

Prepared for

# Community Foundation for Muskegon County

*Serving the Community Foundations of Muskegon,  
Mason, and Oceana Counties*

Portfolio review

May 9, 2017



**Vanguard**

Advice services offered through Vanguard Institutional Advisory Services® are provided by Vanguard Advisers, Inc., a registered investment advisor.  
For institutional use only. Not for distribution to retail investors. Client-specific data is considered CONFIDENTIAL.

# Agenda

- I. Historical portfolio performance
- II. Segregated accounts reporting
- III. International equity summary
- IV. Risk/return analysis
- V. Glide path

## Presented by:

Wendy O. Simenson, CFA  
Senior Investment Consultant  
Vanguard Institutional Advisory Services®

Arlene B. Pine, CFA  
Senior Investment Consultant  
Vanguard Institutional Advisory Services®

# Historical portfolio performance

## Historical portfolio performance

### Community Foundation for Muskegon County (CFMC) Quarterly Summary of Combined Historical Performance For the period ending 3/31/2017

	Quarter	YTD	1 year	Annualized return			Calendar return						
				3 year	5 year	10 year	2016	2015	2014	2013	2012	2011	2010
<b>CFMC Composite Portfolio</b>	4.66	4.66	10.52	5.29	6.68	4.53	7.67	-0.42	5.68	12.35	12.21	-3.47	13.95
<b>CFMC Composite Benchmark*</b>	4.32	4.32	10.10	5.63	8.23	5.53	7.59	-0.20	7.08	19.26	12.92	0.70	12.98

**Notes:**  
Composite performance data consists of previous providers' portfolio and benchmark returns through April 2014; VIAS returns thereafter. Data prior to May 2014 is based upon information taken from the previous providers' quarterly performance reports and is provided as an estimate only. Composite does not include segregated accounts or pledge holdings. Return calculations are derived from Morningstar Direct.

\* Composite Benchmark allocations over time:

50% S&P 500 / 10% Russell 2000 / 10% MSCI EAFE / 30% LB AGG from March 2004 to March 2005;

45% S&P 500 / 12.5% Russell 2000 / 12.5% MSCI EAFE / 30% LB AGG from March 2005 to December 2007;

55% Russell 3000 / 15% MSCI AC World Index ex-US / 30% LB AGG from December 2007 to December 2008;

55% Russell 3000 / 15% MSCI AC World Index ex-US / 30% Barclays AGG from December 2008 to April 2014;

36% Spliced Total Stock Market Index (CRSP US Total Market Index) / 30% Spliced Barclays US Agg Float-Adj Ix (Barclays U.S. Aggregate Float Adjusted Index)/24% Spliced Total Int'l Stock Index (FTSE Global All Cap ex US Index) / 10% REIT Spliced Index (MSCI US REIT Index) since 4/30/2014.

Past performance is not a guarantee of future returns.

# Segregated accounts

## Investment performance of segregated accounts As of March 31, 2017

### Community Foundation for Muskegon County (CFMC) Quarterly Summary of Investment Performance of Segregated Accounts For the period ending 3/31/2017

Account name	Investment manager	Q1 2017 return	YTD 2017	Market value as of 3/31/17
Freedom – Willard Bosma	RJ	+4.31%	+4.31%	\$450,484
Maykol Bond	ML	+3.51%	+3.51%	\$111,607
J. Hanna / M. Murphy	UBS	+5.15%	+5.15%	\$1,126,573
Ernest E. Settle	UBS	+4.93%	+4.93%	\$1,171,591
Cutler	Schwab	+2.56%	+2.56%	\$212,969
The 2012 Fund	Schwab	+0.01%	+0.01%	\$992,108
MI Heritage Trails (MICHHT)	UBS	+4.85%	+4.85%	\$1,245,703
Donahue	NW	+1.73%	+1.73%	\$110,915
G & B Hilt Fund (hilt05)	UBS	+4.97%	+4.97%	\$6,739,988
Collins	RJ	+4.80%	+4.80%	\$658,108
Smith	RJ	+3.92%	+3.92%	\$53,695
Campbell Scholarship	ML	+3.81%	+3.81%	\$26,102

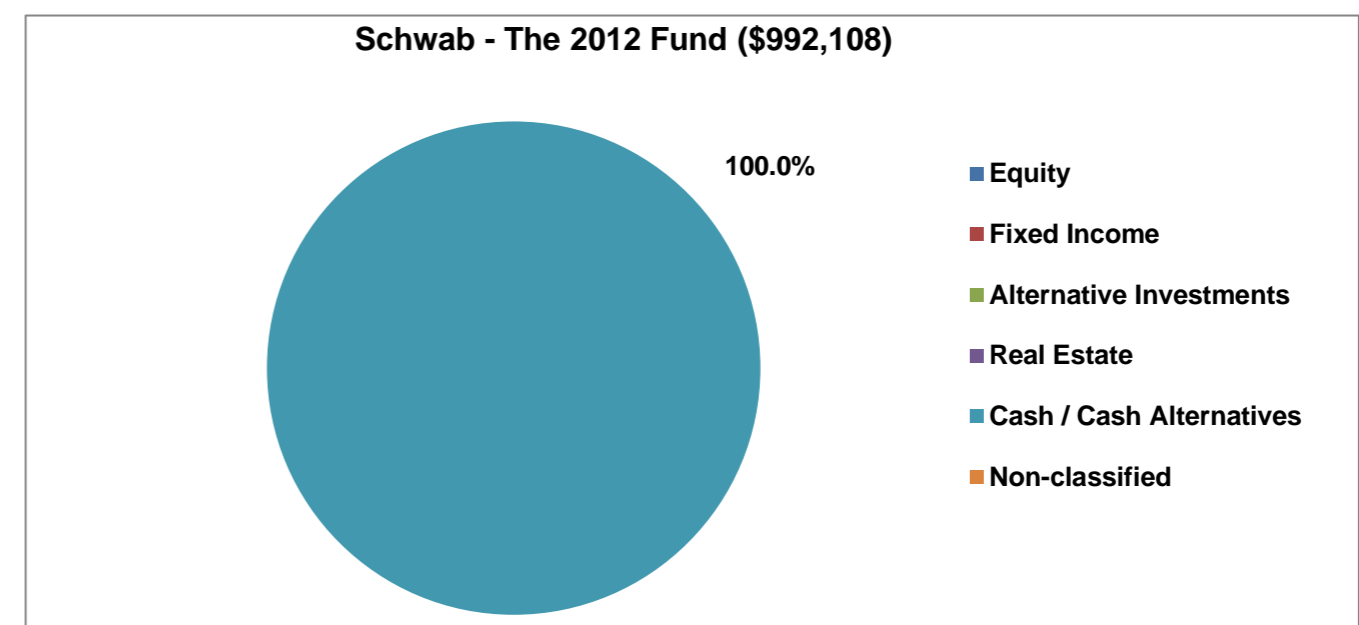
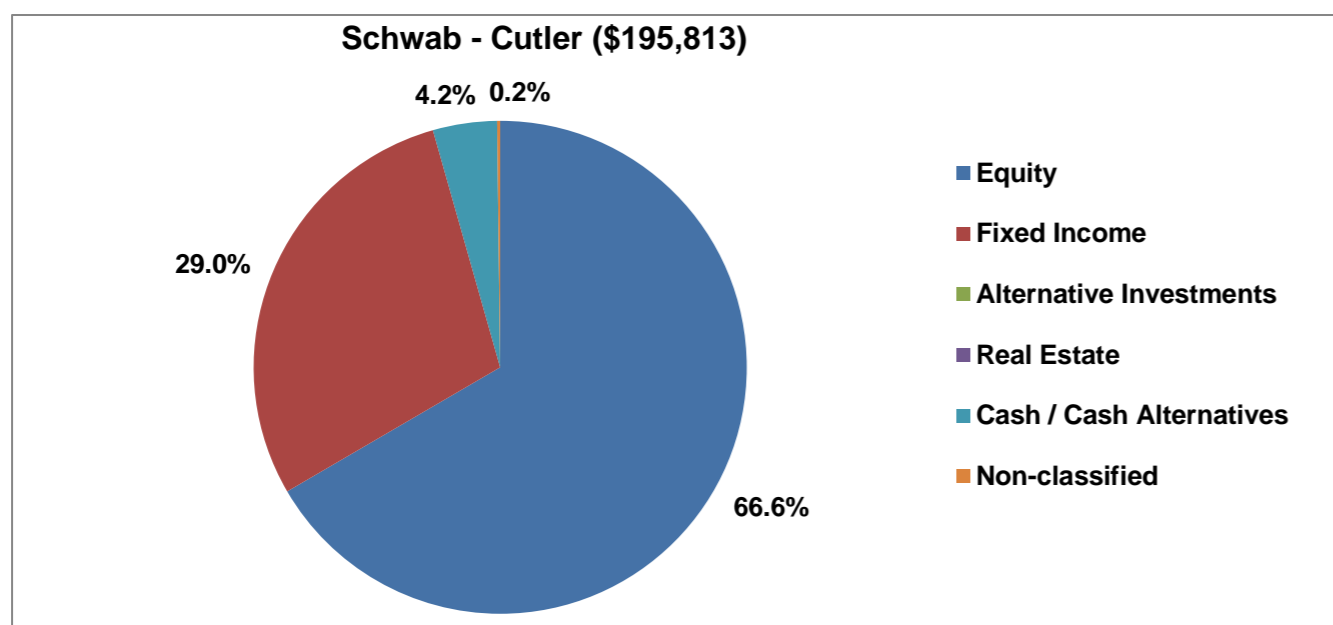
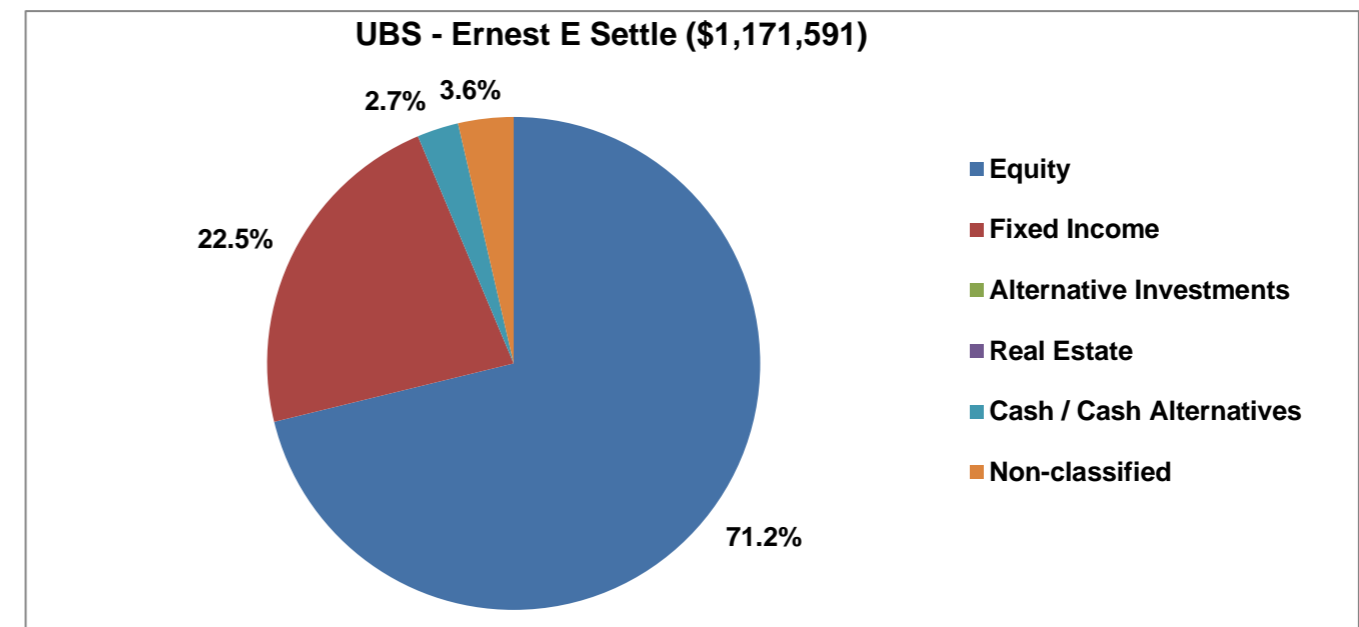
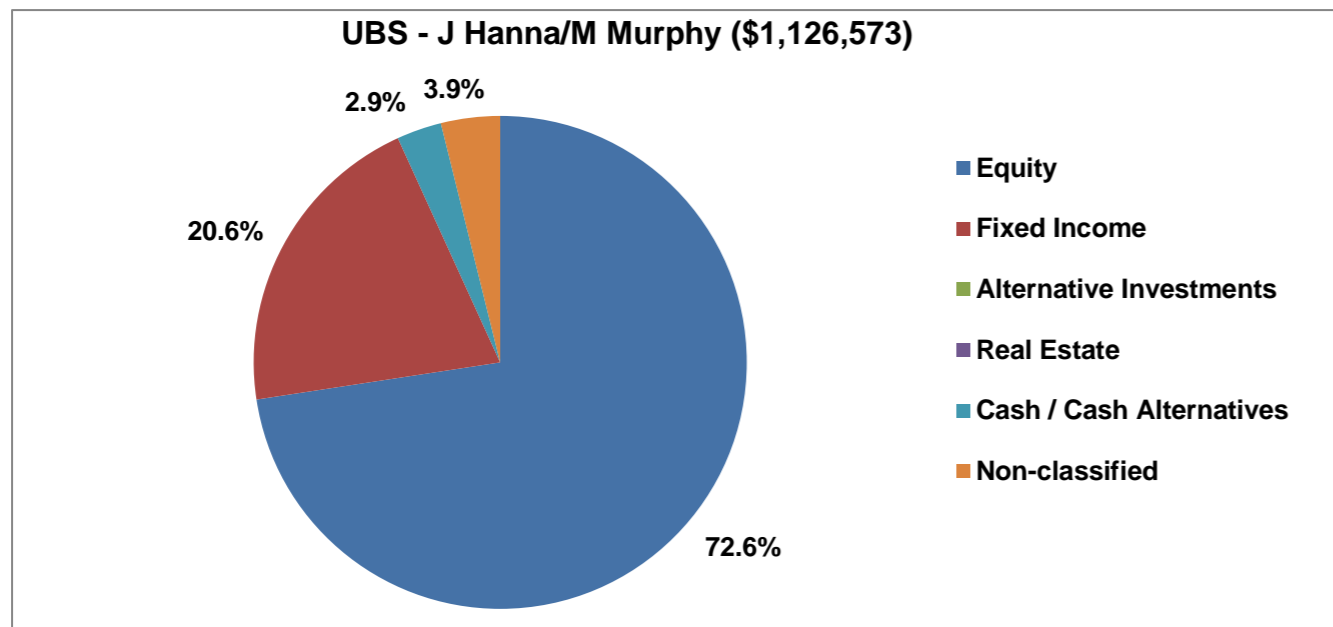
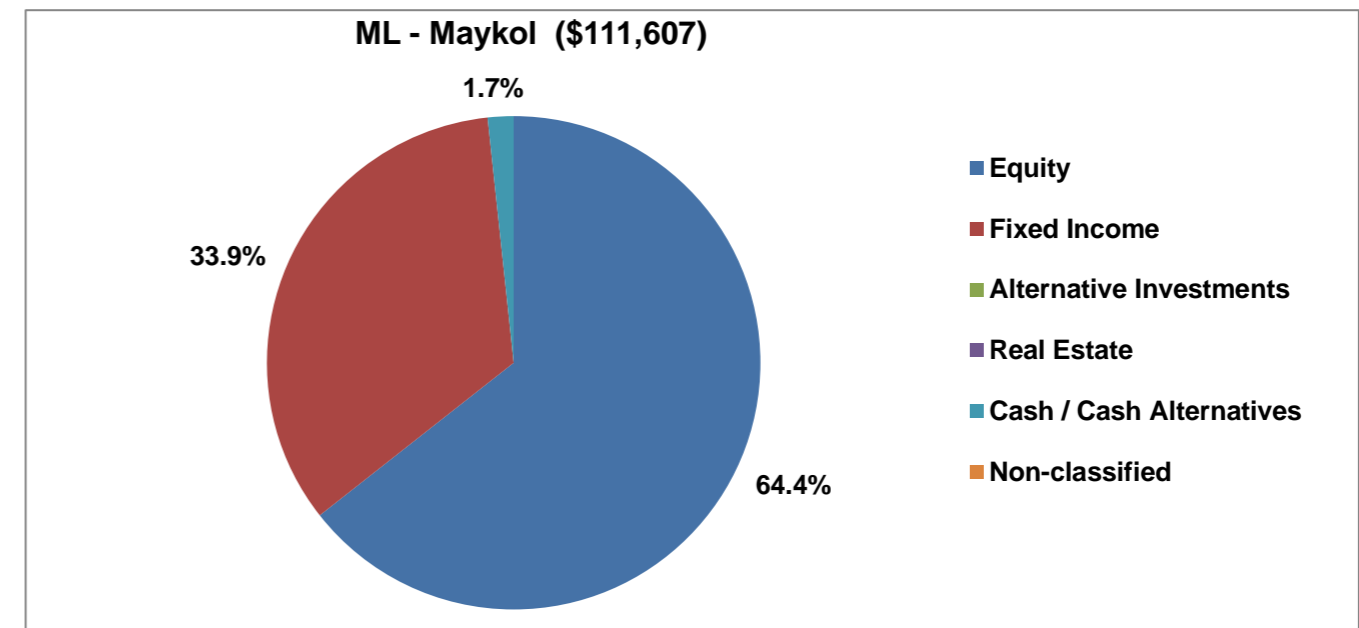
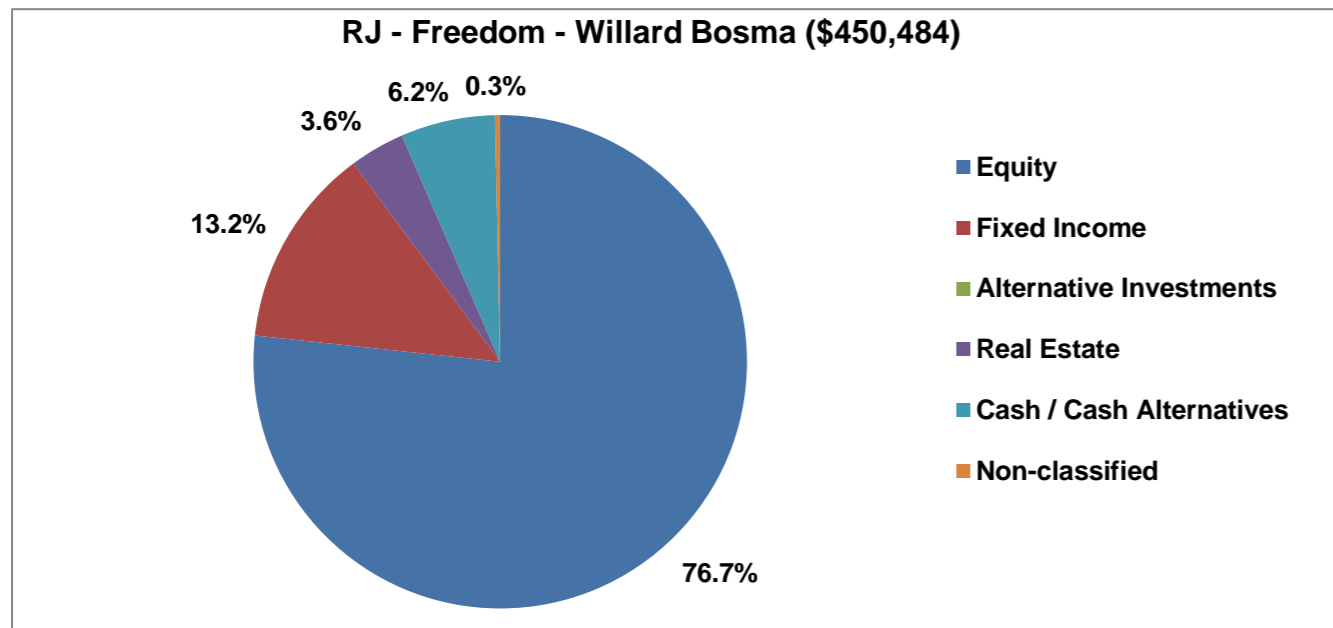
Note: Vanguard cannot independently validate the accuracy of the returns shown above.

Note: Performance net of investment manager fees.

All returns are calculated using data as reported by CFMC staff. Return calculation reflects beginning period and ending period market values adjusted for investment provider or CFMC cash flows and investment provider fees.

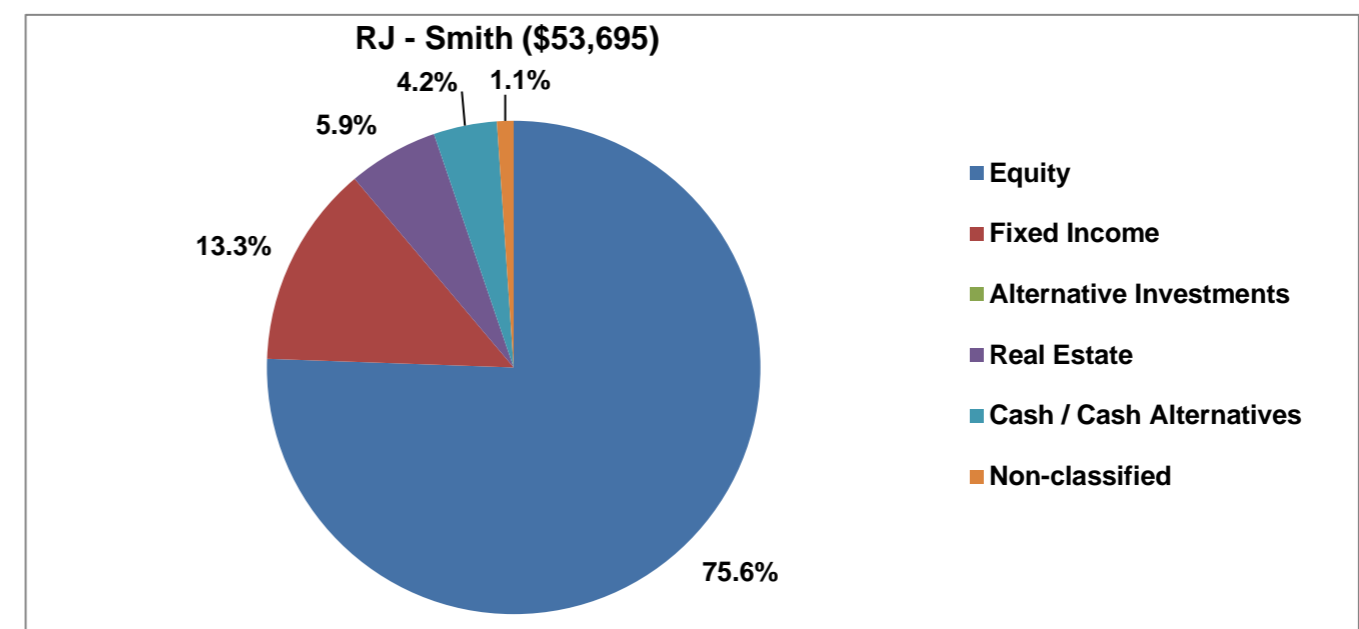
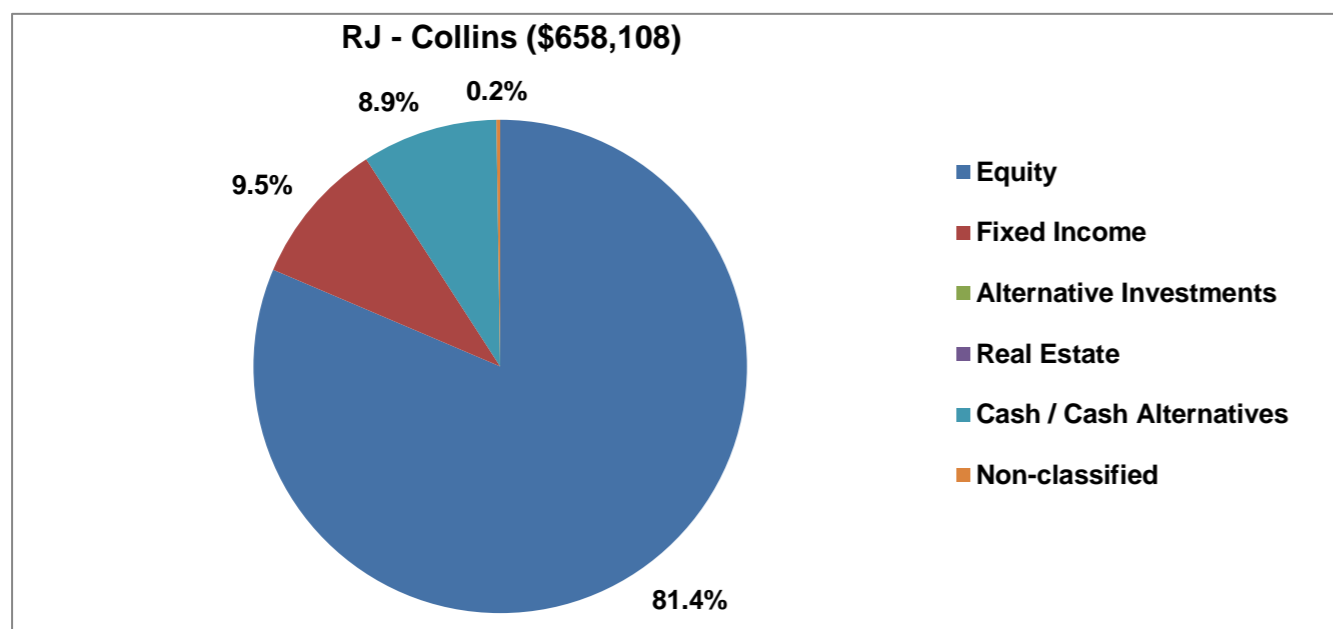
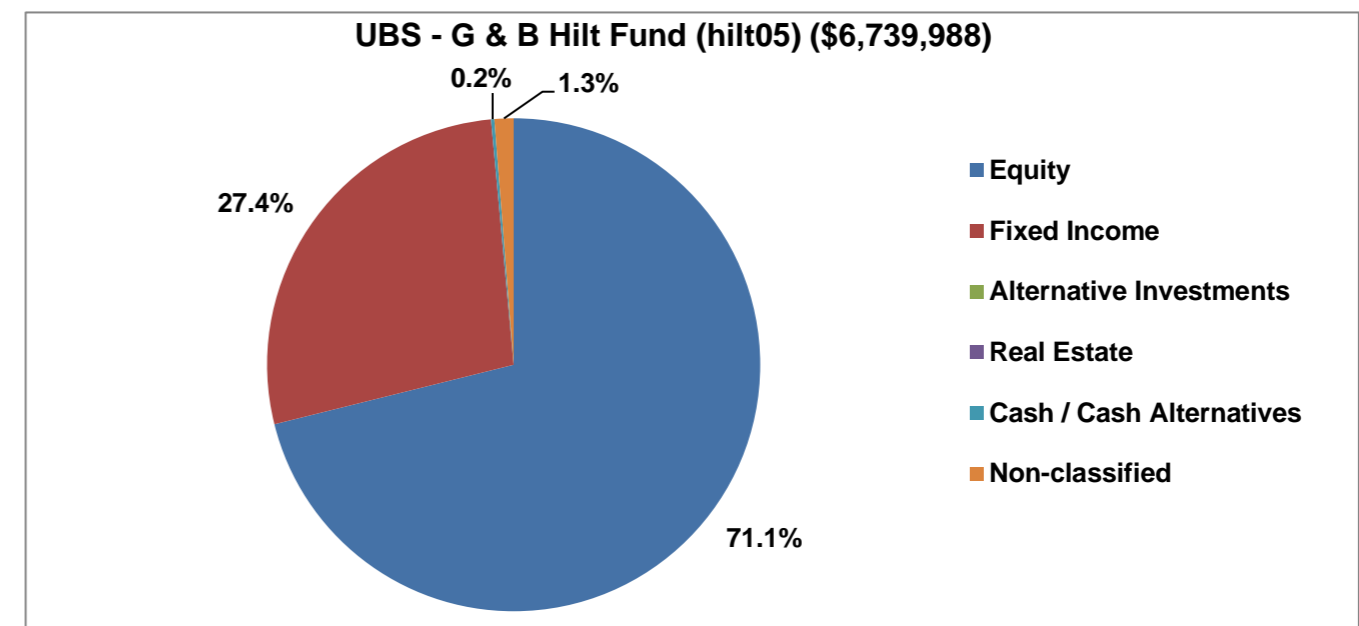
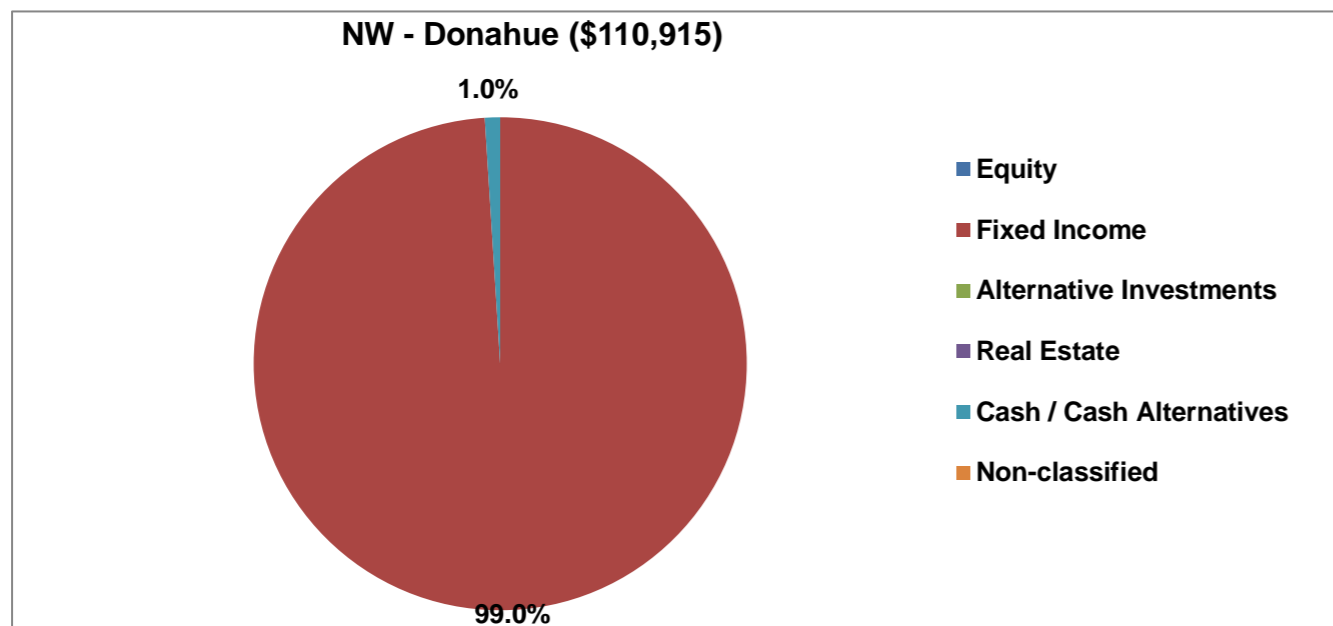
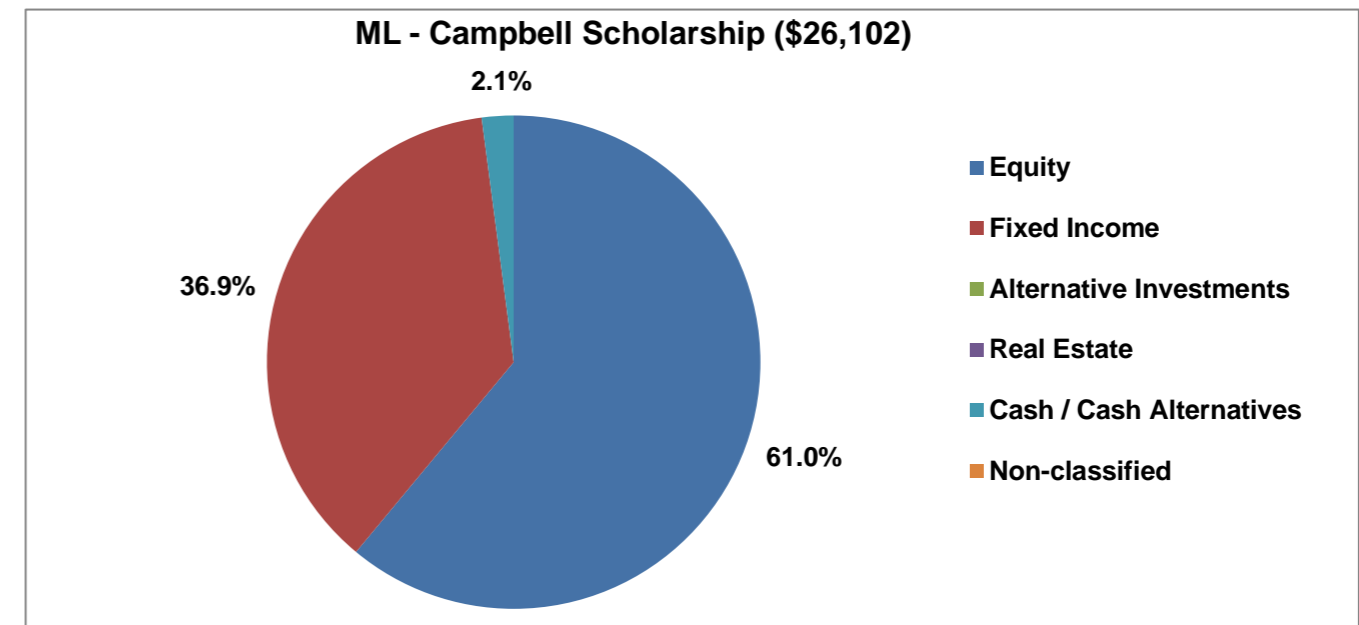
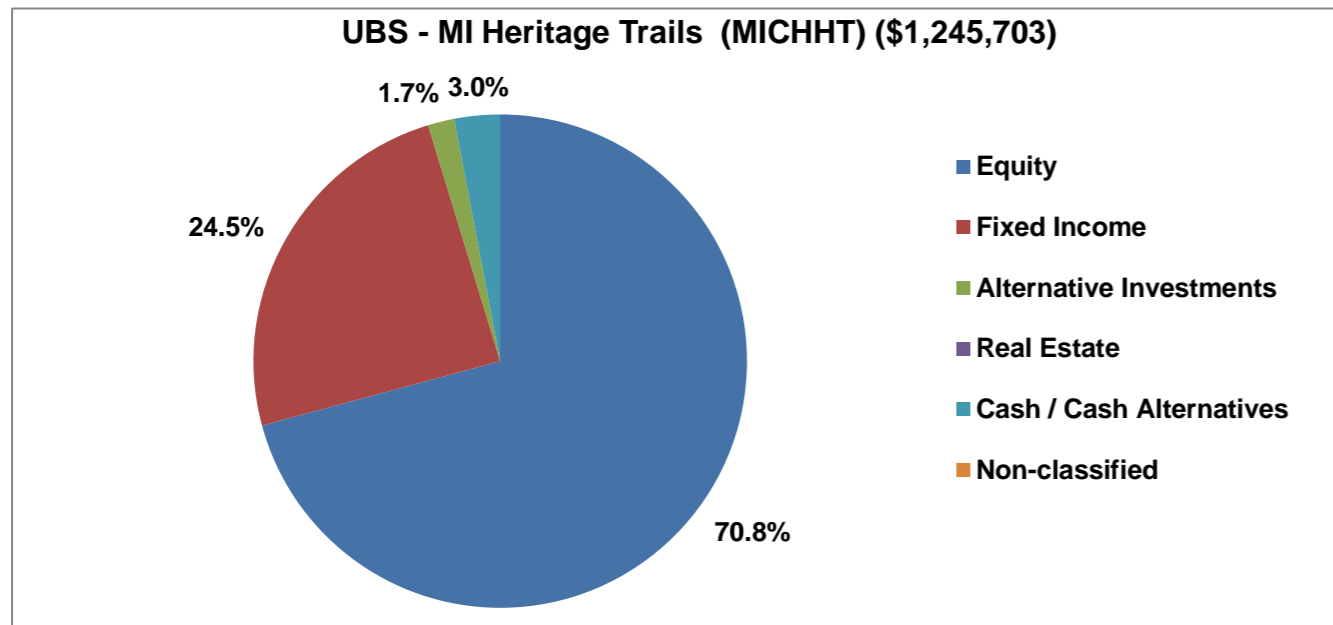
Past performance is not a guarantee of future returns.

**Community Foundation for Muskegon County (CFMC)  
Quarterly Asset Allocation Summary of Segregated Accounts - As of 3/31/2017**



Note: Asset allocation data sourced from investment manager statements. Vanguard cannot independently validate the accuracy of the data provided.

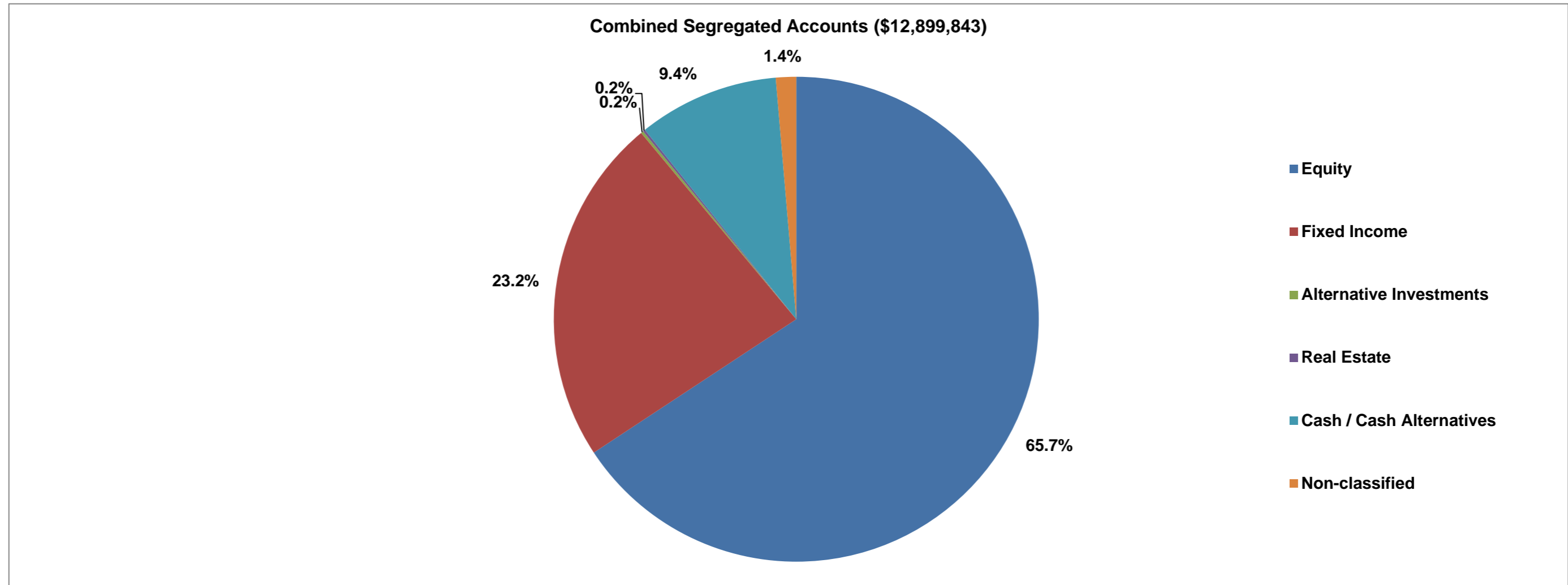
**Community Foundation for Muskegon County (CFMC)  
Quarterly Asset Allocation Summary of Segregated Accounts - As of 3/31/2017**



Note: Asset allocation data sourced from investment manager statements. Vanguard cannot independently validate the accuracy of the data provided.



Community Foundation for Muskegon County (CFMC)  
Quarterly Asset Allocation Summary of Segregated Accounts - As of 3/31/2017



Note: Asset allocation data sourced from investment manager statements. Vanguard cannot independently validate the accuracy of the data provided.

# International equity summary

# Vanguard Institutional Advisory Services®

## Community Foundation for Muskegon County International Equity Review

### Recommendation

Vanguard Institutional Advisory Services® recommends increased International Equity allocation of up to 40% of the overall equity allocation (excluding the allocation to REIT's).

### Drivers of the Recommendation

- **Diversification Benefit** – Increasing the exposure of International Equities allows the portfolio to edge closer to the global equity market which stands at roughly 50%. (Additional commentary below)
- **Expected Reduction in Volatility** – The annualized volatility of a portfolio is minimized as the allocation to non-U.S. stocks reaches 40% of the overall equity allocation. (Additional commentary below)
- **Current Valuations** – Current valuations of International Equities are lower than historical averages prompting higher expected median returns over the next 10 years compared to Domestic Equities. (Additional commentary below)

### Total International Stock Index Fund – Institutional Shares Snapshot

	Quarter-end	Year-to-date	Annualized			
			1-year	3-year	5-year	*Since inception
■ Fund	8.46%	8.46%	13.73%	1.11%	4.85%	4.23%
■ Benchmark	7.90%	7.90%	13.32%	1.16%	4.87%	4.14%
+/- Benchmark	0.56%	0.56%	0.41%	-0.05%	-0.02%	0.09%

Spliced Total International Stock Index: Total International Composite Index through August 31, 2006; MSCI EAFE + Emerging Markets Index through December 15, 2010; MSCI ACWI ex USA IMI Index through June 2, 2013; and FTSE Global All Cap ex US Index thereafter. Benchmark returns are adjusted for withholding taxes.

\* Since fund's inception, November 29, 2010.

#### Regional diversification



●	43.4%	Europe
●	29.8	Pacific
●	19.3	Emerging Markets
●	6.9	North America
●	0.4	Middle East
●	0.2	Other

The performance data shown represent past performance, which is not a guarantee of future results. Investment returns and principal value will fluctuate, so investors' shares, when sold, may be worth more or less than their original cost. Current performance may be lower or higher than the performance data cited. For performance data current to the most recent month end, visit our website at [vanguard.com/performance](http://vanguard.com/performance).

#### Sector diversification as a % of common stock



Sector	VTSNX	Benchmark
● Financials	25.9%	25.9%
● Consumer Goods	16.1	16.0
● Industrials	14.8	14.8
● Consumer Services	8.1	8.1
● Basic Materials	8.0	8.0
● Health Care	7.6	7.6
● Oil & Gas	6.5	6.5
● Technology	5.7	5.7
● Telecommunications	3.9	4.0
● Utilities	3.4	3.4

Sector categories are based on the Industry Classification Benchmark system.

All data as of March 31, 2017.

## **Additional Commentary**

**Diversification Benefit** - The rationale for diversification is clear. U.S. stocks are exposed to U.S. economic and market forces, while stocks domiciled outside of the United States offer exposure to a wider array of economic and market forces. These differing economies and markets produce returns that can vary from those of U.S. stocks. The figure on the left in Exhibit A, shows that, all else being equal, a U.S. investor should realize a diversification benefit from investing globally because the equity markets of other developed economies are less-than-perfectly correlated with the U.S. equity market. As of December 31, 2016 the correlation of U.S. stocks to non-U.S. Stocks was 0.76; thus providing a diversification benefit.

**Expected Volatility Reduction** – In the figure on the right in Exhibit A, the benefit of diversification is clear. Although each individual country has experienced greater volatility than that of the United States, the broad MSCI World Index ex USA, which focuses on developed markets, has experienced volatility more similar to that of the United States. In addition when taken one step further, the broadest global index, representing the combined MSCI USA Index, the developed markets index, and the MSCI Emerging Markets Index—has realized the lowest average volatility.

Exhibit B shows the results of a minimum-variance analysis between non-U.S. stocks and U.S. stocks (and bonds) since 1970. We elected to focus on volatility under the assumption that over the long term, returns across developed countries should be more similar than different. The downward-curving lines indicate that adding non-U.S. stocks to a U.S. portfolio would have led to incrementally greater levels of diversification in the form of reduced portfolio volatility over the period studied. What's striking about the below figure is that U.S. investors would have obtained substantial (relative) diversification benefits from allocations to non-U.S. stocks far short of the current market-proportional portfolio (now about 51% and historically approximately 50%, on average). Looking at the blue line in the below figure, which represents a portfolio composed entirely of equities, the maximum historical diversification benefit would have been achieved by allocating approximately 30% of an equity portfolio to non-U.S. equities (although the difference between 30% non-U.S. and 40% non-U.S. is within 0.02%), with a net reduction in volatility of 71 basis points. Allocating 20% of an equity portfolio to non-U.S. stocks would have captured 60 of those 71 basis points, or about 85% of the maximum possible benefit. For investors interested in deviating from the global market cap, it's helpful to understand that historically it has been possible to obtain similar diversification benefits while mitigating the impact of higher costs and some of the behavioral hurdles of larger global allocations.

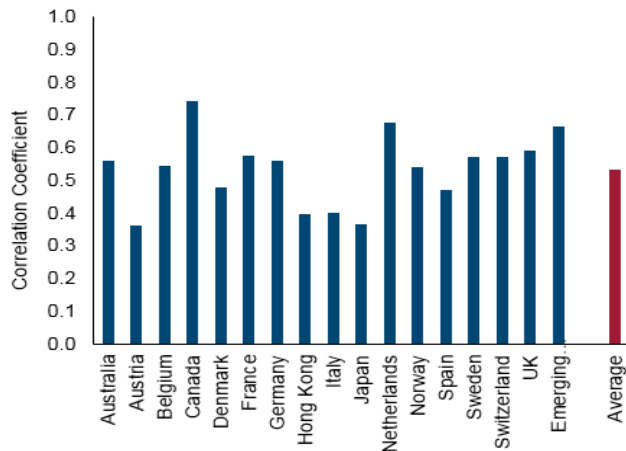
**Current Valuations** - Although, our belief in moving towards an allocation similar to the global market capitalization is not tactical, it is worth mentioning our return expectations of International Equities over the next ten years. Using our proprietary capital markets model, Vanguard looks at historical correlations, combines them with future market expectations, and provides expected returns in the form of distributions. With current valuations (price-to-earnings ratios) more attractive in non-US markets (See Exhibit C), Vanguard's expectation is for non-US equities to outperform U.S. equities almost 200 basis points at the median (50<sup>th</sup> percentile) over the next 10 years (See Exhibit D).

Another factor to consider when understanding our future expectations, is to look at long term returns. For the 10 years ending March 31, 2017 the broad U.S. market had returned 7.69% annually. In comparison, the broad non-U.S. market had returned 1.38% over the same period of time. Due to the substantial differences in annualized return over that time period, our expectations based on mean reversion, is to see non-U.S. Equity returns in better line with their long term, historical averages.

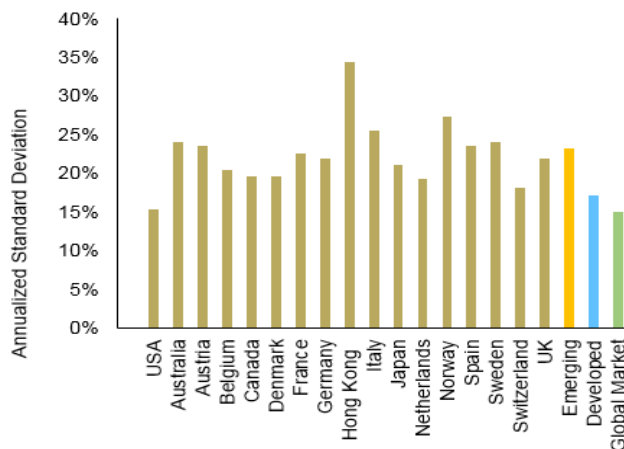
## Exhibits

### Exhibit A

#### Correlation of returns to foreign equity markets with U.S. equity markets



#### Volatility of returns for country and regional indexes

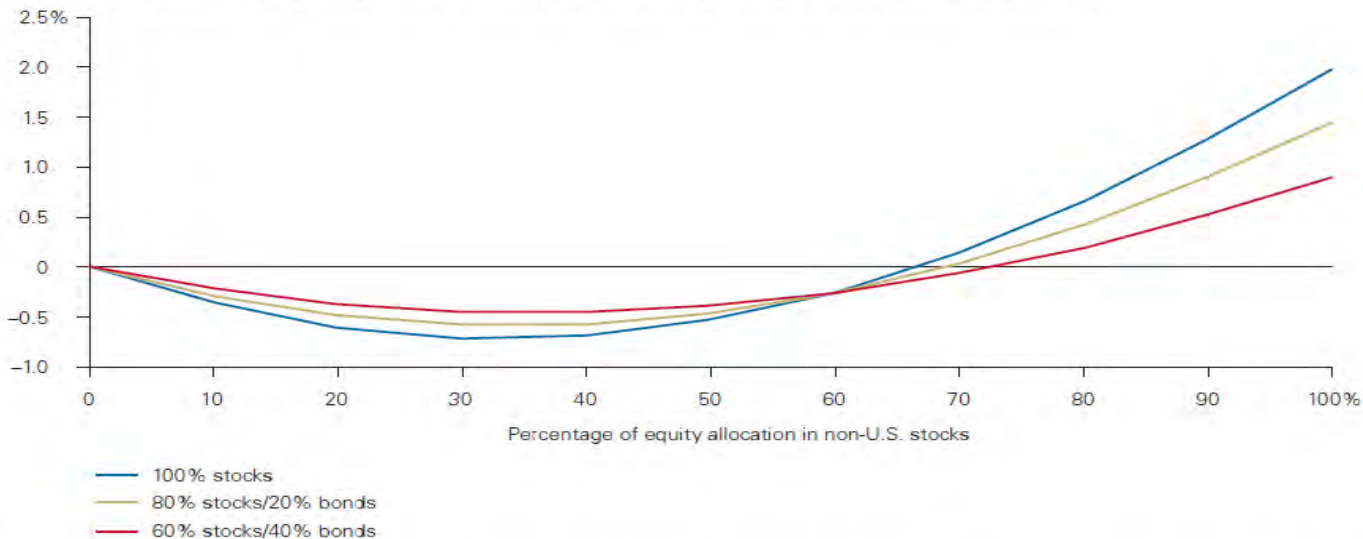


Notes: Country returns represented by MSCI country indexes; emerging markets represented by MSCI Emerging Markets Index; developed markets represented by MSCI World Index ex USA; global market, including both developed and emerging markets, represented by MSCI All Country World Index. Emerging market data begin in 1988; all data through December 31, 2015.

Sources: Vanguard, Thomson Reuters Datastream, and MSCI.

### Exhibit B

#### Average annualized change in portfolio volatility when adding non-U.S. stocks to a U.S. portfolio

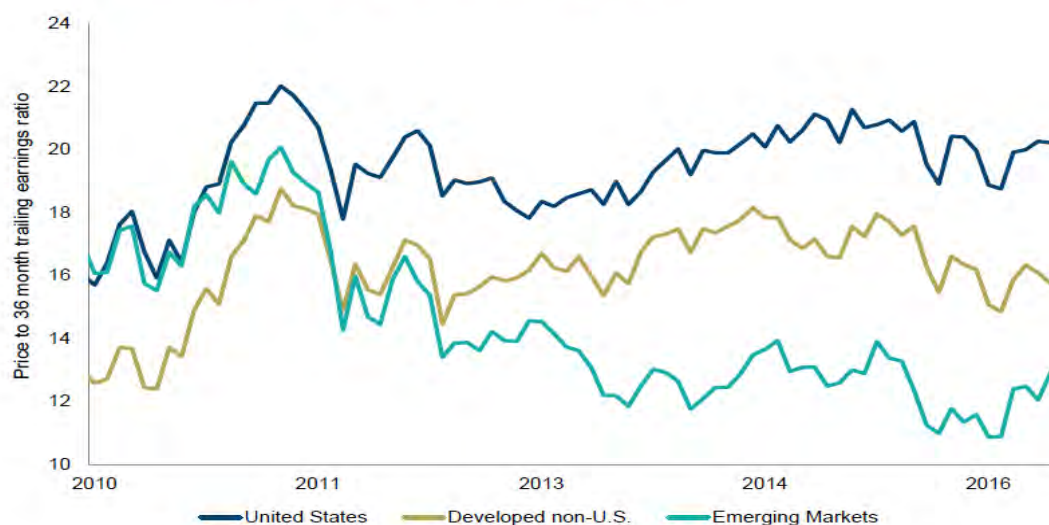


Notes: U.S. equities represented by MSCI USA Index; non-U.S. equities represented by MSCI World Index ex USA from 1970 through 1987 and MSCI All Country World Index ex USA thereafter. Bond data represented by Salomon High Grade Index from 1970 through 1972, Lehman Long-Term AA Corporate Index from 1973 through 1975, and Barclays U.S. Aggregate Bond Index thereafter. Data through December 31, 2013.

Sources: Vanguard, Thomson Reuters Datastream, and MSCI.

## Exhibit C

### Trailing 36 month global price-to-earnings ratios



Sources: Vanguard and Thomson Reuters Datastream

Notes: Figure displays the price-to-earnings ratio defined by the most recent price divided by the 36-month average of trailing earnings. United States is represented by the MSCI United States Index, Developed Markets non-U.S. is represented by the MSCI All-World U.S. Index, and Emerging Markets is represented as the MSCI Emerging Markets Index. All three indices are denominated in U.S. dollars and represent an unhedged position with data as of June 30, 2016.

## Exhibit D

	Horizon: 10 Years, Distribution of Geometric Returns							Median Volatility
	5	10	25	50	75	90	95	
U.S. Equities	(4.8%)	(2.4%)	1.7%	6.3%	11.2%	15.8%	18.7%	17.7%
non-U.S. Equities (unhedged)	(2.4%)	(0.3%)	3.7%	8.0%	12.4%	16.3%	18.9%	18.4%
Global Equities (unhedged)	(2.7%)	(0.7%)	2.9%	7.2%	11.5%	15.6%	17.9%	16.8%

**IMPORTANT:** The projections or other information generated by the Vanguard Capital Markets Model<sup>®</sup> (VCMM) regarding the likelihood of various investment outcomes are hypothetical in nature, do not reflect actual investment results, and are not guarantees of future results. Distribution of return outcomes from VCMM derived from 10,000 simulations for U.S. equity returns and fixed income returns. Simulations as of December 31, 2016. Results from the model may vary with each use and over time. For more information on VCMM, see the Important Information slide.

Source: Vanguard, Investment Strategy Group.

# Risk/return analysis

## Community Foundation for Muskegon County Total return framework, risk/return study – 10-year time horizon

Forecast: December 2016

Asset classes	Current	5% FI to Dom Equity	5% FI to 60/40 Dom/Int Equity	5	25	50	75	95	Volatility
U.S. equities	36.00%	41.00%	39.00%	-4.8%	1.7%	6.3%	11.2%	18.7%	17.7%
Non-U.S. equities (unhedged)	24.00%	24.00%	26.00%	-2.4%	3.7%	8.0%	12.4%	18.9%	18.4%
U.S. Bonds	30.00%	25.00%	25.00%	1.1%	1.8%	2.3%	2.9%	3.7%	4.6%
REITs	10.00%	10.00%	10.00%	-3.3%	1.6%	5.0%	8.6%	14.0%	18.5%
Inflation	—	—	—	0.0%	1.1%	1.7%	2.4%	3.4%	2.3%
Median return (geometric)	5.9%	6.1%	6.1%						
Median inflation-adjusted return	4.1%	4.3%	4.3%						
Median risk (volatility)	11.2%	12.0%	12.0%						
Sharpe ratio	0.39	0.39	0.39						

### Portfolio nominal return distribution

	5	10	20	30	40	50	60	70	80	90	95
Current	-0.5%	0.8%	2.5%	3.8%	4.9%	5.9%	6.9%	8.1%	9.5%	11.3%	12.9%
5% FI to Dom Equity	-0.9%	0.6%	2.4%	3.8%	5.0%	6.1%	7.2%	8.4%	10.0%	12.0%	13.7%
5% FI to 60/40 Dom/Int Equity	-0.9%	0.6%	2.4%	3.8%	5.0%	6.1%	7.2%	8.4%	10.0%	12.0%	13.7%

	1	2	3	4	5
1) U.S. equities	1				
2) Non-U.S. equities (unhedged)	0.76	1			
3) U.S. bonds	0.01	0.06	1		
4) REITs	0.54	0.39	0.03	1	
5) Inflation	-0.18	0.15	0.27	-0.07	1

Source: Vanguard, Investment Strategy Group.

**IMPORTANT: The projections or other information generated by the Vanguard Capital Markets Model® (VCMM) regarding the likelihood of various investment outcomes are hypothetical in nature, do not reflect actual investment results, and are not guarantees of future results. Distribution of return outcomes from VCMM derived from 10,000 simulations for U.S. equity returns and fixed income returns. Simulations as of December 31, 2016. Results from the model may vary with each use and over time. For more information on VCMM, see the Important Information slide.**



# Glide path

## 5% Fixed Income to Domestic Equity CFMC VIAS portfolio as of March 31, 2017

Investment	Market value as of 3/31/17	Target allocation	Actual weight	Variance	Month 1	Month 2	Month 3	Month 4	Month 5	Total	New target allocation	New weight	Variance
<b>Domestic equity</b>													
Total Stock Market Index Fund Inst'l	\$62,975,582	36.0%	37.0%	1.0%	\$1,237,740	\$1,237,740	\$1,237,740	\$1,237,740	\$1,237,740	<b>\$69,164,280</b>	41.0%	40.6%	-0.4%
<i>Domestic equity subtotal</i>	<i>\$62,975,582</i>	<i>36.0%</i>	<i>37.0%</i>	<i>1.0%</i>							<i>41.0%</i>	<i>40.6%</i>	<i>-0.4%</i>
<b>International equity</b>													
Total International Stock Index Inst'l	\$42,558,961	24.0%	25.0%	1.0%						<b>\$42,558,961</b>	24.0%	25.0%	1.0%
<i>International equity subtotal</i>	<i>\$42,558,961</i>	<i>24.0%</i>	<i>25.0%</i>	<i>1.0%</i>							<i>24.0%</i>	<i>25.0%</i>	<i>1.0%</i>
<b>Fixed income</b>													
Total Bond Market Index Fund Inst'l	\$42,423,588												
Total Bond Market Admiral™ (held at PNC in pledge)*	\$2,305,732	30.0%	28.6%	-1.4%	-\$1,237,740	-\$1,237,740	-\$1,237,740	-\$1,237,740	-\$1,237,740	<b>\$42,544,711</b>	25.0%	25.0%	0.0%
Total Bond Market ETF (held at PNC in pledge)*	\$4,004,088												
<i>Fixed income subtotal</i>	<i>\$48,733,408</i>	<i>30.0%</i>	<i>28.6%</i>	<i>-1.4%</i>							<i>25.0%</i>	<i>25.0%</i>	<i>0.0%</i>
<b>Other investments</b>													
REIT Index Fund	\$15,910,876	10.0%	9.3%	-0.7%						<b>\$15,910,891</b>	10.0%	9.3%	-0.7%
Cash (held at PNC in pledge)*	\$15	0.0%	0.0%	0.0%							0.0%	0.0%	0.0%
<i>Other investments subtotal</i>	<i>\$15,910,891</i>	<i>10.0%</i>	<i>9.3%</i>	<i>-0.7%</i>							<i>10.0%</i>	<i>9.3%</i>	<i>-0.7%</i>
<b>Total portfolio</b>	<b>\$170,178,842</b>	<b>100.0%</b>	<b>100.0%</b>							<b>\$170,178,842</b>	<b>100.0%</b>	<b>100.0%</b>	

\* Values reported by Community Foundation for Muskegon County staff.

## 5% Fixed Income to 60% Domestic Equity, 40% International Equity CFMC VIAS portfolio as of March 31, 2017

Investment	Market value as of 3/31/17	Target allocation	Actual weight	Variance	Month 1	Month 2	Month 3	Month 4	Month 5	Total	New target allocation	New weight	Variance
<b>Domestic equity</b>													
Total Stock Market Index Fund Inst'l	\$62,975,582	36.0%	37.0%	1.0%	\$742,644	\$742,644	\$742,644	\$742,644	\$742,644	<b>\$66,688,801</b>	39.0%	39.2%	0.2%
<i>Domestic equity subtotal</i>	<i>\$62,975,582</i>	<i>36.0%</i>	<i>37.0%</i>	<i>1.0%</i>							<i>39.0%</i>	<i>39.2%</i>	<i>0.2%</i>
<b>International equity</b>													
Total International Stock Index Inst'l	\$42,558,961	24.0%	25.0%	1.0%	\$495,096	\$495,096	\$495,096	\$495,096	\$495,096	<b>\$45,034,440</b>	26.0%	26.5%	0.5%
<i>International equity subtotal</i>	<i>\$42,558,961</i>	<i>24.0%</i>	<i>25.0%</i>	<i>1.0%</i>							<i>26.0%</i>	<i>26.5%</i>	<i>0.5%</i>
<b>Fixed income</b>													
Total Bond Market Index Fund Inst'l	\$42,423,588												
Total Bond Market Admiral™ (held at PNC in pledge)*	\$2,305,732	30.0%	28.6%	-1.4%	-\$1,237,740	-\$1,237,740	-\$1,237,740	-\$1,237,740	-\$1,237,740	<b>\$42,544,711</b>	25.0%	25.0%	0.0%
Total Bond Market ETF (held at PNC in pledge)*	\$4,004,088												
<i>Fixed income subtotal</i>	<i>\$48,733,408</i>	<i>30.0%</i>	<i>28.6%</i>	<i>-1.4%</i>							<i>25.0%</i>	<i>25.0%</i>	<i>0.0%</i>
<b>Other investments</b>													
REIT Index Fund	\$15,910,876	10.0%	9.3%	-0.7%						<b>\$15,910,891</b>	10.0%	9.3%	-0.7%
Cash (held at PNC in pledge)*	\$15	0.0%	0.0%	0.0%							0.0%	0.0%	0.0%
<i>Other investments subtotal</i>	<i>\$15,910,891</i>	<i>10.0%</i>	<i>9.3%</i>	<i>-0.7%</i>							<i>10.0%</i>	<i>9.3%</i>	<i>-0.7%</i>
<b>Total portfolio</b>	<b>\$170,178,842</b>	<b>100.0%</b>	<b>100.0%</b>							<b>\$170,178,842</b>	<b>100.0%</b>	<b>100.0%</b>	

\* Values reported by Community Foundation for Muskegon County staff.

## Important information

**IMPORTANT: The projections or other information generated by the Vanguard Capital Markets Model® (VCMM) regarding the likelihood of various investment outcomes are hypothetical in nature, do not reflect actual investment results, and are not guarantees of future results. VCMM results will vary with each use and over time.**

The VCMM projections are based on a statistical analysis of historical data. Future returns may behave differently from the historical patterns captured in the VCMM. More importantly, the VCMM may be underestimating extreme negative scenarios unobserved in the historical period on which the model estimation is based.

The Vanguard Capital Markets Model® is a proprietary financial simulation tool developed and maintained by Vanguard's primary investment research and advice teams. The model forecasts distributions of future returns for a wide array of broad asset classes. Those asset classes include U.S. and international equity markets, several maturities of the U.S. Treasury and corporate fixed income markets, international fixed income markets, U.S. money markets, commodities, and certain alternative investment strategies. The theoretical and empirical foundation for the Vanguard Capital Markets Model is that the returns of various asset classes reflect the compensation investors require for bearing different types of systematic risk (beta). At the core of the model are estimates of the dynamic statistical relationship between risk factors and asset returns, obtained from statistical analysis based on available monthly financial and economic data from as early as 1960. Using a system of estimated equations, the model then applies a Monte Carlo simulation method to project the estimated interrelationships among risk factors and asset classes as well as uncertainty and randomness over time. The model generates a large set of simulated outcomes for each asset class over several time horizons. Forecasts are obtained by computing measures of central tendency in these simulations. Results produced by the tool will vary with each use and over time.

## Important information

***For more information about Vanguard funds or non-Vanguard funds offered through Vanguard Brokerage Services®, visit [vanguard.com](http://vanguard.com) or call 866-499-8473 to obtain a prospectus or, if available, a summary prospectus. Investment objectives, risks, charges, expenses, and other important information are contained in the prospectus; read and consider it carefully before investing.***

***Vanguard ETF® Shares are not redeemable with the issuing Fund other than in very large aggregations worth millions of dollars. Instead, investors must buy or sell Vanguard ETF Shares in the secondary market and hold those shares in a brokerage account. In doing so, the investor may incur brokerage commissions and may pay more than net asset value when buying and receive less than net asset value when selling.***

Mutual funds and all investments are subject to risk, including the possible loss of the money you invest. Prices of mid- and small-cap stocks often fluctuate more than those of large-company stocks. Investments in stocks or bonds issued by non-U.S. companies are subject to risks including country/regional risk and currency risk. These risks are especially high in emerging markets. Funds that concentrate on a relatively narrow sector face the risk of higher share-price volatility. It is possible that tax-managed funds will not meet their objective of being tax-efficient. Because company stock funds concentrate on a single stock they are considered riskier than diversified stock funds.

Investments in bond funds are subject to the risk that an issuer will fail to make payments on time, and that bond prices will decline because of rising interest rates or negative perceptions of an issuer's ability to make payments. High-yield bonds generally have medium- and lower-range credit quality ratings and are therefore subject to a higher level of credit risk than bonds with higher credit quality ratings. Although the income from a municipal bond fund is exempt from federal tax, you may owe taxes on any capital gains realized through the fund's trading or through your own redemption of shares. For some investors, a portion of the fund's income may be subject to state and local taxes, as well as to the federal Alternative Minimum Tax. Diversification does not ensure a profit or protect against a loss.

Investments in Target Retirement Funds or Trusts are subject to the risks of their underlying funds. The year in the fund name refers to the approximate year (the target date) when an investor in the fund or trust would retire and leave the workforce. The fund or trust will gradually shift its emphasis from more aggressive investments to more conservative ones based on its target date. An investment in the Target Retirement Fund or Trust is not guaranteed at any time, including on or after the target date.

Vanguard collective trusts are not mutual funds. They are collective trusts available only to tax-qualified plans and their eligible participants. Investment objectives, risks, charges, expenses, and other important information should be considered carefully before investing. The collective trust mandates are managed by Vanguard Fiduciary Trust Company, a wholly owned subsidiary of The Vanguard Group, Inc.

A stable value investment is neither insured nor guaranteed by the U.S. government. There is no assurance that the investment will be able to maintain a stable net asset value, and it is possible to lose money in such an investment.

The information contained herein does not constitute tax advice, and cannot be used by any person to avoid tax penalties that may be imposed under the Internal Revenue Code. We recommend that you consult a tax or financial advisor about your individual situation.

Advice services are provided by Vanguard Advisers, Inc., a registered investment advisor.

Vanguard funds not held in a brokerage account are held by The Vanguard Group, Inc., and are not protected by SIPC. Brokerage assets are held by Vanguard Brokerage Services®, a division of Vanguard Marketing Corporation, member FINRA and SIPC.

CFA® and Chartered Financial Analyst® are trademarks owned by CFA Institute. Financial Engines is a registered trademark and Financial Engines Investment Advisor service is a registered service mark of Financial Engines, Inc. Financial Engines Advisors L.L.C., a federally registered investment advisor and wholly owned subsidiary of Financial Engines, Inc., provides all advisory services. The Vanguard Group has partnered with Financial Engines to provide the Vanguard Managed Account Program and Personal Online Advisor, powered by Financial Engines.

Vanguard Marketing Corporation, Distributor of the Vanguard Funds. U.S. Patent Nos. 6,879,964; 7,337,138; 7,720,749; 7,925,573; 8,090,646; and 8,417,623.

## Important information

The Products are not sponsored, endorsed, sold or promoted by Barclays Risk Analytics and Index Solutions Limited or its affiliates ("Barclays"). Barclays does not make any representation regarding the advisability of investing in the Products or the advisability of investing in securities generally. Barclays' only relationship with Vanguard is the licensing of the Index which is determined, composed and calculated by Barclays without regard to Vanguard or the [Products]. Barclays has no obligation to take the needs of Vanguard or the owners of the Products into consideration in determining, composing or calculating the Index. Barclays has no obligation or liability in connection with administration, marketing or trading of the Products.

London Stock Exchange Group companies include FTSE International Limited ("FTSE"), Frank Russell Company ("Russell"), MTS Next Limited ("MTS"), and FTSE TMX Global Debt Capital Markets Inc. ("FTSE TMX"). All rights reserved. "FTSE®", "Russell®", "MTS®", "FTSE TMX®" and "FTSE Russell" and other service marks and trademarks related to the FTSE or Russell Indexes are trademarks of the London Stock Exchange Group companies and are used by FTSE, MTS, FTSE TMX, and Russell under license. All information is provided for information purposes only. No responsibility or liability can be accepted by the London Stock Exchange Group companies nor its licensors for any errors or for any loss from use of this publication. Neither the London Stock Exchange Group companies nor any of its licensors make any claim, prediction, warranty or representation whatsoever, expressly or impliedly, either as to the results to be obtained from the use of the FTSE Indexes or the fitness or suitability of the Indexes for any particular purpose to which they might be put.

The index is a product of S&P Dow Jones Indices LLC ("SPDJI"), and has been licensed for use by Vanguard. Standard & Poor's® and S&P® are registered trademarks of Standard & Poor's Financial Services LLC ("S&P"); Dow Jones® is a registered trademark of Dow Jones Trademark Holdings LLC ("Dow Jones"); S&P® and S&P 500® are trademarks of S&P; and these trademarks have been licensed for use by SPDJI and sublicensed for certain purposes by Vanguard. Vanguard product(s) are not sponsored, endorsed, sold or promoted by SPDJI, Dow Jones, S&P, their respective affiliates and none of such parties make any representation regarding the advisability of investing in such product(s) nor do they have any liability for any errors, omissions, or interruptions of the index.

Morningstar data ©2016 Morningstar, Inc. All Rights Reserved. The information contained herein: (1) is proprietary to Morningstar and/or its content providers; (2) may not be copied or distributed; and (3) is not warranted to be accurate, complete or timely. Neither Morningstar nor its content providers are responsible for any damages or losses arising from any use of this information. Past performance is no guarantee of future results.

The Russell Indexes and Russell® are registered trademarks of Russell Investments and have been licensed for use by The Vanguard Group. The products are not sponsored, endorsed, sold or promoted by Russell Investments and Russell Investments makes no representation regarding the advisability of investing in the products.

"Dividend Achievers" is a trademark of The NASDAQ OMX Group, Inc. (collectively, with its affiliates, "NASDAQ OMX") and has been licensed for use by The Vanguard Group, Inc. Vanguard mutual funds are not sponsored, endorsed, sold, or promoted by NASDAQ OMX and NASDAQ OMX makes no representation regarding the advisability of investing in the funds. NASDAQ OMX MAKES NO WARRANTIES AND BEARS NO LIABILITY WITH RESPECT TO THE VANGUARD MUTUAL FUNDS.

The funds or securities referred to herein are not sponsored, endorsed, or promoted by MSCI, and MSCI bears no liability with respect to any such funds or securities. The prospectus or the Statement of Additional Information contains a more detailed description of the limited relationship MSCI has with Vanguard and any related funds.

The Global Industry Classification Standard ("GICS") was developed by and is the exclusive property and a service mark of MSCI Inc. ("MSCI") and Standard and Poor's, a division of McGraw-Hill Companies, Inc. ("S&P") and is licensed for use by Vanguard. Neither MSCI, S&P nor any third party involved in making or compiling the GICS or any GICS classification makes any express or implied warranties or representations with respect to such standard or classification (or the results to be obtained by the use thereof), and all such parties hereby expressly disclaim all warranties of originality, accuracy, completeness, merchantability or fitness for a particular purpose with respect to any such standard or classification. Without limiting any of the foregoing, in no event shall MSCI, S&P, any of its affiliates or any third party involved in making or compiling the GICS or any GICS classification have any liability for any direct, indirect, special, punitive, consequential or any other damages (including lost profits) even if notified of the possibility of such damages.

Apple®, iPhone®, and iPad® are trademarks of Apple Inc., registered in the United States and other countries. App Store is a service mark of Apple Inc. Android™ is a trademark of Google Inc.

© 2017 The Vanguard Group, Inc. All rights reserved.