

Fixed Indexed Annuities: The Importance of Diversification

SOLUTIONS & MULTI-ASSET | PORTFOLIO SOLUTIONS GROUP | INVESTMENT INSIGHT | 2020

Investors rely on annuities to deliver steady returns with low volatility. We believe it is therefore prudent for annuity designers to take advantage of every opportunity to generate those types of returns. Today, many annuities may be limited in their ability to invest broadly. Indeed some may be over-allocated to single-market risk, such as U.S. equities.

For Fixed Indexed Annuities (“FIAs”) a key consideration is the underlying index choice. With a well-designed index, an insurance company can seek to maximize returns for policyholders and add attractive features to the annuity product itself. Diversification can play a key role in index design.

At MSIM we approach designing an index the same way we approach constructing portfolios of large pools of institutional capital. We focus on:

- **EFFICIENCY**—we want to perform well in various conditions
- **MANAGING RISK**—we won’t always be right, so we need to plan for that
- **INCORPORATING FORWARD-LOOKING ASSUMPTIONS**—we don’t assume history will repeat itself
- **INCREASING DIVERSIFICATION**—we try to maximize our opportunity set where possible

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Diversification does not eliminate the risk of loss.



DISPLAY 1**Lower Non-U.S. Correlations Can Help Diversify Portfolios**

Select Asset Class Correlation Assumptions*
GIC Capital Markets Assumptions as of March 28, 2019

	US LARGE CAP GROWTH	US LARGE CAP VALUE	US SMALL CAP GROWTH	US SMALL CAP VALUE	INTL EQUITIES	EUROPEAN EQUITIES	JAPANESE EQUITIES	EMERGING AND FRONTIER MKTEQUITIES	US FIXED INCOME TAXABLE	INTL FIXED INCOME
US LARGE CAP GROWTH	1.00									
US LARGE CAP VALUE	0.78	1.00								
US SMALL CAP GROWTH	0.85	0.69	1.00							
US SMALL CAP VALUE	0.70	0.85	0.84	1.00						
INTL EQUITIES	0.82	0.82	0.75	0.73	1.00					
EUROPEAN EQUITIES	0.79	0.81	0.72	0.72	0.97	1.00				
JAPANESE EQUITIES	0.59	0.55	0.53	0.47	0.74	0.60	1.00			
EMERGING & FRONTIER MKTEQUITIES	0.75	0.70	0.72	0.64	0.86	0.81	0.63	1.00		
US FIXED INCOME TAXABLE	-0.10	-0.08	-0.13	-0.09	0.01	0.00	0.02	0.03	1.00	
INTL FIXED INCOME	-0.20	-0.12	-0.21	-0.14	-0.12	-0.11	-0.11	-0.09	0.76	1.00

Source: FactSet, Bloomberg, Morgan Stanley Wealth Management GIC as of March 28, 2019.

*Based on GIC Capital Markets Assumptions, updated March 2018. Correlation is a statistical method of measuring the strength of a linear relationship between two variables. The correlation between two variables can assume any value from -1.00 to +1.00, inclusive.

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There are a number of different ways to increase diversification: include more asset classes, include different types of investments within asset classes, and include more geographies. In this article we will focus on geographic diversification, both empirically and from a forward-looking perspective.

What are the potential benefits of geographic diversification?

Reduced Correlation

In order to achieve portfolio efficiency it is important that individual assets are not highly correlated. When investments

behave differently, they can smooth out portfolio volatility. As *Display 1* illustrates, correlations across geographies are fairly low, which can help with diversification and portfolio efficiency. While correlations are not always stable, over time this diversification can help.

Diversification does not eliminate the risk of loss.

Expanded Opportunity Set

Another benefit of geographic diversification is that it allows for a bigger set of potential investment opportunities. As illustrated in *Display 2*, more than half of the world's investable markets are outside the US. At a more granular level, for example, the non-U.S. small cap universe is double the size of the US small cap universe.¹ This wider breadth of investments may provide potentially rewarding investment opportunities.

Defend Against the Downside

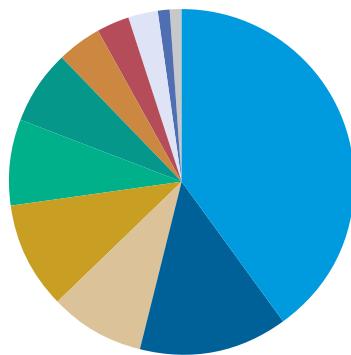
It is a common misconception that non-U.S. equities exhibit higher betas in market sell-offs. As the U.S. equity market is regarded as a higher-quality market, it is expected to sell off less severely in a broad market decline. However, this is not always the case. (*Display 3*) In fact, non-U.S. equities, as measured by the ACWI ex US Index, can exhibit lower downside beta than U.S. equities. The downside beta of U.S. equities is now at post-crisis highs while that of non-U.S. equities is at post-crisis lows.

DISPLAY 2

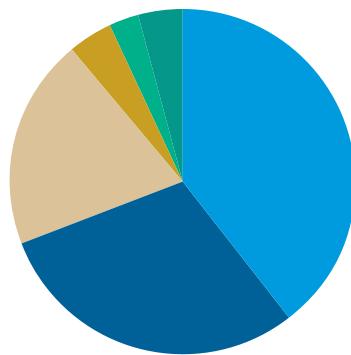
More Than Half of Investable Markets are Ex-U.S.

Current Market Capitalization as of March 1, 2019

Global Equities Market



Global Debt Market



Source: Bloomberg, Morgan Stanley Wealth Management Investment Resources as of March 1, 2019

DISPLAY 3

3Y Downside Beta to MSCI ACWI



Source: Bloomberg, Morgan Stanley Research as of April 1, 2019; Note: Downside beta is 3-year beta to MSCI ACWI when ACWI is down. Based on weekly returns.

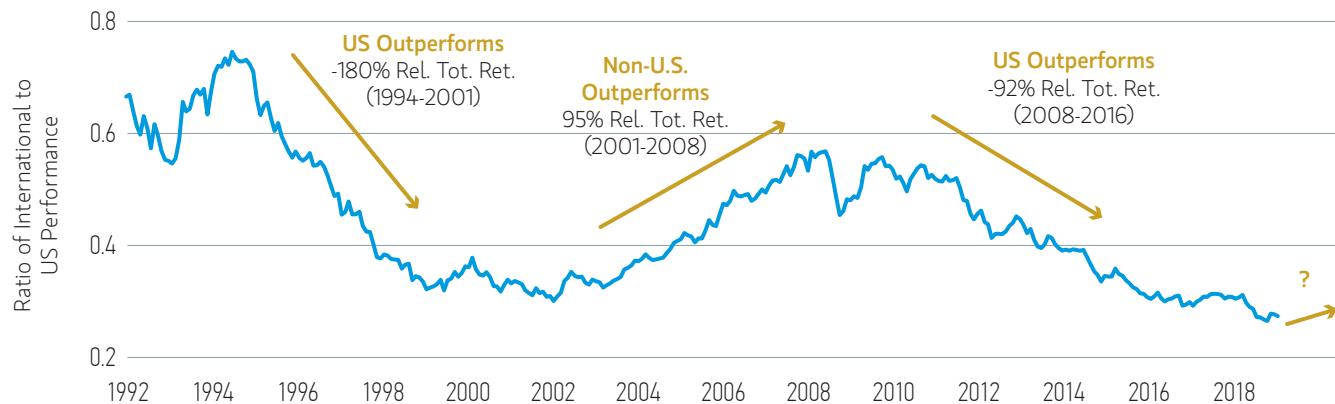
¹ Source: FactSet as of 12/31/18. "U.S. Small-Cap" is represented by the Russell 2000 Index, and "International Small-Cap" by the Morgan Stanley Capital International (MSCI) All Country World Index (ACWI) ex USA Small Cap. **Past performance is no guarantee of future results.**

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DISPLAY 4

Relative Performance of Non-U.S. vs. U.S. Has Often Rotated

MSCI EAFE Vs. S&P 500*: Monthly data as of January 31, 1992 – February 28, 2019



Source: FactSet, Morgan Stanley Wealth Management GIC as of February 28, 2019.

*The ratio of international to US performance is measured by the total return of the MSCI EAFE Index divided by the total return of the S&P 500 Index. The relative total return is measured by the difference between the MSCI EAFE and S&P 500. The slope of the line indicates relative performance, rather than absolute level.

Greater Potential Control Over Impact of Market Cycles

It could be beneficial to allow indices to reallocate over time, bearing in mind that U.S. and non-U.S. stocks have historically alternated periods of

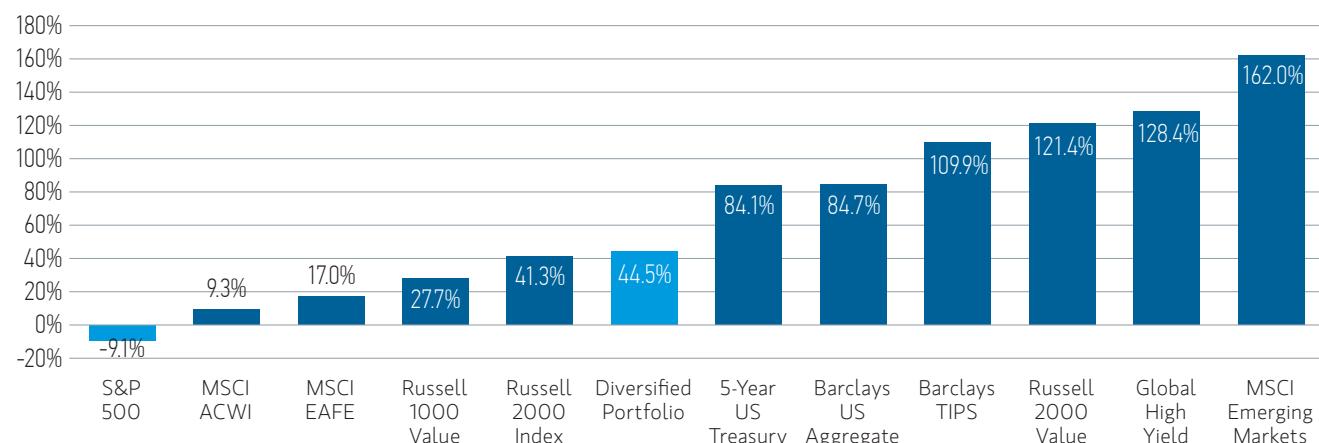
outperformance, as shown in *Display 4*. This makes sense because each stock market is influenced by the economic cycle and growth trajectory of its country. For instance, since 2008, the U.S. has performed remarkably well. Yet that hasn't always been the case.

Indeed, considering the poor performance of U.S. equity markets compared to other asset classes from 2000-2010 highlights the danger of over-emphasizing any one market or asset class. (*Display 5*)

DISPLAY 5

The Importance of Global Diversification and Asset Allocation

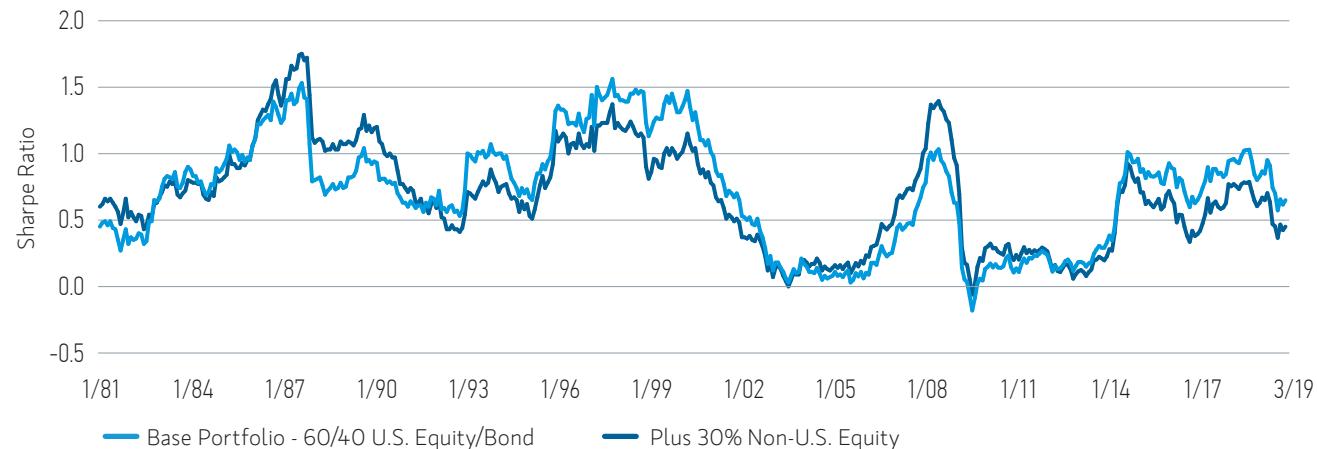
Total Returns: January 2000 - December 2009



Source: FactSet, Bloomberg, Morgan Stanley Wealth Management GIC as of February 28, 2019, The Yield Book® Software and Services. © 2019 FTSE Index LLC. All rights reserved. Note: Diversified Portfolio is comprised of 50% MSCI All Country World Index/45% Bloomberg Barclays US Aggregate Bond Index/5% FTSE 3-Month T-Bill Index.

Diversification does not eliminate the risk of loss.

DISPLAY 6
Rolling 5Y Portfolio Efficiency Comparison



Source: Bloomberg, MSIM Portfolio Solutions Group: U.S. Equity: MSCI USA Index; U.S. Bond: Bloomberg Barclays US Aggregate; Non-U.S. Equity: MSCI ACWI ex US as of March 31, 2019. For illustrative purposes only.

This is also a reminder not to make assumptions based solely on the recent past. It is widely understood that investors are vulnerable to “recency bias,” meaning that they tend to place outsized importance on what has taken place most recently, underestimating what has happened in the past. In other words, investors tend to “chase returns” or invest

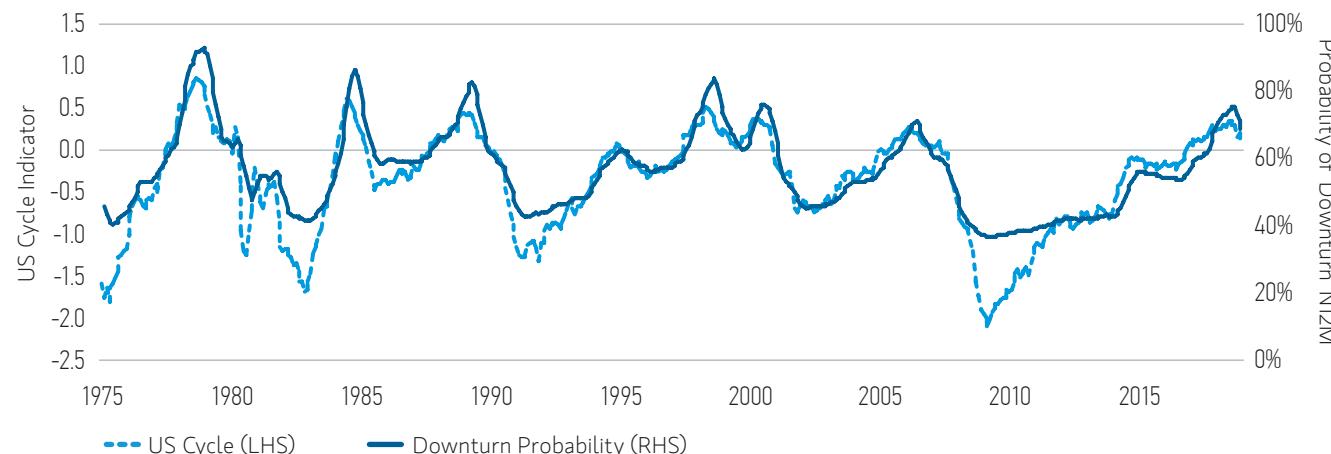
where they’ve observed recent historical outperformance. Today, this would lead to being overweight in U.S. equities.

While recent back-testing might support such an investment decision, we believe that incorporating forward-looking return and risk assumptions might lead to a more diversified portfolio and improved long-term performance.

A Look at the Numbers

Display 6 compares a “base” portfolio of 60% U.S. equities / 40% U.S. bonds to a portfolio that comprises 30% non-US equities, 30% U.S. equities and 40% U.S. bonds. It shows that adding non-U.S. exposure has historically kept portfolio efficiency (as measured by Sharpe ratio) more or less in-line with a U.S.-only

DISPLAY 7
US Cycle Indicator



Source: Morgan Stanley Research as of February 28, 2019

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portfolio, in some cases improving it. Should an index have the ability to rotate amongst asset classes or geographies, we believe there is greater potential to improve performance results over the long term.

Lastly, there are a number of reasons why having the ability to diversify may be useful, particularly when considered in the context of where U.S. markets are currently priced and where the U.S. is in its economic cycle. As illustrated in *Display 7*, Morgan Stanley research suggests there is a 70% chance that

the U.S. will move from expansion to downturn in the next 12 months. This information should be considered when determining optimal portfolio allocation. Furthermore, forward-looking consensus return expectations, including those of Morgan Stanley research, suggest attractive returns for non-U.S. equities, which further reinforces the potential benefit of being able to allocate to non-U.S. equities.

Designing for the Future

In our view, any well-designed index should balance a respect for historical

data with a sensible forward-looking perspective that facilitates responsiveness to changing market dynamics. We think geographic diversification is a prudent and timely consideration. MSIM's approach to Fixed Indexed Annuity design incorporates the flexibility to include both non-U.S. equities and bonds for all of the reasons we've discussed here. Over time we believe having the opportunity to diversify allocations geographically may help smooth out volatility and enhance returns.

DEFINITIONS

Beta: A measure of the volatility or systematic risk of a single security in comparison to the unsystematic risk of an entire market.

Correlation: A statistic measuring the degree to which two securities move in relation to one another.

Portfolio Efficiency: Achieving the optimal level of return given the level of risk assumed.

Sharpe Ratio: A statistic measuring the degree of return achieved per unit of risk taken.

Volatility: A statistical measure of dispersion of returns for a specific security or index.

INDEX DESCRIPTIONS

Barclays Capital US TIPS: all publicly issued, U.S. Treasury inflation-protected securities that have at least one year remaining to maturity, are rated investment grade, and have \$250 million or more of outstanding face value

Bloomberg Barclays US Aggregate: An intermediate term index that includes most U.S. traded investment grade bonds.

FTSE 3M T-Bill: Tracks the daily performance of 3 month US Treasury bills

MSCI ACWI: A market capitalization weighted index designed to provide a broad measure of equity-market performance throughout the world.

MSCI ACWI ex US: A market capitalization weighted index designed to provide a broad measure of equity-market performance throughout the world, excluding the US.

MSCI EAFE: An index that measures the equity market performance of developed markets outside of the U.S. & Canada.

MSCI Emerging Markets: An index used to measure equity market performance in global emerging markets.

MSCI USA: A market capitalization weighted index designed to measure the performance of equity securities in the top 85% by market capitalization of equity securities listed on stock exchanges in the United States.

Russell 1000 Value: A composite of roughly 1,000 large and mid-cap companies located in the United States that also exhibit a value orientation.

Russell 2000: An index designed to measure the performance of the small capitalization companies in the United States equities market. It is a composite of roughly 2,000 securities issued by companies with market capitalization values averaging \$2 billion.

Russell 2000 Value: An index designed to measure the performance of the small capitalization companies in the United States equities market. It is a composite of roughly 2,000 securities issued by companies with market capitalization values averaging \$2 billion that display a value orientation.

S&P 500: A market-capitalization-weighted index of the 500 largest U.S. publicly traded companies, widely regarded as the best gauge of large-cap U.S. equities.

5 Year US Treasury Bill: Debt obligation issued by the US government with a 5-year maturity.

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