Ready! Fire! Aim? 2015

Incorporating insights from more than 10 years of real-world participant behavior into target date fund design
READY! FIRE! AIM? SERIES

The Ready! Fire! Aim? research series, initially published in 2007, is an ongoing study that was the first in the industry to examine how the relationship between target date fund glide paths and realistic participant behavior might shape long-term defined contribution (DC) portfolio outcomes. It analyzes two specific issues:

1) How are participants interacting with their DC plans?
2) What is the most effective target date fund design to stand up to the stresses of these real-life participant saving and withdrawal patterns through a wide range of potential investment climates?

Our original research found that participant behavior was much more varied and volatile than many target date fund providers had assumed in their asset allocation models, with significant ramifications around whether participants were likely to meet their retirement funding needs. Subsequent updates in 2009, 2012 and now 2015 continue to confirm that target date fund designs offering effective diversification and dynamic risk management appear to position the greatest number of participants for retirement income success.

RESEARCH METHODOLOGY

- **Participant behavior:** A rigorous quantitative examination of actual saving and spending patterns drawn from about 400 DC plans with approximately 2.2 million participants.

- **Target date fund designs:** Analysis of four popular types of target date funds utilizing J.P. Morgan Asset Management’s patented Target Date Compass®, which maps portfolio compositions and glide paths of actual funds in the marketplace into quadrants by asset class diversification and equity exposure.

- **Projected retirement outcomes:** Based on 10,000 portfolio simulations using the range of identified participant behavior applied to the four representative glide paths and a broad mix of market scenarios.

- **Measure of success:** Number of participants who reach at least the minimum level of income replacement at retirement.
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WHILE TARGET DATE FUNDS HAVE BECOME BY FAR THE MOST POPULAR QUALIFIED DEFAULT INVESTMENT ALTERNATIVE (QDIA) for defined contribution (DC) plans, many plan sponsors continue to struggle with how best to evaluate the impact that different target date fund designs may have on participant outcomes. These strategies have considerable flexibility in glide path design, ranging from the scope of asset class diversification used in the underlying allocation to how the mix evolves as the designated target date approaches and beyond.

Our Ready! Fire! Aim? research is designed to help plan sponsors and their advisors better understand how different types of target date fund designs may lead to dramatically different retirement outcomes, in part from how a particular glide path is likely to respond to various market conditions and in part from how participants are actually interacting with their plans. This type of pragmatic return analysis can be applied to help select the most prudent target date fund for a plan’s specific goals and objectives.

When we introduced our original research in 2007, we saw that many target date fund glide paths were being constructed around common participant usage assumptions—many of which proved to be incorrect. One of the initial key takeaways from that analysis was that participant cash flow volatility was much more common and more pronounced than generally thought. On the whole, participants were starting contributions later, saving less, borrowing more and withdrawing sooner than typically expected. Moreover, this elevated cash flow volatility had a potentially negative amplifying effect on portfolio volatility.

This research was also groundbreaking because it put actual glide path archetypes to the test using real-world participant behavior through the wide range of market conditions that might be expected over a lifetime of DC investing. Unfortunately, our projections showed that many popular target date fund designs risked placing an alarming number of participants in danger of missing the mark in securing adequate income in retirement. Our research also helped validate the design of our SmartRetirement target date fund series, which employs broader diversification and tighter risk controls around equity exposure, particularly in the critical years leading up to retirement.
Our projections found that the SmartRetirement glide path’s broader diversification and dynamic risk management held up better to the rigors of real-life DC investing, delivering a larger projected number of participants safely over the retirement finish line. In addition, this emphasis on diversification and downside exposure protection may become increasingly important as the aging bull market continues to show signs of strain. It seems unlikely that target date funds will be able to rely as heavily on equities to do all the work in the period ahead.

We have updated our Ready! Fire! Aim? findings three times since the original paper—first, immediately after the financial crisis; second, as markets normalized several years later; and now in this most recent summary. This research has helped change industry thinking around the important interactions among participant behavior, glide path design and retirement funding success. It is important to remember that, similar to the financial markets, saving patterns are constantly evolving; however, although there have been nuanced differences in each update, the overarching themes have remained remarkably consistent, offering important insights into optimized plan design and target date fund selection criteria.

Highlights from our most recent findings are presented in the sections that follow, and earlier studies can be obtained from your J.P. Morgan representative. Collectively, this scope of research now covers more than 10 years of actual participant behavior data, and we look forward to continuing to update these results periodically to help plan sponsors and their advisors gain a deeper understanding around how they can help put more participants on an appropriate retirement savings path.
Evaluating participant behavior patterns

DC plans represent a unique partnership between plan sponsors and participants. Plan sponsors can significantly influence positive behavior through automatic features and also by selecting the most appropriate investment strategies to help participants make the most of their retirement assets. Participants, however, must also do their part by consistently saving enough in their plans, since even the most well-constructed target date fund design will fail to deliver adequate savings if participants invest too little or not at all.

Our research has found that an important driver in retirement outcome potential is how participant behavior, such as the size and timing of portfolio cash flows, interacts with the size and timing of market returns. For example, taking a sizable retirement account loan at a market bottom and repaying it at a market top illustrates the potentially negative effect cash flow volatility, combined with investment volatility, might have on long-term account balances.

Managing to behavior, of course, requires a realistic assessment of how participants tend to save and invest in their plans. Our research has repeatedly found persistent and wide variations in saving and investing behavior, which often compromised the likelihood of long-term participant success, a trend that held true in our most recent findings, outlined below:

- **Salary raise frequency seems to have stabilized, but average increases remain below pre-crisis levels.** Salary is a crucial behavioral input because income levels influence contribution amounts, as well as the standard of living that needs to be replaced in retirement. Our most recent study showed that average raise frequency declined to pre-crisis levels because, we believe, earlier increases were mainly caused by an apparent salary catch-up from the post-crisis slowdown. Average raise size declined somewhat but still remained slightly above inflation, though this is a relatively low bar given that inflation has been so low.

- **Average starting contribution rates continue to fall, with subsequent average increases rising much more slowly.** The only way participants can be certain to achieve adequate income in retirement is to save enough but, disappointingly, average starting contributions remain at the lowest point since we began our research, and rise much more slowly than in the earlier studies. For a more in-depth exploration of these findings, including the impact of automatic enrollment and automatic escalation programs, see “A deeper look at contribution rates,” page 6.
• **A large number of participants continue to take sizable account loans.** The percentage of participants tapping into retirement accounts pre-retirement has risen to the highest level since we began tracking behavior, while the average percentage borrowed has modestly fallen, likely due to generally higher account balances after years of rising markets. This indicates that a sizable portion of participant assets is not actually invested in any given year. Many participants also stop making contributions while repaying loans.

• **Pre-retirement leakage remains unpredictable.** The good news is that there appear to be fewer hardship withdrawals as the economy continues to stabilize, but there are also more loans and pre-retirement withdrawals, which could jeopardize long-term savings. Indeed, the percentage of working participants over age 59½ taking a portion of their account balance and the average percentage withdrawn have both risen to the highest levels in the past 14 years.

• **Most participants withdraw their entire account balances once they stop working, usually in a single withdrawal.** We continue to see the majority of participants, nearly 70%, leaving their plans soon after retirement. However, in this latest study, we observed that the percentage of participants staying in their plans almost doubled, from 17% post-2008 to 32% in recent years. We will continue to monitor this data to determine if this is a cyclical or structural change in participant engagement.

The main observation from this updated behavioral data is that current participant cash flow volatility, while generally in line with past findings, remains much more prevalent than might be expected. For a summary of key participant behavior and salary patterns from our four studies, see **EXHIBIT 1**.

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**Key finding:** Patterns have generally normalized to pre-crisis levels, though some of the most critical have worsened

**EXHIBIT 1: J.P. MORGAN READY! FIRE! AIM? FINDINGS—PARTICIPANT BEHAVIOR AND SALARY PATTERNS**

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<td>On average, participants get raises every two out of three years.</td>
<td>On average, participants get raises every other year.</td>
<td>On average, participants get raises every year.</td>
<td>On average, participants get raises every two to three years.</td>
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<td>On average, contribution rates start at 6% and increase slowly, reaching 8% of salary by age 40 and 10% not until age 55.</td>
<td>On average, contribution rates start at 6% and increase even more slowly, reaching 8% of salary by age 45 and 10% not until age 57.</td>
<td>On average, contribution rates start at 5% and increase slowly, reaching 8% of salary by age 44 and 10% not until age 59.</td>
<td>On average, contribution rates start at 5% and increase slowly, reaching 8% of salary by age 50 and do not reach 10% before retirement.</td>
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<td>19% of participants borrow, on average, 21% of account balance.</td>
<td>18% of participants borrow, on average, 25% of account balance.</td>
<td>18% of participants borrow, on average, 22% of account balance.</td>
<td>23% of participants borrow, on average, 20% of account balance.</td>
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<tr>
<td>12% of participants over the age of 59½ withdraw, on average, 25% of assets.</td>
<td>13% of participants over the age of 59½ withdraw, on average, 27% of assets.</td>
<td>12% of participants over the age of 59½ withdraw, on average, 18% of assets.</td>
<td>14% of participants over the age of 59½ withdraw, on average, 30% of assets.</td>
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<td>The average participant withdraws over 20% per year at or soon after retirement.</td>
<td>The average participant withdraws over 20% per year at or soon after retirement.</td>
<td>The average participant withdraws over 20% per year at or soon after retirement.</td>
<td>The average participant withdraws over 26% per year at or soon after retirement.</td>
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<td>Not available (began tracking in 2006).</td>
<td>20% of participants remain in the plan.</td>
<td>17% of participants remain in the plan.</td>
<td>32% of participants remain in the plan.</td>
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Slight differences in numbers reported from earlier studies may exist due to the reclassification of certain participant behavior. Those differences are not material.

1 Due to a methodology change, 15% of account balance reported in 2006 is revised to 21% in this report.
A DEEPER LOOK AT CONTRIBUTION RATES

The most recent average contribution rate moved slightly lower once again (Exhibit 2), likely the result of an increase in automatic enrollment and automatic escalation programs, with 45% and 31% of plans, respectively, offering these features as of 2014. Despite this increase, there remains significant room for improvement. For example, automatic enrollment programs continue to primarily target new employees, with the bulk of default deferral percentages set at 3% or less. Plan sponsors should consider automatically enrolling all employees not participating in the plan annually on an opt-out basis and also consider a higher starting contribution rate. Also, automatic escalation is usually offered as an option employees need to voluntarily choose to adopt. Here, too, an opt-out approach, rather than an opt-in approach, is something plan sponsors should consider. The net result is that while more participants are investing in their plans through the use of automatic enrollment, many are doing so at much lower rates than the averages identified in our prior research. General inertia in this group also seems to be keeping rates at lower levels for longer.

On a bright note, the number of participants increasing contributions remains notably higher than in 2006 and 2008. The number decreasing contributions has stabilized below pre-crisis frequency as well. Overall, however, subdued contribution levels are likely to continue to have an adverse effect on retirement saving balances moving forward, indicating an opportunity for plan sponsors to apply automatic features more broadly at a higher starting point and a real need to make sure assets that are invested work as hard as possible without overly risking what is being saved.

Key finding: Automatic enrollment is getting more participants saving but at too low a rate, pushing average contribution rates lower

Exhibit 2: Average overall contribution rate and contribution rate increases and decreases

Source: J.P. Morgan retirement research, 2001-14.

Automatic enrollment and automatic contribution escalation percentages are from DCIIA 2015 Plan Sponsor Survey.
Comparing target date fund design

Our recent research, *Off balance*, analyzed various target date fund approaches to risk management. In that analysis, we discussed how plan sponsors can help address the multifaceted risks of DC investing, which broadly fall into two general categories: participant-controlled risks, such as withdrawal risk and participant user risk, and participant-experienced risks, such as market and interest rate risk. For a more detailed explanation of these risk types, see EXHIBITS 3A and 3B, next page.

When evaluating how best to manage participant-experienced risks, it is important to remember that all glide paths are subject to investment risks, but many of the most popular may be introducing unintended consequences into their design. This is reinforced by our *Ready! Fire! Aim?* research, which employs the framework used by J.P. Morgan Asset Management’s patented Target Date Compass™ to classify target date strategies into one of four quadrants based on portfolio compositions of actual funds in the marketplace.

- The **NORTHWEST (NW)** quadrant includes strategies such as JPMorgan SmartRetirement funds, with more tightly controlled equity exposures and broader portfolio diversification.

- The **NORTHEAST (NE)** quadrant represents aggressive strategies with higher equity levels at retirement and broader portfolio diversification.

- The **SOUTHEAST (SE)** quadrant consists of concentrated strategies with higher equity levels at retirement and a focus primarily on core asset classes.

- The **SOUTHWEST (SW)** quadrant captures conservative strategies with lower equity levels at retirement and a focus primarily on core asset classes.

For a more in-depth look at the four typical glide paths, their asset allocations and common characteristics, see **EXHIBIT 5**, page 10.
Generally speaking, as it relates to participant-experienced risks, target date fund designs in the east quadrants tend to be more susceptible to market and event risk. Funds in the west quadrants are usually more subject to interest rate risk. The southwest quadrant appears most vulnerable to longevity risk, and the southeast quadrant is where many target date funds that focus on passively managed underlying strategies fall. Of note, the industry trend since our initial research has been toward broader diversification in glide path designs, though to a generally modest degree.

**Key finding:** Understanding target date fund design in the context of risk exposure is crucial

### EXHIBIT 3A: PARTICIPANT-CONTROLLED RISKS ARE BEST ADDRESSED THROUGH PLAN DESIGN

- Possibility that the participant misuses investment options (e.g., too conservative or aggressive, under-diversified)
- Risk of needing to withdraw funds prior to retirement
- Risk of failing to save enough to retire

### EXHIBIT 3B: PARTICIPANT-EXPERIENCED RISKS ARE BEST ADDRESSED THROUGH PLAN INVESTMENT LINEUP

- Risk of drawdown as one approaches retirement
- Risk of outliving savings
- Risk that value of principal will be eroded by inflation
- Risk that fixed income securities will lose value if rates rise
- Risk of severe loss due to a single extreme market event

**PROJECTED RETIREMENT OUTCOMES**

As in our past studies, we used these typical glide paths to project potential retirement outcomes, based on a statistical simulation of 10,000 participants that combined the full range of behavioral data (from investors who contribute consistently and leave accounts untouched to those who save more erratically, borrow and/or make early withdrawals) with various market scenarios (from strong rallies to market crashes). Each participant started with the same average salary, and the measure of safe retirement funding was again represented by the asset threshold needed to purchase an annuity to replace working income, after Social Security. See “Crossing the retirement finish line,” below, for a closer look at our measure of safe retirement funding.

**CROSSING THE RETIREMENT FINISH LINE**

Our current analysis arrives at a replacement rate of about 77% for working incomes of around $85,000, due to lower income tax rates and reductions in expenditures in retirement. Social Security is expected to provide 40% of this replacement income, and a remaining balance of 37% is sourced from private savings such as defined contribution plans. The asset threshold needed to purchase an annuity to replace 37% of an $85,000 working income was $500,000 in late 2014.

**Source:** J.P. Morgan Asset Management.

**Note:** Our analysis is based on a participant age 65 with a non-working spouse age 62. Annuity amounts assume a 5.00% return and a 2.25% inflation rate. Academic research and industry pricing center around these numbers but can vary dramatically. Annuity amounts are inflation-adjusted and represented in today’s dollars.
In these latest projections, detailed in EXHIBITS 4A and 4B, the SE: CONCENTRATED and SW: CONSERVATIVE glide paths continued to be the weaker performers, as in past evaluations, due to generally heavier reliance on equity markets and greater traditional fixed income exposure, respectively. The NE: AGGRESSIVE glide path again performed best under optimal market conditions and/or participant behavior.

The NW: JPMORGAN SMARTRETIREMENT glide path again sacrificed a portion of this upside potential but performed significantly better when market conditions and/or participant behavior were less than ideal, due to broader asset class diversification and dynamic risk management. This resulted in getting anywhere from 200 to 800 more participants across the retirement finish line than the other three glide paths. Analyzing the results of these glide paths presents a fundamental question around plan sponsor philosophy:

Should the role of a target date fund be to strive to secure as high a return as possible for participants even if it means that a larger number risk falling short in adequate funding levels? Or is it more prudent to ensure as great a number of participants as possible reach safe funding levels?

We believe the latter is far more important. The pain of falling short of a minimum adequate replacement income level appears far greater than the benefit of a surplus.

THE PAIN OF FALLING SHORT

To illustrate the importance of reaching safe retirement funding levels, consider being in a cafeteria at lunchtime. A cheeseburger costs $4, and you have $5. You can get lunch and also a cookie. If you only have $3, however, you cannot afford the cheeseburger at all. Having $1 too little hurts far more than the extra $1 helps. Consider this scenario on a far bigger scale in retirement.

Key finding: The JPMorgan SmartRetirement glide path continued to secure the greatest number of projected participant retirement funding successes

EXHIBIT 4A: RANGE OF EXPECTED ACCOUNT BALANCES AT RETIREMENT (IN USD, THOUSANDS)

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Expected success rate</th>
<th>Expected participant impact</th>
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<tbody>
<tr>
<td>NE: Aggressive</td>
<td>71%</td>
<td>–</td>
</tr>
<tr>
<td>NW: JPMorgan SmartRetirement</td>
<td>73%</td>
<td>2% or 200 more successes</td>
</tr>
<tr>
<td>SE: Concentrated</td>
<td>68%</td>
<td>–</td>
</tr>
<tr>
<td>NW: JPMorgan SmartRetirement</td>
<td>73%</td>
<td>5% or 500 more successes</td>
</tr>
<tr>
<td>SW: Conservative</td>
<td>65%</td>
<td>–</td>
</tr>
<tr>
<td>NW: JPMorgan SmartRetirement</td>
<td>73%</td>
<td>8% or 800 more successes</td>
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Source: Results based on analysis derived from J.P. Morgan Asset Management Long-term Capital Market Return Assumptions—2015, industry prospectuses (for target date fund asset allocations) and J.P. Morgan retirement research (for saving and investment behavior). Target based on annuity cost required to meet an adequate level of retirement income. See page 8 for more information on the “retirement finish line.”

For the purposes of this paper, we use the term JPMorgan SmartRetirement to represent the J.P. Morgan glide path. The strategic allocation used in this analysis is not intended to be reflective of a specific J.P. Morgan target date fund but rather a representation of the overall strategy.
**Key finding:** Glide path designs continue to be widely different in terms of diversification, risk exposure and expected long-term performance

**EXHIBIT 5: COMPARING ASSET ALLOCATION AND COMMON CHARACTERISTICS OF FOUR TYPICAL GLIDE PATHS**

**NW: BROADLY DIVERSIFIED—JPMORGAN SMARTRETIREMENT**

- **Quadrant characteristics:**
  - Lower equity level at retirement
  - Higher number of asset classes—tend to include a higher number of extended asset classes

- **Investment orientation:**
  - Focus on ensuring income replacement at retirement
  - Focus on managing volatility more efficiently
  - Believe lower diversification may provide appropriate levels of portfolio optimization

**NE: AGGRESSIVE**

- **Quadrant characteristics:**
  - Higher equity level at retirement
  - Higher number of asset classes—tend to include a higher number of extended asset classes

- **Investment orientation:**
  - Focus on managing longevity risk post-retirement
  - Focus on managing growth more efficiently
  - Believe higher diversification may potentially create more optimal portfolio

**SW: CONSERVATIVE**

- **Quadrant characteristics:**
  - Lower equity level at retirement
  - Lower number of asset classes—tend to maintain focus on core asset classes

- **Investment orientation:**
  - Focus on ensuring income replacement at retirement
  - Focus on managing volatility more efficiently
  - Believe lower diversification may provide appropriate levels of portfolio optimization

**SE: CONCENTRATED**

- **Quadrant characteristics:**
  - Higher equity level at retirement
  - Lower number of asset classes—tend to maintain focus on core asset classes

- **Investment orientation:**
  - Focus on managing longevity risk post-retirement
  - Focus on managing growth more efficiently
  - Believe lower diversification may provide appropriate levels of portfolio optimization

Source: J.P. Morgan Asset Management and industry prospectuses. These descriptions generally represent broad characteristics of strategies within each quadrant. They are not intended to be absolute.
Conclusion

We continue to believe that a well-designed target date fund program offers the greatest chance of retirement security for the vast majority of participants. The benefits of these portfolios—professional management, easy-to-access asset class diversification and increasingly conservative risk/reward profiles as retirement approaches—represent significant advancements for DC investments. Still, the consistent findings in our Ready! Fire! Aim? research indicate clear opportunities to strengthen participant outcomes through plan and target date fund design. Our research also provides further confirmation around JPMorgan SmartRetirement’s design of broader, more effective diversification and dynamic risk controls that seek comparable levels of upside performance to more aggressive strategies, with less volatility, downside risk and equity exposure, particularly in the years leading up to retirement, when participants may be most vulnerable to declines. Our updated findings illustrate that this time-tested approach once again delivers safer projected outcomes for a greater number of participants, based on real-world DC usage patterns and a wider range of market scenarios.

In addition, we believe the rapidly growing number of participants entering retirement demands deeper research. If our past analysis trends hold true, the vast majority are likely to withdraw their entire account balances soon after they stop working. The investment challenges these retirees face are complex and multifaceted. They must continue to address market risk but are also tasked with seeking to balance lifestyle risk and longevity risk, complicated by the difficult investment outlook of rising interest rates, low growth expectations and heightened volatility exposure. This calls for viable, dynamic retirement income strategies that are more broadly accessible—an area our Retirement Solutions team continues to closely explore.

THE WAY FORWARD

Plan sponsors and their advisors can apply this research to help strengthen retirement outcomes by focusing on several effective levers they have to help combat participant-controlled and participant-experienced risks.

Adopt automatic features
- Get more participants investing earlier and at higher levels by automatically enrolling all employees not participating in the plan annually on an opt-out basis, not just new hires. Consider a starting contribution rate of 6% rather than the typical 3%, with a default escalation rate of 2% instead of the usual 1% to help increase the probability that participants will reach retirement success.

Select the most appropriate target date fund
- Review fund design in the context of the plan’s goals and participants’ needs and behavior. In particular, consider how a specific glide path seeks to increase the odds that participants may safely retire and whether it helps minimize the number that appear at risk of falling short of securing adequate savings. Keep in mind that the strongest returns in any one period may not lead to the strongest retirement outcomes long term. Also assess the role portfolio volatility might have when interacting with cash flow volatility.

Conduct a re-enrollment
- Simply offering a target date fund may not be enough if the strategy’s adoption rates remain too low. A plan re-enrollment can be a catalyst to help better position both new and existing participants by defaulting them into the plan’s QDIA, while still allowing those who want to take a more active role in choosing investments to opt out.
This document is a general communication being provided for informational purposes only. It is educational in nature and not designed to be a recommendation for any specific investment product, strategy, plan feature or other purposes. By receiving this communication you agree with the intended purpose described above. Any examples used in this material are generic, hypothetical and for illustration purposes only. None of J.P. Morgan Asset Management, its affiliates or representatives is suggesting that the recipient or any other person take a specific course of action or any action at all. Communications such as this are not impartial and are provided in connection with the advertising and marketing of products and services. Prior to making any investment or financial decisions, you should seek individualized advice from your personal financial, legal, tax and other professional advisors that take into account all of the particular facts and circumstances of your own situation.

The projections utilized throughout are based on J.P. Morgan Asset Management Capital Market assumptions, are provided for illustration/discussion purposes only and are subject to significant limitations. "Expected" or "alpha" return estimates are subject to uncertainty and error. For example, changes in the historical data from which it is estimated will result in different implications for asset class returns. Expected returns for each asset class conditional on an economic scenario; actual returns in the event the scenario comes to pass could be higher or lower, as they have been in the past, so an investor should not expect to achieve returns similar to the outputs shown herein. References to future returns are for illustrative purposes only. Actual future performance may be better or worse than that estimated.

Because of the inherent limitations of all models, potential investors should not rely exclusively on the model when making a decision. The model cannot account for the impact that economic, market and other factors may have on the implementation and ongoing management of an actual investment portfolio. Unlike actual portfolio outcomes, the model outcomes do not reflect actual trading, liquidity constraints, fees, expenses, taxes and other factors that could impact the future returns. The model assumptions are passive only—they do not consider the impact of active management. A manager’s ability to achieve similar outcomes is subject to risk factors over which the manager may have no or limited control.

**RISKS ASSOCIATED WITH INVESTING IN TARGET DATE STRATEGIES.** A target date strategy may invest in foreign/emerging market securities, small capitalization securities and/or high yield fixed income instruments. There may be unique risks associated with investing in these types of securities. International investing involves increased risk and volatility due to possibilities of currency exchange rate volatility, political, social or economic instability, foreign taxation and differences in auditing and other financial standards. A target date strategy may invest a portion of its securities in small cap stocks. Small capitalization funds typically carry more risk than stock funds investing in well-established "blue-chip" companies since smaller companies generally have a higher risk of failure. Historically, smaller companies' stock has experienced a greater degree of market volatility than the average stock. Securities rated below investment grade are called "high yield bonds," "non-investment-grade bonds," "below investment-grade bonds" or "junk bonds." They generally are rated in the fifth or lower rating categories of Standard & Poor's and Moody's Investors Service. Although these securities tend to provide higher yields than higher rated securities, there is a greater risk that the overall portfolio value will decline. Real estate investments may be subject to a higher degree of market risk because of a concentration in a specific industry, sector or geographical sector. Real estate investments may be subject to risks including, but not limited to, declines in the value of real estate, risks related to general and economic conditions, changes in the value of the underlying property owned by the trust and defaults by the borrower. A target date strategy may use derivatives, which are instruments that have a value based on another instrument, exchange rate or index. In addition, a target date strategy may invest directly in derivatives. Derivatives may be riskier than other types of investments because they may be more sensitive to changes in economic and market conditions than other types of investments and could result in losses that significantly exceed the portfolio's original investments. Many derivatives will give rise to a form of leverage. As a result, the target date strategy and its underlying portfolio may be more volatile than if the target date strategy and its underlying portfolio had not been leveraged because the leverage tends to exaggerate the effect of any increase or decrease in the value of the Fund's or the underlying funds' portfolio securities. Derivatives are also subject to the risk that changes in the value of a derivative may not correlate perfectly with the underlying asset, rate or index. The use of derivatives for hedging or risk management purposes or to increase income or gain may not be successful, resulting in losses, and the cost of such strategies may reduce the target date strategy and its underlying portfolio's returns. Derivatives also expose the target date strategy and its underlying portfolio to the credit risk of the derivative counterparty. There may be additional fees or expenses associated with investing in a target date strategy.

**TARGET DATE FUNDS.** Target date funds are funds with the target date being the approximate date when investors plan to start withdrawing their money. Generally, the asset allocation of each fund will change on an annual basis, with the asset allocation becoming more conservative as the fund nears the target retirement date. The principal value of the fund(s) is not guaranteed at any time, including at the target date. Certain underlying funds of target date funds may have unique risks associated with investments in foreign/emerging market securities and/or fixed income instruments. International investing involves increased risk and volatility due to currency exchange rate changes, political, social or economic instability and accounting or other financial standards differences. Fixed income securities generally decline in price when interest rates rise. Real estate funds may be subject to a higher degree of market risk because of concentration in a specific industry, sector or geographical sector, including, but not limited to, declines in the value of real estate, risk related to general and economic conditions, changes in the value of the underlying property owned by the trust and defaults by the borrower. The fund may invest in futures contracts and other derivatives. This may make the fund more volatile. The gross expense ratio of the fund includes the estimated fees and expenses of the underlying funds. A fund of funds is normally best suited for long-term investors.

Any and all information set forth herein and pertaining to the Target Date Fund Evaluation Tool and all related technology, documentation, and know-how ("information") is proprietary to JPMorgan Chase Bank, N.A. ("JPM").

U.S. Patents No. 8,255,308; 8,386,361 and patent(s) pending.

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