Fidelity INVESTMENTS
FIDELITY CANADA INSTITUTIONAL™

Defining and Selecting Strategic Asset Exposures for Target Date Investors

An effective target date strategy provides diversification, reflects members' long-term investment horizons, and employs a disciplined process to establish the strategic asset allocation.

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KEY TAKEAWAYS

- Strategic asset allocation is the primary driver of a target date fund's performance over time, and diversification is one of the most powerful tools for helping retirement investors navigate the uncertainty of capital markets.
- The Fidelity Target Date team's strategic allocation process for target date funds emphasizes assets that earn a long-term return, display independent attributes in different investment environments, and offer durable implementation characteristics.
- Our proprietary research provides insight into how asset classes behave during each of five distinct market regimes and in response to a common set of risk factors, highlighting those assets that offer unique sources of diversification.
- Rising concerns over higher global debt and lower GDP growth reinforce the need for a strategic asset allocation diversified across market regimes rather than concentrated in a limited set of risk factors.

Introduction: Delivering outcomes through strategic asset allocation

Selecting a target date strategy is one of the most important decisions a plan sponsor will make on behalf of members in a defined-contribution (DC) retirement plan. Increasingly, corporate DC members invest the entirety of their assets in a target date strategy, and they are likely to rely on this investment to support a meaningful portion of their income needs in retirement.

The primary driver of the investment performance for a target date strategy is its strategic asset allocation, which refers to the mix of assets that is expected to be held over a long-term horizon. Determining the strategic allocation in a target date fund (TDF) requires that a manager understand customers' needs and preferences, apply investment insights and capital market views, and construct a portfolio that balances factors that can affect outcomes.

Different investment managers hold different views on which assets qualify as "strategic" and how their exposures should be combined or weighted for specific goals and circumstances. While many managers use common terms (e.g., "diversification" and "risk") when describing their investment principles and processes, the definition and implementation of these terms varies widely. Because of managers' distinct approaches, members with the same time horizon, goals, and needs may experience different asset exposures, performance, and outcomes, depending on the target date strategy they select.

In the sections that follow, we present the Fidelity TDF team's framework for selecting strategic asset classes, along with the rationale for the current strategic asset allocation in our target date funds.

Fidelity's Strategic Asset Allocation framework for target date strategies

The goal of Fidelity's target date strategies is to help DC plan members maintain their standard of living in retirement by constructing portfolios that balance risk and return throughout their lifetimes. Managing capital market uncertainty and trade-offs among different investment exposures is central to our investment process.

Fidelity's framework for identifying strategic asset classes for target date strategies emphasizes three primary considerations:

- **Long-term returns:** What is the expected return from holding an asset for years or even decades? Long-term investment returns are critical to achieving successful retirement outcomes for target date investors.
- **Diversification:** Relative to others, does the asset class provide an independent source of return and risk? We believe diversification helps reduce a portfolio's exposure to any one asset or risk factor, thus helping manage the impact of capital market uncertainty on investment outcomes.*
- **Implementation:** Are the trading costs and liquidity associated with an asset class durable across distinct market environments? TDF managers must consider these attributes and their variability when implementing investment decisions. Asset classes with greater consistency of implementation costs and liquidity provide greater flexibility for trading and rebalancing.

These considerations are tightly intertwined, and they highlight the need for portfolio managers to weigh and balance trade-offs when making strategic asset allocation decisions. For example, an asset may have the potential to provide high long-term returns but its inclusion may not significantly improve overall portfolio diversification. In contrast, another asset may provide valuable diversification attributes but have a lower long-term expected return. In the sections that follow, we discuss the elements of our investment process and how we apply it to the design of our target date strategies.

Long-term returns

In our strategic allocation process, we strive to include asset classes that earn a return for bearing risk over a long-term investment horizon. Assets earn returns for their exposure to risk factors that are difficult to diversify. In our view, the risk factors that have the largest effect on asset class returns include surprises to economic growth, inflation, real (inflation-adjusted) interest rates, and market liquidity.

- **Growth:** Corporate earnings and creditworthiness tend to exhibit positive correlation with broad economic conditions and the growth rate of an economy. When surprises lead investors to revise their expectations for economic growth, equity and credit prices usually adjust. Investors willing to bear the risk of a negative growth shock should be compensated for the potential of reduced earnings expectations and increased default risk.
- **Inflation:** Inflation affects the purchasing power of an asset's future cash flows. Changes in inflation expectations can affect the prices of all assets, particularly those with long duration, nominally fixed cash flows (e.g., the coupon and principal payments of a standard Government bond). Over the long run, investors willing to bear the risk of losing purchasing power due to rising inflation should expect to be compensated.
- **Real rates:** Real, or inflation-adjusted, interest rates reflect the effects of inflation and are used by investors

* Diversification does not ensure a profit or guarantee against a loss.

to discount future real cash flows. All else equal, when real rates rise unexpectedly, based on investors' assessment of new information, the present value of an asset's future cash flows declines. Investors willing to hold long-duration assets that carry exposure to real rates expect to be compensated for the risk of higher real rates.

- **Liquidity:** Liquidity can be defined as the ability to buy or sell an asset at a price that, in advance of trade execution, is known with a high level of certainty. Different assets have different levels of liquidity, and those levels can change over time, sometimes rapidly. Investors willing to hold asset types perceived to have greater uncertainty about future liquidity expect to earn a risk premium associated with this factor.

Most asset types are subject to more than one risk factor. In Exhibit 1, we identify the most significant risk exposures associated with several basic asset types. As risk increases, an investor expects to earn a risk premium (i.e., a return above a "risk-free" rate). Since there are more investable asset types than risk factors, the risk premium earned by each asset or asset class may not be entirely unique or independent.

The size of the risk premium for each asset class reflects the combined sensitivity of the underlying assets to the various risk factors and investors' views about the likelihood of experiencing each risk. For example, both equities and corporate bonds earn a risk premium associated with their exposure to the growth risk factor. In a negative growth shock, equities can experience greater price volatility because of their sensitivity to corporate earnings and their lower priority in the capital structure. At the same time, bonds can experience lower price volatility because of their higher priority in the capital structure, including contractually required payments and a claim on assets. Because a negative growth shock will typically have a greater impact on equities than on bonds, equities earn a higher risk premium for their exposure to this risk factor.

For nominal bonds (e.g., Canadian Government Bonds), returns are influenced primarily by sensitivity to unexpected changes in inflation and real interest rates, with varying effects across bonds of different durations. Because the cash flows of a Government bond are certain only in nominal terms, the real purchasing power of these cash flows is eroded by inflation over time; thus, unexpectedly high inflation will tend to lead to declines in bond prices. Unexpected increases in real interest rates affect the price of nominal bonds as well, again because the present value of future cash flows declines. All else equal, a parallel shift higher in real interest rates for all fixed income maturities has a greater effect on longer-duration issues than on shorter-duration issues. Longer-duration bonds tend to earn higher returns relative to shorter-duration bonds partly from their exposure to this risk factor.

While it is important to identify which asset classes are likely to earn a long-term risk premium and why, our investment process also highlights those asset classes we believe are unlikely to do so. If such an asset provides some other desired attribute – such as protection during periods when other portfolio holdings perform poorly – then we may still choose to include the asset as a strategic exposure because of these diversification benefits. For example, our research indicates that commodity futures (as measured

EXHIBIT 1: Asset classes earn a risk premium based on their sensitivity to risk factors.

Risk Factors

Example Asset Types	Growth	Inflation	Real Rates	Liquidity
Equities	●		●	●
Corporate Bonds	●	●	●	●
Nominal Government Bonds		●	●	
Inflation-Protected Bonds			●	●

Source: Fidelity Investments, as of 12/31/20.

by a broad-based commodities index) and direct investments in commodities do not earn a long-term and persistent risk premium; nevertheless, these assets can have diversifying attributes in certain environments.

Given the challenge of forecasting long-term returns with precision, we strive to provide target date investors with a portfolio that can navigate a variety of market environments. Our research on asset class diversification is a central component of our framework. Our process for evaluating the long-term future risk premium of an individual asset class includes analysis of both historical and forward-looking research. While historical data can provide insights about the different returns and structural relationships among asset classes in the past, we recognize that history represents only one path that markets and asset classes could have taken. Our forward-looking research considers a range of future paths, assessing both similarities to and differences from history. For example, current forces affecting our forward-looking expectations include high and growing levels of sovereign debt, slowing labor force and productivity growth in the developed world, and uncertainty about the long-term path of inflation.

Diversification

Diversification potential is a second consideration for evaluating asset classes for strategic exposure. Because diversification helps provide protection against capital market uncertainties that may occur during a lifetime, it is a powerful tool in helping achieve a target date investor's goal.

While the term "diversification" is used by most (if not all) TDF managers, its definition and implementation vary widely. In our strategic allocation process, we define diversification as holding assets that provide sources of return and risk that are largely independent from one another in distinct market environments. In our view, this definition and approach can help improve portfolio resiliency throughout the course of a member's working and retirement years.

One common and simple approach to diversification is to allocate investments across a broad range of asset classes, regions, and sectors based on a belief that a larger number of asset classes leads to greater portfolio diversification. However, our research shows that because many assets are exposed to a common and limited set of risk factors, this approach can lead to a portfolio that is less diversified than intended.

When evaluating the diversification properties of asset classes, both singly and in combination, we study their historical relationships and how those relationships evolve in distinct market environments. We apply multiple frameworks to assess diversification potential, reflecting both fundamental and quantitative research perspectives. In the following sections, we describe two such frameworks: hierarchical clustering and regime analysis.

Hierarchical Clustering Framework

Hierarchical clustering is a quantitative technique that groups similar asset types together into independent clusters and produces a hierarchy of asset class relationships. We apply hierarchical clustering to asset class returns over an extended period (back to 1950) to evaluate the potential diversification attributes of a universe of 12 asset classes.

We identified five distinct clusters of asset classes (Exhibit 2). Each cluster includes assets highly correlated with one another while, at the same time, each cluster as a whole remains largely independent from the others. When assets exhibit returns that are directionally similar during a historical period – and thus reside in the same cluster – we view this as indicative of a set of common risk factors driving performance. We believe that holding too much exposure to assets with common risk factors reduces potential diversification benefits in a portfolio.

Most asset classes fall within two groups (Clusters 1 and 3), signaling a high commonality of risk factors among the universe of asset types. Cluster 3 consists largely of equity exposures, and Cluster 1 consists mostly of fixed income. This should be intuitive given the presence of growth-factor risk in equities versus the presence of the inflation and real interest rate risk factors in nominal debt and real rates in real debt. Clusters 2, 4, and 5 represent assets – including commodity futures, physical gold, and cash – with attributes that exhibit greater independence. We believe these assets exhibit distinct characteristics relative to traditional financial assets (e.g., stocks and bonds).

In addition to grouping asset classes that share similar characteristics and risk factors, Exhibit 2 illustrates relationships among asset classes. The height of each line represents a distance measure: Asset types sharing a shorter measure are more highly correlated than those where the distance is greater. For example, the relationship between hedged and unhedged non-Canadian developed-market debt is stronger than is the relationship between Canadian and non-Canadian equity.

Regime Analysis

While historical correlations over extended periods reveal the long-term relationships of asset classes, our views on diversification are also informed by asset class relationships in the distinct market environments that have occurred within those extended periods. Historically, asset classes have displayed distinct risk and return characteristics that are highly dependent on the prevailing capital market environment. These market environments, or "regimes," are distinct from one another, shift over time, and can be driven by forces such as macroeconomic change, labor market developments, and geopolitical events. As a result, the risk and return attributes of an asset class during a particular regime can deviate from its long-term average.

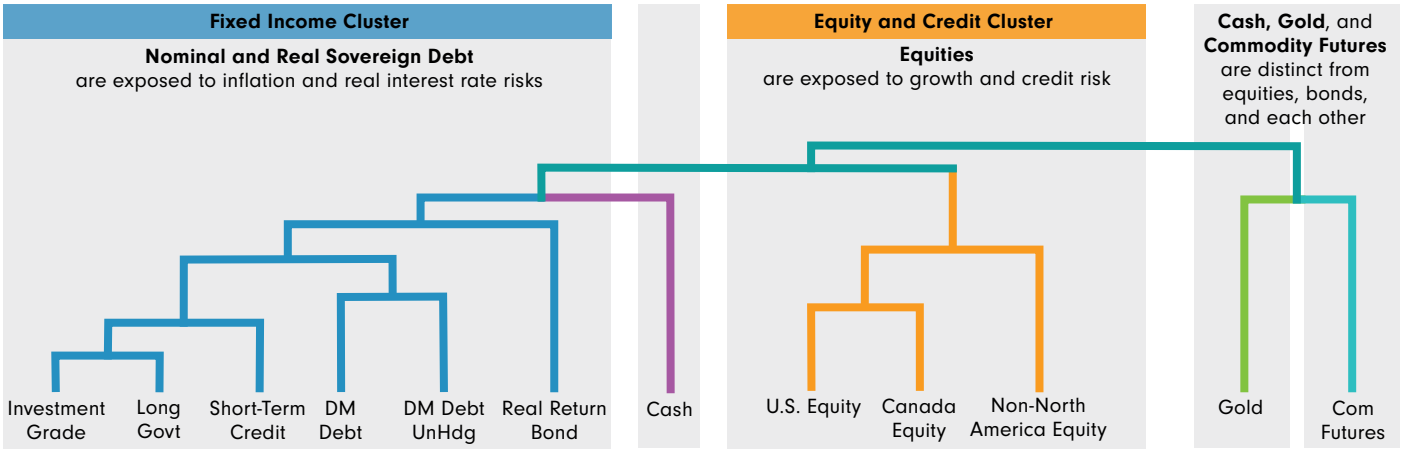
We have developed a research framework to identify distinct market regimes and their corresponding asset class performance attributes (e.g., returns, volatility, correlation), with the goal of identifying assets that provide independent sources of risk and return. We apply a machine-learning framework to identify five historical regimes in which asset returns, volatilities, and correlations differ markedly both from each other and from long-term historical averages.

Our implementation of this framework is based on the historical real returns of U.S. equities, U.S. Treasuries, and commodities since 1950. We selected U.S. asset classes with returns measured in USD because of the reserve currency status and prominence of the U.S. capital markets during this period. From this data, we estimate the historical distribution of regimes and the probability of transitioning from one to another, which is a non-linear process. In our view, this framework improves upon traditional market-environment analysis tools in that it relies purely on asset prices, which reflect investors' forward-looking expectations at any given point in time, rather than on macroeconomic data, which is more often backward-looking and subject to lags in reporting.

We observe two categories of market regimes that have reoccurred throughout the history of capital

EXHIBIT 2: Clustering analysis reveals historical relationships among assets classes.

Asset Class Correlation by Average Linkage



DM: Non-Canada developed markets. UnHgd: Unhedged. Com: Commodity. Hierarchical clustering of asset classes based on historical average correlation (1950–2019). The height of each vertical line indicates the strength of the relationship between asset groups. For asset class definitions, see appendix. Source: Fidelity Investments, as of 12/31/20.

markets: persistent and transitory. We apply descriptive labels to persistent regimes, which again are based on our assessment of asset class attributes rather than macroeconomic data: Low Volatility with Rising Rates and Low Volatility with Falling Rates. Persistent regimes have greater representation in historical market experience and can be thought of as environments in which equities outperform bonds, with differences in the direction of interest rates and in stock/bond correlations.

- **Low Volatility with Falling Rates:** Historically, this regime has occurred most frequently. Most asset classes produce positive returns in this regime, with equities outperforming bonds. Volatility is lower compared with other regimes, and the stock/bond correlation is positive. Given the positive returns for government bond securities in this regime, it can be thought of as a falling interest rate environment.
- **Low Volatility with Rising Rates:** This regime is the second-most represented in the historical experience. Equity performance is positive, but returns for fixed income are less favorable. These attributes suggest a gradually rising interest rate environment, indicated by the low returns for bonds. The stock/bond correlation is positive in this regime, while returns for Canadian and non-Canadian equities exhibit higher correlation.

Meanwhile, transitory regimes can be thought of as shorter in length and constituting volatile shocks to and from persistent regimes. We have defined the three transitory regimes as Inflationary Stress, Deflationary Stress, and Recovery.

- **Inflationary Stress:** In this regime, performance attributes suggest that unexpected rises in inflation lead to a devaluing of the U.S. dollar, with more favorable returns for inflation-sensitive assets and Canadian equities. Here, commodities and gold typically have realized their highest returns, whereas most financial asset classes experienced negative returns. Volatility is high in this regime, and the correlation between stocks and bonds is positive.
- **Deflationary Stress:** This regime is characterized by higher volatility, negative returns for equities and commodities, and positive returns for bonds and short-term debt. The benefit of holding government bonds is clear in this regime, as these assets have demonstrated positive returns and negative correlation with equities. In this regime, U.S. equities have performed better than Canadian and non-North American Equities.
- **Recovery:** This regime is characterized by strong performance for most asset classes, with returns typically in the high single digits. Returns are volatile, and the correlation between stocks and bonds is positive. During this regime, asset classes with lower volatility (e.g., cash) provided diversification and helped improve the consistency of portfolio performance.

Using data from our proprietary AI and machine-learning methodology, we charted the patterns manifested by the five distinct regimes since 1950. Exhibit 3 illustrates the challenge of predicting how long a regime may last and the surprise nature of a transition from one to another regime. The surprise nature of an event – geopolitical, macroeconomic, or other – has resulted in regime changes that are abrupt and often persistent.

For each of the five regimes, we measured the performance and relationships of asset classes to understand their diversification attributes. Exhibits 4, 5, and 6 illustrate the distinct nature of each regime and the related capital market attributes – return, volatility, and correlation – for a number of major asset class.

We believe our focus on asset class attributes in distinct market environments is superior to summarizing the attributes of assets with a single value for historical return and risk. The variability of asset class returns and volatilities highlights the value of holding a portfolio of diversified assets.

Target date investors are likely to experience multiple distinct market regimes over the course of their lifetimes. Our strategic asset allocation process helps investors navigate uncertainty through diversification that varies according to their changing needs and time horizons.

For example:

- Members early in their careers have many years to earn income and invest. For these investors, we sacrifice some diversification in pursuit of higher long-term returns

and to help reduce the likelihood of outliving assets during retirement.

- As investors' time horizons shorten and human capital diminishes, diversification within the strategic asset allocation becomes more important. For investors closer to their target retirement date, we include asset types that help improve portfolio resiliency.
- For investors well beyond their target retirement date, the most diversified strategic allocation helps reduce sensitivity to unexpected changes in market regimes and helps investors preserve capital.

This interaction between diversification, human capital, and time horizon is central to the management of target date portfolios.

Implementation

Implementation considerations are a third component of our process for evaluating asset classes as strategic exposures. In our implementation framework, we strive to include asset classes for which liquidity and trading costs align with the needs of target date investors. We prefer asset classes with durable implementation attributes across distinct market environments.

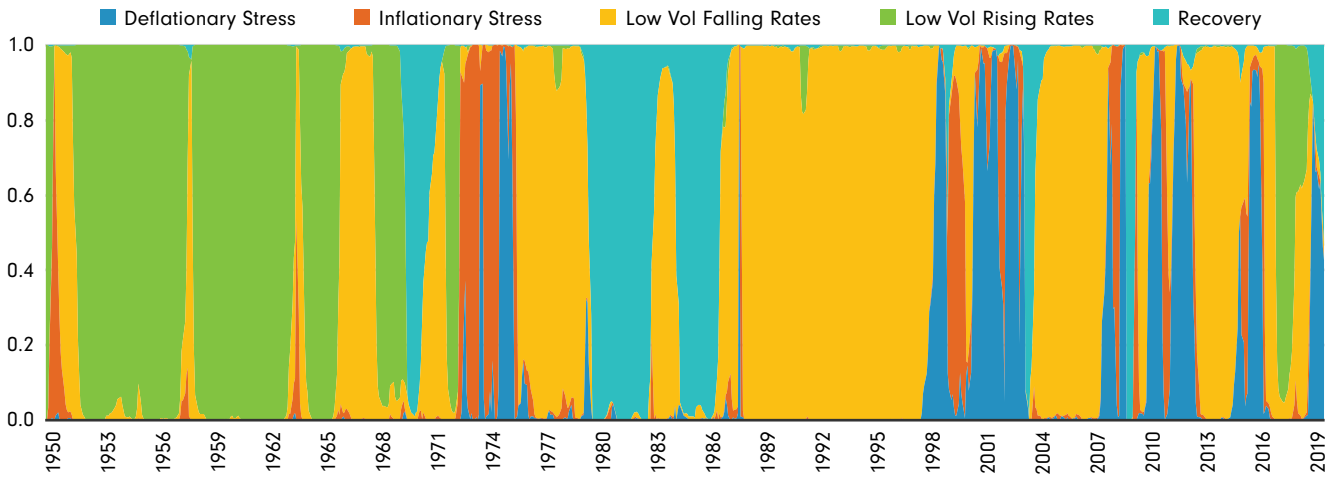
For example, publicly traded equities in developed markets typically enjoy meaningful depth (i.e., valuations and liquidity are supported by a broad range of investors). Within fixed income markets, Developed Market Sovereign bonds also have meaningful depth, and trading during times of market stress often is supported by Central Banks. Trade-offs associated with other asset types are less clear, and issues such as trading limitations or less frequent asset valuation create implementation challenges in a target date fund.

TDF managers must implement strategic asset allocation and rebalancing decisions in distinct environments wherein implementation characteristics can exhibit meaningful variation. Assets with greater consistency of trading costs and liquidity provide greater flexibility for trading and rebalancing decisions.

Implementation is particularly important when managing a portfolio's exposures relative to its composite benchmark. Management decisions are executed daily, with consideration of factors such as trading costs and the impact of shareholder cash flows. Investment decisions require regular coordination and partnership between managers of the overall portfolio and the managers of each underlying fund.

EXHIBIT 3: Applying our research framework, we have identified five distinct market regimes.

Five Historical Market Regimes, 1950–2019



Research uses a Hidden Markov Model with Gaussian Mixtures (part of Fidelity's proprietary artificial intelligence and machine-learning methodology). See appendix for information on the technical framework as well as other important information. Source: Fidelity Investments; data 1/1/50 through 12/31/19.

Fidelity Target Date Strategies – Strategic Asset Classes

Fidelity's framework for identifying strategic asset classes for its target date strategies emphasizes three primary considerations: long-term return, diversification, and implementation characteristics. Our criteria for determining strategic asset classes are intertwined. When applying our frameworks to assess asset types across the global capital markets, we think holistically about how asset classes work together.

Our decision process requires consideration and evaluation of trade-offs in the selection process. For example, an asset class with a low expected long-term return but valuable diversification or insurance properties may still have a strategic role. Similarly, an asset class that earns durable long-term returns may be excluded from the strategic allocation if its performance attributes are similar to other asset classes in the portfolio. As part of our ongoing research process, we regularly evaluate strategic exposures and apply updates when we believe shareholder outcomes can be improved.

Current strategic asset class exposures

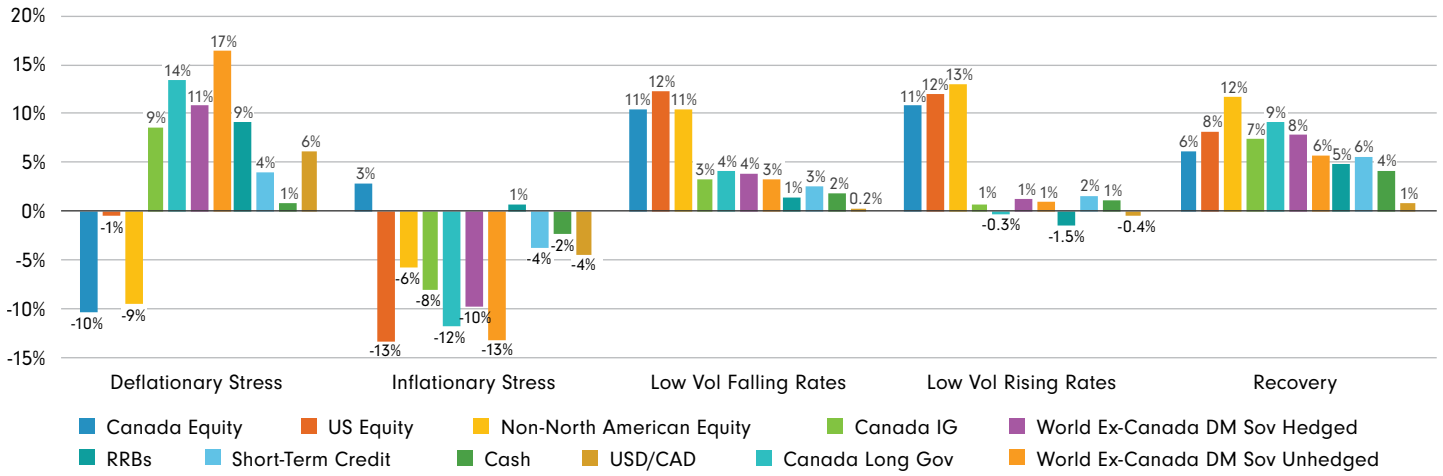
Canadian Equities, as represented by a broad Canadian equity market index, serve an important role in Canadian Target Date solutions. Canadian equities have meaningful exposure to growth and real rates and over long horizons are expected to generate positive real returns of similar magnitude as other developed market equities. Additionally, Canadian Equities tend to perform better than equities from other regions during inflationary environments. Canadian equities exhibit durable implementation properties in distinct market regimes.

U.S. equities, as represented by a broad U.S. equity market index, represent a large portion of the global market capitalization portfolio. U.S. equities have meaningful exposure to the growth rate of the economy and, over the long term, generally have provided real returns in excess of most other asset classes. Historically, U.S. equities have exhibited more resilience than equities from other regions during Deflationary Stress. U.S. equities have also exhibited durable implementation properties in distinct market regimes over time.

Non-North American equities, as represented by a broad global ex U.S. and Canadian equity market index, have meaningful exposure to the growth rate of the global

EXHIBIT 4: Asset returns are distinct across market regimes.

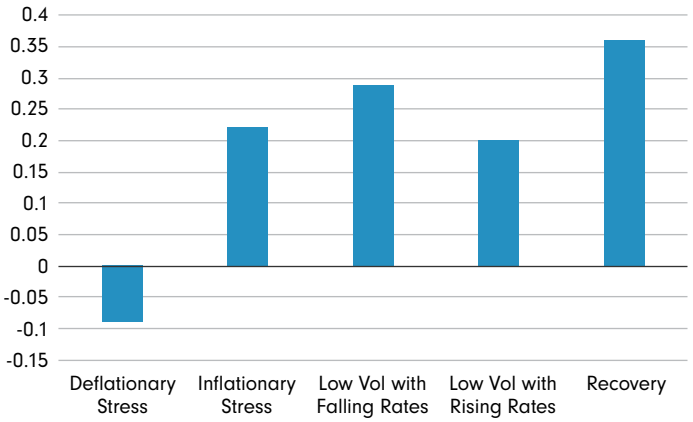
Annualized Real Returns in Different Market Regimes, 1950–2019



RRBs: Real Return Bonds. Data from Fidelity's proprietary artificial intelligence and machine-learning methodology for the five structural regimes over time. See appendix for asset class and index definitions, as well as other important information. Source: Fidelity Investments; data 1/1/50 through 8/31/19.

EXHIBIT 5: Each regime displays distinct correlation characteristics.

Stock/Bond Correlation by Market Regime, 1950–2019



Correlation: The interdependence of two variables measured as a range in value from −1 to +1, indicating perfect negative correlation at −1, absence of correlation at 0, and perfect positive correlation at +1. Data from Fidelity's proprietary artificial intelligence and machine-learning methodology for the five structural regimes over time. See appendix for important information. Source: Fidelity Investments; data 1/1/50 through 8/31/19.

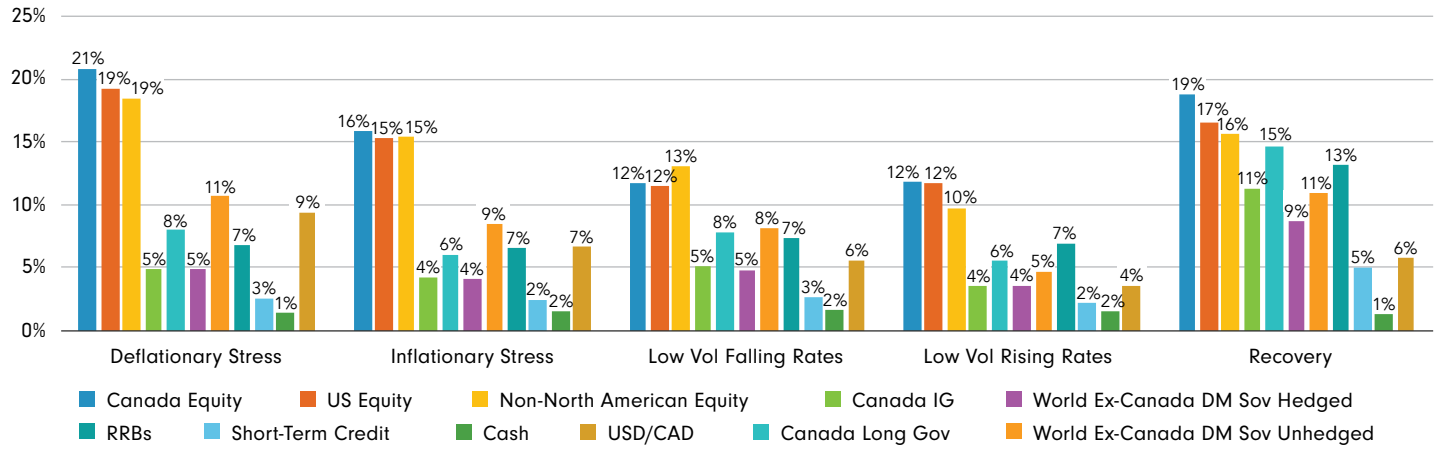
economy and can be expected to provide long-term real returns. We view non-North American equities as having distinct attributes relative to North American equities, as corporate cash flows are responsive to factors unique to each company's home country (e.g., demographics, political systems, economic cycles, and sector composition). While we expect developed-market equities to experience slower GDP growth in the next 20 to 30 years, emerging-market equities are expected to benefit from the tailwinds of increased productivity and more favorable demographics.

Canadian investment-grade bonds, as represented by the FTSE Canada Universe Bond Index, include exposure to assets that earn a return associated with several risk factors (e.g., real interest rates, inflation, and growth). Investment-grade bonds provide meaningful diversification relative to both Canadian and non-Canadian equities in several market regimes. Canadian investment-grade bonds have favorable implementation attributes.

Canadian Real Return Bonds (RRBs) earn a risk premium associated with their exposure to real interest rates. RRBs have provided stable cash flows that have kept pace with the Consumer Price Index (CPI), which can be helpful for a target date investor focused on a real income replacement goal. RRBs can provide diversification and help improve portfolio resiliency during periods of market stress and when inflation exceeds expectations. RRBs may also increase diversification in environments where investors are uncertain about the Canadian Central Bank's ability to maintain low

EXHIBIT 6: Each regime displays distinct volatility characteristics.

Annualized Volatility within Each Market Regime, 1950–2019



Volatility: the variability of an asset or asset class's historical returns. RRBs: Real Return Bonds. Data from Fidelity's proprietary artificial intelligence and machine-learning methodology for the five structural regimes over time. See appendix for asset class and index definitions, as well as other important information. Source: Fidelity Investments; data 1/1/50 through 8/31/19.

inflation. While the implementation attributes of RRBs are less durable compared with equities, investment-grade bonds, or short-term assets, their unique attributes make them an important and valuable strategic exposure.

Short-term debt, (such as Canadian government and Corporate Credit with shorter maturities) has exhibited lower volatility than Investment Grade Debt, earned lower long-term returns, and provided an attractive Sharpe ratio. Short-term debt can be important for investors near or beyond their retirement dates who value diversification and capital preservation but also have a need for capital appreciation. Short-term debt has favorable implementation attributes.

Cash, (such as Canadian Government instruments with maturities of less than six months) exhibits low volatility and earns a commensurately low long-term return. Cash can be important for investors near or beyond their retirement dates who value diversification and capital preservation. Our expectation is that the attributes of Cash should continue as a source of stability for investors during regimes in which other assets have less favorable performance (e.g., market stress). Cash has favorable implementation attributes and is highly liquid, relative to other fixed income instruments.

Asset classes currently excluded from the strategic asset allocation

The current implementation of our strategic asset allocation framework excludes certain asset classes and exposures. In target date portfolios that apply additional active management capabilities and flexibility, the asset classes below may be included as opportunistic exposures.

Commodities, in our view, do not earn a risk premium related to macroeconomic risk factors. While they may provide diversification in certain market regimes, the implementation attributes of commodities have become less durable over the past decade, as many market participants have reduced exposure to the asset class.

High-yield bonds earn a risk premium related to macroeconomic risk factors. Our research indicates that credit-related assets have diversification attributes that have limited independence. For example, the return and risk characteristics of high-yield bonds are highly correlated to a combination of Government bonds and equities. Also, the implementation attributes of high-yield assets tend to be less durable relative to other fixed income assets, particularly during periods of market stress.

Non-Canadian bonds, in our view, have distinct attributes relative to Canadian fixed income assets because their potential yields are influenced by factors particular to each issuer's home country (e.g., demographics, political systems, economic cycles, and sector composition). Global economies have become more integrated in recent decades, thereby reducing the diversification benefits of non-Canadian bonds. We observe increasing uncertainty across several dimensions (aging populations, declining productivity, effects of monetary policy), which could reverse this trend and affect the attributes of global bonds. While the trading costs of global bonds have typically been between those of Canadian Government Bonds and other types of credit-related assets, these characteristics may also be affected in the future by the uncertainties noted above.

Equity sectors, i.e., specific sectors and industries within the public equity markets (such as REITs and commodity-producing equities), are represented in the strategic allocation through diversified equity allocations. We view the diversification properties of these exposures as comparable to equities generally and, thus, as lacking sufficient independence to be included as standalone strategic exposures.

Alternatives represent a broad category that includes a diverse set of exposures, ranging from assets that are typically considered long-term holdings (e.g., private equity, private debt) to strategies that are focused on earning returns through trading or adjusting positions. When evaluating exposures in this category, we seek to understand their underlying drivers of return and how the attributes may affect portfolio diversification. We also are mindful of the implementation attributes of exposures with lower liquidity, and we weigh trade-offs between the potential benefits of improving diversification and investment outcomes with the potential costs.

Summary

Selecting a target date strategy is one of the most important decisions a plan sponsor will make on behalf of members in a DC retirement plan. Within a selected target date fund, the primary driver of investment performance is the fund's strategic asset allocation, or its long-term mix of asset classes. Fidelity's framework for selecting strategic asset classes for target date strategies considers long-term (e.g., multi-decade) expected returns, diversification, and the durability of implementation attributes (e.g., costs and liquidity).

We believe that diversification is the most powerful tool for managing the effects of capital market uncertainty. Our research on diversification emphasizes the drivers of asset class returns, the historical relationships among asset classes, and how asset class relationships evolve in distinct market environments. We strive to include strategic asset classes that are independent from one another, with an objective of improving portfolio resiliency through different market regimes that may emerge across an investor's lifetime.

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Ruthann Pritchard is an institutional portfolio manager for Fidelity Investments. In this role, Ms. Pritchard a principal liaison for portfolio management to a broad range of current and prospective clients and internal partners, providing detailed portfolio reviews and serving as a key conduit of client objectives, requirements, and marketplace insight back to the investment team. Ms. Pritchard's focus is on target date and retirement income strategies.

Fidelity Thought Leadership Director David Risgin, CFA, provided editorial direction for this article.

Important Information

Structural state/market environment analysis: Financial market behavior can change abruptly. Although some changes may be transitory, the new behavior often persists for several periods after a change. Such structural shifts lead to adjustments in asset pricing via changes in means, volatilities, and serial correlations over time that may remain stable within that structural state until markets transition to a different state. We have lived through only "one sample" of realized history. Embedded within this one window of history is a mix of different structural states (as well as state-conditional financial market regimes). The structural "states" could be thought of as referring to "secular" phenomena. However, within any such structural state, financial markets could transition between different "regimes," which could be considered as "cyclical" trends that are reflected in asset pricing conditioned on the secular state. Markov chains (and models) have increasingly become a useful way of capturing the stochastic nature of many time series (the sequence of the five structural "states" as depicted, could be thought of as representing a five-state Markov chain). Markov models are used to train and recognize sequential data, such as speech utterances, temperature variations, biological sequences and, more recently, financial time-series data. In a Markov model, each observation in the data sequence depends on previous elements in the sequence. A Hidden Markov Model (HMM) not only accommodates a Markov chain, but also considers the uncertainty in which state the system may be in at any given time. The word "hidden" in Hidden Markov Models means that market members do not know with certainty which structural state the financial system may be in at any point in time, and have only some probabilistic insight on where it could be along the continuum of state transitions, given the observed behavior of (multi-class) asset returns. Hidden Markov processes have been widely employed in many engineering applications, and their effectiveness has been well-recognized in modeling financial data. In an HMM, one does not know anything about what generates the observation sequence. The number of states, the state transition probabilities, and from which state an observation is generated are all unknown and all simultaneously estimated from data. Five states as described provided a robust (statistically significant) mathematical expression of the asset returns data.

The investment risks of each ClearPath fund change over time as its asset allocation changes. These risks are subject to the asset allocation decisions of the Investment Adviser. Pursuant to the Adviser's ability to use an active asset allocation strategy, investors may be subject to a different risk profile compared to the fund's neutral asset allocation strategy shown in its glide path. The funds are subject to the volatility of the financial markets, including that of equity and fixed income investments in Canada, the U.S. and abroad, and may be subject to risks associated with investing in high-yield, small cap, commodity-linked, and foreign securities. Leverage can increase market exposure, magnify investment risks, and cause losses to be realized more quickly. No target date fund is considered a complete retirement program, and there is no guarantee any single fund will provide sufficient retirement income at or through retirement. Principal invested is not guaranteed at any time, including at or after the funds' target dates.

Asset classes and indexes for Exhibit 2 (p. 5), Exhibit 4 (p. 8), and Exhibit 6 (p. 9) represented by: Canadian equity – GFD (Global Financial Data) Canada S&P/TSX-300 Total Return Index (1950–2019); U.S. equity – Fidelity Top 3000 Stock Index (1950–1970), Dow Jones U.S. Total Stock Market Index (1970–2019); Non-North American equity – GFD (Global Financial Data) World x/USA Return Index (1950–1972), MSCI EAFE Index (1972–1988), 80% MSCI EAFE Index + 20% MSCI Emerging Markets Index (1988–2019); Canadian investment-grade debt: Canada 10-year Total Return Government Bond Index (1950–1985), FTSE Canada GBI LCL (1985–2019); Developed market (ex Canada) debt unhedged: GAA custom data; Developed market (ex Canada) debt hedged: GAA custom data; Canadian long government debt – Haver custom data (1950–1985), FTSE Canada GBI 10+ Yr (1985–2019); Canadian short-term credit: GAA custom data (1950–1985), FTSE Canada GBI 1–3 Yr (1985–2019); Real return bond: GAA custom data (1950–1997), Blomberg Barclays Canada Govt Inflation-Linked >10Yrs Total Return Index (1997–2019); Gold – Bloomberg gold spot return (1950–2019); Commodity futures – Bloomberg Commodity Index Total Return (1950–2019); USD/CAD: GFD (Global Financial Data) spot return (1950–1971), Bloomberg spot return (1971–2019); Cash – GFD (Global Financial Data) Canada Total Return Bills Index (1950–2019); Canadian CPI: Statistics Canada CPI MoM NSA (1950–2019).

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For institutional investors.

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