The Optimal Default for Defined Contribution Plans

David Blanchett, CFA, CFP®
Head of Retirement Research
Morningstar Investment Management
david.blanchett@morningstar.com

Nathan Voris
Large Market Practice Leader
Morningstar Inc.
nathan.voris@morningstar.com

Jeremy Stempien
Director of Investments, Retirement Solutions
Morningstar Investment Management
jeremy.stempien@morningstar.com

22 W. Washington, Chicago, IL

Working Draft, June 9, 2015

The authors would like to thank Schwab Retirement Plan Services, Inc. for data used as part of this research.
The Optimal Default for Defined Contribution Plans

The Pension Protection Act of 2006 introduced a variety of changes to defined benefit and defined contribution plans. One change that has had a notable effect on participant investing was the introduction of Qualified Default Investment Alternatives, or QDIAs. QDIAs are chosen by plan sponsors acting in a fiduciary capacity and can be used as a default investment for participants who do not elect an allocation for their accounts. The Department of Labor (DoL) approved three types of QDIAs in response to the PPA: target-date funds (TDFs); balanced funds (or risk-based funds); and managed accounts. The DoL regulations indicate that a plan using a QDIA will not be liable for any loss the participant incurs as a result of their assets being invested in one of the QDIA options; however, the plan sponsor remains responsible for prudently selecting and monitoring the appropriate QDIA for the plan.

In this piece we contrast the potential benefits and costs associated with TDFs with those of retirement managed accounts. While balanced funds are an available QDIA, they are less personalized than either TDFs or managed accounts and are therefore likely to continue to decline in prominence.1 When reviewing TDFs we will discuss both off-the-shelf solutions, which include retail target-date mutual funds, as well as custom target-date solutions, which are becoming increasingly popular among plan sponsors, especially for larger defined contribution plans.

From an assets-under-management perspective, TDFs currently have a clear early and substantial advantage over managed accounts; however, in terms of producing better investment outcomes for investors, we believe managed accounts have a number of important advantages over TDFs. For example, managed accounts have a more personalized asset allocation; the ability to provide guidance on retirement readiness, savings and retirement age recommendations; annuity recommendations; use of the core funds in the plan; and a more transparent allocation philosophy. There are a couple of potential disadvantages with managed accounts, though, such as a proper due diligence process requires a more significant effort and in many cases, higher fees.

Overall, while it is unlikely that managed accounts will surpass TDFs as the go-to QDIA for defined contribution plans in the near future, we believe in many cases the advantages of managed accounts exceed their potential disadvantages and as such we expect managed accounts to grow in popularity as the services continue to become less expensive and more efficient.

1 For disclosures purposes, the Morningstar Investment Management group creates/offers target-risk (balanced funds) solutions, target-date (off-the-shelf and custom) solutions, and managed account solutions. From a business perspective, we are arguably equally well positioned in each of these spaces and believe that the views expressed here represent our best, unbiased thinking at the time of this writing.
The Advice Continuum

TDFs and managed accounts are two of the key alternatives on what we think of as the retirement Advice Continuum spanning the range of primary DC solutions. When it comes to producing the best retirement outcome for an investor, in a world without fees, the participant would regularly receive advice from an independent accredited financial planner. After accounted for cost, we realize this is likely not a practical solution for many plan sponsors due to fiduciary concerns related to offering investment advice as well as the cost to provide such an offering. Nevertheless, regularly meeting with a financial planner is one end of the Advice Continuum, corresponding with the best retirement outcomes (ignoring costs) for a typical participant, the highest incremental cost, and requires the lowest participant expertise.

At the other end of the retirement Advice Continuum you have the do-it-yourselfer, self-selecting from the available options or in some cases using a brokerage window. Self-selection corresponds with the worst retirement outcomes for the typical participant, the lowest incremental cost (ignoring that for small plans, target-date fund expense ratios are typically lower than other funds on the plan line-up), and requires the highest participant expertise.

In Figure 1, we display the range of potential investment options in a DC plan that form the retirement Advice Continuum. The continuum considers the required participant expertise, along with the incremental cost of the various solutions. Before TDFs became popular, participants were generally forced to create their own asset allocation (i.e., self-selection). With the introduction (and adoption) of TDFs the continuum has shifted to the right, where the required expertise is lower, but the incremental cost can potentially be higher (this will be discussed in future sections in greater detail).

**Figure 1:** The Advice Continuum
The key for each plan sponsor when determining what option to use as a default for its participants is to determine the relative value of more customized solutions within the context of cost. For example, if managed accounts were available at no cost as the default option, it would likely be the ideal QDIA offering for most plans. In reality, though, cost is a big driver of the types of investment advice available to participants. This is a likely reason that full financial planning is the least common type of investment advice being offered, according to Callan (2014).

Plan sponsors have increasingly recognized the value of offering investment advice solutions. For example, according to the PLANSPONSOR 2014 DC Plan Benchmarking Survey, 70.4% of plans offer some type of advice, with 35.6% of plans offering managed accounts. Managed accounts tend to be selected more often by larger plans. Also, there is much higher use of third-party advice that is independent of the recordkeeper (i.e., providers such as Morningstar, Financial Engines or Guided Choice). Callan (2015) notes that the majority of DC plan sponsors (79.1%) offer some form of investment guidance, where online advice (which includes managed accounts) is the most prevalent and on-site seminars is second.

TDFs are the most common default today, with approximately 75% of DC plans using TDFs as the default. TDFs are projected to continue to capture significant assets in the future, for example, Cerulli Associates (2014) forecasts that target-date funds will capture 88% of new contributions and represent 35% of total DC assets by the end of 2019.

Managed accounts have not been widely adopted as a default option, but have been receiving increased attention from plan sponsors. Callan (2015) notes that of those plans offering managed accounts, only 3.4% of them use it as the default investment. It is likely that adoption of managed accounts will increase as participants recognize the need for more personalized investment advice and as the costs continue to decline.

As interest in managed accounts grows, DC plan sponsors are often interested in comparing managed accounts and TDFs. The most common metric plan sponsors generally use for this comparison is performance, whereby they are curious if managed accounts outperform TDFs or vice versa. While such comparisons are generally made with good intentions, they can mislead in a variety of ways.

TDFs and managed accounts often recommend considerably different portfolio allocations. If a participant is invested more conservatively in managed accounts because that is deemed to be the appropriate asset allocation and then stocks underperform, the fact that managed accounts are likely to be more conservative and then underperform is not necessarily a sign of better performance.

Callan (2015) notes 74.6% of plans used TDFs as the default as of 2014 (which is a slight increase from 70.2% in 2011), Vanguard (2014) notes that 91% of its plans with a designated QDIA chose a TDF, and Towers Watson (2014) notes that 95% of plans that responded to their survey offered a TDF, with 85% of plans offering it as the default.
accounts may have outperformed a TDF is relatively meaningless. Along these same lines, if a TDF has a more aggressive allocation that outperforms a given managed accounts provider because stocks have done well, it would be specious to claim that “outperformance” was evidence of any superiority of TDFs over managed accounts.

In the following sections we highlight some of the advantages and disadvantages associated with using TDFs and managed accounts as a default for a DC plan. TDFs are segmented into “off-the-shelf” solutions—mutual funds, collective trusts, etc.—and “custom” to highlight the key differences between the two solutions.
Off-the-Shelf Target-Date Funds

In this section we summarize some of the key advantages and disadvantages of off-the-shelf TDFs, which again are increasingly popular default options for DC plans.

Advantages

- Simplicity: Off-the-shelf TDFs are prepackaged solutions that are relatively easy to implement. A significant amount of public information is available on them, especially on target-date mutual funds, which simplifies the process of conducting due diligence.

- “Everyone else is doing it”: DC plan sponsors are generally risk-averse, especially when it comes to career risk. The fact that such a large number of plan sponsors are using off-the-shelf TDFs creates a perception of safety. From a fiduciary perspective, a plan sponsor should not select TDFs just because other plans are, nor should they select the recordkeeper’s TDF just because it’s the easiest option.

- Cost: Many low-cost TDF options exist. In most instances there is no additional cost with the off-the-shelf TDF apart from the underlying fund expenses (e.g., Fidelity doesn’t charge extra to bundle its funds into a TDF series).

Disadvantages

- Lack of Understanding/Misuse: Participants rarely fully understand how off-the-shelf TDFs work because they often appear as a “black box” and, therefore, often improperly use the TDFs. A common example is participants who “mix” their asset allocation, holding both a target-date fund and other stand-alone funds offered on the core menu (e.g., 44% of investors that held a TDF at Vanguard (2014) were mixed investors in 2013). Some participants even mix target-date funds (by expected retirement date) because they incorrectly believe it results in a more diversified portfolio, according to research by Janus (2011).

- Benchmarking: Finding an appropriate performance benchmark for TDFs is considerably more complex than it is for single-strategy investment vehicles (e.g., a small-cap value equity fund). There are three important “layers” of decisions when creating a TDF: the overall stock/bond glide path; the various intrastock and intrabond asset class allocations; and the underlying manager allocations. Each layer is in some ways distinct. When selecting a benchmark it’s important that it be unambiguous, investable, measurable, appropriate, reflective of current investment opinions, and specified in advance, according to the CFA Institute. One potential approach is to use an independent provider of ratings, such as Morningstar, Inc. with its Analyst ratings for TDFs. See Idzorek, Stempien, and Voris (2011) for additional information on benchmarking TDFs.
► Single-Fund Family Investments: Most off-the-shelf TDFs are built using proprietary mutual funds as the underlying investment options. It’s rarely—if ever—true that one fund manager offers the best investment option in every asset class used by a TDF. This is akin to an all-star team being composed entirely of players from one franchise. Single-fund family TDFs also complicate the due diligence process by entangling the manager selection and glide path construction hiring decisions. Comparatively, it is unlikely a plan sponsor would be comfortable building a core menu of funds for the DC plan from a single provider.

► One Size Fits All: TDFs do not allow for different asset allocations for participants other than at different ages. Even using basic additional data available to any recordkeeper, there can be significant differences in the optimal equity allocations across participants.
Custom Target-Date Solutions

Many of the advantages and disadvantages associated with off-the-shelf TDFs apply to custom target-date solutions as well. Therefore, in this section we will focus only on the key differences between the two solutions.

Advantages

► Better Plan Fit: Although custom target-date solutions are still very much a “one-size-fits-all” solution for participants within a given age cohort, a custom target-date solution allows the unique attributes of the plan participants to be directly incorporated into the target-date solution (e.g., glide path, asset allocation weights, etc.). For example, if a plan offers a defined benefit plan it may be optimal for the glide path to be slightly more aggressive to account for the bond-like nature of the future pension benefits for participants. Additionally, it may be worthwhile to underweight certain asset classes based on the industry of the plan sponsor (e.g., for participants of an energy company the target-date solution potentially should underweight commodities as part of the asset allocation).

► Using Core Investment Options: Using the core investment options in the glide path allocation offers a number of benefits. First, this creates more visibility as to how the custom target-date solution is constructed and makes it look like less of a “black box.” Second, it may result in cost savings by having more assets in the core options, versus a small portion of the assets in the core options and the bulk of the assets in separately managed TDFs. Plan sponsors and consultants spend considerable timing selecting and monitoring the core investment options, so it only makes sense to use that due diligence in the plan default.

► Unique Investments: It’s possible to move beyond the core options in a custom setting. For example, a plan sponsor can include different strategies, such as direct real estate or hedge fund options, in a custom target-date solution yet restrict those options from the core menu.

Disadvantages

► Additional Cost: Off-the-shelf TDF investment managers can keep costs low because they generate revenue through AUM in their underlying investment strategies. In contrast, the creation and maintenance of a custom target-date solution incurs additional cost. This cost can be relatively small if the asset allocation is determined in-house (although many plan sponsors are moving away from this approach) and the only costs are operational and administrative. Costs rise if the plan sponsor hires an independent investment manager or consultant to design the glide path and asset allocations. The cost of hiring an investment manager or consultant generally varies by the plan asset size, where smaller plans could
easily pay in excess of double-digit basis points, while very large plans may pay as little as a few basis points, depending on the level and scope of services sought.

- Benchmarking: Benchmarking (i.e., selection and monitoring) concerns exist with custom target-date solutions, but they are generally less burdensome than an off-the-shelf provider.

- Transparency: Participants may struggle to understand the methodology of custom target-date solutions compared to off-the-shelf TDFs. For example, while extensive data exists online for most off-the-shelf TDFs (e.g., on Morningstar.com), there are generally little, if any, generally available for custom solutions.
Managed Accounts

Managed accounts is a customized investment service that provides specific guidance on how participants should allocate assets among the mix of investments available in the plan based on that participant’s unique scenario. In contrast, TDFs are generally considered to be an investment product (GAO 2014). The personalized nature of managed accounts creates many advantages and disadvantages for plan sponsors and participants, which will be reviewed in this section.

Advantages

► Greater Level of Personalization: The ability to customize the portfolio to each participant and provide total wealth advice are perhaps the most important benefits of managed accounts. The service is similar to meeting with a financial planner, with savings rate, retirement, and investment advice offered in a coordinated way. As noted in Figures 5 and 6, there are considerable differences in the asset allocations of participants at the individual level, which highlights the uniqueness of the offering.

► Independent Financial Planning Guidance: Managed accounts is an investment strategy when used as a QDIA, but it acts as independent retirement planning guidance on topics such as savings rates, optimal retirement age, etc.

► Retirement Income Modeling: DC retirement plans are increasingly adding retirement income models to the education and/or advice offered to participants, with the percentage of plans offering a retirement income solution increasing from 17.1% in 2011 to 41.1% in 2014, according to Callan (2015). Despite recent guidance on using deferred income annuities in DC plans, annuities are still relatively unpopular, with only 6.5% of plans offering an in-plan guaranteed income for life product such as an annuity, according to Callan (2015).

► Using Core Investment Options: Similar to custom target-date solutions, using the core menu can result in a cost savings for managed accounts. The managed accounts provider is also independent of the investment options (i.e., unlike TDFs, the funds selected are going to the best funds available in the plan, not simply the funds of the off-the-shelf TDF provider).

► Moving Beyond the Core: Also similar to custom target-date solutions, managed accounts utilize the core funds when building portfolios but also can add asset class strategies beyond the core options. For example, a plan sponsor has the ability to include different strategies, such as direct real estate or hedge fund options, in managed accounts yet restrict those options from the core menu.
Disadvantages

- Cost: Because more is provided in a managed accounts service, generally providers demand fees higher than those for TDFs, although the cost varies significantly by provider. Some providers include the cost in the base recordkeeping fee, while others charge 50 basis points or more of assets managed by the service.

- Due Diligence: Evaluation of managed accounts can be difficult on a number of fronts, such as understanding the methodology for portfolio assignment, the asset allocation, etc. When doing due diligence on a managed account provider there are five main things to review:
  - Methodology: Assessing things like the goal-setting process, portfolio construction, portfolio assignment, and the ongoing monitoring and due diligence of participant accounts.
  - Technology: Evaluating the security of file feeds and data transfers, the experience of the parties working together, staffing and volume capacities, etc.
  - User Experience: How well does the provider connect with the participant in terms of the user interface/web design/ease of use, call center integration, consistency of the message and integration with the recordkeeper, and approach of marketing and participant outreach?
  - Fees: How transparent is the provider about who is being paid what?
  - Plan Sponsor Support: Are contractual resources offered to ensure fiduciary and operational support?

- Performance Reporting: Unlike a TDF, which is a single set of portfolios, participants in managed accounts often have many different allocations. Additionally, even participants with the same equity allocation (e.g., 60%) may have different intraasset class allocations based on their age. This obstacle may be overcome by providing performance on a standard set of models (e.g., those with a specific asset allocation).

- Unknown Information: Sometimes the only information known about participants is the data available from the recordkeeper (e.g., age, salary, account balance, savings rate, gender, etc.). In these cases, information outside the plan (e.g., outside assets, marital status, etc.) is unknown unless the participant engages with the managed accounts provider, which historically has been done by a low percentage of participants.

- Benchmarking: Finding an appropriate benchmark for managed accounts is difficult, beyond just performance reporting issues. There are relatively few managed accounts providers, with the largest providers controlling the vast majority of DC participants and assets. Each provider has a different methodology and approach toward portfolio assignment (i.e., determining the optimal participant equity allocation), and manage the respective portfolios differently. These differences reduce the meaningfulness of comparison.
Investing Participant Accounts

From a 50,000 foot perspective, both TDFs and managed account programs have a methodology that results in an evolving asset allocation. In the TDF world, the amount equity typically decreases with age forming what is referred to as a glide path. For a given TDF fund family, the glide path is more or less predetermined, although some fund families periodically make methodological changes that result in changes to the glide path.

Switching to managed accounts, if you calculate and graph the average equity asset allocation for each age (or age cohort) for a large sample of participants the ensuing graph of the average equity exposure looks very similar to a typical TDF glide path. This might lead some to conclude that the asset allocations from TDFs and managed accounts are very similar, but this would be another example of the well-known flaw of averages.

Figure 2 contains information about the glide paths of 42 target-date mutual fund providers, both at the individual provider glide path level (Panel A), and at the overall range of equity allocations (Panel B) among those providers. For reference purposes, the asset-weighted average glide path is included in Figure 2, which weights each glide path by its respective assets (i.e., reflects how most DC participants are invested).

Figure 2: Dispersion of Target-Date Mutual Fund Glide Paths
There are significant differences in the glide paths across provider. In fact, the average range of allocations (most aggressive to most conservative) in Figure 2 is 41.3 percentage points. This is significant considering these glide paths are generally built targeting the “average” participant. It might seem that this variety would allow for customization, for each individual to have the best glide path for their circumstances. But in practice it does not. In fact, the dispersion would likely increase if the glide paths had to consider the unique differences across DC plans and participant populations.

In addition to differences in the shape of the glide path, there are also important differences as to how the allocation changes in retirement. TDFs are generally referred to as taking someone “to” retirement (where the allocation remains static once the fund reaches its targeted retirement year) or “through” retirement (where the allocation continues to get more conservative past the targeted retirement year). Prominent “to” providers include American Funds, J.P. Morgan Asset Management, American Century Investments, Voya Investment Management (formerly ING), and BlackRock. Approximately 89% of all target-date mutual assets are invested in “through” funds, which include providers such as Vanguard, Fidelity, T. Rowe Price, Principal Global Investors, Wells Fargo Asset Management, Empower Retirement (formerly Great-West), and AllianceBernstein.

Although TDFs can represent a significant improvement over participant self-directed investing, they are not necessarily the ideal default for every participant. TDFs are designed so that there is a single optimal asset allocation for each age (or age group, depending on the interval, which is usually five years). Glide paths and asset allocations are generally built making some assumptions regarding some type of hypothetical “average” or “median” participant that is often constructed using national averages (e.g., data from the Survey of Consumer Finances) or plan-specific averages in custom engagements. A problem with focusing on the average participant is that doing so ignores the potentially significant and unique differences that exist among participants. This concept is displayed visually in Figure 3.

Figure 3: Who is the Average Participant?
In Figure 3, there is an overlapping area that represents the “average” participant. In reality there are going to be significant differences among participants, even those who are the same age. For example, while the average assumed compensation for a 45-year-old might be $50,000, there may be some workers who make $20,000 per year and others who make $100,000-plus per year, and these variations can result in significant differences in optimal allocations.

Figure 4 has been included to provide some perspective on how allocations for participants can differ significantly when additional data is provided. The graphic includes data on participants enrolled in managed account programs offered by the registered investment advisors within Morningstar’s Investment Management group. The size of the blue bubbles corresponds to the relative number of participants with that allocation, so larger blue bubbles reflect more common allocations. The average plan allocation in Figure 4 could be viewed as the potential optimal allocation for a custom target-date solution because it’s the average optimal allocation across participants.

**Figure 4:** Equity Allocation Dispersion for Participants in Managed Accounts by Age (Includes Participants Who Provided Additional Information)

Figure 4 clearly demonstrates that there are significant differences in allocations at the individual participant level. One could certainly question some of the perceived counter-intuitive allocations in Figure 4 as being too conservative or too aggressive. For example, how could it be optimal for a participant who is 35-years old to have a 10% equity allocation in managed accounts? While this situation was rare, it means the individual has provided information about things such as outside assets and risk tolerance. For example, if the participant has significant assets outside of the DC plan invested very aggressively (e.g., all stock) and the target allocation is relatively conservative (e.g.,
70% stocks for that 35-year-old, the assets in the DC plan may be invested more conservatively so that the riskiness of the total financial wealth (including outside assets) is more appropriate. As the DC assets grow relative to the outside assets, the DC account will be invested more aggressively over time.

The reverse of the previous example can also be true for older participants. For example, a 60-year-old may have a 90%-plus equity allocation in managed accounts because he or she has significant assets outside of the DC plan that are invested conservatively. Again, in this instance the DC plan assets are being used as a "completion portfolio" so that the total risk level of all the financial assets achieves the desired overall target risk level.

The allocations for participants in Figure 4 are based on those who self-selected managed accounts. Many of these participants may have provided information about outside asset information. Figure 5 provides information about how the range of allocations can vary when using managed accounts as the plan default. When managed accounts are the plan default, allocations are determined based on information such as the participant’s age, account balance, savings rate, salary, and gender, which are all typical data points available from recordkeepers. Other data points, such as pension benefits and state-of-residence, may also affect the allocations when available.

**Figure 5:** Equity Allocation Dispersion for Participants in Managed Accounts by Age for Participants Defaulted into Managed Accounts

- Individual Participant Allocations
- Participant Average
While there are still differences in the participant allocations in Figure 5, they are less extreme than those in Figure 4. The average range in participant allocations in Figure 5 is 33 percentage points. The range is smallest for younger participants (e.g., age 25), with an average range of 12 percentage points, and largest for middle-age participants (those between the ages of 48 and 57), with an average range of 45 percentage points.

The range of allocations for the participants defaulted into managed accounts in Figure 5 is slightly lower than the range in the equity allocations for the target-date mutual funds noted in Figure 2.
Spending Your Alpha Budget

Cost is an important consideration when managing a DC plan. For example, fees are the second most important consideration when selecting and retaining a TDF series according to Callan (2015), just behind portfolio construction. While passive investing is becoming more common, active investing is still very popular. Active managers are selected in the hopes they generate alpha, or excess risk-free return. A problem with investment alpha (i.e., when you pick a large growth mutual fund that outperforms the large growth category average) is that it is uncertain and a zero-sum game before fees (i.e., for every winner there is a loser). Alternatively, financial planning “alpha,” which we define as generating value through making more intelligent financial planning decisions, is far more certain and can be a positive-sum game for participants (i.e., everyone can win). This concept is illustrated in Figure 6.

Figure 6: The Alpha Spectrum

Examples of financial planning alpha are things like saving more for retirement. There is a growing body of research that services like managed accounts can improve retirement readiness for participants in ways that are beyond just investing (i.e., why managed accounts is a service, and not just a product). For example, Blanchett (2014) notes that individuals who used Morningstar® Retirement ManagerSM, an advice and managed account platform, increased their total savings rates by 2.2 percentage points on average (from 7.95% to 10.14%) which resulted in an additional average increase in matching contributions of 30 basis points, for a total change in savings rates of almost 2.5 percentage points. There is a growing body of research quantifying the benefits of financial planning services: Bennyhoff and Kinniry (2011) call this “advisor’s alpha”; Scott (2012) calls this “household alpha”; Blanchett and Kaplan (2013) call this “gamma”; and Grable and Chatterjee (2014) call this “zeta.”

---

4 Morningstar® Retirement ManagerSM is offered by and is the property of Morningstar Associates, LLC, a registered investment advisor and wholly owned subsidiary of Morningstar, Inc., and is intended for citizens or legal residents of the United States or its territories. The Morningstar name and logo are registered marks of Morningstar, Inc.

The average increase in saving deferral rates is determined by analyzing each participant’s savings deferral rate prior to using and after using the Morningstar Retirement Manager service. The result is the average across all 58,444 participants who used the Morningstar Retirement Manager service between the dates of January 2006 and February 2014.
Conclusions

The introduction of investment defaults has likely led to significant improvements in performance for defined contribution plan investors. Given the differences that exist across providers, plan sponsors, and participants, though, it is unlikely there is a single solution that will be best for every plan. Before participant self-direction, DC assets were generally pooled with a single allocation. Target-date funds are the most popular default in DC plans today because they are relatively easy to implement (especially off-the-shelf TDFs such as mutual funds), but TDFs are a one-fits-all approach to investing (i.e., lack customization), prone to misuse, are difficult to (properly) benchmark, and are often constructed using proprietary funds. In contrast, managed accounts offer a more tailored allocation to participants, along with providing guidance on optimal savings and retirement strategies, but at a higher cost and have additional due diligence and monitoring considerations. While TDFs are the most popular default in DC plans today, we expect managed accounts to challenge their popularity in the future, especially as the costs associated with implementing managed accounts decline.
References


Disclosures

The information, data, analyses, and opinions presented herein do not constitute investment advice; are provided as of the date written and solely for informational purposes only and therefore are not an offer to buy or sell a security, and are not warranted to be correct, complete or accurate. Past performance is not indicative and not a guarantee of future results.

This white paper contains certain forward-looking statements. We use words such as “expects”, “anticipates”, “believes”, “estimates”, “Forecasts”, and similar expressions to identify forward looking statements. Such forward-looking statements involve known and unknown risks, uncertainties and other factors which may cause the actual results to differ materially and/or substantially from any future results, performance or achievements expressed or implied by those projected in the forward-looking statements for any reason. Past performance does not guarantee future results.