

**1. Investment Market Overview (Meketa)**

- Basic Principles of Portfolio Theory: Risk and Return
- Benefits of Diversification
- Equity and Fixed Income: Overview
- Mutual Fund Overview and What's Included in Fees

**2. Analyzing and Evaluating Mutual Funds (Jeff Holt – Director, Multiasset & Alternative Strategies – Morningstar)**

- Investment Research Process
- Fees and Performance

**3. Program Investment Options- Defining the Choices (Meketa)**

- Global Equity
- Core Bond
- Capital Preservation Fund
- ESG Funds
- Target Date/Target Risk Funds

**4. Evaluating the Default Option (Dr. Brad Barber Ph.D. – Associate Dean / Professor of Finance – U.C. Davis Graduate School of Management)**

- Participant Behavior relating to defaults
- Considerations for Auto Investment

## 5. Target Date vs. Target Risk as Default Option (TBD)

- Understanding Target Date Funds- Pros and Cons
- Understanding Target Risk-Based Funds- Pros and Cons

# **California Secure Choice**

## Investment Market Overview

- 1. Basic Principles of Portfolio Theory: Risk & Return**
- 2. Benefits of Diversification**
- 3. Equity and Fixed Income: Overview**
- 4. Mutual Fund Overview and What's Included in Fees**

## **Basic Principals of Portfolio Theory: Risk & Return**

## Basic Principles of Portfolio Theory: Risk and Return

### Two Primary Aspects of All Investments:

- Risk
  - Systematic risk (market), unsystematic risk (company-specific), credit risk, country risk, interest rate risk, inflation risk. To summarize, there are many forms of risk. Every investor has to prioritize these risks, which have trade-offs.
- Return
  - Nominal return (inclusive of inflation), real return (returns without inflation), realized vs. unrealized gains/ losses

### Risk-Return Tradeoff:

- Return potential is directly linked to level of risk
- If you want a higher return, you must be willing to accept greater risk
- However, higher risk does not guarantee higher returns, it only provides the possibility of higher returns
- Fully understand risks prior to making investments.
- For long-term investors, seek balance of short-term needs (low risk, low return investments) with long-term goals (higher return, higher risk investments).

### Examples:

- U.S. Stocks – high risk, high expected returns
- U.S. Treasury bonds – low risk, low expected returns

## **Benefits of Diversification**

## Benefits of Diversification

## Periodic Table of Returns

2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Emerging Markets Debt 9.7%	Commodities 25.9%	Emerging Equity 55.8%	Emerging Equity 25.6%	Emerging Equity 34.0%	Emerging Equity 32.2%	Emerging Equity 39.4%	Bonds 5.2%	Emerging Equity 78.5%	Emerging Equity 18.9%	Real Estate 14.3%	Emerging Equity 18.2%	US Equity 32.4%	Private Equity 16.1%	Real Estate 13.3%	High Yield 17.1%	Emerging Equity 37.3%
Bonds 8.4%	TIPS 17.0%	EAFE Equity 39.1%	Emerging Markets Debt 23.0%	Private Equity 30.4%	EAFE Equity 26.3%	Private Equity 26.6%	Cash 1.7%	High Yield 58.2%	Commodities 16.7%	TIPS 14.1%	EAFE Equity 17.3%	EAFE Equity 22.8%	US Equity 13.7%	Private Equity 11.6%	US Equity 12.0%	EAFE Equity 25.0%
TIPS 8.0%	Emerging Markets Debt 13.7%	High Yield 29.0%	EAFE Equity 20.6%	Commodities 21.4%	Private Equity 18.6%	Emerging Markets Debt 18.1%	TIPS -1.1%	EAFE Equity 31.8%	Private Equity 15.7%	Private Equity 12.0%	Emerging Markets Debt 16.8%	Private Equity 18.1%	Real Estate 11.8%	US Equity 1.4%	Commodities 11.8%	US Equity 21.8%
Real Estate 7.2%	Bonds 10.2%	US Equity 28.7%	Private Equity 15.9%	Real Estate 20.1%	Real Estate 16.6%	Commodities 16.2%	Emerging Markets Debt -5.2%	US Equity 26.5%	Emerging Markets Debt 15.7%	Bonds 7.8%	US Equity 16.0%	60/40 Ix* 12.1%	Bonds 6.0%	Bonds 0.5%	Emerging Equity 11.2%	60/40 Ix* 17.1%
High Yield 5.3%	Real Estate 6.7%	60/40 Ix* 25.2%	Real Estate 14.5%	EAFE Equity 13.5%	US Equity 15.8%	Real Estate 15.8%	Real Estate 6.5%	60/40 Ix* 23.3%	High Yield 15.1%	High Yield 5.0%	High Yield 15.8%	Real Estate 11.0%	TIPS 3.6%	Cash 0.0%	Emerging Markets Debt 10.2%	Emerging Markets Debt 12.7%
Hedge Funds 4.6%	Cash 1.6%	Commodities 24.0%	60/40 Ix* 12.9%	Hedge Funds 9.3%	Emerging Markets Debt 15.2%	TIPS 11.6%	Private Equity -7.1%	Emerging Markets Debt 22.0%	US Equity 15.1%	US Equity 2.1%	Private Equity 14.5%	Hedge Funds 8.7%	Hedge Funds 3.3%	Hedge Funds -0.3%	Real Estate 8.0%	Private Equity 10.6%
Cash 3.8%	High Yield -1.4%	Hedge Funds 19.5%	High Yield 11.1%	Emerging Markets Debt 6.3%	60/40 Ix* 15.1%	EAFE Equity 11.2%	Hedge Funds -19.0%	Hedge Funds 20.0%	Real Estate 13.1%	Cash 0.1%	60/40 Ix* 11.5%	High Yield 7.4%	60/40 Ix* 2.8%	EAFE Equity -0.8%	60/40 Ix* 5.7%	Hedge Funds 7.7%
Emerging Equity -2.6%	Hedge Funds -1.4%	Emerging Markets Debt 16.9%	US Equity 10.8%	US Equity 4.9%	Hedge Funds 12.9%	60/40 Ix* 10.9%	60/40 Ix* -25.9%	Commodities 18.9%	Hedge Funds 10.2%	Emerging Markets Debt -1.8%	Real Estate 10.5%	Cash 0.0%	High Yield 2.5%	TIPS -1.4%	Private Equity 5.4%	High Yield 7.5%
60/40 Ix* -9.1%	60/40 Ix* -5.9%	Real Estate 8.9%	Commodities 9.2%	60/40 Ix* 4.6%	High Yield 11.9%	Hedge Funds 10.0%	High Yield -26.2%	TIPS 10.0%	60/40 Ix* 10.2%	60/40 Ix* -2.1%	TIPS 7.3%	Bonds -2.0%	Emerging Markets Debt 0.9%	60/40 Ix* -2.5%	TIPS 4.7%	Real Estate 7.0%
US Equity -11.8%	Emerging Equity -6.2%	TIPS 8.3%	Hedge Funds 9.0%	Cash 3.0%	Cash 4.6%	Bonds 7.0%	Commodities -35.6%	Bonds 5.9%	EAFE Equity 7.8%	Hedge Funds -5.2%	Hedge Funds 6.4%	Emerging Equity -2.6%	Cash 0.0%	High Yield -4.5%	Bonds 2.7%	Bonds 3.5%
Commodities -19.5%	Private Equity -14.1%	Private Equity 7.3%	TIPS 8.5%	TIPS 2.8%	Bonds 4.3%	US Equity 5.5%	US Equity 37.0%	Cash 0.1%	Bonds 6.5%	EAFE Equity -12.1%	Bonds 4.2%	Emerging Markets Debt -9.0%	Emerging Equity -2.2%	Emerging Markets Debt -6.3%	EAFE Equity 1.0%	TIPS 3.0%
EAFE Equity -21.2%	EAFE Equity -15.6%	Bonds 4.1%	Bonds 4.3%	High Yield 2.7%	Commodities 2.1%	Cash 4.7%	EAFE Equity -43.4%	Private Equity -6.6%	TIPS 6.3%	Commodities -13.4%	Cash 0.1%	TIPS -9.4%	EAFE Equity -4.9%	Emerging Equity -14.9%	Hedge Funds 0.5%	Commodities 1.7%
Private Equity -25.6%	US Equity -22.1%	Cash 1.0%	Cash 1.2%	Bonds 2.4%	TIPS 0.5%	High Yield 1.9%	Emerging Equity -53.3%	Real Estate 16.9%	Cash 0.1%	Emerging Equity -18.4%	Commodities -1.1%	Commodities -9.5%	Commodities -17.0%	Commodities -24.7%	Cash 0.3%	Cash 0.0%

- The table above shows how 12 asset classes performed in each of the last 17 years. You can see the cyclicity of asset class returns, and the “smoothed” effect of the blended 60% equity/40% bond portfolio (shown in black) over the same periods.



## **Equity and Fixed Income: Overview**

## Equity and Fixed Income: Overview

### What is a Bond?

- A debt security, in which the authorized issuer owes the holders a debt and, depending on the terms of the bond, is obliged to pay interest (the coupon) and/or to repay the principal at a later date (i.e., at maturity)
- Often referred to as “fixed income”

### Why are bonds important for retirement savings investors?

- Produce stable returns
- Exhibit lower volatility
- Provide current income
- Diversification benefits

### What factors influence bond returns?

- Credit worthiness of issuer (higher risk, higher coupon)
- Changes in interest rates

### What would a Core Bond Mutual Fund look like?

- A typical core bond fund will offer immediate diversification with broad exposure to the investment grade area of the bond market. The fund will provide participation in several market segments, most notably US Treasuries, mortgage-backed securities, and investment-grade corporate bonds. The fund will hold securities with a full range of maturities – short, intermediate, and long – within the market segments described.
- **Credit Quality:** The fund would be expected to have a high percentage of investments considered to be of high credit quality, such as those fixed income securities issued or backed by the U.S. Government or its Agencies, and/or high or highest quality of non-government issuances. Limitations would be capped on exposure to non-investment grade securities.

**What is a Stock?**

- A share in the ownership of a company (i.e., equity); a claim on a company's assets and earnings

**Why are stocks important for a retirement savings investor?**

- Stocks are generative assets
- Primary growth provider in a long-term portfolio
- Protect against loss of purchasing power – stock returns tend to follow rising standards of living

**Stock Terminology**

- Price-earning ratio (P/E ratio)
- Price-book value ratio (P/B ratio)
- Dividend yield
- Earnings growth rate

**What would a Global Equity Bond Fund look like?**

- A typical Global Equity Index Bond Fund will offer immediate diversification with broad exposure to stock markets around the globe, including the United States, developed foreign markets, and emerging markets.
- The fund will hold a basket of stocks that reflects the composition of its underlying global index, providing exposure to broad markets, industries and styles (value stocks and growth oriented stocks). In addition to stock market risk affecting Fund performance, the fund may be exposed to country/regional risk, emerging markets risk, and currency risk.

## **Mutual Fund Overview and What's Included in Fees**

## Mutual Fund Overview and What's Included in Fees

**Mutual Fund:** *An investment vehicle* that is operated by professional money managers which brings together money from many different groups (individuals, institutions, or others) for the purpose of investing in securities (such as stocks, bonds, or other assets). Strikes a NAV (Net Asset Value) daily, and is SEC-registered.

### Characteristics of Various Vehicles

	Mutual Funds	ETFs	Separate Accounts
Types of Securities Invested	Stocks, Bonds, Money Markets, and other assets. When you buy a particular fund, you own the same stocks as every other investor.	Stocks, Bonds, Money Markets, and other assets.. When you buy a particular fund, you own the same stocks as every other investor.	Stocks, Bonds, Money Markets, and other assets. Your portfolio can be customized to eliminate securities you do not wish to own. Often customization is a function of a large asset base.
Ownership	Ownership is in units of the mutual fund company. Unlike stocks and ETFS, mutual funds trade only once a day, after markets close	Ownership is through (the basket) of stocks. ETFs are bought and sold during normal market hours. If you enter a trade to buy or sell shares, trades will be executed based on current bid-ask spreads. It is important to note, that ability to actively buy and sell throughout the day can be a drawback, and discourage from a long-term investor mindset.	Owns the underlying asset, ownership is in the company stock itself. Closing the account requires moving the individual securities to another manager.
Fees	Many, with varying fees and expenses. Breakpoint discounts can be offered for example, if committing to regular purchases. Fees are non-negotiable.	Will usually be the expense ratio of the fund (similar to MF's) in addition to the standard trading fee for shares (ie commissions). Fees are non-negotiable.	Standard trading fee for shares (ie commissions) in addition to the specific management fees negotiated between the two parties.
Contract	Prospectus	Prospectus	Investment Management Agreement

*Similar to a mutual fund, Commingled funds are purchased as units and may be invested in a variety of strategies across different asset classes. For purposes of this presentation, commingled funds were omitted as they are not a viable investment vehicle within an IRA-type structure at this time.*

## What's an Expense Ratio?

All Mutual Funds and ETFs will have operating expenses, commonly referred to as Expense Ratios.

- Active and Passive (Index) Funds will have expense ratios.
  - One thing is for sure, expense ratios will eat into the investor's returns.
  - You can't hide from these costs, but you can control how much you choose to pay!
  - However, because Passive funds are not actively traded or managed by professional money managers, we should expect lower operating expenses.

## What's in an Expense Ratio?

- Calculated annually, and included in the prospectus, these are operational costs that can include:
  - Management Fees
    - Will carry the bulk of the overall operating expenses
  - Administrative
  - Compliance
  - Distribution
  - Marketing (12b-1 Fees)

Other costs, that may be associated with the purchase of a Mutual Fund and **NOT** included in the Fund's expense ratio can include:

- Front-end loads: Sales charge applied at the time of initial purchase only.
- Back-end loads: Sales charge applied at the time of sale.

**Mutual Fund Prospectus:** *A legal document* that the SEC requires mutual funds to file and be made available to investors.

Things you will find within the prospectus:

- **Investment Objective.** While the investor may not be able to choose what stocks to own, the prospectus will include a description of the investing strategy. This will help in gaining comfort of what will be owned.
- **A breakdown of Fees and Expenses.** For this Vanguard US Large Cap Index Fund, operating expenses to the investor include an account service fee (0.2%) and a management fee (0.12%). Generally, management fees will make up the bulk of overall operating expenses (expense ratio).
- **Identification of different Share classes.** Mutual funds offer various share classes to investors, often with reduced operating expenses for accounts with higher balances. For example, the A Share class offers a 0.04% total annual fund expense, but requires an initial minimum investment of \$10,000 compared to \$3,000 for I Shares.
- **Principal Risks (not shown).** For example, the prospectus will indicate the possibility the Fund may lose money over short or even long periods resulting from exposure to stock market risk, investment style risk, or currency risk if it is an international fund.

#### Investment Objective

The Fund seeks to track the performance of a benchmark index that measures the investment return of large-capitalization stocks.

#### Fees and Expenses

The following table describes the fees and expenses you may pay if you buy and hold Investor Shares or Admiral Shares of the Fund.

#### Shareholder Fees

(Fees paid directly from your investment)

	Investor Shares	Admiral Shares
Sales Charge (Load) Imposed on Purchases	None	None
Purchase Fee	None	None
Sales Charge (Load) Imposed on Reinvested Dividends	None	None
Redemption Fee	None	None
Account Service Fee (for certain fund account balances below \$10,000)	\$20/year	\$20/year

#### Annual Fund Operating Expenses

(Expenses that you pay each year as a percentage of the value of your investment)

	Investor Shares	Admiral Shares
Management Fees	0.12%	0.03%
12b-1 Distribution Fee	None	None
Other Expenses	0.02%	0.01%
Total Annual Fund Operating Expenses	0.14%	0.04%





# Analyzing and Evaluating Mutual Funds

Jeff Holt, CFA

Director, Multiasset & Alternative Strategies

May 21, 2018

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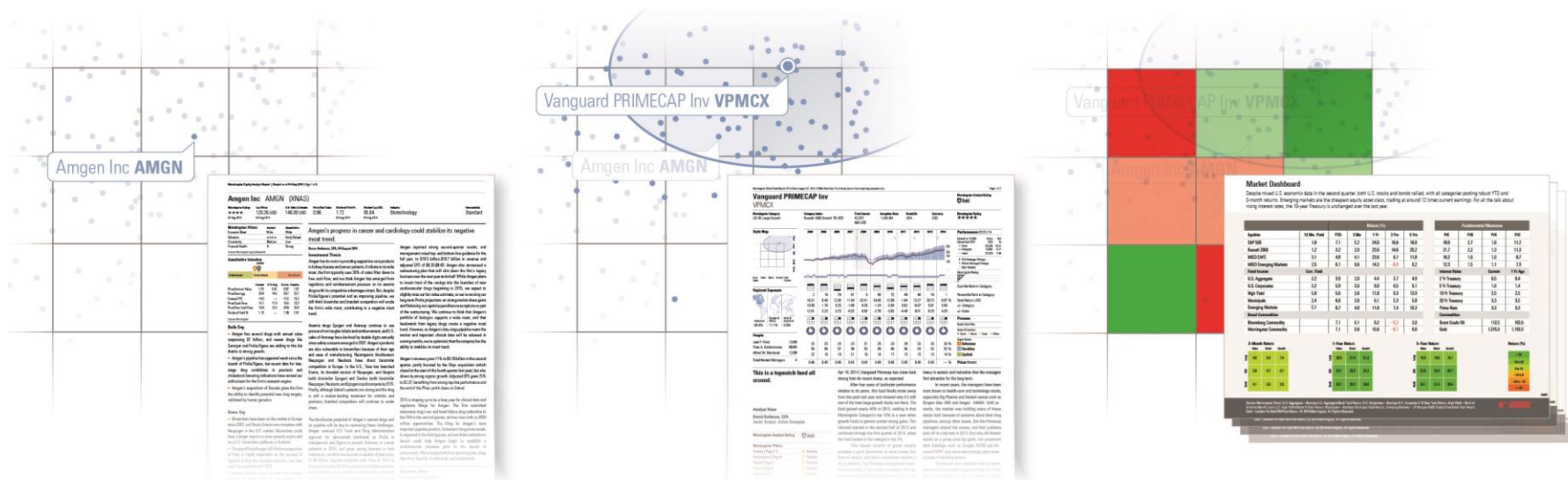


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Morningstar is a **global** and **independent** manager research provider. Our long-term outlook and “Investors First” mission differentiate our research in the industry.

# Delivering a Full Market Perspective

Morningstar's bottom-up research generates an unparalleled perspective on the global investing environment.



## Equity and Credit Research

Starting at the individual security level, the research team frames their analysis of stocks and bonds around the evaluation of a company's sustainable competitive advantage.

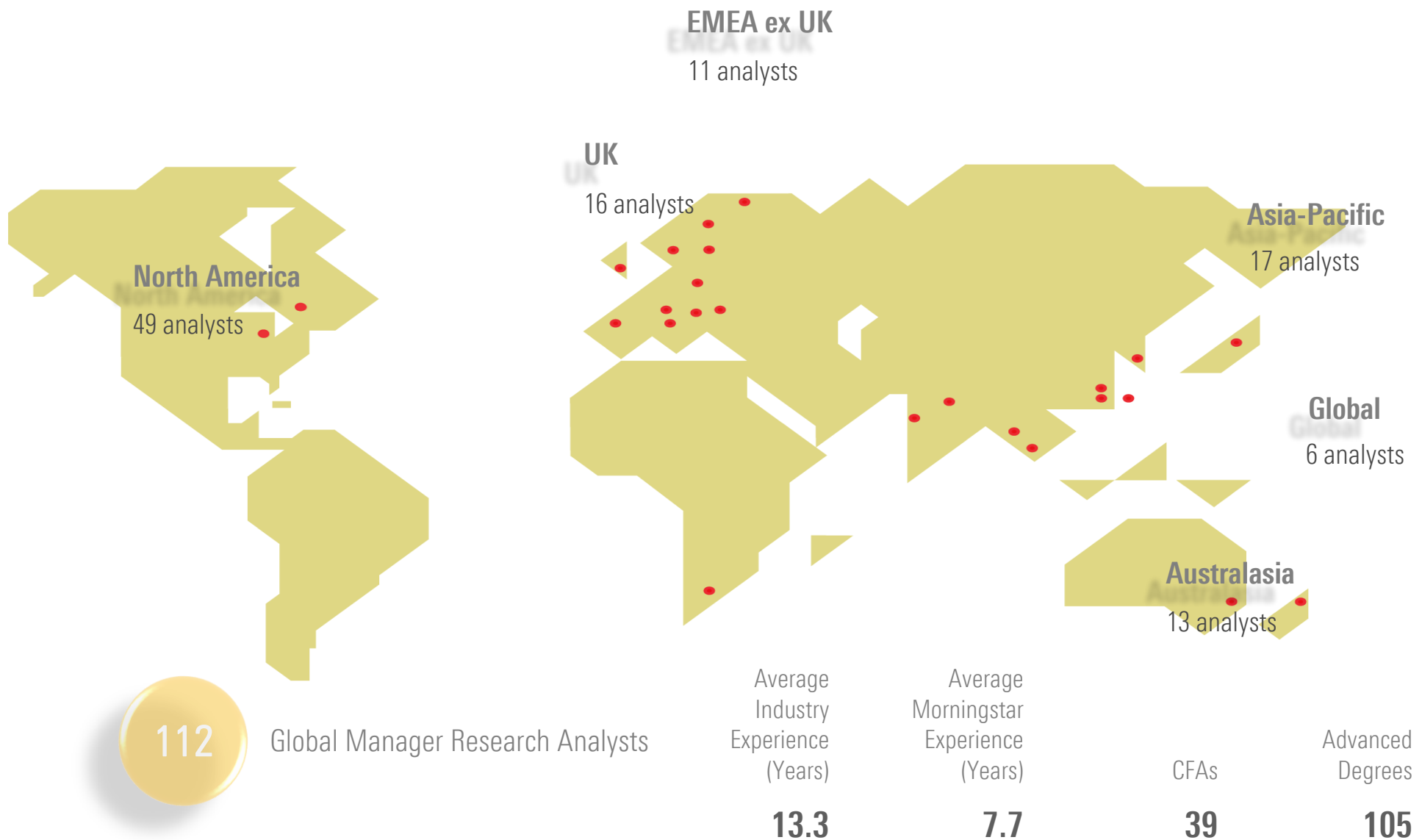
## Manager Research

Building on the research of stocks and bonds, our manager research analysts evaluate strategies and managers based on five key areas—people, parent, process, performance, and price.

## Markets Research

By gathering timely insights from Morningstar's sector teams, equity analysts, and credit analysts, the markets team delivers a clear account of economic activity worldwide.

## Global Scope, Local Expertise



Source: Morningstar Research Services LLC as of 2/28/2018. Analyst statistics exclude the Manager Selection team.

## Manager Research Coverage (U.S. Strategies)

Our U.S. manager research group assigns forward-looking, qualitative ratings for 1,842 mutual funds, exchange-traded funds, and separate accounts.

### Manager Research Analysts



### Analyst Ratings (U.S.)



Source: Morningstar Research Services LLC. As of 12/31/2017, our U.S. research group provided qualitative coverage for 1,606 open-end mutual funds, 184 exchange-traded funds, 16 closed-end funds, and 36 separate accounts.

# The Evolution of Fund Rating Systems

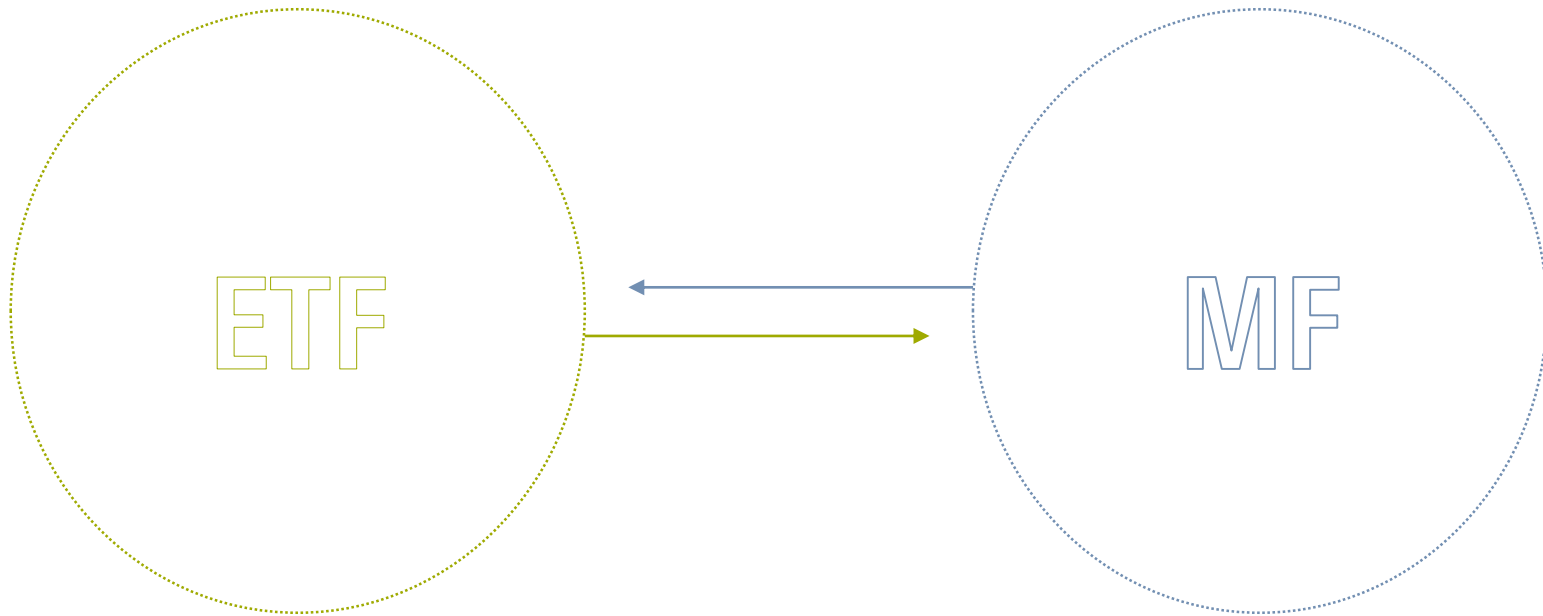
Our ratings have evolved over the years to help investors.



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## Peer Group Classifications

We analyze mutual funds and ETFs using the updated Morningstar Category methodology.



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Morningstar Rating™



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Morningstar Analyst Rating™



# Manager Research Review Process

Our manager research group assesses strategies based on their perceived future performance over a full economic cycle, against peers and industry-accepted benchmarks. We reward managers that are open and transparent about their investment process, which should be well-defined.



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# Manager Research Framework

Our manager research group focuses on five pillars, which we believe identify the strategies most likely to outperform their peers over the long run on a risk-adjusted basis. Final decisions are based on interviews with the portfolio manager(s).



## People

How talented are the fund's managers and analysts? Do the experience and resources match the strategy?



## Process

What is the fund's strategy and does management have a competitive advantage enabling it to execute the process well and consistently over time?



## Performance

Is the fund's performance pattern logical given its process? Has the fund earned its keep with strong risk-adjusted returns over relevant time periods?



## Parent

What priorities prevail at the firm? Stewardship or salesmanship?



## Price

Is the fund a good value proposition compared with similar funds sold through similar channels?



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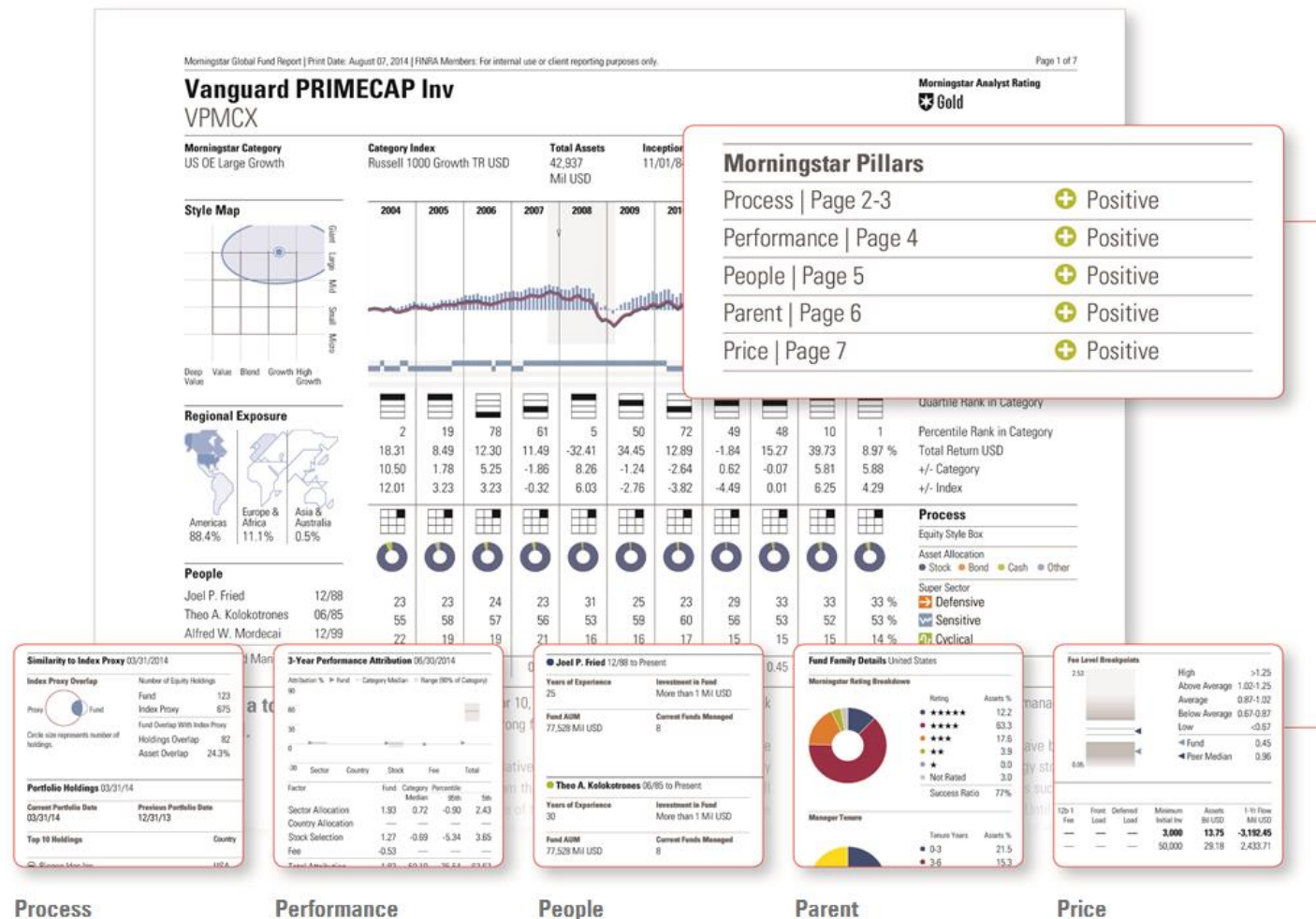
## Ratings Reviews and Oversight

Our analyst team works collectively to determine ratings. The process includes extensive holdings- and returns-based research, manager interviews, and a ratings committee to ensure consistency and rigorous peer review. Coverage is determined independently.



# Analyst Commentary

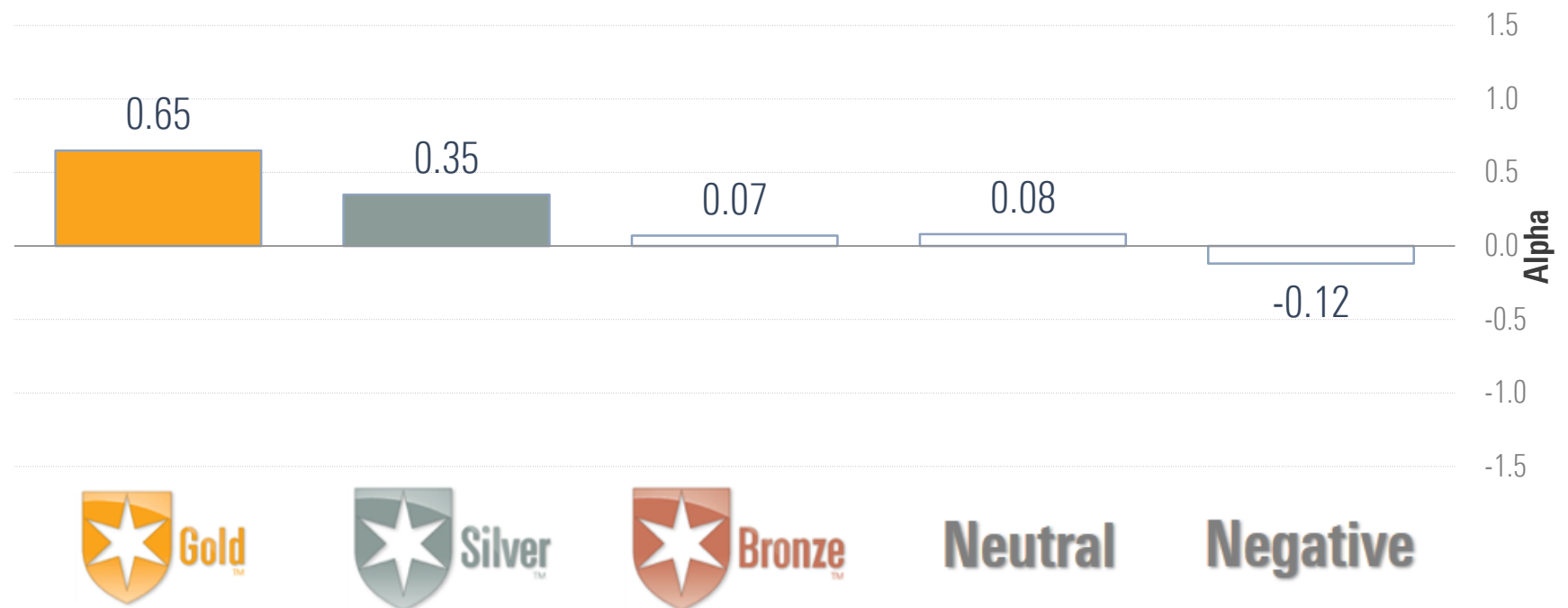
Global Fund Reports provide analyst commentary on a fund's future prospects.



## Analyst Ratings Efficacy

Medalist funds have provided investors with higher alpha since 2011.

Average Annualized Alpha for U.S. Mutual Funds  
3-Year Rolling Time Periods

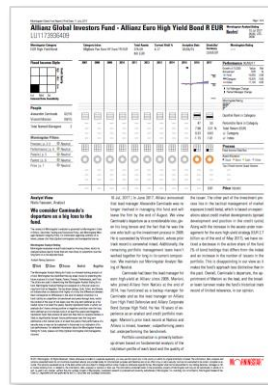
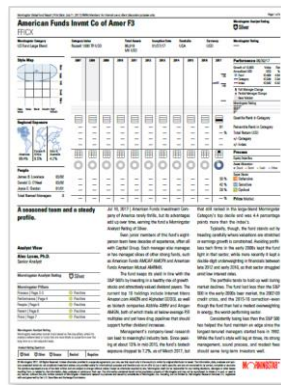


Source: Morningstar, Inc. as of 12/31/2017. Benchmark: Category Average.

# Manager Research Reports

Our analysts' manager research reports cover a broad range of topics.

## Fund Research



- Mutual Funds
- ETFs

## Thematic Research



- Landscape Reports
- Global Fee Studies
- White Papers

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The Average Annualized Alpha calculations are performed by Morningstar's Research Operations group. Calculations use a single open-end share class used to represent each Analyst-rated fund. The category average return series includes only open-end share classes, excludes leveraged funds, converts all share classes to a common currency, calculates fund-level returns by equal-weight averaging of the share class returns, and then equal-weight averages all fund-level returns in the category.

## **California Secure Choice**

Program Investment Options – Defining the Choices

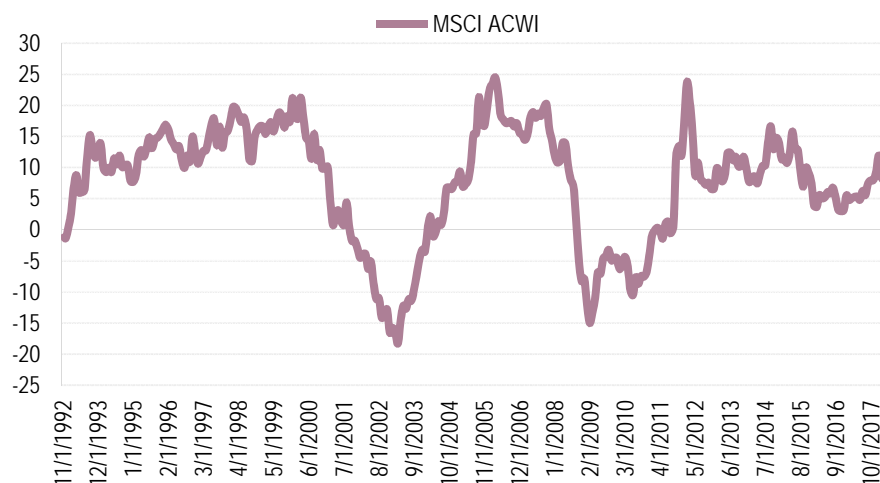
## Options Overview

Investment Option	Investment Objective	Investment Approach Recommendation	Expected Risk	Expected Return	Benchmark
Global Equity	To match as closely as possible the risk and returns of U.S. and International stocks, before expenses, through broad replication to the asset class index. <b>Primary Objective: Growth, through exposure to the equity markets</b> <b>Secondary Objective: Income</b>	Passive	Higher	Higher	MSCI ACWI Index
Core Bond	To replicate as closely as possible the performance and risk of U.S. investment-grade bonds, through broad exposure to the asset class index. <b>Primary Objective: Income</b> <b>Secondary Objective: Potential Appreciation</b>	Passive	Lower	Lower	Bloomberg Barclays U.S. Agg
Capital Preservation Fund	To ensure assets are protected from a permanent loss of capital through a conservative strategy, usually by investing in fixed income securities or other low risk investments such as cash/money market funds. <b>Primary Objective: Investment Safety</b> <b>Secondary Objective: Liquidity</b>	Passive	Lower	Lower	U.S. Treasury 3-Month
ESG Fund	To ensure key criteria related to environmental, social and governance is incorporated into the investment analysis of the investment strategy. Typically either equity or a blend of equity and fixed income exposure. <b>Primary Objective: ESG Focus</b> <b>Secondary Objective: Growth</b>	Active	Moderate to High	Moderate to High	TBD
Target Date/ Target Risk Funds	To provide a diversified portfolio of stocks and bonds, that best reflects the individual investor's retirement time horizon /risk appetite. <b>Primary Objective: Diversification</b> <b>Secondary Objective: Growth</b>	Active/ Passive	Risks will Vary Low to High	Low to High	TBD

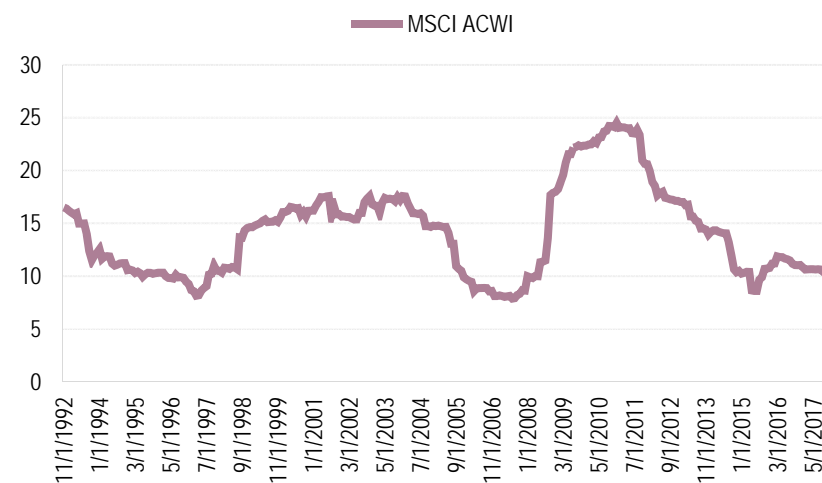
## Global Equity

- A portfolio composed of US, International and Emerging Market securities that seeks to mimic performance and security characteristics similar to its underlying benchmark, the MSCI ACWI Index.
- **Passive** Investment strategy recommended.
- Will provide participation across regions, sectors and industries.
- As the investment option with the highest growth characteristics, will carry the greatest volatility (risk).
- Advantages: Broad diversification, low management expenses, growth exposure.

Rolling 3 yr Annualized Returns



Rolling 3 yr Annualized Standard Deviation



Upper bound return: 24.5%

Lower bound return: -18.3%

Upper bound risk: 24.5%

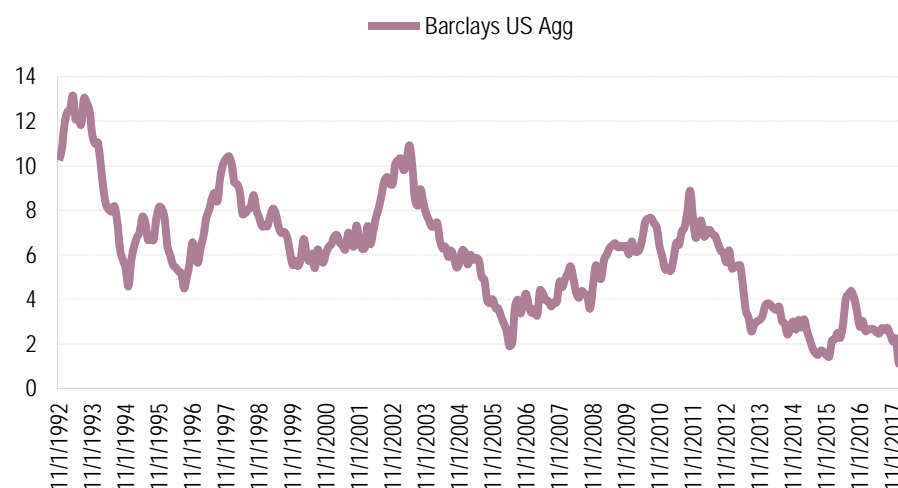
Lower bound risk: 7.9%



## Core Bond

- A portfolio comprised of high quality fixed income securities that seeks to mimic performance and security characteristics similar to the Bloomberg Barclays Aggregate Index.
- **Passive** Investment strategy recommended.
- Will provide participation in several market segments: U.S. Treasury, mortgage-backed securities, investment-grade corporate bonds.
- Advantages: Broad diversification, low management expenses, income exposure.

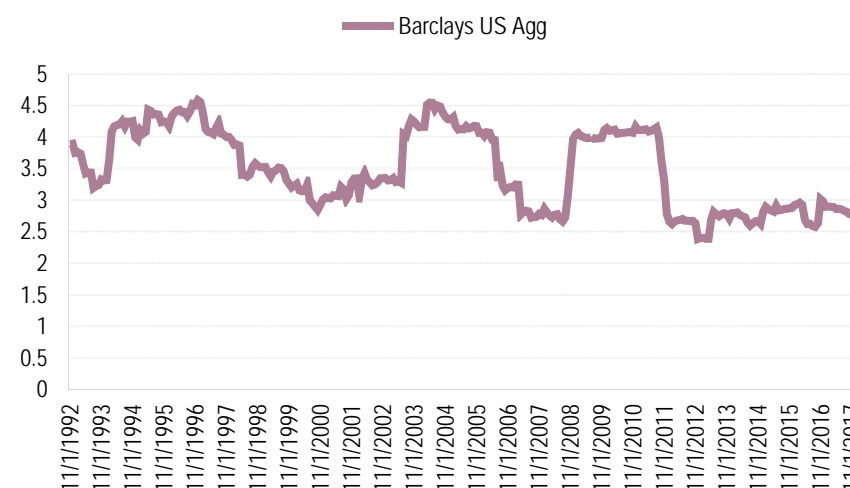
Rolling 3 yr Annualized Returns



Upper bound return: 13.1%

Lower bound return: 1.1%

Rolling 3 yr Annualized Standard Deviation



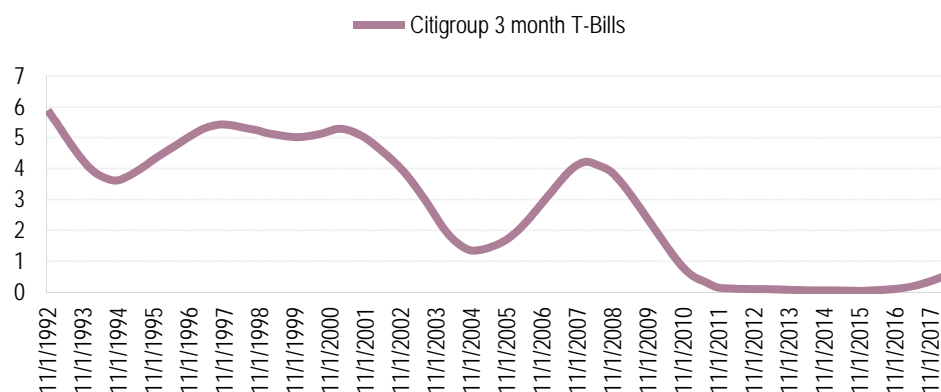
Upper bound risk: 4.6%

Lower bound risk: 2.4%

## Capital Preservation Fund

- A portfolio comprised of highly liquid debt securities characterized by short maturities and minimal credit risk.
- Types of securities invested: US Treasury Bills, highly-rated corporate or government bonds.
- Types of Funds: Money Market fund or similar low risk-return type of fund
- As the Investment Option considered to be the most conservative, will carry the lowest volatility (risk).
- While the Option seeks protection on the principal investment, the fund has the potential to lose money under extreme market conditions or other factors.
- Main risk of any capital preservation strategy is the erosion of assets over time due to inflation.
- Advantages: Low management expenses, capital preservation, potential for modest yield (although often with rates lower than the current rate of inflation).

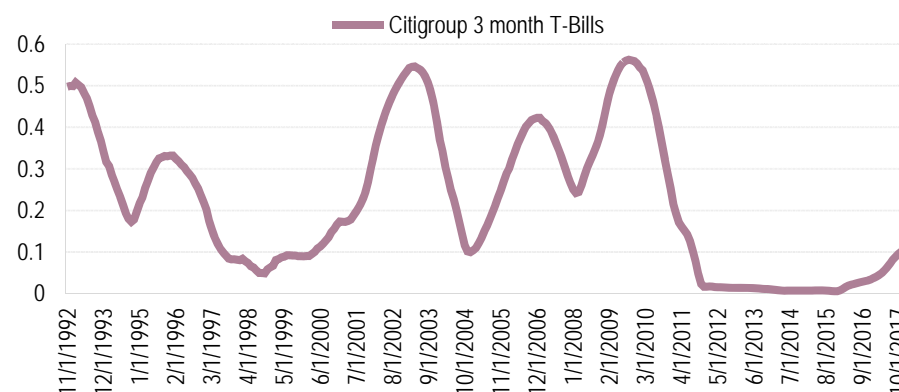
Rolling 3 yr Annualized Returns



Upper bound return: 4.6%

Lower bound return: 2.4%

Rolling 3 yr Annualized Standard Deviation



Upper bound risk: 0.6%

Lower bound risk: 0.0%

## ESG Fund

- Security selection is based on quantitative and/or qualitative assessment of Environmental, Social and Governance factors.
- **Active or Passive** Investment strategy to be determined.
- Should provide broad participation in various market segments but will deviate from its underlying index given the ESG criteria applied. Will introduce tracking error and potentially impact performance.
- ESG strategies can be focused on equities, fixed income securities, or a combination of the two, and come in a variety of flavors.
- While an equity only offering may provide higher returns, it does at higher risk levels. Alternatively, a balanced ESG portfolio comprised of equity and fixed income securities, may provide smoother returns, though lower over long time periods. Meketa recommends waiting on bidder responses to fully assess which one is most beneficial.
- There is no universal definition of what constitutes an ESG strategy. Some will avoid exposures through exclusionary screening, such as fossil fuels, while others may find themselves on the other end of the spectrum and seek targeted outcomes, such as targeting positive impacts on the environment by buying green bonds, as an example.
- Advantages: Participants are able to exercise their view on sustainable investing, to consider not only returns but consider the broader implications and impact businesses have on society and environment.

### Target Based Funds

- Asset allocation is the primary driver of returns.
- Portfolio construction of the funds is **Active**, underlying funds are **Passive or Active** investment strategies. Meketa recommends a **passive** underlying structure.
- Target Date Funds (“TDF”) are designed to offer the investor a simplified approach to asset allocation by constructing a well-diversified portfolio made up of several underlying Funds. Typically, they include:
  - Equity Funds: US Large Cap, US Small Cap, International Developed
  - Fixed Income Funds: Short and Long-Term Maturities
  - Other Funds: Commodities, REITS
- TDFs asset allocation changes over time, gradually becoming more conservative as the time horizon changes. This movement is called the fund’s glide path.
- For TDFs, the year in the fund name refers to the approximate year (the target date) when an investor in the fund would retire and leave the workforce.
  - Target Date 2025, Target Date 2035, or Target Date 2045
- Advantages: Participants can obtain an asset allocation that better aligns the investor’s goals with his/her retirement goals, one that is automatically rebalanced and reallocated as target retirement age nears.

## Risk Based Funds

- Asset allocation is the primary driver of returns.
- Portfolio construction of the funds is **Active**, underlying funds are **Passive or Active** investment strategies. Meketa recommends a **passive** underlying structure.
- Similar to TDFs, risk-based funds are designed to offer the investor a simplistic approach to constructing a broadly diversified portfolio. However, whereas TDFs allocation to the asset classes change over time, risk-based funds provide a fixed allocation that does not change over time.
- Whereas target-date funds rebalance in order to keep participants on target with achieving a specific goal at retirement, risk-based funds rebalance in order to maintain a constant risk profile for the participant.
- For a risk-based fund, the fund name often reflects the investor's risk profile:
  - Conservative, Moderate Growth, or Aggressive
- Advantages: Participants can better match their asset allocation to their own risk profiles.

# Insights from Behavioral Finance

- Defined Contribution Plans
  - Defaults are Important
  - Plan Design can affect behavior
- Target Date Funds

# Plan Design and Savings

Four Key Dimensions of Plan Design (Benartzi and Thaler, 2013):

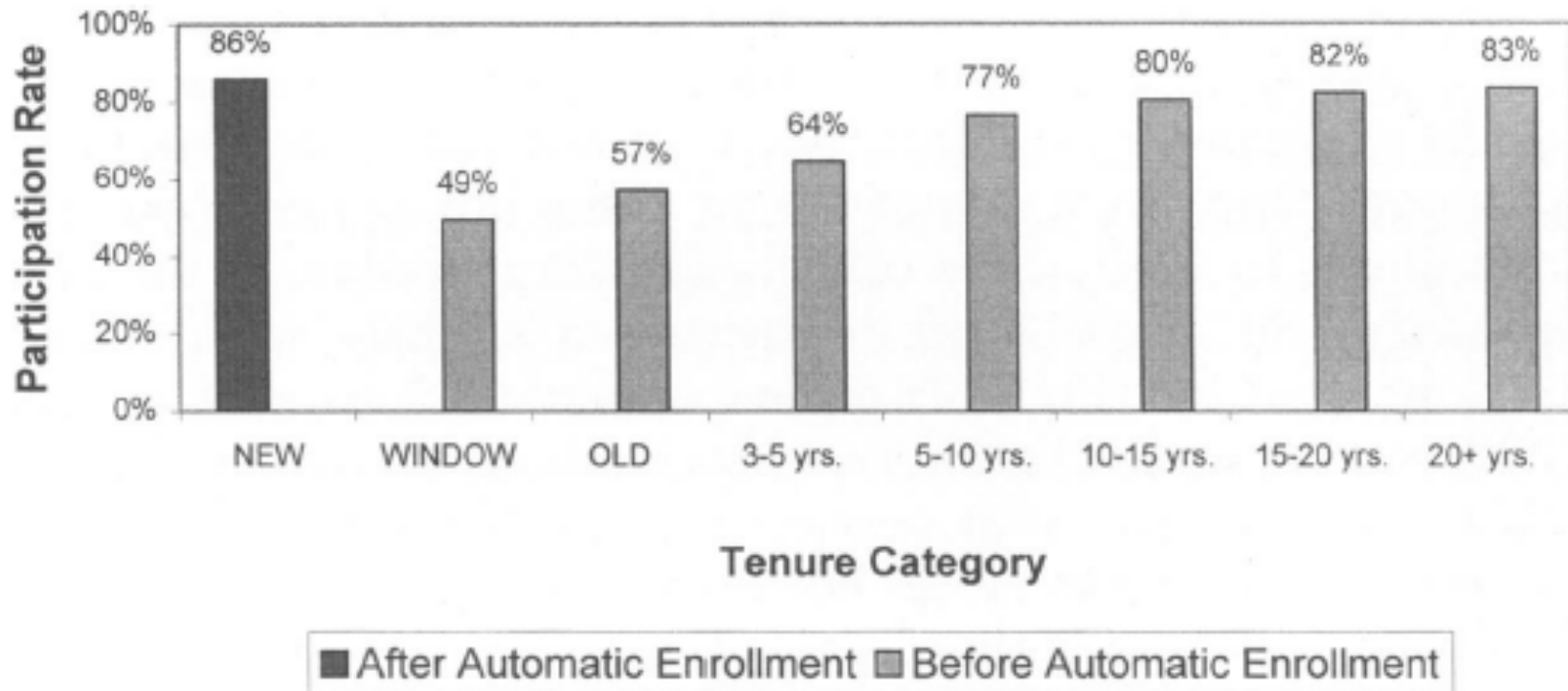
- Availability
- Auto Enrollment
- Auto Investment
- Auto Escalation

# **AUTO ENROLLMENT**



# Auto Enrollment in 401k

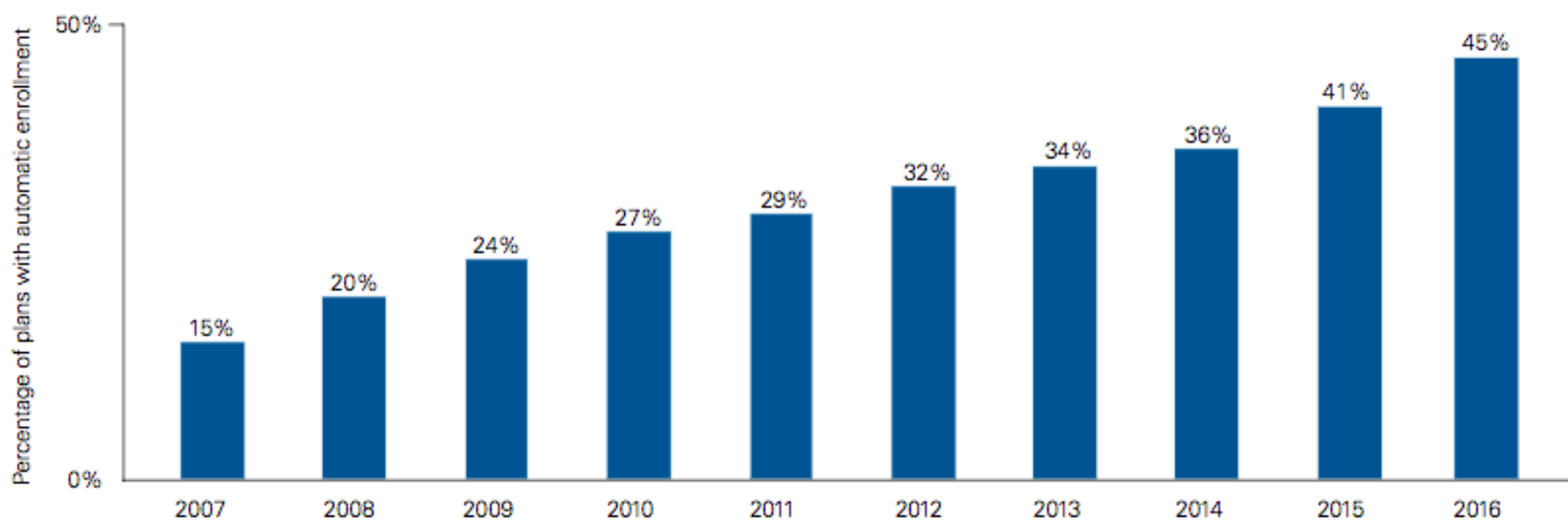
(Madrian and Shea, 2001)



**FIGURE I**  
**401(k) Participation by Tenure**

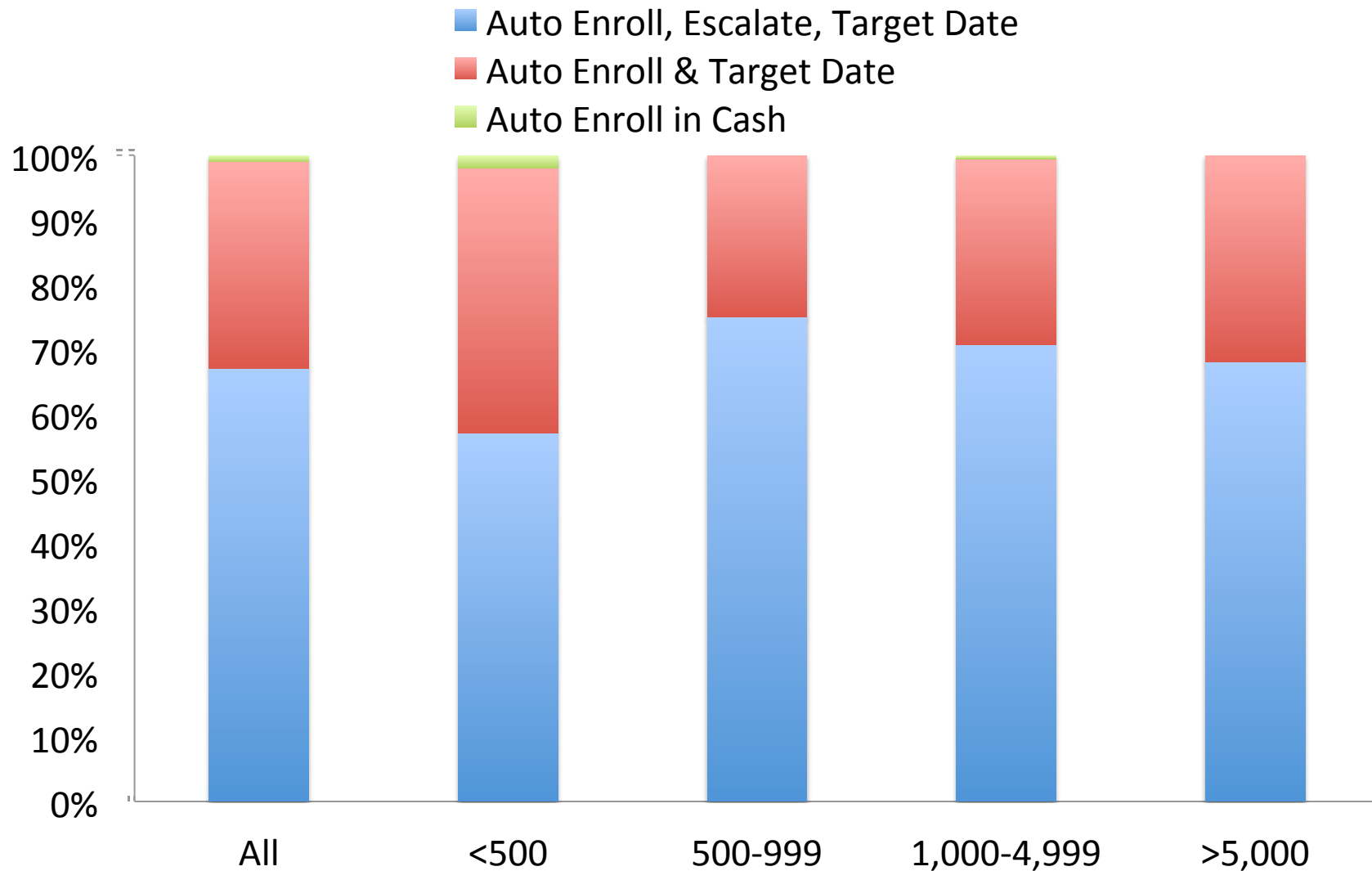
**Figure 15.** Automatic enrollment adoption

*Vanguard defined contribution plans with employee-elective contributions*



Source: Vanguard, 2017.

# Types of Auto Enrollment



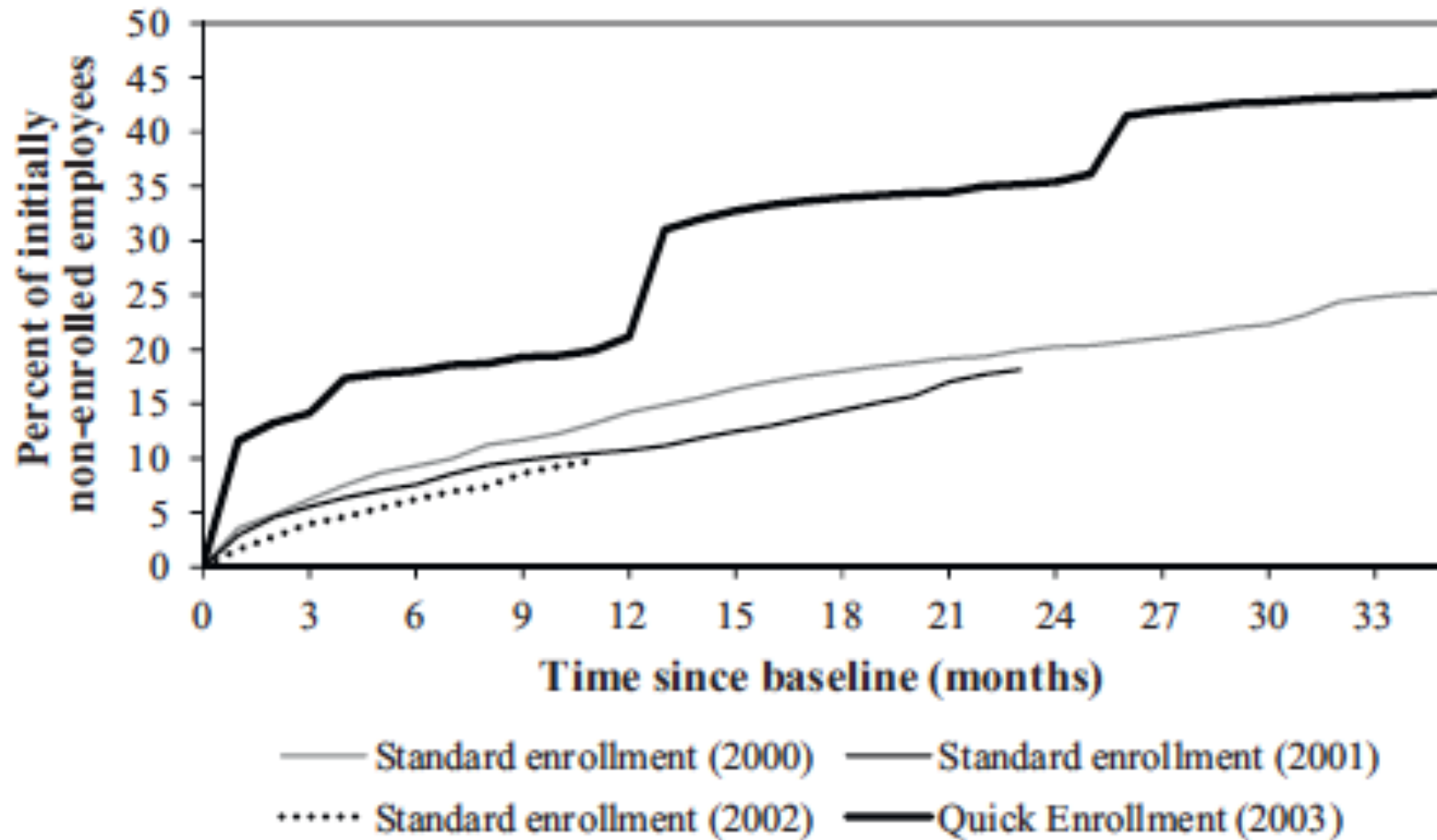
# Simplifying Savings Decisions

(Beshears et al., 2013)

- Quick Enrollment
  - New Employees are given “Quick Enrollment” cards
  - Cards give the choice of a single box that begin enrollment at
    - Specified Savings Rate (e.g., 3%) and
    - Investment Option (e.g., target date fund)

# Savings Plan Enrollment Rates Standard v. Quick Enrollment

(Beshears et al., 2013)



# **AUTO ESCALATION**

# Auto Escalation

(Thaler and Benartzi, 2004)

- SMarT plans – Save More Tomorrow
- Escalate savings rates over time.
  - Commit future raises to savings
  - Commit to increase savings rate by 1% per year

# How effective is SMarT?

## Utkus (2002)

Large U.S. Employer. Treatment groups were low savers at two divisions v. a control group at the firm's other division.

Treatment group was offered the opportunity to increase savings by 1%, 2%, or 3% (with a cap of 10% on the total savings rate through auto escalation)

- Division A – consumer products division in Pacific Northwest
- Division B – tech-oriented business in Southwest.
- Control Group – Firm's other 28 Divisions

*Figure 1.*

### Test and Control Groups

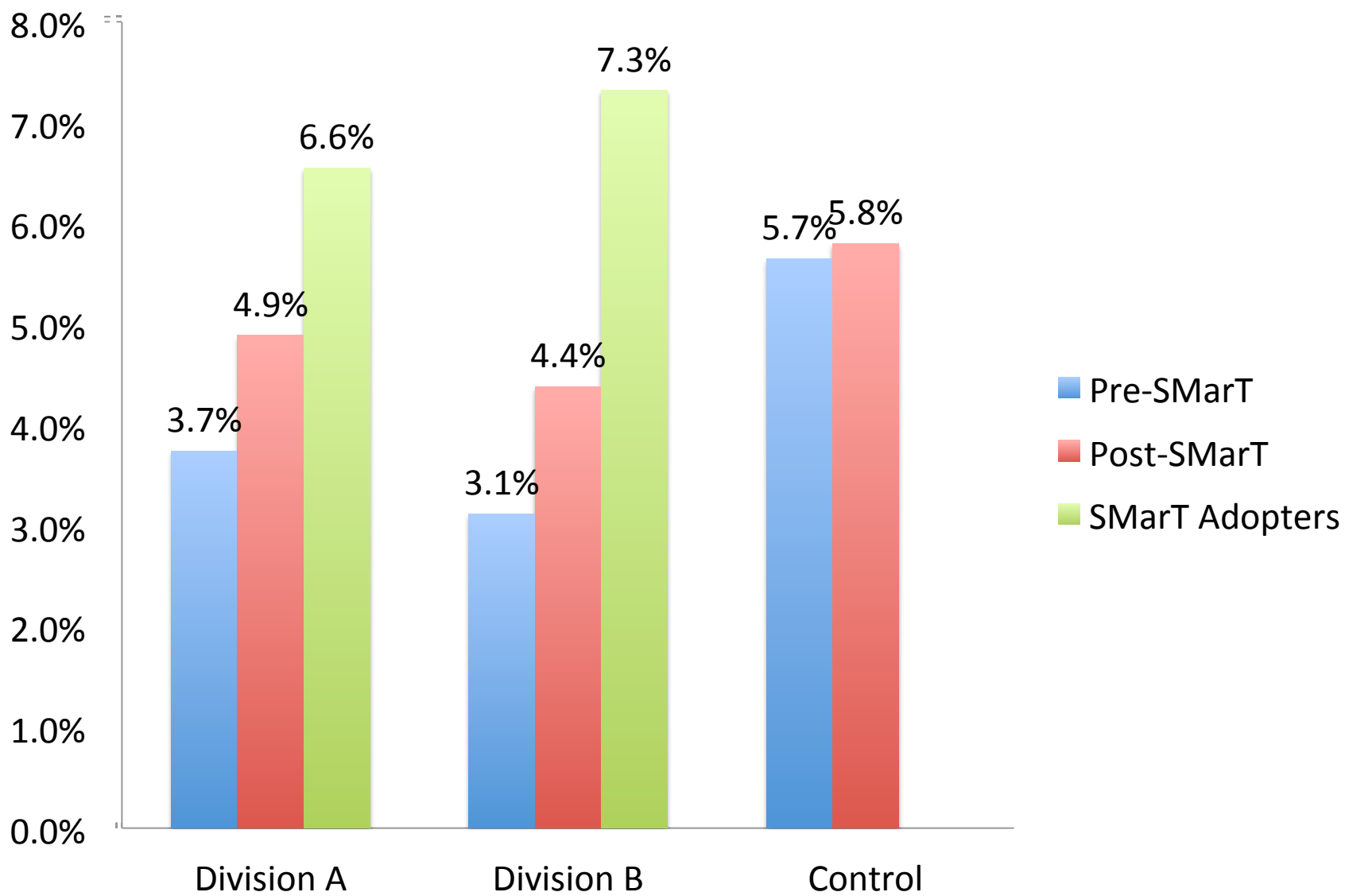
	Number of employees	Average deferral rate December 2001
Division A	366	3.74%
Division B	449	3.12%
<b>Test group</b>	<b>815</b>	<b>3.40%</b>
Control group	14,458	5.65%

*Figure 3.*

### SMarT Enrollment Results

	Number of employees	Number of SMarT enrollees	Percentage signing up for SMarT
Division A	366	140	38%
Division B	449	76	17%
<b>Test group</b>	<b>815</b>	<b>216</b>	<b>27%</b>





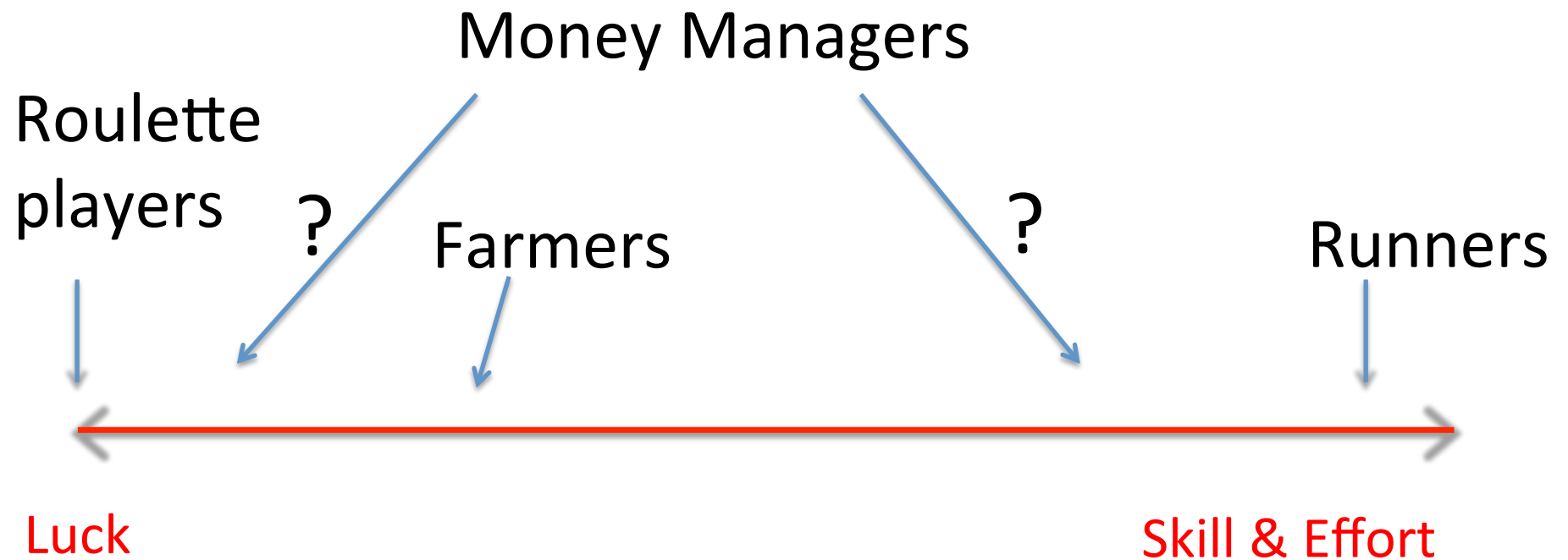
# **AUTO INVESTMENT**

# Defaults and Asset Allocation

## (Beshears et al., 2009)

**Table 5.1**                      **Automatic enrollment and asset allocation outcomes: Company A (%)**

	Hired after automatic enrollment (15–24 months tenure)		Hired before automatic enrollment (25–48 months tenure)	
	3% default contribution rate	6% default contribution rate	Participated before automatic enrollment	Participated after automatic enrollment
Any balances in default fund	33.8	46.5	9.9	86.1
All balances in default fund	25.6	39.5	1.4	61.1
100% default fund + default contribution rate	18.1	32.6	0.0	52.8



Suppose you had \$10,000 and could invest it one of these four S&P 500 Index funds for the next year. Which would you choose?

	Allegiant	UBS	Mason Street	Morgan Stanley
Ticker	AEXAX	PSPIX	MISAX	SPIAX
Annual expense ratio	0.59%	0.70%	0.80%	0.64%
Front end load (fee charged when you buy the fund)	2.50%	2.50%	4.75%	5.25%
Return since inception (annualized)	1.28%	2.54%	5.90%	2.54%

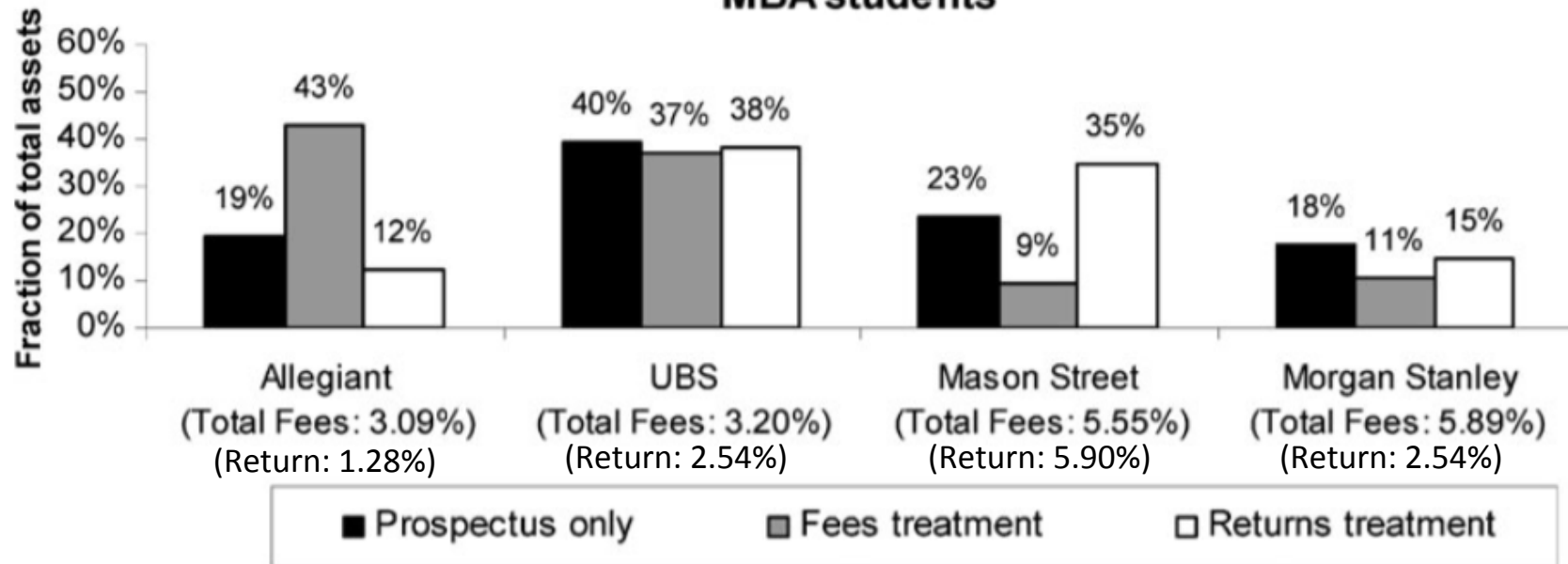
- a) Allegiant, AEXAX
- b) UBS, PSPIX
- c) Mason Street, MISAX
- d) Morgan Stanley, SPIAX

# The Experiment: Three Treatments

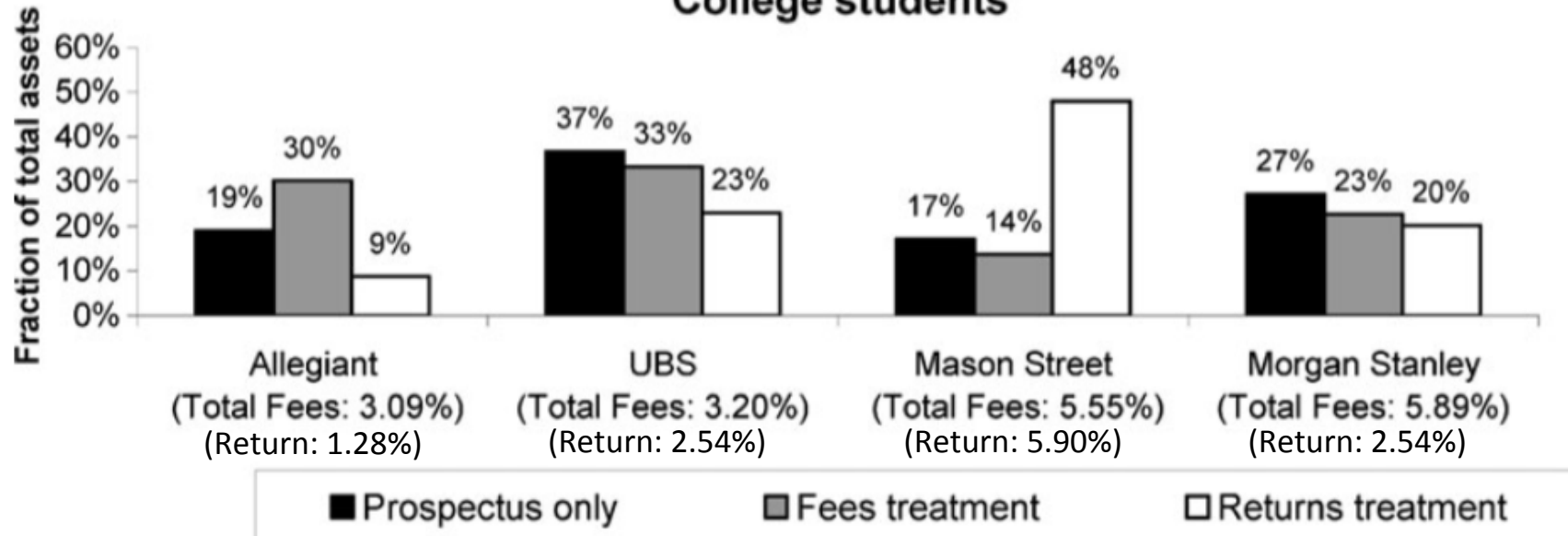
## (Choi et al., 2009)

- Control
  - Prospectus Only
- Fee Treatment
  - one-page “cheat sheet” that summarized the funds’ front-end loads and expense ratios.
  - Prospectus
- Return Treatment
  - summary sheet that showed the longest-horizon historical annualized return reported in each funds’ prospectus.
  - Prospectus

### MBA students

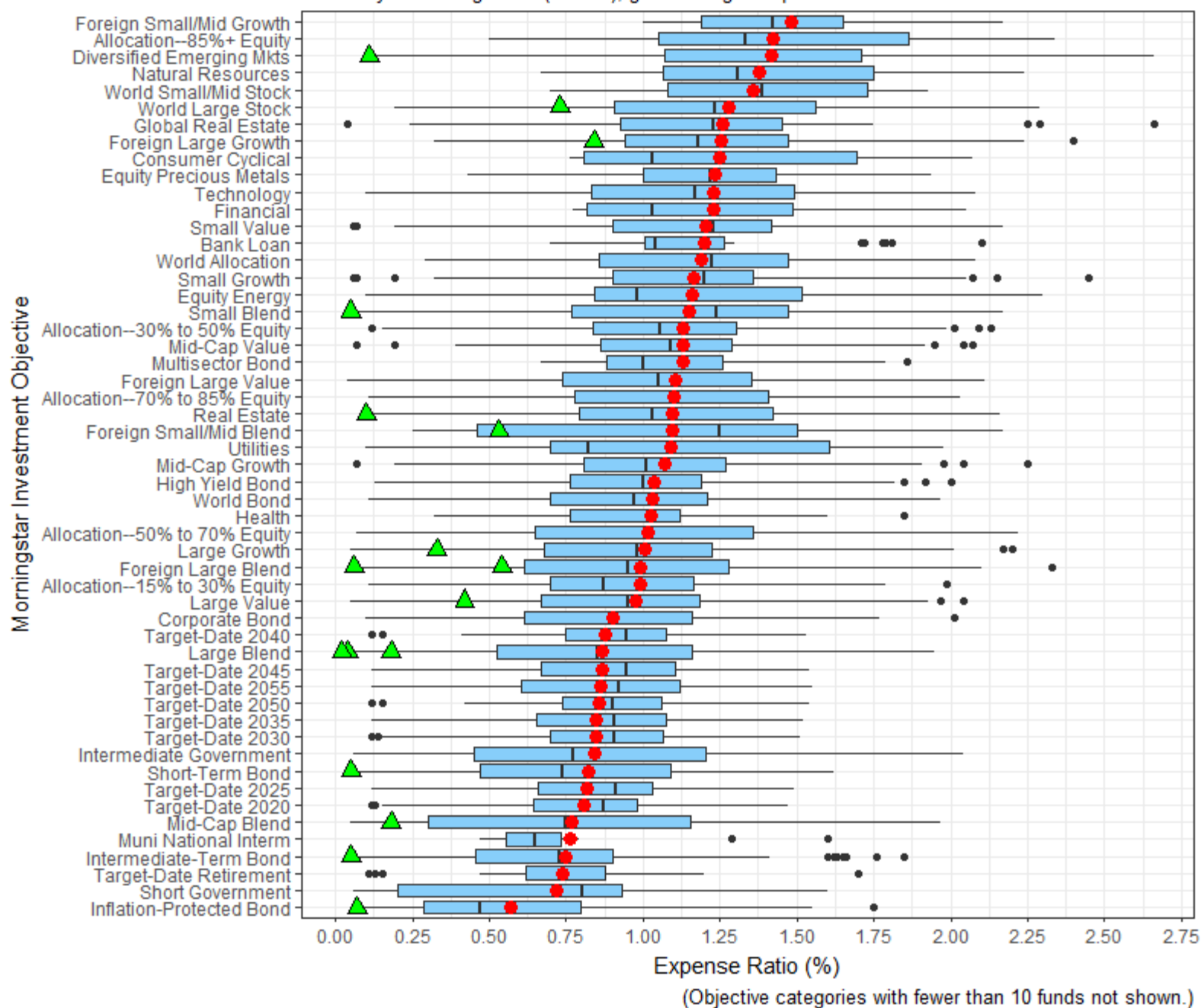


### College students



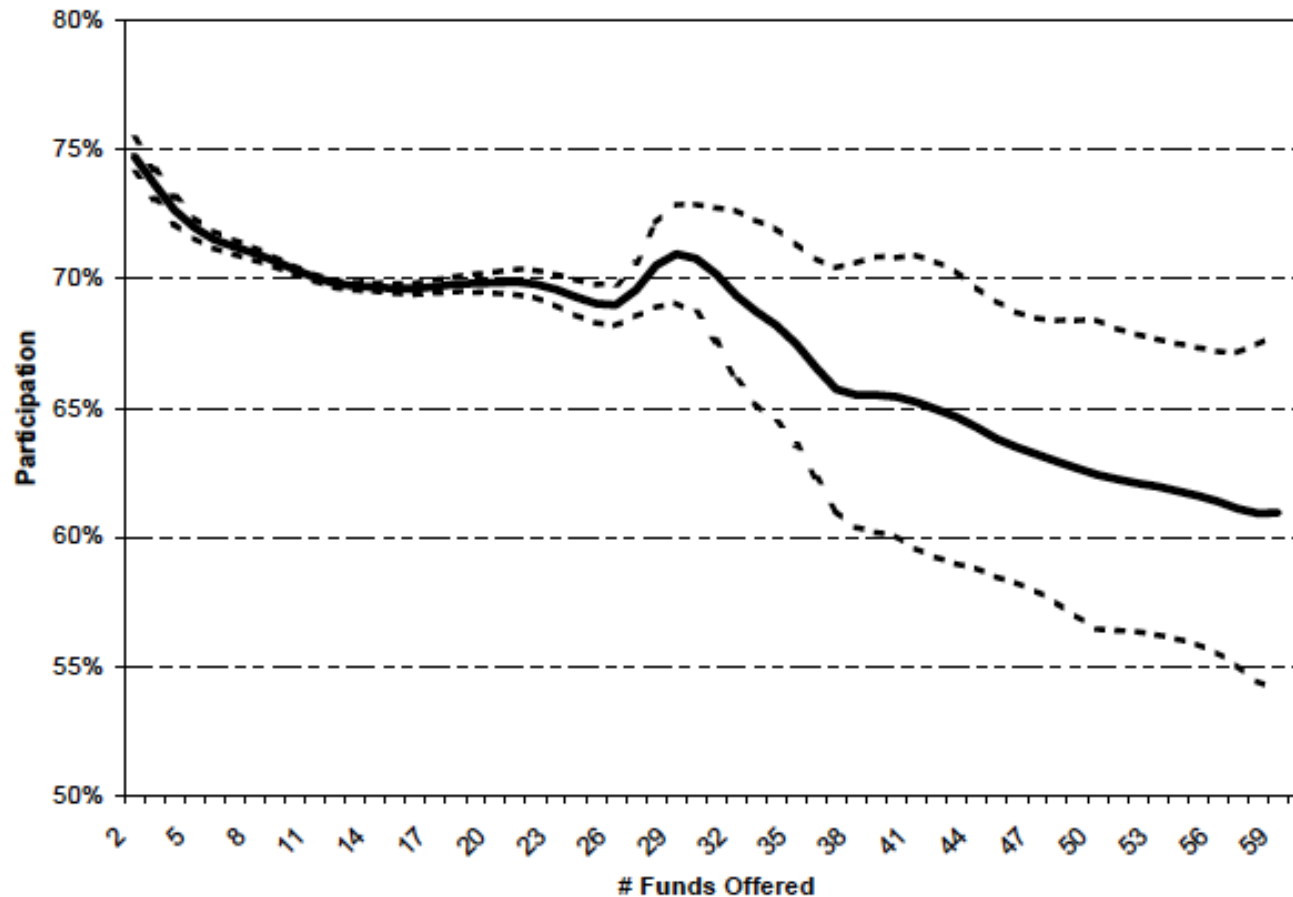
## California 403(b) Fund Expense Ratios by Investment Objective

Sorted by increasing mean (red dot); green triangles represent all Pension2 funds.





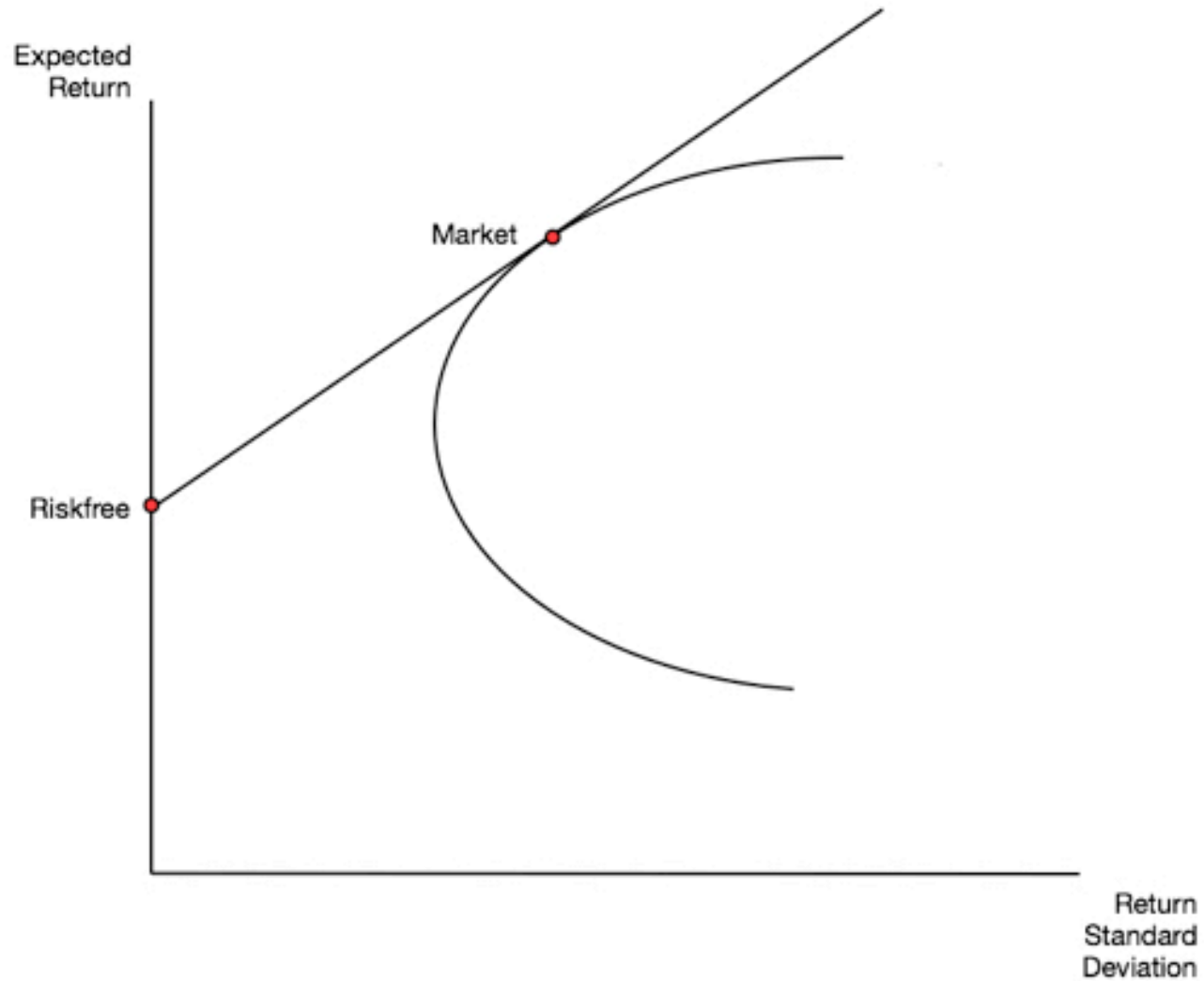
# Choice and Participation Rates (Iyengar, Huberman, and Jiang, 2004)



**Figure 2.** The Relation between Participation and Number of Funds Offered

# **TARGET DATE FUNDS**

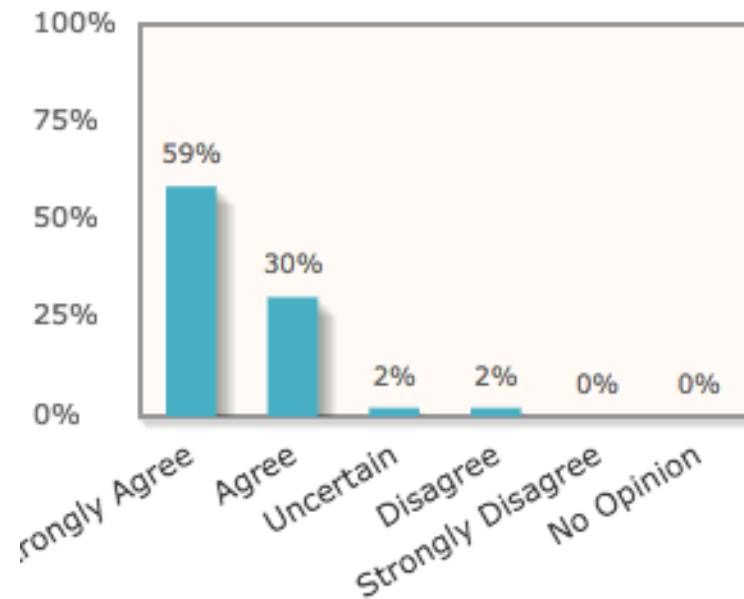
# Economic Theory: CAPM



# Diversification

**In general, absent any inside information, an equity investor can expect to do better by choosing a well-diversified, low-cost index fund than by picking a few stocks.**

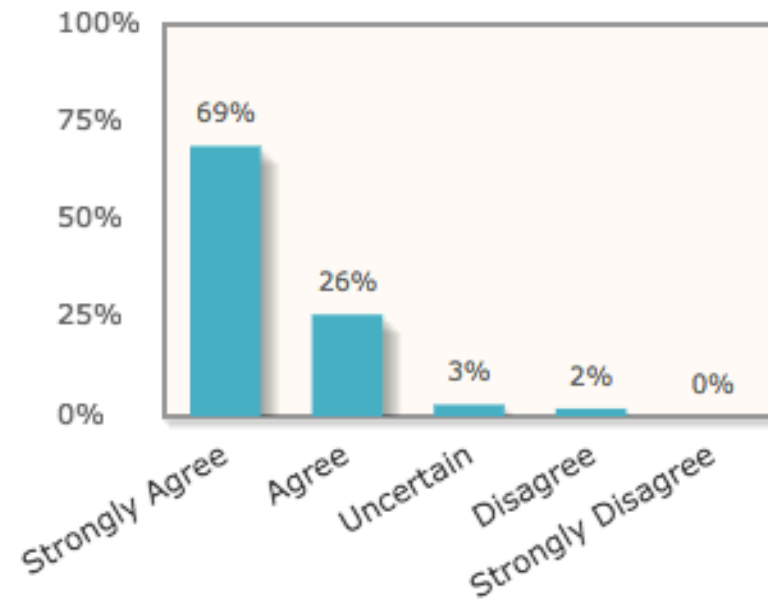
## Responses



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Source: IGM Economic Experts Panel  
[www.igmchicago.org/igm-economic-experts-panel](http://www.igmchicago.org/igm-economic-experts-panel)

## Responses weighted by each expert's confidence

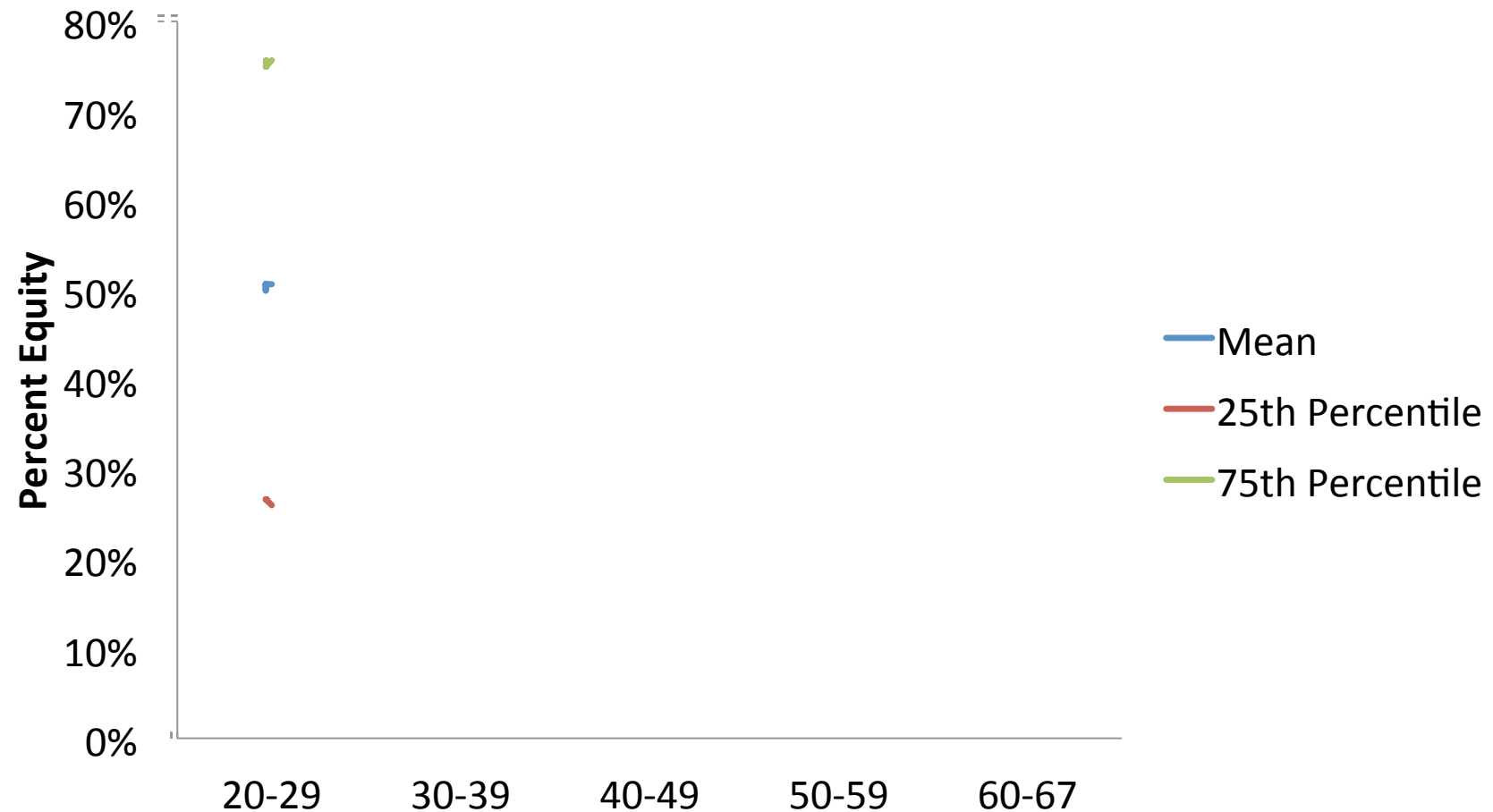


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Source: IGM Economic Experts Panel  
[www.igmchicago.org/igm-economic-experts-panel](http://www.igmchicago.org/igm-economic-experts-panel)

# Equity Allocation by Age

Survey of Consumer Finance, 2013



# The Market for TDFs

(Balduzzi and Reuter, 2018)

	# Families offering one or more TDF within target date range							# Families			AUM	Market leader	Market share		
	Income & 2000	2005 & 2010	2015 & 2020	2025 & 2030	2035 & 2040	2045 & 2050	2055 & 2060	Total	Enter	Exit			Market leader	Top 3 families	Post-PPA entrants
1994	1	1	1	1	1			1	1		278.4	Wells Fargo	100.0%	100.0%	
1995	1	1	1	1	1			1			590.1	Wells Fargo	100.0%	100.0%	
1996	3	3	3	3	2			3	2		894.2	Wells Fargo	63.9%	100.0%	
1997	2	3	3	3	2			3			1,499.4	Wells Fargo	42.7%	100.0%	
1998	2	3	3	3	2			3			4,159.2	Fidelity	65.9%	100.0%	
1999	4	4	4	4	3			4	1		6,525.5	Fidelity	76.6%	99.5%	
2000	4	4	4	4	4			4			8,215.1	Fidelity	80.4%	99.4%	
2001	4	5	5	5	5	1		5	1		11,828.8	Fidelity	85.1%	99.1%	
2002	6	6	6	6	6	1		6	1		14,509.5	Fidelity	88.1%	97.8%	
2003	9	9	9	9	9	2		9	3		25,632.2	Fidelity	85.1%	92.6%	
2004	12	11	12	12	12	4		13	4		43,729.2	Fidelity	71.0%	85.3%	
2005	17	17	20	20	19	7		20	7		70,211.3	Fidelity	61.5%	85.3%	
2006	20	21	27	27	25	12	1	27	7		115,958.0	Fidelity	54.9%	84.0%	
2007	24	28	35	35	32	22	2	35	8		174,647.8	Fidelity	50.5%	81.0%	1.5%
2008	31	33	44	44	43	35	3	44	9		159,717.1	Fidelity	42.8%	79.5%	2.7%
2009	28	31	40	40	40	34	3	40	1	5	254,826.0	Fidelity	39.0%	77.5%	3.7%
2010	27	27	39	39	39	36	8	39		1	339,879.4	Fidelity	36.7%	76.3%	4.2%
2011	27	26	40	40	40	38	15	40	1		375,686.1	Fidelity	34.6%	75.7%	4.5%
2012	28	22	37	37	37	35	19	37	1	4	480,162.4	Fidelity	32.7%	75.1%	4.4%

# Cross-Sectional Dispersion in TDF Returns

(Balduzzi and Reuter, 2018)

	Returns	Alphas
Mean	25.1%	n.a.
Standard Deviation	4.4%	3.1%
Range	23.5% (11.9% to 35.4%)	12.9%

2009 Returns for TDFs with 2015 or 2020 Target Date

# Specialized Assets and TDFs

(Elton et al., 2015)

**Table 2**

**TDF holdings of five types of specialized underlying funds (in percent)**

	2003	2004	2005	2006	2007	2008	2009	2010	2011	Add with delay
Emerging market equity	0	0.0%	0.0%	33.3%	45.8%	62.5%	52.5%	62.8%	75.6%	44.1%
Emerging market debt	0	0.0%	0.0%	0.0%	4.2%	15.6%	17.5%	16.3%	22.2%	70.0%
Domestic real estate	0	20.0%	14.3%	33.3%	25.0%	40.6%	35.0%	39.5%	53.3%	58.3%
International real estate	0	0.0%	14.3%	6.7%	29.2%	37.5%	32.5%	34.9%	35.6%	81.3%
Commodities	0	0.0%	0.0%	6.7%	12.5%	18.8%	30.0%	39.5%	40.0%	55.6%

This table shows the percentage of TDFs in our sample for each calendar year that hold each of five types of mutual funds. The last column shows the percent of TDFs that while holding each type of fund did not hold that type in the initial year for which the TDF first reports portfolio data.



# TDF Performance

(Elton et al., 2015)

**Table 6**

## **Overall performance of TDFs**

	Average alpha	Percent negative
A	−0.0638	85%
C	−0.1141	92%
Investor	−0.0275	73%
No load	−0.0226	71%
Average retirement	−0.0548	83%
Maximum retirement	−0.0607	90%

This table shows the monthly alpha of the TDF by share class and the percentage negative within each class.

# TDF Expenses

(Elton et al., 2015)

**Table 4**

Expense ratios across target share classes

Share class	Average total expenses	Average target fund expenses	Average fund underlying expenses
A	1.135	0.527	0.609
C	1.822	1.202	0.62
Investor	0.731	0.249	0.483
No load	0.81	0.132	0.678
Average retirement	1.028	0.417	0.612
Maximum retirement	1.244	0.63	0.616

Average total expenses represents the annual expenses as a percent of assets that an investor who holds the class of shares indicated in the first column would pay. Average target fund expenses are the fees as a percent of assets paid to the target date fund. Average fund underlying expenses represent the fees (as a percent of assets) that are paid to the underlying funds held by the TDF.

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## **California Secure Choice**

Target Date vs. Risk Based Funds

## Target Date Funds – Pros and Cons

### Pros

- Designed to “glide” from higher risk to lower risk over time. Asset allocation changes over time as the investor approaches retirement age, without the participant needing to implement these changes manually.
- Portfolios are automatically rebalanced.
- Ease of Implementation: Through date of birth, or social security information, each participant is “matched” to a retirement age, which then guides to a Target Date Fund which is designed to be invested “to” or “through” that retirement date (e.g., 2040 or 2065).
- Easy to understand, convenient.
- Diversified portfolios of stocks and bonds.
- Wide variety of choices- 65 strategies show up in the eVestment database, 15 of which are actively managed.

### Cons

- Two participants defaulted to the same Target Date Fund, may have very different risk profiles/tolerances.
- Heavy stock allocation in the early years of the glide path may introduce more equity risk than the participant is comfortable with. TDFs assume the younger you are, the more risk you are willing to take.
- Not all TDFs are created equally. Each investment company will have a different investment style (asset allocation) and risk tolerance to its glide path.
- “To” versus “Through” retirement debate.

## Risk Based Funds – Pros and Cons

### Pros

- Easy to understand.
- Diversified portfolios of stocks and bonds.
- Reduced Menu (typically 3 TRFs offered).
- Reasonably long track records.
- Variety of choices- 96 strategies currently in the eVestment Alliance database. 85 of which are active.

### Cons

- Requires a clear understanding of one's own risk profile, or ability for Plan Sponsor to know the demographics of participants in order to select appropriate risk level to default people into.
- Determining participants' risk tolerance requires many more variables beyond a birthdate: very difficult to get large pools of participants to proactively provide risk tolerance information.
- Individual risk preferences likely to change over time. Requires the participant to take the initiative to make these changes. All participants default to the same risk option.

## Investment Options and Default Comparison Table

Plan	Number of Investment Options Available	Default Option	Percentage of Participants Investing in Default Option
<b>Federal Thrift Savings Plan</b>	5 + TDF Suite	Target Retirement Date Fund most closely to the year the participants turns 62.	86% - Number tracked since 2015 when the Default Option was set to TDF Suite
<b>UK National Employment Savings Trust (NEST)</b>	5 + TDF Suite	NEST Retirement Date Fund based on the year they're expected to retire.	99%
<b>OregonSaves</b>	2 + TDF Suite	First \$1,000 into Capital Preservation fund. Subsequent contributions into Target Retirement Date fund.	99%
<b>Illinois Secure Choice</b>	3 + TDF Suite	Target Retirement Date Fund.	N/A – The program will begin a Phase I pilot program July 1, 2018
<b>CA Savings Plus (not auto-enroll)</b>	14 + TDF Suite <sup>1</sup>	Target Retirement Date Fund most closely to the year the participants turns 62.	Metric currently not tracked
<b>CalSavers (Proposed)</b>	4 + TDF Suite	First \$1,000 into Capital Preservation fund. Subsequent contributions into Target Retirement Date / Target Risk fund.	N/A

<sup>1</sup>"TDF Suite" stands for a group of Target Date Funds