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Oklahoma State Pension Commission

Public Fund Analysis

June 13, 2012

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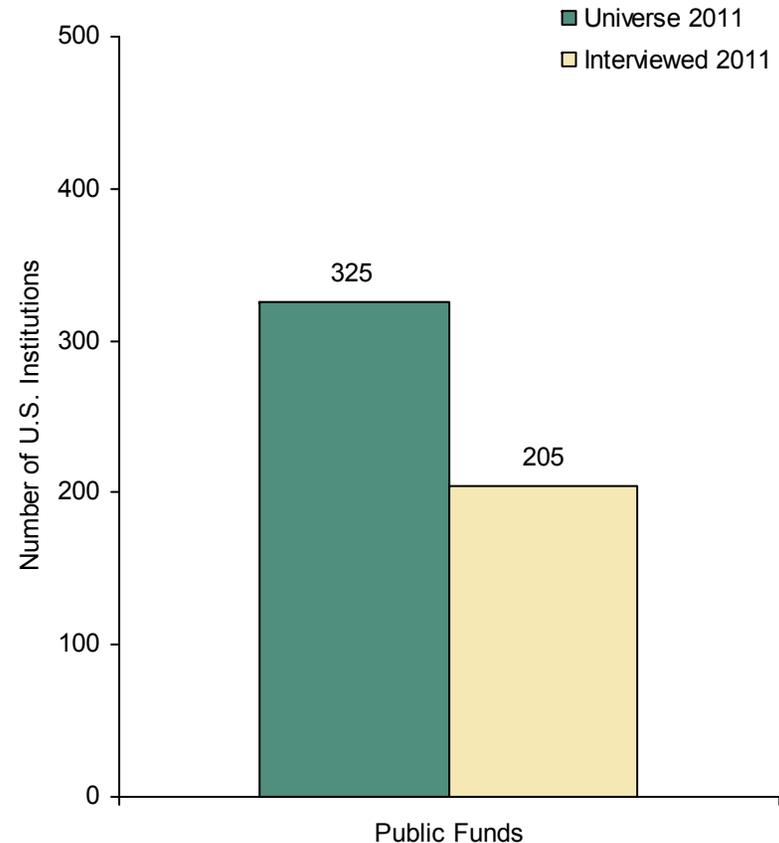


GREENWICH
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Greenwich Associates Proprietary Research – Public pension plans.

- Each year Greenwich Associates interviews, in person ~1,000 U.S. corporate and public pension plans, endowments and foundations and union funds with total assets over \$250 million.
- These in-person interviews were conducted from July through October of 2011.
- We interviewed 205 public funds, including 125 each with over \$1 billion in plan assets.

Greenwich Associates' Universe of U.S. Institutional Investors and Research Coverage 2011



Source: Greenwich Associates 2011, U.S. IMF-11.

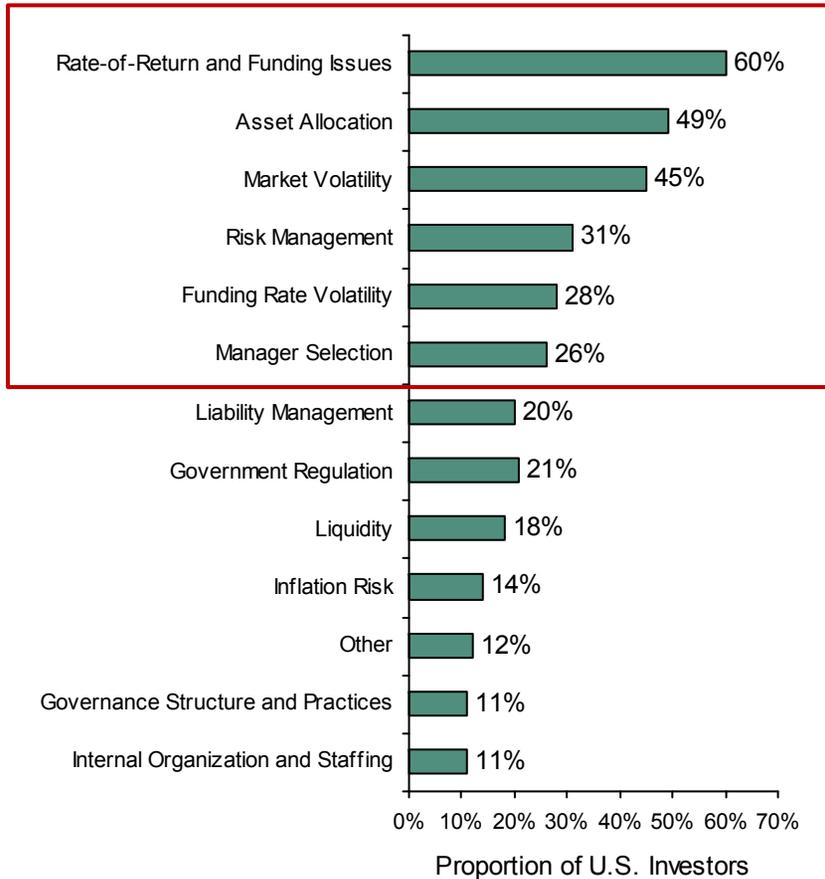
U.S. investors are U.S.-based institutional investors with domiciled assets in onshore and offshore accounts with combined account holdings greater than \$250 million. U.S. Investors are tax-exempt corporate funds, public funds, union funds, endowment and foundation funds, located in the United States.

Summary of Key Findings

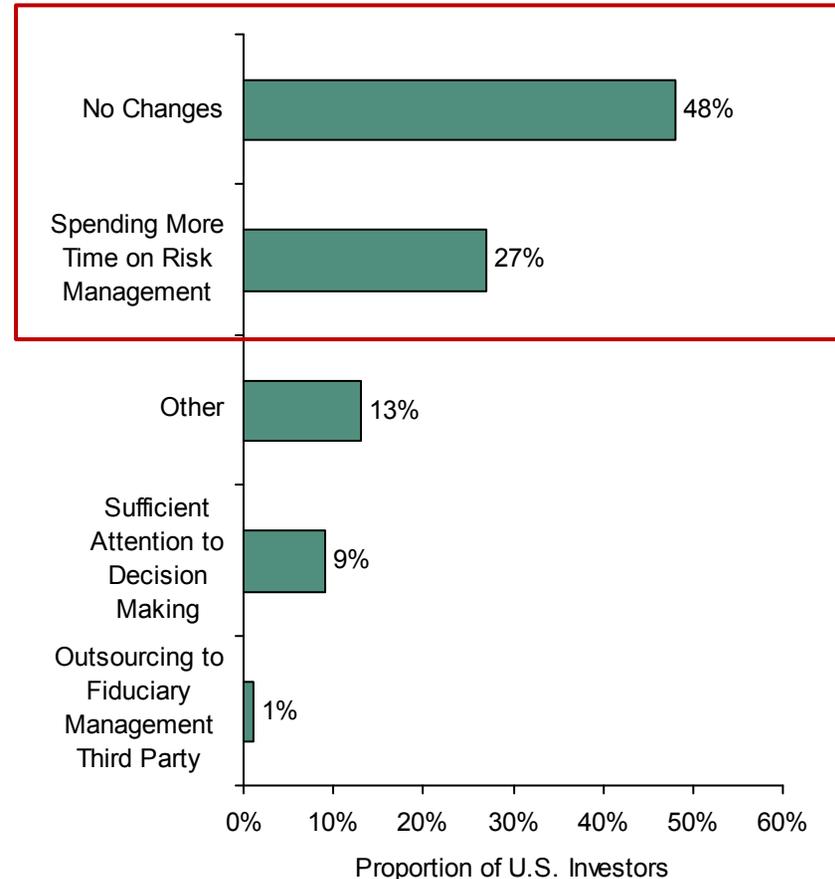
- In an overall economic situation of low growth and increased volatility, the conflict of underfunded status and a desire to lower risk continue to drive public fund investor behaviors.
- The need for returns has generally trumped the need to take down risk.
 - The math required to reach the required returns while derisking simply doesn't work and the answers for investors are neither obvious nor easy.
 - Institutional allocation to fixed income has declined in favor of international equity. Allocations to hedge funds have pulled back slightly while alternatives were stable overall.
- The conundrum drives innovation and product demand within traditional asset classes.
 - In fixed income, investors move towards specialty mandates and global to increase yield.
 - In equities, emerging markets and global equities lead.
- Alternatives continue to be a key part in creating portfolios with lower overall risk while meeting return targets. Risk parity is an interesting development.
- The commitment to active management remains strong.
- Headline risk, political and regulatory uncertainty adds meaningfully to the challenges.

U.S. public funds continue to navigate the conflicting demands of underfunded plan status and the need to manage volatility and risk; funds respond by spending more time on risk management.

Most Important Issues Facing Public Funds 2011



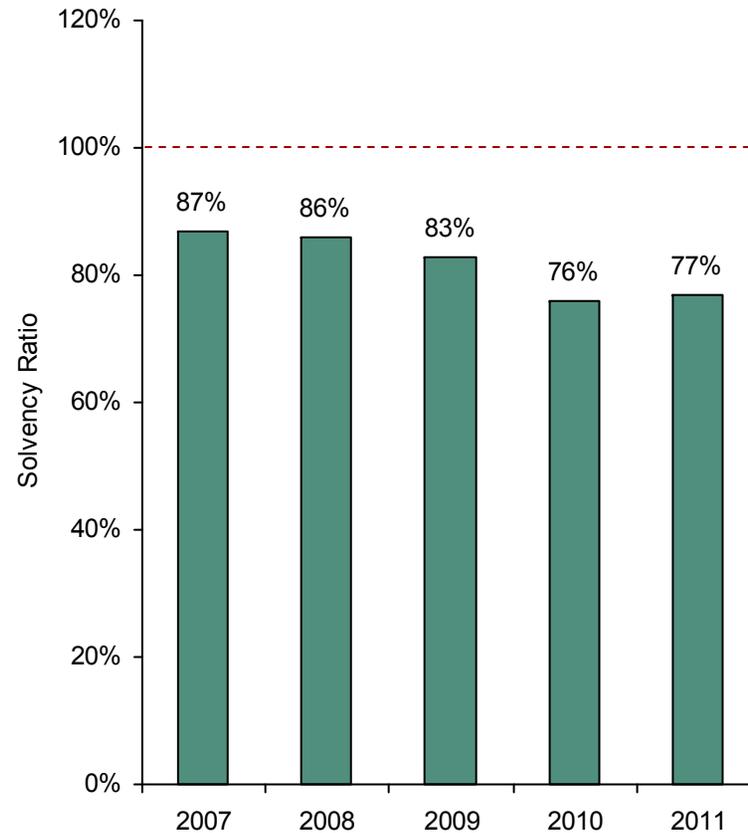
Public Funds' Changes to Governance Since Financial Crisis, 2011



Source: Greenwich Associates 2011, U.S. IMF-11.

Despite reported returns of 18%, mean funding ratios remain severely depressed.

U.S. Public Funds' Average Solvency Ratio of Defined Benefit Plans

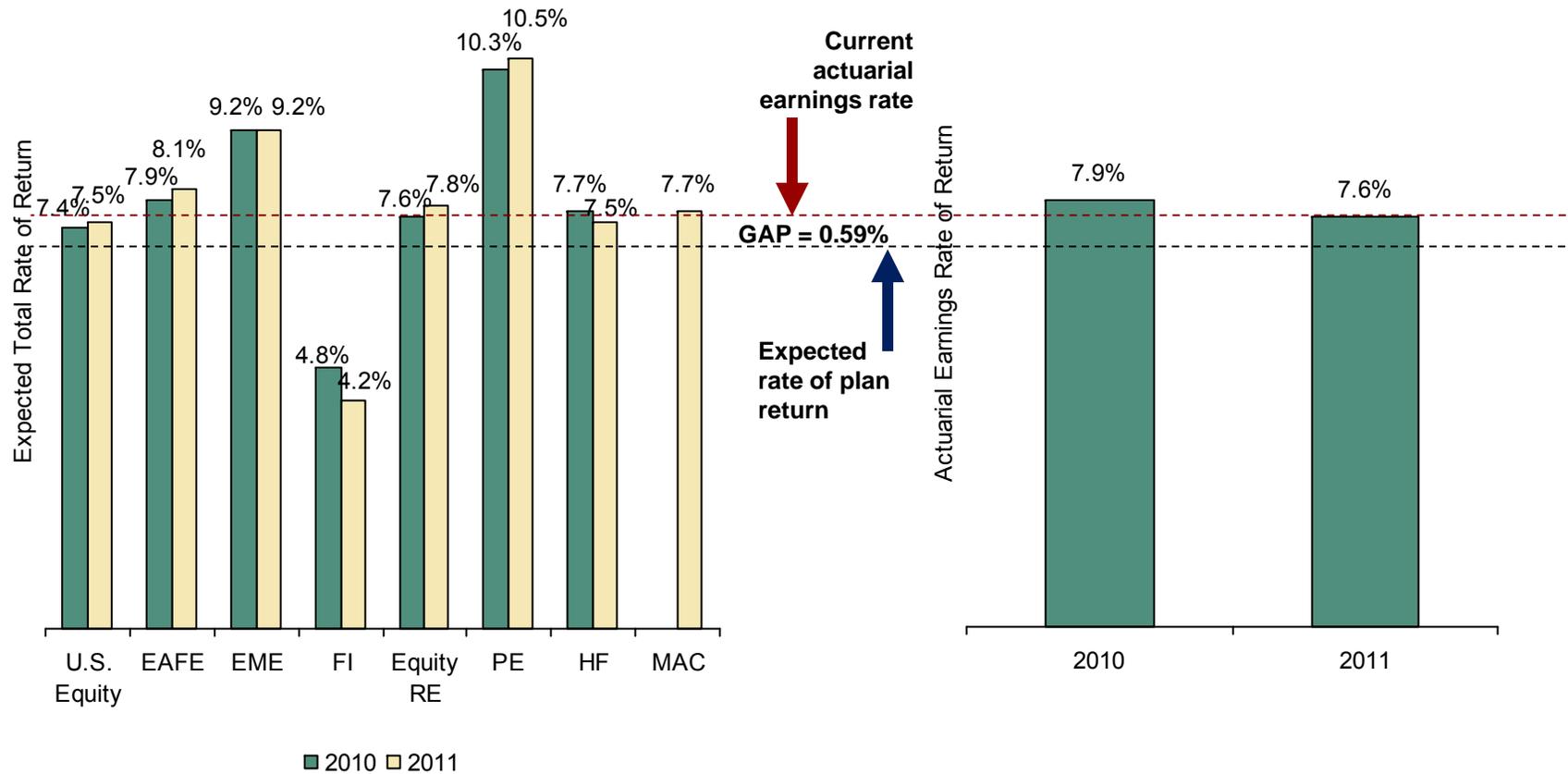


Source: Greenwich Associates 2011, U.S. IMF-11.
Mean calculation excludes reported answers of "0" and / or "None".

Public funds have increased their return expectations in most asset classes, fixed income being the most notable exception.

U.S. Public Funds' Anticipated 5-Year Average Return on Defined Benefit Plan Assets

U.S. Public Funds' Average Actuarial Earnings Return on Defined Benefit Plan Assets



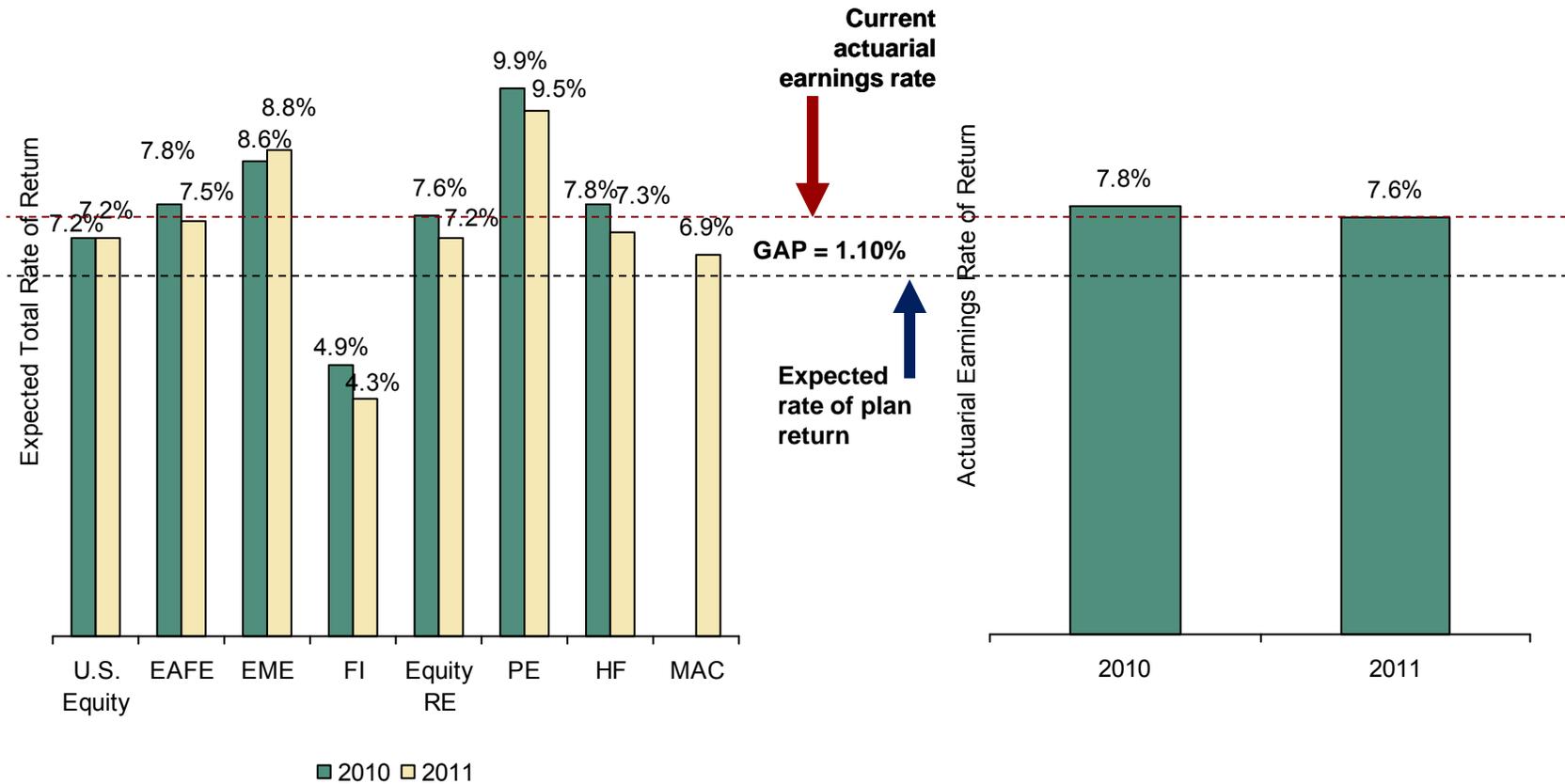
Source: Greenwich Associates 2011, U.S. IMF-11. Mean calculation excludes reported answers of "0" and / or "None."

Source: Greenwich Associates 2011, U.S. IMF-11. Mean calculation excludes reported answers of "0" and / or "None."

As a point of reference, corporate pension plans have significantly lower return assumptions.

U.S. Corporate Funds' Anticipated 5-Year Average Return on Defined Benefit Plan Assets

U.S. Corporate Funds' Average Actuarial Earnings Return on Defined Benefit Plan Assets

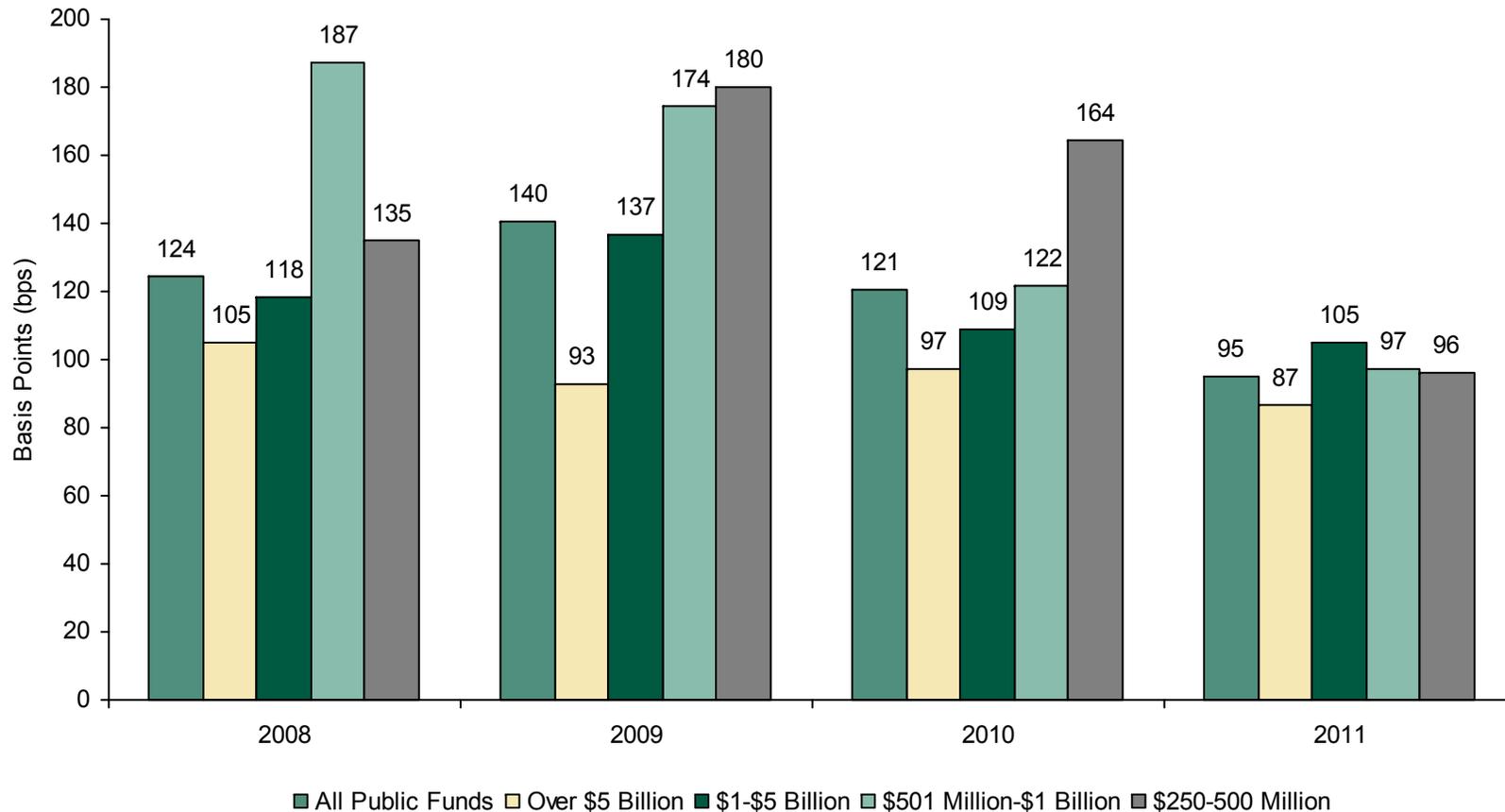


Source: Greenwich Associates 2011, U.S. IMF-11. Mean calculation excludes reported answers of "0" and / or "None."

Source: Greenwich Associates 2011, U.S. IMF-11. Mean calculation excludes reported answers of "0" and / or "None."

The commitment to active management remains strong with expectations for out-performance by external active managers at levels which, albeit slightly lower than in recent years, will be challenging to achieve.

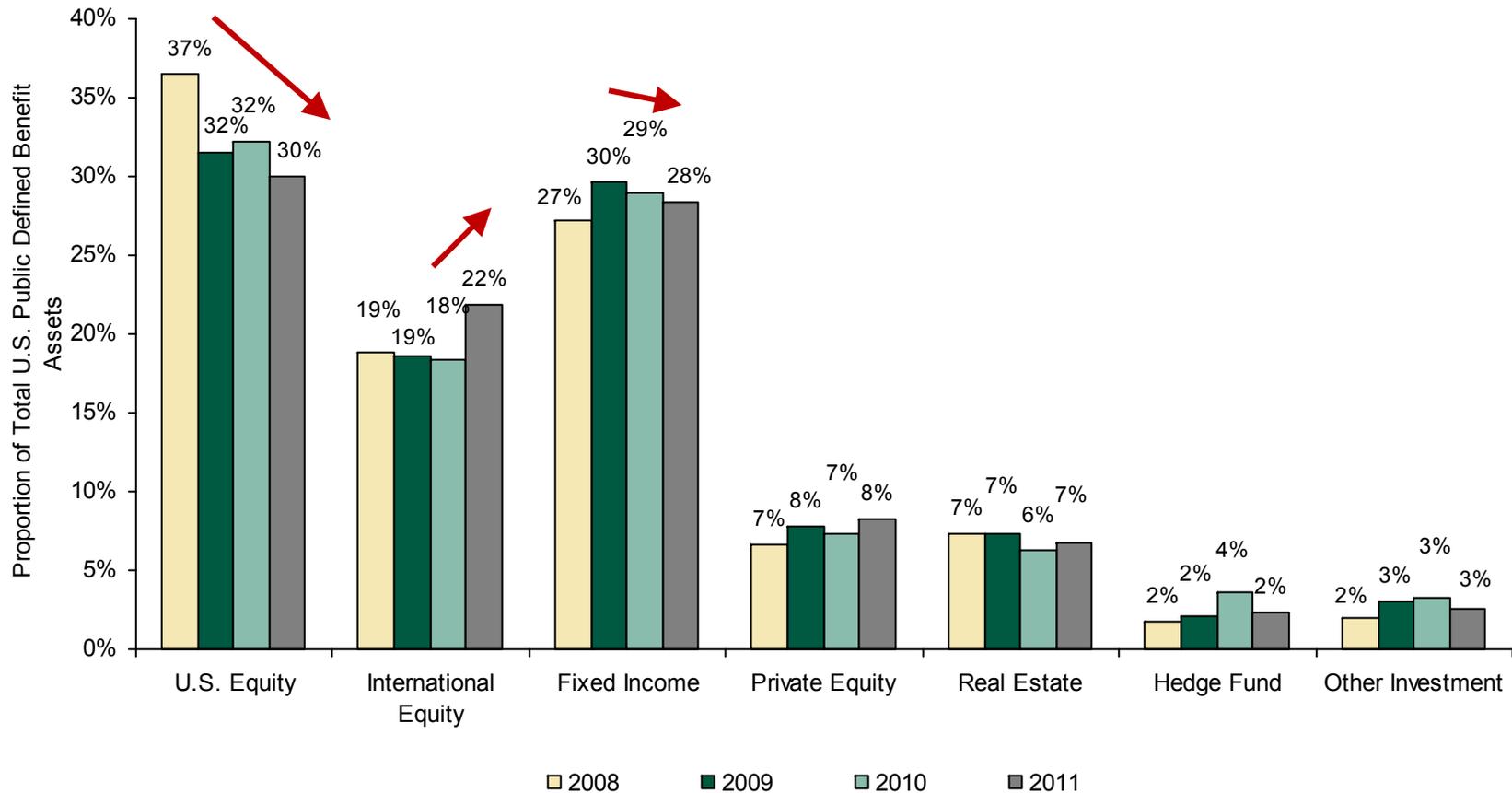
U.S. Public Funds' Average Expected Out-Performance, Net of Fees, for External Managers



Source: Greenwich Associates 2011, U.S. IMF-11.
Mean calculation shown. Results are net of fees.

Public funds' asset allocation showed notable increases in international equity allocations at the expense of U.S. equity and hedge funds.

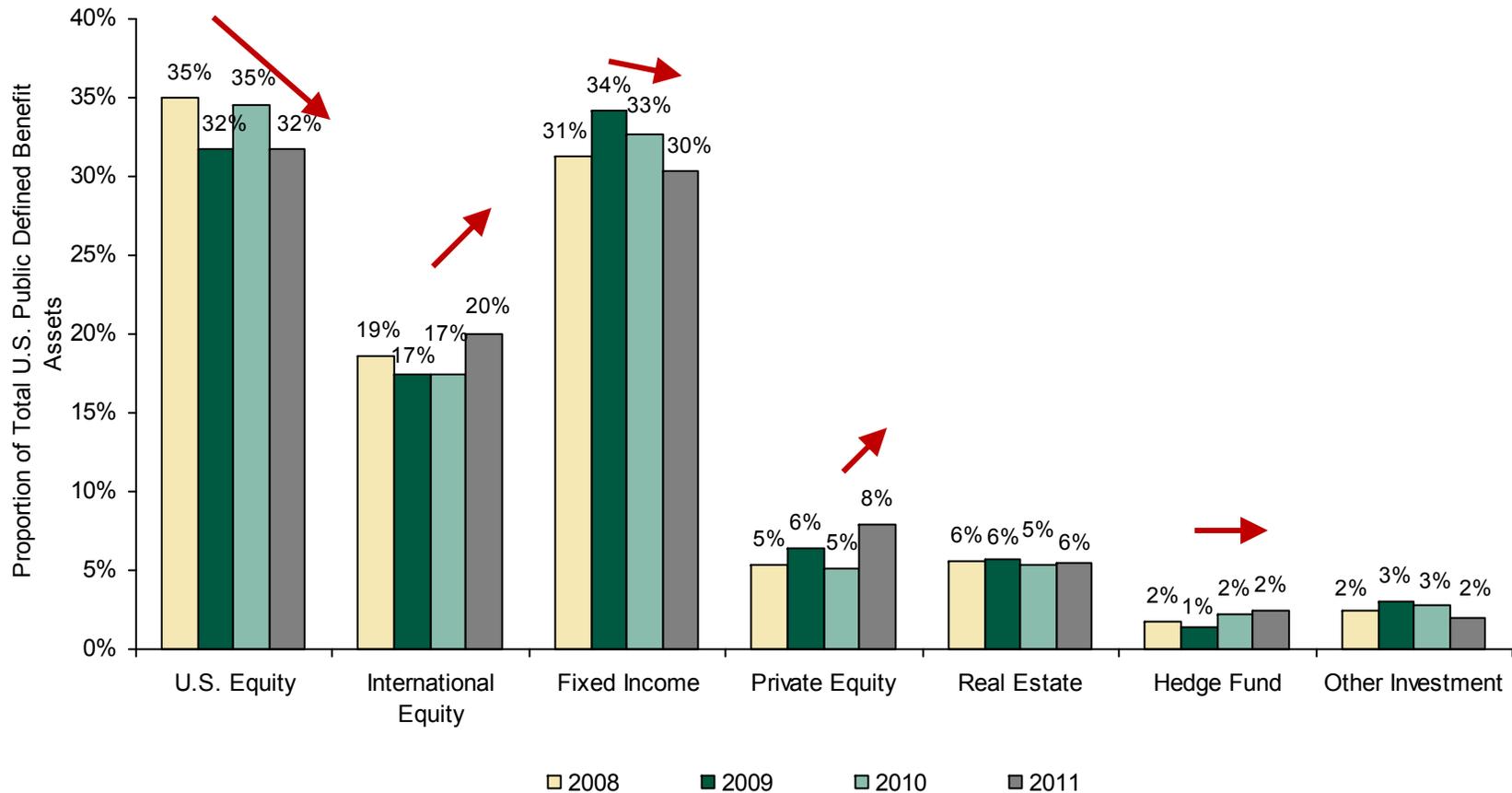
U.S. Public Funds' Institutional Asset Allocation (DB, Investment Pools, Excluding DC)



Source: Greenwich Associates 2011, U.S. IMF-11.
 U.S. assets are projected to the 2011 Greenwich Associates universe of 2,268 U.S. institutional investors with \$250 million or more in total assets. Percentages are dollar-weighted.
 Results are for institutional assets only: corporate and union fund defined benefit plan assets; public fund defined benefit plan assets; endowment and foundation fund investment pool assets.

A matched sample confirms these trends and also shows private equity up and hedge funds stable.

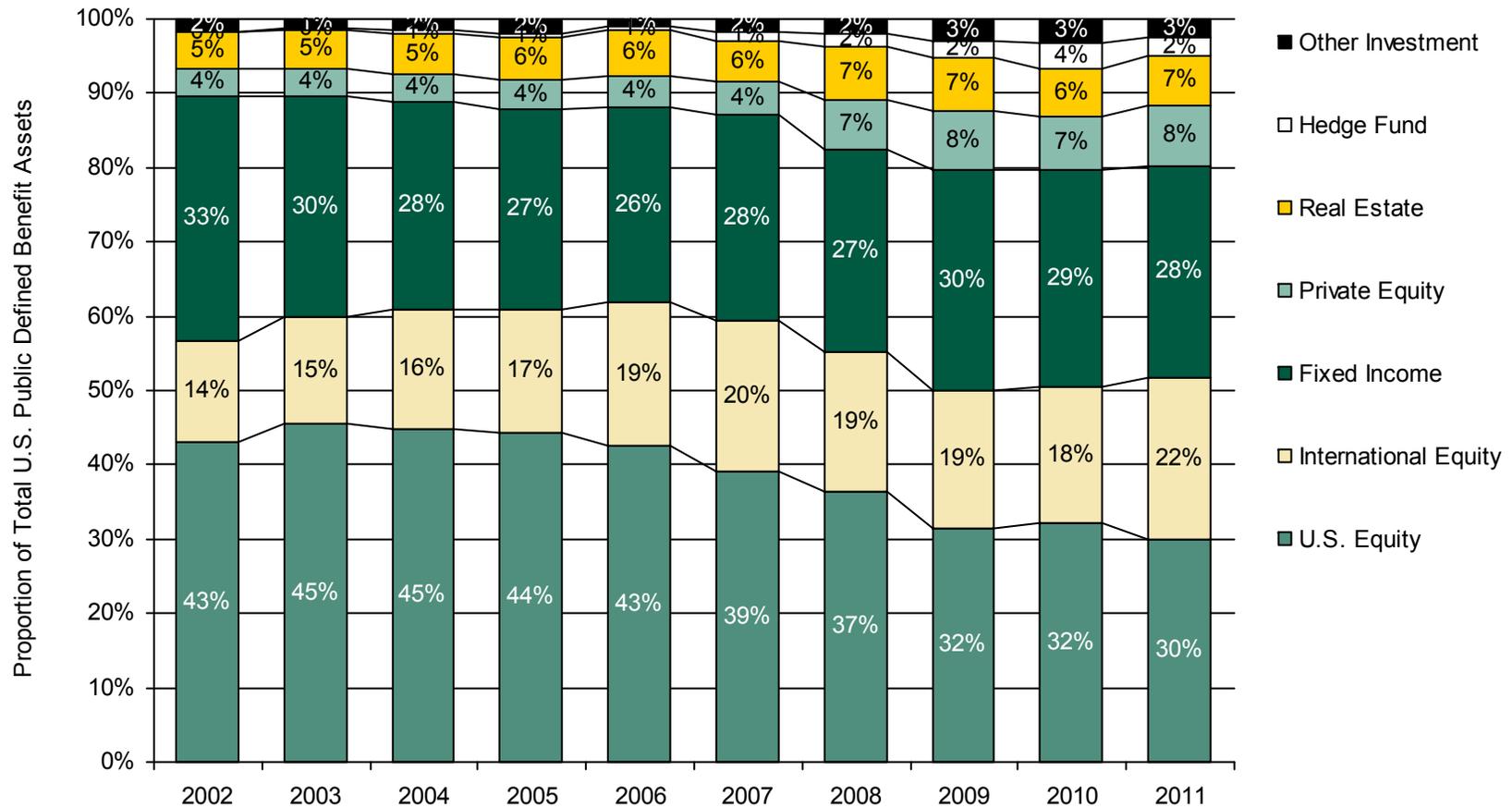
U.S. Public Funds' Institutional Asset Allocation, Matched Sample (DB, Investment Pools, Excluding DC)



Source: Greenwich Associates 2011, U.S. IMF-11.
 U.S. assets are projected to the 2011 Greenwich Associates universe of 2,268 U.S. institutional investors with \$250 million or more in total assets. Percentages are dollar-weighted.
 Results are for institutional assets only from a matched sample of 96 institutional investors in 2008, 2009, 2010, and 2011.

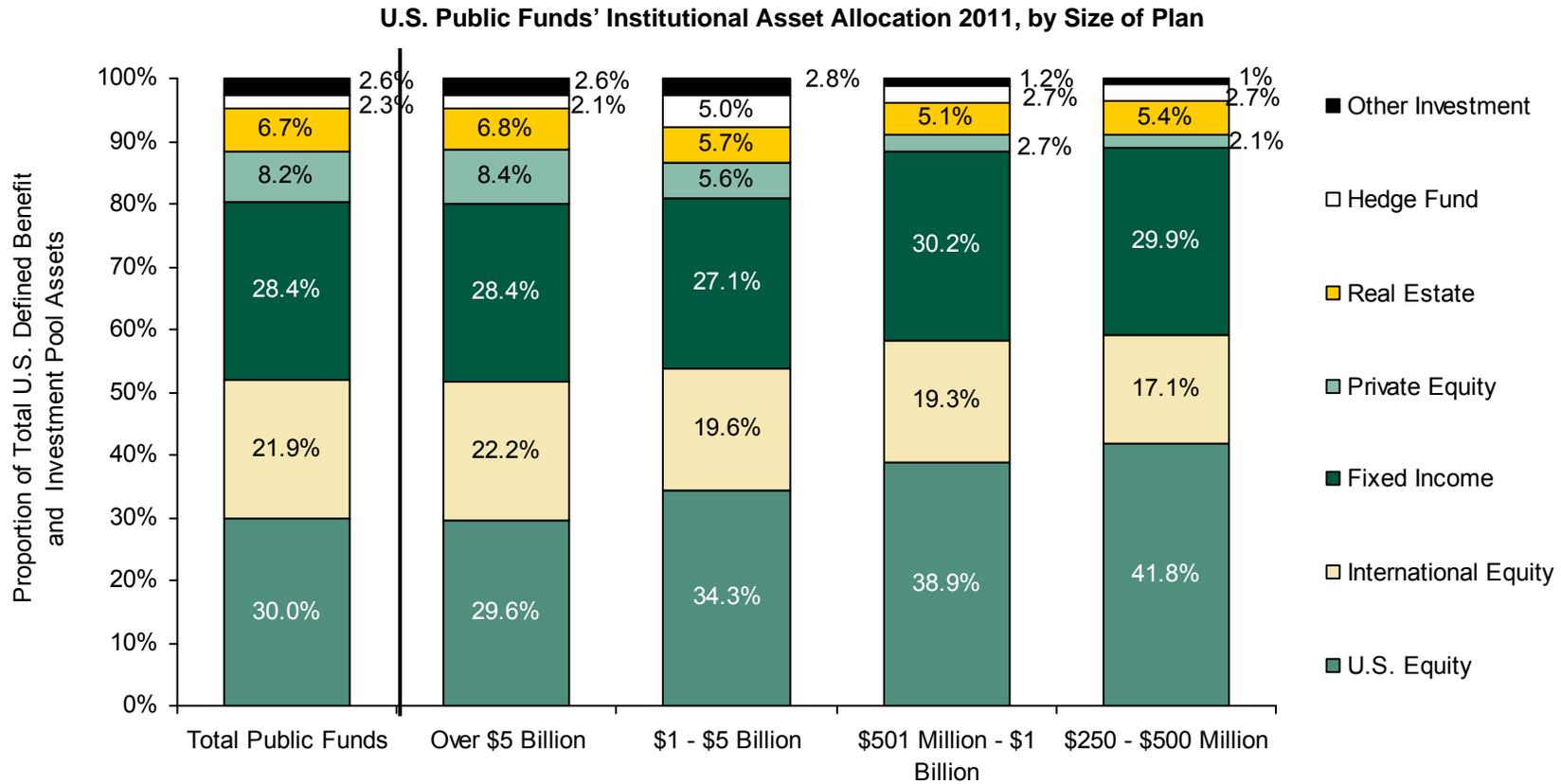
The shift out of U.S. equities into international equities and alternatives started before the financial crisis but accelerated as a result of it.

U.S. Public Funds' Institutional Asset Allocation (DB, Excluding DC)



Source: Greenwich Associates 2011, U.S. IMF-11. U.S. assets are projected to the 2011 Greenwich Associates universe of 2,268 U.S. institutional investors with \$250 million or more in total assets. Percentages are dollar-weighted. "Other investments" represent allocations to money market and other investments. Results are for public fund defined benefit plan assets.

Larger public funds have significantly lower U.S. equity allocations and rely more on alternatives than their smaller peers.



2011 Average Blended Plan Return

18%

19%

16%

19%

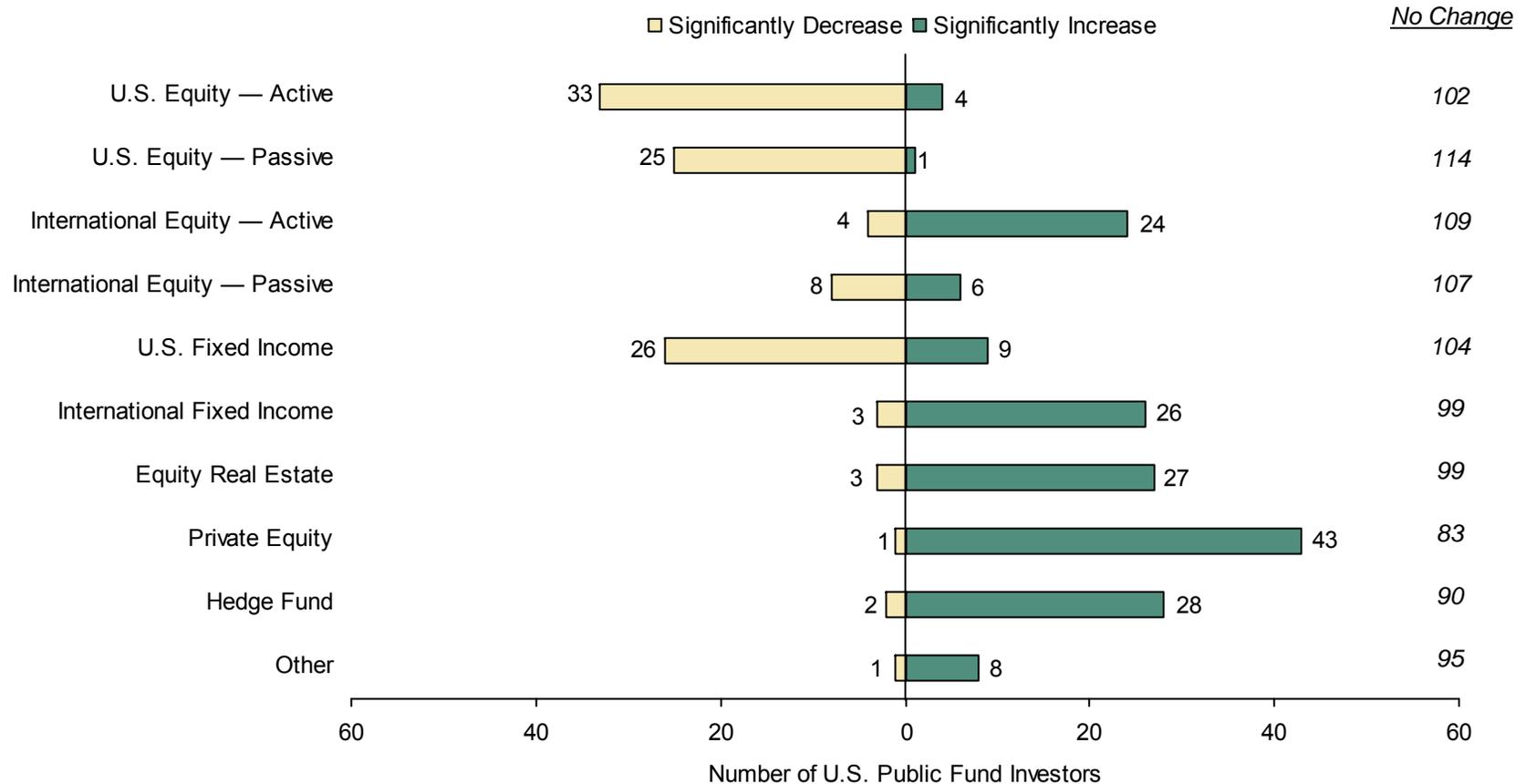
20%

Source: Greenwich Associates 2011, U.S. IMF-11.

U.S. assets are projected to the 2011 Greenwich Associates universe of 2,268 U.S. institutional investors with \$250 million or more in total assets. Percentages are dollar-weighted. Results are for institutional assets only.

Looking forward, public funds expect to continue the move into international investments and into alternatives.

U.S. Public Funds' 3-Year Institutional Asset Allocation Expectations

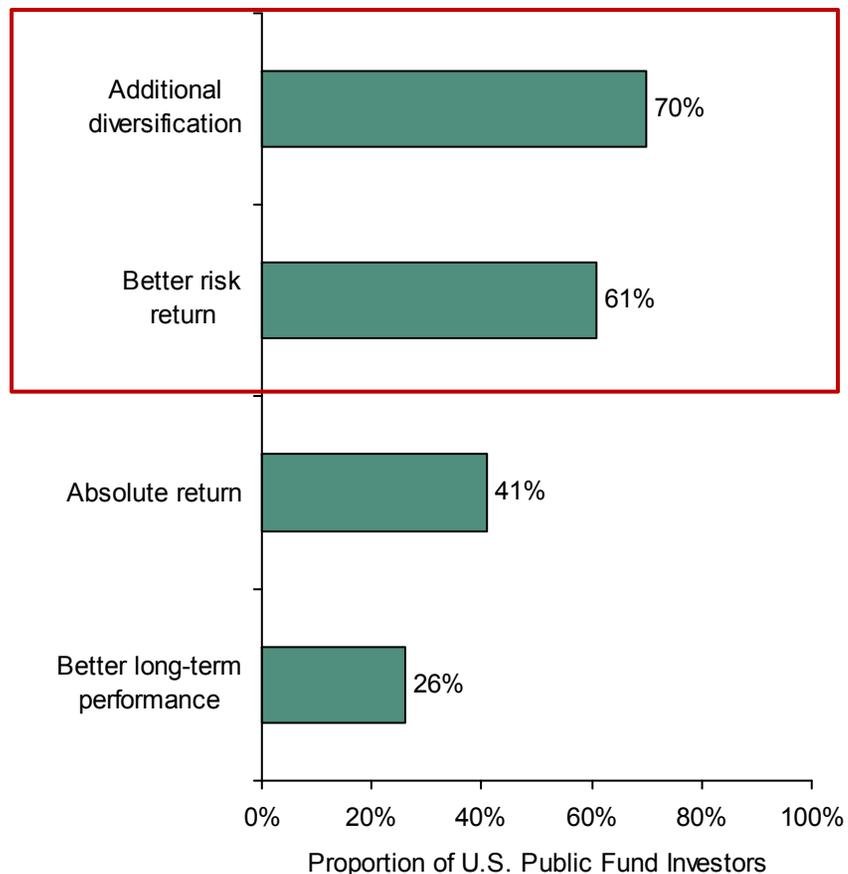


Source: Greenwich Associates 2011, U.S. IMF-11.

Note: Three year outlook. "No Change" column indicates number of U.S. investors with no allocation changes planned for a given asset class. Results are for public fund defined benefit plan assets.

Hedge funds continue to be an important part of portfolios, primarily as a way of achieving increased diversification and risk/return rather than better absolute returns.

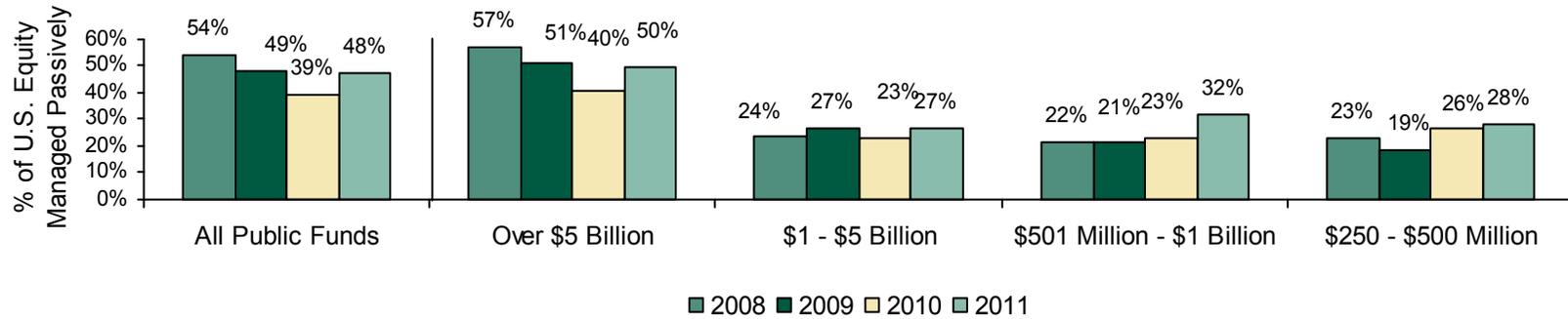
U.S. Public Funds' Investment Objectives for Hedge Fund Investments 2011



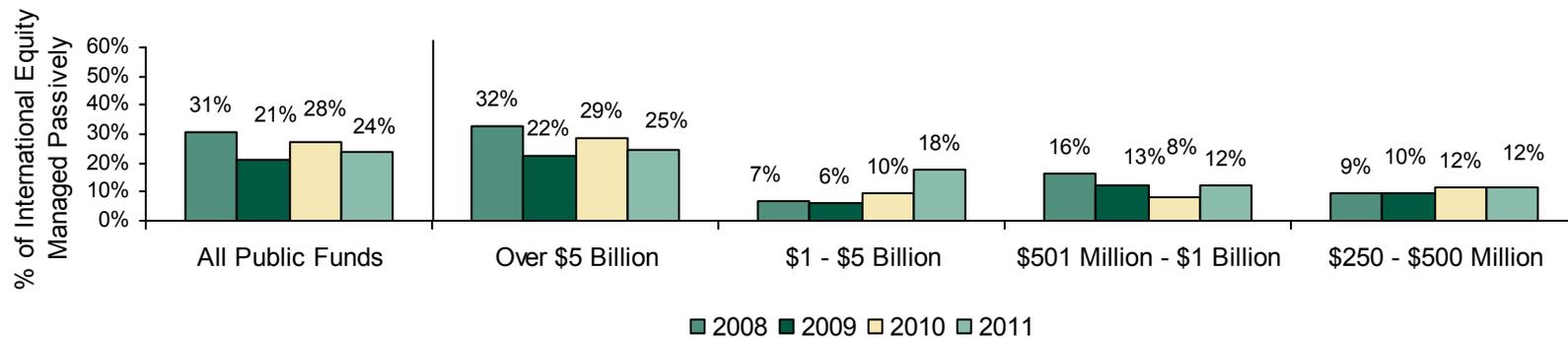
Source: Greenwich Associates 2011, U.S. IMF-11.

The very largest funds tend to have a significantly higher degree of indexing in their portfolios.

U.S. Public Funds' Institutional U.S. Equity Assets Managed Passively



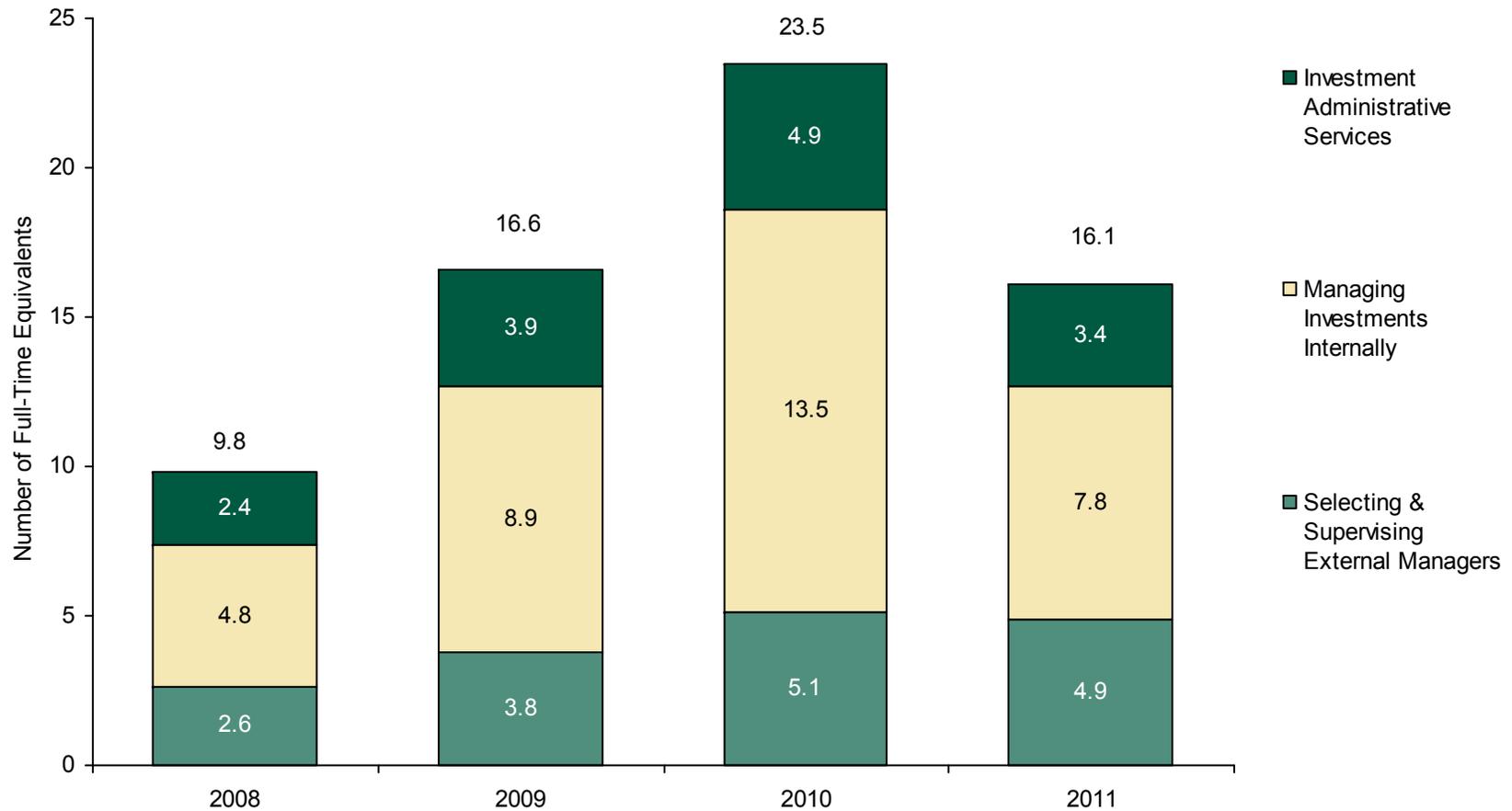
U.S. Public Funds' Institutional International Equity Assets Managed Passively



Source: Greenwich Associates 2011, U.S. IMF-11.
 U.S. assets are projected to the 2011 Greenwich Associates universe of 2,268 U.S. institutional investors with \$250 million or more in total assets. Percentages are dollar-weighted.
 Results are public fund defined benefit plan assets.

The internal investment management is the primary driver of declining overall staffing levels post the financial crisis.

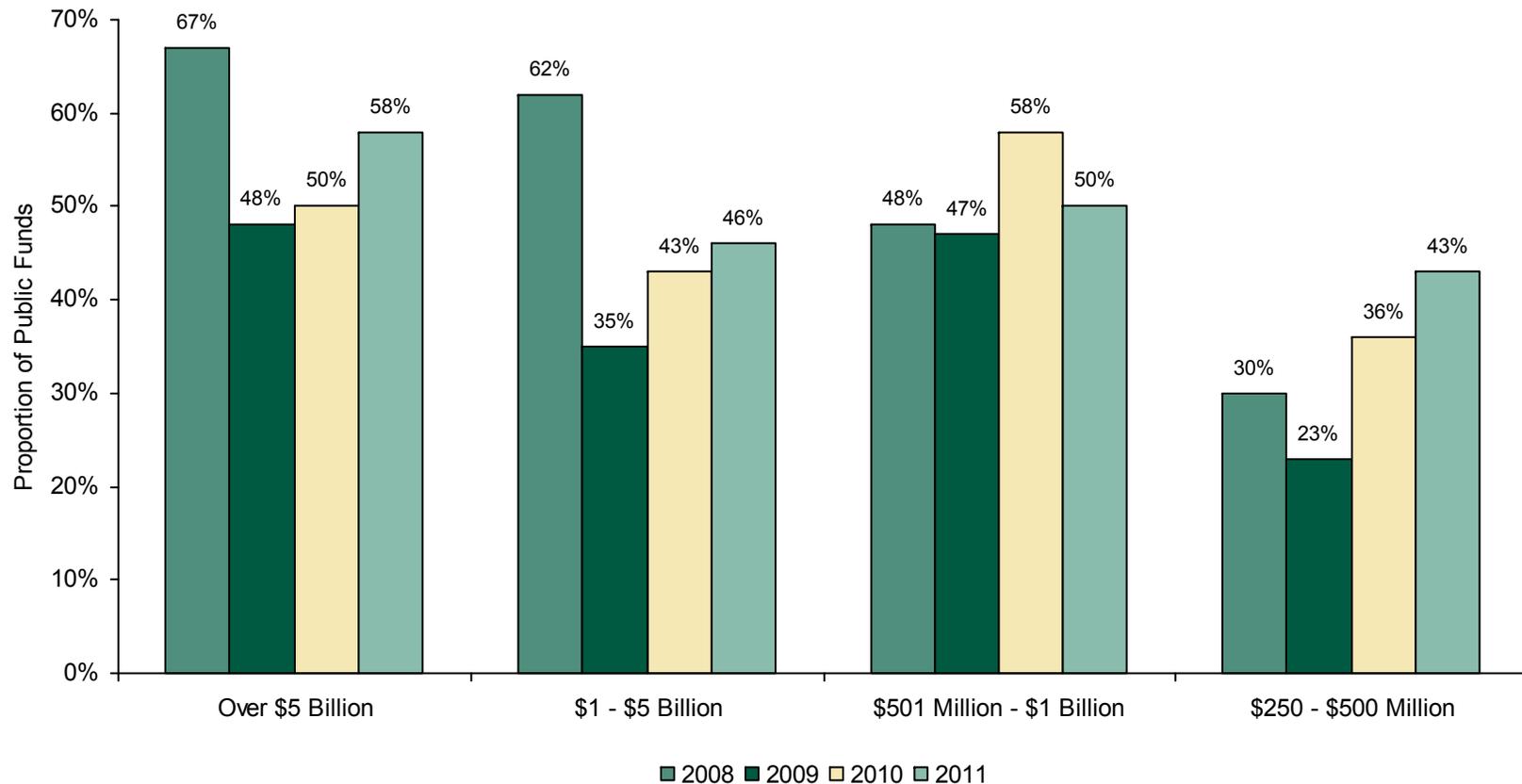
U.S. Public Funds' Average Number of Full-Time Equivalents Within Sponsor Organization



Source: Greenwich Associates 2011, U.S. IMF-11
 Note: Mean calculation excludes reported answers of "0" and / or "None".

Now turning to use of managers; Public funds' hiring of managers increased in most segments last year, driven by alternatives.

U.S. Public Funds Hiring Investment Managers in the Past 12 Months

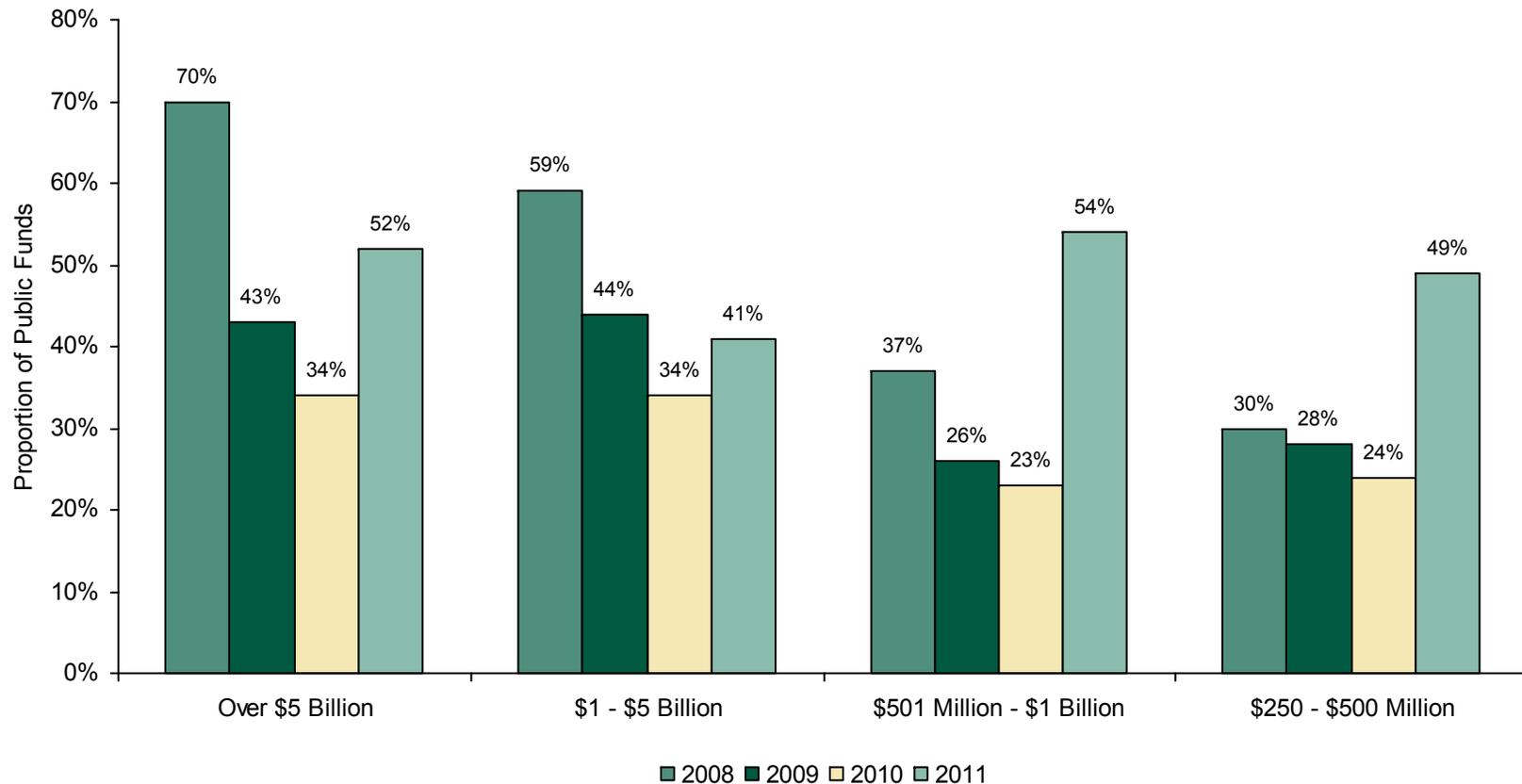


Source: Greenwich Associates 2011, U.S. IMF-11.

Note: "Hiring" refers to hiring for mandates or assignments in the past 12 months. "Anticipated Hiring" refers to expected hiring for mandates or assignments in the next 12 months.

Hiring expectations going forward is also significantly higher than recent years as we return to a perceived state of “normalcy”.

U.S. Public Funds Anticipated Hiring of Investment Managers in the Next 12 Months

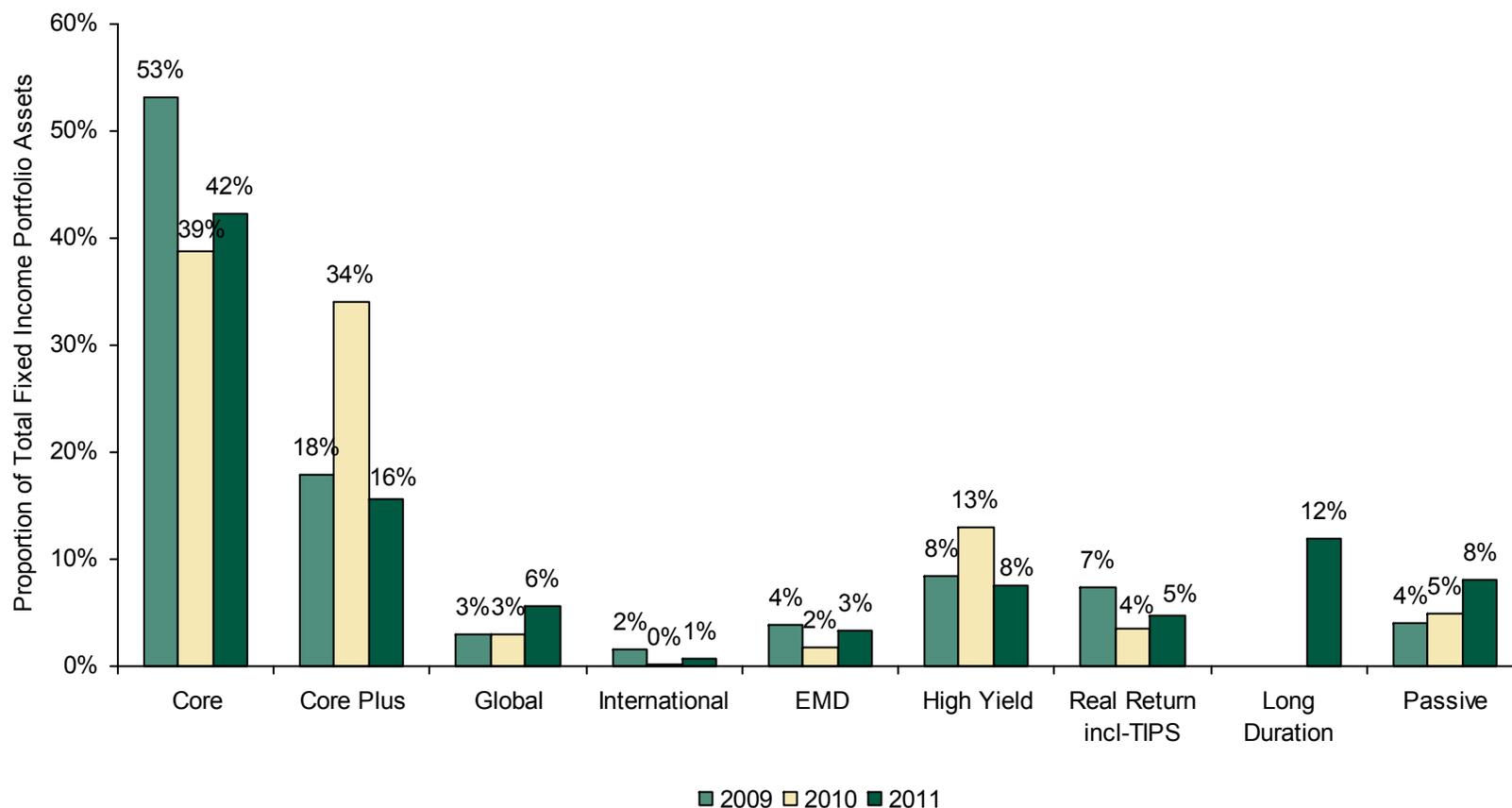


Source: Greenwich Associates 2011, U.S. IMF-11.

Note: "Hiring" refers to hiring for mandates or assignments in the past 12 months. "Anticipated Hiring" refers to expected hiring for mandates or assignments in the next 12 months.

For funds with fixed income specialists, assets in core plus showed significant declines in favor of global and EMD mandates and an increase in passive. Allocations to high yield declined.

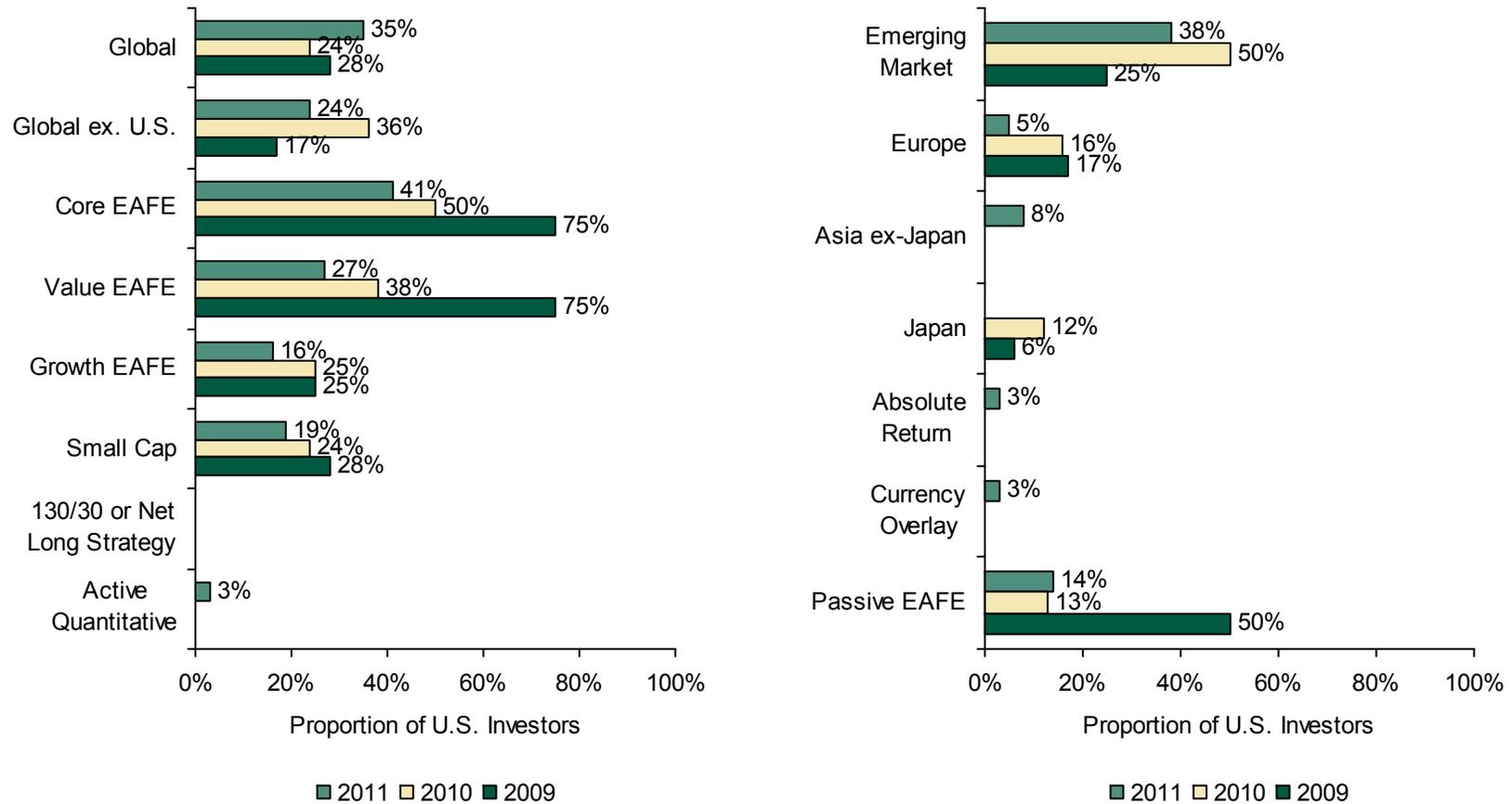
U.S. Specialist Investors' Style-Specific Allocation of Fixed Income Assets in Defined Benefit Plans and Investment Pools



Source: Greenwich Associates 2011, U.S. IMF-11.
 U.S. assets are projected to the 2011 Greenwich Associates universe of 55 fixed income specialist investors. Percentages are dollar-weighted.
 Results are for public fund defined benefit plan assets.

In the broader set of funds, core and core plus usage fell similarly although they also reported increases in high yield and real return bonds.

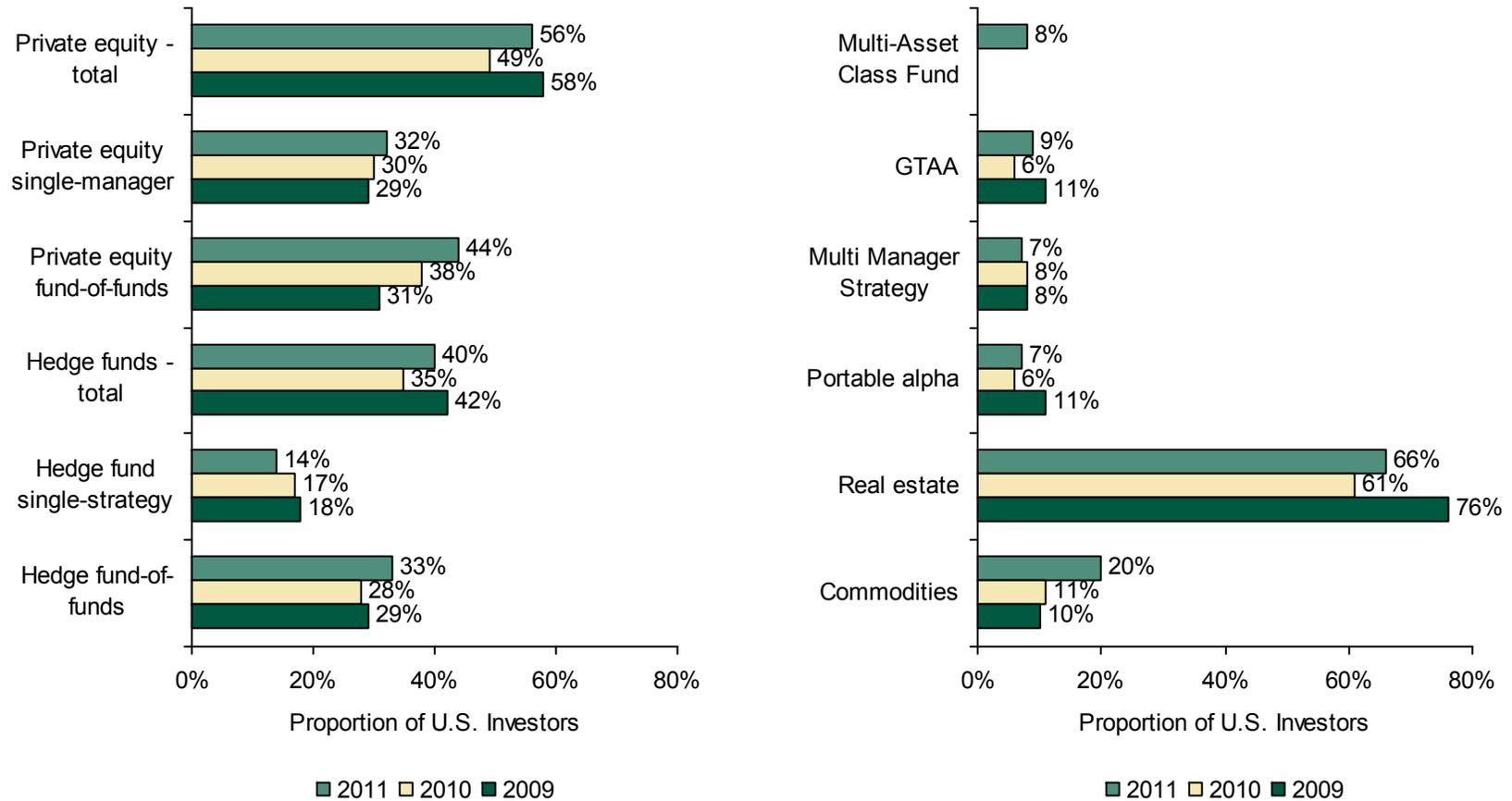
U.S. Public Funds Using Fixed Income Mandates in the Past 12 Months



Source: Greenwich Associates 2011, U.S. IMF-11.
 Note: "Using" refers to mandates or assignments currently used by U.S. investors in the past 12 months.

Now turning to alternatives, public funds report higher use of most categories products after some pull-backs last year.

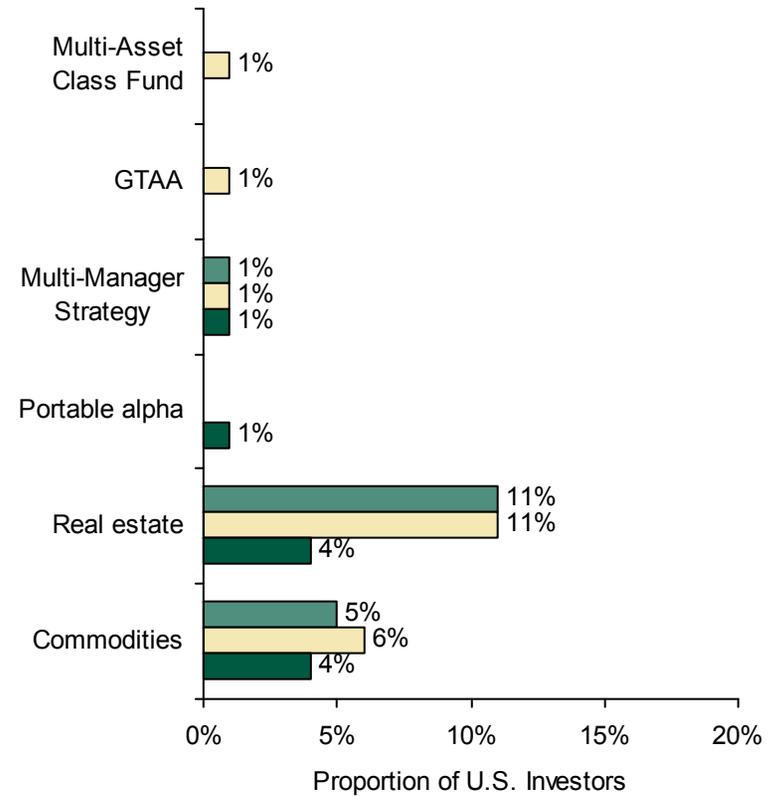
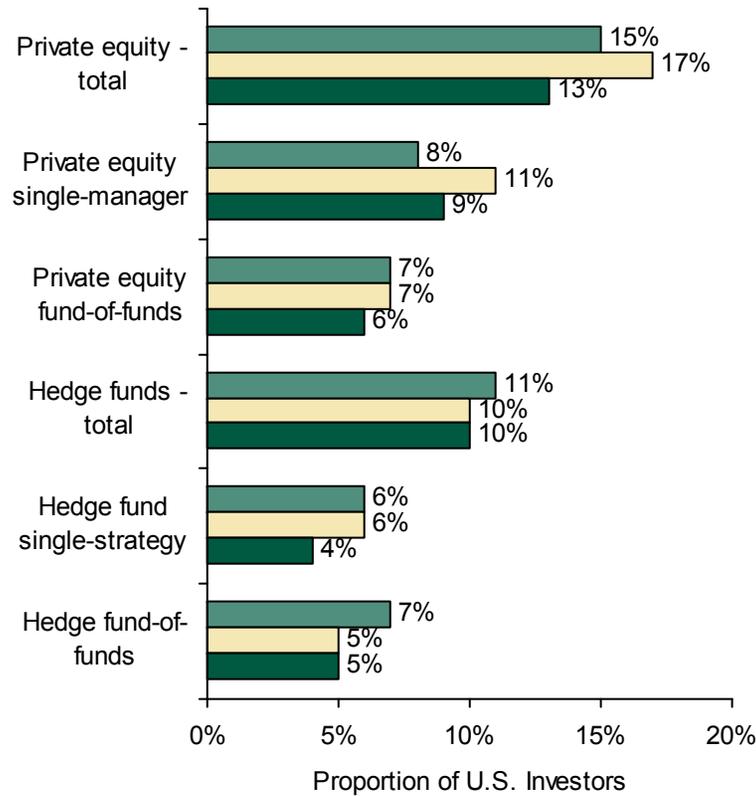
U.S. Public Funds Using Alternative Mandates in the Past 12 Months



Source: Greenwich Associates 2011, U.S. IMF-11.
 Note: "Using" refers to mandates or assignments currently used by U.S. investors in the past 12 months.

Funds report continued very active hiring in alternatives in line with past demand.

U.S. Public Funds Hiring and Anticipated Hiring for Alternative Mandates, Past 12-Months and Next 12-Months



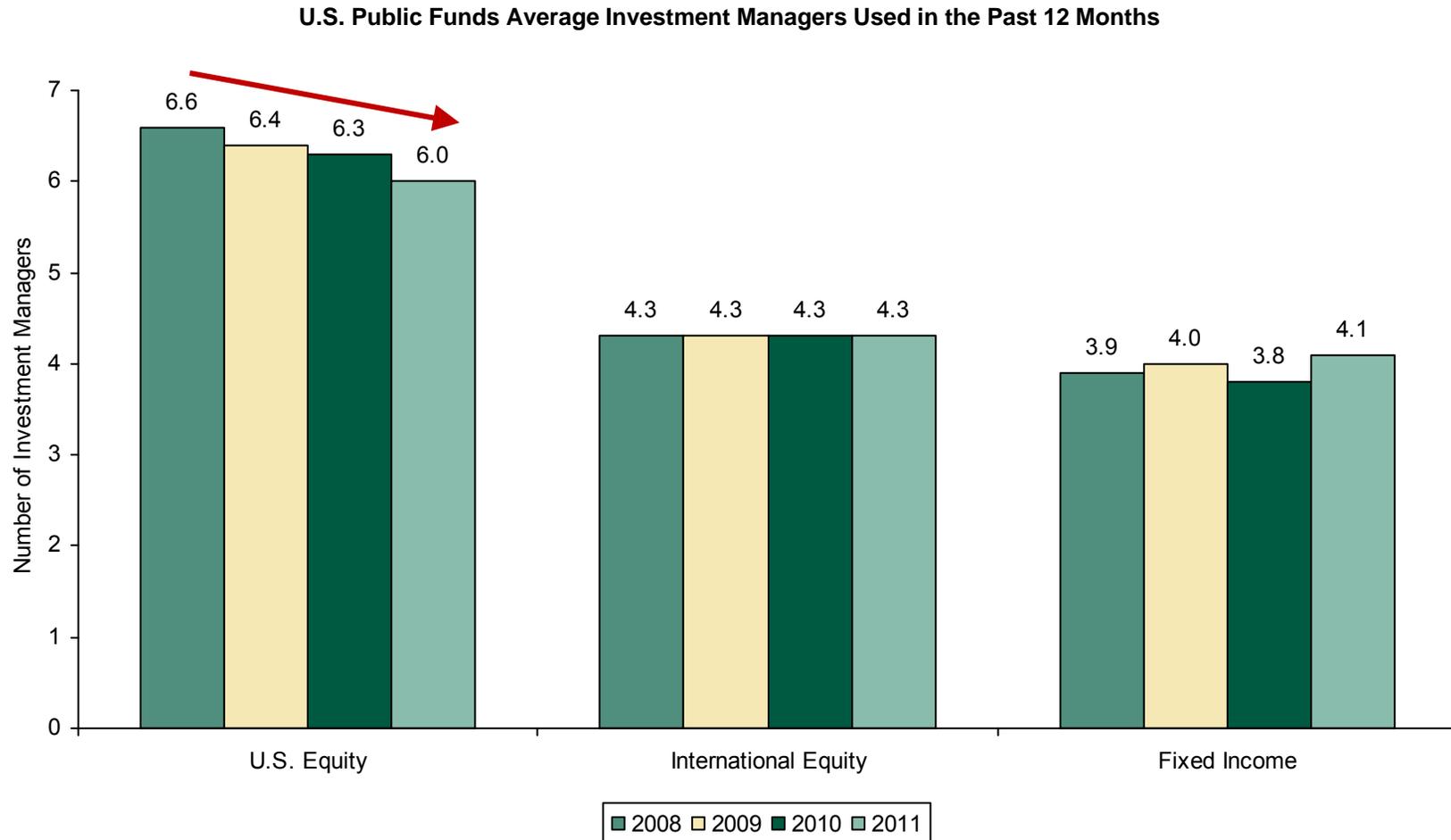
■ Expect to Hire 2011 ■ Hired 2011 ■ Hired 2010

■ Expect to Hire 2011 ■ Hired 2011 ■ Hired 2010

Source: Greenwich Associates 2011, U.S. IMF-11.

Note: "Hired" refers to hiring for mandates or assignments in the past 12 months. "Expect to Hire" refers to anticipated hiring for mandates or assignments in the next 12 months.

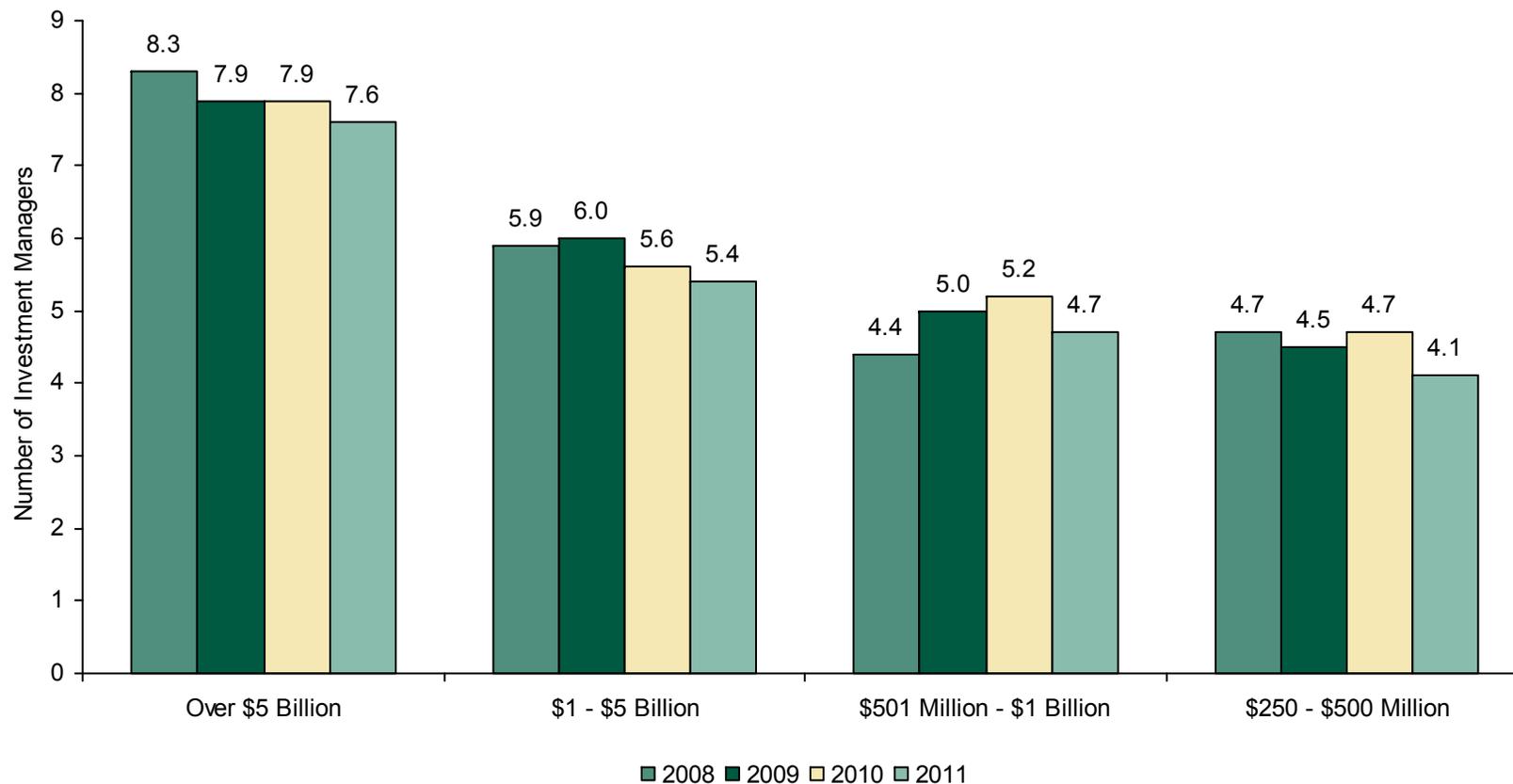
Funds continue to rationalize U.S. equity managers following declining asset allocations.



Source: Greenwich Associates 2011, U.S. IMF-11.

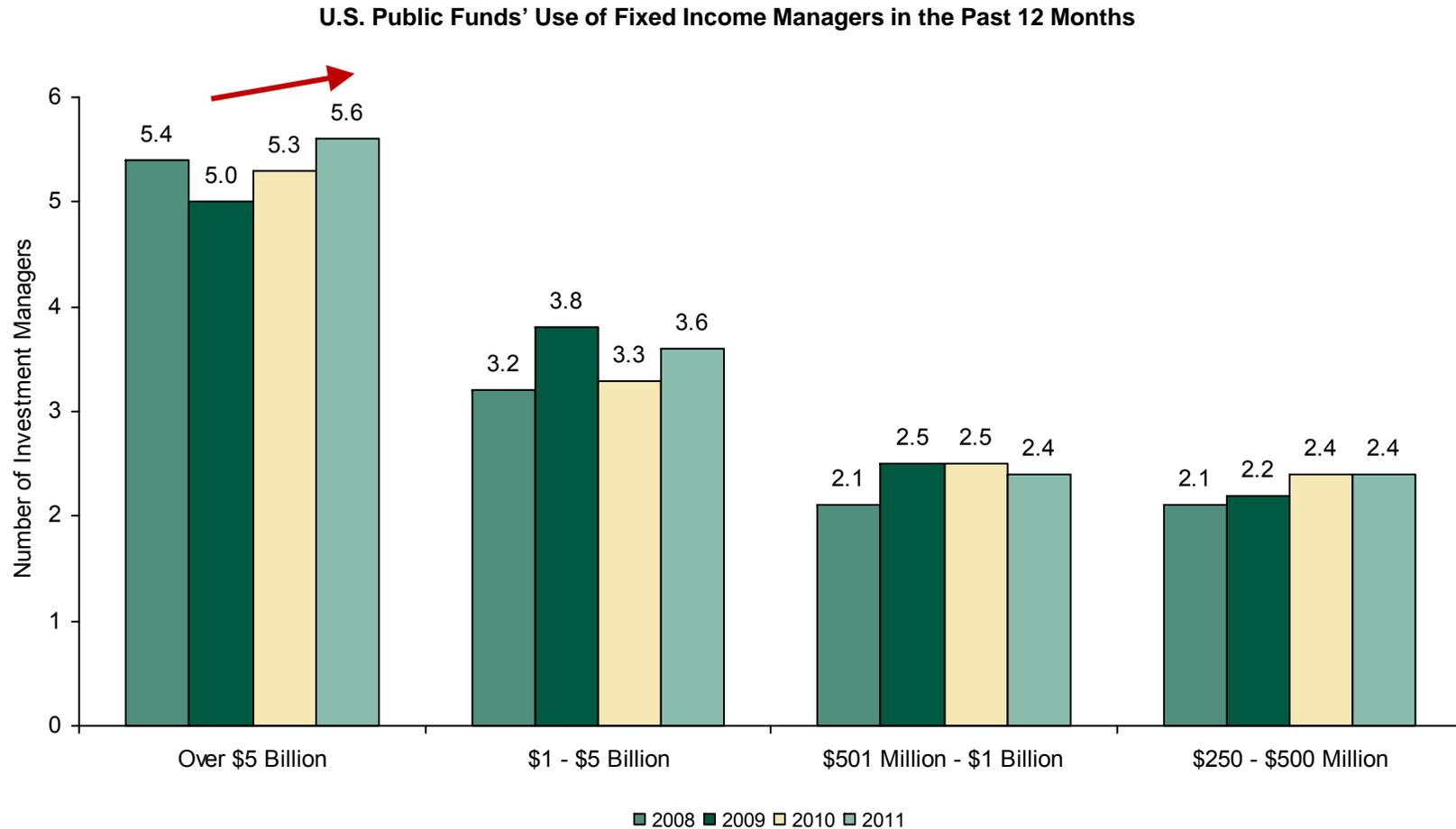
Although the largest plans use significantly more managers than small, the decline in number of U.S. equity managers is similar across plan sizes.

U.S. Public Funds' Use of U.S. Equity Managers in the Past 12 Months



Source: Greenwich Associates 2011, U.S. IMF-11.

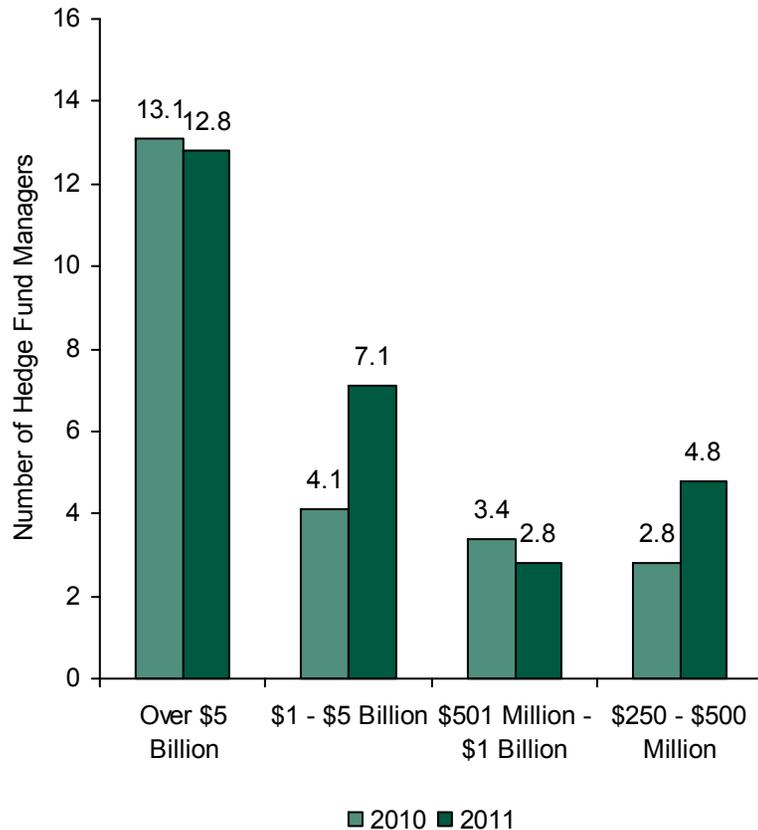
The number of fixed income managers has increased mainly among larger plans.



Source: Greenwich Associates 2011, U.S. IMF-11.

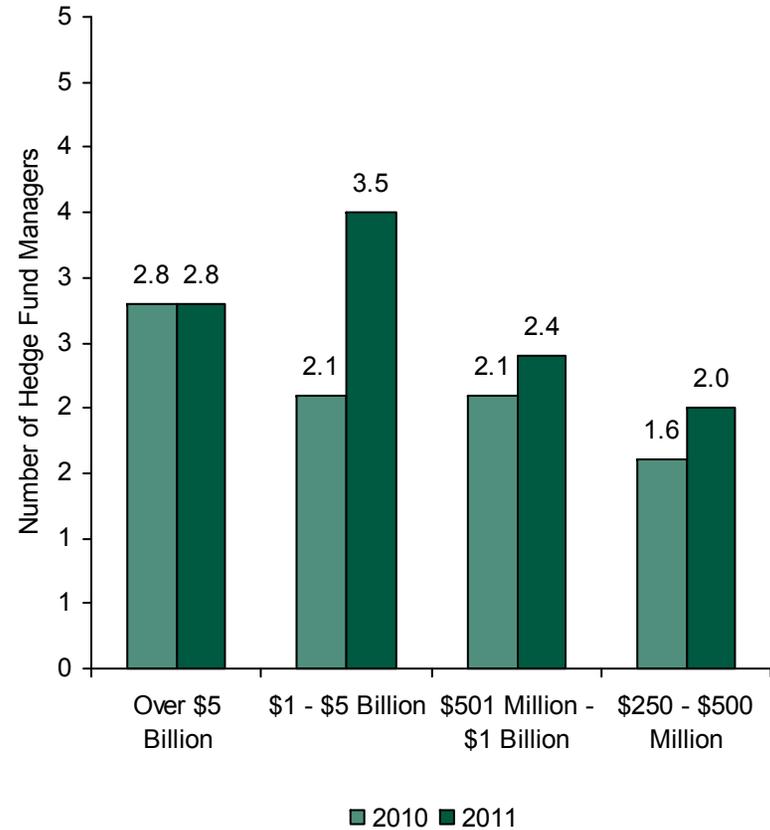
Public funds are expanding use of both single manager and fund-of-fund hedge funds, particularly among smaller funds.

U.S. Public Funds' Average Single-Manager Hedge Fund Managers Used in the Past 12 Months, by Type of Fund



Source: Greenwich Associates 2011, U.S. IMF-11. Mean calculation shown.

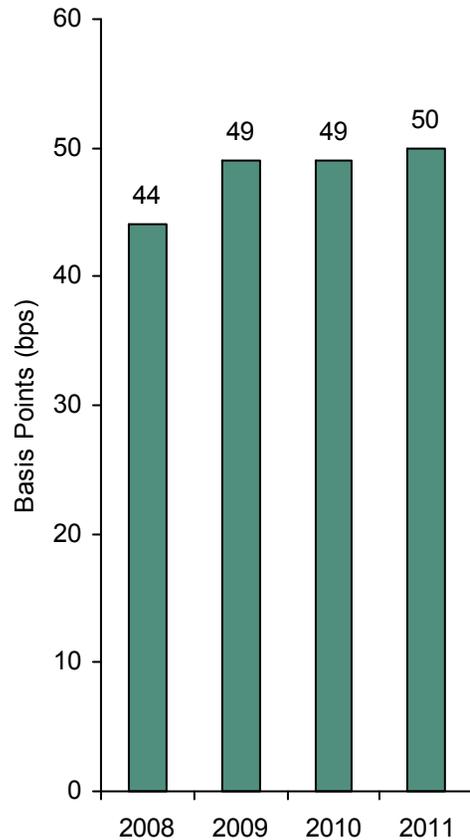
U.S. Public Funds' Average Fund-of-Fund Hedge Fund Managers Used in the Past 12 Months, by Type of Fund



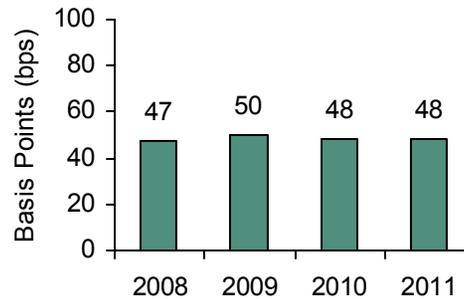
Source: Greenwich Associates 2011, U.S. IMF-11. Mean calculation shown.

Despite continued pressures, fees paid by public funds remain stable, both overall and within asset classes.

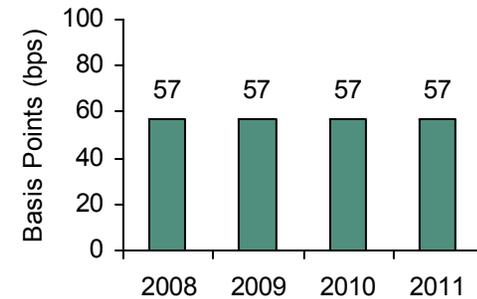
Average Fees Paid to External Managers



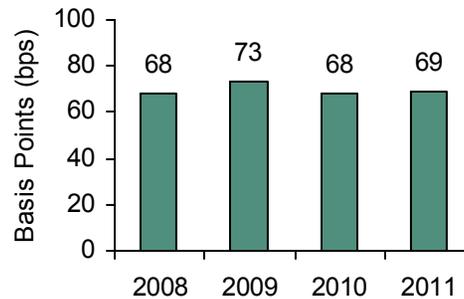
Average Fees Paid to Active U.S. Equity Managers



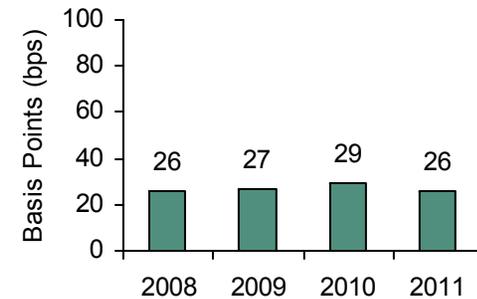
Average Fees Paid to Active International / Global Managers



Average Fees Paid to Active EME Managers

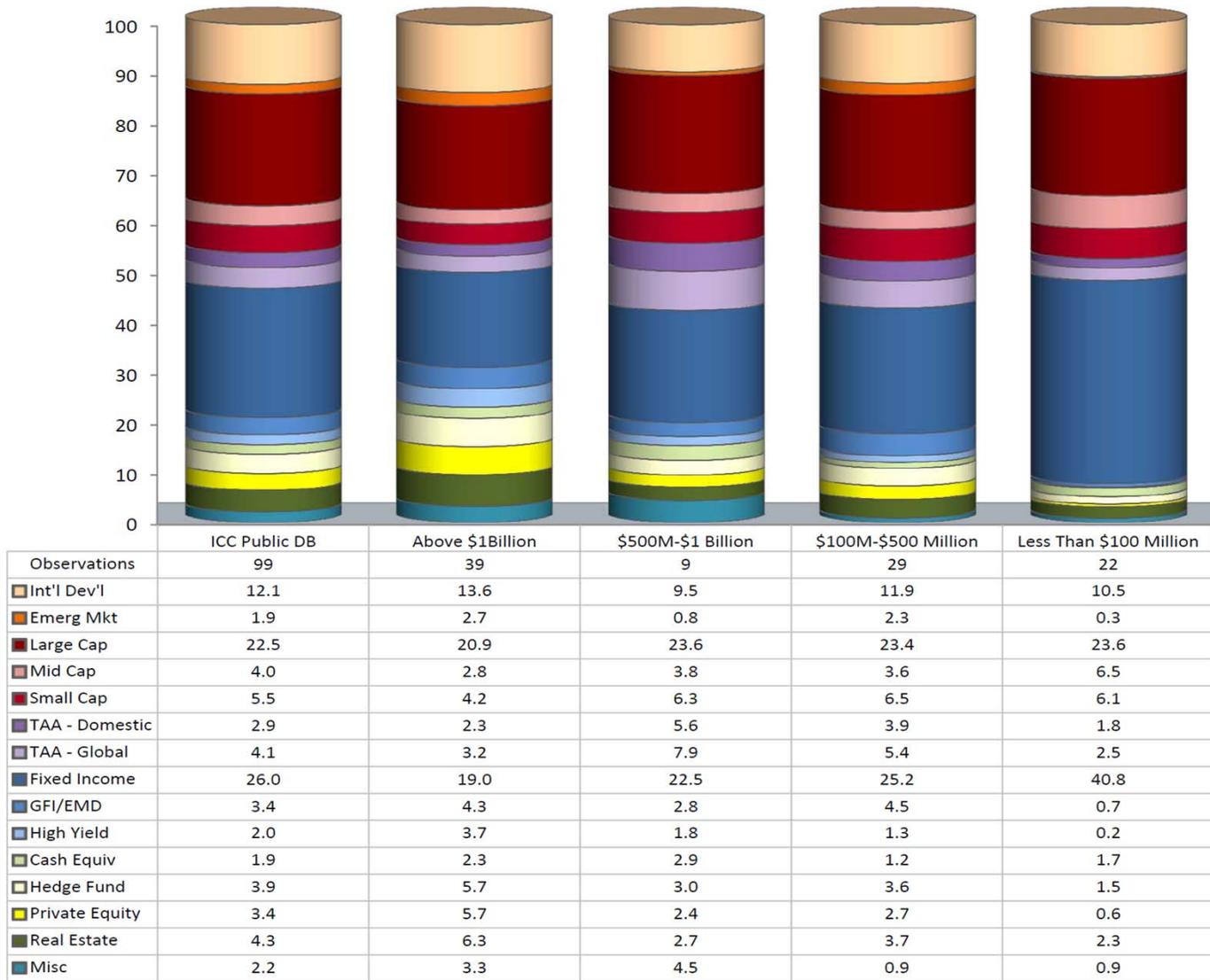


Average Fees Paid to Active Fixed Income Managers

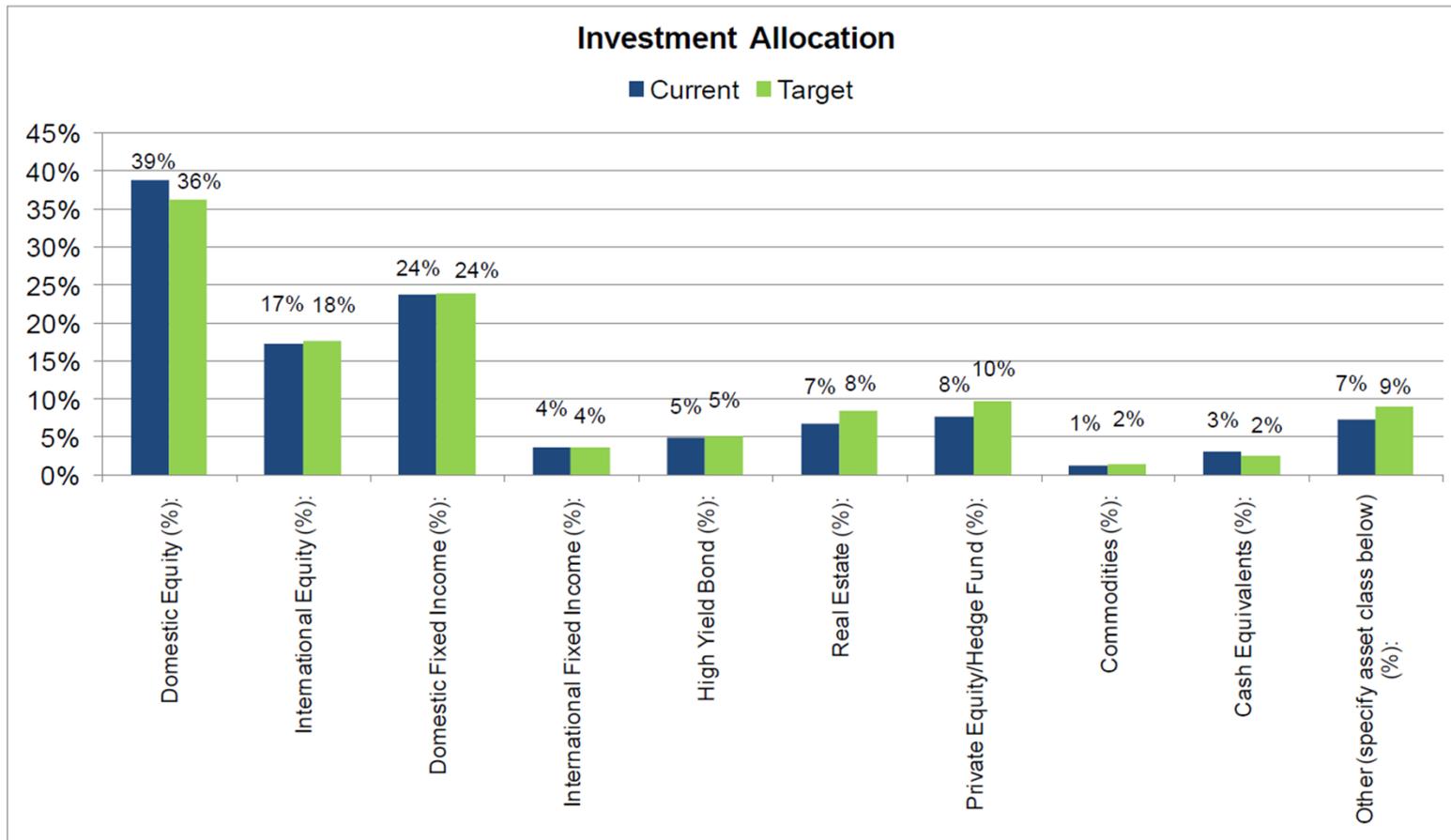


Source: Greenwich Associates 2011, U.S. IMF-11.
Mean calculation shown.

ICC Public DB Plans Statistics (as of 12/31/2011)



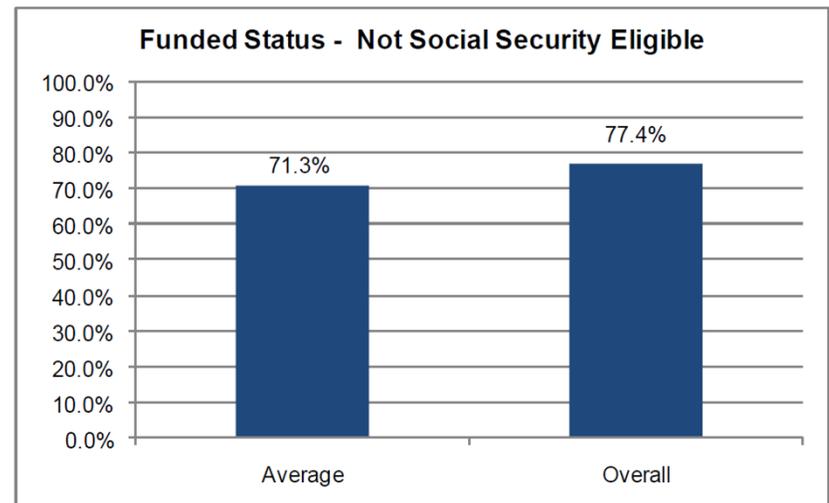
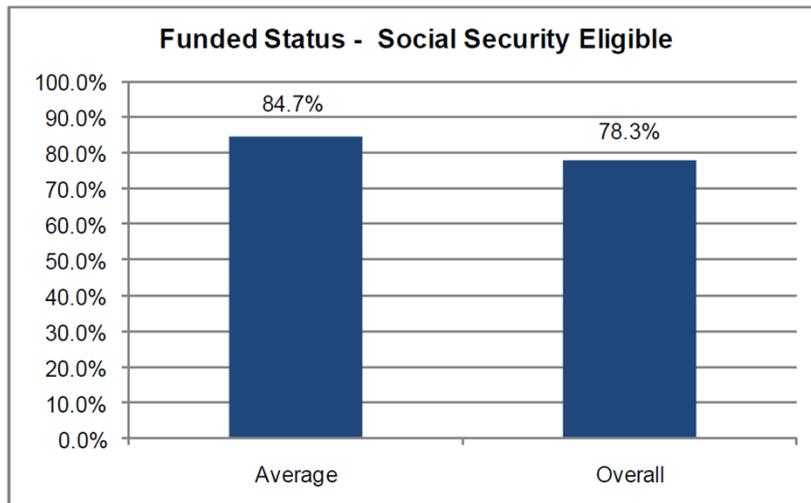
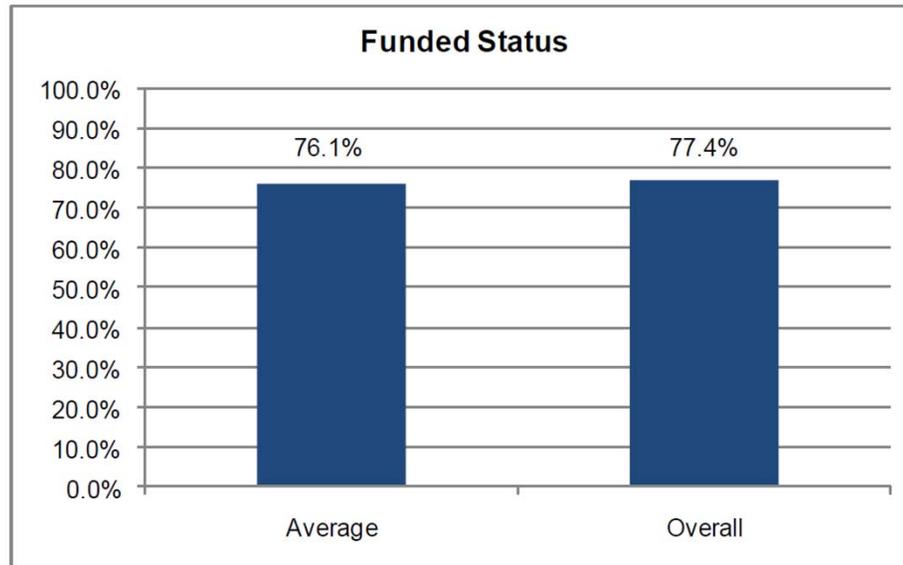
2011 NCPERS Public Fund Study – Average Asset Allocation



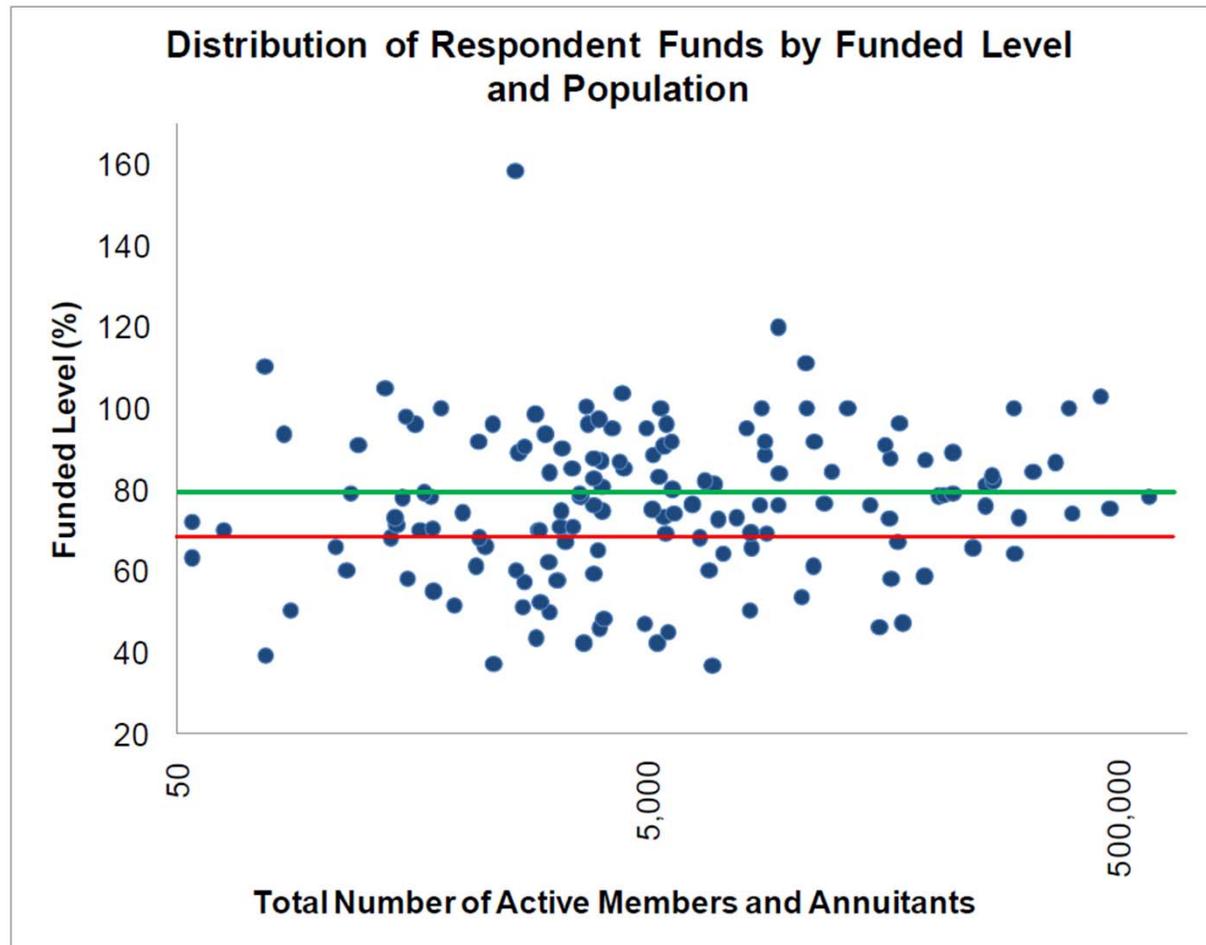
- Funds reported equity exposure at 56%, and overall international exposure at 21%
- In the next two years, funds plan to reduce domestic equity slightly and increase allocations to private equity, hedge funds, real estate, and other investments



2011 NCPERS Public Fund Study – Average Funded Status

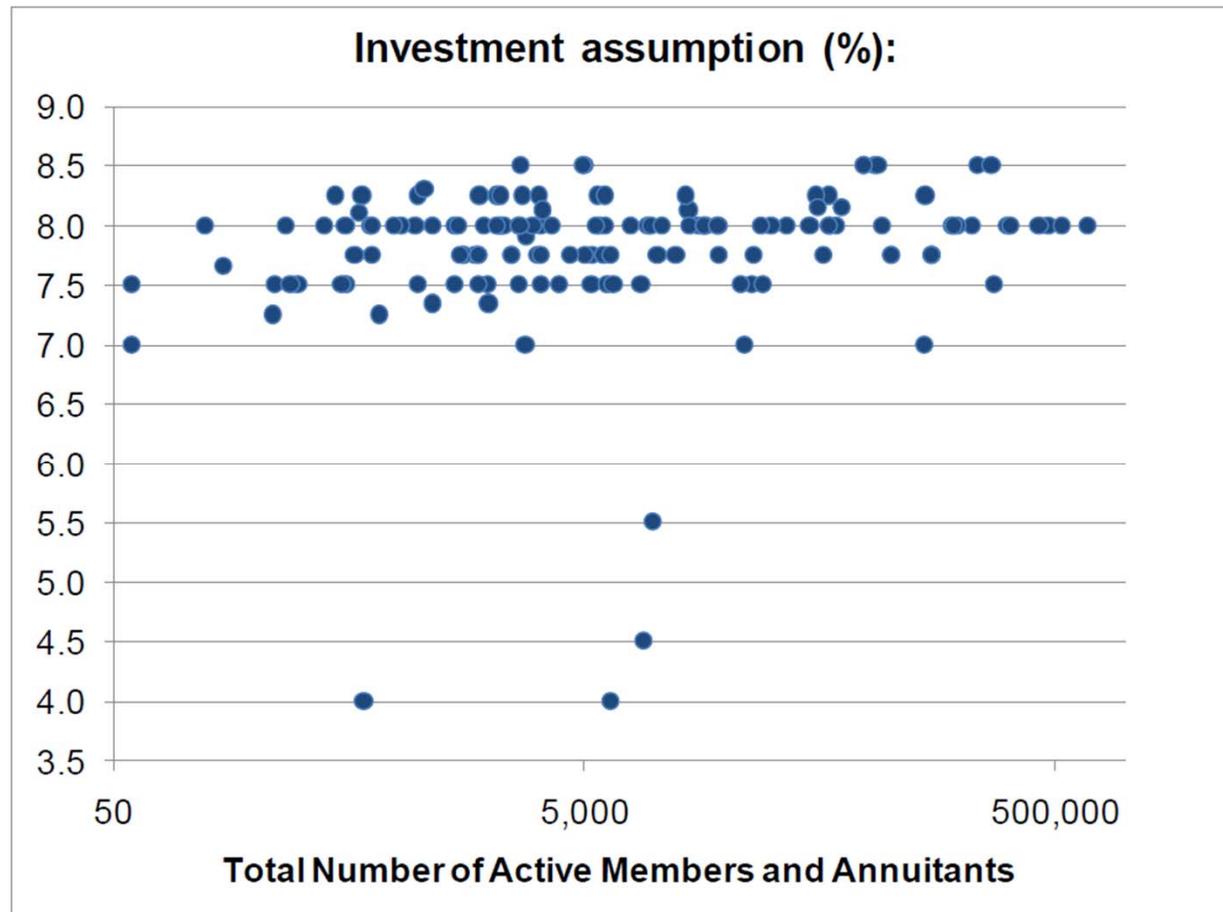


2011 NCPERS Public Fund Study – Funded Level and Population



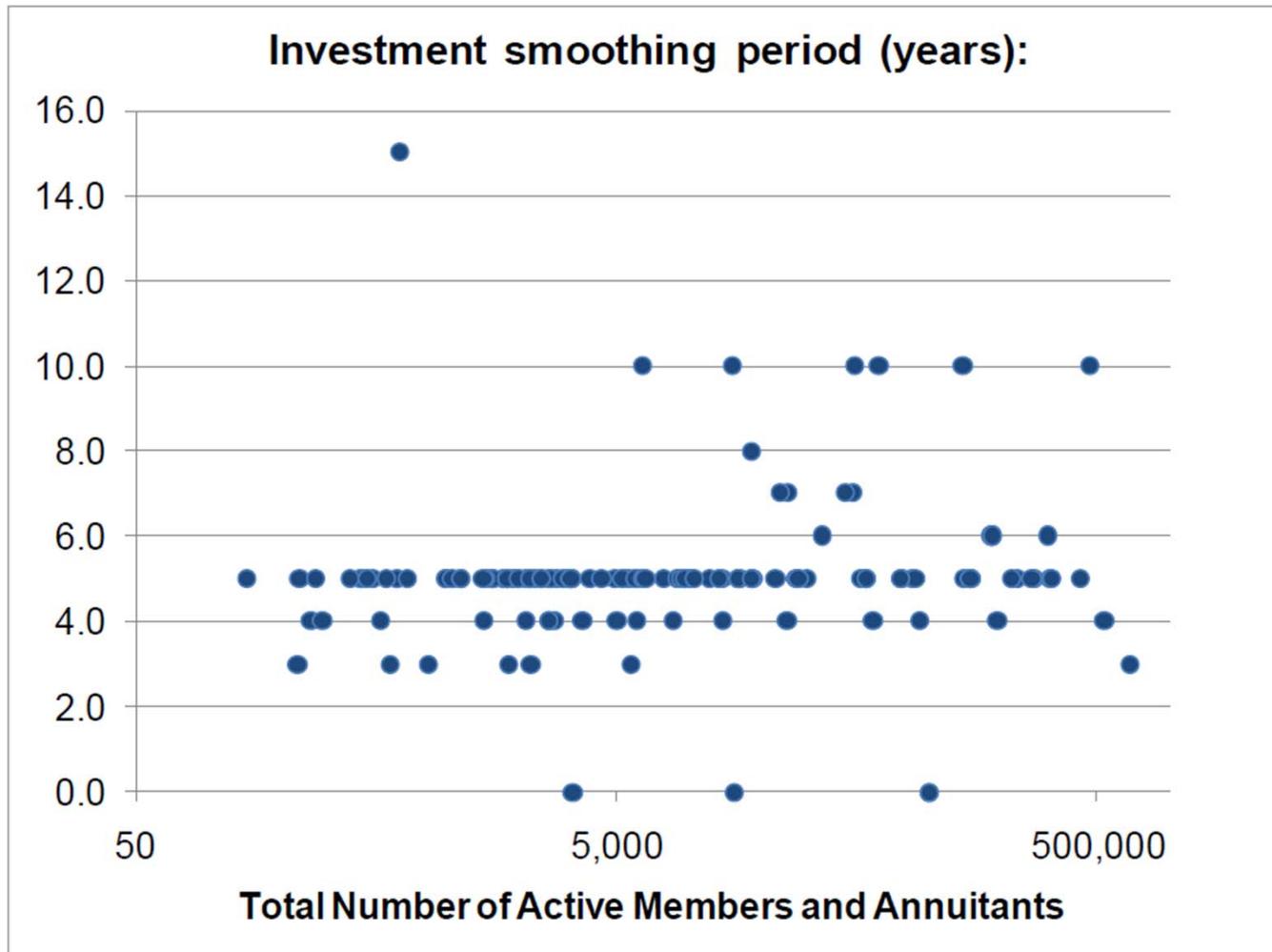
- 68% of Funds are above the red line, which shows the 70% “adequate” level of funding by Fitch Ratings

2011 NCPERS Public Fund Study – Investment Assumptions



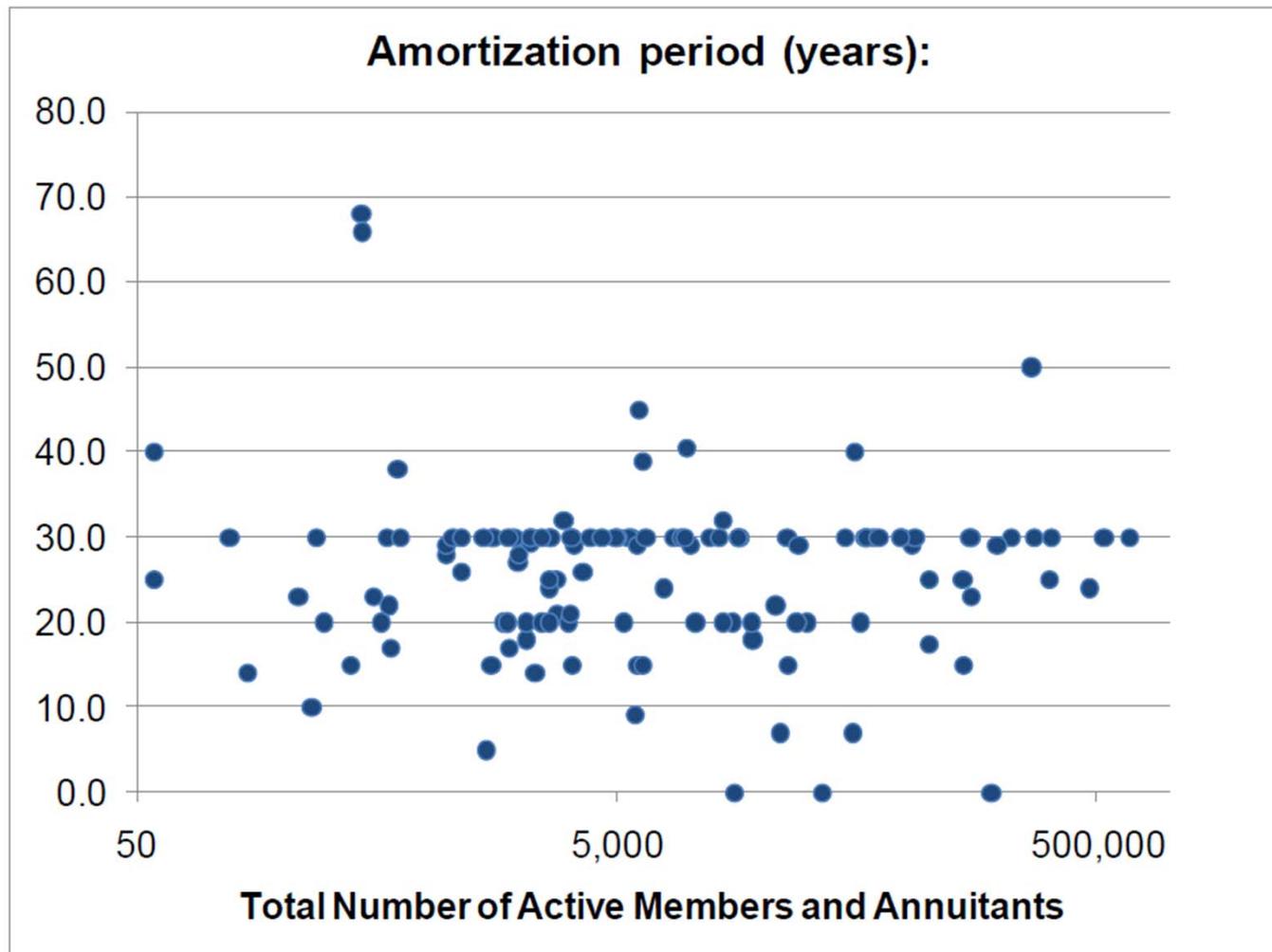
- The average assumption is 7.7%
- 23% have reduced their assumption over the past two years
- 15% plan to do so over the next two years

2011 NCPERS Public Fund Study – Investment Smoothing Period



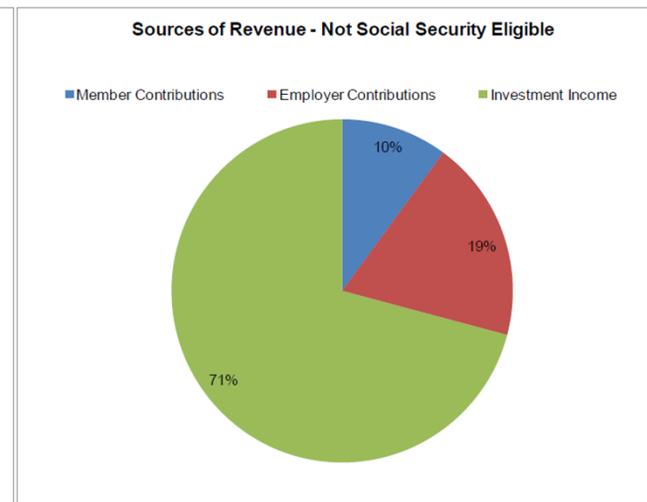
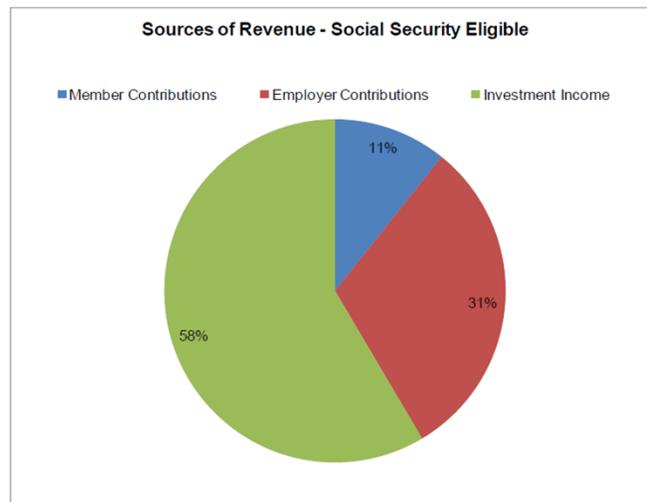
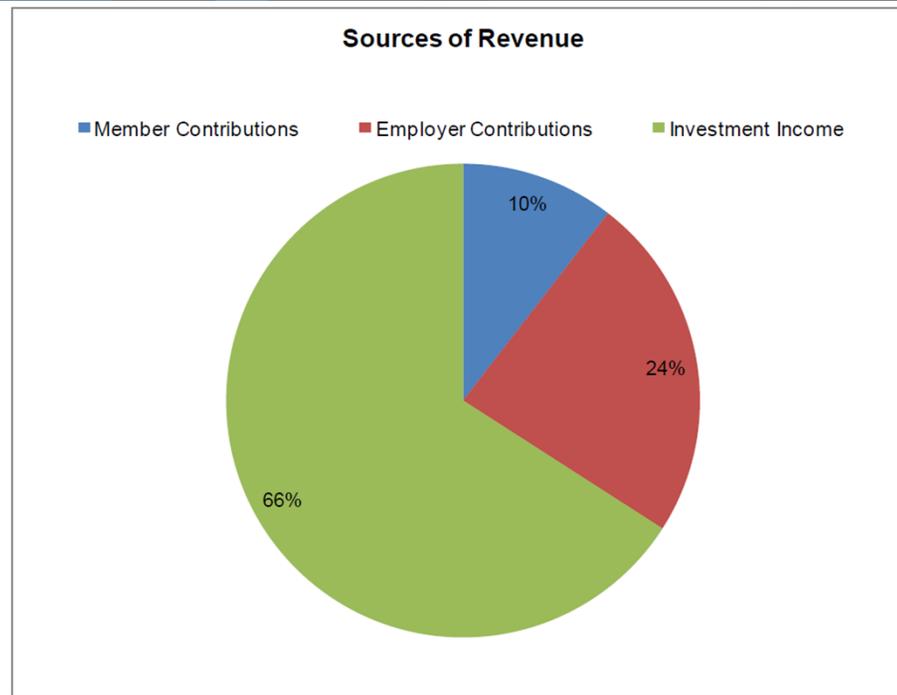
- The average investment smoothing period is 5 years

2011 NCPERS Public Fund Study – Investment Amortization Period



- The average period is 25.8 years
- 30% have changed their periods over the past two years
- 11% plan to do so over the next two years

2011 NCPERS Public Fund Study – Sources of Revenue



2011 NCPERS Public Fund Study – Fund Confidence

