EXECUTIVE SUMMARY

- T. Rowe Price’s approach to target date portfolio design begins with the conviction that glide paths should be goal driven, strategic, robust, and behaviorally friendly. Because retirement investors have widely varying goals, preferences, behaviors, and situations, our approach emphasizes robustness in delivering satisfactory results across a wide range of real-world economic situations and saving and spending behaviors.

- We believe in the durability of the equity risk premium over long horizons and see significant equity exposure as an important tool for addressing post-retirement living standards.

- Glide path designs must strike a balance between the competing goals of lifetime income replacement and limiting the risk of capital loss. Market risk, inflation risk, and longevity risk are key considerations in making this assessment. T. Rowe Price offers two glide paths that each attend to both of these goals, but with different degrees of emphasis.

- We seek diversification both within and across asset classes to dampen overall portfolio volatility and expand the opportunity set of sources of potential return enhancement.

- Our investment implementation is primarily active, adding value both through security selection and tactical asset allocation. We select from T. Rowe Price’s flagship investment strategies when determining the underlying components of our target date portfolios.

INTRODUCTION

Target date portfolios have grown in popularity as the burden of funding retirement continues to shift from institutions to individuals. With defined benefit (DB) plans on the wane, defined contribution (DC) plans have become a primary source of retirement funding for current and future generations of workers. However, many DC plan participants lack the knowledge or the time necessary to formulate, implement, and manage a sensible retirement investment strategy on their own.

To help address this problem, Congress included a number of provisions designed to strengthen DC plans in the Pension Protection Act of 2006 (PPA). The PPA encouraged the automatic enrollment of participants in sponsor-selected default investment options such as target date portfolios, which have since become widely popular DC plan investment options.

Target date portfolios are designed as prepackaged, age-appropriate investment solutions for investors.
saving for and in retirement. They may be thought of as diversified investment strategies combined with a simplified financial plan for adjusting the investor’s exposure to risk over time. By convention, this is accomplished through the use of a predetermined “glide path” in which the equity/bond mix is adjusted over time in a manner disclosed to investors in advance. Although it is also possible to design adaptive asset allocation strategies that vary over time in response to market performance or other variables, predetermined glide paths are generally preferred as a matter of simplicity and transparency.

As both an investment manager of target date products and a provider of DC recordkeeping services, T. Rowe Price has considerable experience with the DC and target date marketplaces. We have provided DC recordkeeping services since 1982, managed multi-asset portfolios since 1990, and managed target date portfolios since 2002. We currently work with close to two million individual participants across more than 3,400 retirement plans, a knowledge base that provides valuable insights into participant behavior and risk preferences. Our target date design work is informed and influenced by this deep experience with plans and participants, and by our research-centric approach to investment management.

This paper reviews T. Rowe Price’s approach to target date portfolio design. It begins by describing our general philosophy, and then discusses more specifically our approach to constructing glide paths and our rationale for equities as a key component. Our two glide paths are then presented, highlighting the differences in their design objectives. A final section discusses our approach to implementation, diversification, asset subclasses and sectors, underlying fund selection, and active management.

OUR GLIDE-PATH DESIGN PHILOSOPHY

Glide-path design involves a process for determining the appropriate amount of portfolio risk at all points in time over the intended investment horizon. Glide paths are age-based and span several decades to cover the length of working careers plus retirement. We think of these long-term asset-allocation strategies as having two general types of objectives: economic and behavioral. Economic objectives have to do with balancing the financial goals that investors seek and the risks taken to achieve them. Behavioral objectives have to do with helping investors avoid harmful conduct and decisions that could diminish the likelihood of reaching their economic objectives. In this way, many elements from the practice of financial planning also can be found in glide-path design.

In pursuing these two types of objectives, our design philosophy rests on a conviction that glide paths should be goal driven, strategic, robust, and behaviorally friendly:

- **Goal driven:** We believe the primary purpose of the DC retirement plan system is to offer participants a method of saving that provides for continuing income after retirement. This process involves both the accumulation of wealth prior to retirement and the conversion of wealth to income during retirement. Depending on their participants’ needs, plan sponsors naturally have varying perspectives on how to best achieve this. As a result, they may also have varying perspectives on the goals of a target date portfolio, including the priorities for managing the various risks that participants face. Since different glide paths are designed to balance these risks in different ways, it is only natural that different sponsors may prefer different glide paths.

- **Strategic:** Because glide paths are predetermined and intended to accommodate multiple generations of investors over multi-decade horizons, they are unequivocally strategic in nature and should incorporate a long-term market outlook. Each age cohort will experience different market environments as they move through their investment lifecycles, and the glide path needs to provide a sound solution for each of them.

- **Robust:** Our goal is to create robust solutions that deliver favorable outcomes across a wide range of real-world economic environments and saving and spending behaviors. For this reason, we avoid making

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assumptions about the “average” or “typical” participant and using those assumptions to construct a so-called “optimal” glide path based on that one particular set of assumptions.

- **Behaviorally friendly:** In addition to saving and spending behaviors, our glide-path design approach also considers common investment behaviors among plan participants and retirees. Many of these behaviors, such as the tendency to chase performance and sell after significant drops in the market, are highly counterproductive to achieving successful outcomes. Because even the best glide-path strategy will do little good if investors abandon it at an inopportune time, we strive to mitigate this type of behavioral risk.

This philosophy serves as the foundation for constructing our glide paths.

**OUR APPROACH TO GLIDE-PATH CONSTRUCTION**

We believe the primary purpose of the glide path should reflect the primary purpose of the retirement plan system itself—to provide for continuing income after retirement. Our first step in developing an investment strategy is considering glide-path design in the context of two primary investment goals:

- **Lifetime income replacement,** and
- **Limiting the risk of capital loss near retirement.**

Although both goals are important, they are at odds with each other. While growth-oriented investment strategies can enhance a portfolio’s ability to generate lifetime income, the higher volatility associated with such strategies can lead to greater risk of capital loss over shorter horizons. Thus, glide-path design involves striking a balance between competing goals. We evaluate the tradeoffs involved in this compromise through extensive modeling of the potential outcomes of various glide path designs.

**Achieving Glide-Path Robustness**

Since retirement investing does not lend itself to simple analytic approaches, we use Monte Carlo simulation as our primary tool for modeling the range of potential outcomes associated with different glide paths across a diverse set of participants. We also use historical back testing as a secondary tool to help confirm the reasonableness of different designs. Demographic and environmental factors are key components of our modeling process. These factors include worker salary levels and salary growth rates, saving behaviors, work spans (time spent working), life spans (to account for time spent in retirement), and post-retirement spending behavior.

Our primary emphasis is on modeling the glide-path horizon as a whole, rather than modeling the accumulation and drawdown phases separately. This reflects the reality that participant account balances at the start of the drawdown phase are entirely dependent on the contributions made and returns achieved over the accumulation phase. Because a drawdown phase cannot exist without an accumulation phase, this method of holistic lifecycle modeling provides the most realistic and comprehensive assessment of potential participant outcomes.

Our approach emphasizes robustness in glide-path design across a realistic range of economic, demographic, behavioral, and longevity scenarios. Our process employs two different simulation models:

- **The Economic Scenario Model** simulates the level and uncertainty of interest rates, asset-class returns, and inflation. The model is derived from factors relating to the broad economy as well as the financial markets, and generates a wide range of economic and asset class return scenarios that collectively reflect the diversity of historical experience. Our asset class return assumptions embody realistic characteristics for short and long holding periods in both nominal and real terms, including extreme events, fat tails, correlations, bull and bear market cycles in both stocks and bonds, and dependence on the underlying economic environment.

- **The Behavioral Scenario Model** simulates both the level and the uncertainty of participant cash flows, which can also influence downstream variables such as future Social Security benefits. We calibrate this model using actual participant data from DC plans for which T. Rowe Price provides recordkeeping services. Each simulated participant has a unique salary, contribution savings rate, and employer contribution match formula, such that the distribution of these variables for all participants in the model closely aligns with actual plan experience from our recordkeeping data.

Taken together, these two models allow us to evaluate the potential range of participant investment outcomes in a highly realistic manner. The modeling process considers a wide range of alternative glide paths. The relative priority assigned to various outcomes depends on the investment goals identified at the beginning of the design process. The greater the importance of the lifetime income goal, the greater priority we give to measures of lifetime income. Conversely, the greater the importance of limiting the risk of capital loss near retirement, the greater priority we give to measures of account balance stability.²

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² For additional insights and details on these measures and our modeling assumptions, please refer to “Evaluation of Target Date Glide Paths Within Defined Contribution Plans,” T. Rowe Price Asset Allocation Insights Report, August 2013. A version of this paper was also published in the Spring 2014 issue of The Journal of Retirement.
MODELING PARTICIPANT OUTCOMES

Our modeling recognizes that only a portion of pre-retirement income actually needs to be replaced because some payroll deductions no longer apply after employment ends. This includes deductions for employee retirement saving contributions and FICA taxes, which are both forms of savings.\(^3\) More accurately, then, the lifetime income goal is better defined as the replacement of pre-retirement consumption, or pre-retirement income net of pre-retirement savings. Consistent with this, we consider the amount of post-retirement income needed from the retirement portfolio as supplemental to the amount already covered by guaranteed sources such as Social Security benefits.

Our participant salary growth model consists of three components. The first is growth due to inflation (i.e., a cost-of-living increase). The second involves productivity gains in the economy due to labor, and this is related to a participant’s share of per capita real economic growth. Since in our model these first two components are experienced equally by all participants, taken together the two comprise the average salary growth, which is analogous to the Social Security Administration’s National Average Wage Index (AWI).\(^3\) Unlike the first two, the third piece is specific to each participant and relates to that participant’s career progression and development. This career salary growth is statistically independent of other macroeconomic factors such as inflation, real economic growth, or the dynamics of capital markets. Saving behavior is modeled as a deferral rate (i.e., the annual employee contribution as percentage of salary). An employer match formula is then applied to that deferral amount. The salary, deferral rate, and employer matching formulas are all calibrated using actual participant data.

We model Social Security income as the old-age benefits collected by a worker over time. Factors affecting these benefits include career salary, the age at which benefits begin, the Social Security Administration’s National Average Wage Index, and inflation. All participants are assumed to be single, with benefits commencing at age 67. Survivor, disability, and spousal benefits are not included. Cost-of-living adjustments are made according to our model of inflation using the computation specified by the Social Security Administration.

The length of the post-retirement income drawdown period is modeled according to a mortality table to capture the expected distribution of participant life spans. Mortality assumptions are updated whenever new tables are published by the Society of Actuaries. Mortality improvement scales are also used to capture projections of future increases in life expectancy. We supplement this analysis by evaluating a variety of other post-retirement horizons, such as fixed horizons (e.g., 30 years) and minimum horizons (e.g., at least 30 years, with a mortality tail).

Considering Behavioral Friendliness

In addition to modeling economic outcomes, we also attempt to evaluate the behavioral friendliness of various glide paths. This involves an assessment of investor risk capacity as well as the risk preferences of both plan sponsors and plan participants.

Risk Capacity

Risk capacity refers to the ability of investors to bear risk in the pursuit of their designated investment goals. For most retirement investors, this risk capacity changes systematically over time. As individuals start their working careers, their retirement account balances begin at zero, building slowly over time as contributions are made. At this point, the investment horizon is at its longest, and the equity risk premium has the longest period to compound. Additionally, the dollar-impact of capital losses is relatively small since the account balance is low. At this stage, risk capacity tends to be relatively high.

Over time, as account balances grow and retirement approaches, risk capacity tends to decrease. A materially higher account balance means the dollar amount of potential capital losses is also much greater. The approach of retirement leaves less time before withdrawals begin, increasing the risk that losses actually might be realized. Glide paths mitigate this risk by reducing equity exposure in the years leading up to the target date.

Risk Preference

Risk preference refers to investor attitudes toward risk. Thus, another important element of the design process is to align the glide path’s risk profile with plan sponsor and participant risk preferences. One aspect of risk preference has to do with the amount of portfolio volatility investors are willing to accept. The simplest example of this can be expressed in terms of a preference for

\(^3\) Plan contributions are a direct form of savings, while FICA taxes are an indirect form of savings that funds future social security benefits.
more or less equity exposure. Another important aspect has to do with the risk of being unable to sustain a desired income stream during retirement.

As with risk capacity, an investor’s risk preference may also change over time. Our studies of participants’ asset allocation behavior indicate a preference for continuing to de-risk their portfolios throughout their retirement years. For this reason, our glide paths likewise continue to slope downward after the target date.4

Reflecting differing views on risk capacity and risk preference is an important aspect of glide path design. Different people perceive risk differently because they anchor on different reference points.5 Some plan sponsors and participants may anchor on account balances, in which case risk relates to the risk that the account balance will fall. Acknowledging this perception of risk aversion will tend to shift glide path design toward mitigating market risk in the short term, with less emphasis on growth. Other sponsors and participants may anchor on consumption, in which case risk relates to the possibility that consumption may have to fall after retirement occurs. Acknowledging this perception of risk aversion will tend to shift glide path design toward maintaining a long-term standard of living by promoting growth over the course of the investment lifecycle, with less emphasis on mitigating market risk.

**Factors Supporting Meaningful Exposure to Equity**

Our research and design process considers a variety of risks to achieving favorable retirement outcomes. Foremost among these risks are:

- market volatility (uncertain investment returns),
- inflation (uncertain cost of maintaining living standards over time), and
- longevity (uncertain length of retirement).

The challenge is that the nature of the risk management problem is inherently contravening. An effort to mitigate one type of risk is likely to exacerbate at least one of the other risks. The discipline of glide-path design involves carefully balancing these risks in a way that best meets the design goal. For example, when the primary goal is longer-term in nature, the emphasis will tend to shift toward those risks that have the greatest long-term effect: inflation risk and longevity risk. Conversely, when the goal places more emphasis on shorter-term outcomes, such as the stability of account balances around retirement, the emphasis will tend to shift toward the risk that has the greatest short-term effect: market volatility.

Of course, an emphasis on certain risks does not mean that other risks should be ignored. For example, even when the primary emphasis is on market volatility, the fact that the primary purpose of the DC system is to provide for continuing income after retirement means that inflation and longevity risk remain important. For this reason, all of our designs incorporate at least a moderate level of equity exposure.

Several factors support this practice. A historical evaluation of the equity risk premium—the additional return on equities compared to government bonds or cash instruments—is a critical one. There is overwhelming empirical support for the belief that investors are extremely likely to receive a positive equity risk premium over multi-decade horizons, and that this premium is likely to be significant. For example, one study of market data for stocks, government bonds, and government bills in 23 different countries

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4 This point is also discussed in “Reflections on Recent Target Date Research,” T. Rowe Price Asset Allocation Insights Report, February 2014, and in “Glide-Path Classification: Sensibly Reframing ‘To versus Through’,” T. Rowe Price Perspective, April 2015.

5 The concepts of reference points and psychological anchoring are derived from the field of behavioral economics.
revealed that over the 115-year period ending 2014, the global equity risk premium (annualized) was 4.3% relative to bills and 3.2% relative to bonds.\(^6\)

Although we currently assume the equity risk premium going forward relative to bonds will be somewhat lower than the historical average, we note that the real power of the premium lies in the potential compounding effect over time. Given the multi-decade investment horizon of the typical DC plan participant, this potential compounding benefit is substantial.

To be sure, because participant accounts experience cash flows both before and after the target date, the sequence of investment returns also matters. Still, we find that the negative effect of sequence-of-returns risk associated with greater equity exposure tends to be outweighed by the long-term benefit of a compounding equity risk premium.\(^7\)

The case for equity exposure can also be supported from a liability-based perspective. Given that a key purpose of DC plans is to provide retirement income, it naturally follows that net salary replacement is the primary “liability” against which the retirement plan assets are to be managed. Projected retirement income needs generally rise over a participant’s career in lockstep with increases in his or her current standard of living, which in turn are driven by salary increases. As described earlier in the Modeling Participant Outcomes sidebar, we treat salary growth in our models realistically by incorporating factors that account for both inflation and real growth.\(^8\) Because salaries grow in real terms, assets must also grow in real terms to meet expected retirement income needs. Maintaining sufficient equity exposure in the glide path helps to generate the long-term real growth necessary to accommodate the long-term real growth in participants’ income needs.

Another way to view the equity exposure question is to consider the uncertainty around a participant’s desired retirement income. Compared to stocks, bonds are precise instruments, at least with respect to the implied promise to deliver specific cash flows at specified future times. If a participant has a high degree of specificity about their future income needs, the income precision afforded by bonds perhaps would be desirable. However, for most participants, future income needs are less exact. For these investors, a portfolio with a heavy bond allocation might provide unnecessary precision, and the cost of that extra precision would be the lost equity risk premium. This provides yet another reason to include meaningful equity exposure in glide paths throughout the entire life cycle.

### THE T. ROWE PRICE GLIDE PATHS

As discussed above, we believe objectives and risk preferences should inform the design and construction of target date glide paths. Recognizing that not all plan sponsors have the same objectives and risk preferences, T. Rowe Price offers two glide paths—the Retirement glide path and the Target glide path. These are illustrated in Figure 3, page 7.

While both glide paths begin and end with the same equity allocation, the Retirement glide path has a moderately higher equity weight for most of the pre-retirement accumulation phase and for over a decade after the target date. The difference is due to the fact that while both seek to provide income replacement in retirement; each differs in its relative focus on the two primary

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\(^6\) Elroy Dimson, Paul Marsh, and Mike Staunton, Credit Suisse Global Investment Returns Sourcebook 2015.

\(^7\) This point is explained in “Evaluation of Target Date Glide Paths Within Defined Contribution Plans,” T. Rowe Price Asset Allocation Insights Report, August 2013.

\(^8\) Evidence from the Social Security Administration reveals that salary growth significantly outpaces the rate of inflation. Refer to information on the Average Wage Index provided by the U.S. Social Security Administration at: www.ssa.gov/oact/cola/AWI.html.
The equity weights at the target date are 55% and 42.5%, respectively.

The Retirement Glide Path

The Retirement glide path is designed with a greater emphasis on lifetime income replacement and therefore places greater relative focus on managing inflation and longevity risks. As a result, it incorporates a higher allocation to equities in both pre-retirement and the first fifteen years after retirement. Therefore, we expect it to generate a higher level of wealth, which translates into higher expected lifetime income during retirement.

Of course, there is always the risk that equities will underperform over the long run. However, in the case of target date investing, the long run is quite long indeed given that glide paths typically span many decades. Because it is highly unlikely that bonds will outperform equities over such long horizons, there is a very high likelihood that the post-retirement income provided by the Retirement glide path will be greater than that provided by the Target glide path. This is a powerful argument in favor of the Retirement glide path for those who emphasize the goal of lifetime income. Nevertheless, some plan sponsors and investors—even those with lifetime income objectives—may have reasons to prefer a more conservative approach. Therefore, we offer a choice of glide paths.

The Target Glide Path

The Target glide path places a higher emphasis on the risk of capital loss around retirement. This leads to a glide path with a lower allocation to equity than the Retirement glide path. Thus, the Target funds should experience lower portfolio volatility, reducing the risk of realized capital losses for those plan sponsors and investors who prefer relatively more stable account balances to the potential for achieving greater levels of income.

Diversification and Asset Class Selection

Effective glide-path design requires diversification within and across asset classes.

Our target date strategies are invested in a wide range of asset subclasses and sectors to help dampen overall portfolio volatility and to capture global opportunities that offer potential return enhancement. These investments are chosen based on their historical and expected investment characteristics, correlations, and performance potential. Strategic allocation to a broadly diversified set of underlying investments is implemented consistently across all of our target date portfolios. We believe investors at all points of the glide path should benefit from diversification decisions that reflect our best thinking. Therefore, as portfolios move along their glide paths, sector allocations within their equity and within fixed income allocations remain proportionally constant.  

Equity Allocations

Equity allocations include U.S., international, and real asset equities. These equity allocations are presently weighted 95% to broadly diversified equities and 5% to an equity-based real asset strategy. Within the broadly diversified equity component, 70% is allocated to U.S. equities and 30% to international equities. This allocation mix recognizes the significance of international equities within the global opportunity set, but also takes into account investor preferences and acceptance of global portfolios. Our research indicates that this 70/30 allocation is close to the point at which portfolio volatility is minimized and the benefit of additional diversification becomes marginalized.

Within the U.S. equity allocation, we maintain a strategic mix of large-, mid- and small-capitalization stocks that approximates the capitalization breakdown of the broad U.S. equity market. Within each size segment, we maintain equal allocations to growth and value styles, and also include a core style allocation within the large- and small-cap segments.

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* Naturally, the sector allocations of each glide path do change when measured at the overall portfolio level, consistent with a glide path’s changing risk profile over time.
Within the international equity component, we maintain an allocation of 85% to developed markets and 15% to emerging markets (EM). The developed international exposure is equally divided between value, core, and growth styles. The 15% EM allocation approximates the weight of emerging markets in the global equity universe after accounting for the additional EM exposure typically included in the underlying developed market portfolios.

**Fixed Income Allocations**

The fixed income component includes a broadly diversified allocation to domestic investment-grade bonds, high-yield bonds, EM bonds, and non-U.S. dollar bonds. This allocation is structured so that 70% is invested in a core U.S. investment-grade oriented portfolio, while the remaining 30% is divided evenly among high-yield bonds, EM bonds, and non-U.S. dollar bonds. This 70/30 allocation remains fixed over the full glide-path lifecycle.

The inclusion of global strategies that invest in a range of countries, sectors, and currencies enhances diversification and expands the potential sources of return:

- **High-yield bonds** have relatively low correlation with the other fixed income sectors in the portfolio, and can improve diversification while providing a yield premium over investment grade corporate bonds and Treasuries.

- **EM bonds** account for an increasingly larger share of the total global debt market. EM economies have also grown to the point where they are now significant economic competitors with the developed economies, and thus represent important investment opportunities. EM bond markets have also become more diverse and liquid, the underlying investor base is now more stable, and credit quality has improved along with the sector’s economic fundamentals.

- **Non-U.S. dollar bonds** offer long-term return characteristics similar to the U.S. investment-grade market, but their return correlation with other fixed income sectors is low, reflecting their exposure to different economic cycles and currencies.

**Smoothing Volatility in Real Terms**

The inclusion of investments that respond more favorably to inflation—such as real-asset stocks and inflation-protected bonds—is a way to smooth volatility across inflationary cycles. Our research indicates that including assets that respond positively to periods of high or rising inflation, but have average returns similar to assets currently incorporated in the glide path, can improve retirement outcomes.

To achieve this benefit, a real-asset strategy is included as part of the target date equity allocation and an inflation-focused bond strategy is incorporated within the fixed income allocation.

Investors need differing types of inflation protection at different points in their life cycle. For this reason, the early years of our glide paths incorporate an allocation to real-asset equities, but not inflation-focused bonds. As retirement begins to approach, inflation-focused bonds are introduced and gradually increased until they reach a maximum of 20% of the overall portfolio.
OUR APPROACH TO ACTIVE MANAGEMENT

Successful active management can make a meaningful financial contribution to retirement outcomes. We incorporate two forms of active management in our target date portfolios: security selection and tactical positioning. While both offer important sources of potential performance enhancement, we expect security selection to add the most value over the long term. Security selection is provided by the managers of the underlying portfolios in which the target date portfolios invest. Tactical positioning is provided by an Asset Allocation Committee that oversees this function for all of T. Rowe Price’s multi-asset portfolios.

Active Management within Underlying Portfolios

With over 75 years of experience as an active investment manager, T. Rowe Price uses a disciplined portfolio approach rooted in proprietary fundamental research across both our equity and our fixed income strategies. Risk management and a focus on long-term performance are constant priorities.

Our target date portfolios employ a fund-of-funds structure, incorporating the underlying T. Rowe Price equity and fixed income portfolios that we believe are best suited to the desired asset class and sector allocations. This provides investors with access to our flagship actively managed products.

While we recognize the virtues of passive index replication strategies—and employ some indexed components in our target date asset allocation strategies—we believe strongly that skilled, risk-aware active management backed by in-depth fundamental research can add value for clients over longer-term time horizons. We attribute our success in this area to our research platform and our underlying investment process.

Fundamental, proprietary analysis, backed by a well-resourced global research platform, forms the core of our approach and provides a strong foundation for bottom-up security selection. Extensive research resources allow us to look both broadly and deeply at opportunities across and within global markets. Our process is designed to produce sound, long-term investment decisions while also allowing full exploitation of market inefficiencies.

Our global investment research platform is composed of 242 interconnected investment professionals focused on finding opportunities for our clients. Our 161 equity research professionals cover almost 2,300 public companies worldwide, representing more than 63% of total global market capitalization. The analyst teams frequently cover a company through every stage of its corporate life cycle—from IPO to market leadership—giving our portfolio managers a critical informational edge, in our view. Our 81 fixed income analysts worldwide cover approximately 1,500 company issuers, 70 sovereign country issuers, 1,000 municipal bond obligators, and $15 billion of securitized assets such as mortgage- and asset-backed securities.

A further hallmark of our investment process is a consistent, risk-aware approach. Adhering to the stated investment objectives and style attributes for each underlying strategy, regardless of market conditions or fashion, helps ensure their long-term integrity. We are also keenly focused on risk management, assessing risk and potential rewards at the security and portfolio level for all strategies.

Our active management approach is further enhanced by the experience of our investment professionals. Our portfolio managers tend to be long-tenured, with an average of 16 years of experience at T. Rowe Price and 21 years in the investment industry.

Our recruiting and internal mentoring programs help us attract and develop talented analysts, who in turn provide a pool of experienced candidates to help fill open portfolio manager positions. This emphasis on long-term career development historically has resulted in experienced teams with low manager turnover relative to other firms in the industry. This combination of individual expertise and collective experience allows us to hone our investment approach through changing economic conditions, while also keeping evolving markets in historical perspective.

Finally, T. Rowe Price’s culture and research structure encourages close collaboration among managers and analysts, between our equity and fixed income professionals, and across geographical boundaries. We believe a collaborative approach can lead to significant idea sharing, and investment decisions that are based on the full breadth of the firm’s resources. However, our organizational structure also features clear lines of authority, in which one lead manager typically is responsible for each strategy. Performance evaluation and compensation practices are designed to encourage collegiality and cooperation and discourage a “star system” mentality.

T. Rowe Price seeks long-term value creation for our clients by remaining focused on the underlying factors that support strong active performance.

Tactical Asset Allocation Overlay

Target date design is a discipline in strategic allocation among asset classes and subclasses, which we base on long-term capital market return and risk assumptions. At times, however, certain asset categories may appear overvalued or undervalued, or relatively more risky to hold such as during a financial crisis or other period of tightened liquidity. For this reason, we use a disciplined process to overlay our strategic allocations with tactical positioning in

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10 As of December 31, 2015.
an effort either to enhance returns or reduce volatility. The intent of our tactical positioning is to enhance long-term performance—not to capitalize on short-term trends that require rapid moves in and out of positions.

Tactical asset allocation decisions for all of T. Rowe Price’s multi-asset investment strategies (including the target date strategies) are made by the firm’s Asset Allocation Committee. The committee uses a consistent process that has been in place since it was established in 1990. It is chaired by the head of the company’s Asset Allocation division, and consists of senior fixed income, equity, and asset allocation portfolio managers, including the firm’s chief investment officer. Its members presently average 27 years of industry experience and 23 years with T. Rowe Price.

The committee meets on a monthly basis to review and, if necessary, change tactical portfolio positions. Its decisions are informed by the outlook for the global economy, financial markets, and corporate fundamentals. The approach is largely qualitative and valuation-based, with attention to a broad scope of potential risk and return scenarios. The process results in a subjective assessment of the relative attractiveness of asset classes and subclasses over an intermediate investment horizon, typically six to 18 months. Decisions are made with an awareness of the current positioning within the underlying portfolios.

Our approach is to make gradual adjustments, typically in 50-to-100 basis point increments, which can lead to material tactical positions over time. However, because we place high importance on the strategic design of our glide paths, any tactical deviations from strategic neutral weights are relatively constrained. The committee may overweight or underweight the primary asset classes in the target date portfolios by up to five percentage points relative to long-term strategic weights. Tactical positions may also be taken within asset classes. This approach of making incremental changes within a moderate set of bands allows us to implement tactical decisions without greatly increasing risk.

Changes to tactical positioning are implemented consistently within each target date portfolio by dedicated trading and cash management teams. A disciplined process allows us to mitigate both implicit and explicit transaction costs for the target date portfolios as well as for the underlying asset portfolios. In addition to tactical positioning, the team also works closely with the portfolio managers of the underlying strategies to communicate and manage cash flows due to glide path roll downs, general rebalancing, and investor activity.

CONCLUSION

The retirement investing lifecycle is a long-term endeavor that requires a balanced approach to achieve favorable outcomes. T. Rowe Price’s approach to target date portfolio design begins with the conviction that glide paths should be goal driven, strategic, robust, and behaviorally friendly. One consequence of this philosophy is that our glide paths have exhibited a high degree of stability over the years.

Because glide paths need to be robust enough to serve a diverse set of investors, our design approach does not define a single set of assumptions for the “average” or “ideal” participant, and then seek to develop the “optimal” glide path for that one set of assumptions. Rather, we seek robustness across a realistic range of participant situations and behaviors.

We consider glide path design in the context of two primary goals: lifetime income replacement, and limiting the risk of capital loss near and in retirement. Because these goals are competing, glide path design involves striking a balance between them. Both of the glide paths currently offered by T. Rowe Price attend to both goals, although with different degrees of emphasis.

Our portfolios are highly diversified both within and across asset classes to dampen overall portfolio volatility and utilize sources of potential return that can help offset inflation. In selecting underlying investment vehicles, we utilize the products we feel are best suited to the task. Our management approach is primarily active, and seeks to generate excess returns through bottom-up security selection, tactical positioning, and other techniques.

FIGURE 5: Tactical Asset Allocation

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<th>Macro Economic Environment</th>
<th>Relative Valuations</th>
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Scope of Tactical Decisions

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Important Information

Call 1-800-225-5132 to request a prospectus or summary prospectus; each includes investment objectives, risks, fees, expenses, and other information that you should read and consider carefully before investing.

The principal value of the Retirement Funds and Target Retirement Funds (collectively, the “target date funds”) is not guaranteed at any time, including at or after the target date, which is the approximate year an investor plans to retire (assumed to be age 65) and likely stop making new investments in the fund. If an investor plans to retire significantly earlier or later than age 65, the funds may not be an appropriate investment even if the investor is retiring on or near the target date. The target date funds’ allocations among a broad range of underlying T. Rowe Price stock and bond funds will change over time. The Retirement Funds emphasize potential capital appreciation during the early phases of retirement asset accumulation, balance the need for appreciation with the need for income as retirement approaches, and focus on supporting an income stream over a long-term retirement withdrawal horizon. The Target Retirement Funds emphasize asset accumulation prior to retirement, balance the need for reduced market risk and income as retirement approaches, and focus on supporting an income stream over a moderate postretirement withdrawal horizon. The target date funds are not designed for a lump-sum redemption at the target date and do not guarantee a particular level of income. The key difference between the Retirement Funds and the Target Retirement Funds is the overall allocation to equity; although they each maintain significant allocations to equities both prior to and after the target date, the Retirement Funds maintain a higher equity allocation, which can result in greater volatility over shorter time horizons.

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