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ACROSS THE UNIVERSE

HOW GLOBAL BONDS MEET THE CORE OBJECTIVE

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IN THIS PAPER: Over the last 30 years, compelling evidence has accumulated that suggests currency-hedged global bonds have a superior risk/return profile to US bonds, with more potential opportunities to add value. In addition, global bonds have historically provided better risk mitigation to US bonds and stocks during extreme downturns. In this paper, we demonstrate that hedged global may be a better way to meet an investor's core bond objective.

REBOOT YOUR BONDS

Globalization has been a major trend in the fixed-income markets for the past three decades. Thirty-five years ago, US Treasuries and US corporate bonds dominated the global fixed-income universe, just as bell bottoms and boom boxes ruled popular culture. But this isn't 1978, and it's not all about the US anymore.

Today, despite huge US deficits and massive public debt, US Treasuries represent only about one-quarter of global sovereign debt outstanding. Nearly half of outstanding global corporate credit was issued outside the US in 2015.

However, while the fixed-income markets have become global, investors have been reluctant to invest globally. US investors in particular still show a lot of home-country bias. The core bond strategy for most US-based institutional fixed-income investors remains US-centric.

In this paper, we share the results of our analysis, in which we explain not only why we believe that investors should globalize some or all of their fixed-income assets, but also whether they should hedge non-US currency exposure.

DISPLAY 1: COUNTRY RETURNS VARY SIGNIFICANTLY ACROSS CYCLES

Global Bond Returns (Hedged to USD): Percent

	2010	2011	2012	2013	2014	2015
Best	**UK** 7.2	**UK** 16.1	**Euro Area** 11.2	**Euro Area** 2.5	**UK** 14.2	**Canada** 2.8
	US 5.9	**US** 9.8	**UK** 2.4	**Japan** 2.3	**Euro Area** 13.1	**Euro Area** 1.8
	Canada 5.6	**Australia** 8.9	**Japan** 2.2	**Australia** −2.4	**Australia** 8.3	**Japan** 1.7
	Japan 2.9	**Canada** 8.3	**US** 2.0	**US** −2.7	**Canada** 6.5	**US** 0.8
	Euro Area 1.0	**Euro Area** 2.7	**Canada** 1.4	**Canada** −3.1	**US** 5.1	**Australia** 0.1
Worst	**Australia** 0.3	**Japan** 2.6	**Australia** 1.4	**UK** −4.4	**Japan** 4.7	**UK** −0.3
Gap between best and worst	6.9	13.5	9.8	6.9	9.5	3.1

Past performance does not guarantee future results.
Returns represented by respective Barclays government bond indices within each country
Source: Barclays and AB

Take steps to improve your risk-adjusted return.

THE POTENTIAL BENEFITS OF A BIGGER POND

The most obvious potential benefit to globalizing comes from a significantly increased opportunity set. The Barclays US Aggregate Bond Index as of year-end represents about $18 trillion in outstanding debt and about 10,000 issues. Its global counterpart, the Barclays Global Aggregate Bond Index, clocks in at about two and a half times that size: $43 trillion in outstanding debt and more than 17,000 issues. That's a much bigger pond to fish in.

Going global in debt also diversifies an investor's economic and interest-rate risk. A US-only investor is affected by one business cycle, one yield curve and a single monetary policy. Globally, there are many different countries, economic cycles, business cycles, monetary policies and yield curves. And although over short periods these cycles may closely align, over long periods the economic and business cycles of these countries have not been highly correlated.

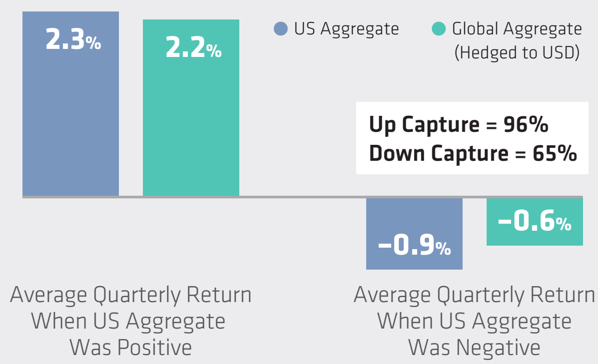
We've illustrated the potential diversification benefits of going global in *Display 1*. This "quilt chart" shows annual hedged returns of various countries' bond markets over the past five years. (That they are hedged returns is important, because—spoiler alert—hedging will be key to our global approach in a core bond framework.)

Two features of this chart are striking. First, the array of returns, from top to bottom, differs every year. That's because business and interest-rate cycles vary from country to country. Second, the gap—that is, the difference between the best-performing country and the worst-performing country each year—is big. For example, in 2015 Canada outperformed the UK by 3.1%.

If we were to examine the gap between the sector returns of the typical US core or core-plus option—the returns of US Treasuries, agencies, mortgages, corporates and other sectors in the US Aggregate, for example—in most years (barring the extremes of 2008 and 2009), we would see a difference of just a couple of percentage points between the best- and worst-performing sectors.

DISPLAY 2: GLOBAL BONDS HAVE PRESERVED MORE CAPITAL DURING DOWN PERIODS

Global Bonds' Up Capture/Down Capture



Past performance does not guarantee future results.
March 1990–December 2015
Source: Barclays and AB

So having such a large gap between country returns provides much more potential opportunity for an active manager to add value in a global portfolio: to use research to overweight countries that are likely to perform better and to underweight countries that are likely to underperform.

But that's not the only potential advantage. As *Display 2* shows, the historical "up/down capture" of hedged global bond returns compared with US returns is very compelling. In this display, we've sorted quarterly returns over a 25-year stretch into periods when the US Aggregate was positive and periods when it was negative. During those times, just how well or how poorly did the US Aggregate do, and how was the hedged Global Aggregate doing?

WHAT DOES CURRENCY HEDGING COST?

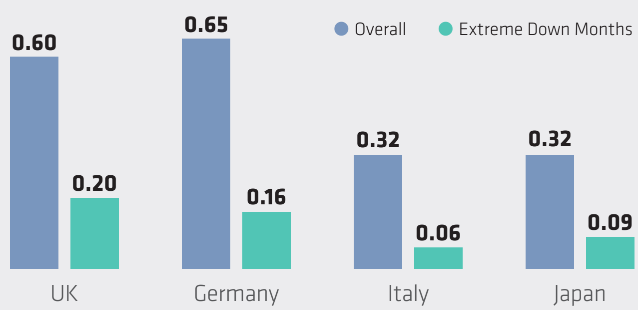
We hedge via the currency forward markets, which are among the most liquid markets in the world. Because the foreign exchange markets are highly liquid, the transaction cost of executing a hedge is very little—on the order of one to two basis points to initiate a hedge from a developed-market currency into US dollars, then an eighth to a quarter of a basis point to roll that same hedge forward as needed. Let's look at an example to understand how a transaction works.

When we purchase a German bund, it's denominated in euros. We have to pay for the bund in euros, but we have US dollars in hand. So we go into the currency forward market and buy the euros we need with our dollars. We then sell forward those euros two or three months, back to the US dollar. This is a common trade. We engage in it daily—so often that we have a group of traders who do nothing but currency hedging across all our portfolios.

While executing this hedge is inexpensive, there is often a noticeable yield differential between a hedged and an unhedged portfolio. Depending on the relative levels of short-term interest rates—which affect the cost of hedging a bond from one currency to another—sometimes the unhedged portfolio has a lower yield, while at other times the hedged portfolio has a lower yield. That is sometimes mistaken for the cost of hedging. As we've already seen, the long-term historical return for hedged and unhedged portfolios is roughly comparable.

DISPLAY 3: GLOBAL BONDS HAVE DIVERSIFIED, ESPECIALLY WHEN NEEDED

Correlation to US Treasuries, Using Returns Hedged to USD



Past performance does not guarantee future results.
Through December 31, 2015
Extreme down months are months when the Barclays Treasury Index return was more than one standard deviation below its sample mean. US Treasury Index and treasury indices for UK, Germany, Italy and Japan since January 1987 are from Barclays.
Source: Barclays, Global Financial Data and AB

We see that when the US Aggregate was positive, it returned, on average, 2.3%. The hedged Global Aggregate performed almost as well during those same quarters, capturing 96% of that performance. We call that the "up capture."

When the US Aggregate was negative, it returned, on average, –0.9%. While the hedged Global Aggregate was also negative, it returned only –0.6% on average. That "down capture" represents just 65%.

That's a noteworthy skew. Investors preserved more of their capital during down periods by globalizing, by allocating assets away from the US into other countries where rates weren't rising as much, or where they were stable or even declining.

GLOBAL INVESTING CAN HELP TO MITIGATE RISK

There's another way of looking at this as well, from the perspective of risk mitigation. In this analysis, rather than compare the Barclays Aggregate indices, we've used sovereign bonds in order to capture a very long history. In *Display 3*, we've compared the diversification benefits of US Treasuries with bonds issued by the governments of the UK, Germany, Italy and Japan since 1987. It's evident that, as there is only a modest amount of correlation—particularly during Extreme Down Months—investors have been getting pretty significant diversification benefits.

But what's more important than the overall average correlation shown in the purple bars is the data shown in the teal bars. That data set represents correlation during extreme down months for US Treasuries. During those periods, correlation shrank, in some cases dramatically—and the diversification benefit increased. That means investors got more risk mitigation from being global when they needed it most.

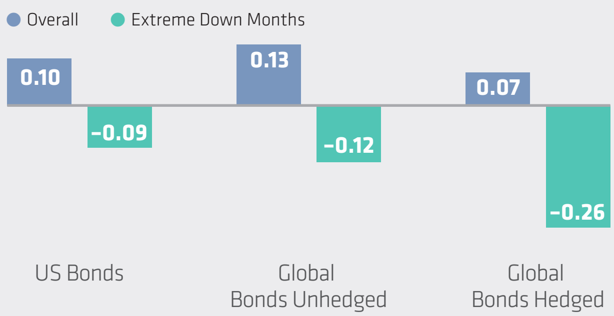
And within a multi-asset-class framework—that is, when you look beyond a bonds-only portfolio—what has served as a better anchor to windward? What provided better risk mitigation to stocks: US bonds or hedged global bonds?

Display 4, next page, shows the correlations of US bonds and unhedged and hedged global bonds to the S&P 500 since 1987. (We used this period in order to capture as many historical stock-market crashes as we could in our data set—including the crash of 1987.) On average, overall correlations (as represented by the blue bars) are low for both US and hedged global bonds—around 0.1, with a modest advantage to hedged global bonds. That's good; it's why we own bonds in the first place, when we have an exposure to equities.

There's more opportunity for a manager to add value.

DISPLAY 4: HEDGED GLOBAL BONDS HAVE BEEN A BETTER STOCK DIVERSIFIER, ESPECIALLY IN CRISES

Bond Correlation to S&P 500, 1987–2015



Past performance does not guarantee future results.
US Bonds is represented by the Barclays US Aggregate. Global Bonds is represented by the Barclays Global Aggregate Index (unhedged or hedged in USD).
Extreme down months are months when the S&P 500 return was more than one standard deviation below its sample mean. Correlations are estimated based on monthly returns for the full period for the "overall" case and returns in the extreme down months for the "extreme down months" case. The sample mean and standard deviation are estimated based on monthly S&P 500 returns.
Source: Barclays, S&P and AB

But what happens in extreme down months for stocks, when we need the diversification benefit most? The teal bars show that during periods when the return of the S&P 500 was more than one standard deviation below the norm, the US Aggregate became negatively correlated with equities, around –0.1. But hedged global bonds saw an even greater advantage. Their correlation fell to –0.3 as their diversification benefit improved dramatically.[1]

In *Display 5*, we've drilled down into three specific periods of upset for US equity markets. The first is the oil shock of 1973 to 1974. During that time, the S&P 500 was down 27%. US bonds provided some risk mitigation, but German and especially Japanese bonds offered significantly more mitigation from US equity risk drag.

The same sort of scenario occurred with the crash of 1987, when in a very short time the S&P 500 fell nearly 30%. A US core bond allocation helped some, but a much better opportunity set was to be found outside the US.

In the third example, the credit crisis of late 2007 through early 2009, the S&P was down 41%. In this most recent case, the global reaction was to shift to US-dollar-based investments. As a result, the best risk mitigation came from US bonds, though there were some excellent diversifiers abroad as well.

DISPLAY 5: GLOBAL BONDS HAVE PROVIDED MORE WAYS TO WIN WHEN STOCKS ARE DOWN

Government Bond Returns

From	To	**S&P 500**	US	UK	Germany	Italy	Japan
1/31/1973	9/30/1974	**–27.2%**	3.4%	0.6%	7.4%	4.4%	13.5%
9/30/1987	11/30/1987	**–29.6%**	2.4%	8.7%	3.5%	2.9%	3.3%
11/30/2007	2/27/2009	**–41.4%**	9.8%	7.5%	8.8%	4.1%	6.1%

Past performance does not guarantee future results. The time periods shown represent periods in which stock returns, as represented by the S&P 500, were severely depressed over the past 40 years. The chart illustrates how the government bonds of certain countries performed during these periods of stock-market distress. Treasury index for US since January 1973 and treasury indices for UK, Germany, Italy and Japan since January 1987 are from Barclays. Returns prior to 1987 are based on Global Financial Data and AB research. Local-country returns are hedged to USD.
Source: Barclays, Global Financial Data, S&P and AB

1 As we saw earlier, a global bond allocation also provides the active manager significantly more opportunity to add value compared with US bonds. Active management is, of course, not captured in these analyses, which are based on historical index data.

This analysis clearly shows that US bonds (or UK bonds or German bunds or Japanese bonds) won't always provide the best returns. By the same token, US bonds (or UK bonds or German bunds or Japanese bonds) won't always provide the best risk mitigation. That's why we believe a global bond portfolio with built-in flexibility for the active manager is a better approach.

THOUGHTFULLY MEETING INVESTOR OBJECTIVES

We believe that the traditional 60/40 equity/bond schema for asset allocation is dying a natural death. The two-asset model is overly simplistic in a world replete with investment choices, where cross-correlations even within individual asset classes matter enormously. Whatever choice one makes—even if it is to stay put—there will be consequences.

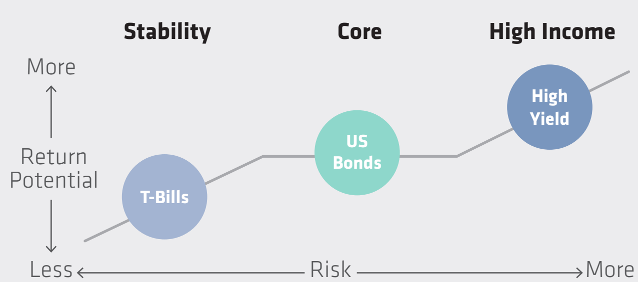
But while moving beyond the 60/40 model may sound daunting, there is still a straightforward way to assess and meet investor needs. We consider our investment services and solutions in terms of meeting an investor's objectives.

Among the most common of investor objectives is **stability**. The need for stability is greatest when the time horizon until the money is required for use is very short, perhaps 18 months or less. Investors with an objective of stability cannot afford to risk principal. That translates into not being able to take much interest-rate risk or credit risk; in other words, the appropriate service for an investor with a stability objective is a short-term, high-quality service. The stability objective appears at the lower left of our risk-return spectrum (*Display 6*).

At the other end of the fixed-income spectrum is **high income**. Typically, higher income (and, over the long run, higher return) comes from lower-quality securities, such as high-yield corporates and below-investment-grade emerging-market debt. Unlike core, these volatile sectors have a higher correlation with equities and other risk assets.[2]

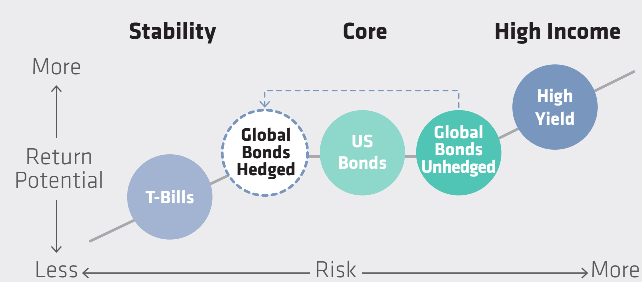
Between the stability objective and the high-income objective lies the **core** objective. We define core assets as assets whose value tends to perform substantially better when the value of risk assets declines. When market volatility is high, and equities and high yield are

DISPLAY 6: US BONDS WERE TRADITIONALLY SEEN AS "CORE"



Source: AB

DISPLAY 7: GLOBAL BONDS CAN ALSO BE "CORE"



Source: AB

2 If we were to extend the risk-return spectrum further to the right, we would encounter equities; together, high-income strategies and most equities comprise a return-seeking category. Stability and core services comprise most of the risk-reducing category. Alternative investments, which include certain fixed-income strategies as well as real asset strategies, hedged funds and private equity, form a distinctive grouping that provides significant nontraditional diversification against both the risk-reducing and return-seeking categories.

exhibiting a lot of volatility and not doing well, investors want to have an anchor in their portfolio that has the potential to mitigate those risk assets' poor returns. That "anchor to windward" is core.

Most US investors have opted for a US core or core-plus portfolio when establishing a core strategy. Some, however, have begun to adopt global fixed income. These are investors who already understand the potential benefits we've outlined and who are diversifying away from US interest-rate risk.

Unfortunately, what we've observed is that many adopters of global fixed income have been subjected to a lot more volatility than they anticipated. Their objective remained core, but their volatility increased, putting them into the risk assets category, along with investors seeking high income. How could that be?

The error comes in buying global bonds that aren't hedged. As we explain below, currencies have historically been significantly more volatile than bonds. As a result, an unhedged global bond approach has failed to fulfill the core objective. Remember, core assets must exhibit low volatility in order to serve as anchor to windward.

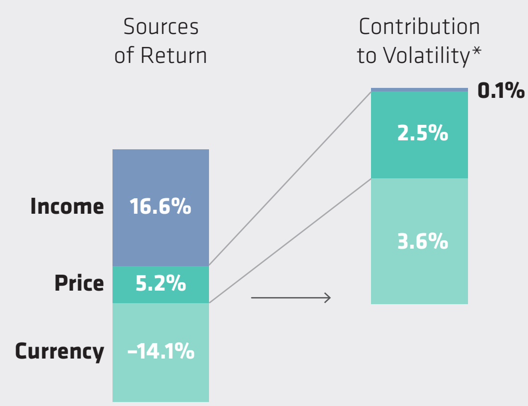
However, once the currency risk is hedged, the overall risk of the global bond portfolio declines sharply, without sacrificing return (*Display 7, previous page*), putting hedged global bonds squarely in the core column. (*See sidebar "What Does Currency Hedging Cost?" on page 4*.)

GLOBAL BONDS' RISK/RETURN PROFILE: A CLOSE EXAMINATION

Let's examine how the various sources of return and contributors to risk within hedged and unhedged global bonds comprise their very different risk/return profiles. Hedged or unhedged, global or US, most of a bond investor's return comes from income (*Display 8*), from consistently—except in the event of default—receiving a coupon payment year in and year out. A little less return comes from fluctuation in price. And currency actually averaged a negative return over long periods.

DISPLAY 8: CURRENCY IS A MUCH MORE VOLATILE FACTOR THAN INCOME

Global Bonds Unhedged



For illustrative purposes only

* Five-year volatility as represented by the annualized standard deviation for January 2011 through December 2015 for Barclays Global Aggregate Bond Index

An investor cannot invest directly in an index and its performance does not reflect the performance of any AB portfolio. The unmanaged index does not reflect fees and expenses associated with the active management of a portfolio.

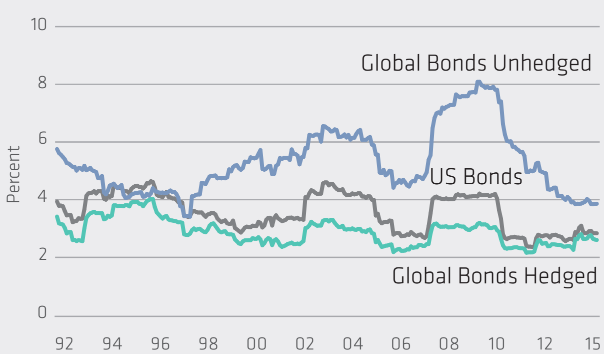
Source: Barclays and AB

Compare these sources of return on the left with the contribution to volatility on the right. With income, we know we're going to get the coupon: it's set. As a result, income's contribution to volatility is very, very low. Volatility due to change in price is somewhat larger. But the contribution to volatility from currency dwarfs the other sources. When this volatile component is hedged away, the overall volatility of the bond should decline meaningfully.

And it has. *Display 9, next page*, shows the volatility of both global bond approaches—hedged and unhedged—as well as US core

DISPLAY 9: HEDGED BONDS HAVE BEEN SIGNIFICANTLY LESS VOLATILE...

Volatility*



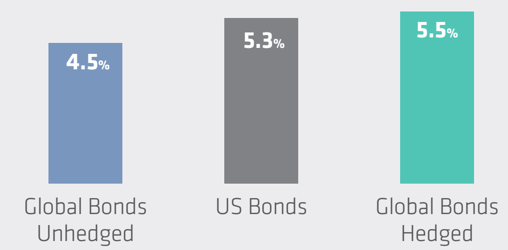
Past performance does not guarantee future results.
Through December 31, 2015
***** Three-year rolling standard deviation
Global bonds unhedged are represented by Barclays Global Aggregate unhedged. US bonds are represented by Barclays US Aggregate. Global bonds hedged are represented by Barclays Global Aggregate hedged to USD.
Source: Barclays and AB

bonds over time. The unhedged global approach (represented by the Global Aggregate unhedged) has been by far the most volatile series, with volatility akin to that of the high-income objective, not the core objective.

US bonds (represented by the US Aggregate) have been much less volatile. And perhaps somewhat surprisingly (or not, once we recall the benefits of global diversification across differing business and economic cycles), the hedged global approach (represented by the Global Aggregate hedged to the US dollar) has had the lowest volatility of the three series.

DISPLAY 10: ...WITH BETTER RISK-ADJUSTED RETURNS

Annualized Returns, 20 Years Ending December 31, 2015



Sharpe Ratio	**0.4**	**0.8**	**1.1**

Past performance does not guarantee future results.
Global bonds unhedged are represented by Barclays Global Aggregate unhedged. US bonds are represented by Barclays US Aggregate. Global bonds hedged are represented by Barclays Global Aggregate hedged to USD.
Source: Barclays and AB

Does this lower volatility translate into dampened returns? Recalling currency's historically insubstantial contribution to return over long periods, and knowing that the cost of hedging is extremely low (see sidebar), we should be assured that it does not. However, our analysis confirmed this by looking at annualized returns over the same long period we'd examined for historical volatility, to see just how well the three approaches—global unhedged, US and global hedged—stacked up (*Display 10*).

All three fared roughly the same in terms of raw annualized returns. But the risk-adjusted returns tell the full picture. The Sharpe ratio, which measures return per unit of risk, climbs from global unhedged at 0.4 to US at 0.8 to global hedged at 1.1.

Hedged global bonds, in risk-adjusted-return terms, come out the clear winner in the historical data. In the context of risk-adjusted returns, global hedged is simply a better way to meet the core objective.

Global hedged: comparable return, less risk.

IS THERE AN IDEAL ALLOCATION?

As investors begin to migrate some of their core bond allocation into hedged global bonds, what happens to the core bond allocation's risk-adjusted return? What do incremental changes achieve? Is there an ideal allocation to hedged global bonds?

Display 11 shows that as we shift from a fully US portfolio on the left to a fully global (hedged) portfolio on the right, not a lot happens to return. However, because of the increased diversification of the global portfolio, the volatility declines quite significantly. As the US holdings decrease from 100% to 90% of the portfolio, the risk begins a steady decline.

As a result, any increased allocation to global improves potential risk-adjusted return. There is no "sweet spot," nor does an investor need to move to 100% hedged global to see results; a 10%, 20% or 50% allocation will show improvement in potential risk-adjusted reward, based on our analysis.

CONCLUSION: A BETTER SOLUTION

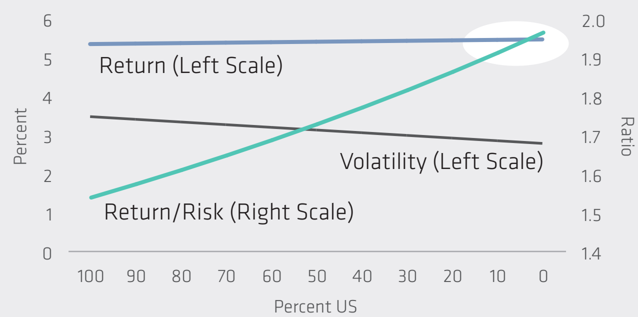
So tap into the potential power of diversification: seek to preserve more capital during down US bond markets and mitigate risk better in down equity markets. Open a much broader opportunity set to active managers so rigorous research can help build more assets over time. And properly align the investor objective—in this case, an offset to equity volatility—with the risk/return profile of the service. We believe that means choosing hedged global rather than unhedged, because investors should not experience high volatility in their low-volatility service.

At a time when investors are seeking to control risk and enhance returns, we believe hedged global bonds can help improve outcomes.

DISPLAY 11: HOW MUCH GLOBAL?

Using Returns Hedged to USD

1996-2015



For illustrative purposes only

As of December 31, 2015

Represented indices: Barclays US Aggregate and the Barclays Global Aggregate (Hedged to USD)

An investor cannot invest directly in an index and its performance does not reflect the performance of any AB portfolio. The unmanaged index does not reflect fees and expenses associated with the active management of a portfolio.

Source: Barclays Capital and AB

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