WISDOMTREE®

MANAGING RISK IN THE EMERGING MARKETS

+ Authored by

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Incorporating Emerging Market Corporate Bonds denominated in U.S. Dollars (without EM Currency Risk) into EM Equity Allocations has historically been Shown to Reduce Volatility

Emerging (EM) markets are widely expected to make up a greater share of the world's economic growth going forward.[1] In particular, we believe emerging market corporations are strategically positioned to benefit from this next phase of growth. Traditionally, investors have focused on exposure to emerging market corporations almost exclusively through equities. The long-term potential returns inherent in such investments are offset by significant near-term risk.[2] These risks may have limited the degree of comfort with which investors might consider adding high conviction, larger portfolio allocations to emerging markets.

The emergence of emerging market corporate bonds as a distinct asset class allows investors to more finely target a desired risk tolerance to their overall emerging market exposures. Our analysis in this piece will show:

+ **How a hypothetical allocation of 50% MSCI Emerging Markets Index (hereafter "MSCI EM") and 50% JPMorgan CEMBI Broad Index (hereafter "EM Corporates") produced risk levels[3] similar to that of the S&P 500 Index (hereafter "U.S. Equities"). We make this comparison because it illustrates how these emerging market asset classes measure up relative to U.S. Equities within a portfolio context.**
+ **How the WisdomTree Emerging Markets Equity Income Index (hereafter "WTEMHY"), when combined in hypothetical blended allocations with EM Corporates, provided a further boost to the risk and return trade-offs observed through the hypothetical blends of MSCI EM and EM Corporates. WTEMHY's market cap-weighted benchmark is the MSCI EM, and, as such, we wanted to flesh out potential differences in risk-adjusted performance within a portfolio context.**
+ **How hypothetical blended allocations of EM Corporates and WTEMHY provided attractive income levels[4] when compared to traditional U.S.-focused asset classes typically used to generate income in portfolios. Specifically, we chose the U.S.-focused asset classes as widely referenced measures of income levels on high-quality U.S. fixed income as well as on U.S. Equities.**

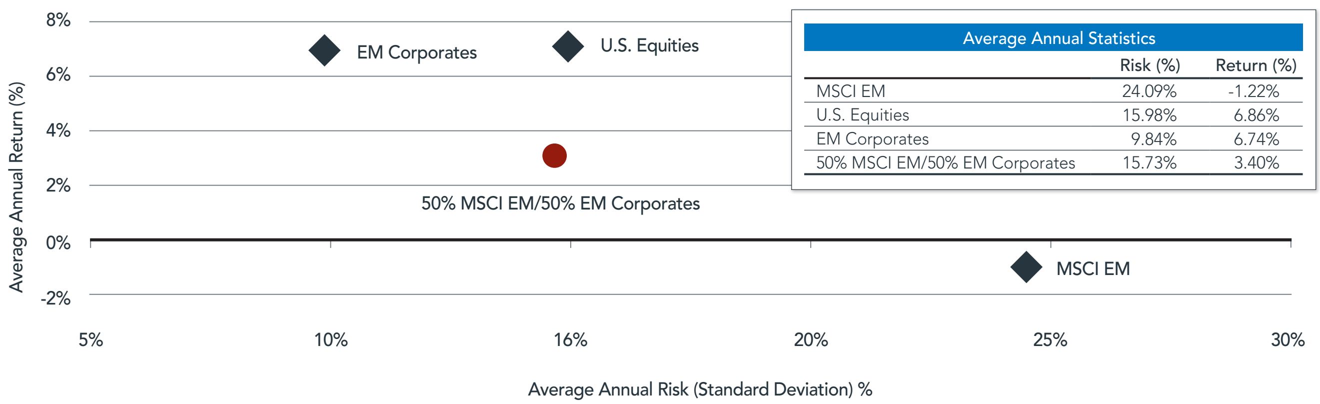
It is important to state that the conclusions of this piece are reached using index-level data and returns. Investors cannot invest in indexes, and index returns do not account for potential fees, costs and other expenses that may reduce returns.

[1] Source: International Monetary Fund (IMF), 2013.
[2] Risk: Standard deviation, a measure of the dispersion of returns about a particular average. A high standard deviation means a higher chance of being farther away from that average during any given time period.
[3] Risk levels: Specifically, a similar standard deviation. Over this particular period, the hypothetical 50/50 allocation did produce a similar average annual standard deviation as U.S. Equities (S&P 500 Index). Emerging market asset classes are subject to unique risks, and this is by no means a guarantee that the 50/50 allocation will always produce a similar average annual standard deviation as would U.S. Equities.
[4] Income levels: Measured through a weighted average of the yield to maturity of EM Corporates and the trailing 12-month dividend yield of WTEMHY.

Investments in emerging, offshore or frontier markets are generally less liquid and less efficient than investments in developed markets and are subject to additional risks, such as risks of adverse governmental regulation, intervention and political developments.

50/50 MIX: A COMBINATION OF EMERGING MARKET EQUITIES AND BONDS THAT WAS SIMILAR IN RISK TO U.S. EQUITIES

FIGURE 1: ASSET CLASS RISK & RETURN [Average Annual Risk and Return of EM Asset Blend vs. U.S. Equities, 12/31/2007–9/30/2016]



Average Annual Statistics	Risk (%)	Return (%)
MSCI EM	24.09%	-1.22%
U.S. Equities	15.98%	6.86%
EM Corporates	9.84%	6.74%
50% MSCI EM/50% EM Corporates	15.73%	3.40%

Sources: Bloomberg, JPMorgan, Zephyr StyleADVISOR
Past performance is not indicative of future results.
You cannot invest directly in an index. Index performance does not represent actual fund or portfolio performance. A fund or portfolio may differ significantly from the securities included in the index. Index performance assumes reinvestment of dividends but does not reflect any management fees, transaction costs or other expenses that would be incurred by a portfolio or fund, or brokerage commissions on transactions in fund shares. Such fees, expenses and commissions could reduce returns.

Figure 1 shows the average annual returns of MSCI EM, U.S. Equities, and EM Corporates from December 31, 2007, through September 30, 2016, a period which is limited by the live data availability for the JPMorgan Index. We also indicate the average annual risk and return statistics of a hypothetical 50% MSCI EM/50% EM Corporates allocation over the same period.

While MSCI EM has a good long-term track record, the time period shown has been characterized by high levels of volatility, with MSCI EM lagging U.S. Equities over this period. MSCI EM also exhibited average annual risk levels that were 51% greater than U.S. Equities. Over the same period, EM Corporates posted stronger returns with significantly less volatility than U.S. Equities. It is also worth noting that the MSCI EM Index is subject to the risk of EM currencies moving relative to the U.S. dollar; meaning dollar appreciation has the potential to create a headwind. Since EM Corporates are denominated in U.S. dollars, this is an important differentiating factor; a factor that has had meaningful impact over the past few years

A hypothetical allocation that was comprised of 50% MSCI EM and 50% EM Corporates generated a risk level similar to that of U.S. Equities, as is shown in figure 1.

- **Yet the hypothetical 50% MSCI EM/50% EM Corporates allocation had more than 4.6% higher average annual returns and nearly 8.4% lower average annual volatility than a hypothetical allocation of 100% to MSCI EM.**
- **The hypothetical 50% MSCI EM/50% EM Corporates allocation had similar average risk to that of U.S. Equities.**

THE 2008 STRESS TEST

Live data for EM Corporates allows for a closer examination of asset class performance in 2008, a year many view as an important stress test. The real question certainly is how a hypothetical allocation involving EM Corporates would have performed. It is important to note that investors cannot actually invest in indexes and that these returns do not account for costs, fees or other expenses.

FIGURE 2: ZOOMING IN ON CALENDAR YEAR RETURNS: PERFORMANCE DURING 2008

[Graphic Representation of Calendar Year and Cumulative Performance, 12/31/2007–12/31/2015]

	2008	2009	2010	2011	2012	2013	2014	2015	Cumulative
U.S. Equities	-37.0%	26.5%	15.1%	2.1%	16.0%	32.4%	13.7%	1.4%	65.7%
MSCI EM	-53.3%	78.5%	18.9%	-18.4%	18.2%	-2.6%	-2.2%	-14.9%	-22.6%
EM Corporates	-16.8%	37.5%	12.5%	3.0%	15.2%	-1.3%	3.6%	1.2%	57.9%
50% MSCI EM/50% EM Corporates	-35.1%	58.0%	15.7%	-7.7%	16.7%	-1.9%	0.7%	-6.9%	17.5%

Sources:Bloomberg, Zephyr StyleADVISOR
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- **MSCI EM shows how it earned the highest average annual volatility in figure 2. It declined the most in 2008, followed by the strongest gains in 2009. However, returns subsequent to 2008 were not positive enough to overcome the 53.3% decline it experienced in 2008; thus it had a cumulative return of approximately -22.6% over the entire period.**
- **EM Corporates also exhibited a decline in 2008, but by the end of 2009 positive territory had been regained. EM Corporates ended the eight-year period with a positive cumulative gain of 57.9%.**
- **The hypothetical 50% MSCI EM/50% EM Corporates allocation experienced a decline in 2008 that was similar to but slightly less pronounced than that of U.S. Equities. This blended allocation did have a positive cumulative return over the eight-year period of almost 17.5%.**

The takeaway: EM Corporates represent an asset class that provides additional exposure to emerging markets but has mitigated volatility during tough periods for the equity markets, such as the one witnessed during the recent financial crisis.

FURTHERING THE CASE FOR EMERGING MARKETS CORPORATE BONDS

Having illustrated one of the key features of emerging market corporate bonds as a risk management tool, we need to step back and discuss how EM Corporate bonds might compare to other emerging market bonds that investors have considered in the past.

EM Corporates offer value and diversification relative to dollar-denominated emerging market (EM) sovereigns.

Past investments in emerging market bonds have largely focused on government debt—a market initially financed in U.S. dollars. There is a wide familiarity with this particular segment of emerging market fixed income, the performance of which is measured by the JPMorgan Emerging Market Bond Index (hereafter "EM Sovereigns"). In recent years, considerable improvements in EM government balance sheets and increasing credibility in monetary policy have led many governments to finance themselves in their own currencies rather than in U.S. dollars. The issuance of local currency debt has grown significantly at the expense of the issuance of dollar-denominated sovereign bonds. As a result, opportunities for EM corporations issuers to issue debt denominated in U.S. dollars to global investors have expanded dramatically. We compare EM Corporates to EM Sovereigns denominated in U.S. dollars, as they both lack the local currency exposure.

Similarities in Dollar Denomination and Depth of Market: EM Corporates are issued and traded in U.S. dollars and feature issuers across the emerging market world. EM Corporates contained a much larger number of issuers than the EM Sovereigns despite their exposure to twelve fewer countries as of September 30, 2016. While issuance in EM Sovereigns has been waning, issuance of EM corporations has been increasing over the last few years. Operationally, both debt segments feature relatively large issues and benefit from deep markets[5] with sizable trading volumes.

[5] Market depth signifies that larger orders can trade without undue impact on market prices.

Duration and Credit Differences: In aggregate, EM Corporates tend to offer lower sensitivity to movements in interest rates compared to EM Sovereigns, shown in figure 3 through the measure of a shorter duration[6] (5.0 years vs. 7.1 years as of 9/30/2016). Additionally, EM Corporates offer more exposure to investment-grade credits than do EM Sovereigns. Credit ratings provide guidance on the potential for debt issuers to be unable to service their debt due to lack of revenue. Compared to a government with a single source of revenue (taxation), corporations have multiple sources of revenue as they expand their distribution channels for sales and grow their businesses. However, by operating in emerging market countries, emerging market corporations could face increased risks of government intervention or changes in the political climate. The additional political risk of investing in emerging markets is something that adds to the credit risk profile and why an effective risk management strategy could be especially important for this region.

FIGURE 3: EM CORPORATES VS. EM SOVEREIGNS—COMPARISON OF U.S. DOLLAR-DENOMINATED EM BONDS [As of 9/30/2016]

	EM Corporates	EM Sovereigns
Market Reference Index	JP Morgan CEMBI Broad Index	JP Morgan Emerging Market Bond Index
Market Size[7] (USD billions)	$846	$785
Yield to Maturity (%)[8]	5.13%	5.25%
Duration (years)	4.95	7.07
Investment Grade % of Universe[9]	59%	58%
Currency Denomination[10]	USD	USD
Average Issue Size (USD millions)[11]	$717	$1,469
Number of Issuers[12]	542	134
Number of Countries[13]	51	63

Sources: JPMorgan, Western Asset Management
Past performance is not indicative of future results.

[6] Duration: A measure of a bond's sensitivity to interest rate movements. Specifically, a duration of 5.0 indicates that for a 1.00% rise in interest rates, bond value would be expected to drop approximately 5.0%. Longer duration is indicative of greater sensitivity to interest rates.
[7] Market size: The aggregate sum of the value of bonds issued and included within each respective universe.
[8] Yield to maturity: A measure of bond returns accounting for both the bond's potential price appreciation to its par value as well as its coupon payments. Higher yields to maturity, barring default, are indicative of greater potential returns.
[9] Investment grade % of universe: The percentage of the aforementioned market size that is rated an investment grade credit by either Moody's or Standard & Poor's.
[10] Currency denomination: Currency in which the bonds are issued.
[11] Average issue size: The average size, in terms of U.S. dollar value, that a firm brings to market for borrowing purposes at a particular time.
[12] Number of issuers: For EM Corporates, the number of distinct corporate issuers. For EM Sovereigns, the number of distinct sovereign issuers. A sovereign issuer is distinct from a country.
[13] Number of countries: The number of countries in which issuers within each universe are domiciled.

INCORPORATING DIVIDEND-PAYING EQUITIES FURTHER REDUCED RISK AND ENHANCED RETURNS

Providing unique tools that help manage the risk to emerging markets is something WisdomTree has been focused on since the summer of 2007. The firm first became known for helping to manage the risk of emerging market equities through the use of dividend-paying stocks in WTEMHY, which was incepted on June 1, 2007. Coincidentally, this was right in time for a critical stress test of its methodology with the start of the global financial crisis.

In this section, we show various hypothetical allocations to WTEMHY paired with EM Corporates that range from 100% WTEMHY to 100% EM Corporates. For comparison, we also show hypothetical allocations broken down by the same percentage exposures involving MSCI EM and EM Corporates. The period studied begins December 31, 2007, and ends September 30, 2016. It is important to reiterate that one cannot invest in an index and that these hypothetical allocations are calculated without accounting for costs, fees or other expenses.

FIGURE 4A: NORTH BY NORTHWEST: HOW WTEMHY IMPROVED THE RISK/RETURN TRADE-OFF

[Risk & Return—Various WTEMHY and MSCI Emerging Markets Index Blends with JPMorgan CEMBI Broad, 12/31/2007–9/30/2016]

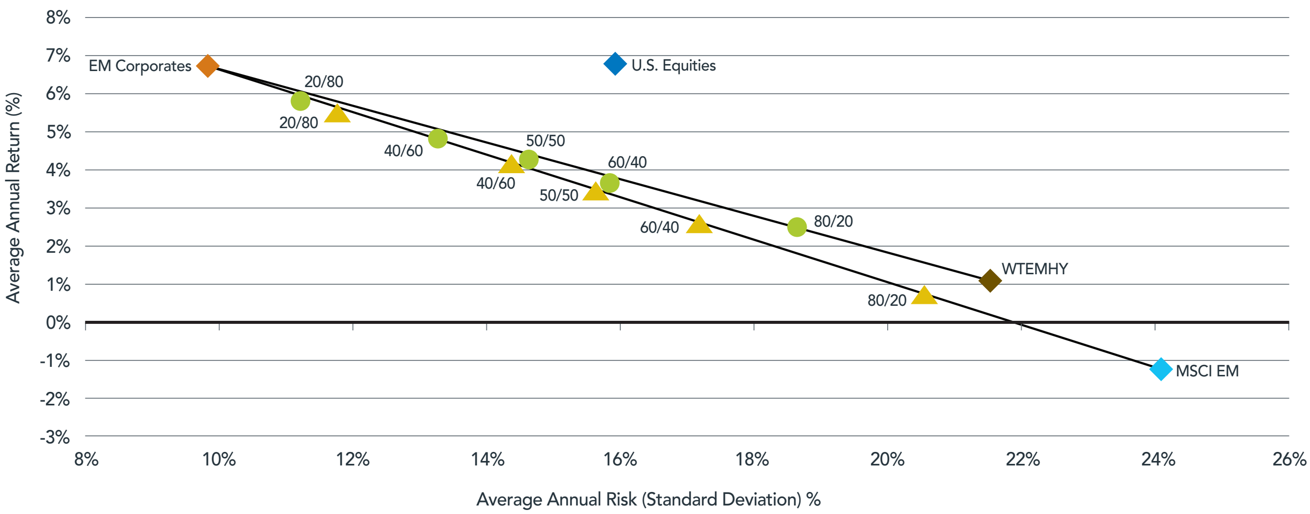

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FIGURE 4B: AVERAGE ANNUAL RISK AND RETURN STATISTICS [12/31/2007–9/30/2016]

Blended Hypothetical Allocation	Risk (%)	Return (%)	Sharpe Ratio[14]	Blended Hypothetical Allocation	Risk (%)	Return (%)	Sharpe Ratio[14]
WTEMHY	21.55%	1.18%	0.04	MSCI EM	24.09%	-1.22%	-0.06
● 80% WTEMHY/20% EM Corporates	18.61%	2.49%	0.12	▲ 80% MSCI EM/20% EM Corporates	20.54%	0.81%	0.03
● 60% WTEMHY/40% EM Corporates	15.86%	3.69%	0.21	▲ 60% MSCI EM/40% EM Corporates	17.26%	2.60%	0.13
● 50% WTEMHY/50% EM Corporates	14.57%	4.26%	0.27	▲ 50% MSCI EM/50% EM Corporates	15.73%	3.40%	0.20
● 40% WTEMHY/60% EM Corporates	13.37%	4.80%	0.34	▲ 40% MSCI EM/60% EM Corporates	14.29%	4.16%	0.27
● 20% WTEMHY/80% EM Corporates	11.29%	5.82%	0.49	▲ 20% MSCI EM/80% EM Corporates	11.74%	5.54%	0.45
EM Corporates	9.84%	6.74%	0.66	EM Corporates	9.84%	6.74%	0.66
U.S. Equities	15.98%	6.86%	0.41	U.S. Equities	15.98%	6.86%	0.41

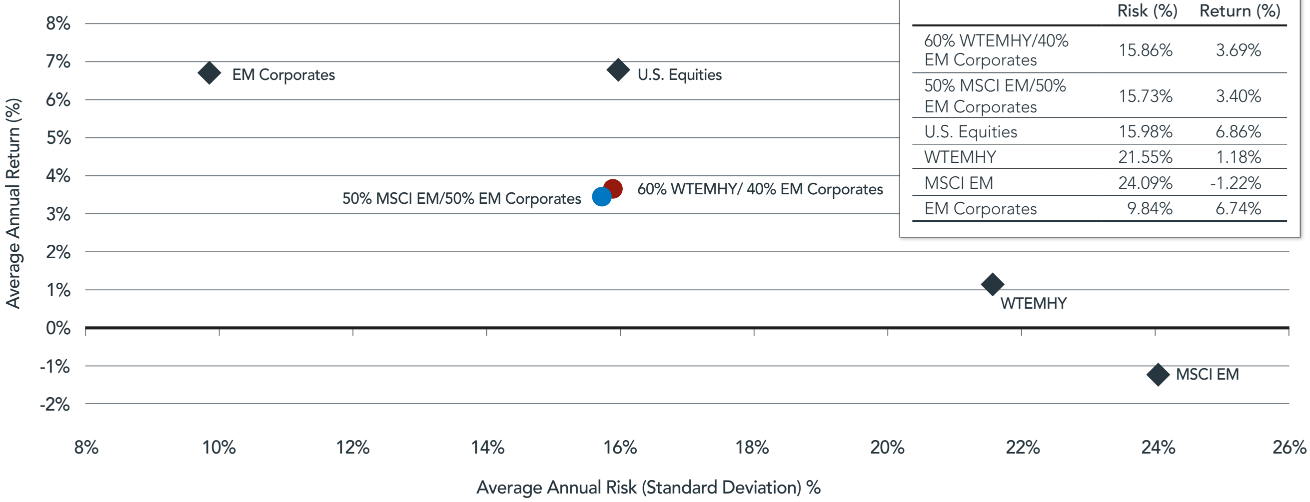
Sources: Bloomberg, Zephyr StyleADVISOR
Past performance is not indicative of future results.

- **The 100% WTEMHY allocation had an average annual return that was 2.4% higher than that of MSCI EM, and it accomplished that with a volatility that was 2.54% per year lower. That was a clear illustration of the potential risk reduction benefit of a dividend-focused approach during a period that was challenging for equity investors in the region.**
- **Moving Up and Left: When comparing the equivalent equity/debt percentage breakdowns of the hypothetical allocations (e.g., 80/20 WTEMHY/EM Corporates to 80/20 MSCI EM/EM Corporates), utilizing WTEMHY as opposed to MSCI EM, pulls each point in the chart upward and to the left. This movement indicates an increase in average annual performance and a lower average annual risk over the period analyzed.**
- **Mitigation of Currency Risk: With the uptick in global central bank activity leading to the potential for large fluctuations in the value of various EM currencies relative to the U.S. dollar, blending EM Corporates with EM equities, whether it be WTEMHY or MSCI EM Index, becomes interesting for another reason. The allocation percentage in EM Corporates does not carry the currency risk, giving market participants the option to dial up or dial down their EM currency exposure while still maintaining an investment in EM.**

[14] Sharpe Ratio: Measure of risk-adjusted return. Higher values indicate greater return per unit of risk, specifically standard deviation, which is viewed as being desirable.

FIGURE 5: BLENDED EMERGING MARKET ALLOCATIONS WITH A RISK PROFILE SIMILAR TO THAT OF U.S. EQUITIES

[Period from 12/31/2007 to 9/30/2016]



Average Annual		
	Risk (%)	Return (%)
60% WTEMHY/40% EM Corporates	15.86%	3.69%
50% MSCI EM/50% EM Corporates	15.73%	3.40%
U.S. Equities	15.98%	6.86%
WTEMHY	21.55%	1.18%
MSCI EM	24.09%	-1.22%
EM Corporates	9.84%	6.74%

Sources: WisdomTree, Bloomberg, Zephyr StyleADVISOR
Past performance is not indicative of future results.

Figure 5 brings two specific blends into focus—60% WTEMHY/40% EM Corporates and 50% MSCI EM/50% EM Corporates. These were chosen because their risk, indicated by their position along the horizontal axis of the chart, was very similar to that of U.S. Equities during a period that included the global financial crisis. Some further details worth noting:

- **The hypothetical 60% WTEMHY/40% EM Corporate allocation produced a 3.69% average annual return over the period. This was 0.29% per year ahead of the 3.40% that was produced by the 50% MSCI EM/50% EM Corporate allocation.**
- **The hypothetical 60% WTEMHY/40% EM Corporate allocation exhibited an average annual standard deviation that was 5.69% lower than utilizing WTEMHY alone and 8.23% lower than using MSCI EM alone within the hypothetical allocations.**
- **It is clear that WTEMHY exhibited lower average annual risk than MSCI EM, but it is important to consider what exactly this meant within a portfolio context. Within the blends, we see that the 50% MSCI EM/50% EM Corporates and 60% WTEMHY/40% EM Corporates allocations provided nearly the same average annual standard deviation over the period. The takeaway: A focus on dividend-paying stocks (WTEMHY) allowed an allocation that was weighted 10% more heavily toward emerging market equities to have a smiliar average annual risk as a different allocation (utilizing the 50% MSCI EM/50% EM Corporates) which had a 10% higher weighting in emerging market corporate bonds.**

In summary, there are a number of ways investors can focus on risk reduction in the emerging markets. WisdomTree believes two key ways to do so involve a focus on dividend-paying equities, such as the one employed by the WTEMHY Index, as well as balancing overall asset class exposure by incorporating EM Corporates.

INCOME POTENTIAL: A SECOND REASON TO CONSIDER EMERGING MARKET CORPORATE BONDS

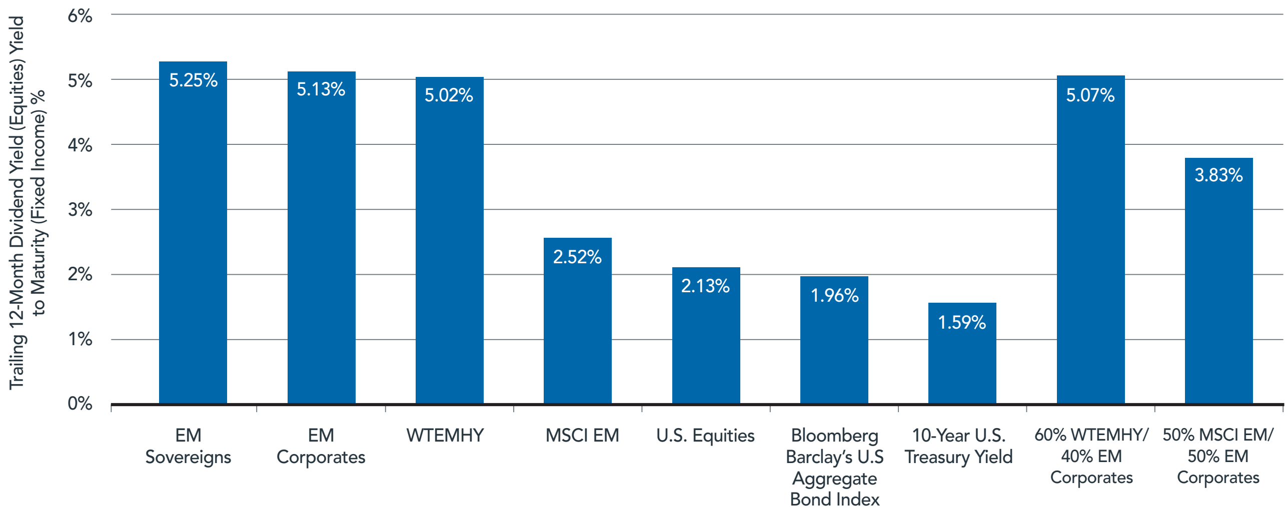
While the asset allocations in figures 1, 2, 4 and 5 do, in fact, indicate the potential for attractive risk/return portfolio combinations of EM Corporates with either WTEMHY or MSCI EM, it is also important to consider EM Corporates for another reason: income.

Although emerging markets have typically been thought of in a similar vein as growth equities (lots of growth potential, little in the way of income potential), at WisdomTree we have emphasized in earlier research that dividend-paying equities in emerging markets might be one of the richest possible hunting grounds for dividend-paying stocks. Investors are increasingly investing in emerging markets with the goal of enhancing yield on their portfolios. EM corporate has a yield to maturity of 5.13% as of September 30, 2016. We think it is worth emphasizing that this figure corresponded to a portfolio that was 59% investment grade and that had a duration of 5.0 years.

The hypothetical 60/40 blended allocation to WTEMHY/EM Corporates that we discussed earlier as having a similar historical volatility as that of U.S. Equities produced a combined yield to maturity/trailing 12-month dividend yield rate that was 2.4 times that of the current trailing 12-month dividend yield for U.S. Equities alone. It is important to reiterate—this is index-level data. These measures of income generation do not take potential costs, fees or expenses into account. Investors cannot invest in indexes. Additionally, WTEMHY focuses on relatively higher-yielding stocks that must pay dividends in order to be included, whereas MSCI EM does not have such a focus. Within the chart, it is therefore not surprising that WTEMHY has a higher trailing 12-month dividend yield than MSCI EM. Investors should keep this difference in methodology when considering WTEMHY and MSCI EM. MSCI EM will typically be broader in terms of overall exposure to emerging market companies without such a dividend focus and may outperform in certain markets when emerging market firms that do not pay dividends lead upward trends in equity performance.

FIGURE 6: DIVIDEND YIELD AND INTEREST RATE COMPARISON

[Trailing 12–Month Dividend Yields (Equities) and Yields to Maturity (Fixed Income) as of 9/30/2016]



Sources: WisdomTree, Bloomberg, Zephyr StyleADVISOR
Past performance is not indicative of future results.

In this chart, WTEMHY, MSCI EM and U.S. Equities are "Equities" with values signifying trailing 12-month dividend yields. EM Sovereigns, EM Corporates, 10-Year U.S. Treasury Yield and Bloomberg Barclay's Aggregate Bond Index are "Fixed Income" with values signifying yield to maturity. Hypothetical blends are calculated as weighted averages of specified assets. One cannot invest in an index, nor do these values indicate actual accessible current income streams available to investors. Costs, fees and other expenses would likely cause them to be lower.

CONCLUSION

Emerging markets corporate debt is a growing asset class that we believe will gain prominence in investor portfolios in the coming years. EM Corporates offer investors another avenue to enhance their portfolios' potential income generation, while potentially reducing a portion of the volatility that comes with investing in emerging market equities. Investing in corporate debt in the emerging markets currently provides a comparable exposure to companies that many investors are already exposed to in their equity position but which enables them to reduce their risk through a higher standing in the capital structure.

In summary:

+ **Incorporating WTEMHY added another layer of enhancement across the risk spectrum when looking at the hypothetical portfolio combinations.**
+ **Both the 60% WTEMHY/40% EM Corporates and the 50% MSCI EM/50% EM Corporates allocations exhibited average annual volatility similar to that of U.S. Equities. The hypothetical 60% WTEMHY/40% EM Corporates allocation provided a 3.69% average annual return over the period studied, 0.29% more per year than the hypothetical 50% MSCI EM/50% EM Corporates allocation.**
+ **The potential for income generation was also worth a consideration. Both the WTEMHY and the MSCI EM hypothetical allocations with EM Corporates provided significant potential income generation advantages over U.S. asset classes.**

Unless otherwise stated, data source is WisdomTree.

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Dividends are not guaranteed, and a company currently paying dividends may cease paying dividends at any time. There are risks associated with investing, including possible loss of principal. Foreign investing involves special risks, such as risk of loss from currency fluctuation or political or economic uncertainty. Funds focusing on a single sector generally experience greater price volatility. Please read the Fund's prospectus for specific details regarding the Fund's risk profile.

JPMorgan Emerging Market Bond Index: Widely cited measure of the performance of emerging market sovereign debt denominated in U.S. dollars. JPMorgan CEMBI Broad Index: Widely cited measure of the performance of emerging market corporate debt denominated in U.S. dollars. Bloomberg Barclay's Aggregate Bond Index: Widely cited measure of the performance of U.S. investment-grade fixed income. MSCI Emerging Markets Index: A free float-adjusted market capitalization index that is designed to measure equity market performance of emerging markets. S&P 500 Index: Market capitalization-weighted index of 500 stocks selected by the Standard & Poor's Index Committee designed to represent the performance of the leading industries in the United States economy. WisdomTree Emerging Markets Equity Income Index: Dividend-weighted Index designed to measure the performance of the highest-yielding dividend-paying equities within emerging markets.

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