

Ibbotson Target Maturity Report 2Q 2011



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Global economic expansion slowed during the second quarter of 2011 producing mixed results in global markets. Due to the increased possibility of sovereign debt defaults within the eurozone, assets shifted away from riskier investments and into safer alternatives in both equity and fixed income markets. This included a shift into large developed equity and higher-rated sovereign debt. These themes visibly worked their way into the target maturity industry resulting in mixed performance among target maturity funds during the second quarter.

In this quarter's report we review how the target maturity industry and the individual fund families performed, what drove performance, and where the money went. We also discuss the most recent updates to the Morningstar analysts fund family ratings of the top target maturity fund providers.

In addition, just as we did last quarter, we have attached the first draft of an exciting new white paper to this report. This new paper exposes a previously unrecognized and alarming characteristic of some target maturity fund families. Everyone that follows target maturity funds is well aware that there are substantial differences in the glide paths from different fund families, such as the amount of equity exposure near retirement. Our new paper, "Bait and Switch: Glide Path Instability" explores the year-over-year instability associated with the largest target maturity fund families and introduces a quantitative measure of glide path instability that we call the Glide Path Stability Score. Until now, the investing public and plan sponsors were more or less unaware of the instability of glide paths from a given fund family. In the future, Morningstar's Fund Research team has plans to incorporate the glide path stability statistic into its analysis of the industry's largest fund families. The analysts will use the new data to supplement existing discussions with the funds' managers regarding what has driven changes to the funds' glide path to better understand and compare investment processes.



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Target Maturity Performance Summary

Although performance by global equity markets and target maturity funds continued to slow in the second quarter most remained positive. Table 1 shows that the performance of the S&P 500 Index was just slightly positive with a 0.1% rise, while U.S. bonds, as represented by the BarCap U.S. Aggregate Bond Index continued trending up with a 2.3% return. The average target maturity fund and the Morningstar Lifetime Moderate Index both rose a modest 0.6% during the quarter. A much different picture can be seen during the last 12 months. Over the trailing year, returns for each of the four indexes in Table 1 were significantly better. The S&P 500 Index returned 30.7% during this time as global equity markets experienced outstanding performance. The Morningstar Lifetime Moderate Index outperformed the average target maturity fund, ending the 12-month period 1.6 percentage points higher.

Table 1: Target Maturity Performance Summary

	Q2 Return	12-Month Return
Average Target Maturity Fund*	0.6%	23.3%
Morningstar Lifetime Moderate Index	0.6%	24.9%
S&P 500 Index	0.1%	30.7%
BarCap U.S. Aggregate Bond Index	2.3%	3.9%

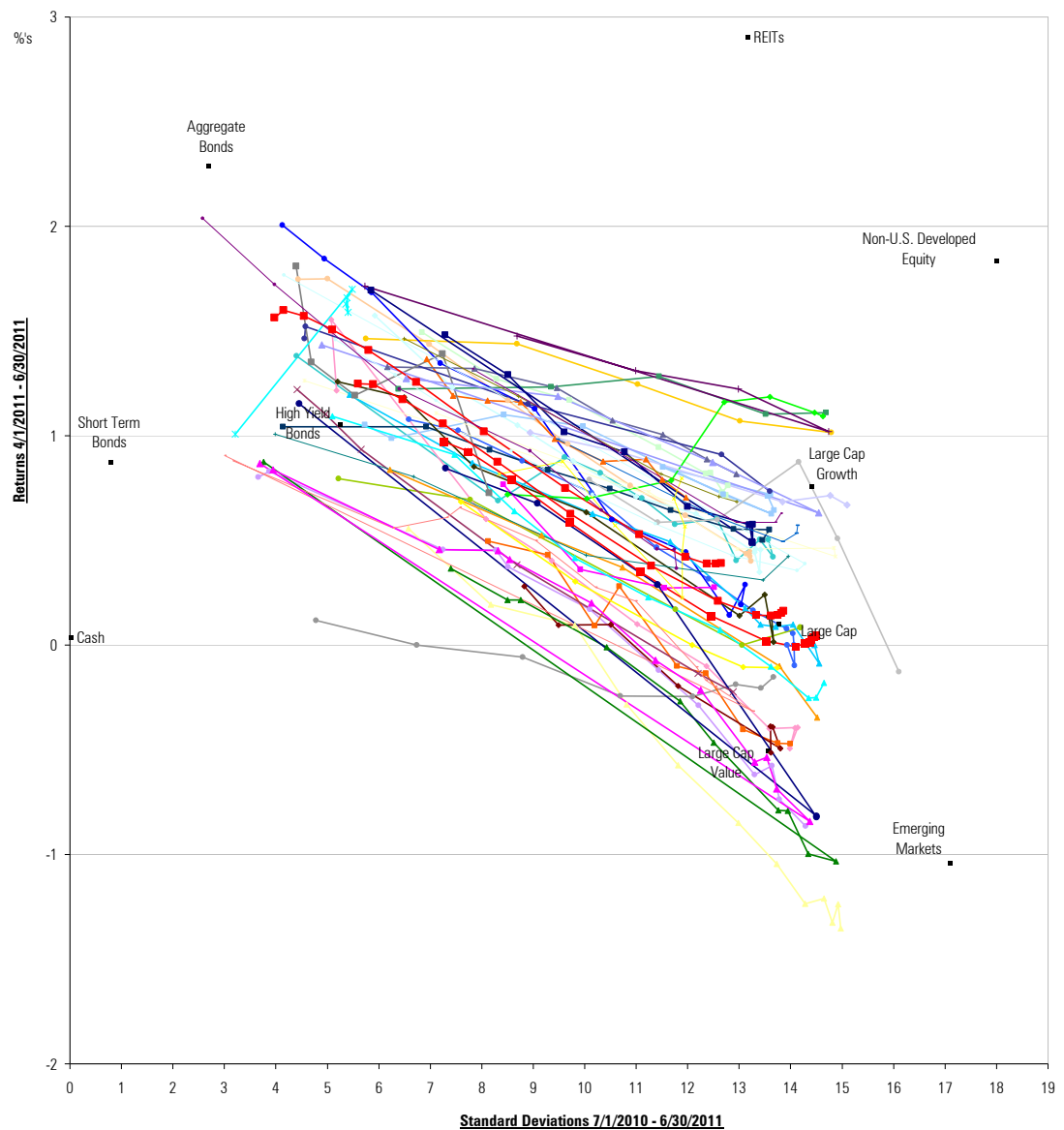
Source: Ibbotson Associates and Morningstar DirectSM

*Average of all open-end target maturity funds

Fund Family Performance

The performance of target maturity fund families during the first quarter is summarized in Figure 1. We are now tracking 379 unique target maturity funds with at least a one-year track record representing 45 fund families. The lines in the graph connect funds from the same fund family. Quarterly net returns are plotted on the vertical axis and 12-month standard deviations are plotted along the horizontal axis. The downward-sloping fund family risk/return lines demonstrate that investors were not rewarded for taking on risk this quarter and a number of funds even dipped into negative territory. In addition there was some dispersion among the fund family risk return lines demonstrating the out- or under-performance as a result of the individual asset allocation decisions made. The three Morningstar Lifetime Allocation Indexes, representing conservative, moderate, and aggressive glide paths are displayed along the bolded red lines.

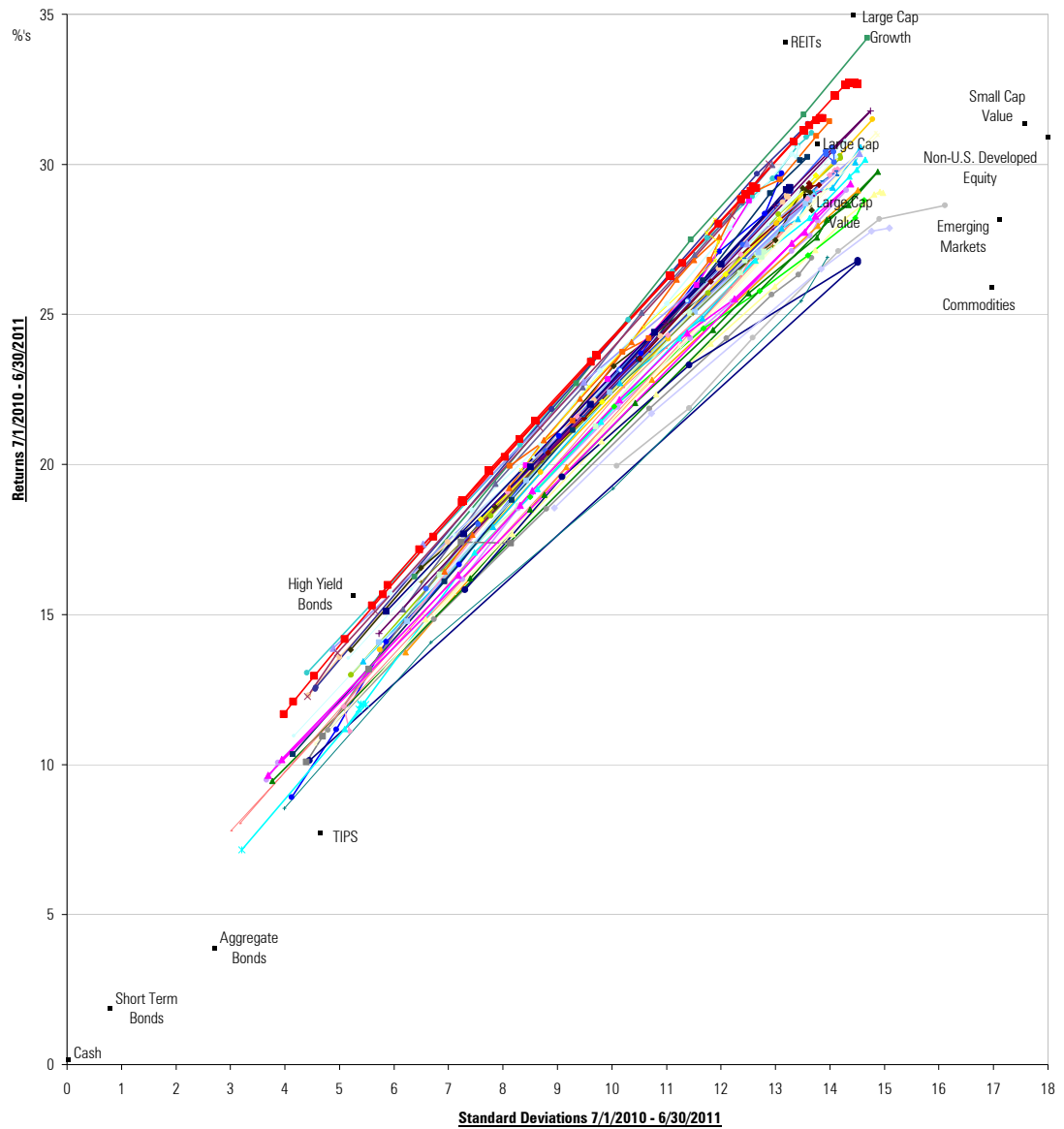
Figure 1: Fund Family Performance – Q2 Return and One-Year Risk Ending 6/30/2011



Source: Ibbotson Associates and Morningstar DirectSM

This same data is shown in Figure 2, although instead of using net returns during the first quarter we show net returns over the last 12 months. Over this period the fund family lines are significantly different than those during the second quarter. Here the lines are upward sloping and some funds achieved returns above 30%. This was seen in those funds furthest from retirement reflecting the extraordinarily strong performance of equity markets during this time. In addition, the dispersion among the fund family lines is much smaller than what was seen during the second quarter. As fixed income also saw strong performance, even those funds nearing and in retirement all saw positive returns during this period. The three Morningstar Lifetime Allocation Indexes are again displayed along the bolded red lines.

Figure 2: Fund Family Performance – One-Year Return and One-Year Risk Ending 6/30/2011

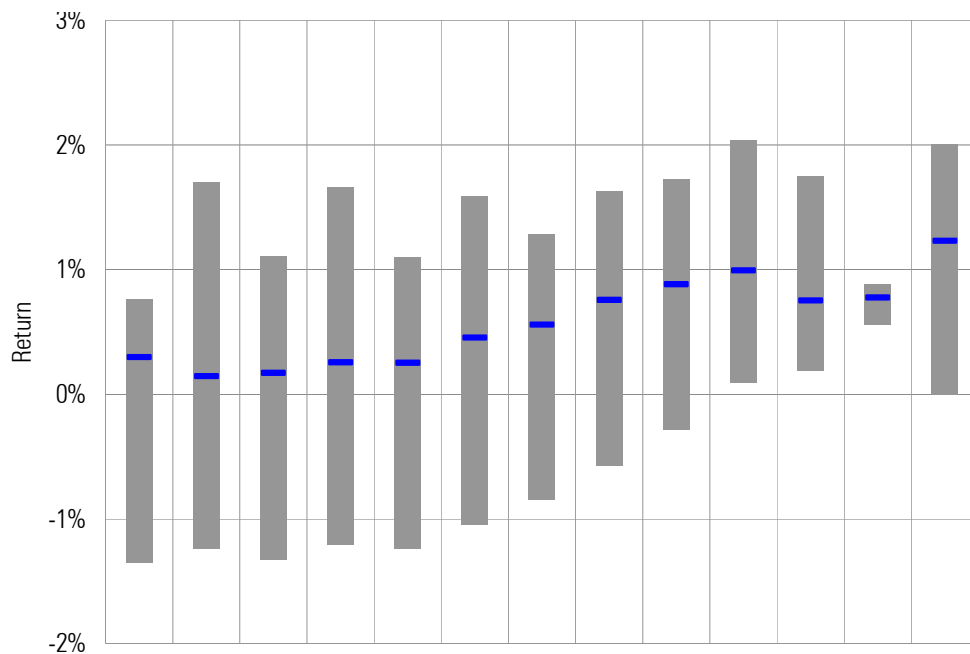


Source: Ibbotson Associates and Morningstar DirectSM

Target Maturity Fund Performance

Figure 3 offers performance data relative to each fund’s assigned Morningstar category as well as to the Morningstar Lifetime Allocation Moderate Index. The floating gray bars within the chart show the range of quarterly returns for the 13 target maturity fund categories. The blue line within each bar identifies the average fund performance for that category. There are meaningful differences between the best-performing funds (“Max” row within the table below) and the worst-performing funds (“Min” row within the table below) in each category, primarily reflecting the substantial “intra-category” differences in equity exposure. Normally during up markets aggregate equity exposure is the primary driver of performance. The table also identifies the number of target maturity funds with a minimum return history of one year in each category that outperformed or underperformed the category’s corresponding Morningstar Lifetime Moderate Index based on Ibbotson’s Lifetime Asset Allocation methodology. Given the mixed asset class performance during the second quarter the number of funds that outperformed the index was also mixed. Relative to the Morningstar Lifetime Moderate Indexes, approximately 46% outperformed while nearly 54% of funds underperformed the Indexes.

Figure 3: Target Maturity Fund Category Performance Q2 2011



Category	2055	2050	2045	2040	2035	2030	2025	2020	2015	2010	2005	2000	Income
Max	0.8%	1.7%	1.1%	1.7%	1.1%	1.6%	1.3%	1.6%	1.7%	2.0%	1.8%	0.9%	2.0%
Average	0.3%	0.1%	0.2%	0.3%	0.3%	0.5%	0.6%	0.8%	0.9%	1.0%	0.8%	0.8%	1.2%
Min	-1.4%	-1.2%	-1.3%	-1.2%	-1.2%	-1.0%	-0.9%	-0.6%	-0.3%	0.1%	0.2%	0.6%	0.0%
# of Funds (vs. Index)													
Outperformers	5	15	15	19	18	21	18	21	18	8	2	0	14
Underperforms	5	18	19	21	17	19	18	19	21	20	6	4	18
Total	10	33	34	40	35	40	36	40	39	28	8	4	32
Index													
Aggressive	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.3%	0.6%	0.8%	0.9%	1.0%
Moderate	0.2%	0.2%	0.1%	0.1%	0.1%	0.2%	0.4%	0.6%	0.9%	1.1%	1.2%	1.2%	1.2%
Conservative	0.4%	0.4%	0.4%	0.4%	0.5%	0.7%	1.0%	1.3%	1.4%	1.5%	1.6%	1.6%	1.6%

Source: Ibbotson Associates and Morningstar, Inc.

Asset Class Performance

Quarterly performance for some of the most common asset classes that comprise target maturity funds are displayed in Table 2. This data allows us to determine which asset classes were the primary drivers and detractors from performance during the second quarter.

Table 2: Asset Class Performance – Q2 2011

Asset Class	Q2 2011 Return	12-Month Standard Deviation
U.S. Large Growth Equity	0.8%	14.4%
U.S. Large Value Equity	-0.5%	13.6%
U.S. Small Growth Equity	-0.6%	19.3%
U.S. Small Value Equity	-2.7%	17.6%
Non-U.S. Developed Equity	1.8%	18.0%
Emerging Market Equity	-1.0%	17.1%
Real Estate	2.9%	13.2%
Commodities (Futures)	-6.7%	17.0%
High-Yield Bonds	1.1%	5.3%
U.S. Aggregate Bonds	2.3%	2.7%
U.S. Short-Term Bonds	0.9%	0.8%
TIPS	3.7%	4.6%
Cash	0.0%	0.0%

Source: Ibbotson Associates and Morningstar DirectSM

Second-quarter asset class performance was very interesting this quarter. No single asset class performed particularly well over this period, with fixed income slightly outperforming equities. Although the S&P 500 Index was positive during the quarter, the best equity performer was REITs which returned a moderate 2.9%. The worst-performing equity asset class was U.S. small cap value which lost 2.7%. Every other equity asset class listed above returned somewhere in between these two, which is a very tight range of just over 5.5%. Domestically there were mixed results with U.S. large cap growth supplying a return of just less than 1%, while U.S. large cap value, U.S. small cap growth, and U.S. small cap value all ended negative for the quarter. Non-U.S. equity also saw mixed returns with developed non-U.S. equity returning 1.8% while emerging markets equity lost 1.0%. After a very strong run during the previous three quarter, the commodities asset class, which has characteristics of both equities and fixed income, was the biggest overall loser with a loss of 6.7% during the quarter.

Within fixed income TIPS was the strongest performer returning 3.7% during the quarter, followed by U.S. aggregate bonds with a 2.3% return. High yield bonds, which have had a very strong run over the past year, saw returns fall much more in line with its fixed income peers during the quarter with a 1.1% return. Finally, shorter duration asset classes such as short-term bonds and cash had moderate returns of less than 1%.

Table 3 displays asset class returns and standard deviations for the past 12 months.

Table 3: Asset Class Performance – 6/30/2011 Trailing 12 Months

Asset Class	12-Month Return	12-Month Standard Deviation
U.S. Large Growth Equity	35.0%	14.4%
U.S. Large Value Equity	28.9%	13.6%
U.S. Small Growth Equity	43.5%	19.3%
U.S. Small Value Equity	31.4%	17.6%
Non-U.S. Developed Equity	30.9%	18.0%
Emerging Market Equity	28.2%	17.1%
Real Estate	34.1%	13.2%
Commodities (Futures)	25.9%	17.0%
High-Yield Bonds	15.6%	5.3%
U.S. Aggregate Bonds	3.9%	2.7%
U.S. Short-Term Bonds	1.9%	0.8%
TIPS	7.7%	4.6%
Cash	0.2%	0.0%

Source: Ibbotson Associates and Morningstar DirectSM

The equity returns for this 12-month period show a drastic increase over last quarter's report as the terrible Q2 2010 returns are not included. Despite a flat second quarter, equity asset class returns were fantastic over the 12-month period with every major equity asset class returning more than 25%. U.S. small cap, particularly U.S. small cap growth, was the biggest winner, up 43.5% over the period while U.S. small cap value rose 31.4%. Alternative asset classes such as REITs and commodities kept pace with equities providing returns of 34.1% and 25.9%, respectively.

Although fixed income returns certainly did not match those of the equity markets during the past year, these asset class returns still performed strongly. High-yield bonds in particular had an outstanding run with a 15.6% return. TIPS also continued to provide very strong returns with a 7.7% return during the period. Exposure to high-yield bonds and TIPS buoyed the Morningstar Lifetime Indexes as well as fund families holding these two asset classes. Although not as strong as high-yield bonds and TIPS, U.S. aggregate bonds provided a solid 3.9% return, while shorter-duration instruments such as short-term bonds and cash also provided positive returns during the period.

Morningstar Lifetime Allocation Indexes

Table 4 presents the performance figures for the complete Morningstar Lifetime Allocation Index family, which is based on Ibbotson's Lifetime Asset Allocation methodology. With moderate returns among asset classes during the second quarter, the returns of the indexes also were moderate ranging from 0% to 1.6% during this time. The best-performing funds were those closest to retirement on the Conservative track as they were anchored by their significant weights to fixed income. During the past year, returns across each of the indexes have been robust, with returns ranging from 11.7% to 32.7%.

Table 4: Morningstar Lifetime Allocation Indexes

(As of 6/30/2011; multiyear periods annualized)

	1 Month	3 Month	1 Year	3 Year	5 Year
Income					
Conservative Income	-0.5%	1.6%	11.7%	5.0%	6.3%
Moderate Income	-0.7%	1.2%	15.3%	5.0%	6.2%
Aggressive Income	-1.0%	1.0%	18.8%	4.9%	5.9%
2000					
Conservative 2000	-0.6%	1.6%	12.1%	5.2%	6.5%
Moderate 2000	-0.8%	1.2%	16.0%	5.1%	6.2%
Aggressive 2000	-1.1%	0.9%	19.8%	4.9%	5.9%
2005					
Conservative 2005	-0.7%	1.6%	13.0%	5.4%	6.6%
Moderate 2005	-1.0%	1.2%	17.2%	5.3%	6.3%
Aggressive 2005	-1.3%	0.8%	21.5%	4.9%	5.8%
2010					
Conservative 2010	-0.9%	1.5%	14.2%	5.6%	6.6%
Moderate 2010	-1.1%	1.1%	18.7%	5.3%	6.2%
Aggressive 2010	-1.4%	0.6%	23.7%	4.7%	5.6%
2015					
Conservative 2015	-1.0%	1.4%	15.7%	5.7%	6.6%
Moderate 2015	-1.3%	0.9%	20.8%	5.1%	6.0%
Aggressive 2015	-1.6%	0.3%	26.3%	4.4%	5.3%
2020					
Conservative 2020	-1.2%	1.3%	17.6%	5.6%	6.5%
Moderate 2020	-1.5%	0.6%	23.6%	4.9%	5.7%
Aggressive 2020	-1.8%	0.1%	29.0%	4.1%	5.0%
2025					
Conservative 2025	-1.3%	1.0%	20.3%	5.4%	6.3%
Moderate 2025	-1.6%	0.4%	26.7%	4.5%	5.4%
Aggressive 2025	-1.8%	0.0%	31.1%	3.9%	4.8%
2030					
Conservative 2030	-1.5%	0.7%	23.4%	5.1%	6.0%
Moderate 2030	-1.7%	0.2%	29.3%	4.3%	5.1%
Aggressive 2030	-1.8%	0.0%	32.3%	3.8%	4.7%
2035					
Conservative 2035	-1.6%	0.5%	26.3%	4.9%	5.7%
Moderate 2035	-1.7%	0.1%	30.8%	4.2%	5.0%
Aggressive 2035	-1.7%	0.0%	32.7%	3.8%	4.7%
2040					
Conservative 2040	-1.6%	0.4%	28.0%	4.8%	5.6%
Moderate 2040	-1.7%	0.1%	31.3%	4.2%	5.1%
Aggressive 2040	-1.7%	0.0%	32.7%	3.8%	4.8%
2045					
Conservative 2045	-1.6%	0.4%	28.8%	4.8%	5.7%
Moderate 2045	-1.7%	0.1%	31.5%	4.2%	5.1%
Aggressive 2045	-1.7%	0.0%	32.7%	3.8%	4.8%
2050					
Conservative 2050	-1.6%	0.4%	29.1%	4.8%	5.7%
Moderate 2050	-1.6%	0.2%	31.5%	4.2%	5.2%
Aggressive 2050	-1.7%	0.0%	32.7%	3.9%	4.9%
2055					
Conservative 2055	-1.6%	0.4%	29.2%	4.8%	5.7%
Moderate 2055	-1.6%	0.2%	31.5%	4.2%	5.2%
Aggressive 2055	-1.7%	0.0%	32.7%	3.9%	4.9%

Source: Ibbotson Associates and Morningstar DirectSM

Fund Flows

Inflows into target maturity funds slowed in the second quarter to \$10.8 billion from \$16.6 billion in the first quarter of 2011, but were 10.7% more than the second quarter of 2010. Annual company contributions allocated during the first quarter likely were the main reason for huge flows seen during the first quarter.

The big three fund providers, Fidelity, Vanguard, and T. Rowe Price, continued to see strong growth in their funds with 2.2%, 2.9%, and 3.5% organic growth rates, respectively. The three received more than 70% of the net dollar flows during the quarter. Firms that saw the biggest outflows during the quarter included AllianceBernstein, Russell, and Blackrock, although some of these assets may be shifting from the open-end structure to collective investment trust (CIT) or customized solutions as plan sponsors continue to move in this direction.

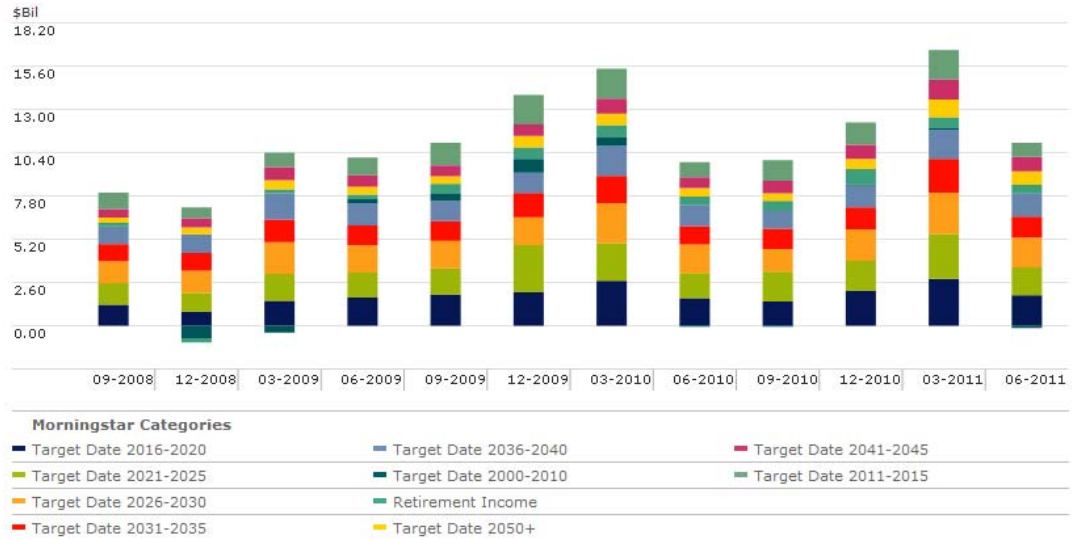
Target maturity assets in CITs grew by 13% during the first quarter, which is the most recently available data. This puts total CIT target maturity assets at approximately \$62.7 billion as of March 31, 2011. The two dominant players in this space are Blackrock with 38% market share and Vanguard with 27% market share. Vanguard has seen tremendous growth over the past year with a 26% average quarterly growth rate compared to less than 10% for BlackRock.

Table 5: Target Maturity Fund Flows Q2 2011

Target Date	Asset Under Management (\$Mil)		Estimated Net Flow (\$Mil)	
	End Q1 2011	End Q2 2011	Q1 2011	Q2 2011
Income	16,512	17,265	661	527
2000-2010	36,753	36,924	96	(133)
2011-2015	42,715	43,874	1,770	839
2016-2020	72,156	74,330	2,820	1,839
2021-2025	49,662	51,496	2,699	1,682
2026-2030	57,523	59,374	2,495	1,794
2031-2035	33,689	34,921	2,021	1,259
2036-2040	37,180	38,511	1,735	1,371
2041-2045	16,017	16,861	1,213	863
2050+	10,407	11,207	1,064	823
Total	372,615	384,765	16,574	10,864

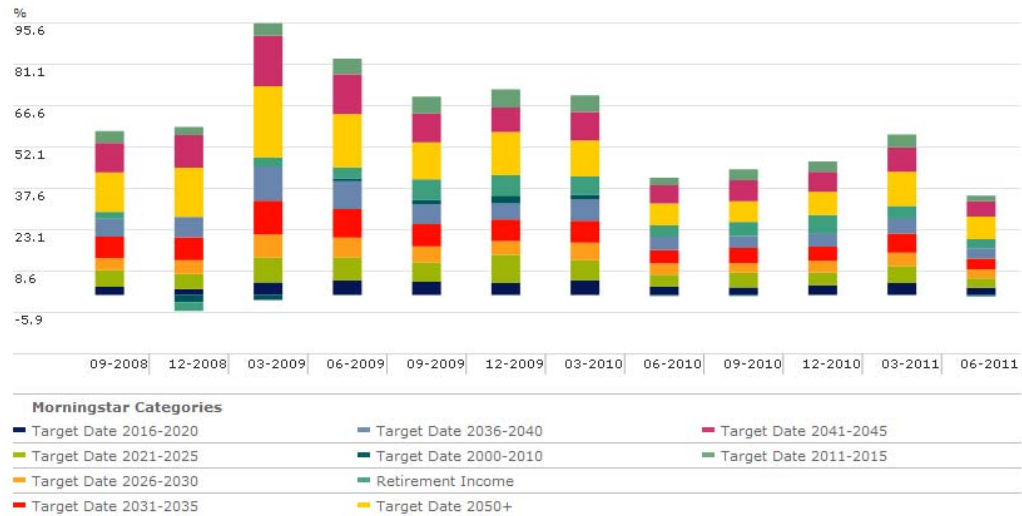
Source: Morningstar DirectSM

Figure 6: Quarterly Estimated Net Flows by Morningstar Category as of 6/30/2011



Source: Morningstar DirectSM

Figure 7: Quarterly Organic Growth Rate as of 6/30/2011



Source: Morningstar DirectSM

Fund Family Ratings and Research Reports

Morningstar's mutual fund research team's target maturity fund series ratings as of 6/30/2011 are summarized in Table 7. This table reflects the 22 largest target maturity fund series tracked by Morningstar's fund analysts. With the latest updates there were a few changes that occurred.

JP Morgan was upgraded from "Above Average" to "Top" due to its consistent performance as well as its recent stewardship upgrade on corporate culture. In addition, coverage has been initiated on the State Farm Life Path series which is a clone of the BlackRock Life Path series. The State Farm series received a lower rating than that of Black Rock due to high expenses and some poorer ratings in stewardship areas, including transparency.

Table 6: Overall Ratings Summary as of 6/30/2011

<i>Top</i>	<i>Above Average</i>	<i>Average</i>	<i>Below Average</i>	<i>Bottom</i>
American Funds	American Century	BlackRock	DWS	AllianceBernstein
JP Morgan	TIAA-CREF	Fidelity	Putnam	Oppenheimer
T. Rowe Price	Vantagepoint	Fidelity Advisor	State Farm	
Vanguard	Wells Fargo	ING Solution		
		John Hancock		
		MassMutual		
		MFS		
		Principal		
		Schwab		

Source: Morningstar

The Morningstar Target Maturity Fund Series Ratings and Research Reports are available in Morningstar Principia[®], Morningstar Advisor WorkstationSM, Morningstar DirectSM, Morningstar Office[®], Morningstar Site BuilderSM, and through licensed data feeds. Morningstar.com, the company's website for individual investors, publishes the ratings and an abbreviated version of the report.

For additional information about Morningstar's target maturity fund evaluation and rating methodology, please visit <http://global.morningstar.com/TargetDateReports>.

About Ibbotson

A unit of Morningstar Investment Management (a division of Morningstar, Inc.), Ibbotson Associates is a leading independent provider of asset allocation, manager selection, and portfolio construction services. The company leverages its innovative and ground-breaking academic research to create customized investment advisory solutions that help investors meet their goals. Founded by Professor Roger Ibbotson in 1977, Ibbotson Associates is a registered investment advisor and a wholly owned subsidiary of Morningstar, Inc.

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Important Disclosures

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This commentary may contain forward-looking statements, which reflect our current expectations or forecasts of future events. Forward-looking statements are inherently subject to, among other things, risks, uncertainties and assumptions which could cause actual events, results, performance or prospects to differ materially from those expressed in, or implied by, these forward-looking statements. The forward-looking information contained in this commentary is as of the date of this report and subject to change. There should not be an expectation that such information will in all circumstances be updated, supplemented or revised whether as a result of new information, changing circumstances, future events or otherwise.

Appendix: Index Definition

Morningstar Lifetime Allocation Indexes are a family of multi-asset class target maturity indices available in three risk tracks: Aggressive, Moderate, and Conservative. Each risk track consists of 13 indices ranging from a 2055 index to an income index. The glide paths and strategic asset allocations of the indices is based on Ibbotson's Lifetime Asset Allocation methodology. Security selection for each sub-asset class in the index family is provided by a matching Morningstar market index.

Standard & Poor's 500 Index: Market-capitalization-weighted index of 500 widely held stocks. Member companies are chosen based on market size, liquidity, and industry group representation. Included are the stocks of industrial, financial, utility, and transportation companies.

Barclays Capital US Aggregate Bond Index – Broad-based benchmark that measures the investment grade, U.S. dollar-denominated, fixed-rate taxable bond market, including Treasuries, government-related and corporate securities, MBS (agency fixed-rate and hybrid ARM passthroughs), ABS, and CMBS.

BofA Merrill Lynch US 3-Month Treasury Bill - Comprised of a single issue purchased at the beginning of the month and held for a full month. At the end of the month that issue is sold and rolled into a newly selected issue. The issue selected at each month-end rebalancing is the outstanding Treasury Bill that matures closest to, but not beyond, three months from the rebalancing date. To qualify for selection, an issue must have

settled on or before the month-end rebalancing date. While the index will often hold the Treasury Bill issued at the most recent 3-month auction, it is also possible for a seasoned 6-month Bill to be selected.

Barclays Capital Global Inflation Linked US TIPS Index – Includes securities which offer the potential for protection against inflation as their cash flows are linked to an underlying inflation index. The index represents a standalone multi-currency index exposed to the real yield curve for each relevant currency.

Barclays Capital US 1-3 Year Government/Credit Bond Index – An unmanaged market value weighted performance benchmark for government and corporate fixed-rate debt issues with maturities between one and three years.

Barclays Capital US Corporate High Yield Index – Covers the USD-denominated, non-investment grade, fixed-rate, taxable corporate bond market. Securities are classified as high-yield if the middle rating of Moody's, Fitch, and S&P is Ba1/BB+/BB+ or below.

DJ-UBS Commodity Index – A broadly diversified index composed of futures contracts on physical commodities traded on U.S. exchanges, with the exception of aluminum, nickel and zinc, which trade on the London Metal Exchange (LME).

FTSE NAREIT Equity REITs Index – Spans the commercial real estate space across the US economy. The index series provides investors with exposure to all investment and property sectors.

MSCI EAFE Index – Measures international performance and comprises 21 MSCI country indices, representing the developed markets outside of North America: Europe, Australia and the Far East.

MSCI Emerging Markets Index – A market capitalization weighted index composed of companies representative of the market structure of 26 emerging market countries in Europe, Latin America, and the Pacific Basin.

Russell 1000 Growth Index – Measures the performance of the 1,000 largest companies in the Russell 3000 Index, with higher price-to-book ratios and higher forecasted growth values.

Russell 1000 Value Index – Measures the performance of the 1,000 largest companies in the Russell 3000 Index with lower price-to-book ratios and lower forecasted growth values.

Russell 2000 Growth Index – Measures the performance of the 2,000 smallest companies in the Russell 3000 Index with higher price-to-book ratios and higher forecasted growth values.

Russell 2000 Value Index – Measures the performance of the 2,000 smallest companies in the Russell 3000 Index with lower price-to-book ratios and lower forecasted growth values.

Bait and Switch: Glide Path Instability

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The logo for Ibbotson, featuring the word "ibbotson." in a blue, lowercase, serif font. The period at the end of the word is a small dot.

a Morningstar company

Introduction

With the dramatic rise in popularity of target date or target maturity funds, a new graph has entered our lives—the target maturity glide path graph. For a given series (or family) of target date funds, the target maturity glide path graph plots the *current* equity exposure of each of the funds on the vertical axis and the stated target retirement date or investor’s age on the horizontal axis.¹ These graphs are often used to compare multiple target date fund families, providing a general perspective about how aggressive or conservative a target date fund family is relative to peers and insight into funds’ philosophies for post-retirement investing.

While it is widely known that the glide paths from different providers vary significantly, to date very little has been written about the year-over-year changes in the glide paths of different providers. A common assumption—and one that investors and plan sponsors make decisions based on—is that the snapshot of the current implied glide path is indicative of the changes investors can expect in the aggressiveness of their funds throughout their lives.² This is a bad assumption as we demonstrate that the glide paths of the major fund families have varied significantly through time.

In this paper, we document the changes in the implied (cross-sectional) glide paths of the major target date fund providers through time. Additionally, we introduce a new measure for tracking the stability, or perhaps we should say instability, of glide paths through time that we call the “Glide Path Stability Score” (GPSS).

Investor Expectations

A key implicit assumption within the industry is that the target “date” year identifies the expected or target retirement year of the investor. Furthermore, it is common to assume that the age of the investor at the target date year is 65 years old. For example, at the time of this writing in 2011 we assume the investor in a 2010 target date fund is one year past the retirement age of 65, and is now 66 years old. Assuming the use of the same target date funds series, back in 2006 the investor in the “2005 fund” would also have been 66 years old. If the glide path associated with a given target date series is steady overtime, the equity exposure for the 66 year old of 2006 should be the same, or at minimum very similar to, the equity exposure for a 66 year old of 2011. In fact, for all 66-year-olds through time in the same target date fund family, the amount of equity should be similar if the glide path remains steady and properly adjusted each year.

A provider changing their glide path is not necessarily a bad thing as there are a variety of reasons why a glide path might evolve over time. The most obvious reason is a fund provider instituting a methodological change that materially changes the glide path. If the provider has justification and communicates the change along with the impact to the glide path, this change could serve as a benefit to investors. Another reason for a change to the glide path is the addition of asset classes that could change the respective equity allocations of the target date funds. For example, some fund families have added alternatives, such as commodities, that may not be clearly classified as equity or fixed income. A tactical asset allocation overlay is yet another reason a glide path may change over time, as the level of tactical moves could result in a glide path becoming more or less equity-centric. Finally, at least one provider specifies their glide path based on volatility rather than equity exposure resulting in a natural instability of equity exposure as it varies through time to achieve the target volatility level.

¹ Presumably the “Income” fund is typically drawn at a distance corresponding to five years after the target date fund with the lowest target “date,” such as 2005.

² For example, well-meaning but misguided stakeholders often make this glide path stability assumption and then potentially compound this error by attempting to “evaluate” the glide path with a Monte Carlo simulation.

There are also reasons for changes that may not be a direct result of active changes being made by the fund provider. One example is funds that incorporate relatively loose rebalancing bands around their strategic target glide path that results in the glide path “rising” when equity markets do well and “falling” when equity markets do poor. The data we use in our analysis is based on actual equity holdings, which may have drifted away from what the fund provider has identified as its “target” for that fund. Also the use of derivatives that could influence the “effective” equity exposure that may result in what appears to be some instability as our holdings based data in some instances struggles to properly identify these investments.

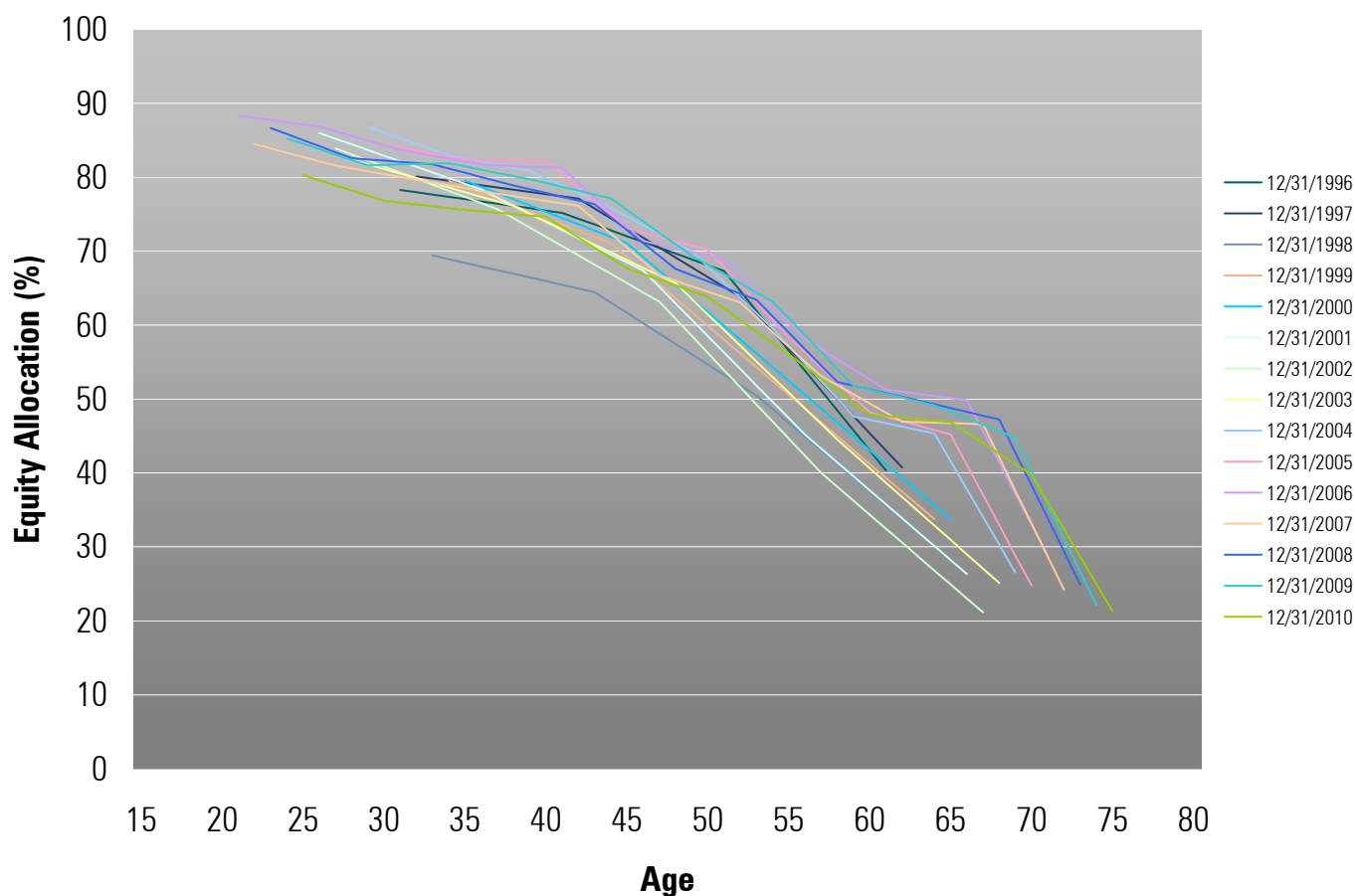
Glide Path Instability

By controlling for age (based on an assumed retirement age of 65), we can determine the implied glide path through time for all of the possible ages covered by a glide path.

To calculate the equity exposure through time, we use Morningstar’s database of mutual fund holdings that reflects the mandatory holdings disclosure that open-end mutual funds are required to make at least each quarter. By combining the specified target “date” in the fund name with the assumption that the investor is 65 at that date, we can create glide path graphs at different points in time using age on the horizontal axis. Figures 1 – 3 display the evolving implied glide paths of the three largest fund families (Fidelity Freedom funds, Vanguard Target Retirement funds, and T. Rowe Price Retirement funds). Collectively, these three fund families represent approximately 76% of the open end target date universe as of March 2011. In each of these cases we have left the “Income” fund off of the glide path because the implied age of the “Income” fund investor is not known with certainty. One can obtain a strong sense of “stability” or “instability” of a given glide path by simply looking at the historical glide path graphs of a fund provider’s series over time.

Starting with the largest fund family, Fidelity Freedom funds, in Figure 1 the changes in the fund family’s glide path are shocking, especially at older ages. Although it’s difficult to clearly identify each individual line for each year-end, in aggregate it can clearly be seen that the level of equity for any given age changed drastically over this time. The greatest dispersion has been on the right half of the glide path where individuals close to or in retirement typically invest. Here one would usually expect to see the most stability as investors in retirement have a shorter investment time horizon and therefore typically should know how much equity they will hold during these years. For example, the glide path of 2002 contained 34% equity for a 60-year-old, dramatically lower than the 53% equity a 60-year-old would have received at the end of 2006. Because of this dispersion it is very difficult to predict how much equity today’s 35-year-old (or anyone not yet at retirement) will hold at retirement, and therefore hard to determine if the glide path is appropriate for those investors.

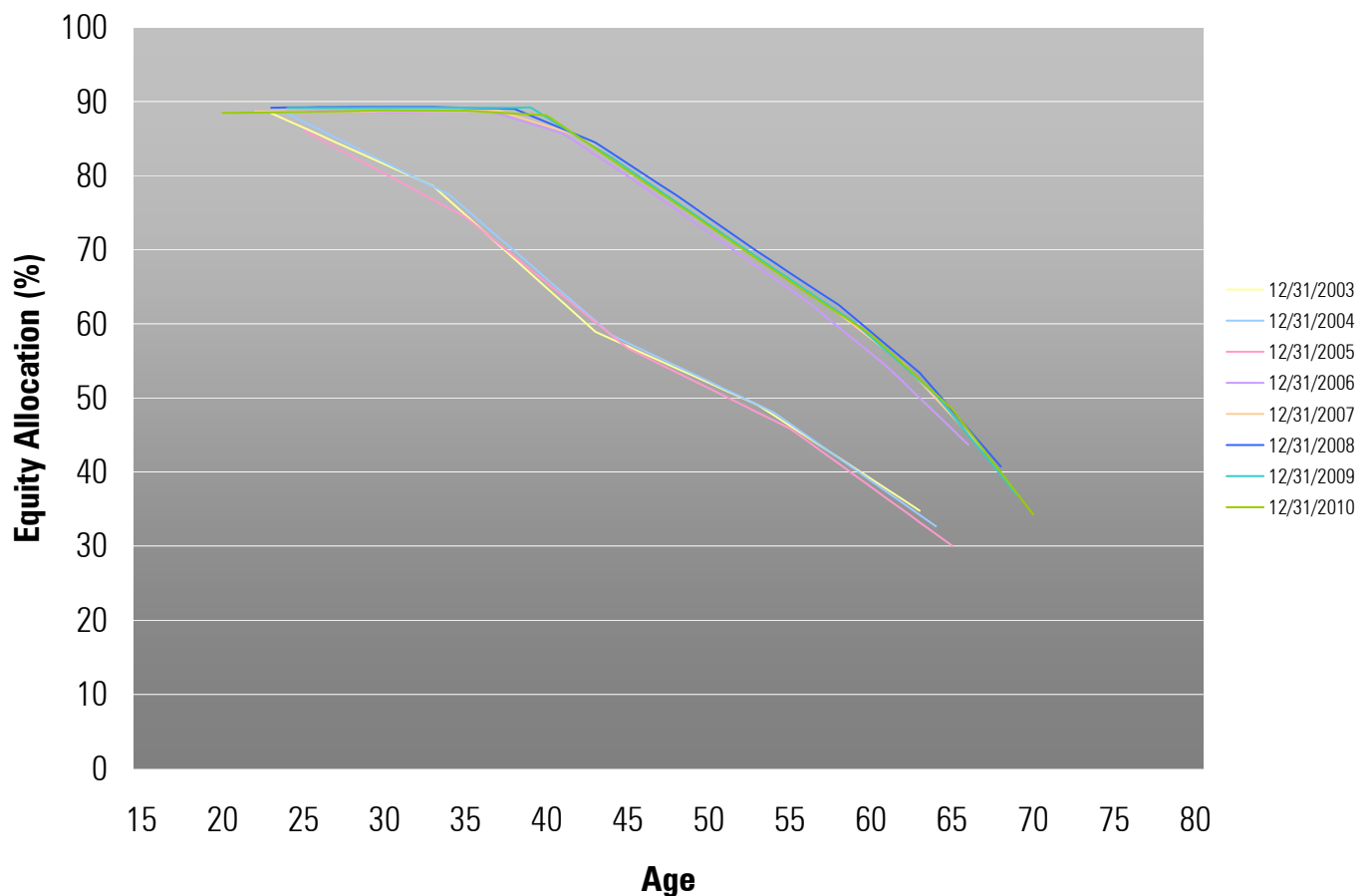
Figure 1: Fidelity Freedom Funds 1996 – 2010 (excludes “Income” fund)



Source: Ibbotson Associates and Morningstar DirectSM

In contrast with Fidelity Freedom’s seemingly chaotic glide paths, during the Vanguard Target Retirement Funds family’s much shorter history, there are clearly two distinct regimes depicted in Figure 2. Prior to 2006, the Vanguard glide paths were much more conservative than they were starting in 2006. This graph does not explain what the cause of this shift was, nor does it tell why it occurred. But it does alert investors that a relatively dramatic one-time change occurred and could potentially occur again in the future. Both before and after that one-time change the glide path has been extremely stable indicating the potential to better predict where investors will fall on the glide path as they continue to age and approach retirement. To Vanguard’s credit, when they changed their glide path they informed investors of the change in glide path as well as the rationale behind the regime switch. Within each of the two regimes, Vanguard has produced extremely stable glide paths. Given the simplicity and importance of keeping a stable glide path, we are surprised that more fund families don’t exhibit similar stability.

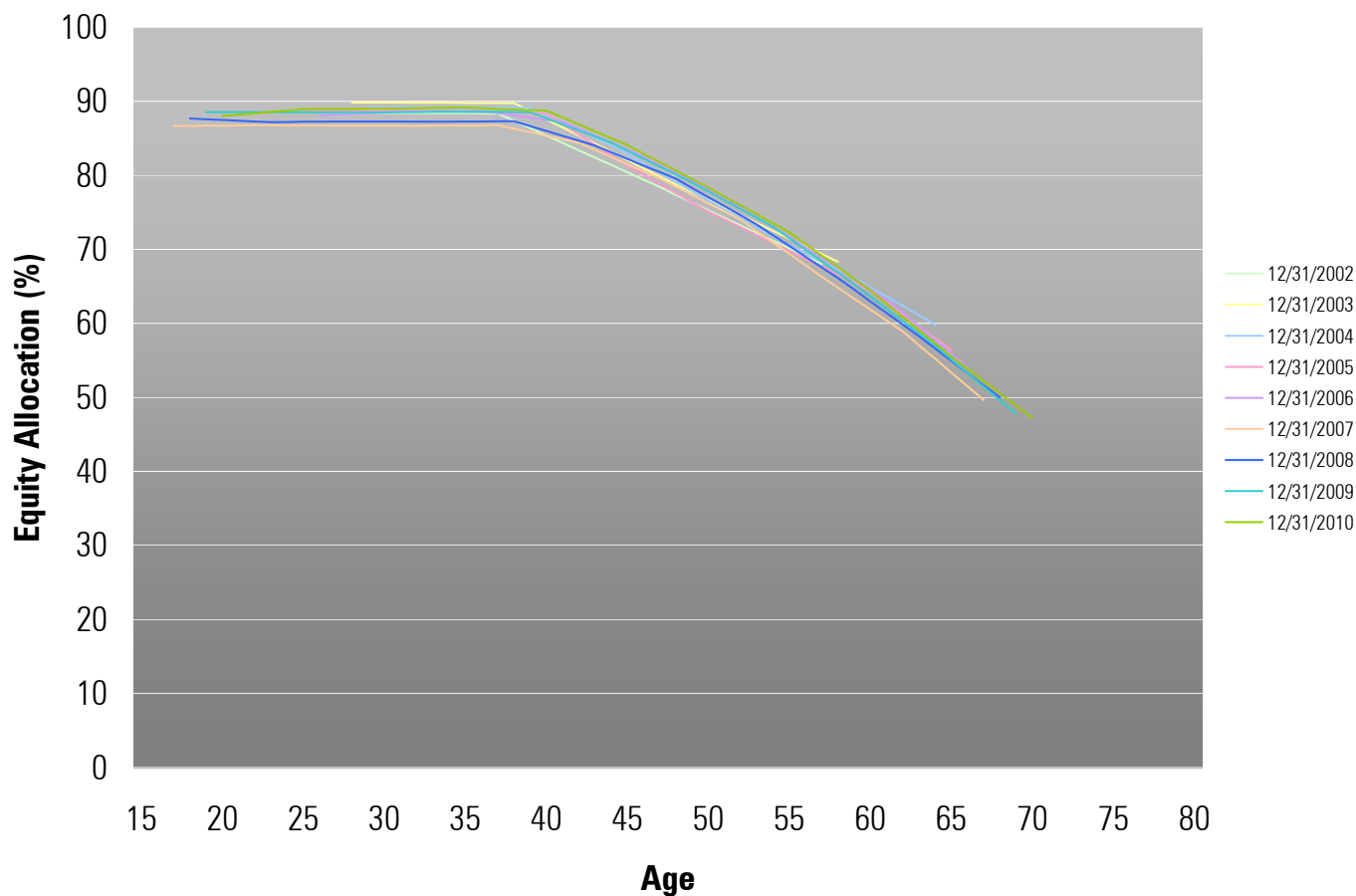
Figure 2: Vanguard Target Retirement Funds 2003 – 2010 (excludes “Income” fund)



Source: Ibbotson Associates and Morningstar DirectSM

In Figure 3, rounding out the top-three dominant target date fund families based on AUM are the T. Rowe Price Retirement fund glide paths. While T. Rowe Price’s glide paths were not quite as stable as the two separate regimes of Vanguard, overall T. Rowe Price had the most stable glide path of the fund families that we examined. Since inception, the glide path has remained similar to how it was originally created in 2002. Barring any fundamental methodological shifts, this allows an individual investor to deduce with strong conviction what their level of equity will be as they approach retirement. This peace of mind for investors should be a key factor for plan sponsors to consider when determining which fund family is right for them.

Figure 3: T. Rowe Price Retirement Funds 2002 – 2010 (excludes “Income” fund)



Source: Ibbotson Associates and Morningstar DirectSM

While one can make a visual assessment of the various glide path graphs to get a feel for the degree of stability, we present a quantitative measure for measuring glide path stability.

Glide Path Stability Score

The data points used to create glide path graphs, such as those in Figure 1-3, can also be displayed in tabular form. In Table 1 we display a subset of the data for the Fidelity Freedom Funds for the year end equity exposures for the last five years as well as the assumed age of the investor.

Table 1: Fidelity Freedom Funds Equity Exposures

Fund Year Name	Holdings as of 12/31/2006		Holdings as of 12/31/2007		Holdings as of 12/31/2008		Holdings as of 12/31/2009		Holdings as of 12/31/2010	
	Assumed Age	Equity Exposure	Assumed Age	Equity Exposure	Assumed Age	Equity Exposure	Assumed Age	Equity Exposure	Assumed Age	Equity Exposure
2000	72	28.81%	73	24.18%	74	24.93%	75	22.12%	76	21.28%
2005	67	49.83%	68	46.59%	69	47.23%	70	44.78%	71	39.79%
2010	62	51.28%	63	46.92%	64	49.81%	65	49.15%	66	46.86%
2015	57	58.11%	58	53.08%	59	52.31%	60	51.80%	61	47.91%
2020	52	68.81%	53	63.05%	54	63.42%	55	63.17%	56	56.01%
2025	47	71.37%	48	66.74%	49	67.59%	50	69.40%	51	63.84%
2030	42	81.24%	43	76.14%	44	76.35%	45	77.13%	46	67.65%
2035	37	81.70%	38	77.78%	39	78.88%	40	79.72%	41	74.64%
2040	32	83.72%	33	79.66%	34	81.75%	35	81.90%	36	75.58%
2045	27	86.83%	28	81.57%	29	82.57%	30	81.63%	31	76.82%
2050	22	88.33%	23	84.48%	24	86.65%	25	85.26%	26	80.28%

Source: Ibbotson Associates and Morningstar DirectSM

It is worth highlighting that the jump from the 10 or so discrete x-y data points associated with a rather complete target date fund family with funds every five years ranging from 2010 to 2050 to the typically displayed glide path is quite large. In most cases this is done in a spreadsheet program, such as Excel, in which the spreadsheet's graphing ability interpolates between adjacent data points, often with a line "smoothing" feature. The spirit of the implicit assumptions that move one from discrete data points to a continuous glide path graph can be applied to develop a more complete data set for calculating quantitative measures of glide path stability.

Notice in Table 1 that each age (ranging from 22 to 76 in this case) is only represented once. For target date fund families with a fund every five years, the age cycle only begins to repeat after five years severely limiting the number of equity exposure observations for a given age, and hence, our ability to calculate glide path variability. In order to dramatically increase our number of data points, at each point in time we use straight-line interpolation to infer the equity exposure for every single age in the applicable age range for all the ages for which there is not a data point. For example, from the top left of Table 1 corresponding to the holdings of two funds from 12/31/2006 we observe that the Fidelity Freedom 2000 fund (corresponding to a 72 year old) has equity exposure of 28.81% and the Fidelity Freedom 2005 fund (corresponding to a 67 year old) has an equity exposure of 49.83%. Using straight line interpolation we infer that a 68-, 69-, 70-, and 71-year-old would have had equity exposures of 33.01%, 37.22%, 41.42%, and 45.63%, respectively. Using this type of interpolation at the end of each calendar year enables us to have an estimated equity exposure for all of the possible ages regardless if the fund family in question has funds at five- or 10-year intervals. This also provides us with significantly more data points when applying quantitative measures of glide path stability.

Armed with annual equity exposures for each possible age for each year that a given target date fund family was in existence, we can calculate a variety of glide path statistics. For the 21 fund families for which Morningstar currently offers a qualitative in-depth analysis, Table 2 reports the maximum, average, and minimum equity exposure for ages 30, 40, 50, 60, and 70 over the history of the fund. The "NA" indicates that the equity exposure for that age was not available.³

³ As a reminder, given the ambiguity of the age of an "Income" fund investor, we have excluded them from our analysis and not interpolated equity exposure between the "lowest dated" fund and the Income fund; thus, it is possible that some of the fund families receiving an "NA" at age 70 do in fact have a fund for a 70 year old.

Table 2: Glide Path Equity Exposure Range

Fund Family		Age 30	Age 40	Age 50	Age 60	Age 70
AllianceBernstein Retirement Strategy	Max	97.8	95.8	82.8	70.0	53.0
	Average	94.4	92.1	80.6	66.5	49.6
	Min	92.0	87.1	73.0	55.8	38.4
American Century LIVESTRONG	Max	80.4	73.4	63.2	48.3	NA
	Average	79.5	70.9	59.2	48.3	NA
	Min	79.0	69.8	57.7	48.3	NA
American Funds Target Date Retirement	Max	83.8	82.1	74.9	62.1	NA
	Average	80.7	79.5	74.0	56.9	NA
	Min	77.5	76.8	72.6	51.6	NA
BlackRock LifePath	Max	92.7	81.0	66.8	NA	NA
	Average	89.8	79.1	65.3	NA	NA
	Min	87.7	76.8	63.2	NA	NA
DWS LifeCompass	Max	NA	94.8	95.7	63.5	NA
	Average	NA	91.6	77.7	63.5	NA
	Min	NA	87.7	57.2	63.5	NA
Fidelity Adviser Freedom	Max	85.2	82.3	69.2	51.4	38.9
	Average	82.4	78.7	66.6	48.9	38.9
	Min	76.5	74.1	63.1	44.9	38.9
Fidelity Freedom	Max	86.0	82.3	70.2	52.6	40.2
	Average	82.1	76.1	63.8	44.7	34.9
	Min	76.8	65.9	54.7	34.3	24.8
ING Solution	Max	91.8	85.5	73.4	42.9	NA
	Average	85.9	76.9	64.2	42.9	NA
	Min	70.0	59.8	45.4	42.9	NA
John Hancock Lifecycle	Max	93.1	92.3	80.4	61.1	NA
	Average	90.6	89.3	78.2	58.2	NA
	Min	87.9	87.9	76.2	55.7	NA
JP Morgan SmartRetirement	Max	84.3	89.1	76.1	49.0	NA
	Average	82.1	82.6	68.8	46.8	NA
	Min	79.4	77.5	64.8	42.6	NA
MassMutual Select Destination Retirement	Max	97.1	88.6	80.4	62.5	NA
	Average	92.7	84.6	69.0	52.2	NA
	Min	90.0	80.1	57.1	38.9	NA
MFS Lifetime	Max	100.0	100.0	78.6	43.0	NA
	Average	93.7	91.8	73.5	39.7	NA
	Min	87.3	83.6	67.6	37.6	NA
Oppenheimer Transition	Max	90.1	85.4	85.7	73.5	NA
	Average	89.3	85.2	82.0	67.6	NA
	Min	88.4	85.1	75.5	62.3	NA
Principal LifeTime	Max	89.0	83.4	75.3	64.7	NA
	Average	82.3	75.1	65.8	58.3	NA
	Min	68.5	57.9	47.3	48.2	NA
Putnam RetirementReady	Max	90.3	80.9	67.5	26.3	NA
	Average	86.5	75.5	59.4	26.3	NA
	Min	72.7	57.4	40.7	26.3	NA
Schwab Target	Max	77.9	84.2	71.8	61.7	NA
	Average	77.9	75.6	67.9	56.8	NA
	Min	77.9	70.1	63.3	50.0	NA
TIAA-CREF Lifecycle	Max	89.8	88.1	74.1	58.2	NA
	Average	85.5	79.8	67.2	54.0	NA
	Min	78.4	68.7	58.9	46.9	NA
T. Rowe Price Retirement	Max	89.8	88.7	78.3	64.9	47.2
	Average	88.5	87.2	76.8	63.8	47.2
	Min	86.7	85.4	75.1	61.9	47.2
Vanguard Target Retirement	Max	89.3	88.1	74.3	58.9	34.3
	Average	86.0	79.1	65.3	50.7	34.3
	Min	80.2	64.8	51.3	38.0	34.3
Vantagepoint Milestone	Max	91.6	88.3	72.6	57.1	NA
	Average	89.2	82.4	69.0	48.8	NA
	Min	86.8	80.3	67.1	45.8	NA
Wells Fargo Advantage Dow Jones Target	Max	90.9	80.3	67.9	45.6	NA
	Average	83.9	72.4	53.8	32.6	NA
	Min	68.2	53.3	35.6	23.3	NA

Turning to potential quantitative measures of glide path stability, Table 3 reports the average standard deviation of the equity exposures over time and the average (absolute) change in equity exposure per year. The average standard deviation of the equity exposures over time is arrived at by calculating the standard deviation of the equity exposures for each possible age (e.g. 20 through 75) for each of the years that the fund existed (e.g. 2010, 2009, 2008, etc.) and then calculating the average of those standard deviations. Somewhat similarly, the average (absolute) change in equity exposure per year is arrived at by determining the average absolute change in equity exposure for each possible age (e.g. 20 through 75) for each of the years that the fund existed (e.g. 2010, 2009, 2008, etc.) and then calculating the average of those average absolute year-over-year changes. The average (absolute) change in equity exposure per year seems extremely intuitive and is our preferred measure of glide path stability; thus, we refer to it as the Glide Path Stability Score. Both measures of stability are reported over the previous three years and since inception. Low numbers indicate greater stability and higher numbers indicate less stability. For the Glide Path Stability Score, as a rough guide scores below 1.5 are stable, between 1.5 and 3 are somewhat unstable, and scores beyond 3 are progressively more unstable.

Table 3: Glide Path Stability Measures

Fund Family Name	Start Year of Data	Average Standard Deviation (3-Year)	Average Standard Deviation (Inception*)	GPSS Average (Absolute) Change Per Year (3-Year)	GPSS Average (Absolute) Change Per Year (Inception*)
AllianceBernstein Retirement Strategy	2006	5.22	4.12	3.26	2.79
American Century LIVESTRONG	2005	2.05	1.65	2.08	1.53
American Funds Target Date Retirement	2007	3.07	3.13	2.94	2.94
BlackRock LifePath	2004	1.19	1.66	1.08	1.30
DWS LifeCompass	1997	4.36	8.35	3.09	4.61
Fidelity Adviser Freedom	2004	2.86	2.34	2.26	2.03
Fidelity Freedom	1996	2.56	4.77	2.58	3.32
ING Solution	2005	2.30	8.69	3.99	6.25
John Hancock Lifecycle	2006	2.39	2.00	2.39	2.35
JP Morgan SmartRetirement	2006	1.95	3.28	3.14	3.50
MassMutual Select Destination Retirement	2004	2.88	6.91	2.30	2.94
MFS Lifetime	2005	3.93	4.04	2.62	2.46
Oppenheimer Transition	2007	3.75	3.67	2.83	2.96
Principal LifeTime	2001	2.95	7.76	3.05	3.73
Putnam RetirementReady	2004	9.97	7.63	6.06	4.08
Schwab Target	2005	5.43	4.33	4.11	3.23
TIAA-CREF Lifecycle	2004	1.17	6.49	1.06	2.46
T. Rowe Price Retirement	2002	0.81	1.03	0.81	1.02
Vanguard Target Retirement	2003	0.44	8.58	0.52	2.62
Vantagepoint Milestone	2005	4.20	3.66	3.29	2.45
Wells Fargo Advantage Dow Jones Target	1994	1.25	7.37	1.39	4.62

* Inception in this case refers to first year with reported holdings data

Continuing to focus on the largest three fund families and the Glide Path Stability Score, the fund family with the smallest average (absolute) change per year since inception (the final column) is T. Rowe Price with 1.02 percentage points. Relative to the T. Rowe Price Retirement Funds family, the Fidelity Freedom Funds family's annual change is more than three times greater with an average (absolute) change per year of 3.32 percentage points. Vanguard's average (absolute) change per year since inception is in the moderate range at 2.62 percentage points. During the past three years, Vanguard Target Retirement Funds family had the lowest average (absolute) change per year at 0.52 percentage points.

Conclusion

The implied glide path is one of the main criteria investors and plan sponsors use to evaluate and select a target date fund family. Investors should select a more equity centric or less equity centric fund family based on risk tolerance and risk capacity. Plan sponsors typically use the current implied glide path to determine which fund family best fits their participant base. Unfortunately, the glide path that they “signed up for,” the implied glide path at that time of decision making process, may not be what they are actually receiving. But while it is widely known—especially following the scrutiny target date funds received following the 2008 downturn—that the equity exposure of funds with the same target date vary significantly from one family to the next, investors and plan sponsors are less aware, arguably unaware, that the glide path from a single manufacturer can change dramatically over time, often with no explanation.

We highlight this important finding, demonstrating how much the glide paths from the major target date fund providers have changed over time and presenting a framework for scoring their stability based on standard deviation and average (absolute) change in equity exposure per year. While glide path changes are not necessarily bad, we believe unannounced and unjustified changes in glide paths should be viewed with extreme scrutiny given that investors and sponsors select these investments based on expectations of risk.

Hopefully the recognition that glide path stability is being monitored will encourage greater stability amongst providers and encourage them to provide proper disclosures and transparency around glide path changes. Additionally, these two new quantitative measures of glide path stability will help investors, advisors, and plan sponsors to monitor glide path stability moving forward.

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