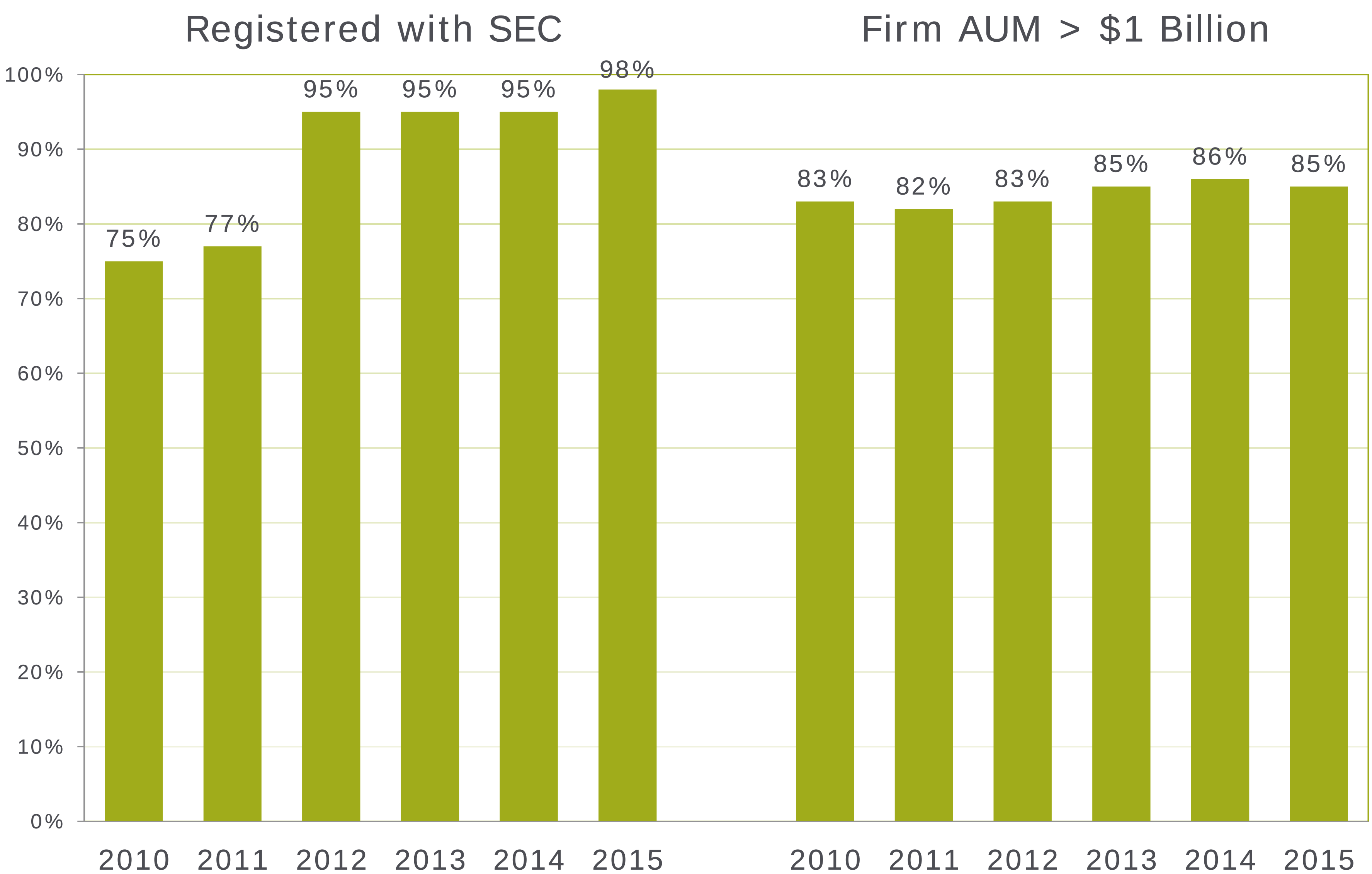
* Excludes self-administered funds


Response Rate
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
82%
79%
77%
81%
84%
88%
2010
2011
2012
2013
2014
2015

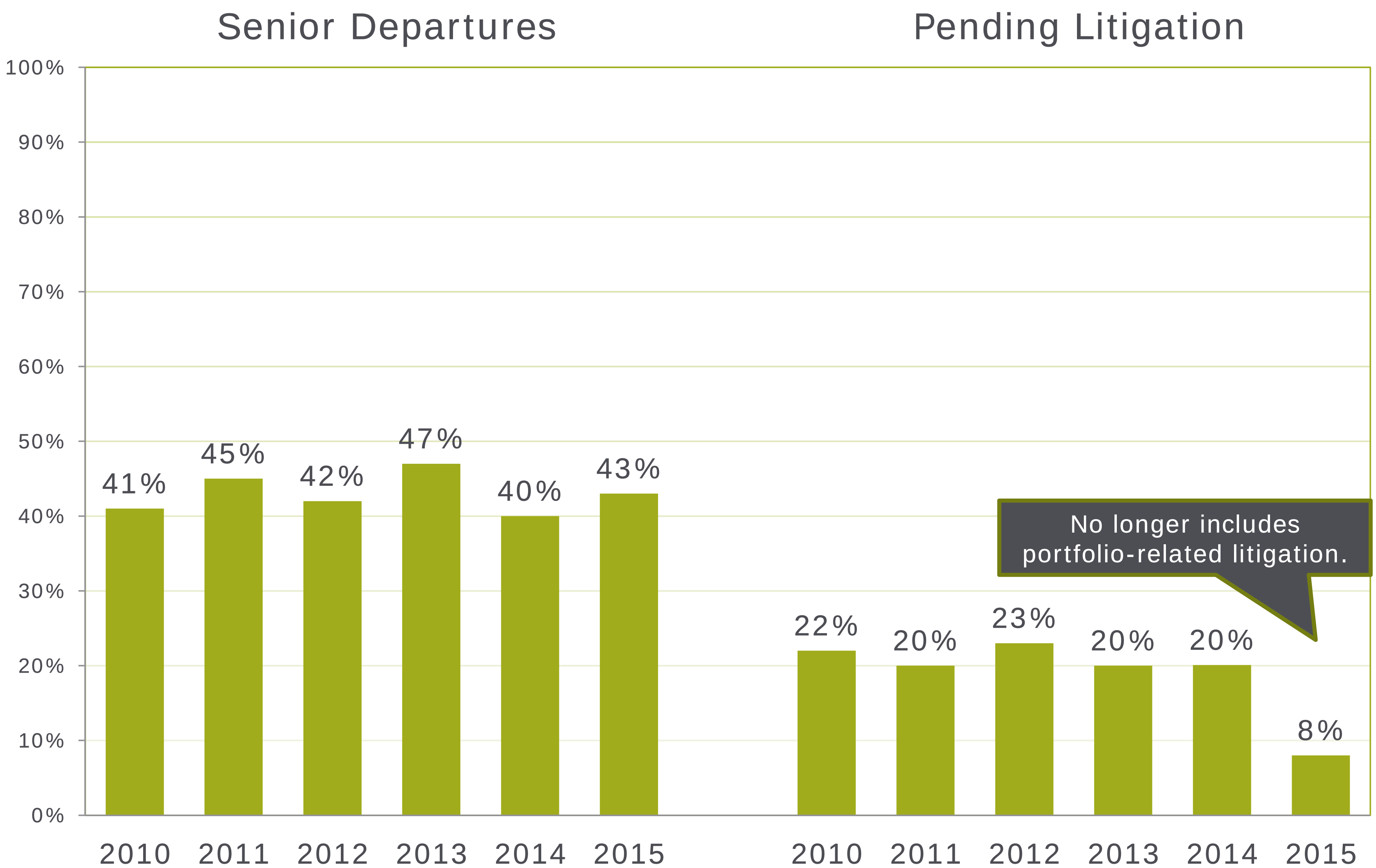
Firm AUM of Responders



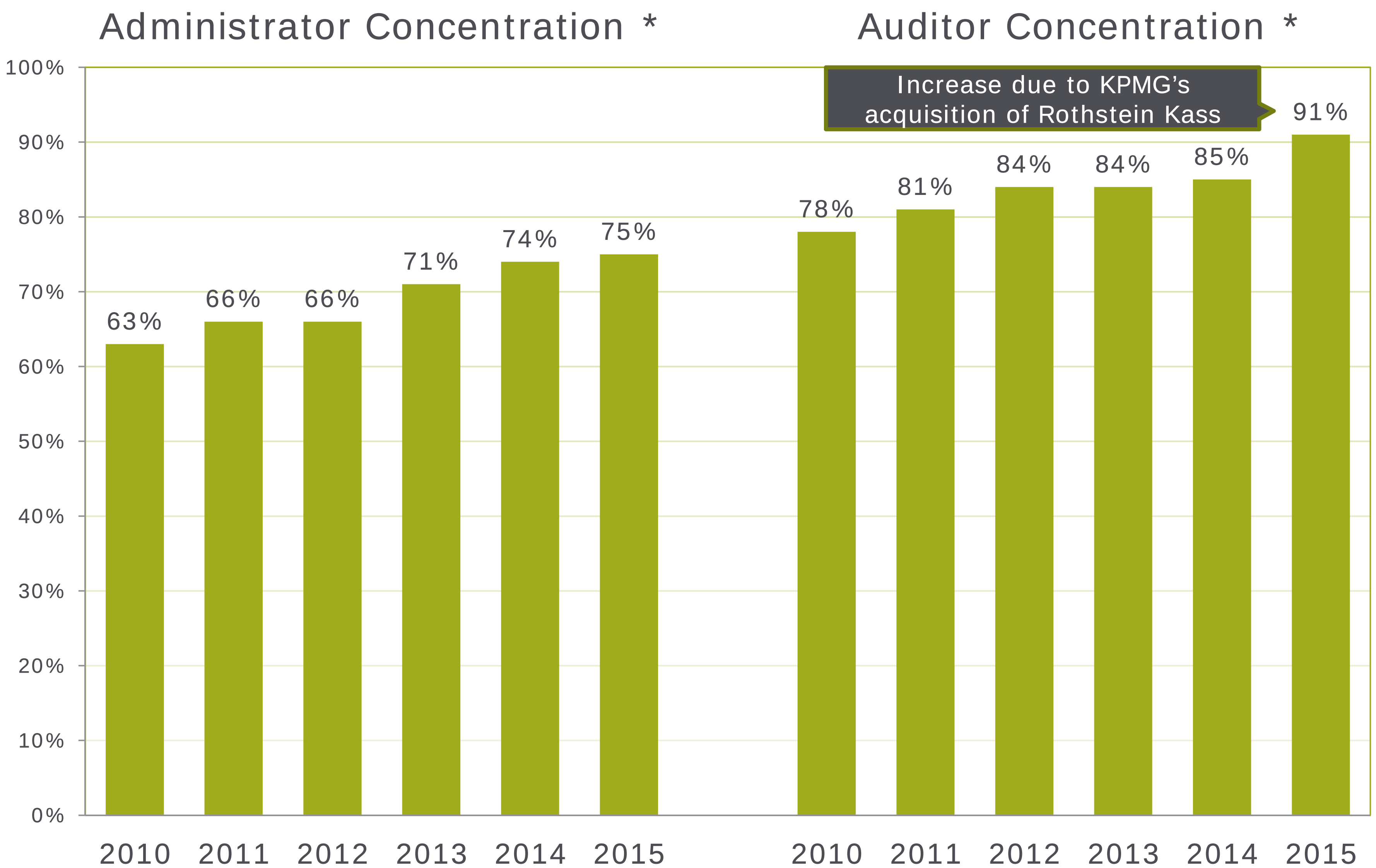
Note: Depending on the firm, AUM data was provided for various dates ranging from 12/31/2014 to 7/1/2015 .


Registered with SEC
Firm AUM > $1 Billion
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
75%
77%
95%
95%
95%
98%
83%
82%
83%
85%
86%
85%
2010 2011 2012 2013 2014 2015
2010 2011 2012 2013 2014 2015

Survey Results

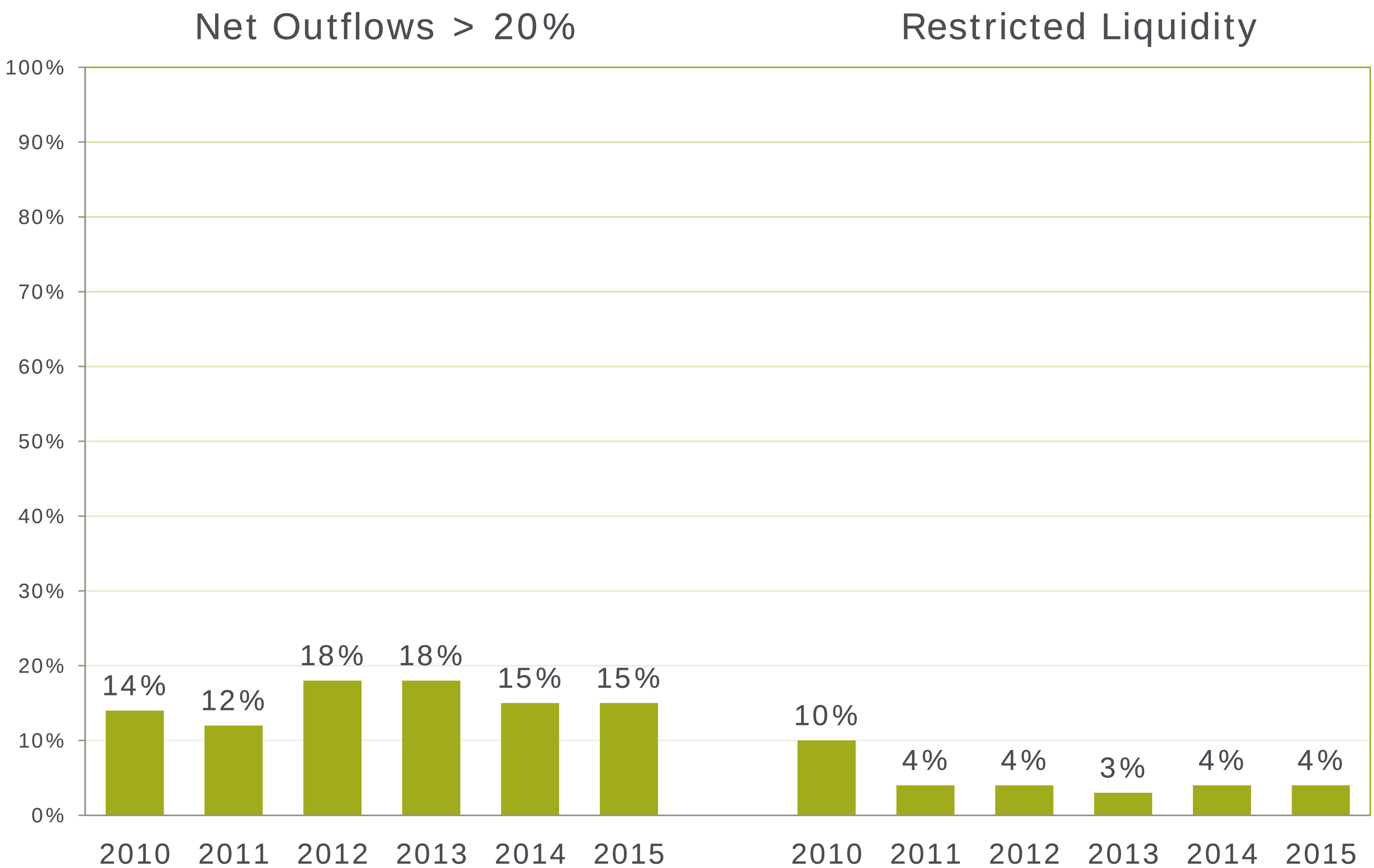


Survey Results



* Top 10 Administrators and Big Four Auditors

Survey Results



Appendix

- **Firm Questions**
  - Firm AUM
  - Is the firm registered with the SEC?
  - Has the firm been subject to a regulatory exam in the past year?
  - Has the firm's legal structure changed in the past year?
  - Has the firm's ownership changed in the past year?
  - Did any senior personnel leave the firm in the past year?
  - Is there any pending litigation related to the firm or management company?
  - Do you operate or are you affiliated with a Broker/Dealer?
  - Do you utilize the services of any third party marketing firm or Placement Agent?

- **Investment Product Questions**
  - Prime Broker(s)
  - Risk Aggregation System(s)
  - Fund Auditor
  - Fund Administrator and Service Location(s)
  - Custodian
  - How much of the fund is held in a side pocket, how often are the assets priced, and who prices them?
  - Have you changed any of the service providers listed above in the past year?
  - Have net outflows in the past year exceeded 20% of the fund's NAV?
  - Did you put up any gates or restrict liquidity in the past year?

Hedge Fund Assets Expected to top $3 Trillion in 2015 *

- The global hedge fund industry has more than doubled since the financial crisis, to more than $2.8 trillion in assets worldwide, thanks to huge flows of institutional capital, investment returns and flexible business models, said a new report from Deutsche Bank's hedge fund capital group.
- Growth since the 2008 crisis has been concentrated among the largest hedge fund managers, according to the group's 2015 Alternative Investment Survey. Since 2008, assets managed by firms with more than $5 billion in assets under management have grown 141%, while assets of firms with AUM of less than $5 billion have grown 53%.
- The industry as a whole grew 8% in 2014, led by performance-based gains of 3.33%, or $140 billion, and net inflows of $76 billion.

* Source: Pensions & Investments, 3/3/2015

92% of Hedge Fund Assets Managed by Top 11% of Funds **

- Nearly all of the hedge fund industry's $3.2 trillion in assets are concentrated among the relatively small pool of funds that each manage more than $1 billion, according to new research from industry data provider Preqin.
- The so-called "$1 billion club" of funds, which describes 570 manages out of the 5,122 single-manager hedge funds tracked by Preqin worldwide, account for a staggering 92% of total industry assets.
- Manager concentration becomes even more pronounced among the largest funds, with the 22 managers currently handling $20 billion or more in assets under management collectively controlling $790 billion, or 25% of total hedge fund assets.

** Source: FIN Alternatives, 5/27/2015

Record number of Hedge Funds now operating *

- Wealthy investors can now choose from a record 10,149 global hedge funds according to industry data that show hundreds of new launches but nearly as many liquidations.
- During the first three months of 2015, 264 new funds were launched, according to data from Hedge Fund Research (HFR). The Chicago-based research firm … also said 217 funds went out of business, marking the largest number of liquidations since the first quarter of 2014.
- The HFR data show how both newcomers and established firms are racing to roll out new portfolios to satisfy pension funds', foundations' and endowments' growing appetite for alternative investments that aren't correlated to the stock market.
- But they also underscore how tough it is to raise money and be relevant in the $2.9 trillion industry at a time industry analysts say 10 percent of the industry's firms control 90 percent of its assets.

* Source: TheStar.com, 6/21/2015

Asian Hedge Fund Assets up 21% in 2014 **

- The Asia Pacific region experienced strong growth in hedge fund assets last year, according to new data published by HedgeFund Intelligence's *AsiaHedge*.
- In what is being termed a landmark year, the regional Asia-Pacific hedge fund industry booked growth in assets of 21% during 2014, reaching a record level of $193 billion. Growth was attributed to solid outperformance of Asian hedge funds.
- China-focused strategies were the largest segment within the regional industry last year, commanding assets of $32.9 billion. Significantly, some 86%, or $167 billion, of the industry's regional AUM is now being managed out of Asia itself, signaling growth in indigenous asset management capability. As much as $68 billion is being run from Hong Kong alone.

** Source: FIN Alternatives, 3/23/2015

Public Pension Plans now Major Allocators to Hedge Funds *

- Alternative investment data specialist Preqin says public pensions have increased their allocations to hedge funds since last year, and despite generally being later to the game than endowments and foundations, public pensions have become "major allocators of capital" to the hedge fund industry, accounting for 16% of all hedge fund investments.
- According to Preqin, pension funds have increased their mean allocations to hedge funds from 7.2% in 2010 to 8.8% at present.
- Institutional investors like pension plans, university endowments, and charitable organizations now make up nearly 65% of the hedge fund industry's assets.

* Source: DailyAlts, 9/20/2015

Hedge Fund Managers to gear business toward Pension Funds **

- As the hedge fund industry changes so will the way managers structure, manage and market their products, said a report from KPMG International, Alternative Investment Management Association and Managed Funds Association.
- With institutional investors having replaced high-net-worth individuals as their primary hedge fund client, the majority of managers surveyed believe pension funds, primarily corporate funds, will become their primary source of capital by 2020.
- To attract pension funds and other institutional investors, almost 70% of managers said they already offer or plan to offer custom investment solutions; more than two-thirds of respondents said they will offer specialized fee structures.
- "Managers are looking at investors and becoming solution providers," said Robert Mirsky, global head of hedge funds at KPMG International. "Significantly more managers are offering things like funds of one, segregated managed accounts and other customized product solutions, and (there's been) an increase in the number of regulated products."

** Source: Pensions & Investments, 3/12/2015

Only 15% of U.S. Hedge Fund Managers are AIFMD Compliant, compared to 82% of EU Managers *

- Preqin's latest survey of global hedge fund managers reveals that most UK- and Europe-based hedge fund managers are AIFMD-compliant. By contrast, there has been slow uptake among firms beyond the EU's borders.
- Only 15% of US hedge fund managers, and a quarter of firms across Asia and Rest of World, are currently compliant with the AIFMD. This compares with almost all (90%) of UK-based firms, and 82% of fund managers across the rest of Europe.
- A large proportion (42%) of fund managers based outside the EU do not plan to raise capital from EU investors in the near future.
- Many managers based outside the EU are relying on investors to approach them through reverse solicitation. Even so, 38% of US managers have chosen to avoid the EU completely, with most citing compliance costs and the risks arising from uncertainty and lack of guidance surrounding the directive.

* Source: Preqin (via ValueWalk), 7/22/2015

Note: AIFMD is the Alternative Investment Fund Managers Directive, a European Union law which will put hedge funds and private equity funds under the supervision of an EU regulatory body and require disclosures.

Prime Broker News *

- Morgan Stanley won more than 90 prime-broking mandates from hedge funds in Asia last year when rivals slowed expansion under tighter bank capital and liquidity rules.
  - Morgan Stanley is prepared to provide services to smaller hedge funds, even when the return may be low for the first one or two years. In Asia, it has taken on some clients who manage less than $10 million.
- After the 2008 crisis, hedge funds increased the use of multiple prime brokers to reduce the risk of being caught in a bank collapse.
- Morgan Stanley was the second-largest prime broker in 2013 with more than 1,300 clients globally, giving it a 16 percent market share, trailing only Goldman Sachs, according to a November 2014 Yale School of Management paper that cited SEC filings.

* Source: Bloomberg, 3/19/2015

Policy Regimes are Reshaping the Prime Brokerage Industry **

- Top prime brokers in the hedge fund industry by number of known hedge funds serviced:
  - Goldman Sachs is currently leading this group, providing prime brokerage services to 2,240 hedge funds (which account for 19% of the market share). Morgan Stanley is ranked second, servicing 1,693 hedge funds, while J.P. Morgan is third with 1,462 hedge funds serviced.
- Following the 2008 financial crisis, banks have been subject to multiple reactionary policy regimes. Unprofitable clients will be under threat from prime brokerage units as they aim to meet the required capital, liquidity and leverage ratios; primarily at risk are the smaller hedge fund managers they service.
- As some hedge fund managers have been forced to look elsewhere for their prime brokerage needs, a new opportunity has presented itself to specialist prime brokers. Interactive Brokers, BTIG Prime Brokerage and Pershing Prime Services have all had a strong 12-month period growing their client base.
- If the specialist prime brokers can manage the demand from the growing hedge fund managers, 2015 could be another strong year for the specialist prime brokers.

** Source: Preqin, 5/18/2015

Prime Brokers playing hardball with Hedge Fund clients *

- Sweeping changes are underway in banks' prime brokerage units, which provide funds with services such as lending money or securities and settling trades. Mounting regulatory pressure since the financial crisis is prompting banks to cull smaller and poorly paying clients. Many of the funds which do make the cut are being asked to pay more in fees or pump higher-quality business through the bank.
- As well as raising the bar for hedge fund launches, the changes are also leaving funds open to greater counterparty risk as they are forced to use fewer banks - a sharp reversal of the trend seen in the industry just after the 2008 crisis.
- This year, less than 3 percent of hedge funds launched with the help of three or more prime brokers, down from 11.4 percent in 2014 and a high of 14.5 percent in 2008, data from Eurekahedge showed. More than 70 percent of the launches used just one bank, up from 61 percent in 2014 and a low of 55 percent in 2012.
- The wide-ranging nature of the changes in the industry mean investors are also showing more forbearance. "Investors are also aware that there's pressure on prime brokers and if you tell them that you are consolidating prime brokers, they see it as less of an issue than they did in the past," said one COO. "Before, managers were reluctant to appoint a lesser known prime broker. Now investors understand."

* Source: Reuters, 9/15/2015

Consolidation among Hedge Fund Administrators *

- In January 2015, Citigroup announced that it would sell its hedge fund administration business, Citi Fund Services. The announcement presents opportunities for other firms within the sector, which has seen a number of high profile acquisitions in recent years.
- The top 10 fund administrators currently provide services to 57% of the hedge fund market; several of the largest administrators owe their market share to a combination of organic growth and M&A activity in recent years.
- Bank-owned administrators face additional challenges as investors and regulators increasingly question the practice of cross-selling fund administration with services such as prime brokerage. Some banks have chosen to exit the business altogether.
- The effect of the sale of Citi Fund Services on the wider market, 4% of which use Citi Fund Services, remains unclear. As competitors seek to pick off profitable clients, it remains to be seen whether Citi Fund Services' market share will be divided between multiple administrators or whether the division will be acquired by a competitor

* Source: Preqin, 3/13/2015

Standard fee structure is less prevalent *

- If you are one of those paying a 2% annual charge and giving up 20% of any profits, you may have yourself to blame.
- According to data provider Preqin's 2015 global hedge fund report, the fee model that many feel is the industry standard is actually only used by a third of single-manager funds. Two-thirds charge an annual fee below 2%, and the average charge has fallen steadily since 2008.

* Source: Preqin (via ai-CIO.com), 2/20/2015

Investors continue to value Transparency **

- About half (55%) of investors say they seek higher levels of transparency than they currently receive, according to a new survey by Northern Trust.
- Investors place such value on transparency that many are willing to pay for it. Among those investors who desire more transparency, 78% say they would accept a 1-to-3 basis point increase in management fees to support the operational costs for such reporting.
- "As the hedge fund industry becomes dominated by institutional investors, managers must continue to invest in their operations and infrastructure to meet the growing needs of these investors," said the CEO of Northern Trust Hedge Fund Services.

** Source: FIN Alternatives, 3/19/2015

U.S. Funds adopting tiered Fee Structures *

- A growing number of new hedge funds offered by U.S.-based managers implemented management fee structures that decrease as fund assets grow, according to the *Seward & Kissel New Hedge Fund Study*.
- Several findings within the study signaled hedge fund managers' heightened sensitivity to the needs of investors, and the related imperative to reign in costs. Of all funds studied, 19% adopted a tiered approach to management fees, stepping down to lower rates as assets in the fund surpass pre-established benchmarks. (Seward & Kissel estimates this figure was less than 10% in 2013.) The tiered management fee structure recognizes and accounts for the efficiencies that can be gained with scale.
- All of the funds employing the tiered management fee structure had equity-related strategies, raising the question of whether the trend will spill over into funds with non-equity strategies in future years.
- Other figures from the study suggest that in 2014, managers were very focused on raising day-one capital and, consequently, offered founders class fee discounts a high percentage of the time. The percentage of all funds that obtained some form of founders capital increased sharply, from 43% in 2013 to 65% in 2014, with 75% of equity funds and only 43% of non-equity funds offering such classes.

* Source: Seward & Kissel (via FIN Alternatives), 3/11/2015

Data used to prepare this report was obtained directly from the investment manager(s). While NEPC has exercised reasonable professional care in preparing this report, we cannot guarantee the accuracy of all source information contained within.

This report may contain confidential or proprietary information and may not be copied or redistributed to any party not legally entitled to receive it.

Non-traditional investment strategies including hedge funds and private equity have the following characteristics:

1. Performance can be volatile and investors could lose all or a substantial portion of their investment
2. Leverage and other speculative practices may increase the risk of loss
3. Past performance may be revised due to the revaluation of investments
4. These investments can be illiquid, and investors may be subject to lock-ups or lengthy redemption terms
5. A secondary market may not be available for all funds, and any sales that occur may take place at a discount to value
6. These funds are not subject to the same regulatory requirements as registered investment vehicles
7. Managers may not be required to provide periodic pricing or valuation information to investors
8. These funds may have complex tax structures and delays in distributing important tax information
9. These funds often charge high fees
10. Investment agreements often give the manager authority to trade in securities, markets or currencies that are not within the manager's realm of expertise or contemplated investment strategy