



# The State of Alternative Investments: A Global View

Keith Black, PhD, CFA, CAIA

Showcase your Knowledge



@CAIA\_Keith Black  
@CAIAAssociation

# About CAIA Association

## **The global leader in alternative investment education**

- Non-profit established in 2002, based in Amherst, MA, with offices in Hong Kong, Singapore, Geneva, and London
- Over 8,700 current charterholders in more than 85 countries
- 28 vibrant chapters located in financial centers around the world
- More than 150 educational and networking events each year
- Excellence in AI education through the CAIA designation and the Fundamentals of Alternatives certificate program

# Alternative Investment Education

Alternatives currently represent over \$14 trillion in assets under management, while assets in liquid alternatives have grown substantially.

## **The CAIA Association Mission:**

- Establish the CAIA designation as the benchmark for alternative investment education worldwide
- Promote professional development through continuing education, innovative research and thought leadership
- Advocate high standards of professional ethics
- Connect industry professionals globally

# The CAIA Charter Designation

- Globally recognized credential for professionals managing, analyzing, distributing, or regulating alternative investments.
- Highest standard of achievement in alternative investment education.
- Comprehensive program comprised of a two-tier exam process:
  - **Level I** assesses understanding of various alternative asset classes and knowledge of the tools and techniques used to evaluate the risk-return attributes of each one.
  - **Level II** assesses application of the knowledge and analytics learned in Level I within a portfolio management context.
    - Both levels include segments on ethics and professional conduct.

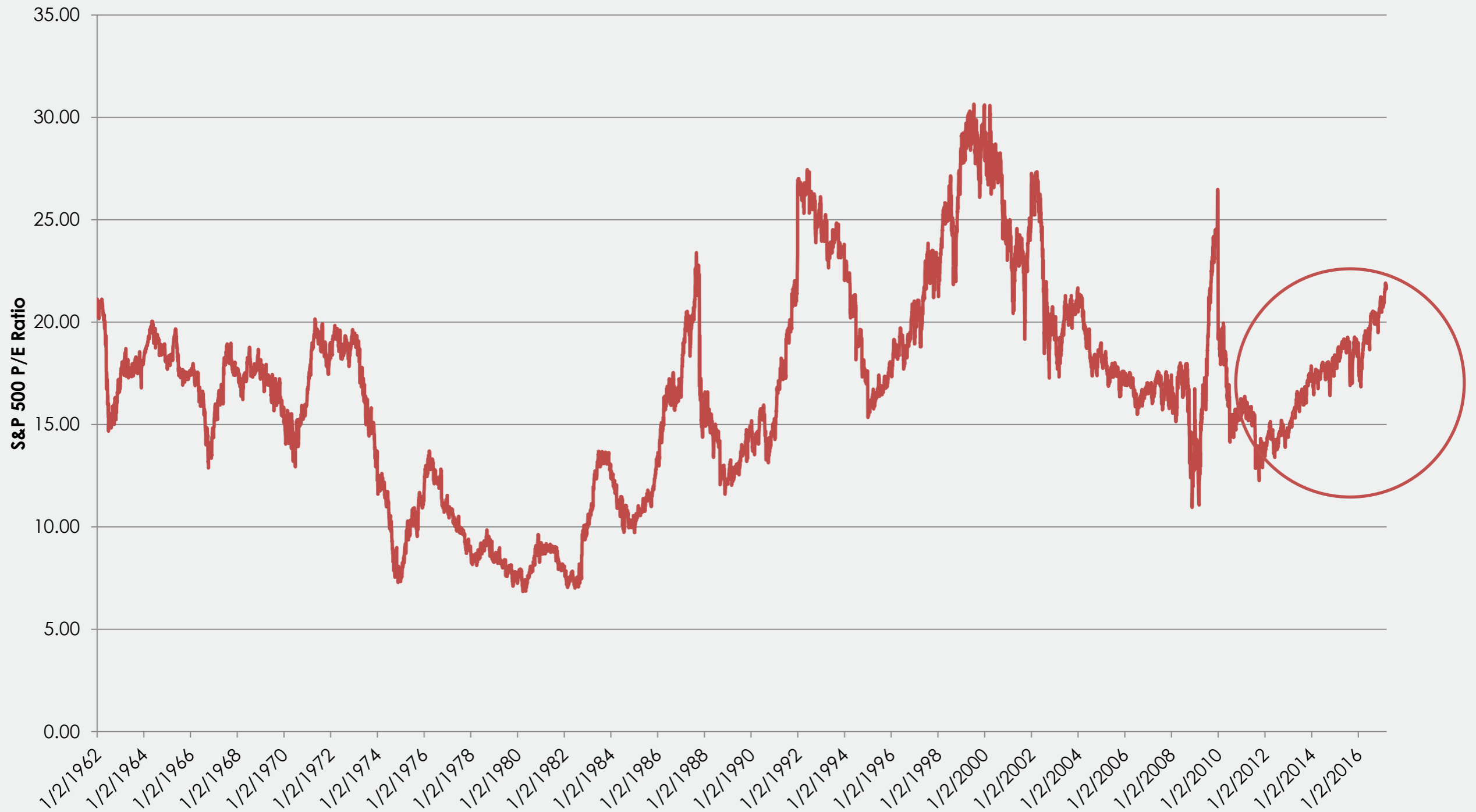
# Fundamentals of Alternative Investments

The **Fundamentals of Alternative Investments** certificate program provides a foundation of core concepts in alternative investments.

- **Fundamentals** fills a critical education gap for those who need to understand the evolving landscape of alternative investments.
  - Online, 20-hour, self-paced course
  - Earns CE hours for the CIMA<sup>®</sup>, CIMC<sup>®</sup>, CPWA<sup>®</sup>, CPA<sup>®</sup>, and CFP<sup>®</sup> designations
  - Understand the core concepts in alternative investments
  - Gain confidence in discussing and positioning alternatives

# Are US Equity Markets Rich?

## S&P 500 P/E Ratio



Source: CAIA and Bloomberg

# Fixed Income 30+ Year Bull Market



Source: CAIA and Bloomberg

# Asset Class Performance

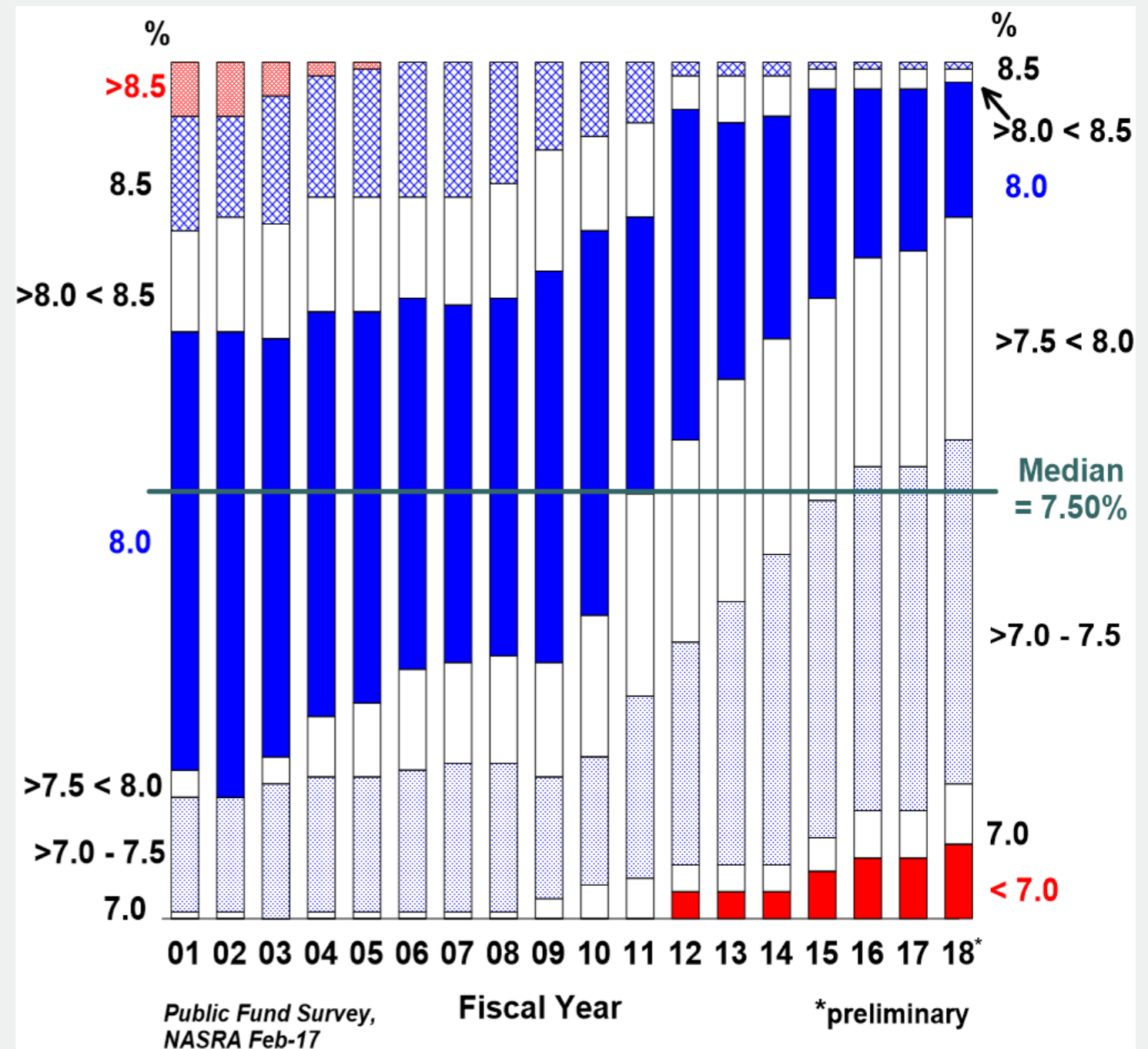
	Ending Sept. 2016					
		<u>1 Yr</u>	<u>5 Yr</u>	<u>10 Yr</u>	<u>Ann. Vol</u>	<u>Draw-down</u>
S&P 500		15.4%	16.4%	7.2%	16.4%	-45.8%
Barclays US Aggregate		5.2%	3.1%	4.8%	3.2%	-2.4%
US 60/40		11.3%	11.0%	6.7%	9.6%	-27.4%
MSCI World		11.4%	11.6%	4.5%	17.8%	-49.0%
Barclays Global Aggregate		8.8%	1.7%	4.3%	5.9%	-7.2%
Global 60/40		10.5%	7.7%	4.8%	11.4%	-30.9%
Bloomberg Commodities		-2.6%	-9.4%	-5.3%	20.6%	-65.9%
HFRI Fund Weighted Composite		5.0%	4.4%	3.8%	7.7%	-19.0%
NCREIF Timberland		3.3%	6.9%	6.4%	4.9%	-5.7%
NCREIF Farmland		8.6%	15.1%	14.0%	5.6%	0.0%
NCREIF Property		9.2%	11.2%	7.2%	6.0%	-23.9%
Cambridge Associates US Private Equity		8.7%	13.1%	10.7%	9.3%	-25.2%
Cambridge Associates US Venture Capital		2.2%	14.1%	10.3%	8.6%	-18.4%
<b>Global Invested Alternative Assets Portfolio</b>		<b>6.4%</b>	<b>7.4%</b>	<b>6.2%</b>	<b>8.8%</b>	<b>-23.6%</b>
<b>US 40% Stocks/40% Bonds/20% Portfolio</b>		<b>9.5%</b>	<b>9.3%</b>	<b>6.4%</b>	<b>7.8%</b>	<b>-22.2%</b>
<b>Global 40% Stocks/40% Bonds/20% Portfolio</b>		<b>9.5%</b>	<b>6.9%</b>	<b>5.1%</b>	<b>9.5%</b>	<b>-25.4%</b>

Source: CAIA and Bloomberg



# Public Pension Investment Returns Assumptions

- Nearly three-fourths of Public Pensions have reduced their investment return assumption since fiscal year 2010, resulting in a decline in the average return assumption from **7.91%** to **7.52%**.
- Should projected returns continue to decline, investment return assumptions are likely to also to continue their downward trend.



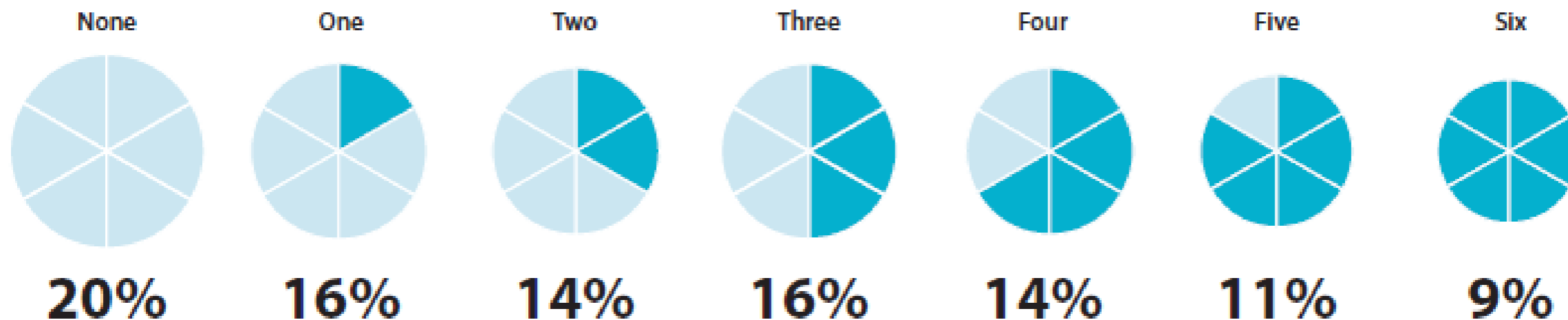
# Market Size of Investments

	Traditional Investments		Alternative Investments
U.S. Equity	\$21,100	Private Equity	\$4,200
Other Developed Market Equity	\$15,100	Hedge Funds	\$3,000
Emerging and Frontier Market Equity	\$4,100	Real Estate Equity	\$6,700
Emerging Market Debt	\$3,000	Infrastructure, Farmland, Timberland, and Private Energy	\$620
High Yield Bonds and Bank Loans	\$3,200	Commodity swaps, ETPs and MTNs	\$230
Dollar Bonds	\$19,300		
Real Estate Debt	\$6,000		
Other Bonds	\$21,100		
Cash	\$5,100		
<b>Total (in \$billions)</b>	<b>\$98,000</b>	<b>Total</b>	<b>\$14,750</b>

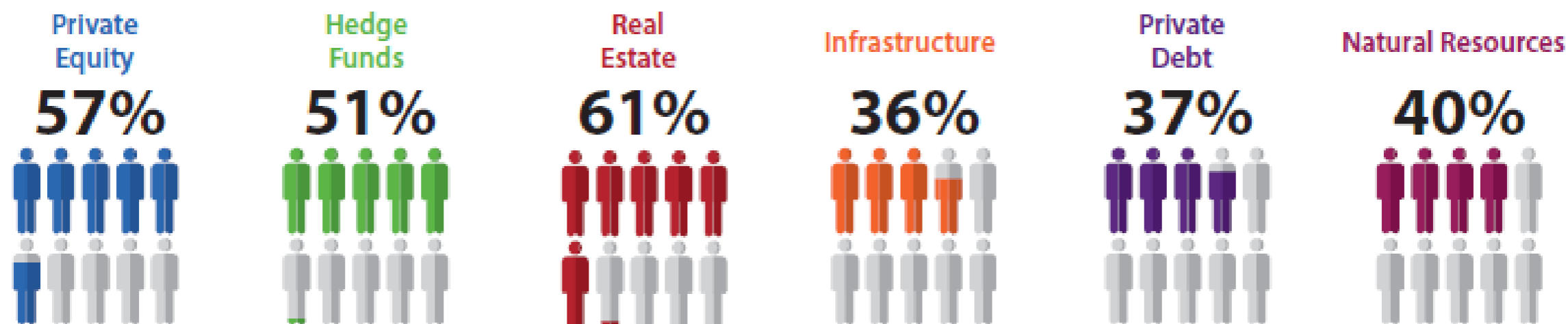
Source: 2016 Estimates from Aon Hewitt, HFR, Barclays, Preqin

# Participation In Alternatives

## INSTITUTIONAL INVESTORS BY NUMBER OF ALTERNATIVE ASSET CLASSES INVESTED IN

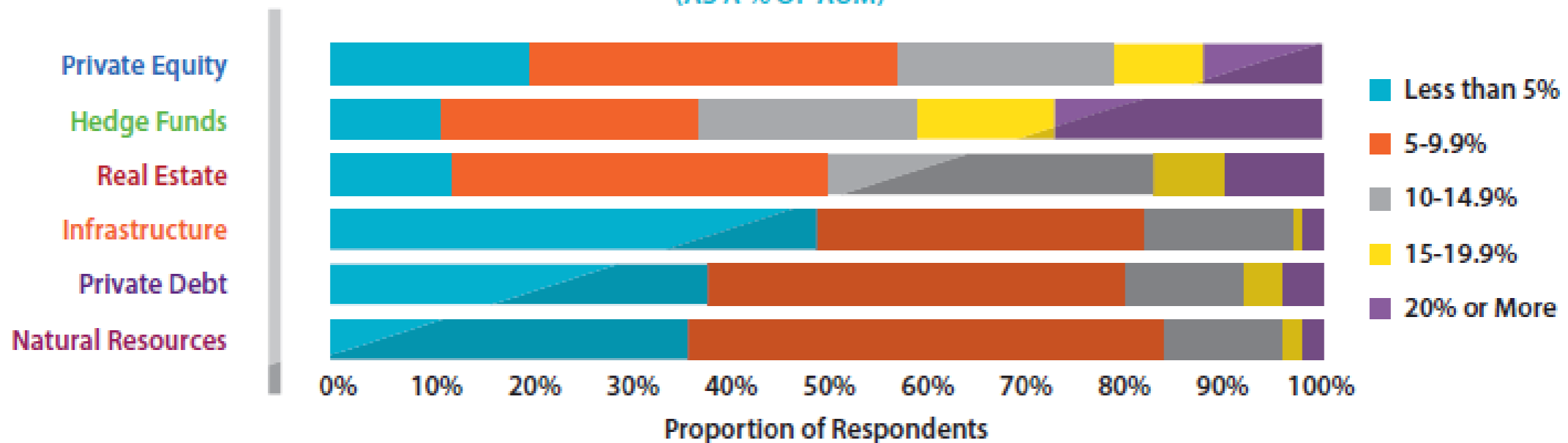


## PROPORTION OF INSTITUTIONAL INVESTORS ALLOCATING TO EACH ALTERNATIVE ASSET CLASS



# Institutional Investor Allocation

INSTITUTIONAL INVESTORS IN ALTERNATIVE ASSETS BY TARGET ALLOCATION TO EACH ASSET CLASS (AS A % OF AUM)



INSTITUTIONAL INVESTORS' PLANS FOR ALLOCATIONS IN THE LONGER TERM



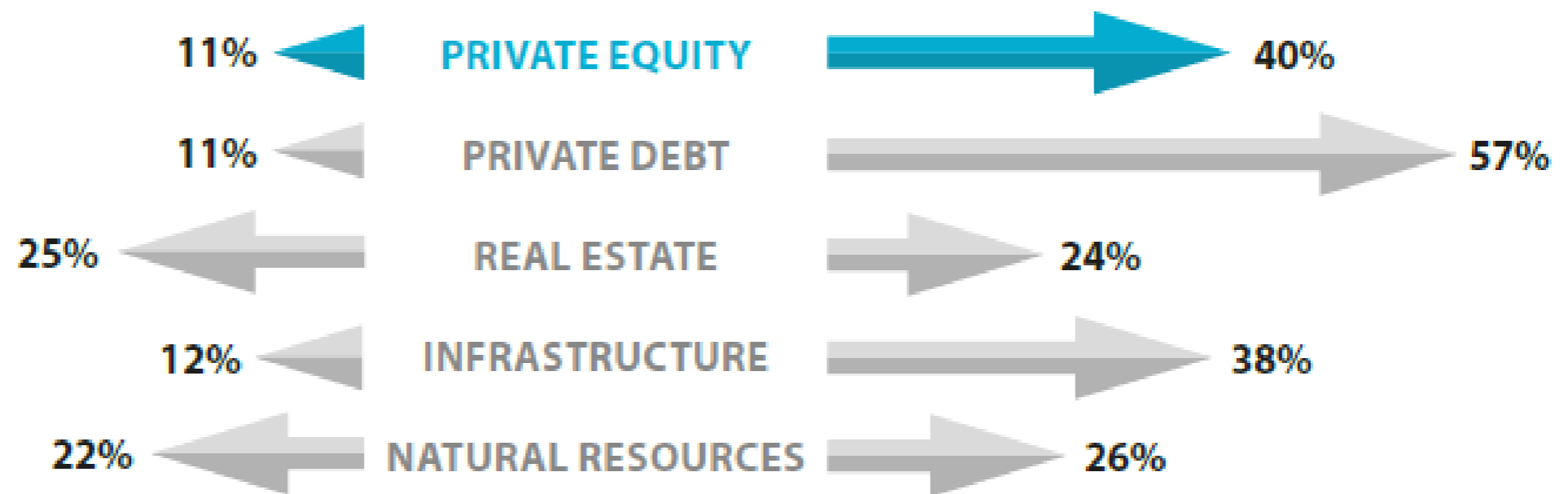
Source: Preqin

# Alternative Current and Target Allocation

Fig. 2.9: Institutional Investors' Plans for the Coming Year

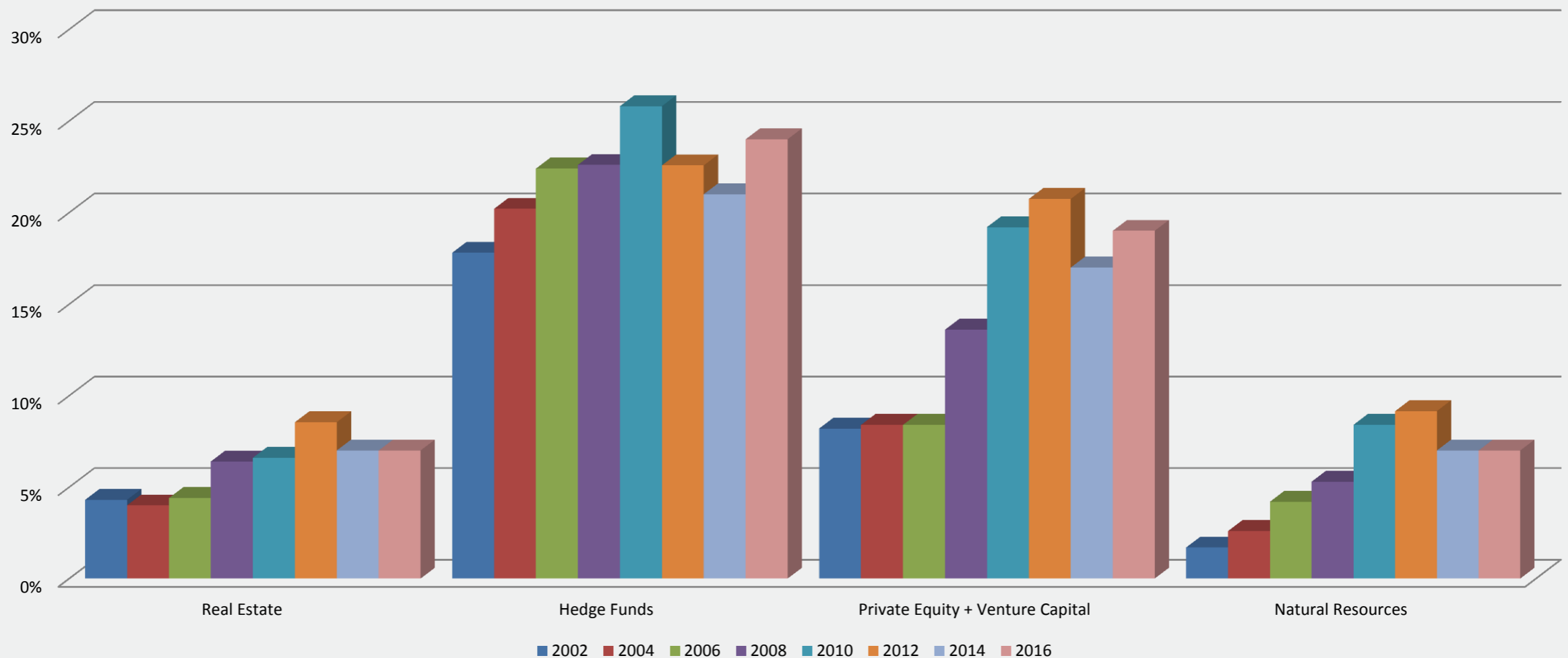
Invest Less Capital than Previous 12 Months ▼

Invest More Capital than Previous 12 Months ▲



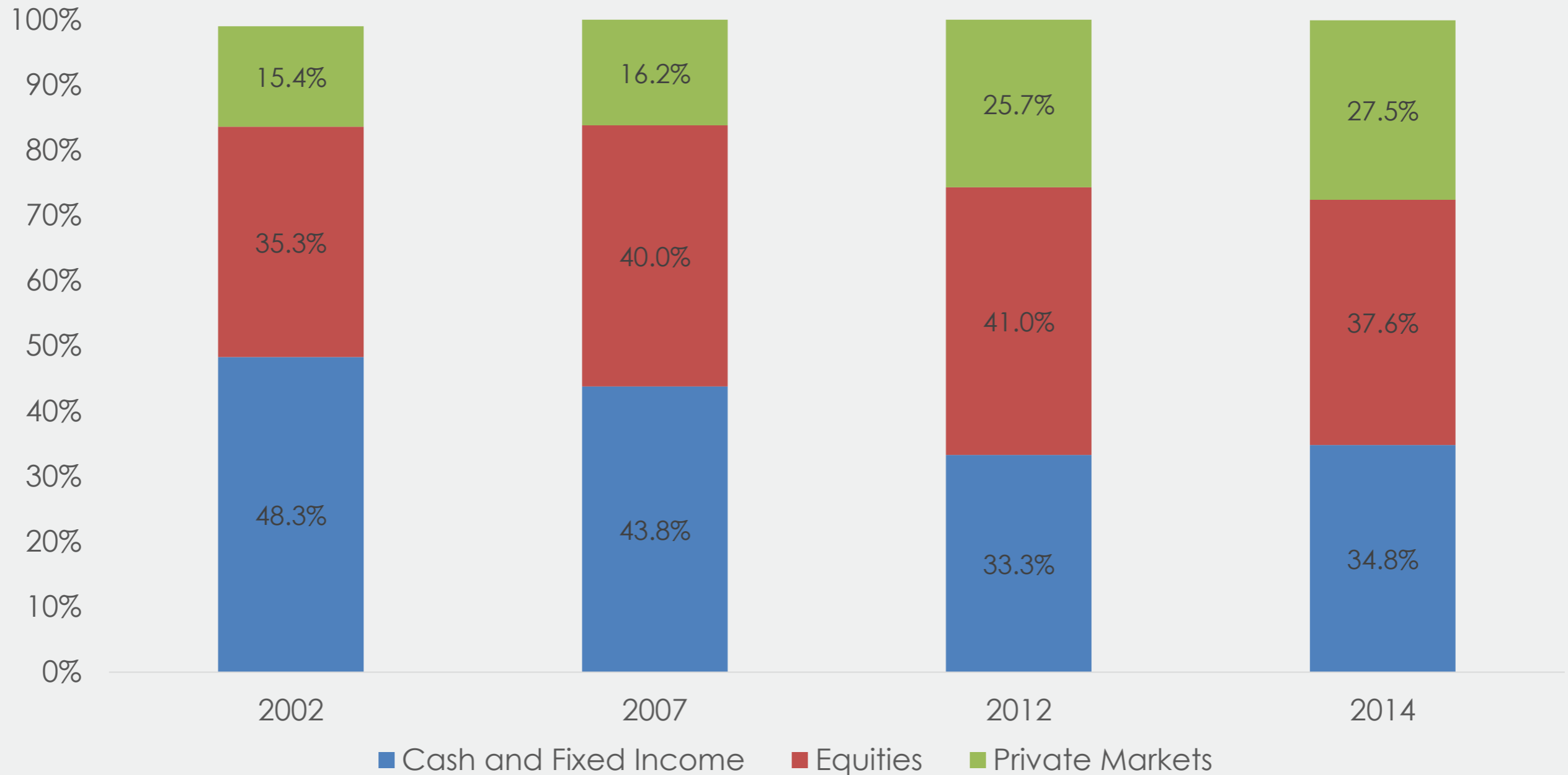
# Alternative Investment Allocations

- The largest endowments have average allocations of:
  - 13% US equity, 19% non-US equity, 10% in fixed income and cash
  - 24% hedge funds, 19% PE/VC, 15% real assets



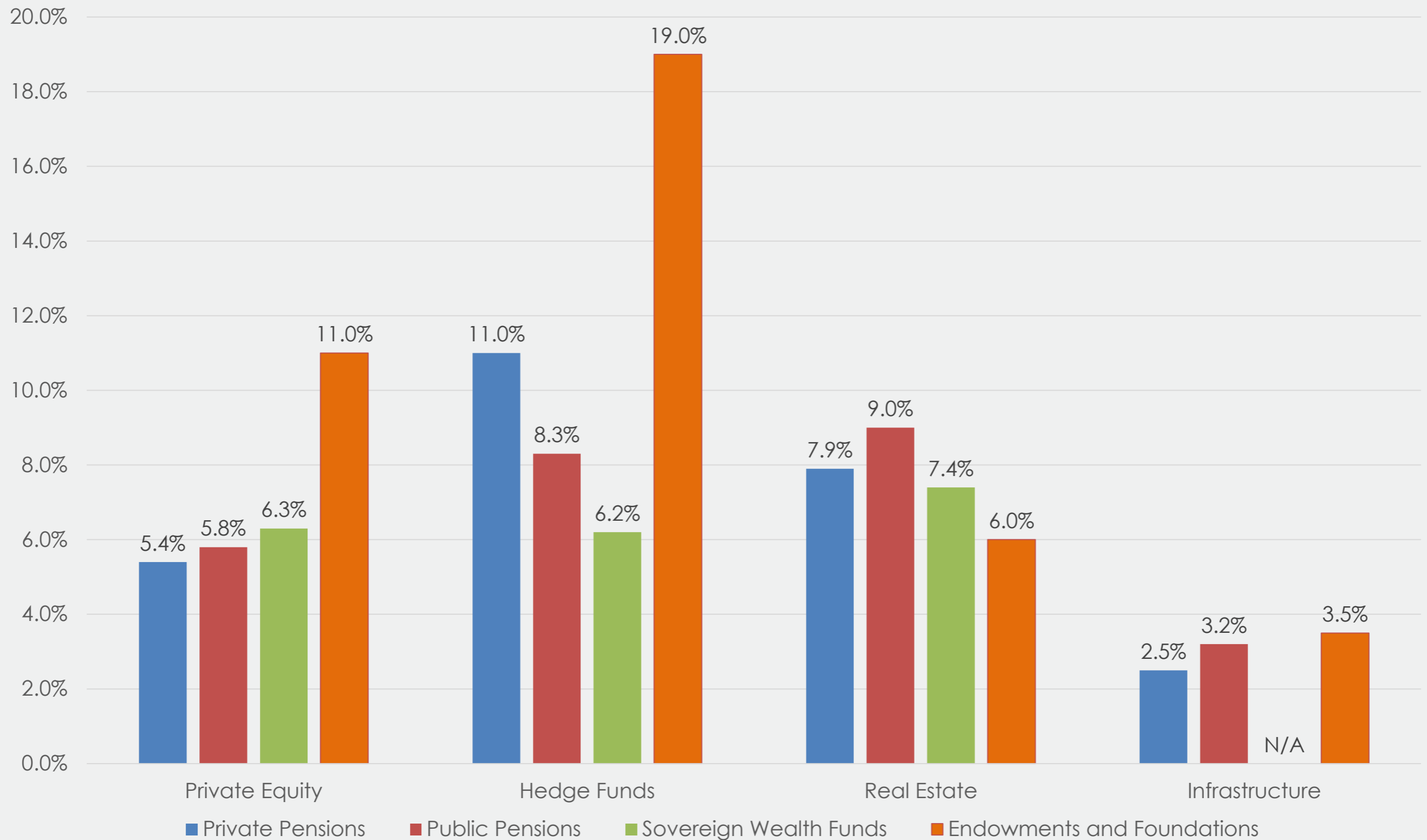
Source: NACUBO-Commonfund Study of Endowments, 2016

# Average SWF Asset Allocation



Source: "How do Sovereign Wealth Funds Invest? A Glance at SWF Asset Allocation," E. Hentov, State Street Global Advisors, December 2015

# Avg. Asset Allocation by Investor Type

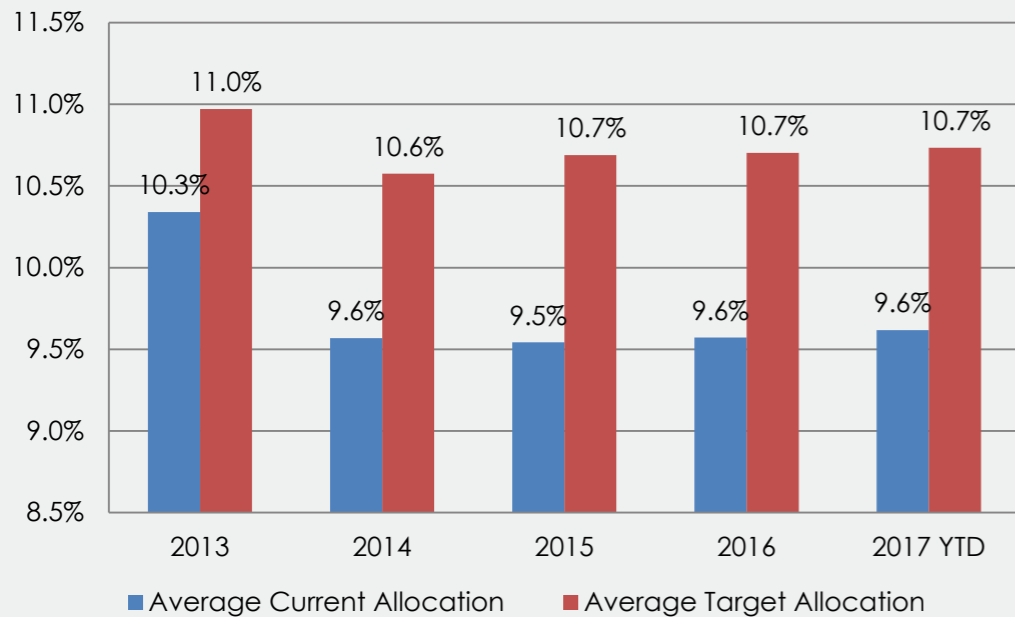


Source: Preqin 2016

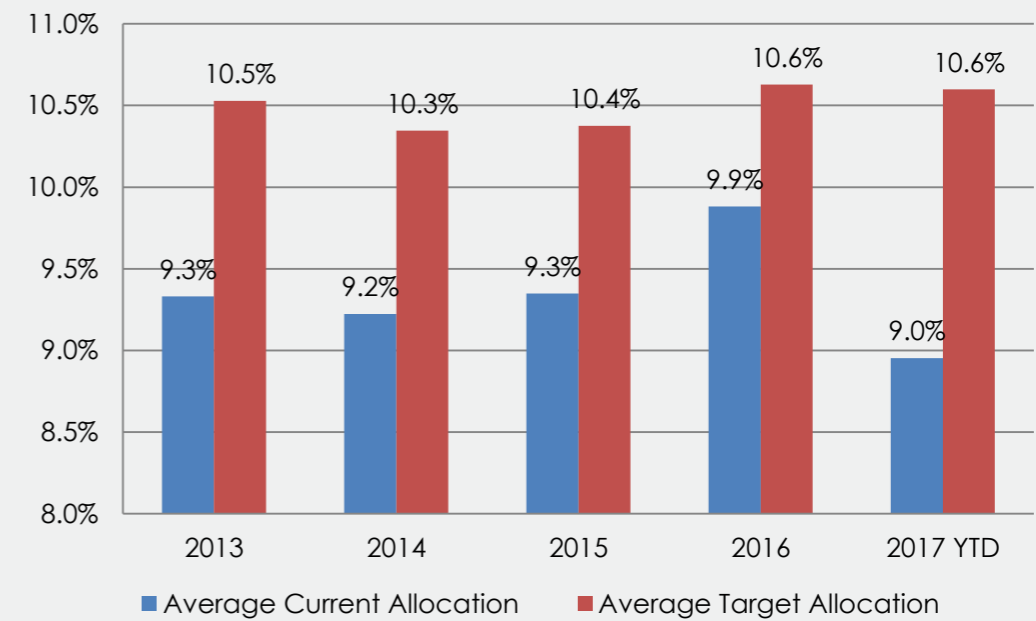


# Alternative Current and Target Allocation

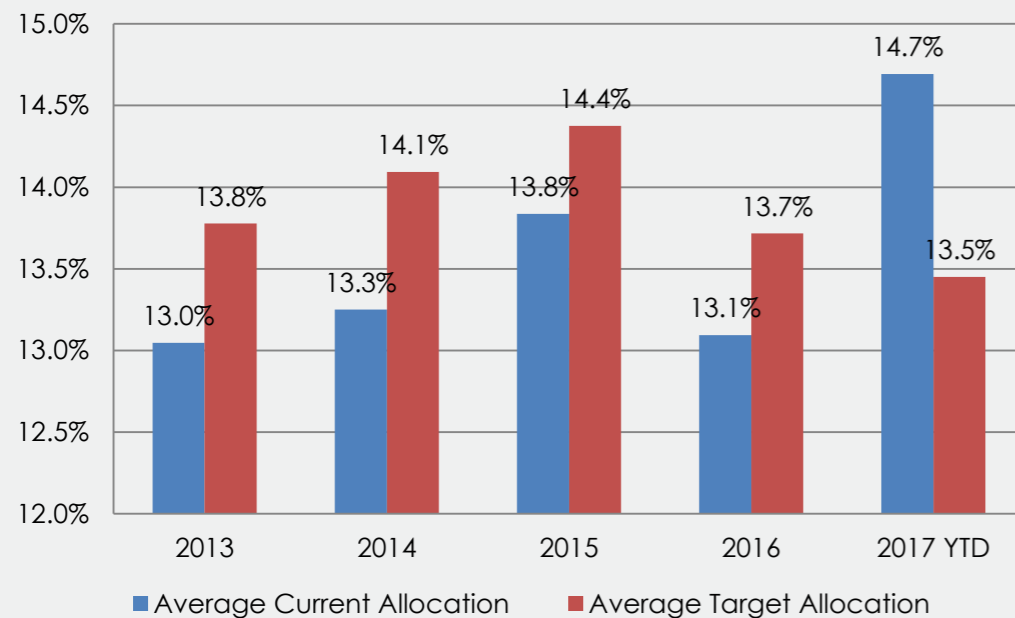
**Average Allocation to Private Equity (As a % of AUM)**



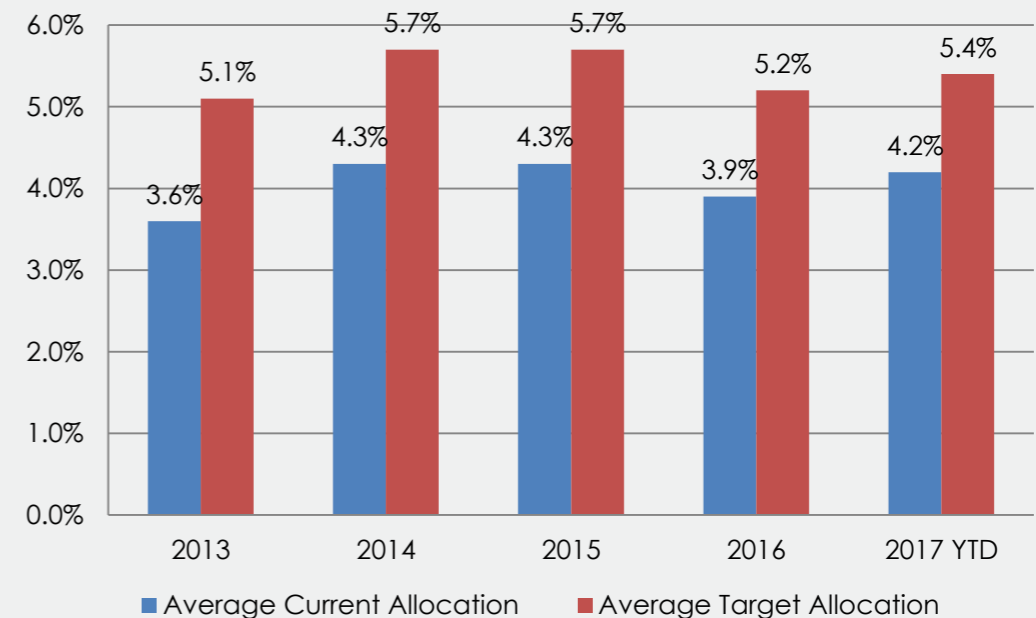
**Average Allocation to Real Estate (As a % of AUM)**



**Average Allocation to Hedge Funds (As a % of AUM)**



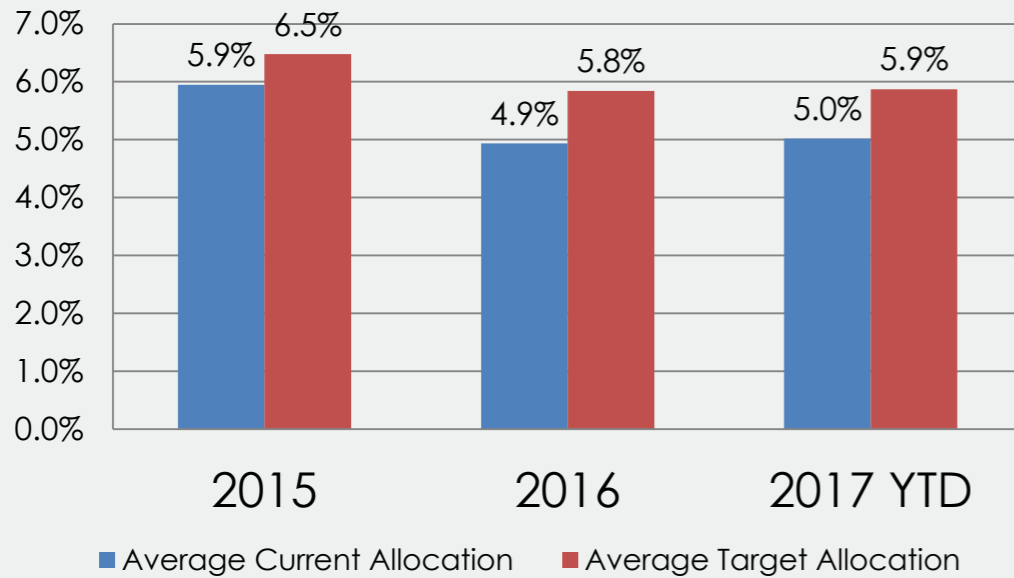
**Average Allocation to Infrastructure (As a % of AUM)**



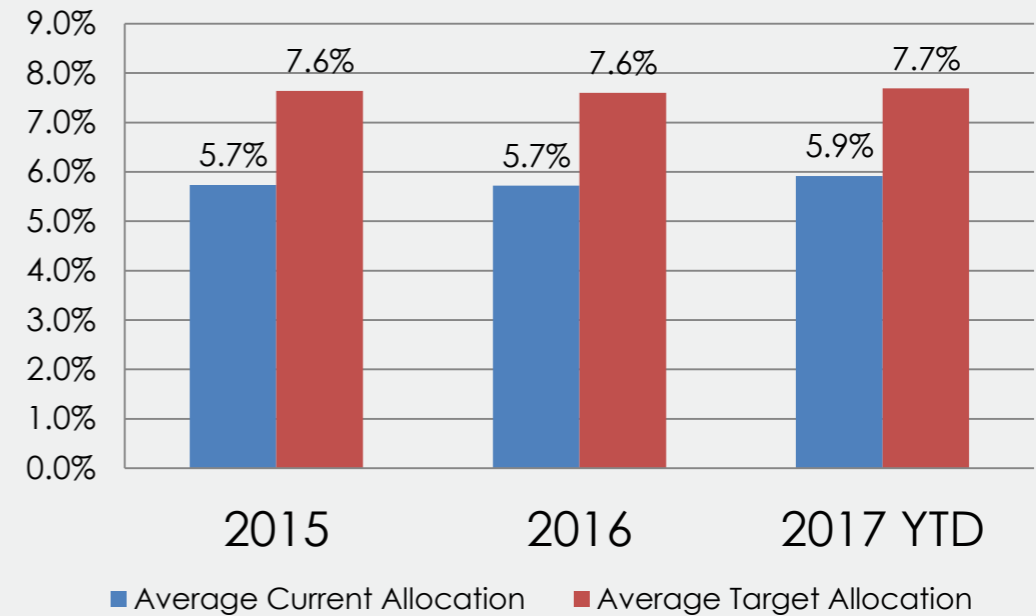
Source: Preqin

# Alternative Current and Target Allocation

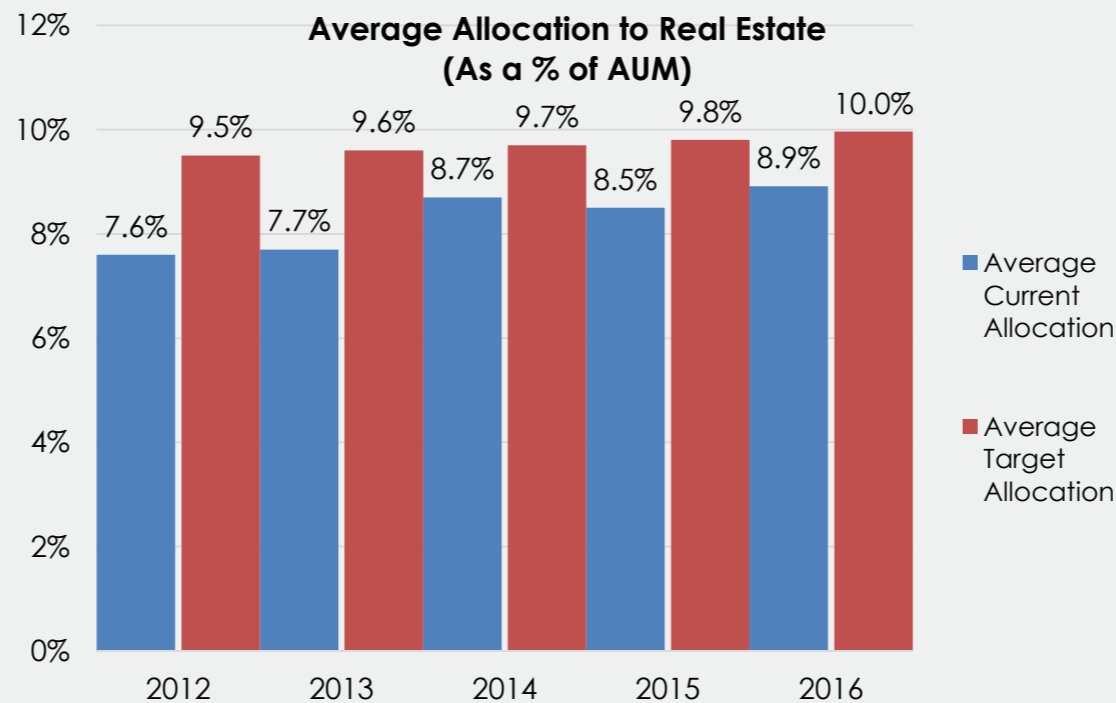
**Average Allocation to Natural Resources (As a % of AUM)**



**Average Allocation to Private Debt (As a % of AUM)**



**Average Allocation to Real Estate (As a % of AUM)**



Source: Preqin

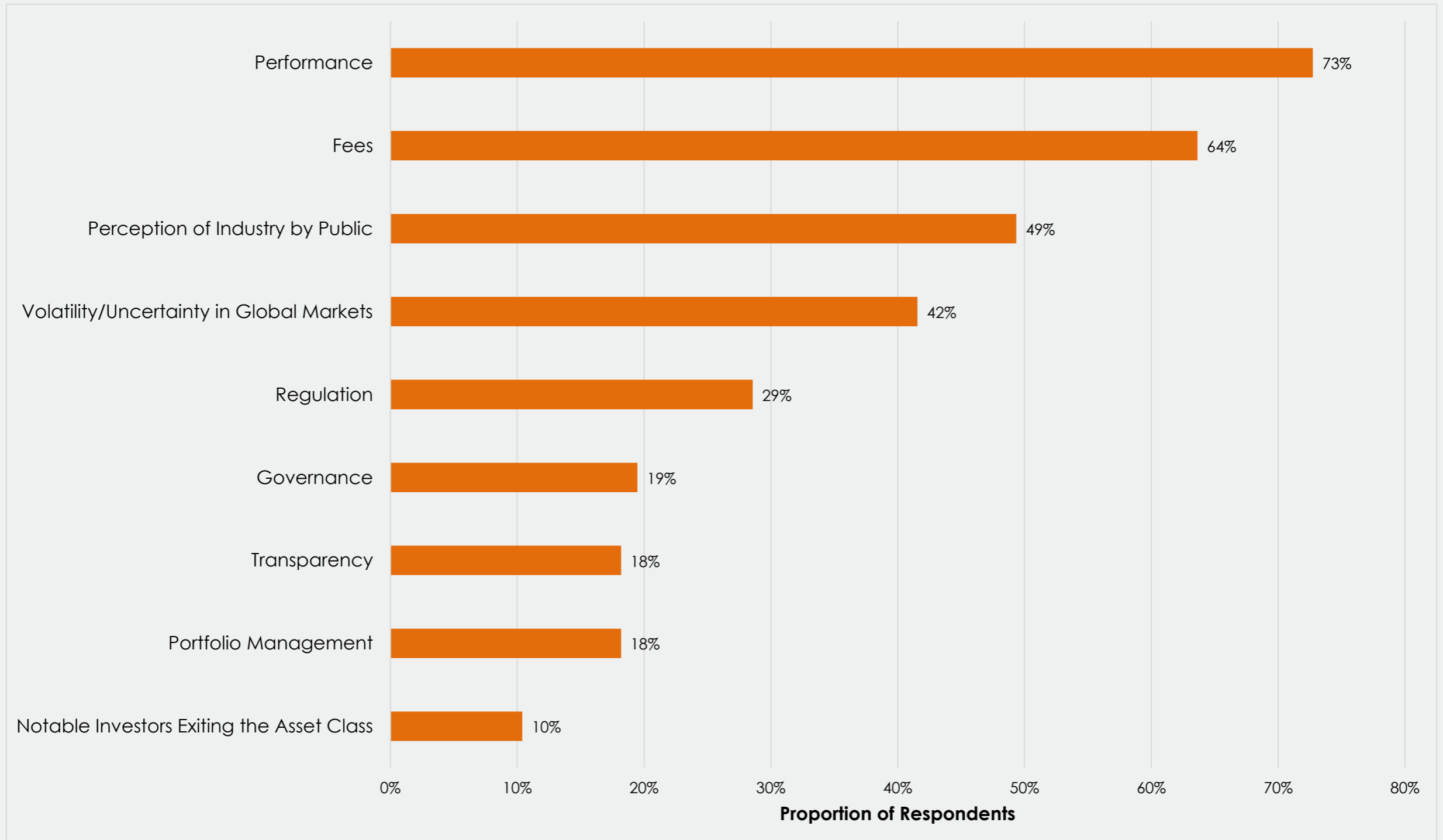
# 2017 Hedge Fund Landscape

According to Deutsche Bank's 15<sup>th</sup> Annual Investment Survey, although performance was lackluster, Hedge Funds still attract interest.

## Survey Highlights:

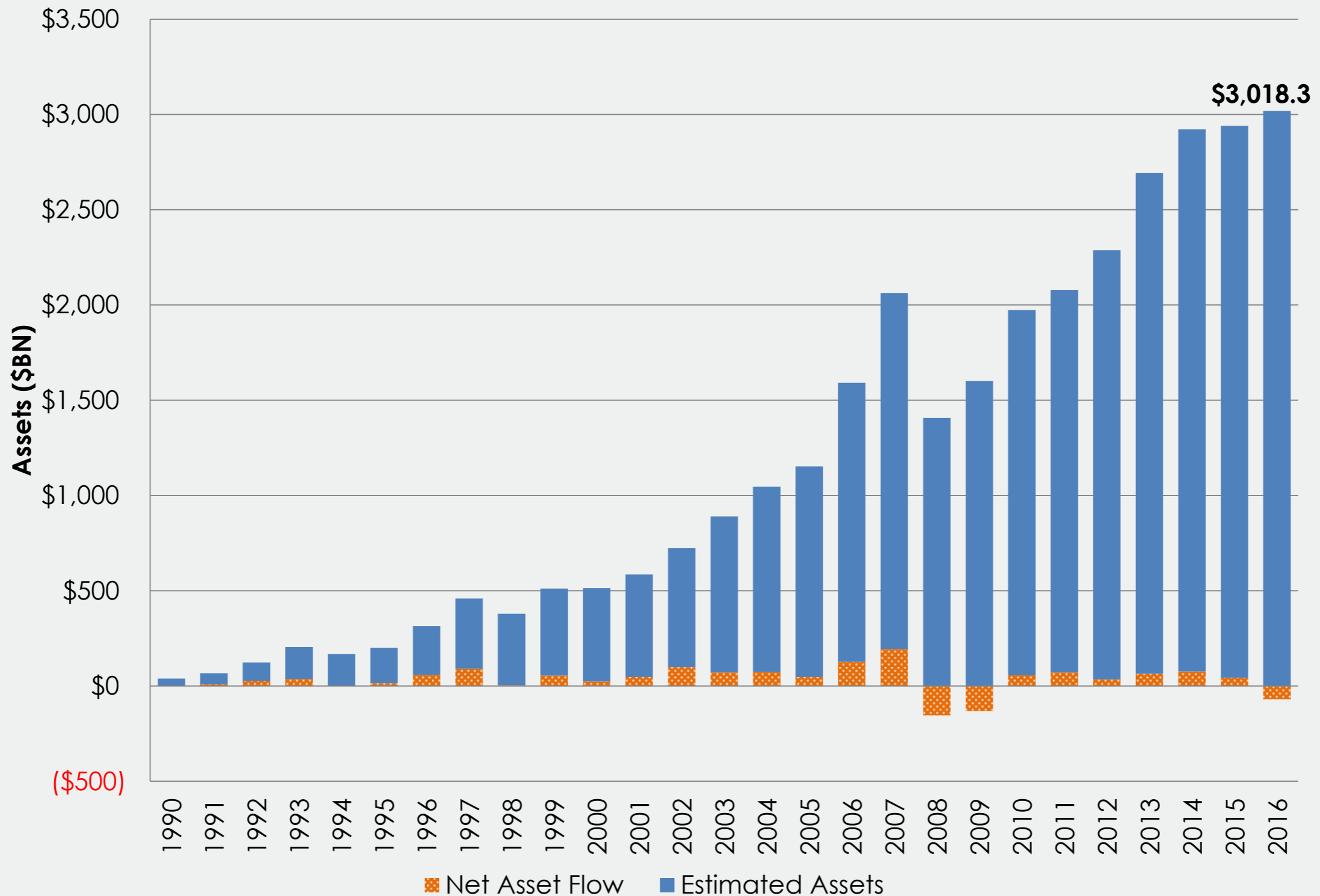
- Manager Selection has become more critical
  - On average, investors' top quartile funds returned +11.22 percent in 2016, while respondents' bottom quartile managers were down -6.86 percent
- Hedge Fund fee discussions intensifying
  - Average management fee and performance fee that investors pay for their typical hedge fund investment is 1.59 percent and 17.69 percent, respectively
- Quantitative strategies to play a bigger role in 2017
  - With advances in areas such as machine learning, quantum computing and the cloud they are seeing more interest and demand in bespoke portfolio solutions
- Global macro strategies most in-demand

# Key Issues Facing Hedge Funds in 2017



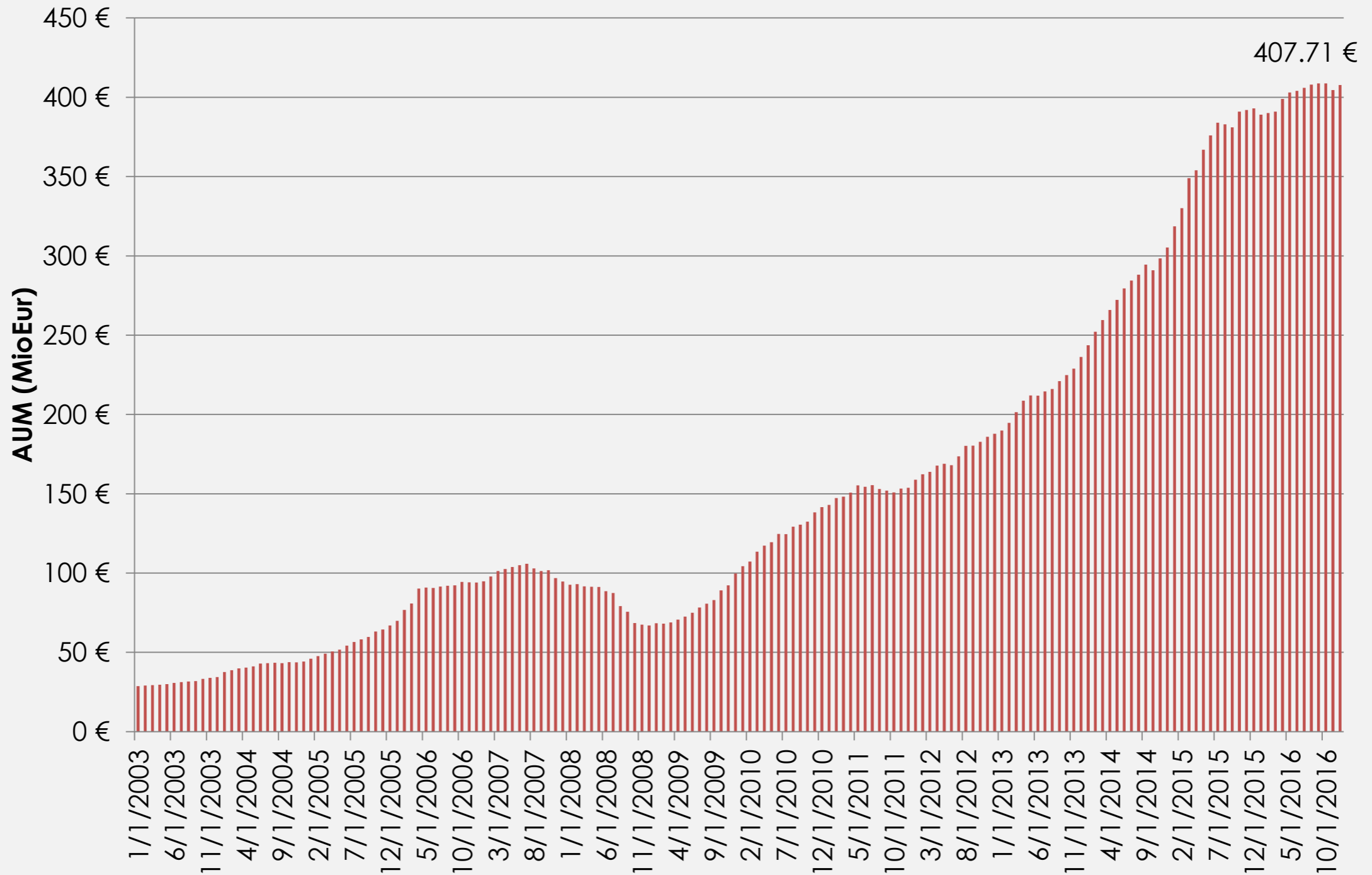
Source: Preqin

# Estimated Hedge Fund AUM Growth



Source: HFR® Global Hedge Fund Industry Report – Year End 2016 | Copyright 2017. All rights reserved.

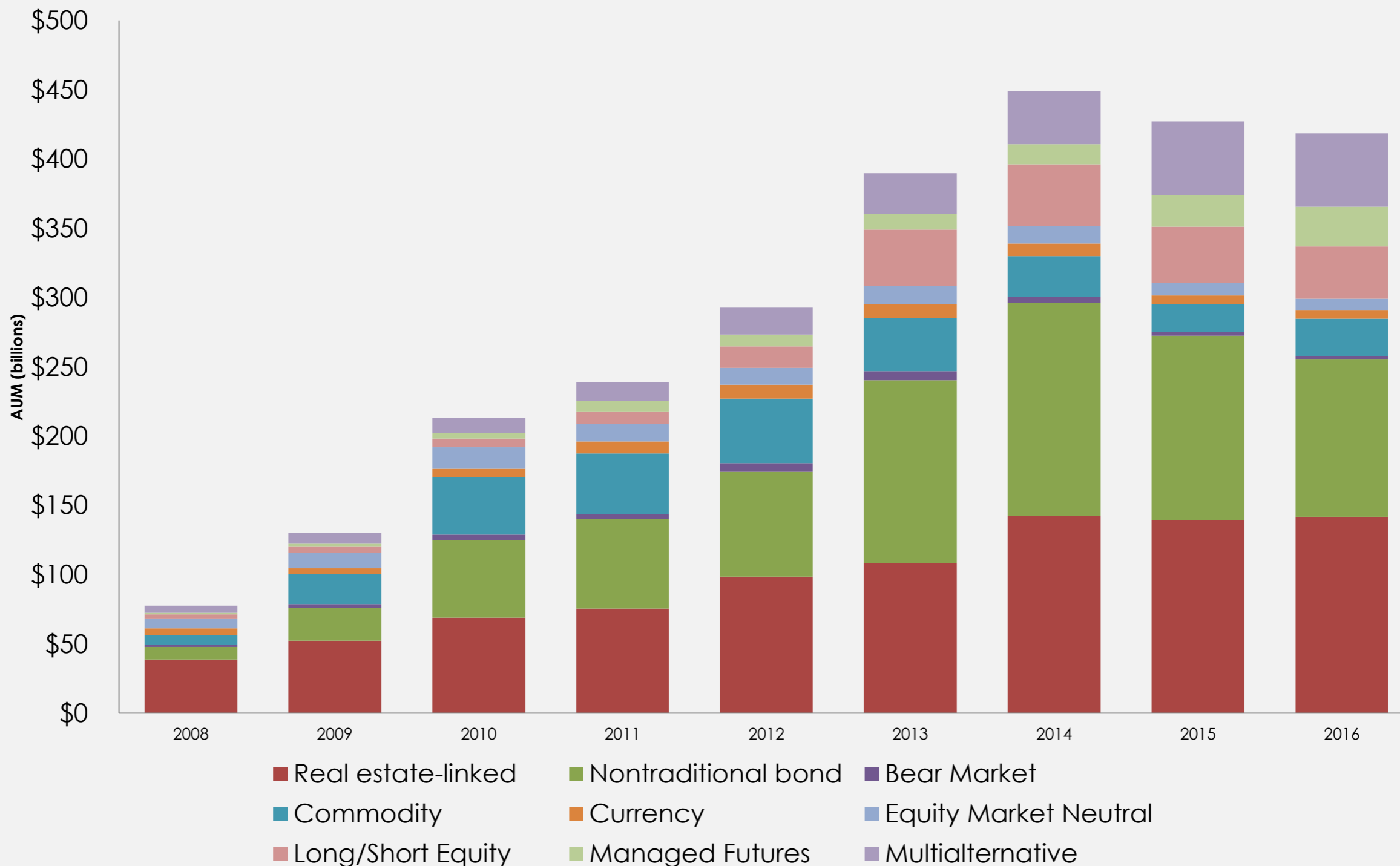
# Estimated Alternative UCITS AUM Growth



Source: LuxHedge Database

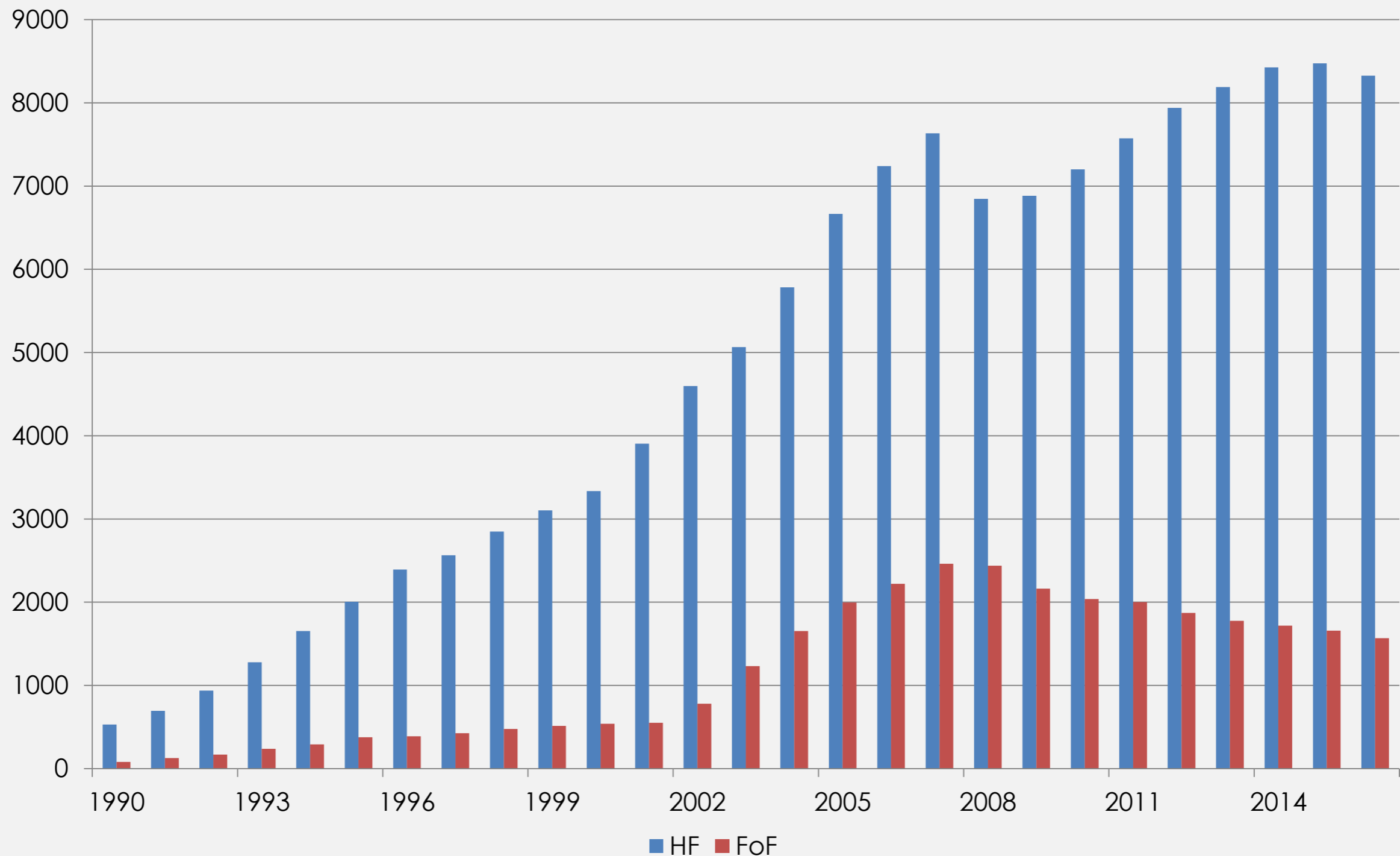
# Liquid Alternative Market Growth

## Liquid Alternative AUM Growth



Source: CAIA and Morningstar

# Estimated Number of Funds: HF vs. FoF

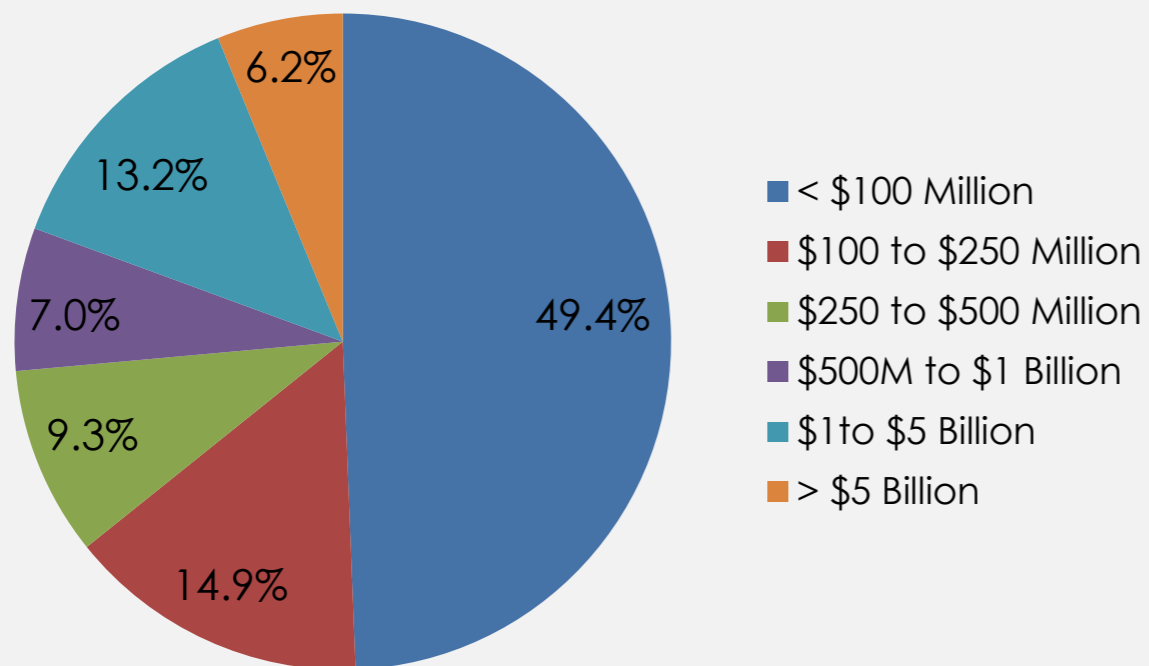


Source: HFR® Global Hedge Fund Industry Report – Year End 2016 | Copyright 2017. All rights reserved.

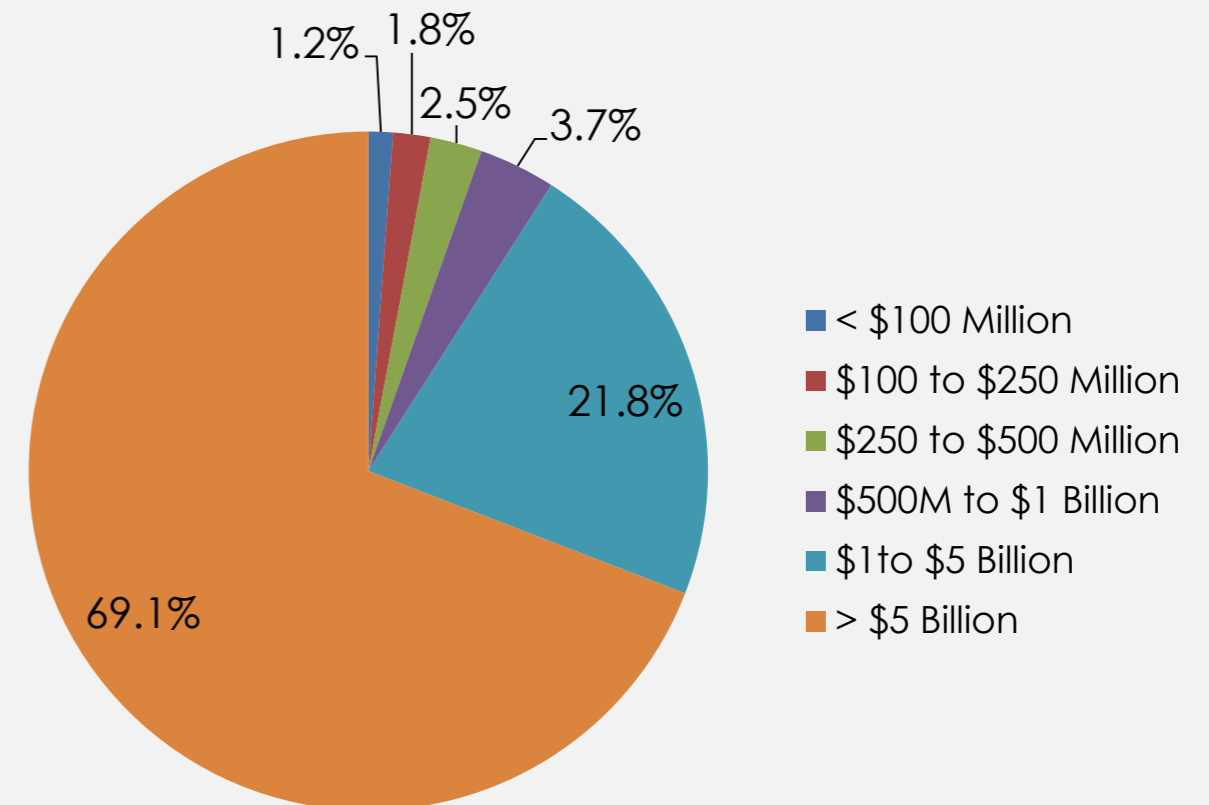


# Distribution of Industry Assets: Firm AUM Tier

## By # of Firm



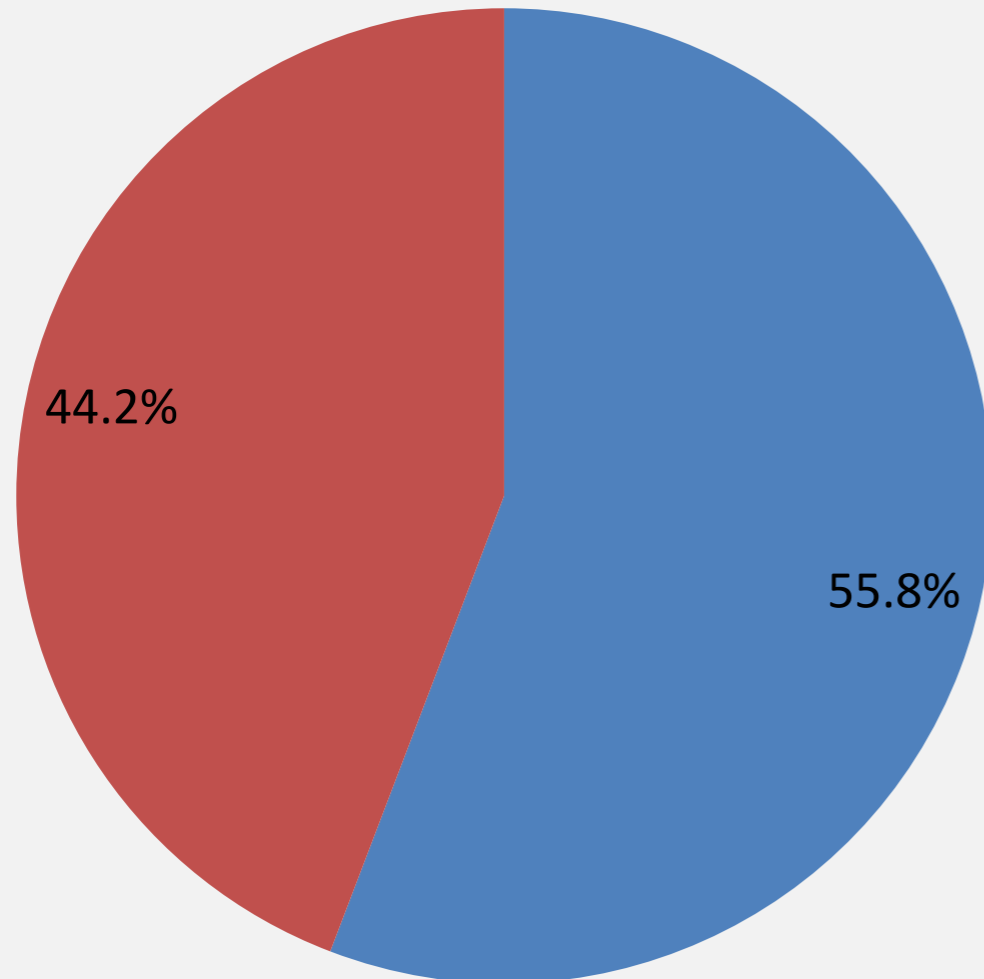
## By Firm AUM Size



Source: HFR® Global Hedge Fund Industry Report – Year End 2016 | Copyright 2017. All rights reserved.

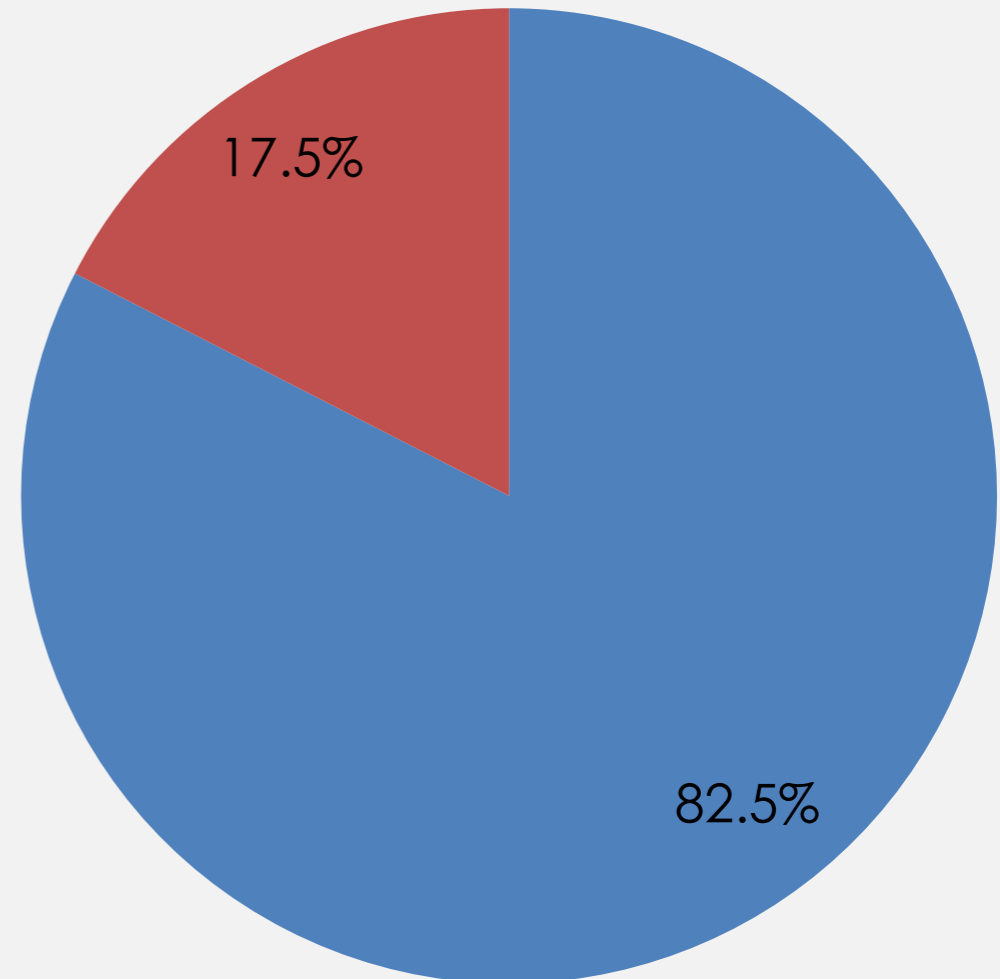
# Funds with Inflows vs. Outflows

## Single Manager Funds



■ Outflows ■ Inflows

## Fund of Funds

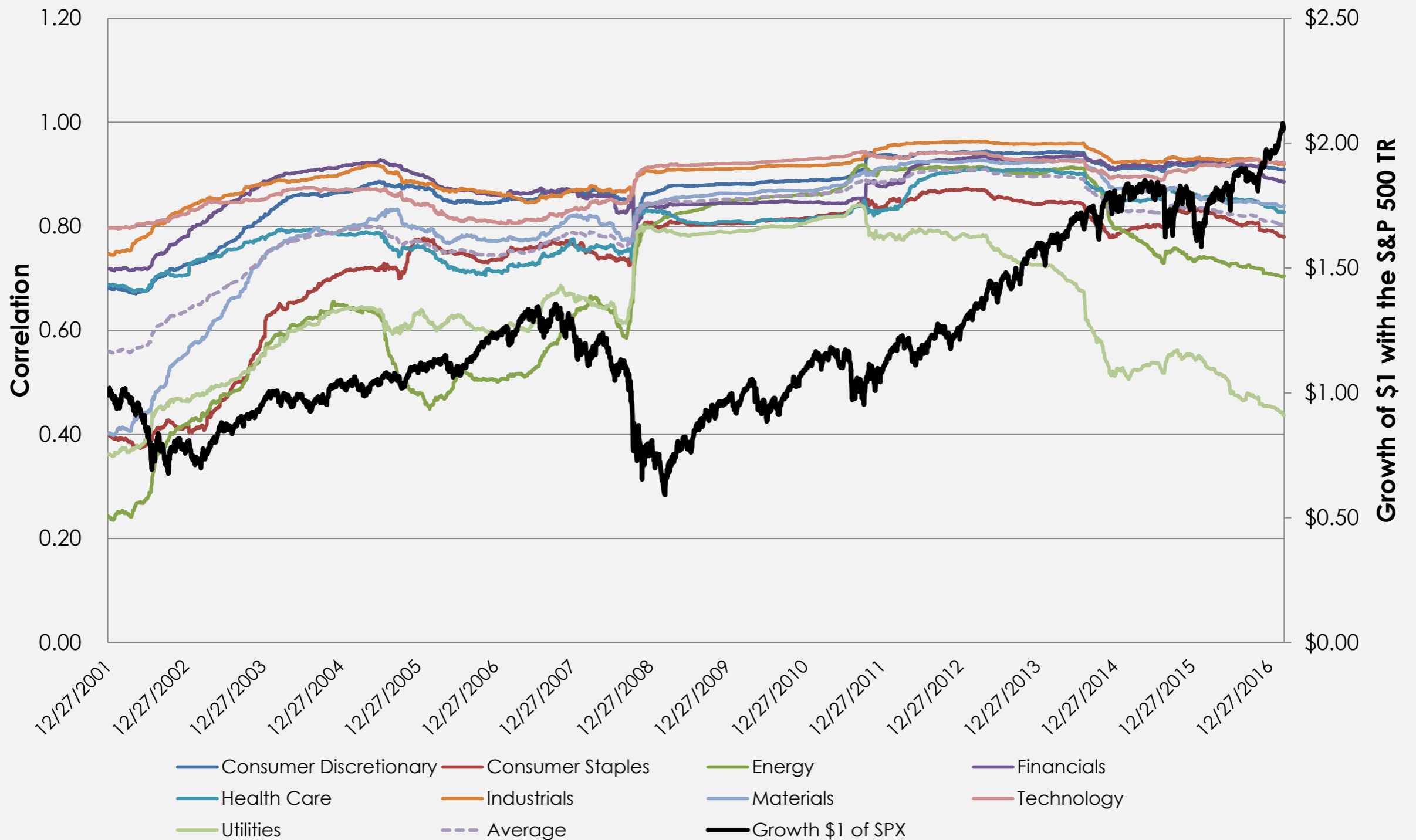


■ Outflows ■ Inflows

Source: HFR® Global Hedge Fund Industry Report – Year End 2016 | Copyright 2017. All rights reserved.

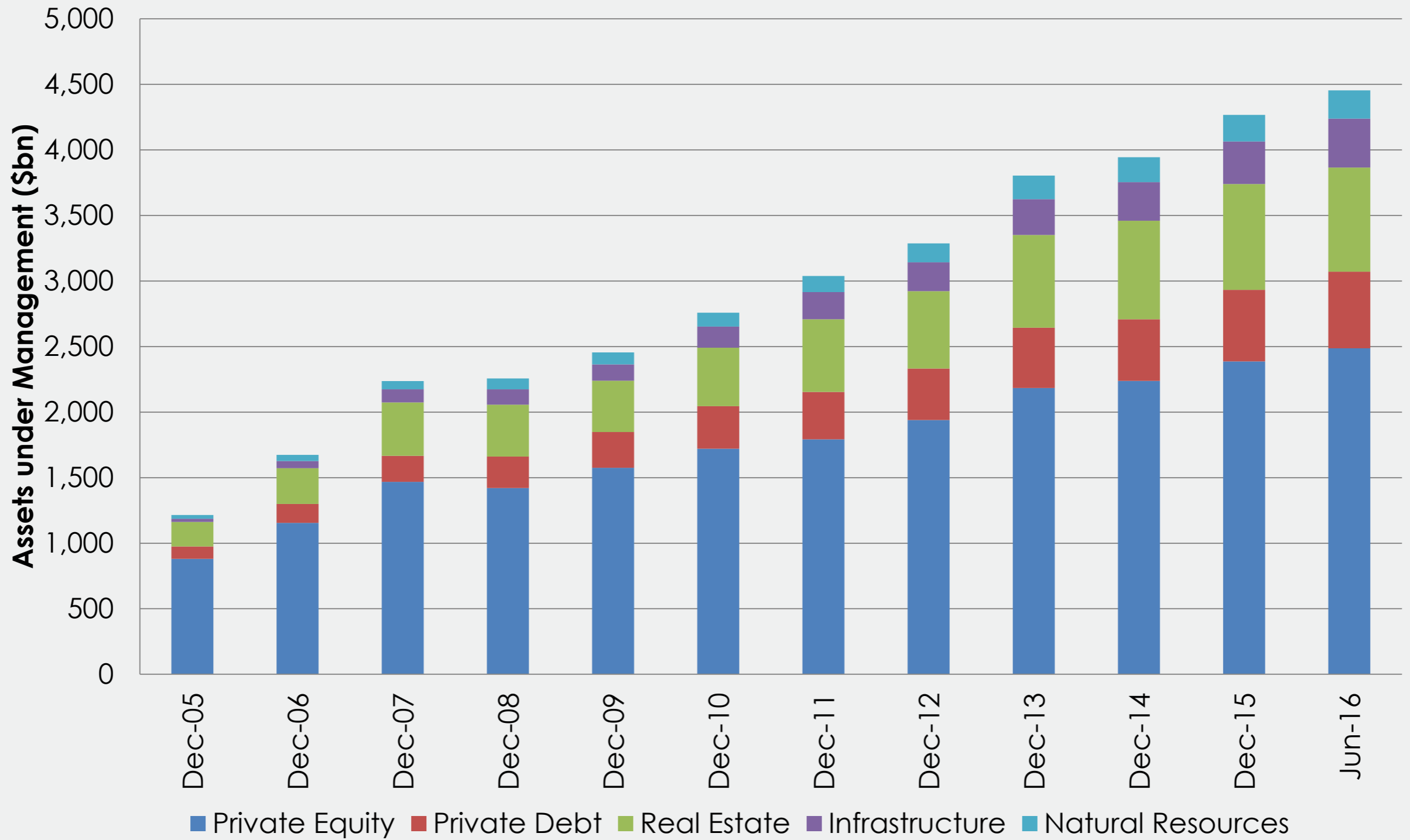
# Rising Sector Dispersion

## 3 Year Rolling SPDR Sector Correlation with S&P 500 Index



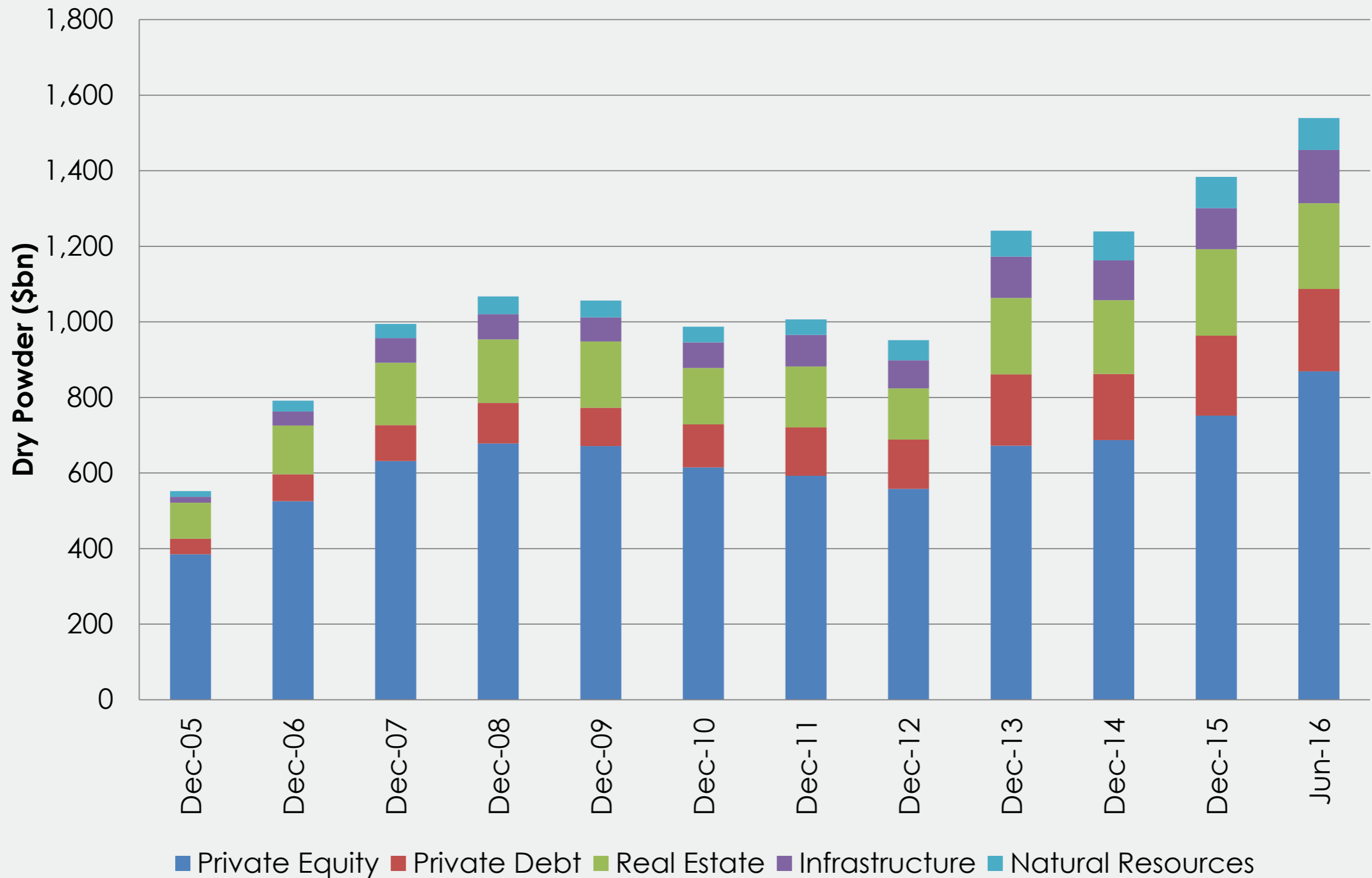
Source: CAIA and Bloomberg

# Private Capital AUM by Asset Class



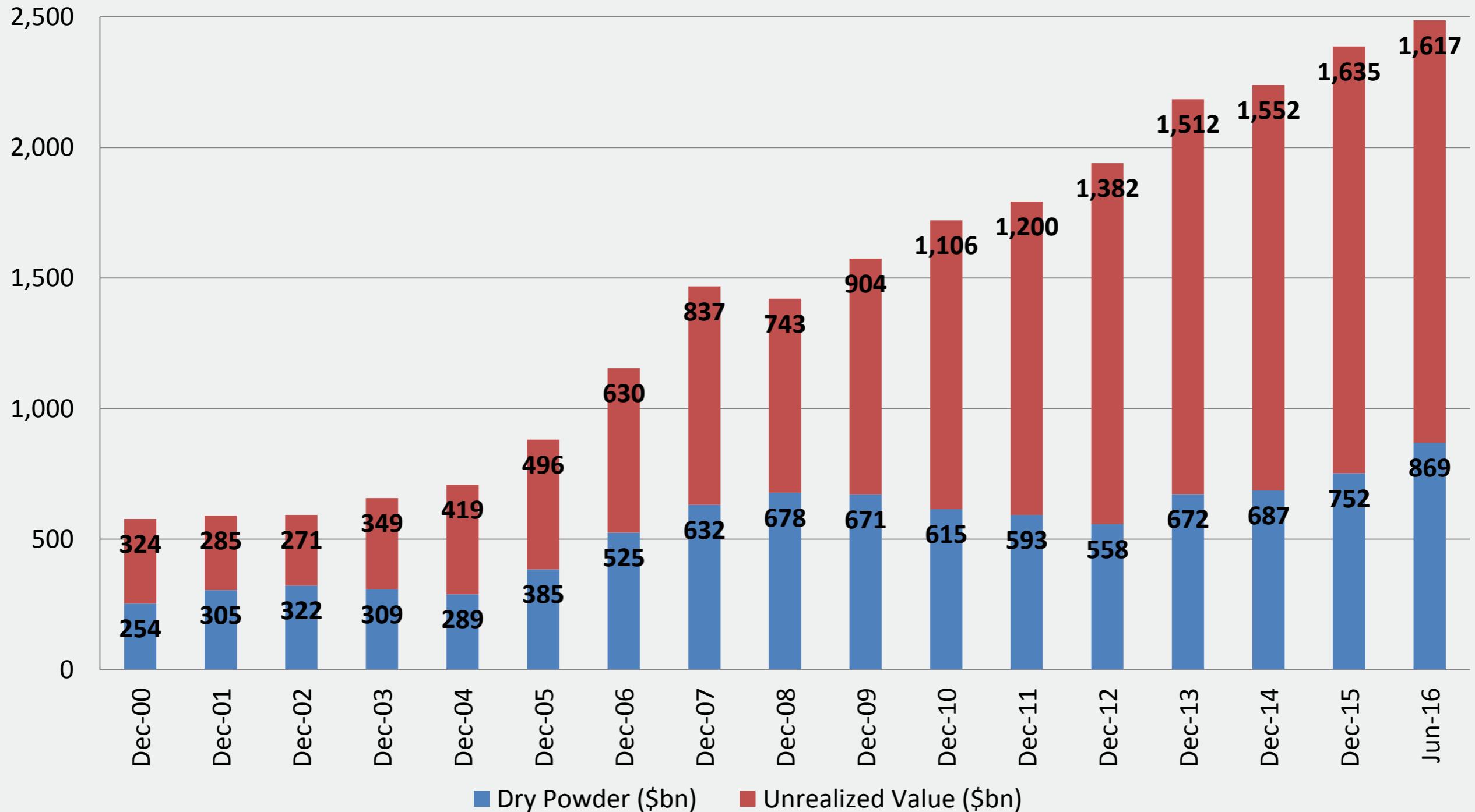
Source: Preqin Online Products

# Private Capital Dry Powder by Asset Class



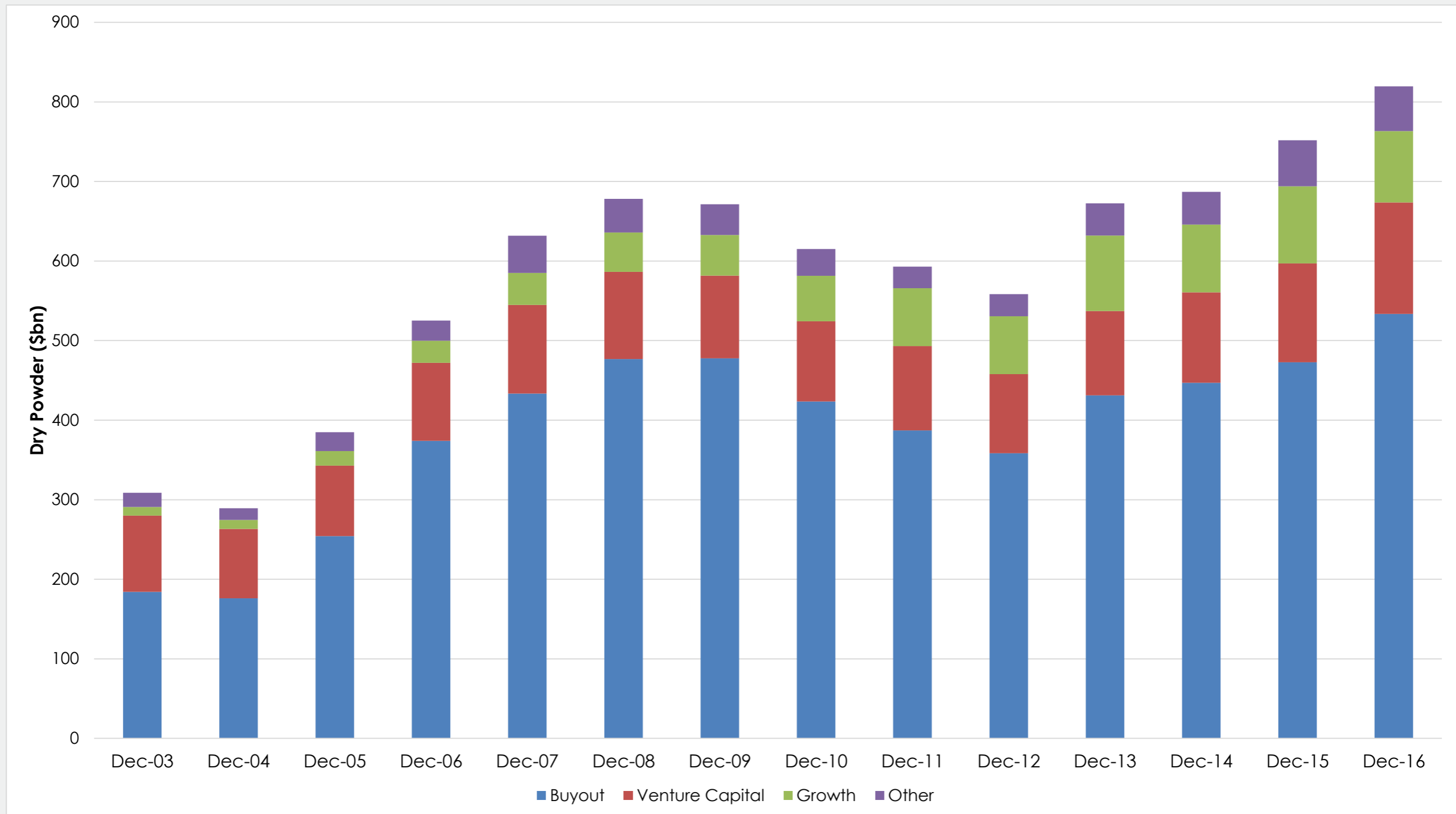
Source: Preqin Online Products

# Private Equity Assets Under Management



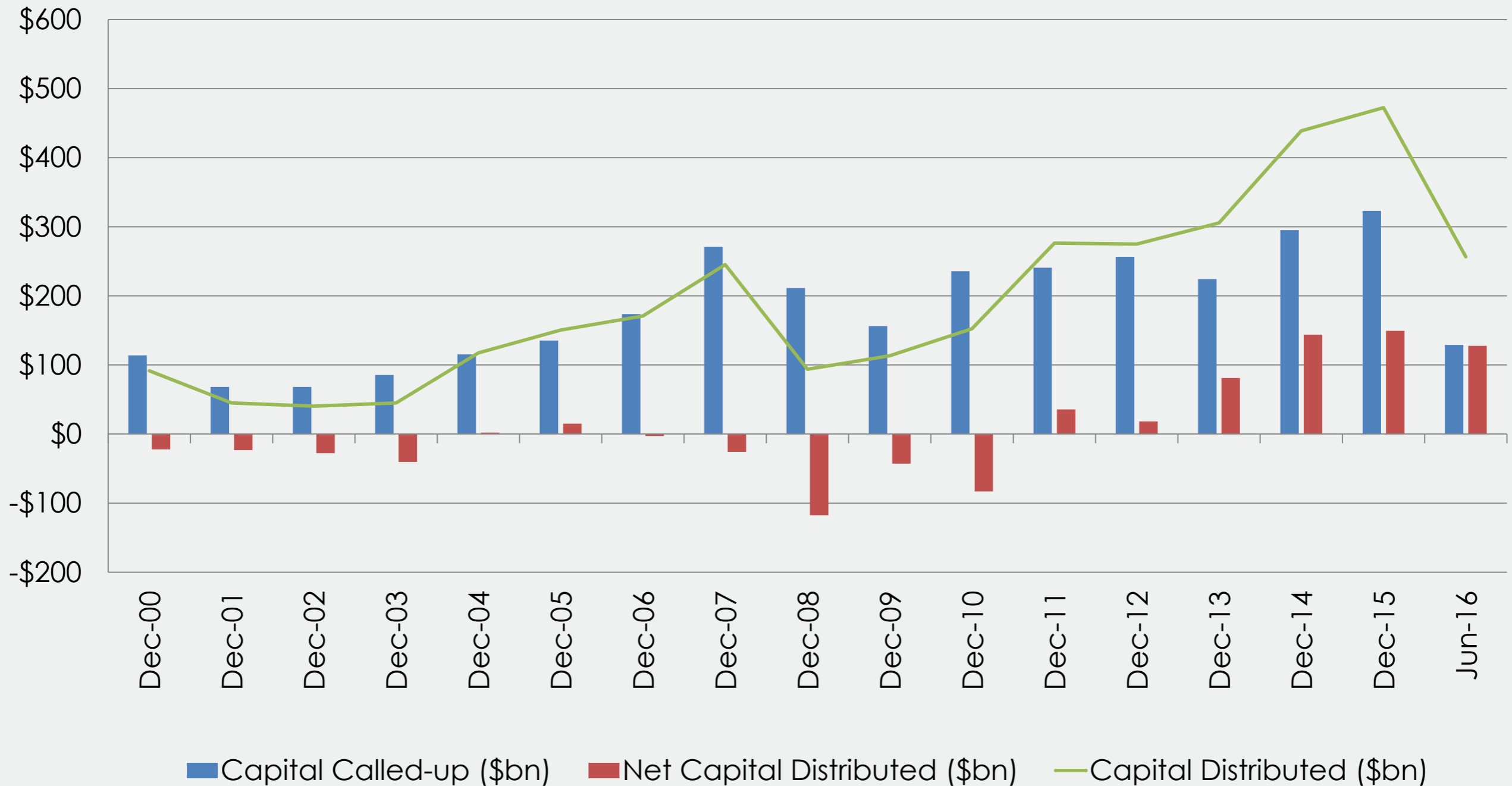
Source: Preqin Online Products

# Private Equity Dry Powder by Fund Type



Source: Preqin Online Products

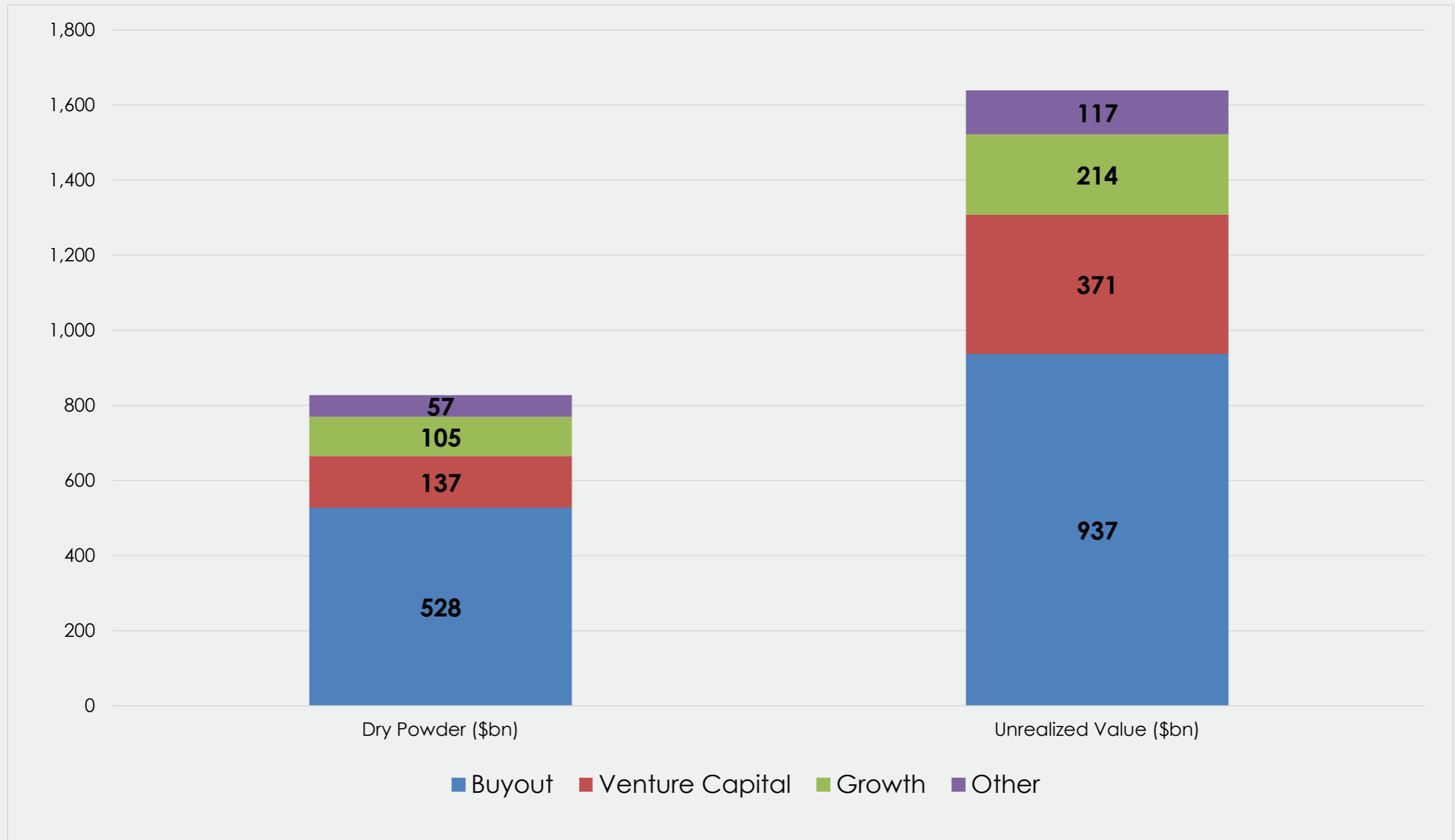
# Private Equity Annual Amount Called and Distributed



Source: Preqin Online Products

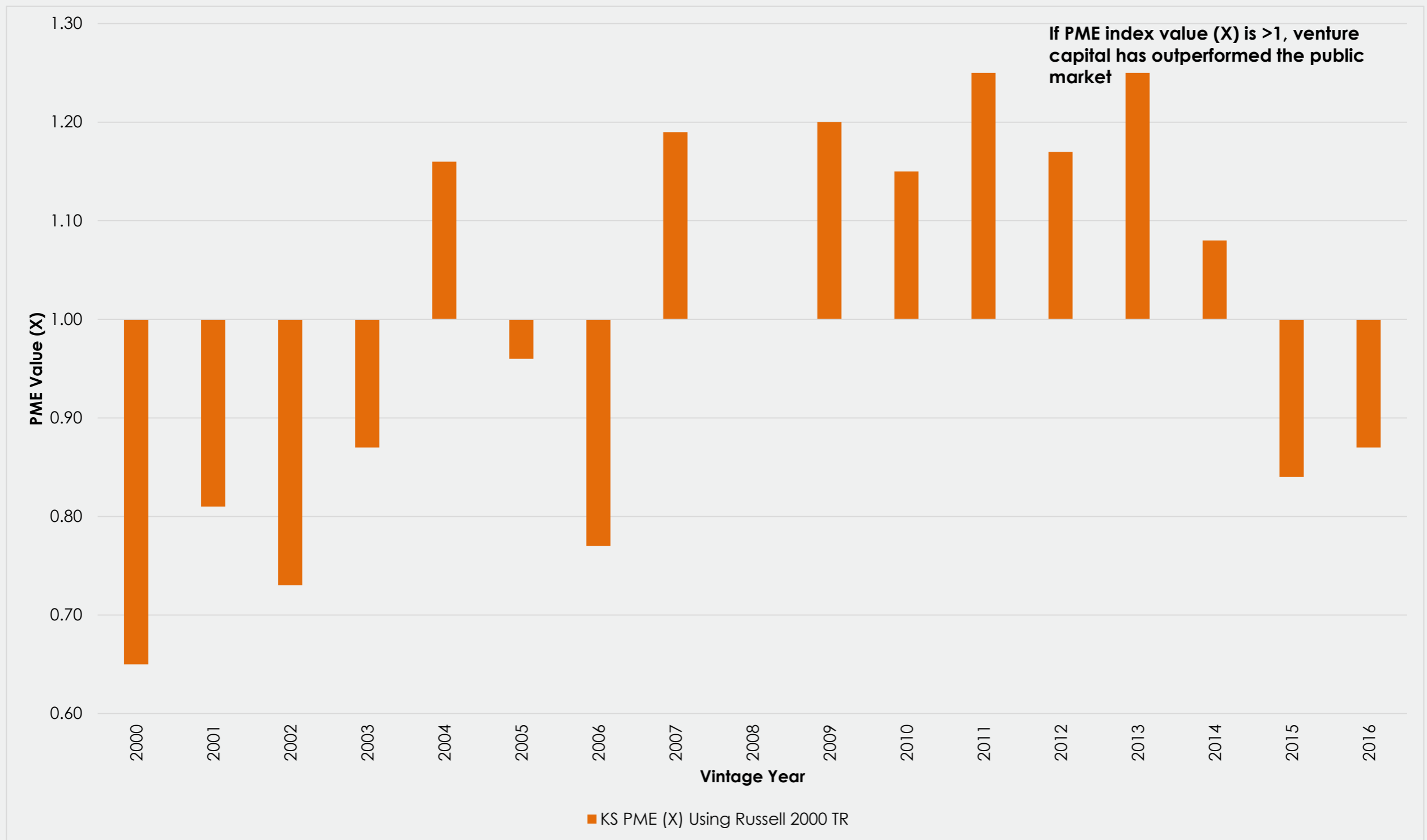


# Private Equity Assets under Management



Source: Preqin Private Equity Online

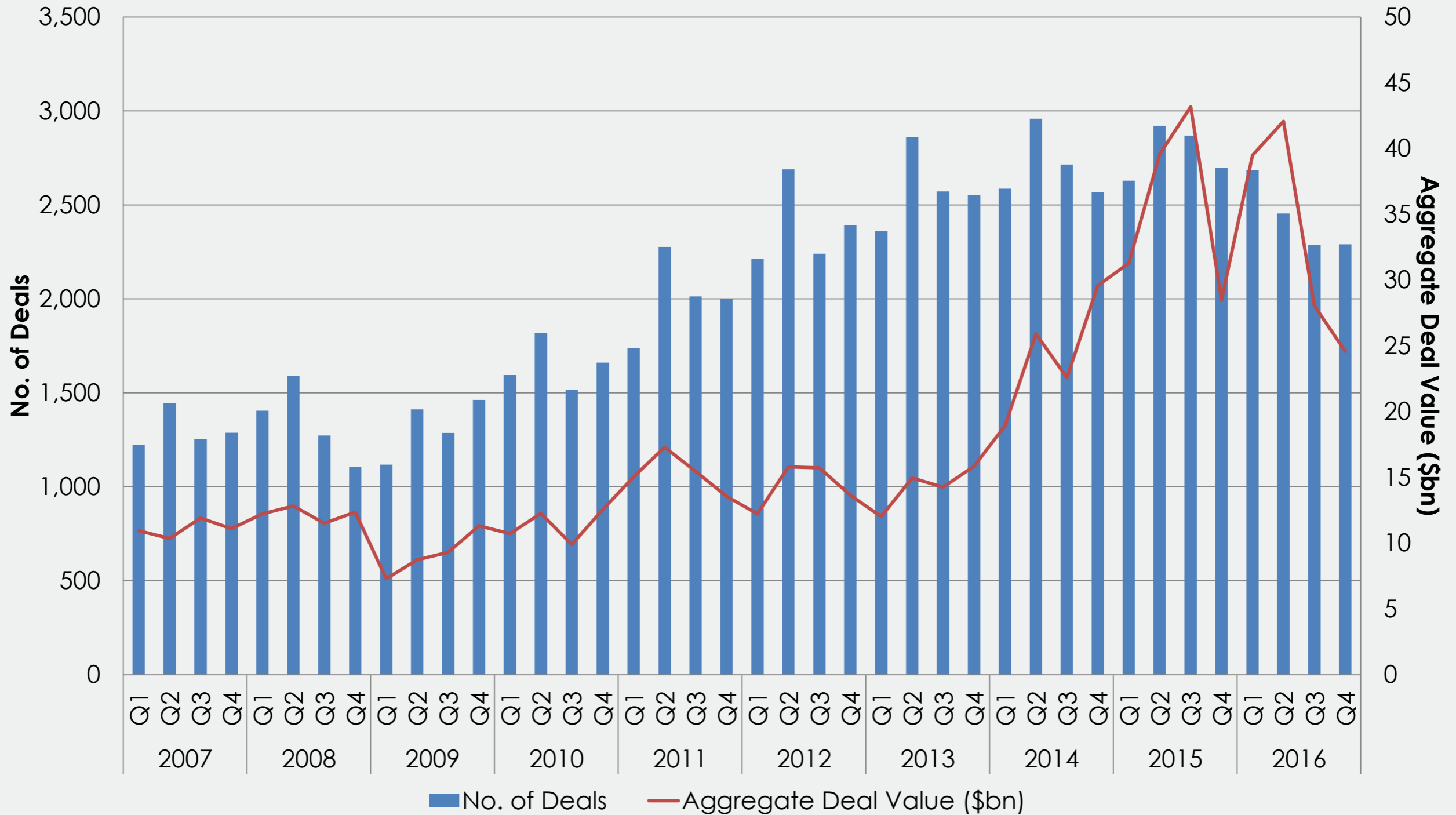
# Venture Capital Public Market Equivalent



Source: Preqin Online Products

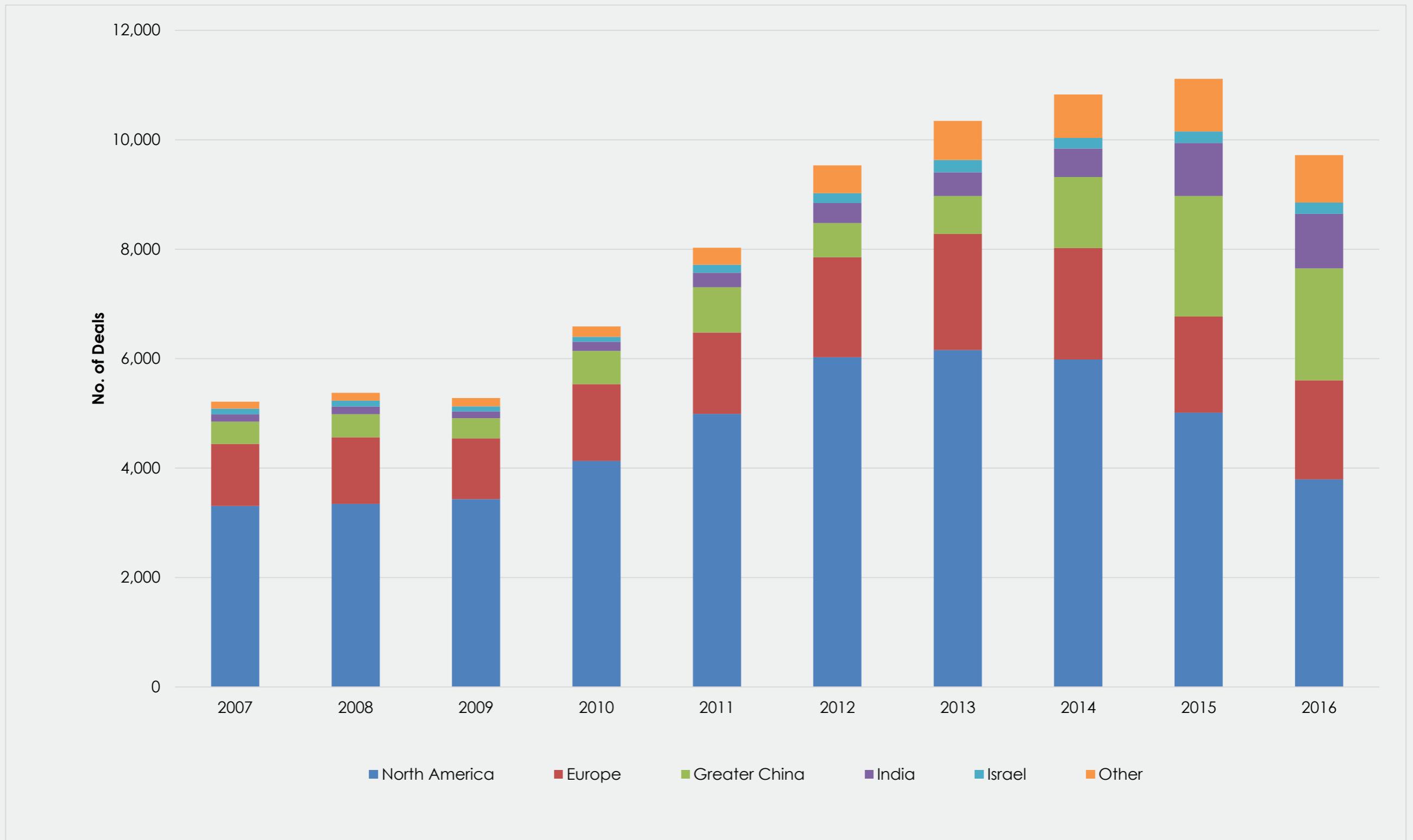
# Number and Aggregate Value of Venture Capital Deals Globally

Global Venture Capital Deals



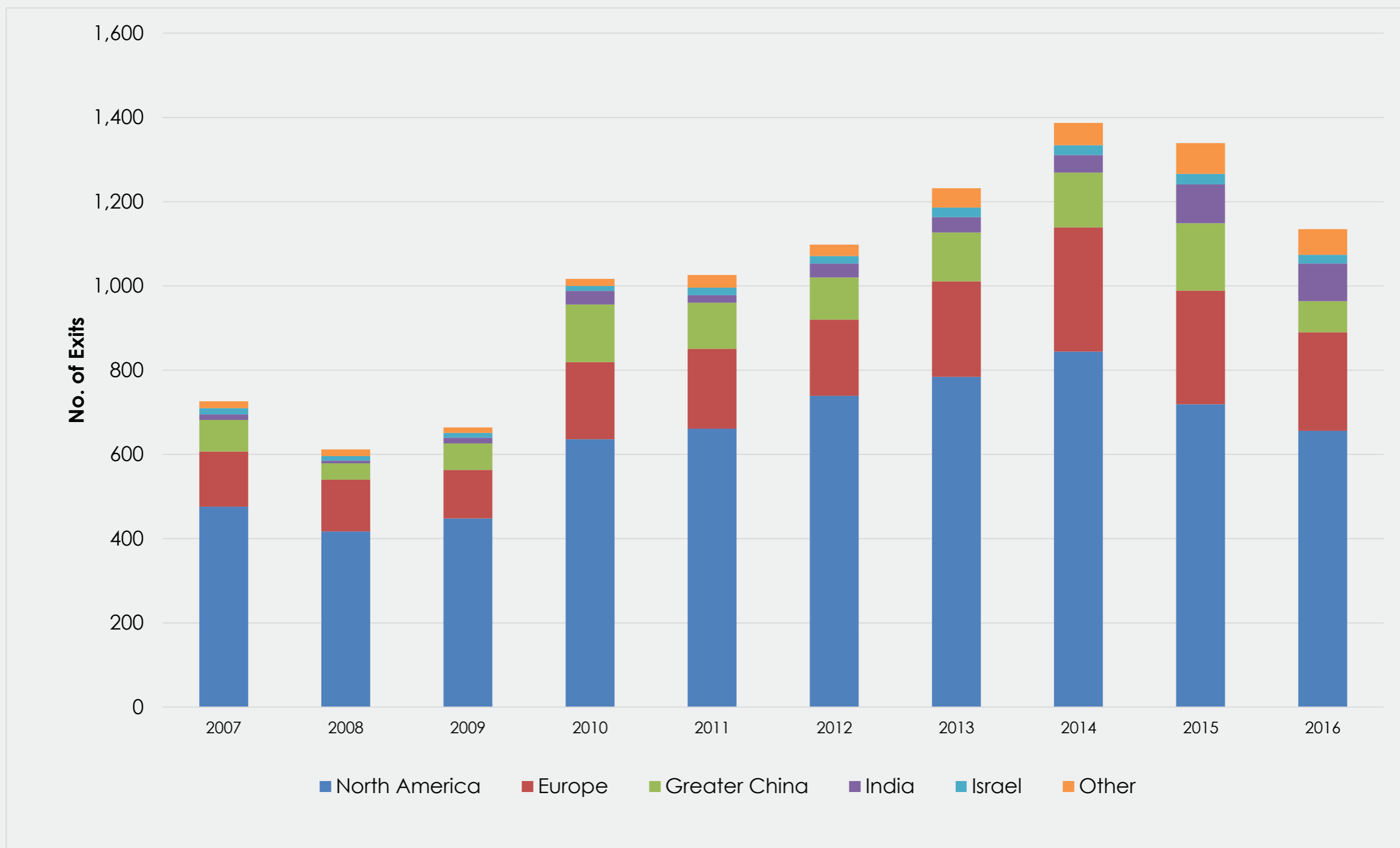
Source: Preqin Online Products

# Number of Venture Capital Deals by Region



Source: Preqin Private Equity Online

# Number of Venture Capital Exits by Region



Source: Preqin Online Products

# Number and Aggregate Value of Venture Capital Deals in 2016 by Region

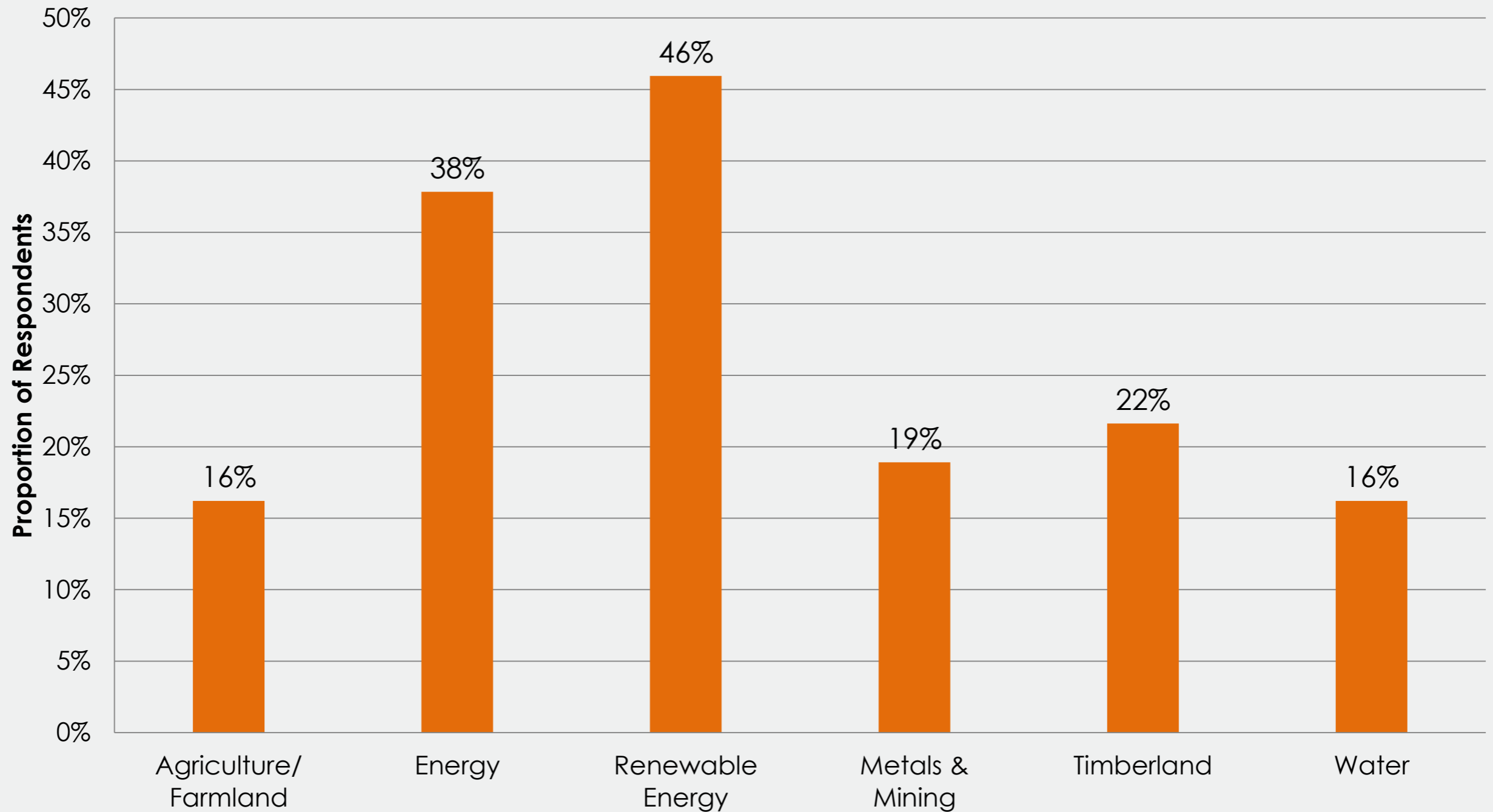
	2016		Percentage Change from 2015	
	No. of Deals	Aggregate Value (\$bn)	No. of Deals	Aggregate Value
North America	3,793	61.1	-24%	-15%
Europe	1,811	12.1	3%	-16%
Greater China	2,047	47.9	-7%	20%
India	995	4.1	3%	-53%
Israel	206	2.2	-2%	27%
Other	867	6.7	-10%	30%

*\*Figures exclude add-ons, grants, mergers, secondary stock purchases and venture debt.*

Source: Preqin Online Products

# Natural Resources

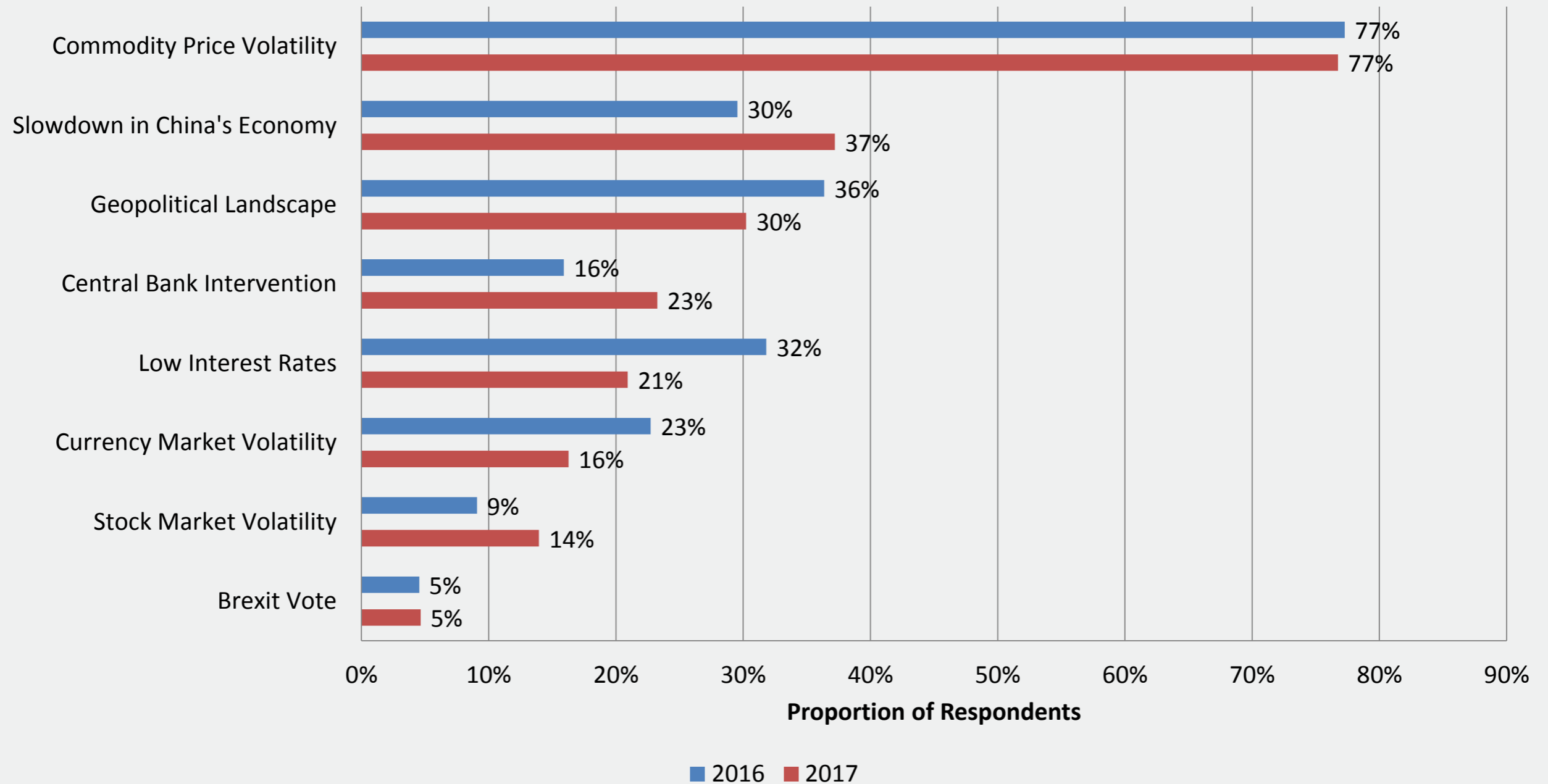
## Sectors Investors View as Presenting the Best Opportunities



Source: Preqin Online Products

# Natural Resources

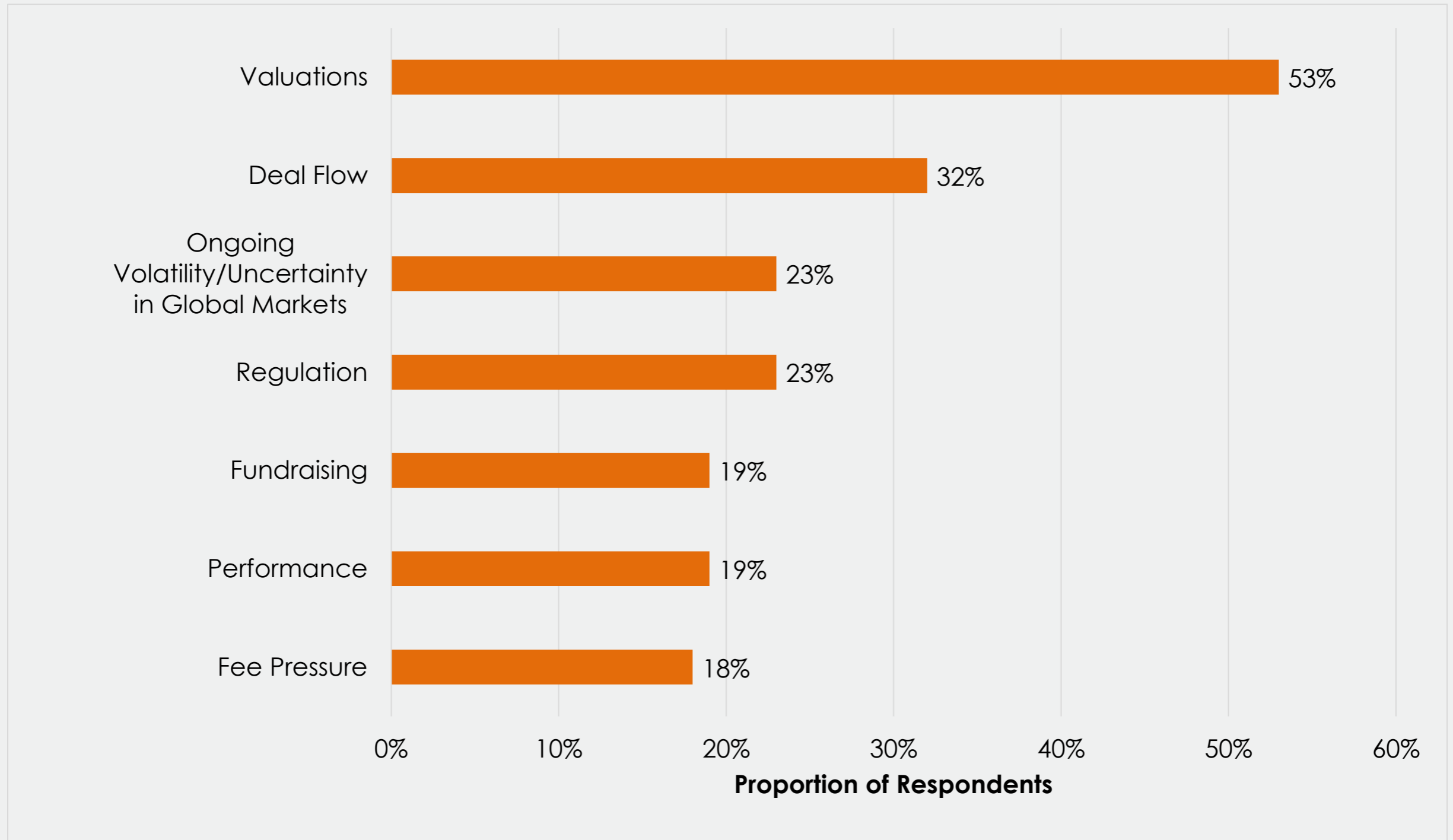
**Investor Views on the Macroeconomic Factors that Had the Biggest Impact on Their Natural Resources Portfolios in 2016 vs. Predictions for 2017**



Source: Preqin Online Products

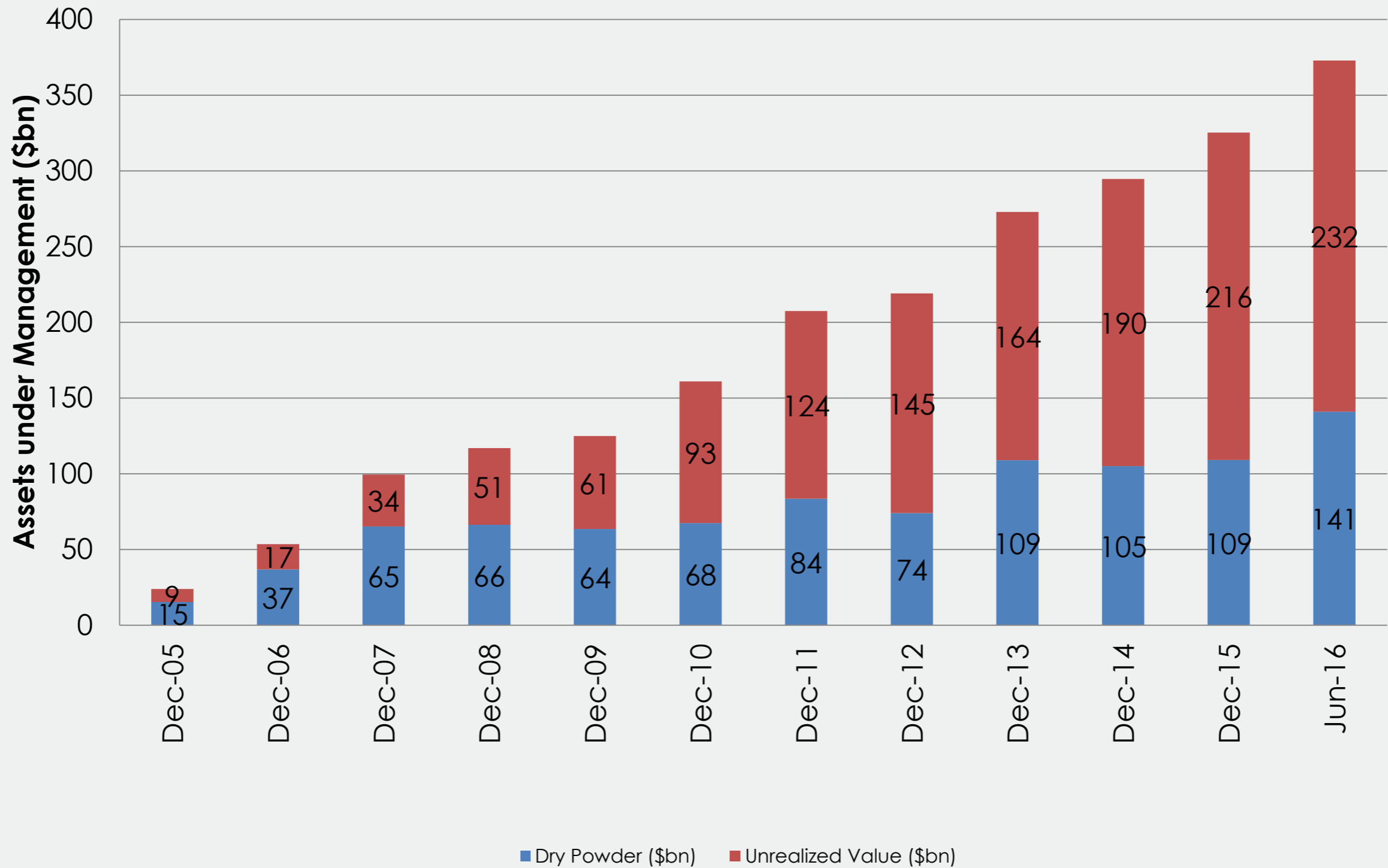


# Key Challenges Facing Unlisted Infrastructure Managers in 2017



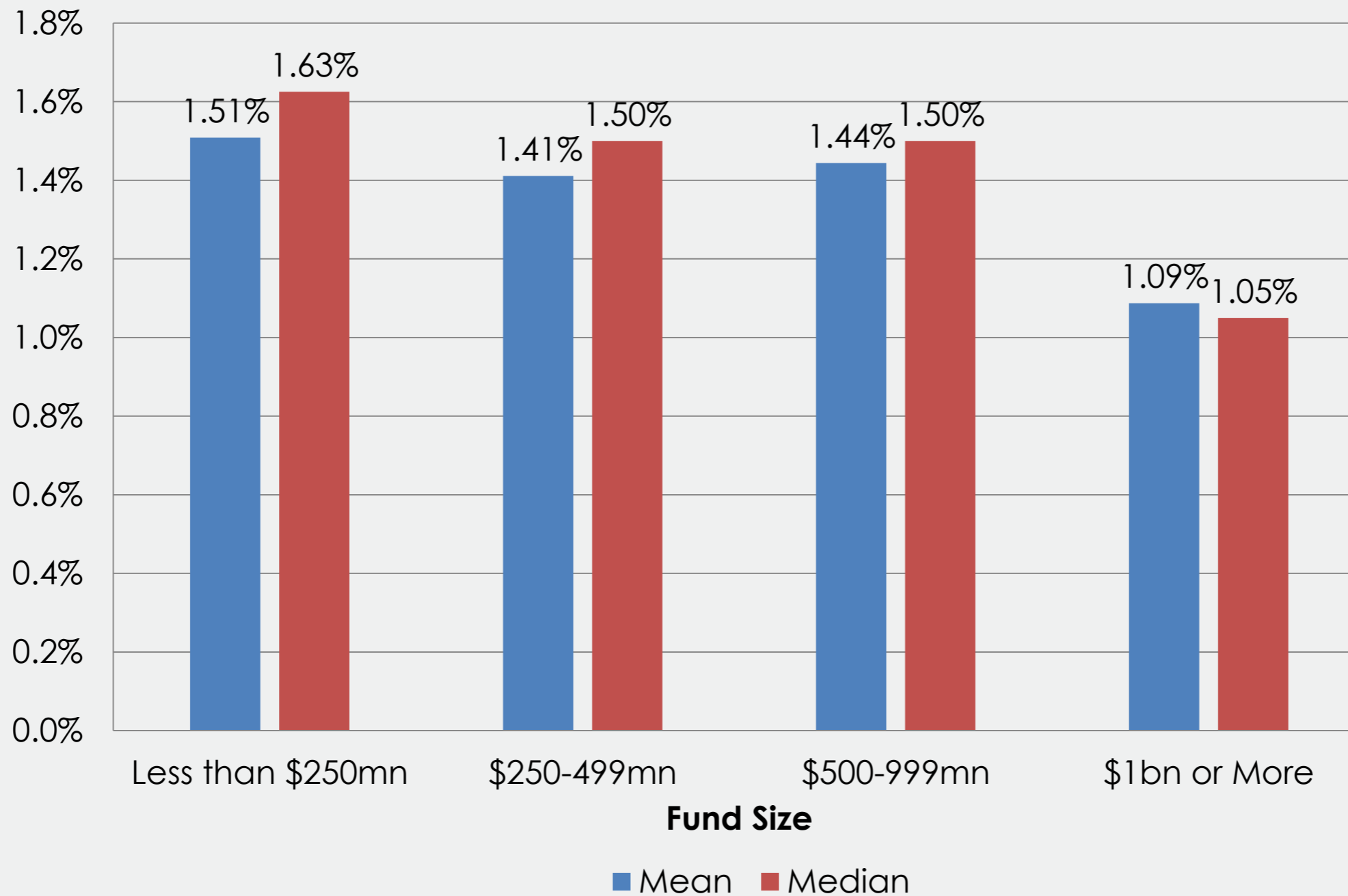
Source: Preqin Fund Manager Survey, November 2016

# Unlisted Infrastructure AUM



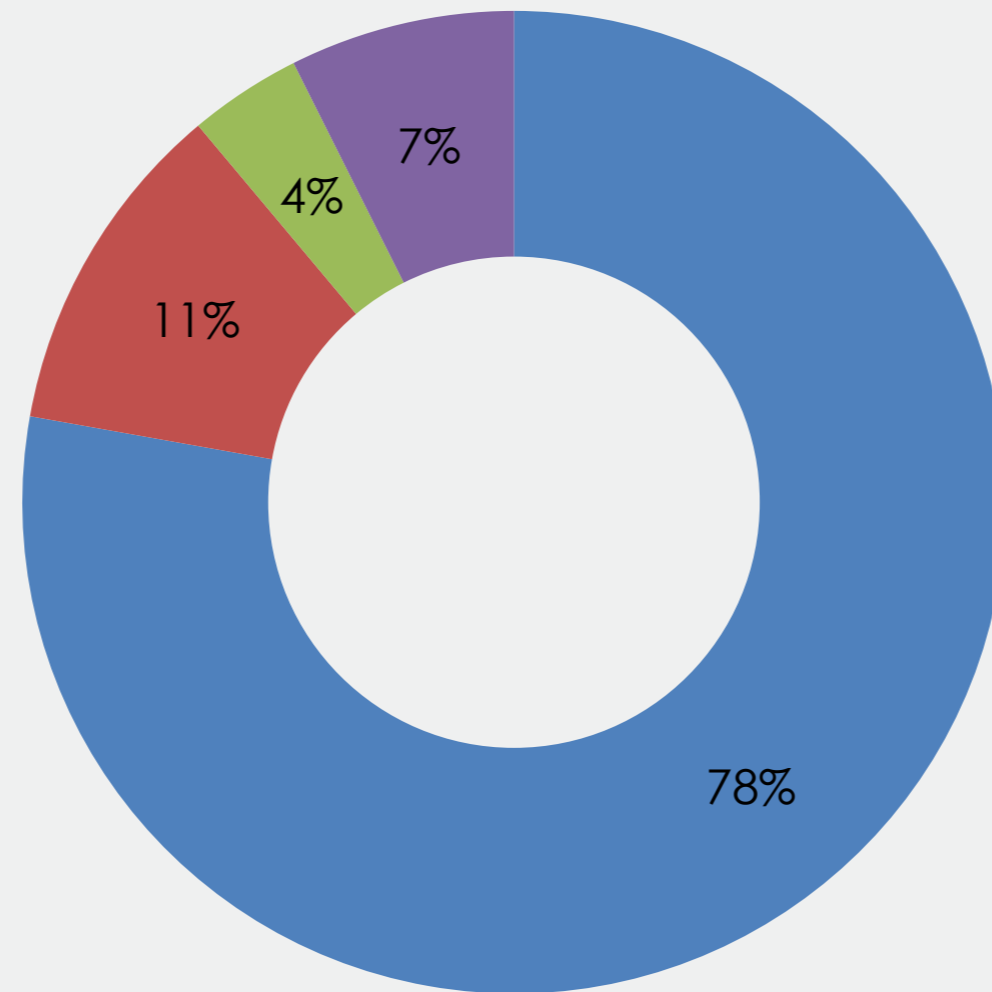
Source: Preqin Online Products

# Average Management Fee of Unlisted Infrastructure Funds by Fund Size



Source: 2016 Preqin Private Capital Fund Terms Advisor

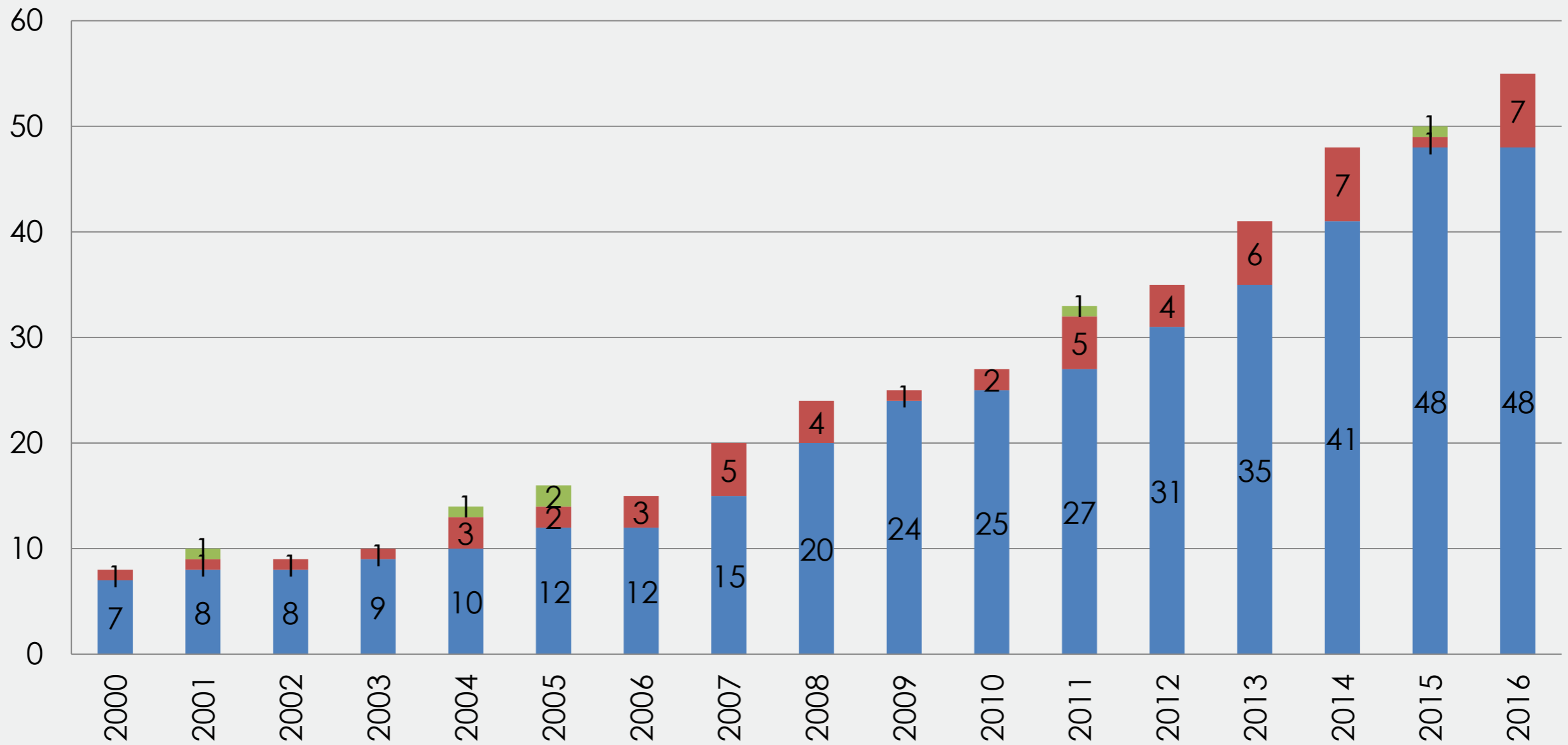
# Infrastructure Fund Managers that Consider ESG Factors as Part of the DD Process



■ Consider for All Deals    ■ Consider for Some Deals  
■ May Consider in Future    ■ Never Consider

Source: Preqin Fund Manager Survey, November 2016

# Open-Ended Infrastructure Fund Launches

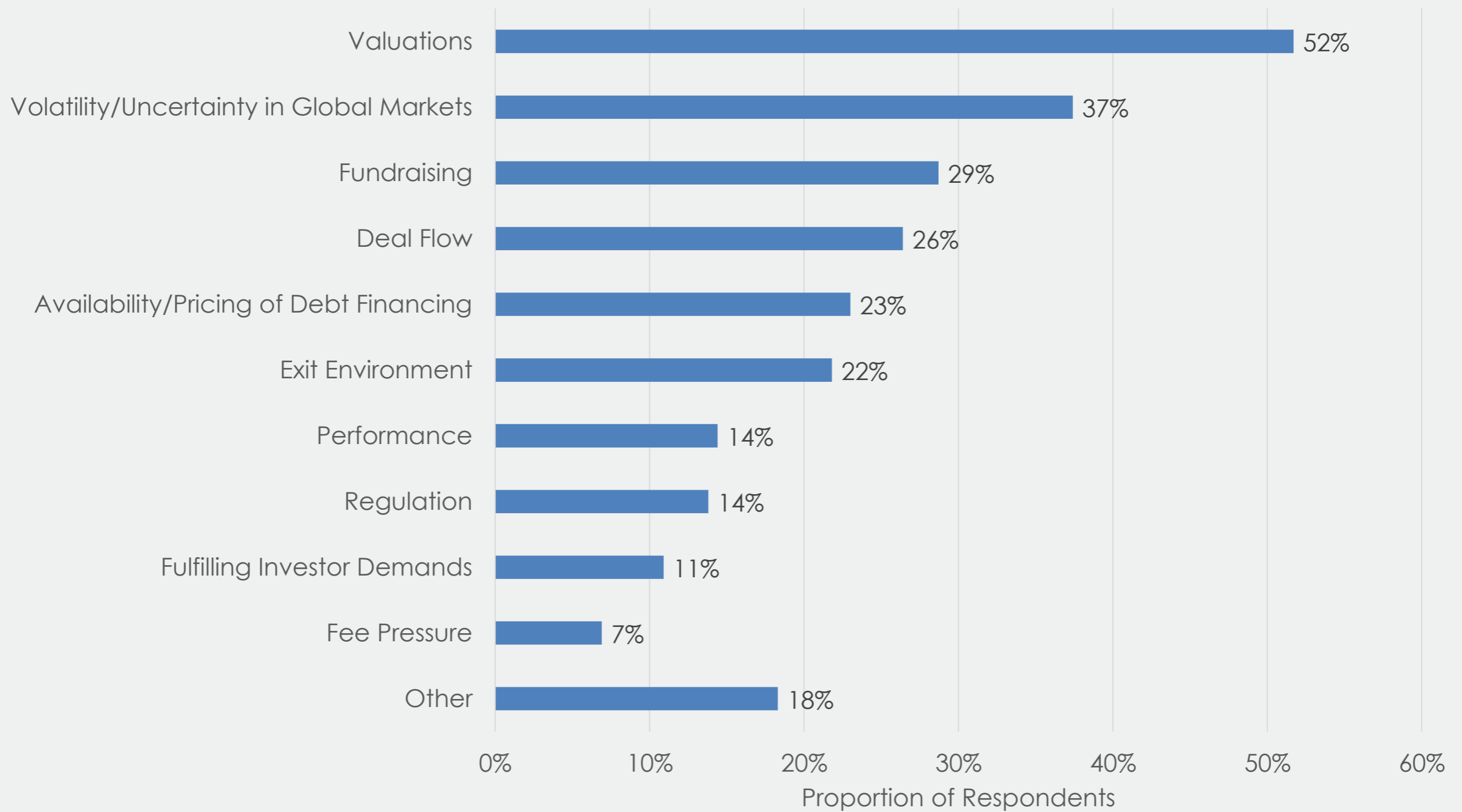


Year of Launch/Liquidation

■ No. of Funds Already in Market    
 ■ No. of Funds Launched    
 ■ No. of Funds Liquidated

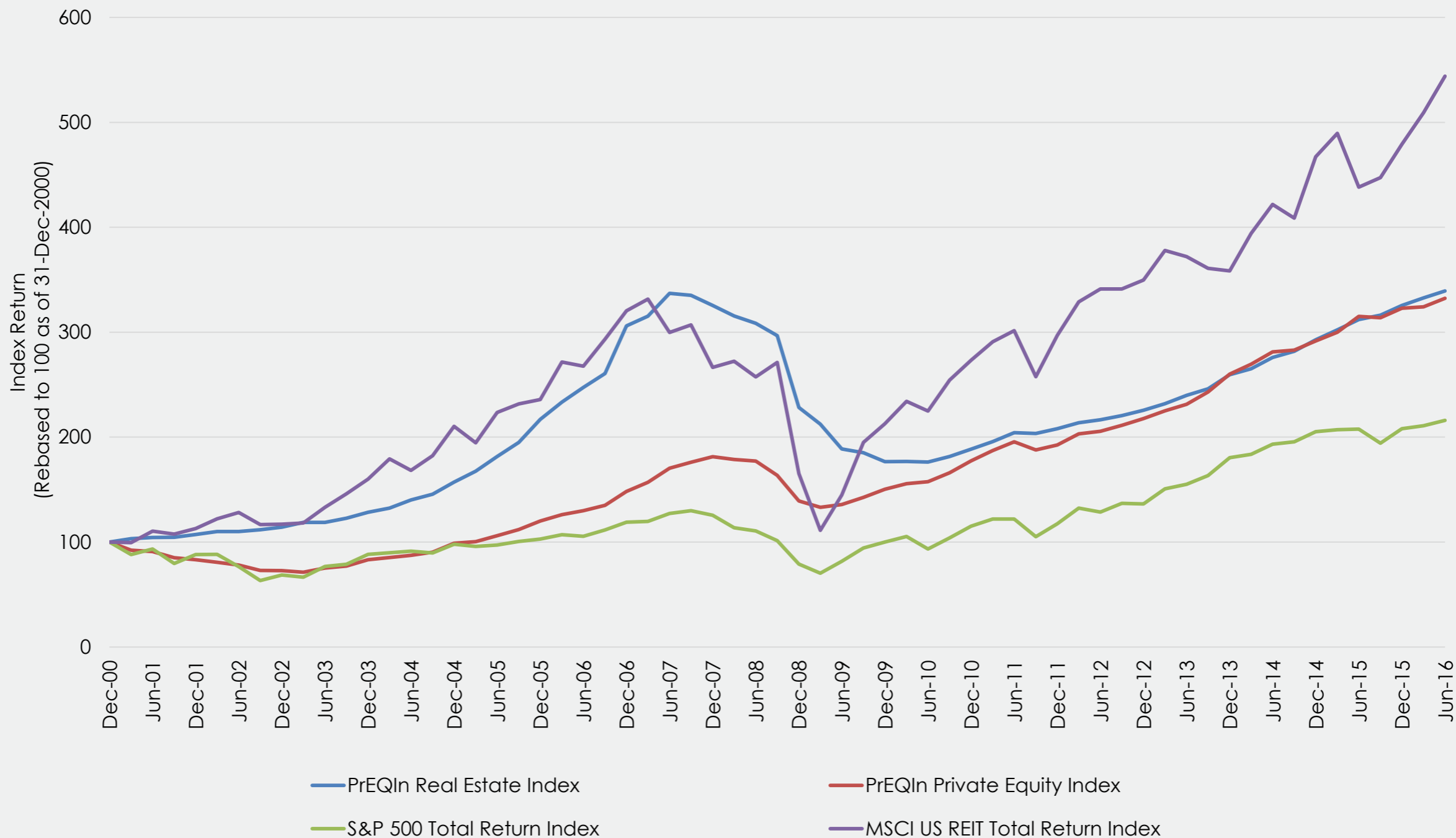
Source: Preqin Online Products

# Key Challenges Facing Private Real Estate Managers in 2017



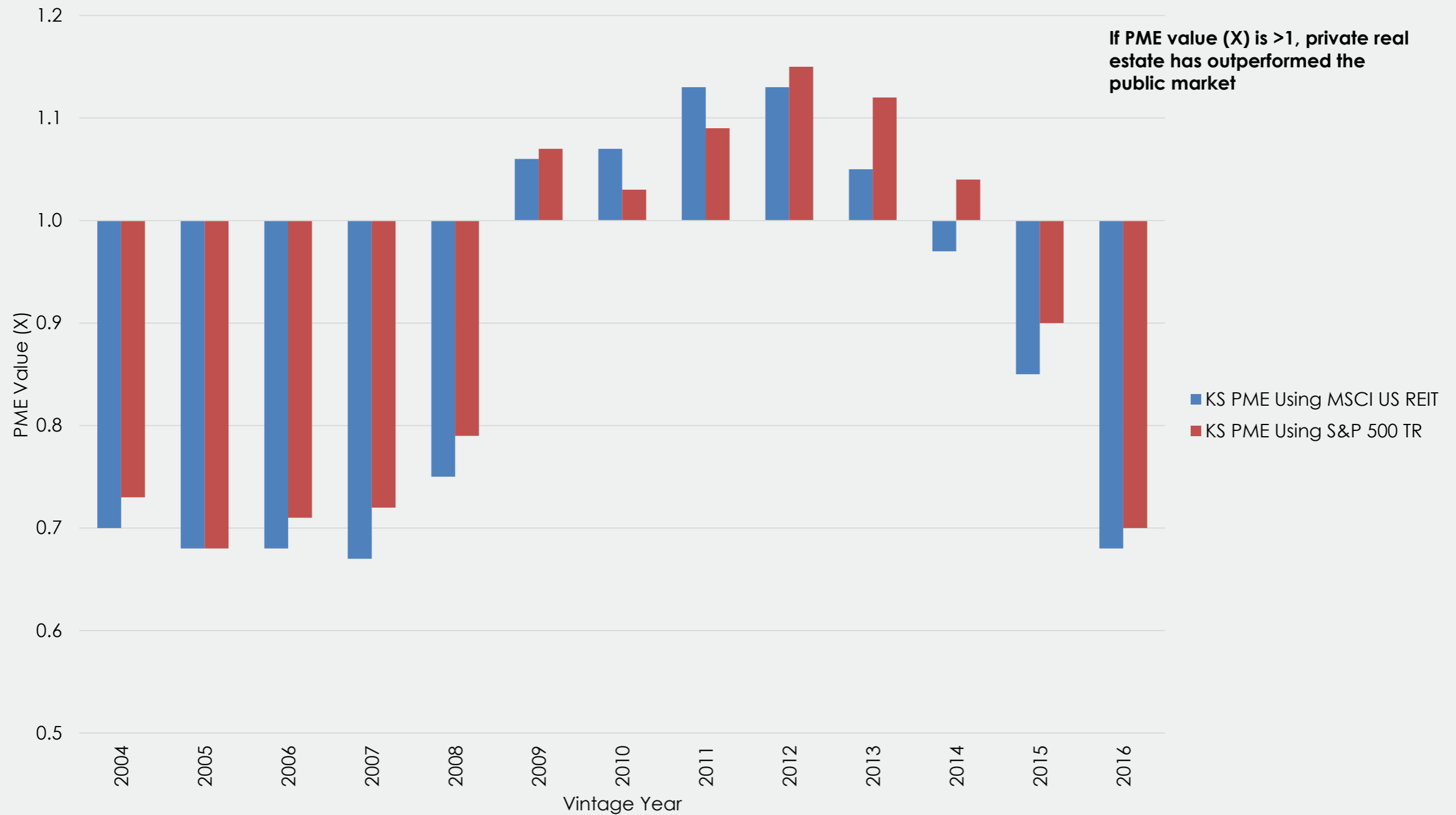
Source: Preqin Fund Manager Survey, November 2016

# Performance: PrEQin vs. Equity & REIT Indices



Source: Preqin Real Estate Online

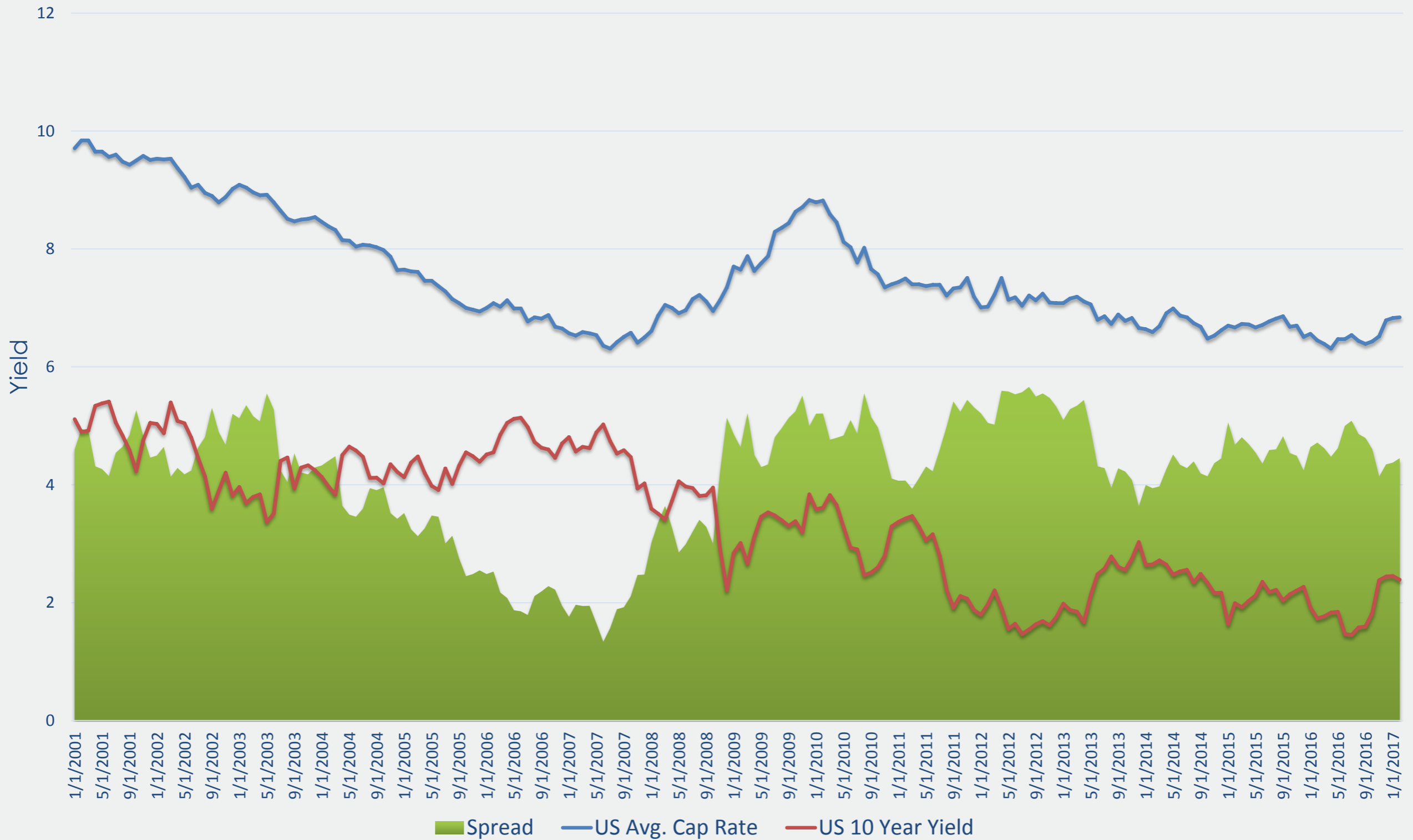
# Real Estate: Public Market Equivalent (PME)



Source: Preqin Real Estate Online

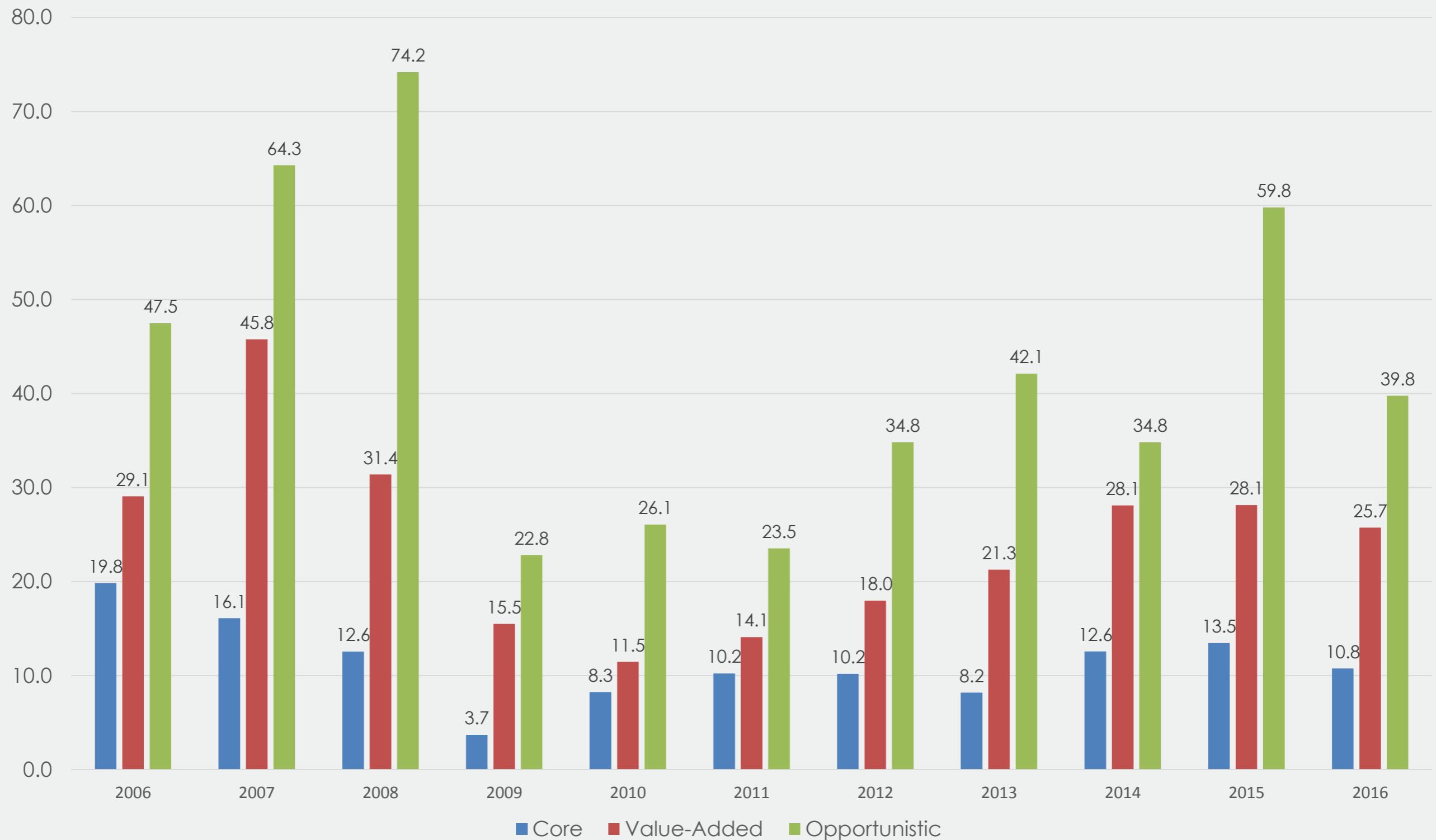


# US Average Cap Rate vs. US 10 Year Yield



Source: CAIA and Bloomberg

# Real Estate: Aggregate Capital Raised (\$bn)



Source: Preqin Real Estate Online

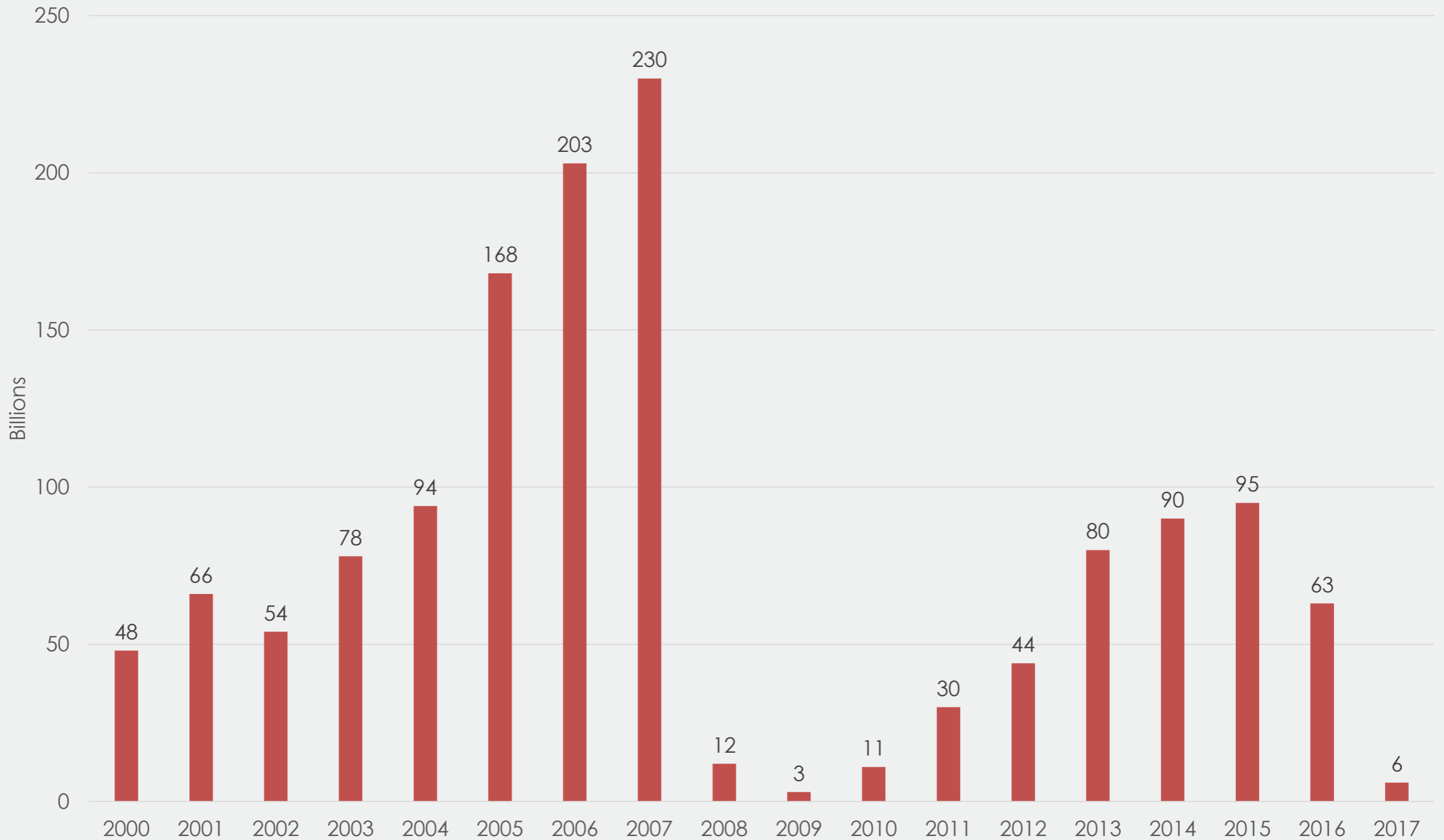
# Structured Products

Post Dodd-Frank, OTC trades are increasingly using central clearing to report and margin transactions in CDS indices, as well as single name corporate and sovereign CDS.



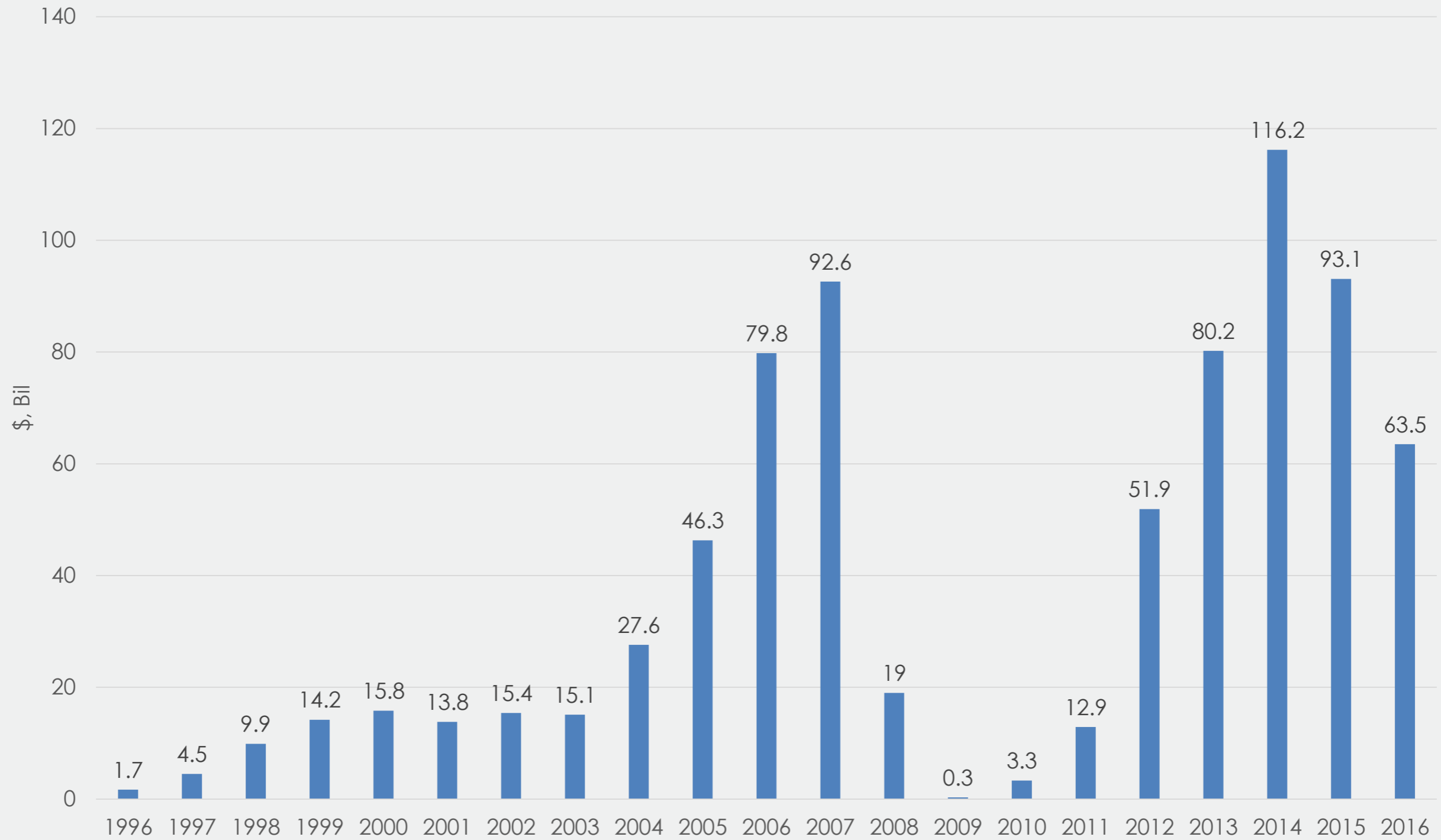
Source: ICE

# U.S. CMBS Issuance By Year



Source: CRE Finance Council

# Historical U.S. CLO Issuance



Source: The Royal Bank of Scotland, Fitch Ratings

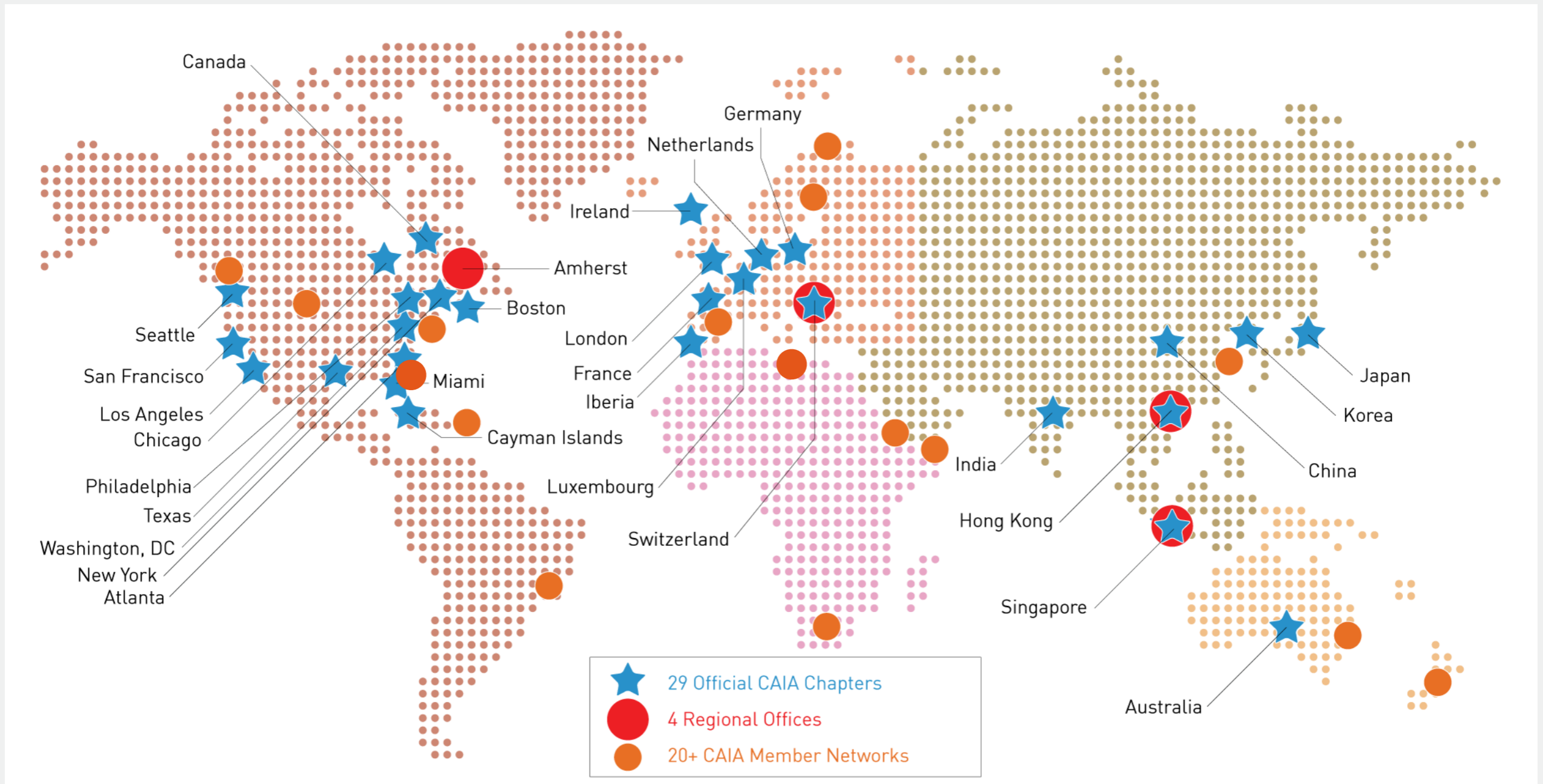


# The CAIA Charter

The Global Benchmark In Alternative  
Investment Education

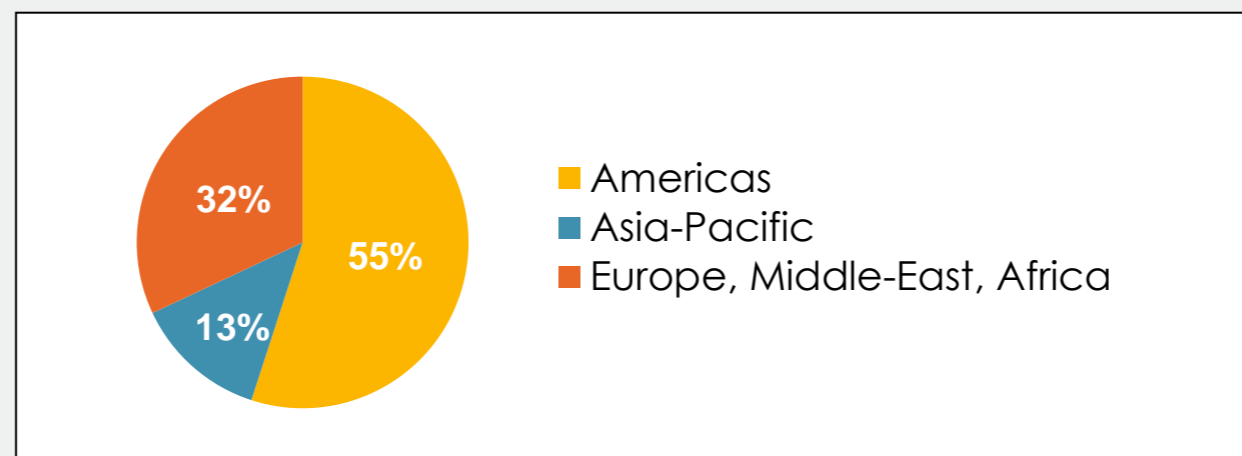
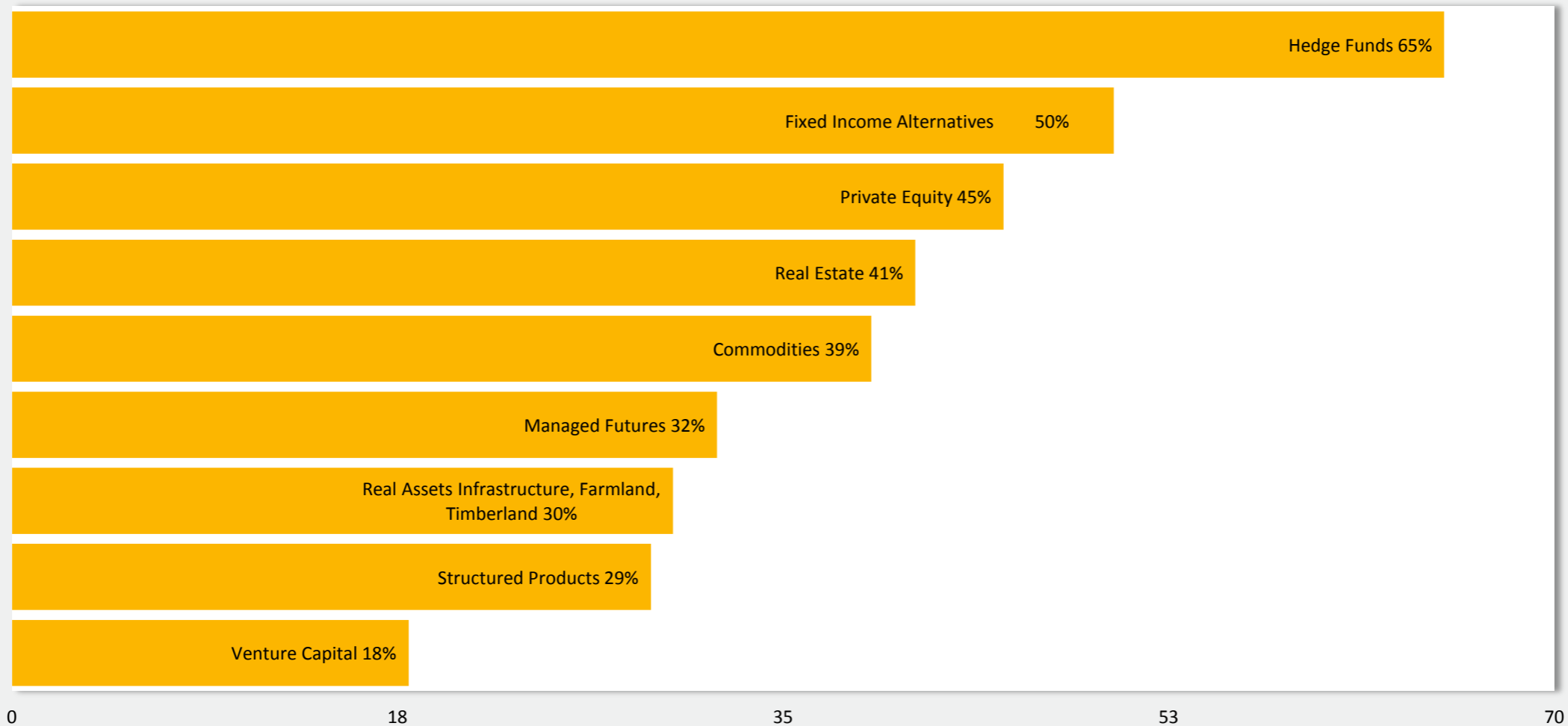
September 2017 Exam

# Global Presence



# Member Asset Class Focus and Regional Distribution

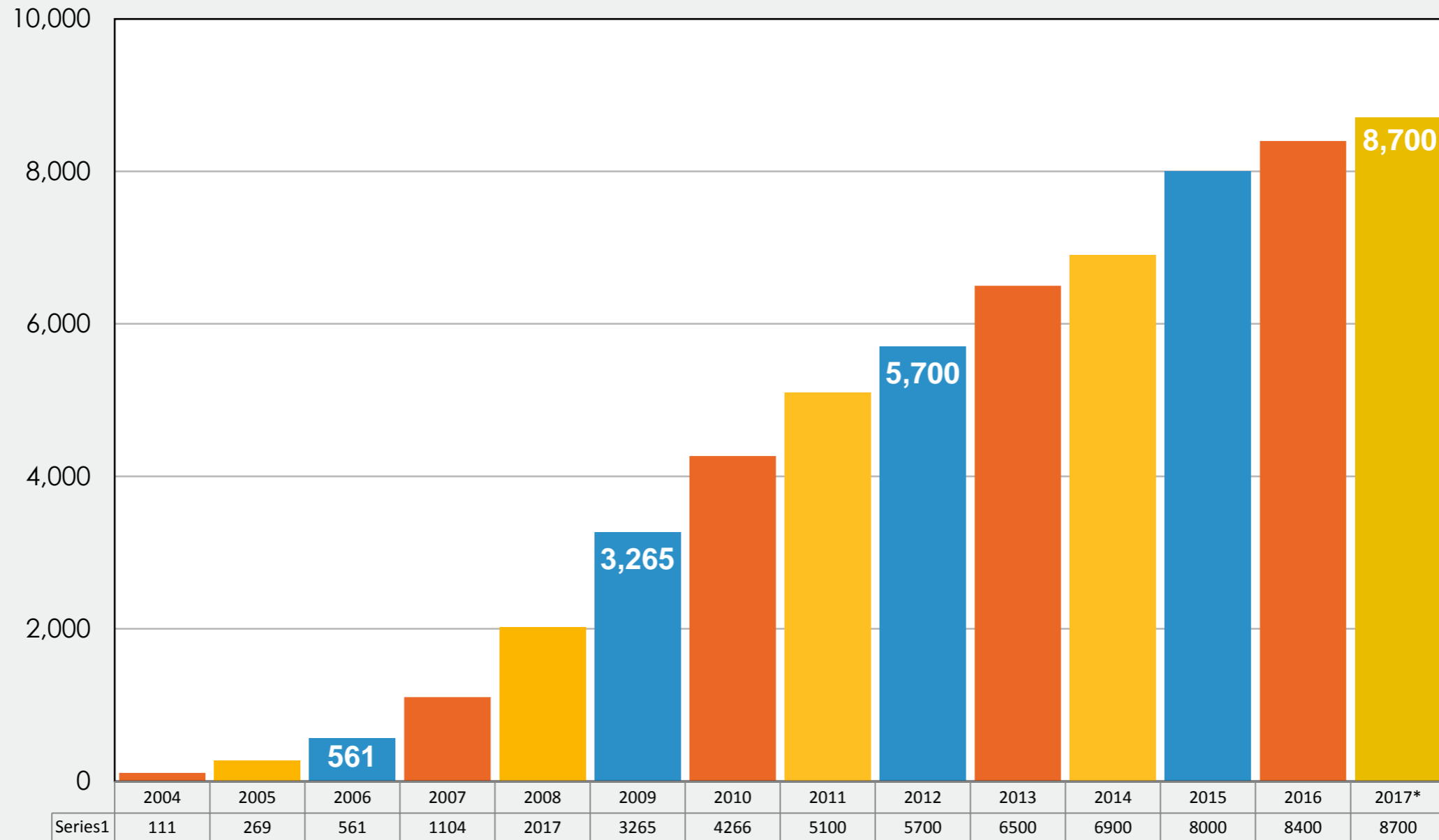
CAIA Members work across a variety of asset classes globally.



Data: Member Survey, December, 2015



# Membership Growth

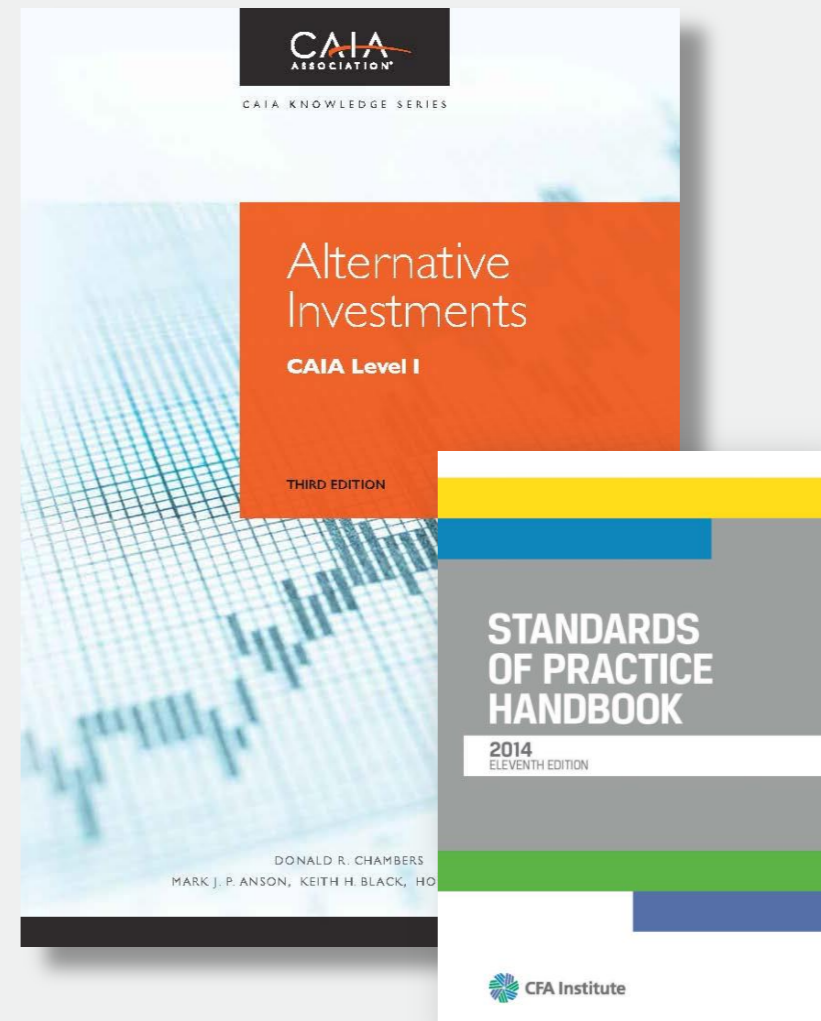


\*2016 Data through May 31, 2016

# Level I Curriculum – Third Edition

## Core Concepts

- Professional Standards & Ethics
- Introduction to Alternative Investments
- Real Assets
- Hedge Funds
- Private Equity
- Structured Products
- Risk & Portfolio Management



## Advanced Core Concepts

- Professional Standards & Ethics
- Venture Capital & Private Equity
- Hedge Funds & Managed Futures
- Real Estate/Real Assets
- Commodities
- Structured Products
- Manager Selection, Due Diligence & Regulation
- Research Issues & Current Topics
- Risk & Risk Management
- Asset Allocation & Portfolio Management



# Level II Curriculum Recent Changes

The 3<sup>rd</sup> Edition of the CAIA Level II textbook provides comprehensive data models, due diligence processes, analysis, and strategies to keep you current and relevant in the field of alternative investments.

## **New or Updated Topic Areas**

Enhanced coverage of:

- Family offices and sovereign wealth funds.
- Alternative investment groups, such as structured products and infrastructure
- Private equity
- Real assets
- Hedge funds including credit strategies and operational due diligence
- Structured products – featuring two sections focused on fixed-income derivatives and asset-backed securities, and insurance-linked products and hybrid securities

# Level I Exam Topics

<b>Level I Topic</b>	<b>Approximate Exam Weight</b>
Professional Standards and Ethics	15% – 20%
Introduction to Alternative Investments	20% – 25%
Real Assets including Commodities	10% – 20%
Hedge Funds	10% – 20%
Private Equity	5% – 10%
Structured Products	10% – 15%
Risk Management and Portfolio Management	5% – 10%

# Level II Exam Topics

Level II Topic	Approximate Exam Weight	
	Multiple Choice	Constructed Response
Professional Standards and Ethics	0%	10%
Current and Integrated Topics	0%	10%
Asset Allocation and Institutional Investors	8-12%	0-10%
Private Equity	11-15%	0-10%
Real Assets	13-17%	0-10%
Commodities	5-7%	0-10%
Hedge Funds and Managed Futures	18-22%	0-10%
Structured Products	5-7%	0-10%

# Examination Format and Scheduling

## Level I

Section 1: 100 questions / 120 minutes  
Section 2: 100 questions / 120 minutes

Both CAIA exams are administered internationally in computerized format exclusively at proctored Pearson VUE test centers.

## Level II

Section 1: 100 questions / 120 minutes  
Section 2: 3 essays / 120 minutes

Once you have purchased your Level I or Level II exam, you will receive a confirmation email with a link that will allow you to schedule your exam appointment.

# Candidate Support/Tools

- Study guides outlining keywords and learning objectives
- Workbooks with sample exercises
- Candidate orientation sessions
- Study calculator to plan your course of study
- Third-party preparatory course and programs
- Level I & Level II sample exams

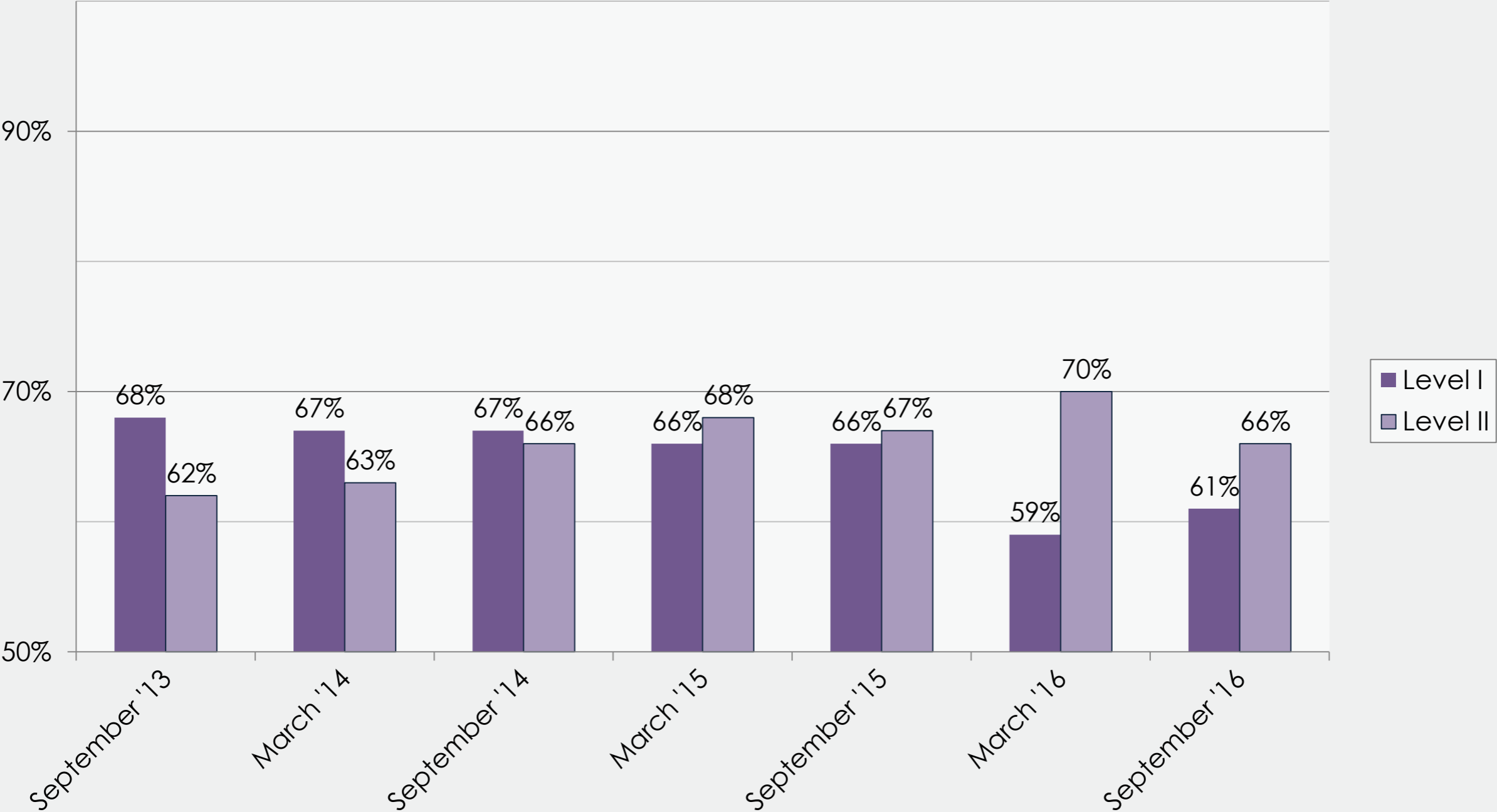




# Fees

<b>Fees (in USD)</b>	<b>Level I</b>	<b>Level II</b>	<b>Membership (annually)</b>	
Program Enrollment	\$400		Full	\$350
Exam Registration	\$1,250	\$1,250	Affiliate	\$175
TOTAL	\$1,650	\$1,250	Retired	\$175
Early Registration Discount	-\$100	-\$100		
Retake Fee	\$450	\$450		
<b>Curriculum cost (in USD)</b>	<b>Level I</b>	<b>Level II</b>		
Textbook & readings	\$125	\$125		
Standards of Practice handbook	\$0	\$0		

# Pass Rates





The Chartered Alternative Investment Analyst Association's Board of Directors  
does hereby confer the designation of

---

## Chartered Alternative Investment Analyst

---

upon

Charter Number 12345

who has successfully completed all the requirements prescribed for this designation.

In Testimony Whereof, this Charter is granted under the seal of the  
Chartered Alternative Investment Analyst Association this  
fourteenth day of October, 2015.



  
Mark Anson  
Director

  
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Director

  
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Alexander Ineichen  
Director

  
Jack Inglis  
Director

  
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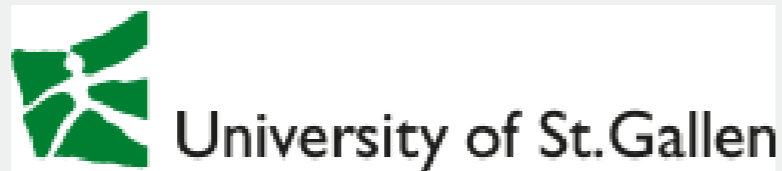
  
M. Jane Buchan  
Chair

  
William Kelly  
President & CEO

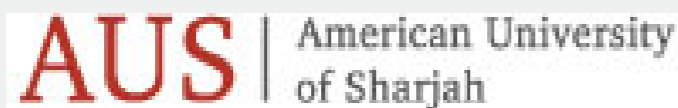
# Academic Partnerships - Americas



# Academic Partnerships - EMEA



Amsterdam Business School



A complete list of CAIA's academic partners globally can be found at [caia.org](http://caia.org).

# Academic Partnerships - APAC



A complete list of CAIA's academic partners globally can be found at [caia.org](http://caia.org).

# Association Partnerships



# Sample Employers

Banks	Consultants	Fund Managers	Regulators	Pension Funds & Endowments
<p>HSBC Citi Credit Suisse UBS Barclays Capital Deutsche Bank</p>	<p>Cambridge Associates  New England Pension Consultants  Mercer  Towers Watson</p>	<p>Blackrock Goldman Sachs J.P. Morgan Morgan Stanley State Street</p>	<p>U.S. SEC MAS Singapore SFC Hong Kong FCA UK CIMA Cayman</p>	<p>APG  Teacher Retirement System of Texas Chicago Teachers Ontario Teachers CalPERS  Harvard Management Co.</p>



# CAIA is Preferred

Top companies seek to hire CAIA Charterholders.  
*Sample job postings from the CAIA Career Center*



Risk Management - Associate  
Industry certifications, such as a  
CFA, **CAIA**, or FRM, are a plus.



**BNY MELLON**

International Relationship  
Manager. CFA, **CAIA** or working  
toward preferred.



Senior Quantitative Research  
Analyst. CFA, **CAIA**, CIMA



Equity Investment Research -  
Manager. CIMA, **CAIA**, and/or  
CFA charter holders or candidates  
will be looked favorably upon.

**BLACKROCK**

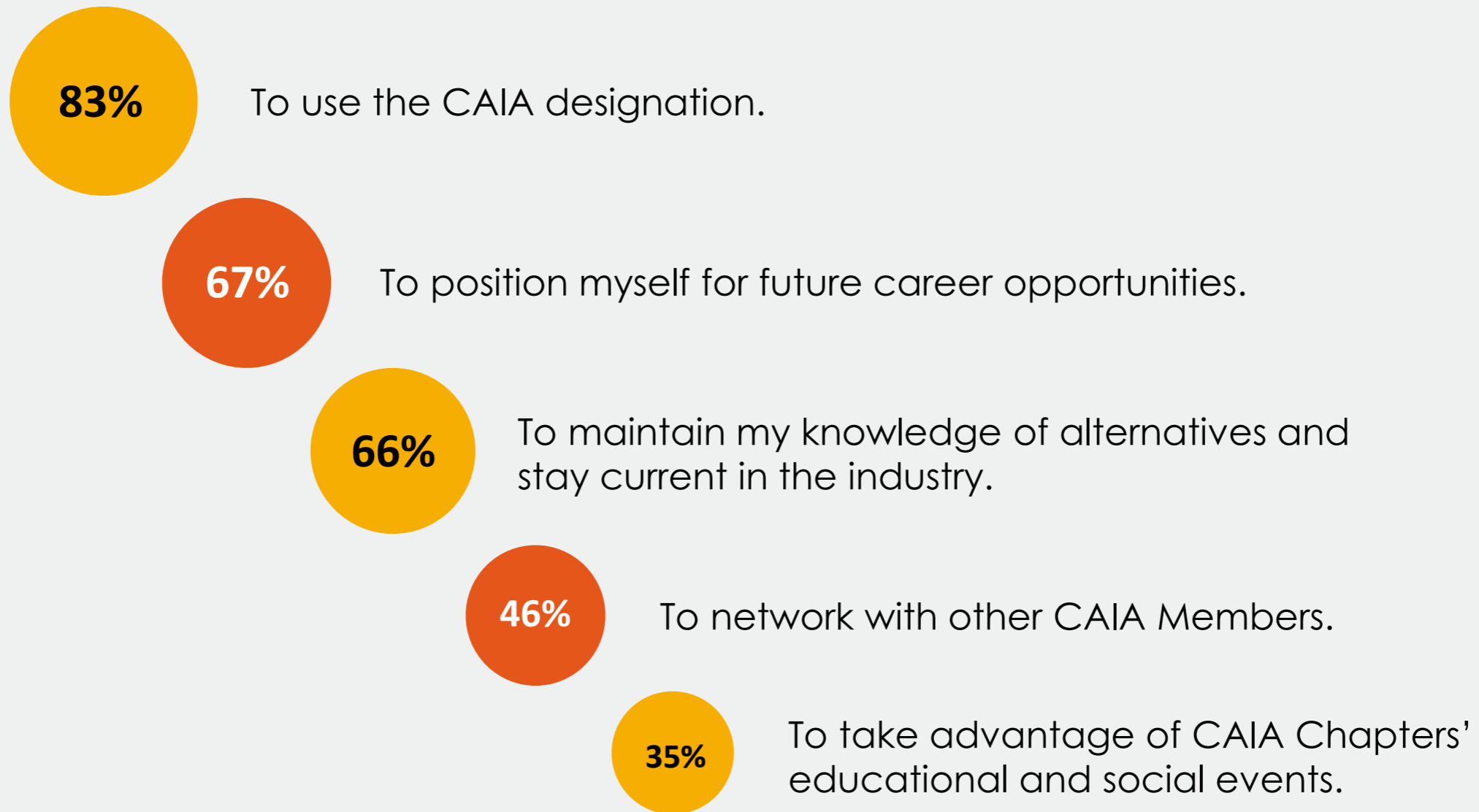
International Trading Manager  
MBA, CFA, **CAIA** or CMT preferred



Senior Credit Specialist  
CFA / **CAIA** / FRM / PRM is  
considered highly advantageous.

# Career Value of the CAIA Charter

Why maintain an active CAIA membership? Here's what Members say.



# Member Benefits

- Use of CAIA marks in professional documents
- Chapter educational and networking events
- Global network of more than 8,700 Members
- Globally-recognized designation
- Education and Research at CAIA.org
- Self-evaluation Tool
- Ongoing education
- CAIA Career Center



**Career Center**

CAIA's Career Center is an easy-to-use, comprehensive resource connecting job seekers with employers in the growing AI field. Use your knowledge and credibility to advance your career or build a talented team for your organization. Opportunities targeted to CAIA Charterholders are prioritized.

**For Employers**  
Register  
View Options

**Job Seekers**  
Search Jobs  
Post Resume

**My Profile**

**CAIA Programs**

Chapters  
Career Center  
Education & Research  
Journal of AI  
Get Involved

**CAIA ASSOCIATION**

**Alternative Investment Analyst Review**

**EDITOR'S LETTER**  
You Could Be Wrong Even When You are Right  
Hossein Kazemi

**WHAT A CAIA MEMBER SHOULD KNOW**  
Introductory Guide to Investing in Private Equity Secondaries  
Jochem Merckx, Joseph S. Morris, Karol Ferenbellov, Capital Dynamics

**RESEARCH REVIEW**  
The Persistence of Smart Beta  
Hannah Pearson, Tim Edwards, Craig Lazzara, S&P 500 Index  
New Evidence on Whether Gold Mining Stocks Are More Like Gold or Like Stocks  
Mark A. Johnson, Douglas J. Lamdin, Loyola University Maryland, University of Maryland

**CAIA MEMBER CONTRIBUTION**  
Assessing Risk of Private Equity: What's the Proxy?  
Alexandra Couper, PAAMCO

**INVESTMENT STRATEGIES**  
Understanding the Kelly Capital Growth Investment Strategy  
Dr. William F. Ziemba

**FEATURED INTERVIEW**  
Hedge Fund Investing: A Conversation with Kevin Mirabile  
SIDDHANT MOHANTY, CAIA Association

**PERSPECTIVES**  
Dynamic Asset Allocation as a Response to the Limitations of Diversification  
Thomas Ziemba, Ph.D., Taylor College, Atlanta Global Investors

**VC-PE INDEX**  
Mike Nugent and Mike Roth, Blon

**THE MSCI GLOBAL INTEL REPORT**  
Max Arthey, MSCI Real Estate

Q3 2016, Volume 5, Issue 2

# Exams September 2017 – Notable Dates



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# The CAIA Charter

The Global Benchmark In Alternative  
Investment Education

[www.caia.org](http://www.caia.org)