

# AZL® MVP DFA Multi-Strategy Fund <sup>3,9,10,15,16</sup>

Release Date:  
03-31-2019

**Overall Morningstar Rating™**  
★★★

Out of 397 World Allocation investments. An investment's overall Morningstar Rating, based on its risk-adjusted return, is a weighted average of its applicable 3-, 5-, and 10-year Ratings. See disclosure page for details.

**Morningstar Return**  
Average

**Morningstar Risk**  
Average

## Investment Strategy from investment's prospectus

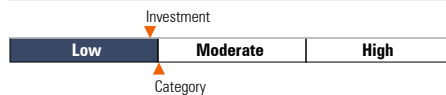
The investment seeks long-term capital appreciation.

The fund is a fund of funds that seeks to achieve its goal by investing primarily in a combination of five underlying funds: AZL DFA Emerging Markets Core Equity Fund, AZL DFA International Core Equity Fund, AZL DFA U.S. Small Cap Fund, AZL DFA U.S. Core Equity Fund and AZL DFA Five-Year Global Fixed Income Fund. It will allocate approximately 60% of its assets in the underlying equity funds and approximately 40% of its assets in the underlying bond fund.

## Morningstar Category: World Allocation

World-allocation portfolios seek to provide both capital appreciation and income by investing in three major areas: stocks, bonds, and cash. While these portfolios do explore the whole world, most of them focus on the U.S., Canada, Japan, and the larger markets in Europe. It is rare for such portfolios to invest more than 10% of their assets in emerging markets. These portfolios typically have at least 10% of assets in bonds, less than 70% of assets in stocks, and at least 40% of assets in non-U.S. stocks or bonds.

## Volatility Risk



In the past, this investment has shown a relatively small range of price fluctuations relative to other investments. Based on this measure, currently more than two-thirds of all investments have shown higher levels of risk. Consequently, this investment may appeal to investors looking for a conservative investment strategy.

Best 3 Month Return	Worst 3 Month Return
7.23%	-9.42%
(Jan '19 - Mar '19)	(Oct '18 - Dec '18)

## Operations

Net Annual Fund	1.01
Operating Expense	
Fund Inception Date	04-27-15
Advisor	Allianz Investment Management LLC
Subadvisor	—

## Portfolio Manager(s)

Brian Muench.  
Mark Glad.

## Morningstar Proprietary Statistics

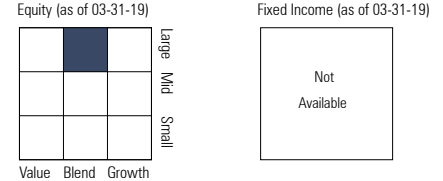
	1 Year	3 Year	5 Year	10 Year
Morningstar Rating™	—	★★★	—	—
Fund Rank Percentile	37	38	—	—
Out of # of Investments	469	397	—	—

## Portfolio Analysis

Composition as of 12-31-18

	% Assets
U.S. Stocks	42.2
Non-U.S. Stocks	11.8
Bonds	40.5
Cash	5.4
Other	0.1

## Morningstar Style Box™



Top Holdings as of 12-31-18

	% Assets
AZL® DFA Five-Year Global Fixed Inc	39.19
AZL® DFA US Core Equity	33.34
AZL® DFA International Core Equity	11.63
AZL® DFA US Small Cap	9.22
US 10 Year Ultra Future Mar19 03-21-19	1.80
Dreyfus Treasury Secs Cash Mgmt Inst	0.07

Total Number of Holdings	7
Annual Turnover Ratio %	7.00
Total Fund Assets (\$mil)	93.46

Statistics as of 12-31-18

	Port Avg	Rel S&P 500	Rel Cat
P/E Ratio	12.25	0.72	0.90
P/B Ratio	1.82	0.61	1.02
P/C Ratio	7.18	0.82	1.05
GeoAvgCap (\$mil)	13517.71	0.13	0.38

Risk Measures as of 03-31-19

	Port Avg	Rel S&P 500	Rel Cat
3 Yr Std Dev	6.60	0.62	0.91
3 Yr Beta	1.02	—	0.99
3 Yr Sharpe Ratio	0.80	0.71	1.18
3 Yr Alpha	-1.45	—	0.64
3 Yr R-squared	88.53	—	0.92
Income Ratio	0.84	—	—
Information Ratio	-0.64	—	0.88

Morningstar Super Sectors as of 12-31-18

	% Fund
Cyclical	40.53
Sensitive	40.24
Defensive	19.23

Morningstar F-I Sectors as of 12-31-18

	% Fund	% Category
Government	48.90	36.94
Corporate	40.77	19.92
Securitized	0.00	10.98
Municipal	0.00	0.41
Cash/Cash Equivalents	10.33	20.98
Other	0.00	10.77

## Important Disclosures

**Must be accompanied by standardized performance information for an Allianz Life Insurance Company of North America or Allianz Life Insurance Company of New York variable annuity. Past performance is not a guarantee of future results. Performance shown is historical. Investment returns and principal value will fluctuate with market conditions so that units, when redeemed, may be worth more or less than the original cost. This performance information does not reflect contract level expenses. If expenses were applied, performance would be lower.**

**Current performance may be lower or higher than the performance data quoted. To obtain the most recent performance information, please visit our website [www.allianzlife.com](http://www.allianzlife.com), and in New York at [www.allianzlife.com/newyork](http://www.allianzlife.com/newyork).**

# Disclosure

**This material must be preceded or accompanied by a current prospectus for variable annuities. Call your financial professional or Allianz Life at 800.624.0197 to obtain a prospectus from Allianz Life Insurance Company of North America (Allianz Life®) and, in New York, from Allianz Life Insurance Company of New York (Allianz Life® of NY) variable annuities and variable investment options. The prospectuses contain details on investment objectives, risks, fees, and expenses, as well as other information about the variable annuity and underlying investment options, which you should carefully consider. Please read the prospectuses thoroughly before sending money.**

The advisor or subadvisor of the investment options may have a public mutual fund with an investment objective that is similar to that of the listed investment option. These are separate portfolios that will have different investment performance due to differing fees, expenses, relative cash flows, portfolio sizes, and other factors.

The investment options are available only as investment options in variable annuity contracts and certain other tax-qualified investments. They are not made available to the general public directly.

Allianz Life and Allianz Life of NY work exclusively with registered representatives to help them meet their clients' financial goals. We offer innovative financial products, responsive customer service, and the financial strength of our parent company, Allianz SE.

Not FDIC insured • May lose value • No bank or credit union guarantee • Not a deposit • Not insured by any federal government agency or NCUA/NCUSIF

All contract and rider guarantees, including optional benefits are backed by the claims-paying ability of Allianz Life and Allianz Life of NY. They are not backed by the broker/dealer from which this annuity is purchased, by the insurance agency from which this annuity is purchased, or any affiliates of those entities, and none makes any representations or guarantees regarding the claims-paying ability of Allianz Life and Allianz Life of NY.

Guarantees do not apply to the performance of the variable subaccounts, which will fluctuate with market conditions.

Products are issued by Allianz Life Insurance Company of North America, 5701 Golden Hills Drive, Minneapolis, MN 55416-1297. 800.542.5427. [www.allianzlife.com](http://www.allianzlife.com). In New York, products are issued by Allianz Life Insurance Company of New York, 28 Liberty Street, 38th Floor, New York, NY 10005-1422. [www.allianzlife.com/new-york](http://www.allianzlife.com/new-york) Variable products are distributed by their affiliate, Allianz Life Financial Services, LLC, member FINRA, 5701 Golden Hills Drive, Minneapolis, MN 55416-1297. Only Allianz Life Insurance Company of New York is authorized to offer annuities and life insurance in the state of New York.

## Volatility Risk

The term volatility is used to mean standard deviation. Standard deviation of fund returns measures how much a fund's total returns have fluctuated in the past.

## Prospectus Net Expense Ratio

The expense ratio is the annual fee that all funds charge their shareholders. It expresses the percentage of assets deducted each fiscal year for fund expenses, including 12b-1 fees, management fees, administrative fees, operating costs, and all other asset-based costs incurred by the fund. Portfolio transaction fees, or brokerage costs, as well as front-end or deferred sales charges are not included in the expense ratio. The expense ratio, which is deducted from the fund's average net assets, is accrued on a daily basis. The gross expense ratio, in contrast to the net expense ratio, does not reflect any fee waivers in effect during the time period.

## Overall Morningstar Rating™

The Morningstar Rating™ for funds, or "star rating", is calculated for managed products (including mutual funds, variable annuity and variable life subaccounts, exchange-traded funds, closed-end funds, and separate accounts) with at least a three-year history. Exchange-traded funds and open-ended mutual funds are considered a single population for comparative purposes. It is calculated based on a Morningstar Risk-Adjusted Return measure that accounts for variation in a managed product's monthly excess performance, placing more emphasis on downward variations and rewarding consistent performance. The Morningstar Rating does not include any adjustment for sales loads. The top 10% of products in each product category receive 5 stars, the next 22.5% receive 4 stars, the next 35% receive 3 stars, the next 22.5% receive 2 stars, and the bottom 10% receive 1 star. The Overall Morningstar Rating for a managed product is derived from a weighted average of the performance figures associated with its three-, five-, and 10-year (if applicable) Morningstar Rating metrics. The weights are: 100% three-year rating for 36-59 months of total returns, 60% five-year rating/40% three-year rating for 60-119 months of total returns, and 50% 10-year rating/30% five-year rating/20% three-year rating for 120 or more months of total returns. While the 10-year overall star rating formula seems to give the most weight to the 10-year period, the most recent three-year period actually has the greatest impact because it is included in all three rating periods.

## Morningstar Return

This statistic is a measurement of a fund's excess return over a risk-free rate (the return of the 90-day Treasury bill), after adjusting for all applicable loads and sales charges. In each Morningstar Category, the top 10% of funds earn a High Morningstar Return, the next 22.5% Above Average, the middle 35% Average, the next 22.5% Below Average, and the bottom 10% Low. Morningstar Return is measured for up to three time periods (three-, five-, and 10-years). These separate measures are then weighted and averaged to produce an overall measure for the fund. Funds with less than three years of performance history are not rated.

## Morningstar Risk

This statistic evaluates the variations in a fund's monthly returns, with an emphasis on downside variations. In each

Morningstar Category, the 10% of funds with the lowest measured risk are described as Low Risk, the next 22.5% Below Average, the middle 35% Average, the next 22.5% Above Average, and the top 10% High. Morningstar Risk is measured for up to three time periods (three-, five-, and 10-years). These separate measures are then weighted and averaged to produce an overall measure for the fund. Funds with less than three years of performance history are not rated.

## Investment Risk

Fidelity Institutional Asset Management is a registered service mark of FMR LLC. Used with permission.

1. Small-cap and mid-cap stocks are more volatile than large-cap or more established companies' securities.
2. This investment option seeks to match the performance of the specified market index. Investors cannot invest directly into indexes.
3. The AZL®, RCM, and PIMCO investment options are managed by an affiliate of Allianz Life Insurance Company of North America, Allianz Life Insurance Company of New York and Allianz Life Financial Services, LLC. All are affiliated companies.
4. This investment option is subadvised by the listed firm. The subadvisor may have a public mutual fund with an investment objective that is similar to that of this investment option. These are separate portfolios that will have different performance due to differing fees, expenses, relative cash flows, portfolio sizes, and other factors.
5. International investing involves some risks not present with U.S. investments, such as currency fluctuation and political volatility.
6. High-yield securities inherently have a high degree of market risk in addition to credit risk and potential illiquidity.
7. Bond funds are subject to credit risk and inflation risk. They are also subject to interest rate risk. Generally, when interest rates rise, bond prices fall. Bonds with longer maturities tend to be more sensitive to changes in interest rates.
8. Money invested in a specific sector or industry is subject to a higher degree of risk than money that is diversified.
9. This investment option invests in derivative instruments such as futures, options, and swap agreements. Derivatives can increase the investment option's share price volatility and could magnify losses. Certain derivative instruments also involve costs that could reduce returns. Certain derivatives may involve risk of default.
10. Manager Allocation Risk: The risk refers to the possibility that the manager could allocate assets in a manner that will cause the funds to underperform other funds with similar investment objectives. The manager may have a potential conflict of interest in allocating assets among and between

# Disclosure

the permitted underlying funds because the subadvisory fee rate it pays to the subadvisors of the permitted underlying funds is different.

11. "Standard & Poor's®," "S&P®," "S&P 500," "Standard & Poor's 500," "500," "Standard & Poor's SmallCap 600," "S&P SmallCap 600," and "S&P MidCap 400" are trademarks of Standard & Poor's Financial Services LLC and have been licensed for use by the Allianz Variable Insurance Products Trust and Allianz Investment Management LLC. The product is not sponsored, endorsed, sold, or promoted by Standard & Poor's and Standard & Poor's makes no representation regarding the advisability of purchasing the product.

12. The Russell 1000® Value Index is a market-capitalization weighted index of those firms in the Russell 1000 with lower price-to-book ratios and lower forecasted growth values. The Russell 1000 includes the largest 1,000 firms in the Russell 3000®, which represents approximately 98% of the investable U.S. equity markets.

13. The Russell 1000® Growth Index is a market-capitalization weighted index of those firms in the Russell 1000 with higher price-to-book ratios and higher forecasted growth values. The Russell 1000 includes the largest 1,000 firms in the Russell 3000®, which represents approximately 98% of the investable U.S. equity markets.

14. MSCI EAFE® Index is a free float-adjusted market capitalization index that is designed to measure developed market equity performance, excluding the U.S. and Canada. EAFE is a registered service mark of MSCI, Inc.

15. Generally under normal conditions, 5% (up to 20%) of the investment option is invested in the MVP risk management overlay. When overall market volatility is generally moderate or low, the MVP risk management process will look to participate with the market using derivatives equal to the risk of the investment options and minimizes its protection aspect. During periods of higher market volatility, the MVP risk management process will seek to reduce volatility using derivatives with the goal to minimize extreme negative outcomes. Derivatives are contracts used as underlying assets and play an important role in hedging risk. They limit the need to buy or sell assets within the underlying funds in periods of volatility. They also include the risks related to futures and options, which may be different from and greater than the risks of direct investments in securities or other traditional investments. The MVP process does not ensure a profit or protect against losses. Success of the hedging strategy or fund objectives cannot be guaranteed.

16. Each AZL® MVP fund utilizes the MVP risk management process, which could cause the equity exposure of the funds to fluctuate, but equity exposure will generally not be lower than 10%.

17. Because growth stocks have higher valuations and lower dividend yields than slower-growth or cyclical companies, the share price volatility may be higher. As such, fund prices could decline further in market downturns than non-growth-oriented funds.

18. The value approach carries the risk that the market will not recognize a security's true worth for a long time, or that a stock judged to be undervalued may actually be appropriately priced. As with all equity funds, the fund's share price can fall because of weakness in the broad market, a particular industry, or specific holdings.

19. Due to the fund's concentration in health sciences companies, its share price will be more volatile than that of more diversified funds. Further, these firms are often dependent on government funding and regulation and are vulnerable to product liability lawsuits and competition from low-cost generic products.

20. Equity funds are subject generally to market, market sector, market liquidity issuer, and investment style risks, among other factors and varying degrees.

The Barclays Capital U.S. Aggregate Bond Index is comprised of U.S. investment-grade, fixed-rate bond market securities, including government agency, corporate and mortgage-backed securities.

Allianz products are not sponsored, endorsed, sold, or promoted by Barclays Capital. Barclays Capital makes no representation or warranty, express or implied, to the owners of Allianz products or any member of the public regarding the advisability of investing in securities generally or in Allianz products particularly or the ability of the Barclays Capital U.S. Aggregate Bond Index, including without limitation, the Barclays Capital U.S. Aggregate Bond Index, to track general bond market performance. Barclays Capital's only relationship to Allianz Life Insurance Company of North America and its affiliates ("Allianz") is the licensing of the Barclays Capital U.S. Aggregate Bond Index and Barclays US Dynamic Balance Index which are determined, composed and calculated by Barclays Capital without regard to Allianz or Allianz products. Barclays Capital has no obligation to take the needs of Allianz or the owners of Allianz products into consideration in determining, composing or calculating the Barclays Capital U.S. Aggregate Bond Index. Barclays Capital is not responsible for and has not participated in the determination of the timing of, prices at, or quantities of Allianz products to be issued or in the determination or calculation of the equation by which Allianz products are to be converted into cash. Barclays Capital has no obligation or liability in connection with the administration, marketing or trading of Allianz products.

BARCLAYS CAPITAL DOES NOT GUARANTEE THE QUALITY, ACCURACY AND/OR THE COMPLETENESS OF THE BARCLAYS CAPITAL INDICES, OR ANY DATA INCLUDED THEREIN, OR OTHERWISE OBTAINED BY ALLIANZ, OWNERS OF ALLIANZ PRODUCTS, OR ANY OTHER PERSON OR ENTITY FROM THE USE OF THE BARCLAYS CAPITAL INDICES, INCLUDING WITHOUT LIMITATION, THE BARCLAYS CAPITAL U.S. AGGREGATE BOND INDEX, IN CONNECTION WITH THE RIGHTS LICENSED HEREUNDER OR FOR ANY OTHER USE. BARCLAYS CAPITAL MAKES NO EXPRESS OR IMPLIED WARRANTIES, AND HEREBY EXPRESSLY DISCLAIMS ALL WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A

PARTICULAR PURPOSE OR USE WITH RESPECT TO THE BARCLAYS CAPITAL INDICES, INCLUDING WITHOUT LIMITATION, THE BARCLAYS CAPITAL U.S. AGGREGATE BOND INDEX, OR ANY DATA INCLUDED THEREIN. WITHOUT LIMITING ANY OF THE FOREGOING, IN NO EVENT SHALL BARCLAYS CAPITAL HAVE ANY LIABILITY FOR ANY SPECIAL, PUNITIVE, INDIRECT, OR CONSEQUENTIAL DAMAGES (INCLUDING LOST PROFITS), EVEN IF NOTIFIED OF THE POSSIBILITY OF SUCH DAMAGES.

The licensing agreement between Allianz Life Insurance Company of North America and Barclays is solely for the benefit of Allianz Life Insurance Company of North America and Barclays and not for the benefit of the owners of the Allianz products, investors or other third parties.

BARCLAYS SHALL HAVE NO LIABILITY TO THE ISSUER, INVESTORS OR TO OTHER THIRD PARTIES FOR THE QUALITY, ACCURACY AND/OR COMPLETENESS OF THE BARCLAYS US AGGREGATE BOND INDEX OR ANY DATA INCLUDED THEREIN OR FOR INTERRUPTIONS IN THE DELIVERY OF THE BARCLAYS US AGGREGATE BOND INDEX. BARCLAYS MAKES NO WARRANTY, EXPRESS OR IMPLIED, AS TO RESULTS TO BE OBTAINED BY THE ISSUER, THE INVESTORS OR ANY OTHER PERSON OR ENTITY FROM THE USE OF THE BARCLAYS US AGGREGATE BOND INDEX OR ANY DATA INCLUDED THEREIN. BARCLAYS MAKES NO EXPRESS OR IMPLIED WARRANTIES, AND HEREBY EXPRESSLY DISCLAIMS ALL WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE WITH RESPECT TO THE BARCLAYS US AGGREGATE BOND INDEX OR ANY DATA INCLUDED THEREIN. BARCLAYS RESERVES THE RIGHT TO CHANGE THE METHODS OF CALCULATION OR PUBLICATION, OR TO CEASE THE CALCULATION OR PUBLICATION OF THE BARCLAYS US AGGREGATE BOND INDEX, AND BARCLAYS SHALL NOT BE LIABLE FOR ANY MISCALCULATION OF OR ANY INCORRECT, DELAYED OR INTERRUPTED PUBLICATION WITH RESPECT TO ANY OF THE BARCLAYS US AGGREGATE BOND INDEX. BARCLAYS SHALL NOT BE LIABLE FOR ANY DAMAGES, INCLUDING, WITHOUT LIMITATION, ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES, OR ANY LOST PROFITS AND EVEN IF ADVISED OF THE POSSIBILITY OF SUCH, RESULTING FROM THE USE OF THE BARCLAYS US AGGREGATE BOND INDEX OR ANY DATA INCLUDED THEREIN OR WITH RESPECT TO THE ALLIANZ PRODUCT.

None of the information supplied by Barclays Risk Analytics and Index Solutions Limited and used in this publication may be reproduced in any manner without the prior written permission of Barclays Risk Analytics and Index Solutions Limited. Barclays Risk Analytics and Index Solutions Limited is registered in England No. 08934023.

"FTSE", "FT-SE", "Footsie", "FTSE4Good", and "techMARK" are trademarks jointly owned by the London Stock Exchange Plc and the Financial Times and are used by the FTSE International Limited ("FTSE") under license. "All-World", "All-Share", and "All-Small" are trademarks of FTSE. The FTSE 100 is calculated by FTSE. FTSE does not sponsor, endorse, or promote this product and is not in any way connected to it and does not accept any liability in relation to its issue, operation, and trading.

# Disclosure

## Portfolio Analysis

The weighting of the portfolio in various asset classes, including "Other" is shown in the table. "Other" includes security types that are not neatly classified in the other asset classes, such as convertible bonds and preferred stocks.

## Morningstar Style Box™

For equity funds the vertical axis shows the market capitalization of the long stocks owned and the horizontal axis shows investment style (value, blend, or growth). For fixed-income funds, the vertical axis shows the credit quality of the long bonds owned and the horizontal axis shows interest rate sensitivity as measured by a bond's effective duration.

Morningstar seeks credit rating information from fund companies on a periodic basis (e.g., quarterly). In compiling credit rating information Morningstar accepts credit ratings reported by fund companies that have been issued by all Nationally Recognized Statistical Rating Organizations (NRSROs). For a list of all NRSROs, please visit [www.sec.gov/divisions/marketreg/ratingagency.htm](http://www.sec.gov/divisions/marketreg/ratingagency.htm). Additionally, Morningstar accepts foreign credit ratings from widely recognized or registered rating agencies. If two rating organizations/agencies have rated a security, fund companies are to report the lower rating; if three or more organizations/agencies have rated a security, fund companies are to report the median rating, and in cases where there are more than two organization/agency ratings and a median rating does not exist, fund companies are to use the lower of the two middle ratings. PLEASE NOTE: Morningstar, Inc. is not itself an NRSRO nor does it issue a credit rating on the fund. An NRSRO or rating agency ratings can change from time-to-time.

For credit quality, Morningstar combines the credit rating information provided by the fund companies with an average default rate calculation to come up with a weighted-average credit quality. The weighted-average credit quality is currently a letter that roughly corresponds to the scale used by a leading NRSRO. Bond funds are assigned a style box placement of "low", "medium", or "high" based on their average credit quality. Funds with a low credit quality are those whose weighted-average credit quality is determined to be less than "BBB-"; medium are those less than "AA-", but greater or equal to "BBB-"; and high are those with a weighted-average credit quality of "AA-" or higher. When classifying a bond portfolio, Morningstar first maps the NRSRO credit ratings of the underlying holdings to their respective default rates (as determined by Morningstar's analysis of actual historical default rates). Morningstar then averages these default rates to determine the average default rate for the entire bond fund. Finally, Morningstar maps this average default rate to its corresponding credit rating along a convex curve.

For interest-rate sensitivity, Morningstar obtains from fund companies the average effective duration. Generally, Morningstar classifies a fixed-income fund's interest-rate sensitivity based on the effective duration of the Morningstar Core Bond Index (MCBI), which is currently three years. The classification of Limited will be assigned to those funds

whose average effective duration is between 25% to 75% of MCBI's average effective duration; funds whose average effective duration is between 75% to 125% of the MCBI will be classified as Moderate; and those that are at 125% or greater of the average effective duration of the MCBI will be classified as Extensive.

For municipal bond funds, Morningstar also obtains from fund companies the average effective duration. In these cases static breakpoints are utilized. These breakpoints are as follows: (i) Limited: 4.5 years or less; (ii) Moderate: more than 4.5 years but less than 7 years; and (iii) Extensive: more than 7 years. In addition, for non-US taxable and non-US domiciled fixed income funds static duration breakpoints are used: (i) Limited: less than or equal to 3.5 years; (ii) Moderate: greater than 3.5 and less than equal to 6 years; (iii) Extensive: greater than 6 years.

## Fixed Income Portfolio Statistics:

Average Effective Duration is a measure of a fund's interest-rate sensitivity--the longer a fund's duration, the more sensitive the fund is to shifts in interest rates. Average effective duration is a weighted average of the duration of the underlying fixed income securities within the portfolio.

Average Effective Maturity is a weighted average of all the maturities of the bonds in a portfolio, computed by weighting each bond's effective maturity by the market value of the security. Average effective maturity takes into consideration all mortgage prepayments, puts, and adjustable coupons. Longer-maturity funds are generally considered more interest-rate sensitive than their shorter counterparts.

Average Weighted Price is calculated from the fund's portfolio by weighing the price of each bond by its relative size in the portfolio. This number reveals if the fund favors bonds selling at prices above or below face value (discount or premium securities, respectively). A higher number indicates a bias toward premiums. This statistic is expressed as a percentage of par (face) value.

## Statistics

The Price/Earnings Ratio for a fund is the asset-weighted average of the prospective earnings yields of all the domestic stocks in a fund's portfolio. The P/E ratio of a stock is calculated by dividing the current price of the stock by its trailing 12 months' earnings per share. The P/E ratio relates the price of the stock to the per-share earnings of the company. A high P/E generally indicates that the market will pay more to obtain the company because it has confidence in the company's ability to increase its earnings. Conversely, a low P/E indicates that the market has less confidence that the company's earnings will increase, and therefore will not pay as much for its stock.

The Price/Book Ratio for a fund is the asset-weighted average of the prospective book value yields of all the domestic stocks in the fund's portfolio. P/B ratio of a company is calculated by dividing the market price of its stock by the company's per-share book value. A high P/B ratio indicates that the price of the stock exceeds the actual worth of the company's assets. A low P/B ratio would indicate that the stock is a bargain, priced below what the company's assets could be worth if liquidated.

The Price/Cash Ratio for a fund represents the weighted

average of the price/cash-flow ratios of the stocks in a fund's portfolio. Price/cash-flow represents the amount an investor is willing to pay for a dollar generated from a particular company's operations. Price/cash-flow shows the ability of a business to generate cash and acts as a gauge of liquidity and solvency.

Geometric Average Cap (\$mil) is the overall "size" of a stock fund's portfolio, or the geometric mean of the market capitalization for all of the stocks it owns.

## Risk Measures

R-squared reflects the percentage of a fund's movements that are explained by movements in its benchmark index, showing the degree of correlation between the fund and the benchmark. Beta is a measure of a fund's sensitivity to market movements. A portfolio with a beta greater than 1 is more volatile than the market, and a portfolio with a beta less than 1 is less volatile than the market. Alpha measures the difference between a fund's actual returns and its expected performance, given its level of risk (as measured by beta). Sharpe ratio uses standard deviation and excess return to determine reward per unit of risk. Standard deviation is a statistical measure of the volatility of the fund's returns.

## Sectors

The fixed income sector framework consists of three levels: Super Sector, Primary Sector, and Secondary Sector. There are six Super Sectors, Government, Corporate, Securitized, Municipal, Cash & Equivalents, and Other, which divide into 17 Primary Sectors, which in turn are formed by 72 Secondary Sectors. The Government Super Sector includes Government and Government Related Primary Sectors; Municipal includes Municipal Taxable and Municipal Tax-Exempt sectors; Corporate includes Bank Loan, Convertible, Corporate Bond and Preferred Stock sectors; Securitized includes Agency Mortgage-Backed, Non-Agency Residential Mortgage-Backed, Commercial Mortgage-Backed, Covered Bond, and Asset-Backed sectors; Cash & Equivalents includes Cash & Equivalents; Other includes Swap, Future/Forward, and Option/Warrant sectors.

Equity sectors are consolidated in three Super Sectors: Cyclical, Defensive and Sensitive. These Super Sectors are a broader representation of Morningstar's 11 equity sectors. The Defensive Super Sector includes Consumer Defensive, Healthcare, and Utilities sectors; Cyclical includes Basic Materials, Consumer Cyclical, Financial Services, and Real Estate sectors; Sensitive includes Communication Services, Energy, Industrials, and Technology sectors.