Community Foundation for Muskegon County

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

Portfolio review

February 8, 2016

Vanguard

Agenda

I. Vanguard's economic and investment outlook
II. Portfolio summary
III. Segregated accounts reporting
IV. Asset allocation and spending analysis

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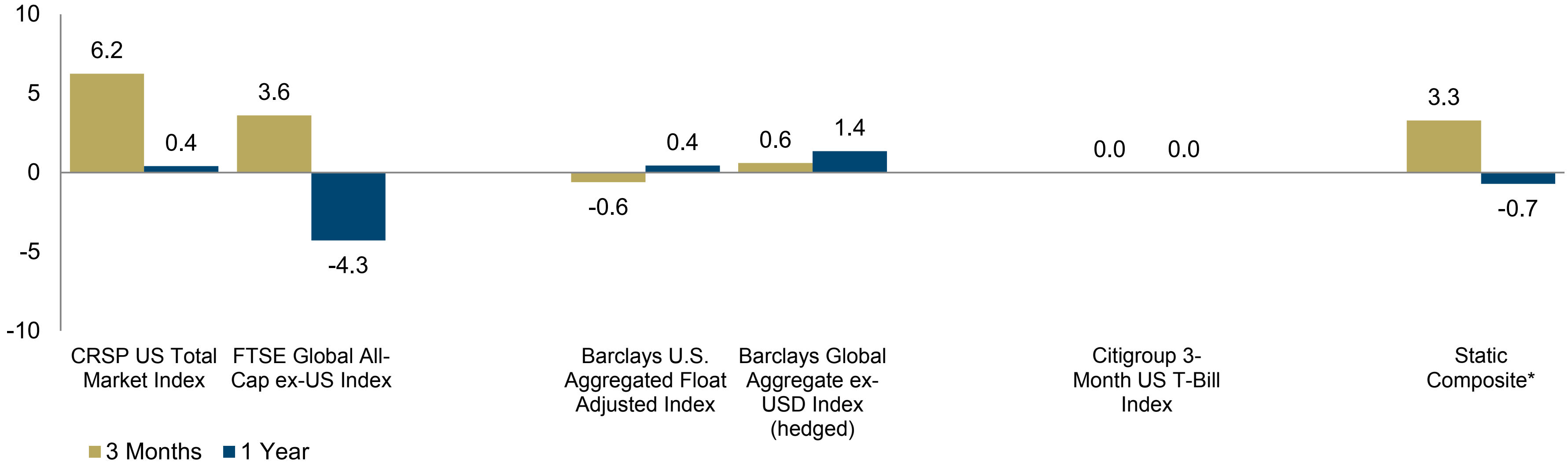
Vanguard’s economic and investment outlook

Global equities were mixed while bond markets produced generally positive returns over the last three and 12 months

- U.S. stocks outperformed non-U.S. stocks over the last year in part due to a combination of increased uncertainty abroad and the strengthening of the U.S. Dollar against major foreign currencies such as the Euro, Yen, and Pound
- Both U.S. and currency-hedged non-U.S. bonds generated positive returns over the last year as intermediate- and long-term yields generally fell across the world
- Cash investors continued to earn marginally positive nominal returns as short-term rates remained relatively unchanged amid the Fed's ongoing zero interest-rate policy

Global market returns as of December 31, 2015 (%)

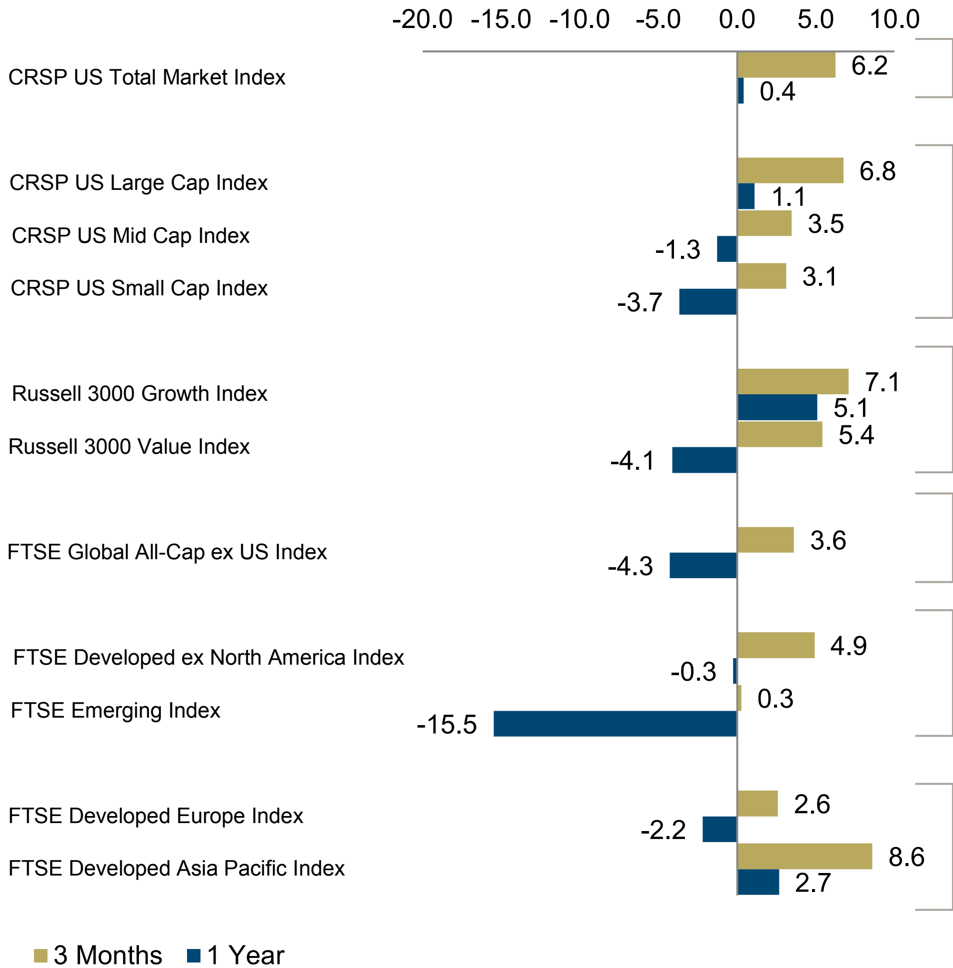


Sources: Barclays, FTSE, MSCI, Russell, and Dow Jones.

* Static Composite (39% U.S. stocks, 26% International stocks, and 24.5% Investment-grade U.S. bonds, 10.5% Investment-grade international bonds). *Past performance is no guarantee of future returns. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.*

U.S. equity markets were positive over the last 12 months, while non-U.S. markets declined

Global equity market returns as of December 31, 2015 (%)



- From a sector perspective, health care (+7%) and consumer discretionary (+6%) were top performers over the last year while energy (-23%) and materials (-10%) lagged

- Large-cap stocks outperformed their mid- and small-cap peers domestically over the trailing 12 months

- Continuing their recent trend, growth stocks outperformed value stocks over the last year and trailing three months

- Non-U.S. markets trailed U.S. markets over the last year largely due to the weakness of major foreign currencies relative to the U.S. dollar

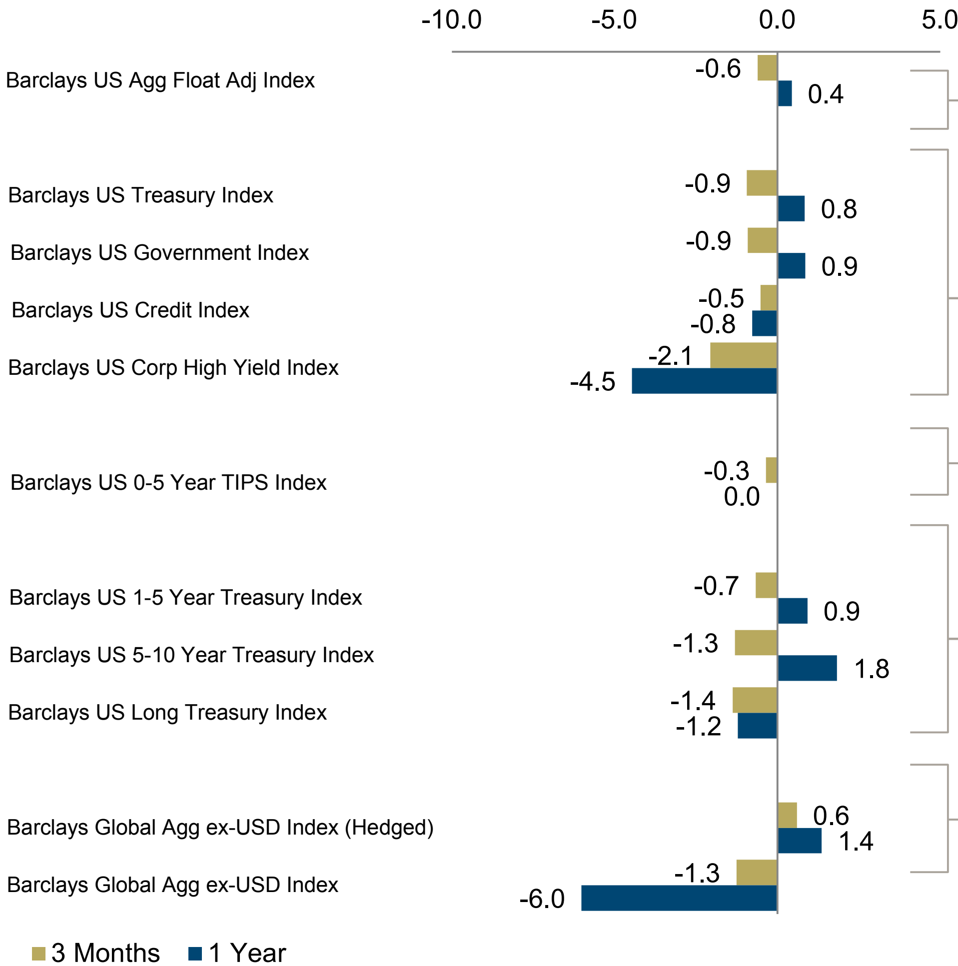
- Emerging market equities continued to trail non-U.S. developed market equities as concerns over falling commodity prices and slowing global growth weighed on results
- From a country perspective, Canada (-24%), Brazil (-43%), and the United Kingdom (-5%), were noteworthy detractors

- European stocks lagged U.S. equities mainly due to weakness of the Euro, while Asia Pacific stocks rallied given strong performance of Japanese stocks (+11%)

Sources: Barclays, FTSE, MSCI, Russell, and Dow Jones. *Past performance is no guarantee of future returns. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.*

Global investment-grade bond markets posted modest gains over the last year

Global bond market returns as of December 31, 2015 (%)



- U.S. bond markets were marginally positive over the last year driven primarily by higher quality fixed income segments
- Treasury and government bonds outperformed both investment-grade and high-yield bonds as credit spreads widened during the year
- Short-maturity Treasury Inflation Protected Securities posted losses on the year as real interest rates moved marginally higher across the real Treasury yield curve
- Performance was mixed amongst Treasury issues over the last 12 months. The 2-year yield increased by 38 basis points, while the 10-year and 30-year yields increased by 10 and 26 basis points respectively
- Given the strength of the U.S. dollar, currency hedged non-USD investment-grade bond returns were positive over the 12 months while unhedged returns were negative

Sources: Barclays, FTSE, MSCI, Russell, and Dow Jones. *Past performance is no guarantee of future returns. The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index.*

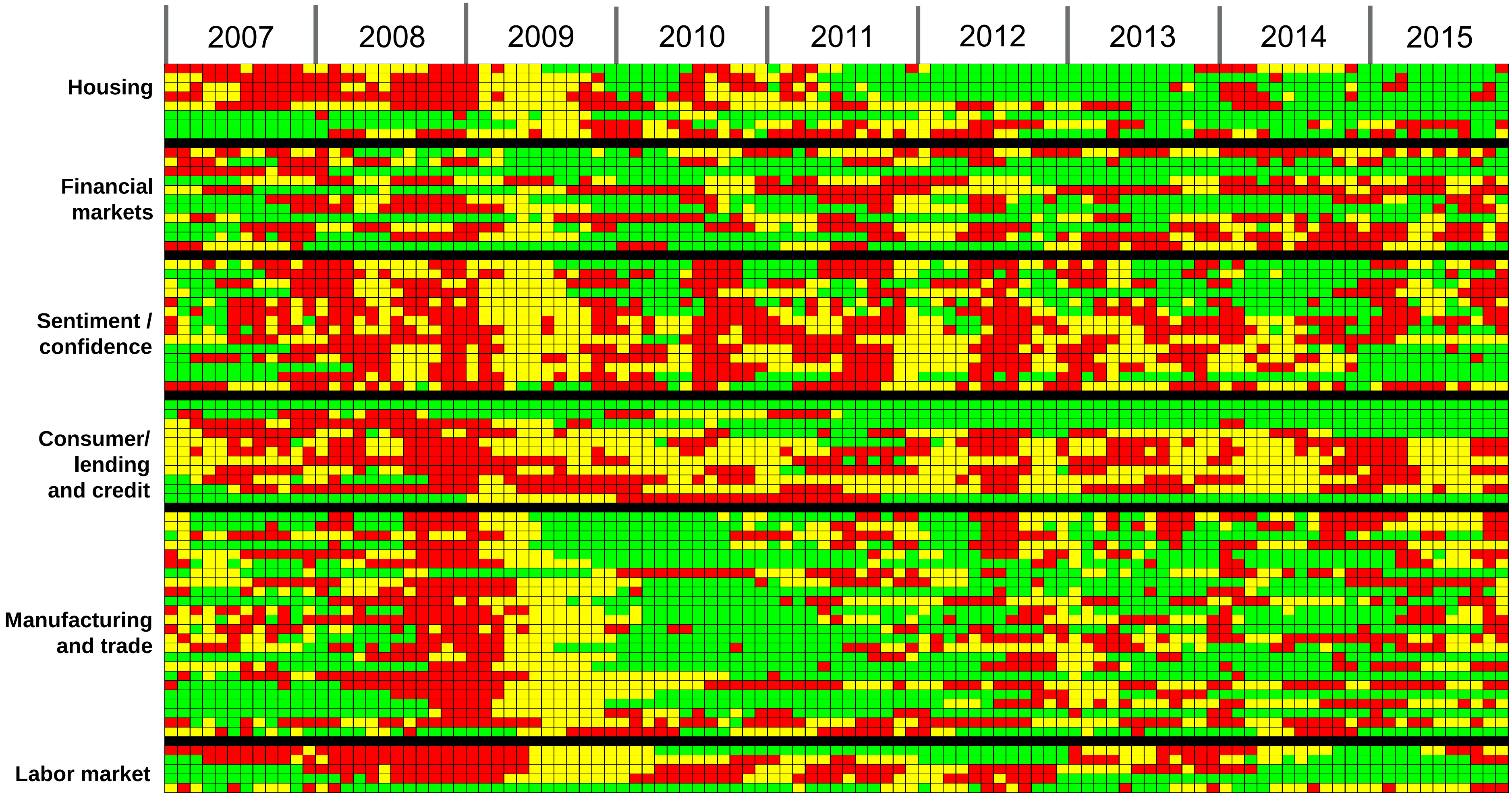
Themes and outlook

	Global	U.S.	Europe	Asia
Growth	• *Frustratingly fragile* • Downside cyclical risks, with “global recession scares” likely in 2016. Few, if any, economies accelerate this year. • Low-growth world in the midst of *structural convergence*, not more dire secular stagnation.	• Growth should prove uneven but resilient despite low oil prices and U.S. dollar. • But, our outlook is below consensus, near 2%. Job growth should slow in 2016, leading to “recession scare”. • Service sector strength offsets manufacturing weakness	• Decent growth (1.5%) fueled by QE, Euro weakness and oil prices • QE continues to ease financial conditions in the periphery • Slowdown in the speed of fiscal tightening a positive for growth	• China: permanently slower, but hard landing unlikely. Growth expected in the 6-7% range, with industrial data much weaker • Japan: magnitude of cyclical recovery limited by structural headwinds. No progress on Abenomics' "Third Arrow"
Inflation	• Secular deflationary forces persist, though some headwinds should fade at margin • Central banks will continue to struggle to meet 2% targets	• Downward pressure from dollar / oil prices should abate, but core inflation should remain low thru at least 2017. • Wage growth should rise modestly with sub-5% unemployment rate.	• Progress made on inflation and inflation expectations thanks in part to QE	• Japan: Abenomics goal of 2% put off. • Monetary easing not having desired effect on nominal wage growth either
Monetary policy & interest rates	• Divergent monetary policies: ECB and BoJ may not raise rates this decade • We view low-rate environment as secular, not temporary	• *Dovish tightening*, 1% could be high watermark in Fed funds rate over next 1-2 years. • 10Y Treasury may struggle to exceed 2.5%	• Expansion or extension of QE program likely	• PBoC: Further monetary easing likely. Monetary policy constrained by capital outflows • Japan: QQE likely to continue

	Balanced	Equities	Bonds
Asset returns (Global)	• A guarded view given global crosscurrents of low yields and equity valuations • Principles of portfolio construction remain unchanged • 10-year expected returns for balanced portfolios lower than historical averages, with shorter-term expectations even lower	• In spite of high valuations, long-term outlook is not bearish when adjusted for the low-rate environment. This, of course, does not preclude a bear market • Outlook for global equity risk premium remains decent over long run	• Treasury yields may struggle to rise significantly unless inflation dynamics change; we still credit risk (i.e., recession) as higher than duration risk (i..e., rapid rise in interest rates) • Bond returns likely to be muted; central tendency of 2–3% nominal annualized over 10 years

Source: Vanguard.

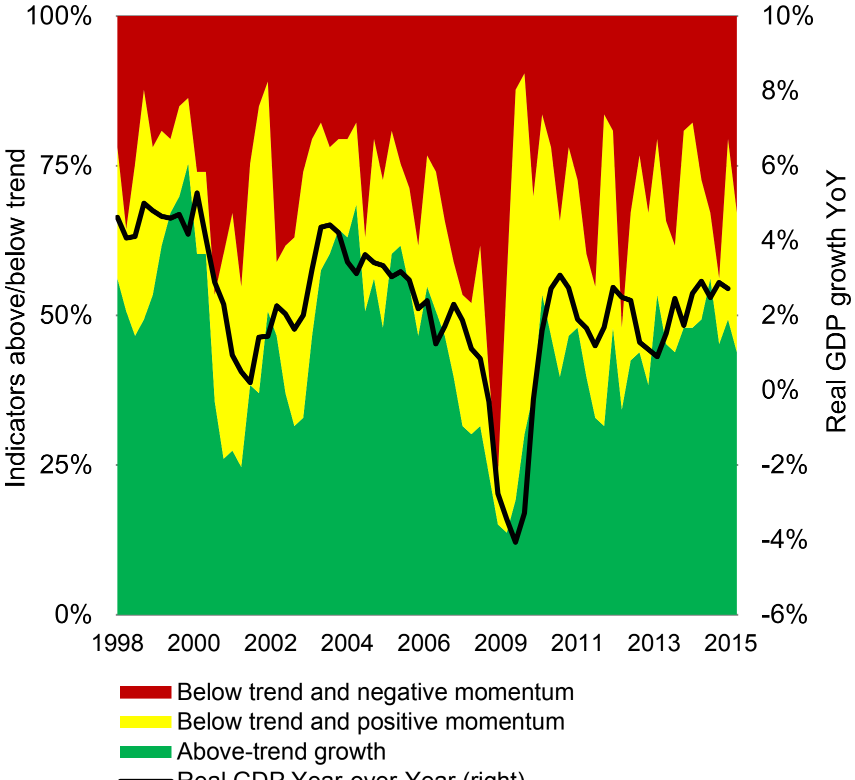
Sector dashboard of the U.S. economy



Source: Vanguard Investment Strategy Group. Data as of November 30, 2015.

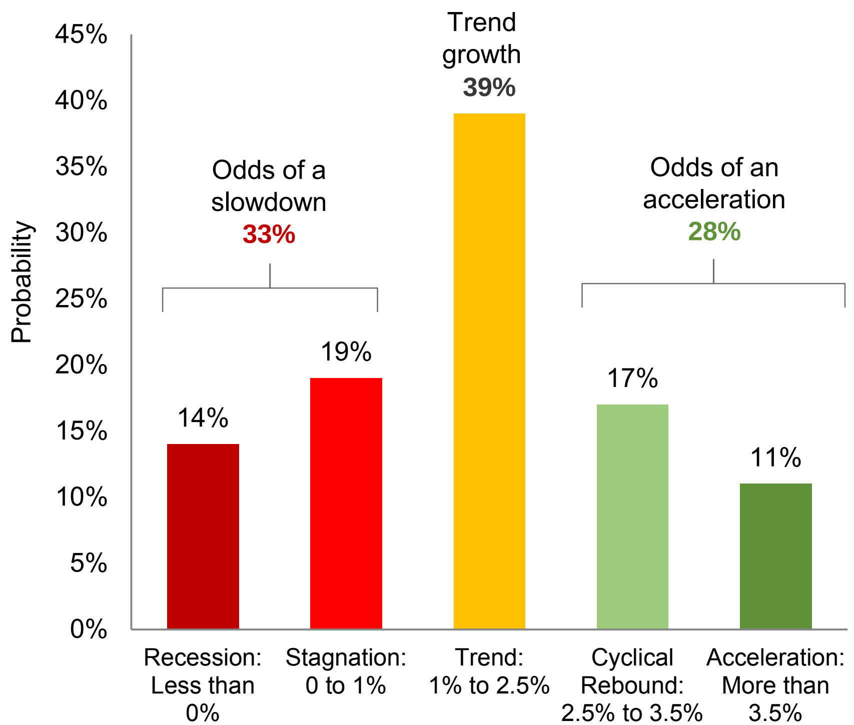
Vanguard global dashboard of leading economic indicators and implied economic growth for 2016

United States: Economic indicators



Above-trend growth: Housing, Consumer confidence, Labor market	
Below trend, but positive momentum: Financial markets, Consumer credit	
Below trend and negative momentum: Manufacturing	

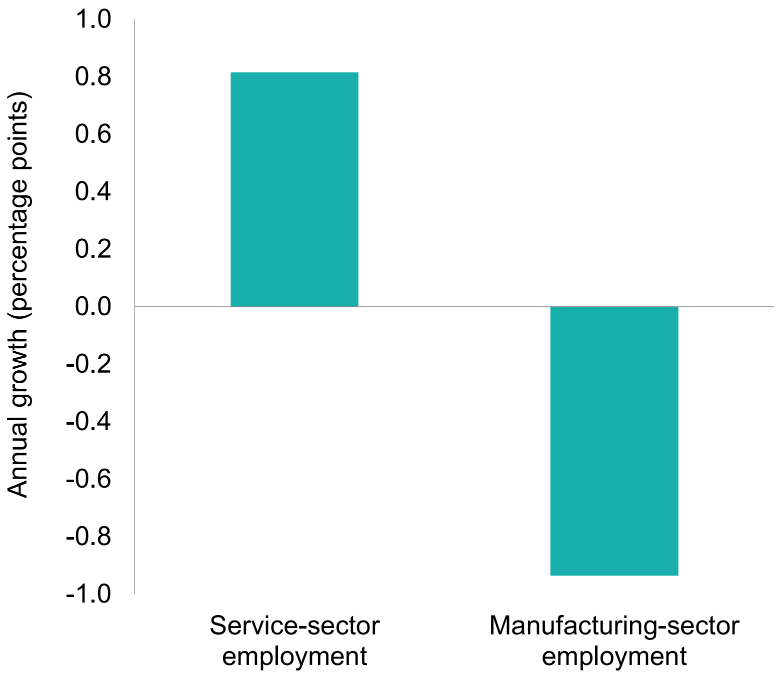
Estimated distribution of U.S. growth outcomes, 2016



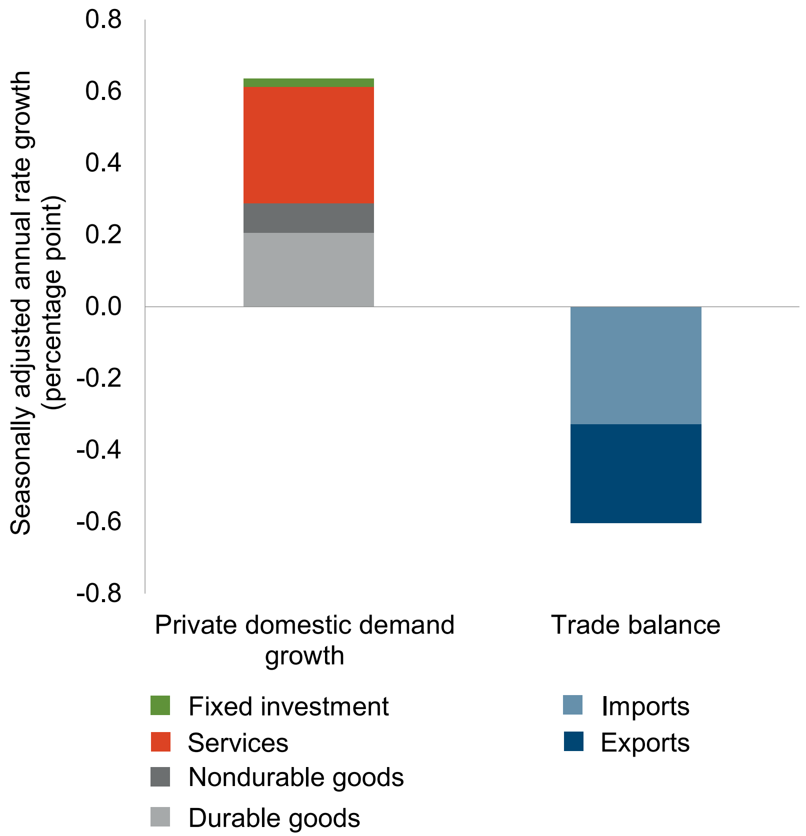
Notes: Distribution of growth outcomes generated by bootstrapping the residuals from a regression based on a proprietary set of leading economic indicators and historical data, estimated from 1960 to 2015 and adjusting for the time-varying trend growth rate.
Sources: Vanguard calculations, based on data from Moody's Analytics Data Buffet, U.S. Bureau of Economic Analysis, and Federal Reserve.

Effects of stronger U.S. dollar are not one-sided

Impact on employment growth



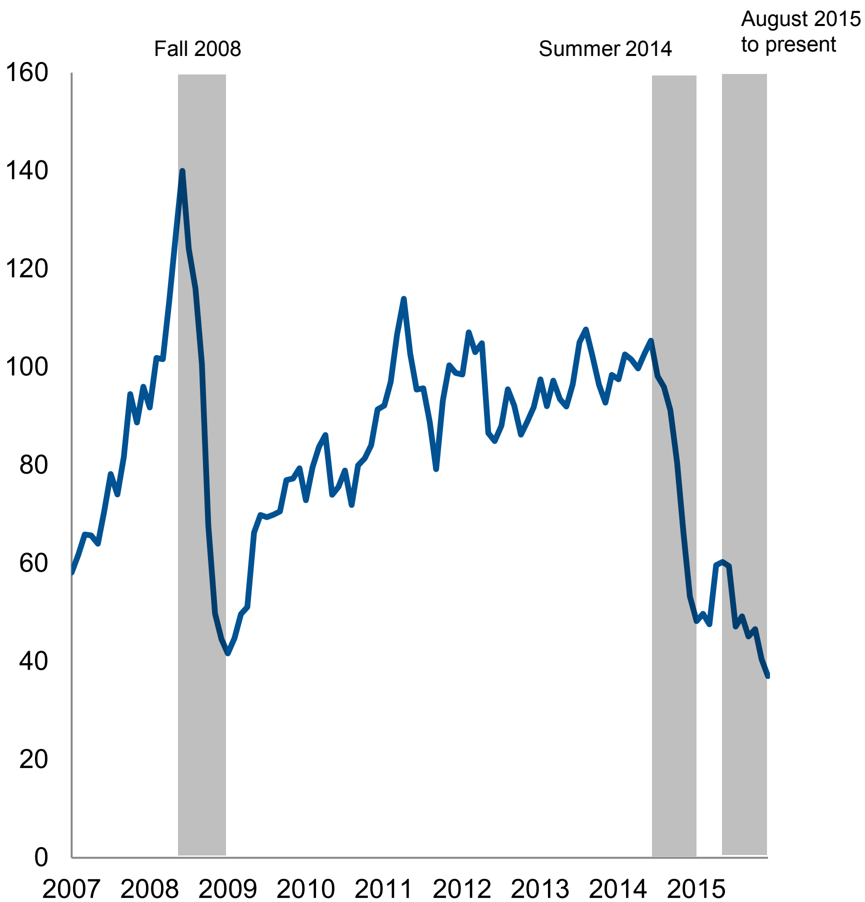
Impact on real GDP growth and components



Notes: Estimated impacts based on regressions of macro variables (components of employment growth and real GDP growth) on Real Broad Dollar Index. Estimated effects arise from applying cumulative real appreciation since third-quarter 2014 (12%) to corresponding regression coefficients. Results are weighted by components as follows: service-providing employment (84%), goods-producing employment (16%), consumer services (46% of GDP), durable goods (7%), nondurable goods (15%), imports (15%), and exports (13%). U.S. government sector not included in this analysis.
Sources: Vanguard calculations, based on data from Moody's Analytics Data Buffet.

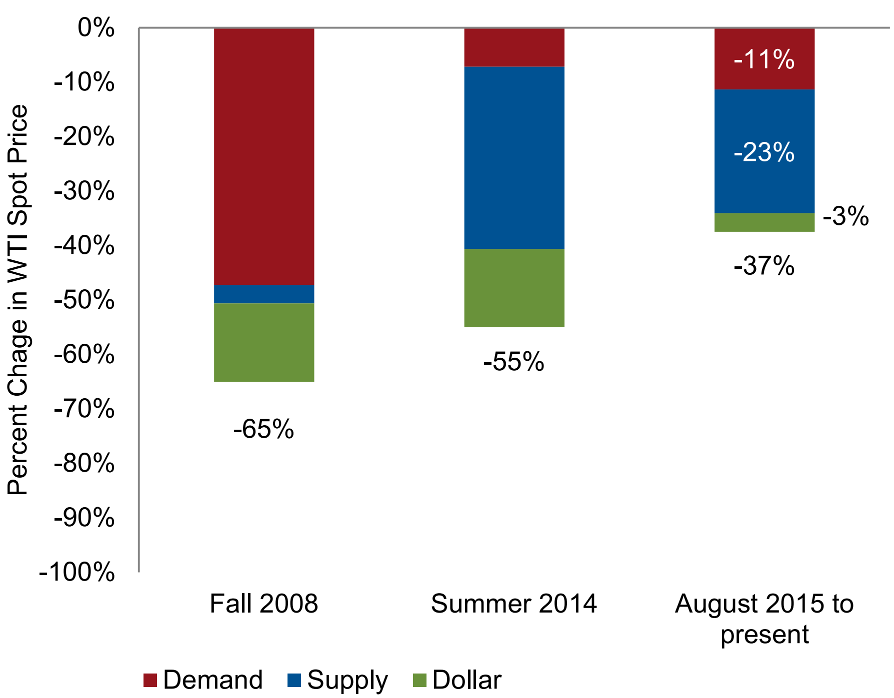
Oil

WTI Spot Price, $/bbl



Source: Thompson Reuters Datastream.

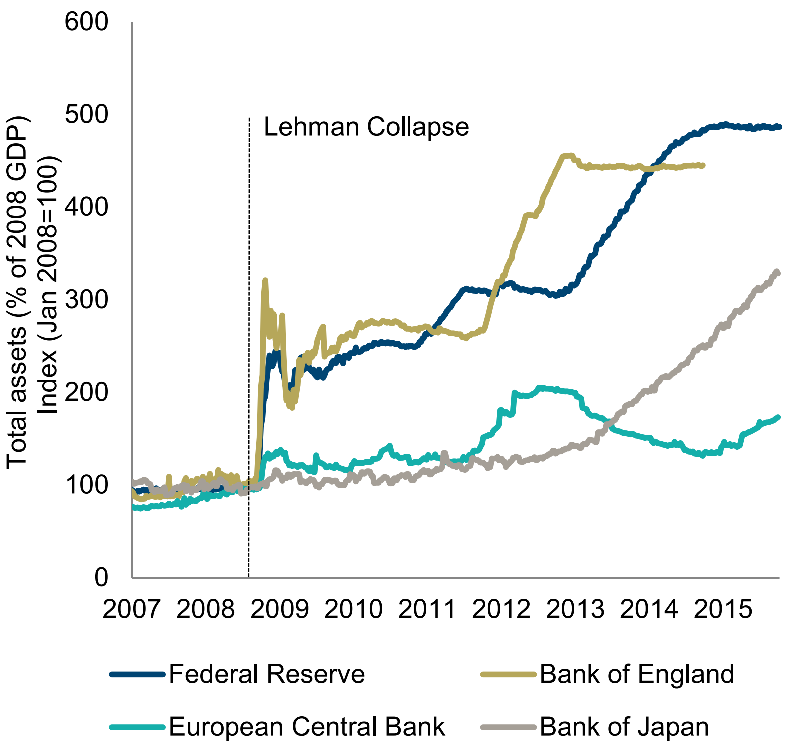
Supply continues to be the largest component of this year's decline in crude prices



Sources: Vanguard calculations, based on data from Thompson Reuters Datastream, Energy Information Administration, Standard & Poors, U.S. Federal Reserve and Federal Reserve Bank of St. Louis. Monthly West Texas Intermediate (WTI) oil spot values were used from Federal Reserve Bank of St. Louis from 1983-1985 and month end WTI spot values from U.S. Energy Information Administration from January 1986 to January 12th 2015.
Notes: Components of oil price drop are defined as: U.S. dollar = 8-month cumulative percentage change (CPC) in USD major currencies index; Demand = 8- month CPC in spot copper prices minus 8-month CPC in the USD; Supply = 8 month CPC in WTI spot oil prices minus 8-month CPC in spot copper prices.

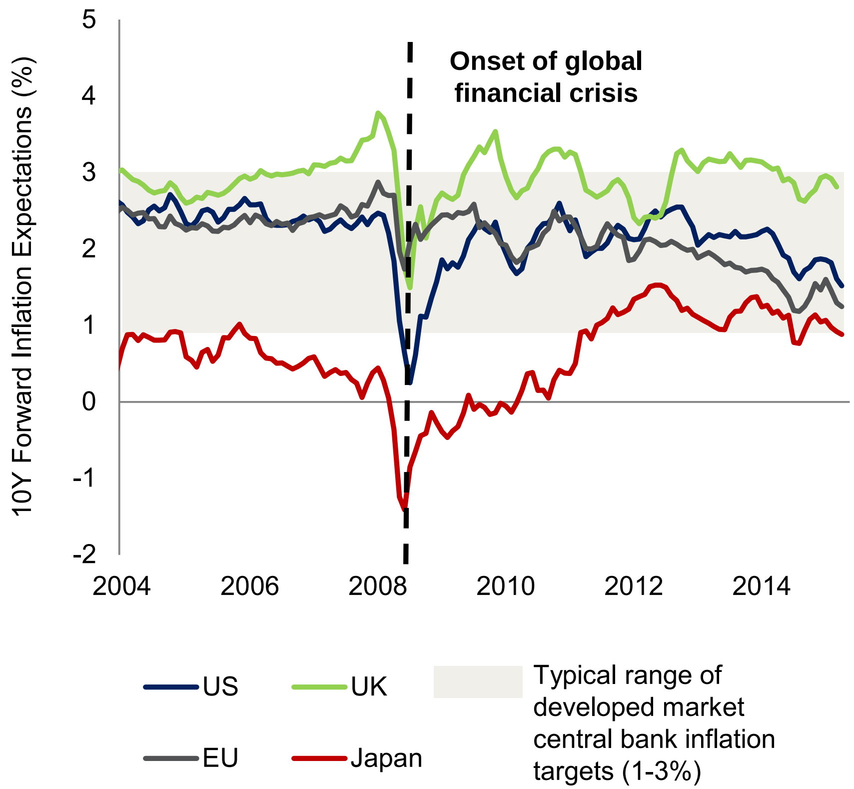
Global monetary policies diverging

Global central bank assets as a percentage of a region's 2008 GDP



Notes: Total assets for each central bank are shown as percentages of that country's or region's 2008 GDP. Data as of October 2015.
Sources: Vanguard calculations, based on data from Federal Reserve, Bank of England, ECB, Bank of Japan, and IMF.

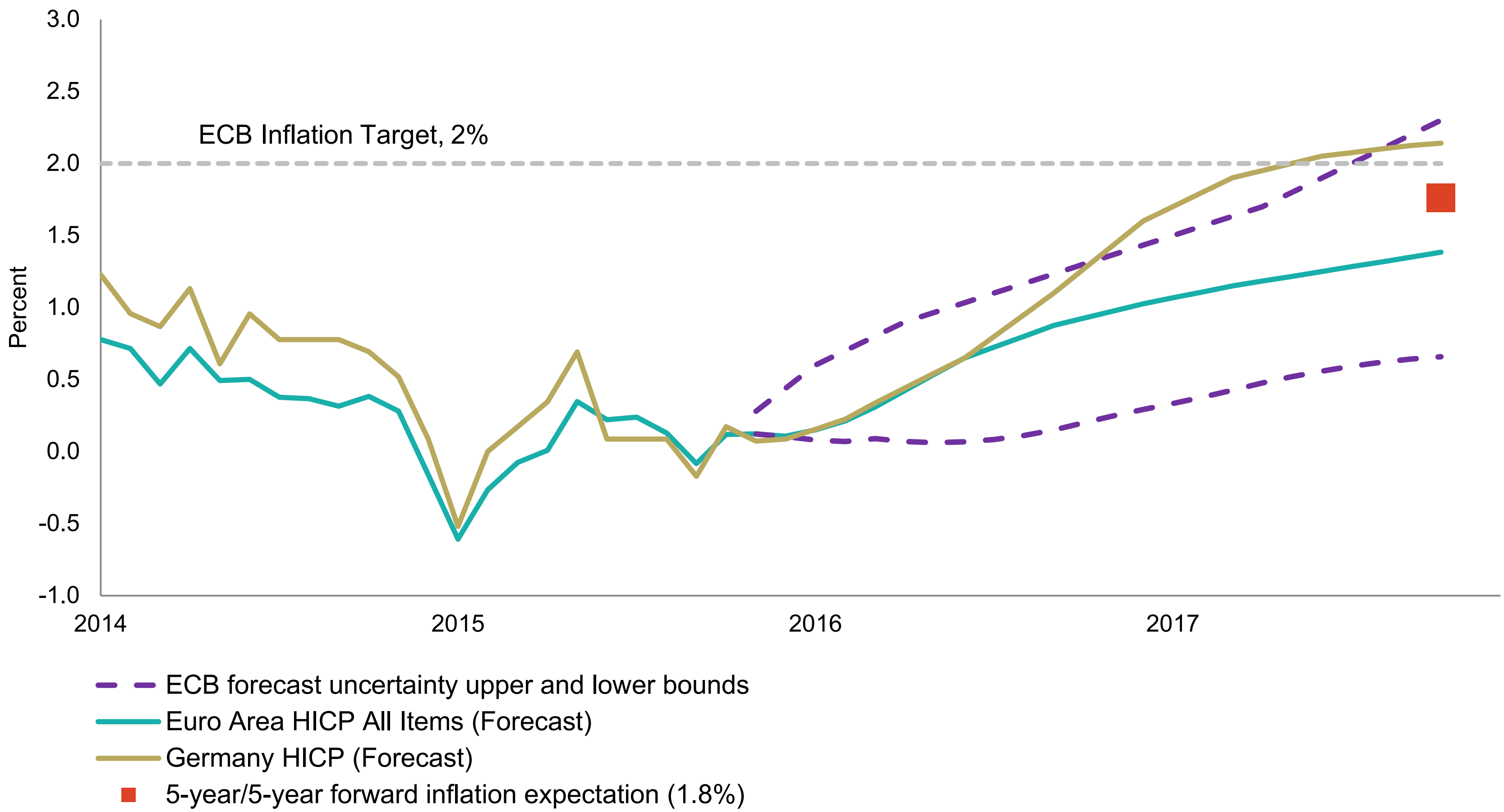
Break even inflation (BEI)



Note: Figure displays 10-year forward inflation expectations for each country. U.S. and UK represent 10-year break even inflation (BEI), Japan represents 10-year US BEI less 10-year yield differential between U.S. and Japan through October 31, 2013 and 10-year break even inflation thereafter, and EU represents 10-year Inflation swaps.
Sources: Vanguard calculations, based on data from U.S. Federal Reserve, Bank of Japan, Bank of England, and ECB. Data as of September 30, 2015.

Europe growing, and QE has helped

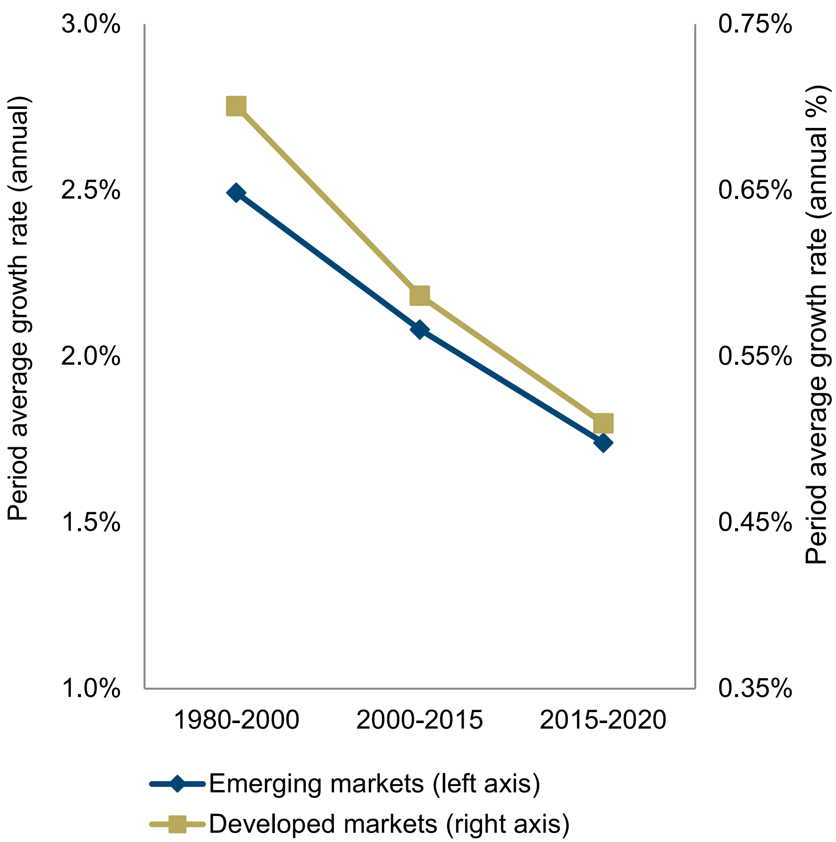
Euro area inflation will take some time to reach it's target



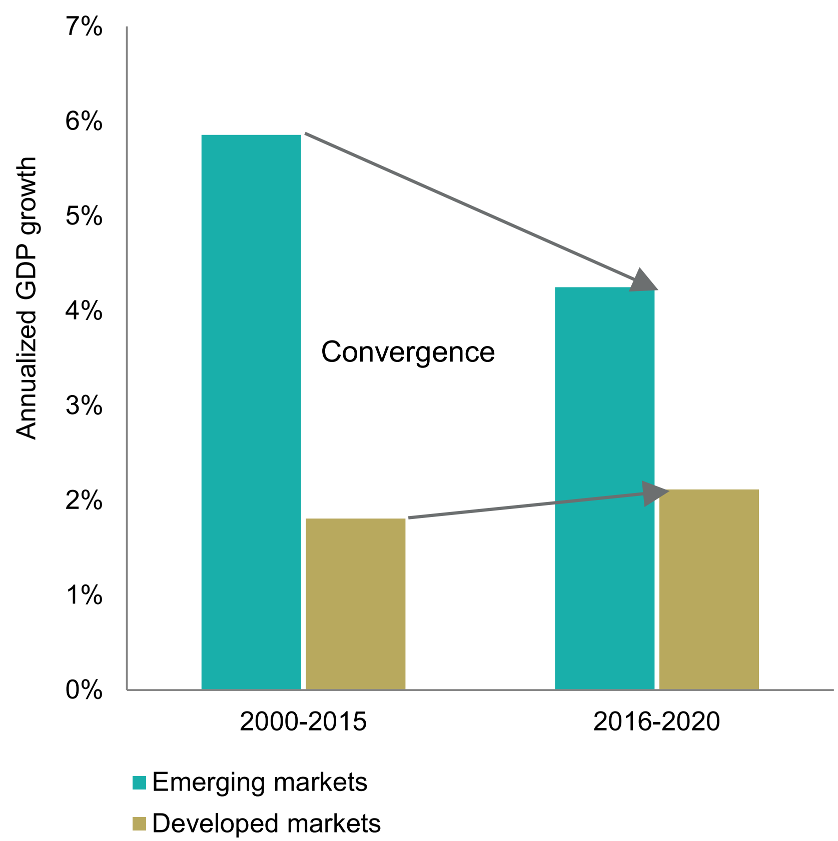
Notes: Forecast lines are constructed using ECB and Bundesbank forecast data at annual intervals over the next two years. All forecasts are smoothed over a six-month period. HICP = harmonised index of consumer prices.
Sources: Vanguard calculations, based on data from Bank of England, ECB (European Central Bank), Eurostat, German Federal Statistical Office (Statistisches Bundesamt), Bloomberg, Bundesbank, Bank for International Settlements, Macrobond, and Moody's Analytics.

Structural deceleration = growth convergence

Demographic headwinds



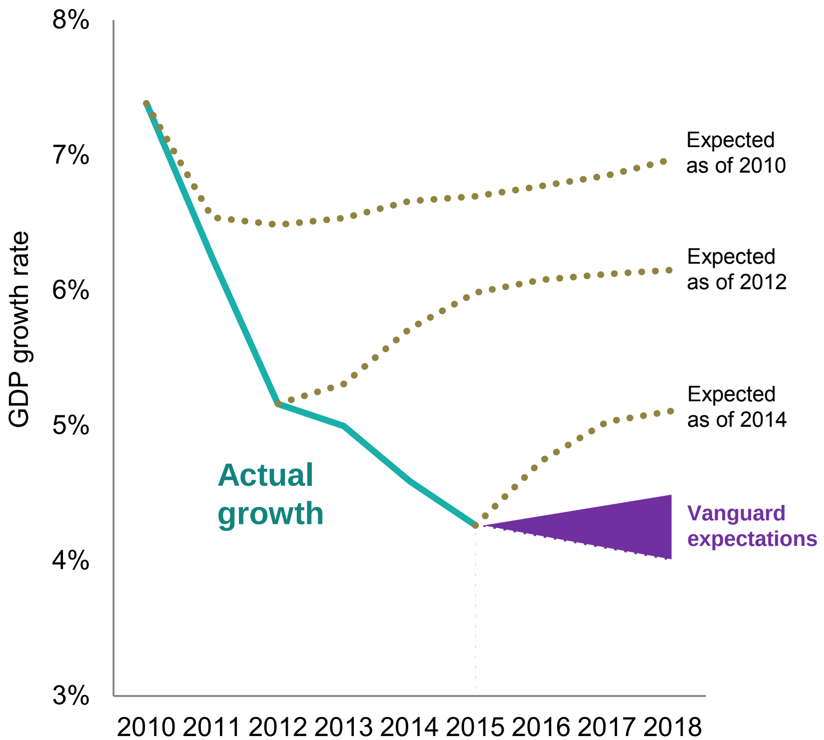
Narrowing growth gap



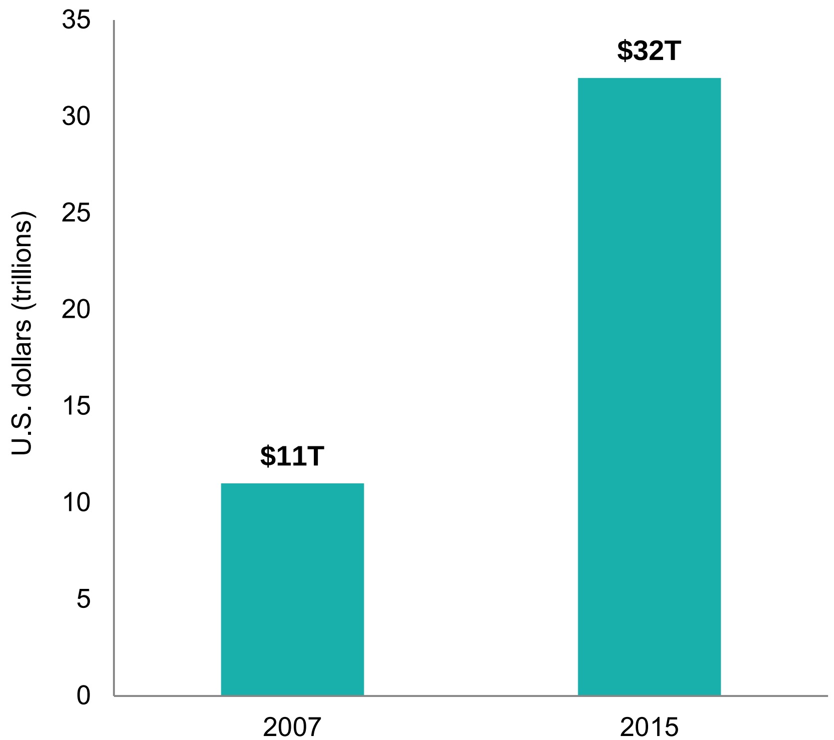
Notes: Population growth and potential GDP data and projections based on IMF estimates of output gap and real GDP growth by country. Developed and emerging market group totals estimated as GDP-weighted average of individual countries. Groupings follow IMF designation.
Sources: Vanguard, based on data from International Monetary Fund—World Economic Outlook, October 2015.

Emerging market adjustment continues

Growth has consistently disappointed



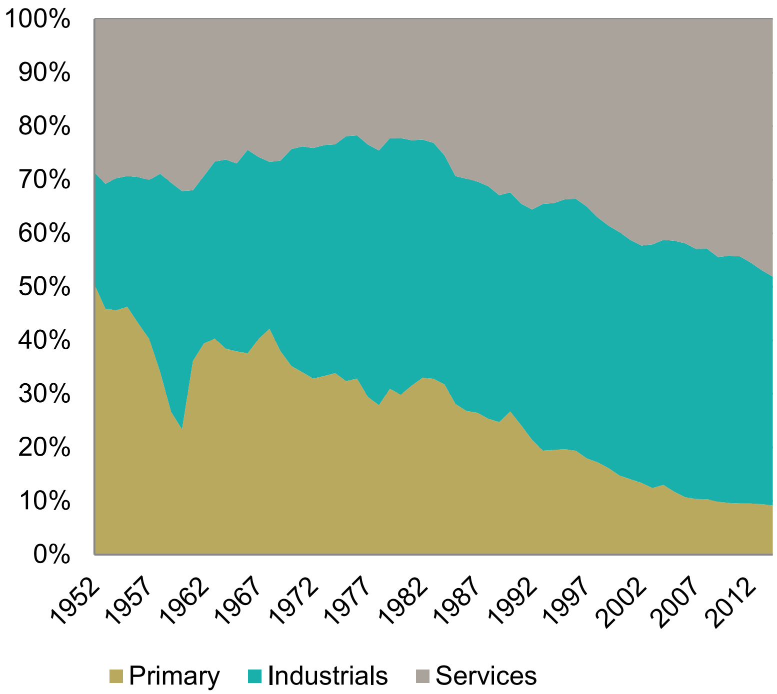
Pace of debt accumulation raises concerns



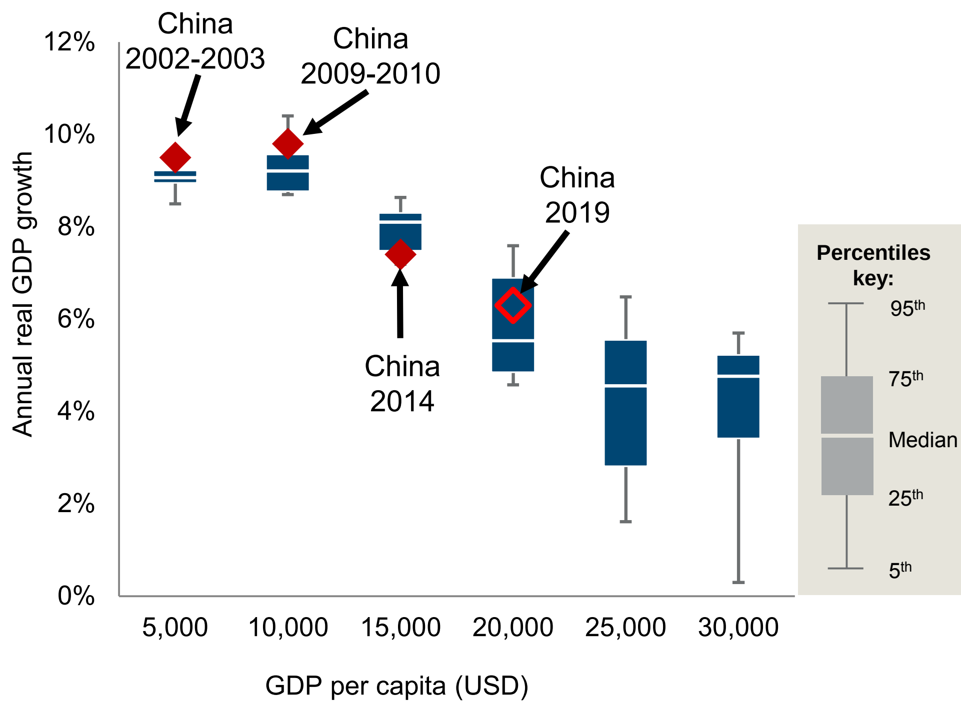
Sources: Vanguard calculations, based on data from IMF, Organisation for Economic Co-operation and Development, and JPMorgan

Chinese growth slowing as they transition

The path to a developed market follows the service sector



Historical real GDP growth versus GDP per capita for various Asian economies



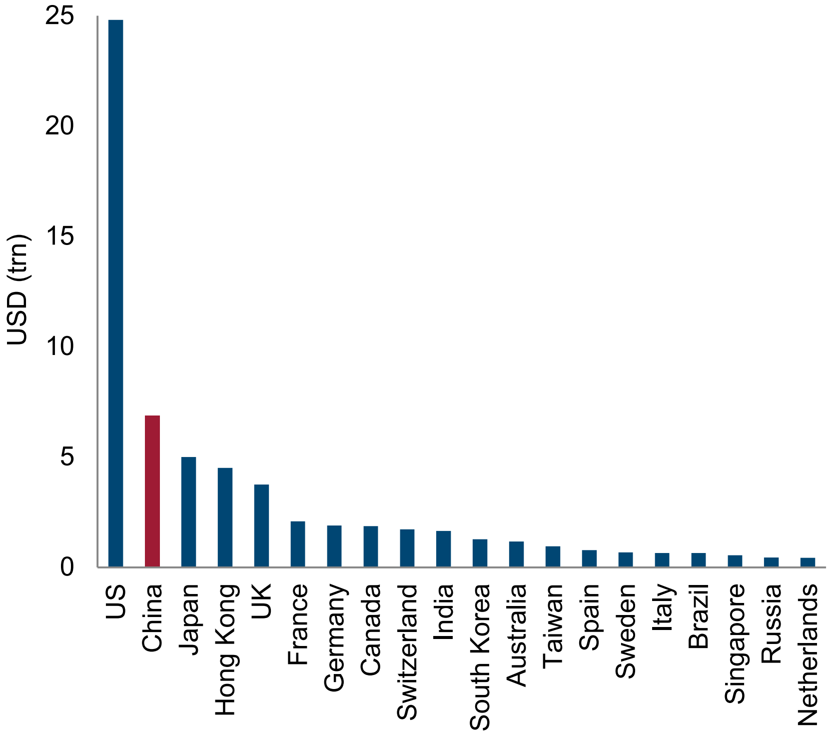
Notes: Chart illustrates real GDP growth rates against GDP per capita for China (for the years shown) and for Hong Kong, Japan, Taiwan, South Korea, and Singapore (represented by the blue "bars and whiskers") for 1951–November 2014. For each level of GDP per capita, we calculated distribution of real GDP growth rates across the five Asian economies. China 2014 and 2019 forecasts represent data from IMF World Economic Outlook (WEO), October 2014.
Sources: Vanguard calculations, based on data from Penn World Tables (version 8.0 for 1951–2011) and IMF WEO, October 2014.growth rates across the five Asian economies.

Source: Vanguard calculations based on data from CEIC

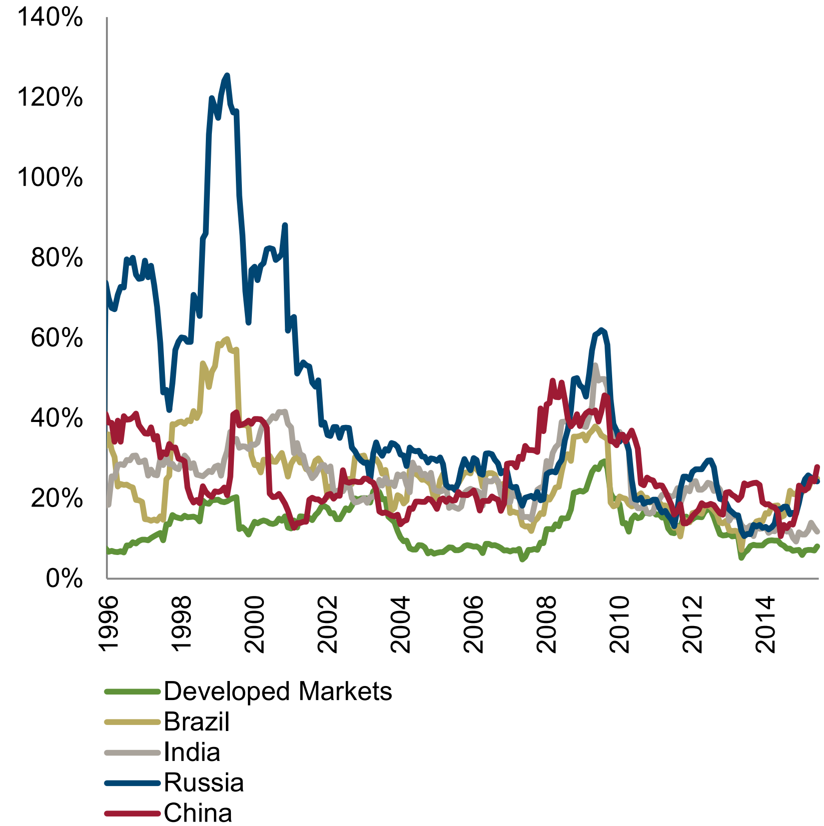
Recent Chinese market volatility is typical for an emerging market, though perspective is warranted given the size of the stock market

Chinese equity market the second largest by market capitalisation

Total listed market cap (USD trn)



Equity market volatility by region



Sources: Credit Suisse Research Team and Bloomberg.

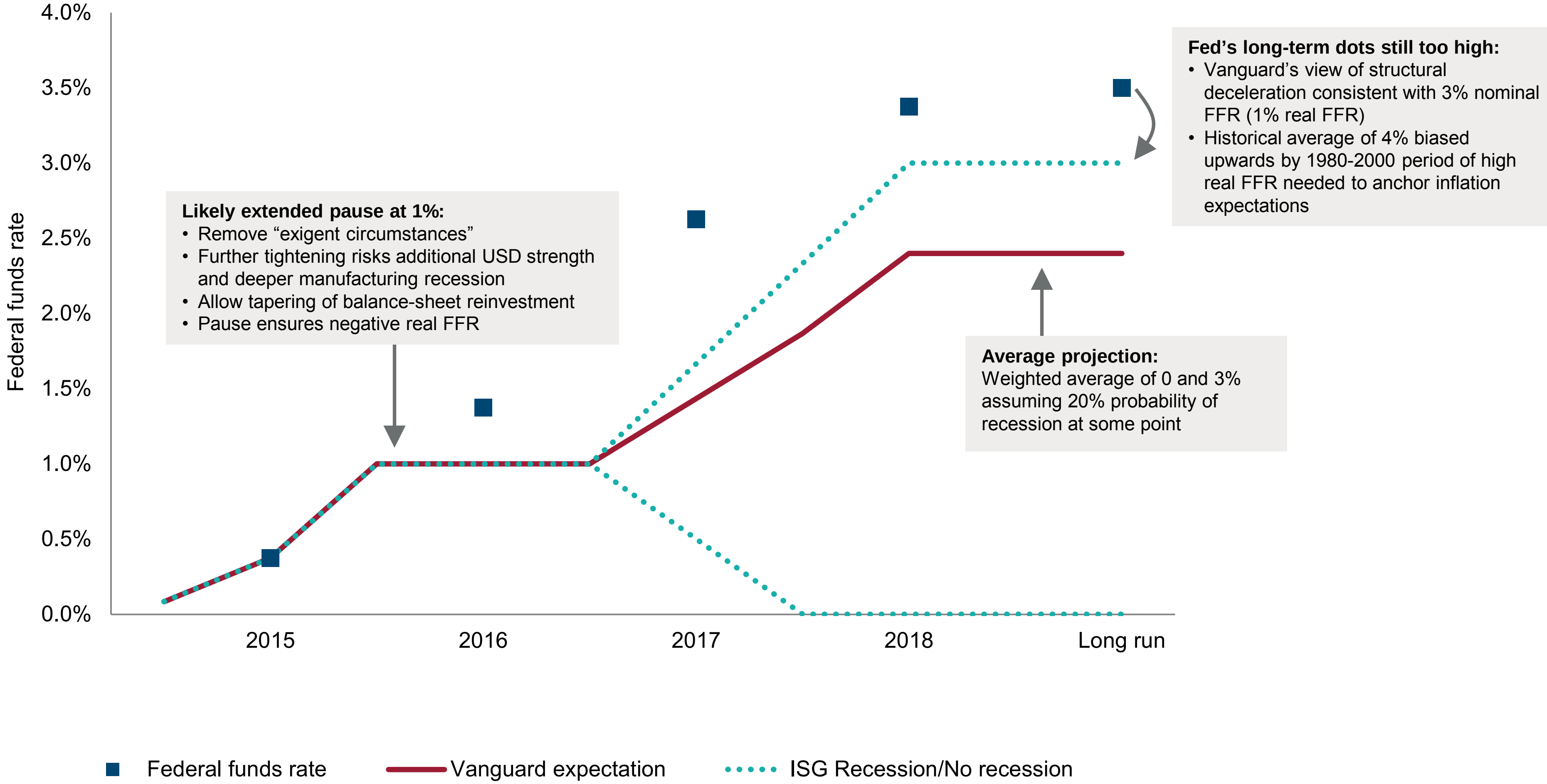
Note (RHS): Chart depicts the 12 month rolling annualised standard deviation of returns. Developed market equities represented by the MSCI World Index; Brazil represented by the MSCI Brazil Index; India represented by the MSCI India Index; Russia represented by the MSCI Russia Index; and China represented by the Shanghai Composite Index. All returns are in local currency.

Emerging markets' financial system are much different today

Crisis Years	External debt stocks (% of GDP)	Total reserves (% of total external debt)	External debt service (% exports)	Total reserves/ Current account deficit	Currency peg in place (yes or no)
Brazil 2002	48	16	71	5	No
Hungary 1997	52	36	33	Less than 1	Yes
Malaysia 1997	36	44	7	4	Yes
Mexico 1994	34	5	27	Less than 1	Yes
South Africa 1997	20	16	17	2	No
Turkey 1997	32	22	22	7	No
Argentina 2001	57	10	49	4	Yes
Indonesia 1997	52	12	30	3	Yes
Russia 1998	65	6	29	56	Yes
South Korea 1997	32	13	—	8	Yes
Today					
Brazil	21	74	29	4	No
Hungary	147	24	97	8	No
Malaysia	68	63	4	4	No
Mexico	35	40	10	7	No
South Africa	38	32	8	2	No
Turkey	47	29	29	2	No
Argentina	22	21	14	6	No
Indonesia	30	37	19	3	No
Russia	35	70	32	15	No
South Korea	32	83	—	53	No

Notes: Data for external debt service as percentage of exports for Hungary and Russia begin in 2005. Data for total reserves as percentage of exports for Hungary begin in 2000.
Sources: Vanguard calculations, based on data from World Bank, IMF, Oxford Economics, Bank of Korea, Korea Customs Service, Central Bank of the Russian Federation, Department of Statistics Malaysia, CEIC, Central Bank of Hungary, and *The Country Chronologies and Background Material to Exchange Rate Arrangements into the 21st Century: Will the Anchor Currency Hold?* (Ilzetzki, Reinhart, and Rogoff, 2011).

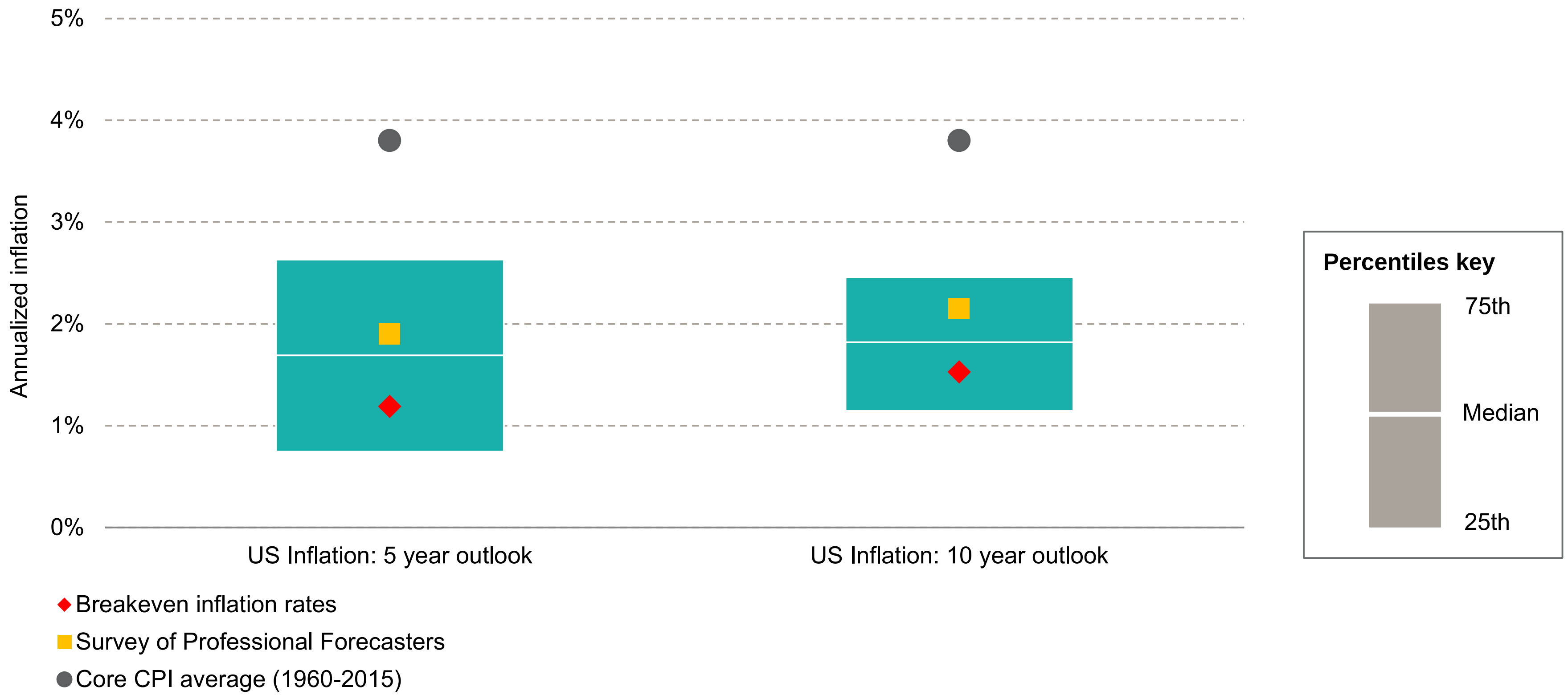
Deconstructing Vanguard's view of "dovish tightening" in interest rates



Notes: Blue dots represent median expectation at stated year-end from Federal Reserve Board's September 2015 *Summary of Economic Projections*. Red line represents Vanguard's estimate of appropriate Fed policy adjusted for probability of recession in any one year beginning in 2018. Teal dashed lines represent binary outcomes of recession (line approaching and remaining at zero) or no recession (line approaching and remaining at 3%). FFR = federal funds rate.
Sources: Vanguard calculations, based on data from Federal Reserve Board.

U.S. inflation outlook is near 2%

U.S. inflation outlook

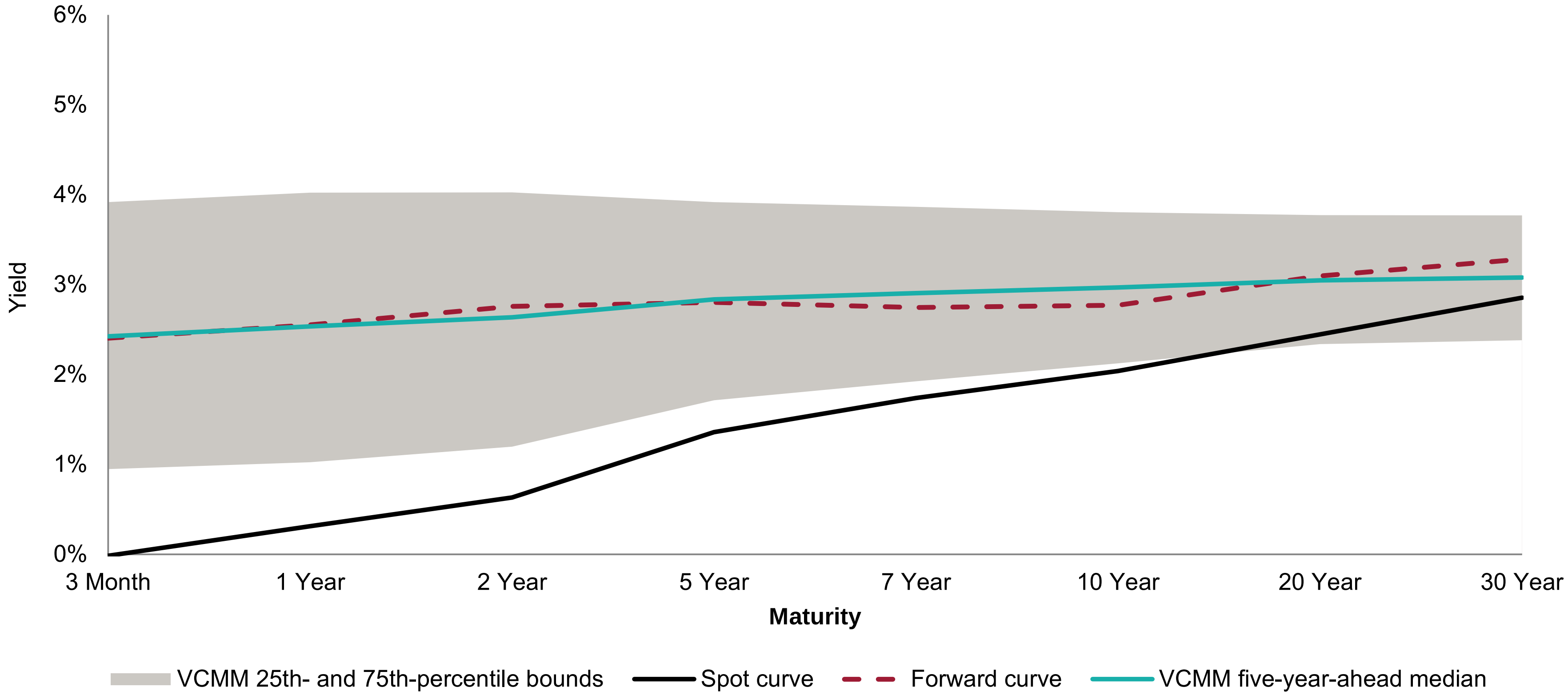


IMPORTANT: The projections or other information generated by the Vanguard Capital Markets Model® (VCMM) regarding the likelihood of various investment outcomes are hypothetical in nature, do not reflect actual investment results, and are not guarantees of future results. Forecast corresponds to distribution of 10,000 VCMM simulations for five- and ten-year annualized inflation projections as of September 2015. Results from the model may vary with each use and over time. For more information, please see the Important information slide. Red dots on box-plot represent latest values (October 2015) of Federal Reserve's five-year and ten-year breakeven inflation indexes. Yellow dots represent latest (Q4 2015) median values of five-year and ten-year annualized CPI inflation forecasts in Federal Reserve Bank of Philadelphia's Survey of Professional Forecasters.

Sources: Vanguard calculations, based on data from U.S. Bureau of Labor Statistics, Board of Governors of the Federal Reserve System, Thomson Reuters Datastream, Moody's Analytics, Bloomberg, and Barclays.

Market and VCMM interest rate projections

A rise in interest rates is already priced in by the markets



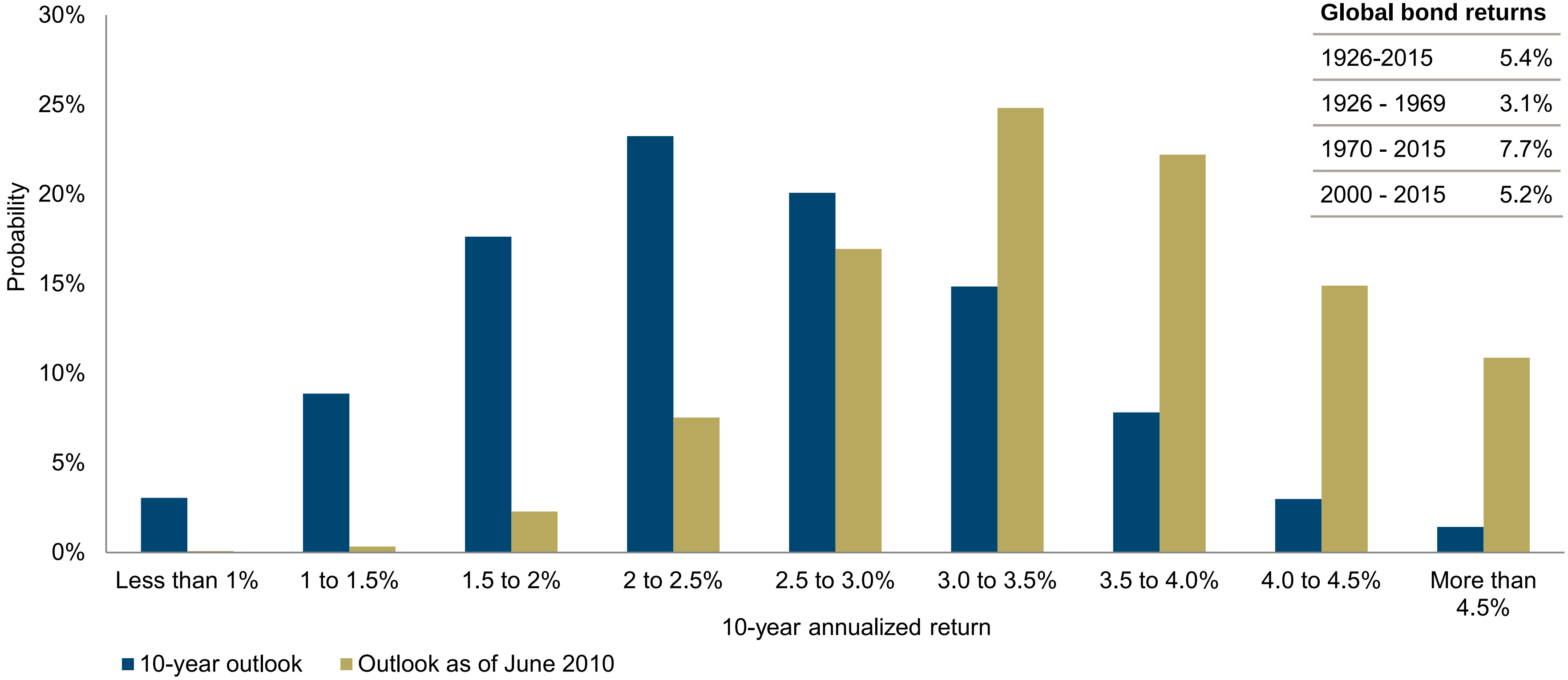
IMPORTANT: The projections or other information generated by the Vanguard Capital Markets Model® (VCMM) regarding the likelihood of various investment outcomes are hypothetical in nature, do not reflect actual investment results, and are not guarantees of future results. Distribution of return outcomes from VCMM, derived from 10,000 simulations for global equity returns and fixed income returns. Simulations as of September 30, 2015. Results from the model may vary with each use and over time. For more information, please see the important information slide.

Note: This yield-curve forecast displays the 25th- to 75th-percentile range of 10,000 VCMM simulations for projected yields (five years ahead) of U.S. Treasury curve as of September 30, 2015.

Sources: Vanguard calculations based on data from Bloomberg and Moody's Analytics.

Projected global fixed income ten-year outlook

VCMM-simulated distribution of expected average annualized nominal return of total fixed income market as of September 2015 and June 2010



Global bond returns	
1926-2015	5.4%
1926 - 1969	3.1%
1970 - 2015	7.7%
2000 - 2015	5.2%

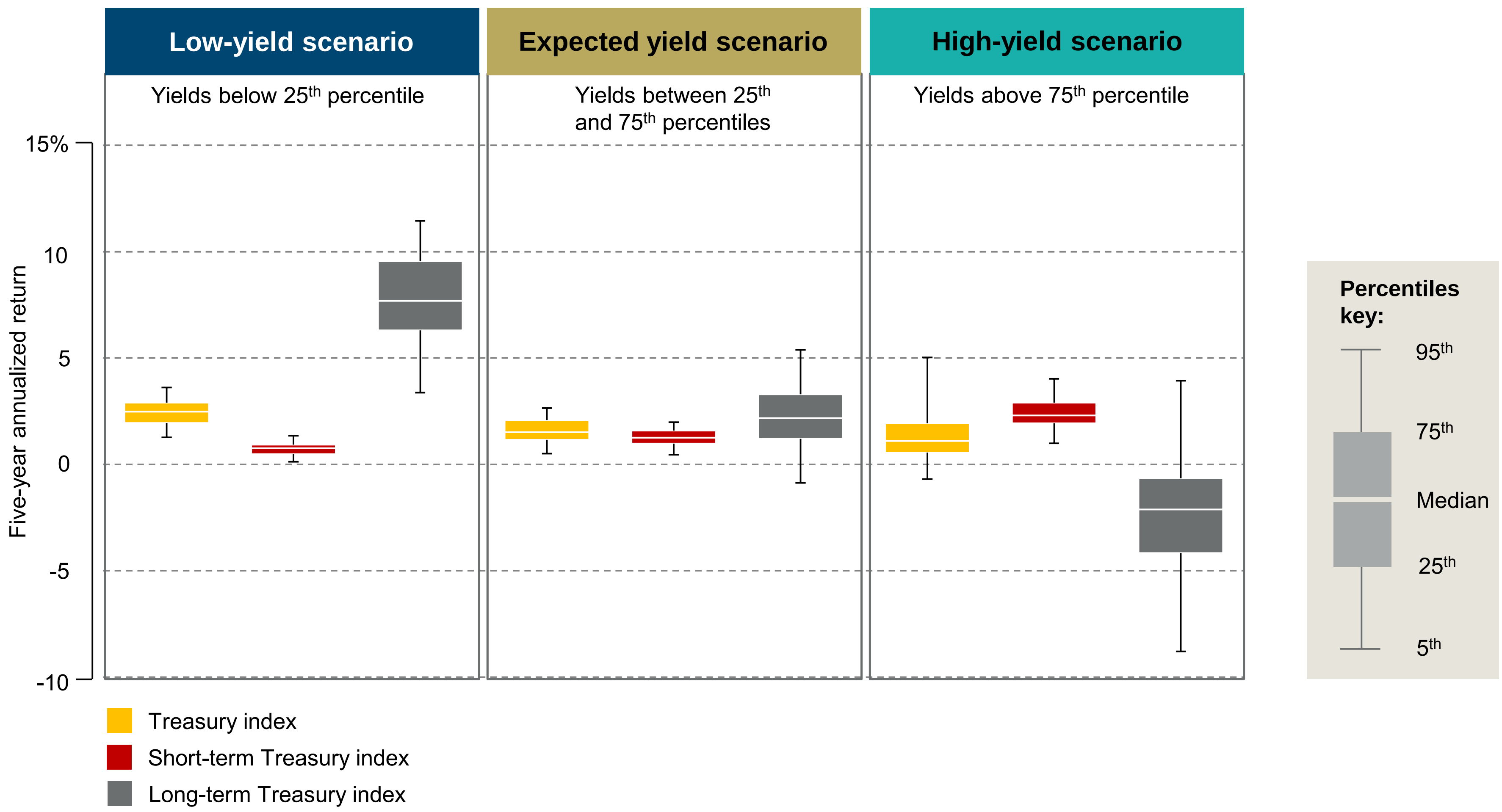
IMPORTANT: The projections or other information generated by the VCMM regarding the likelihood of various investment outcomes are hypothetical in nature, do not reflect actual investment results, and are not guarantees of future results. Distribution of return outcomes from the VCMM are derived from 10,000 simulations for global fixed income returns in USD. Simulations are as of September 30, 2015. Results from the model may vary with each use and over time.

Notes: Figure displays projected range of potential returns for portfolios of 70% U.S. bonds/30% ex-U.S. bonds, rebalanced quarterly.

For details, see *Vanguard's economic and investment outlook* (Davis, Aliaga-Diaz, Westaway, Wang, Patterson, and Ahluwalia 2015).

Source: Vanguard.

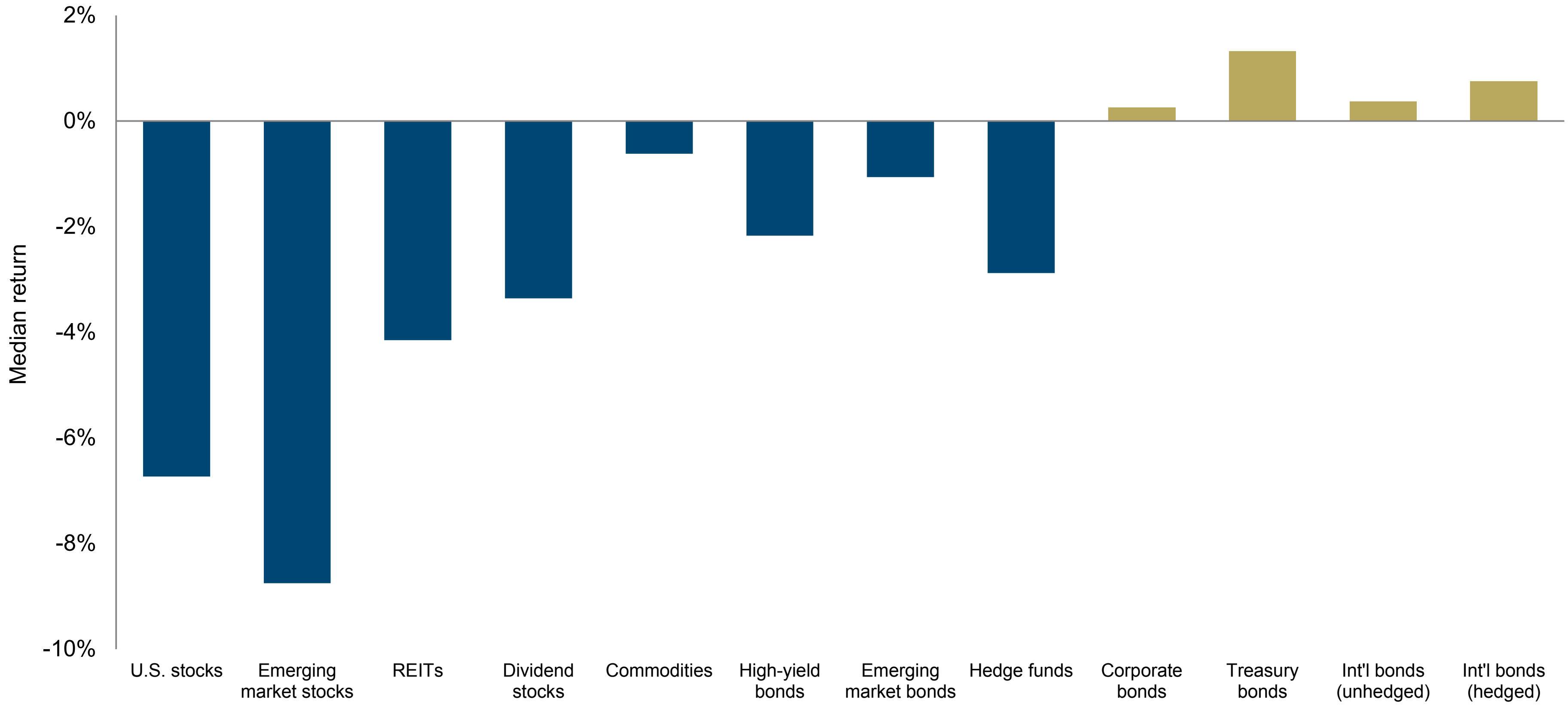
Duration tilts: Short-duration strategies are not without risks



Notes: Forecast displays distribution of 10,000 VCMM simulations for five-year annualized returns of asset classes shown as of September 2014. Scenarios are obtained based on sorting the three-month and 30-year Treasury yields at the end of every year from the VCMM. The three scenarios combined are a subset of the 10,000 simulations from the VCMM. See appendix section titled "Index simulations," for further details on asset classes shown here.
Source: Vanguard.

Bonds can provide ballast in an equity bear market

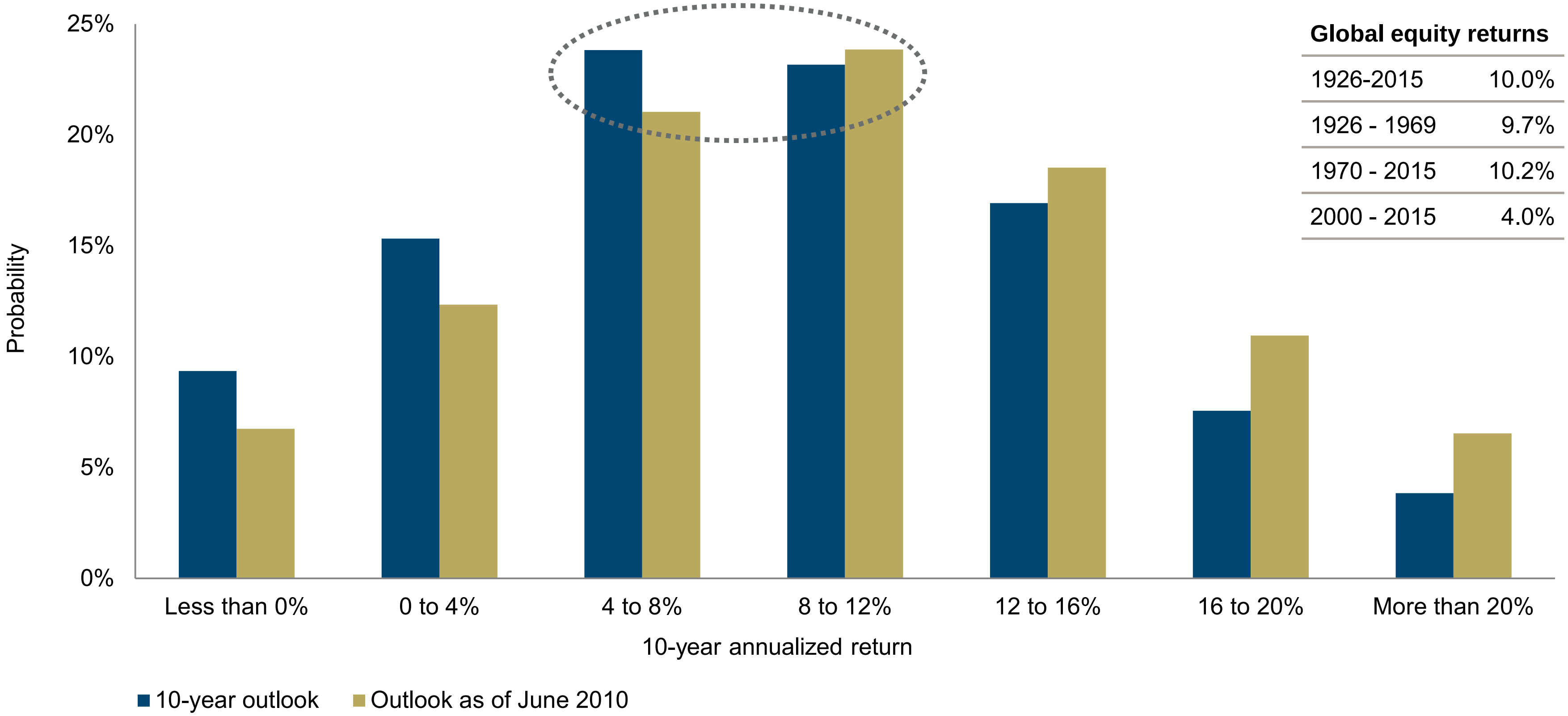
Median return of various asset classes during the worst decile of monthly equity returns, 1988–2015



Notes: U.S. stocks, U.S. bonds, and international bonds represented by indexes listed on page 4. Emerging market stocks represented by FTSE Emerging Index and emerging market bonds by Barclays Emerging Markets Tradable USD Sovereign Bond Index. REITs represented by FTSE NAREIT Equity REIT Index, dividend stocks by Dow Jones U.S. Select Dividend Total Return Index, commodities by S&P GSCI Commodity Index, high-yield bonds by Barclays U.S. Corporate High Yield Index, hedge funds by median hedge fund-of-funds return as identified by Morningstar, Inc., corporate bonds by Barclays U.S. Corporate Investment Grade Index, and Treasury bonds by Barclays U.S. Treasury Index.
Sources: Vanguard calculations, based on data from S&P, Citigroup, Barclays, Dow Jones, MSCI, CRSP, and FTSE. Data as of December 31, 2015.

Projected global equity ten-year return outlook

VCMM-simulated distribution of expected average annualized nominal return of global equity market, estimated as of September 2015 and June 2010



Global equity returns	
1926-2015	10.0%
1926 - 1969	9.7%
1970 - 2015	10.2%
2000 - 2015	4.0%

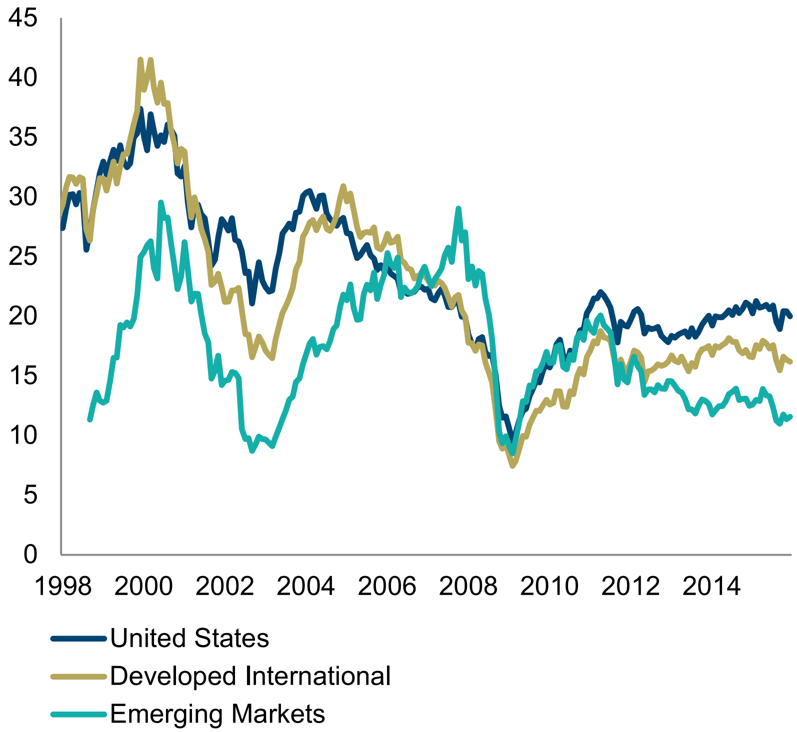
IMPORTANT: The projections or other information generated by the VCMM regarding the likelihood of various investment outcomes are hypothetical in nature, do not reflect actual investment results, and are not guarantees of future results. Distribution of return outcomes from the VCMM are derived from 10,000 simulations for global equity returns in USD. Simulations are as of September 30, 2015. Results from the model may vary with each use and over time.

Notes: Figure displays projected range of potential returns for portfolios of 60% U.S./40% ex-U.S. equities, rebalanced quarterly. For details, see *Vanguard's economic and investment outlook* (Davis, Aliaga-Diaz, Westaway, Wang, Patterson, and Ahluwalia 2015).

Source: Vanguard.

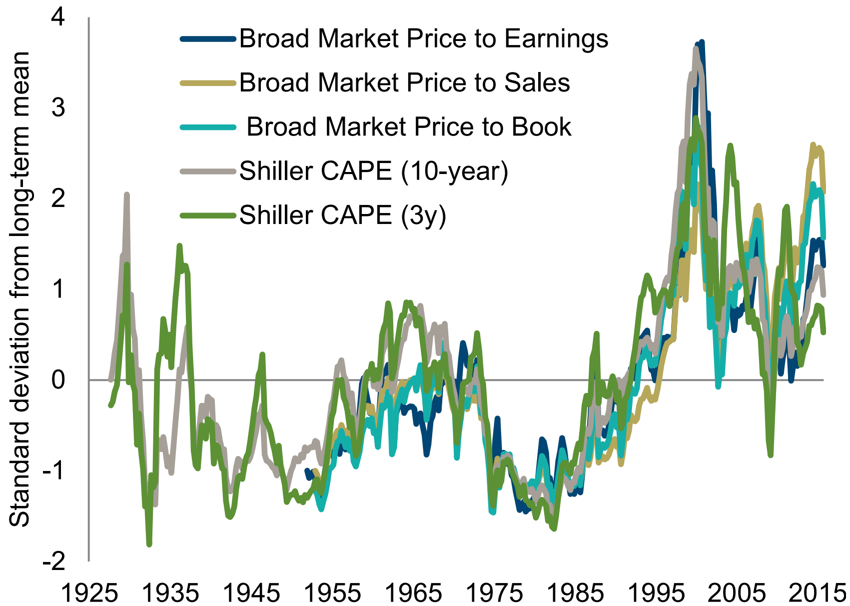
Valuations stretched in the U.S. and developed markets

Valuation for global equity indexes
Price over 36-month trailing earnings



Notes: Figure displays the price/earnings ratio with 36-month trailing average earnings. United States is defined as the MSCI United States Index, developed markets ex-U.S. are defined as the MSCI All-World US Index, and emerging markets are defined as the MSCI Emerging Markets Index.
Sources: Vanguard calculations, based on data from MSCI.
Data as of December 31, 2015.

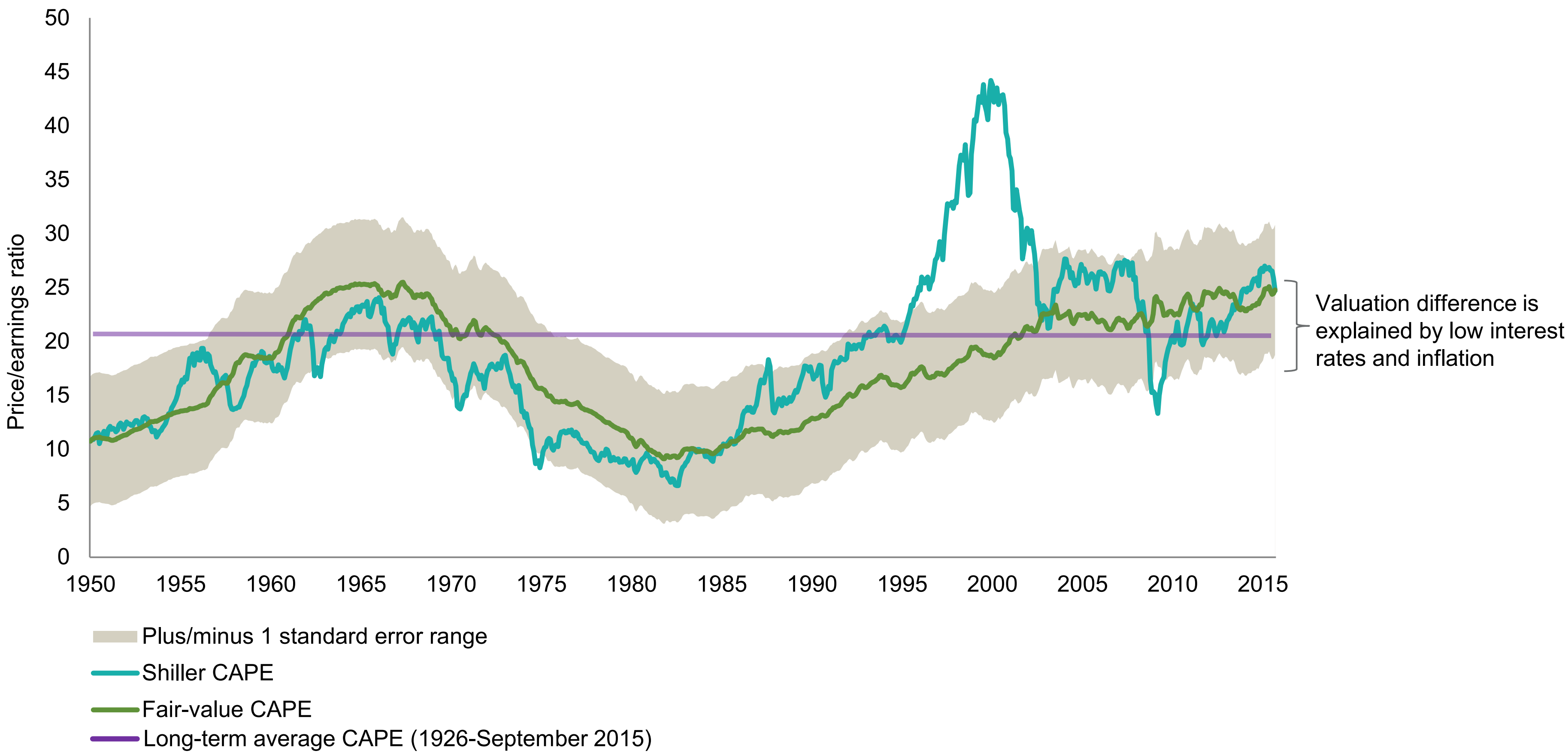
Long-term valuation for U.S. equities,
Selected valuation metrics



Notes: Figure displays valuation metrics standardized to have a long-term average of 0.0 and a standard deviation of 1.0. Broad market price/earnings displays the market value of domestic corporations from the Federal Reserve Flow of Funds database relative to the trailing four-quarter average of after-tax corporate profits from the BEA's national accounts. Broad market price/sales displays the market value of domestic corporations from the Flow of Funds database relative to the Gross Value Added of Corporate Business from the BEA's national accounts. Broad market price/book displays the market value of domestic corporations relative to the net worth at historical cost of Nonfinancial Corporate Business, both from the Flow of Funds database. Shiller CAPE (10-year) is the 10-year cyclically adjusted price/earnings ratio as defined in Shiller (2000). Shiller CAPE (3-year) is Shiller's measure, adjusted to smooth earnings over a trailing 36-month period.
Sources: Vanguard calculations, based on data from Federal Reserve, U.S. Bureau of Economic Analysis, and Robert Shiller's website, aida.wss.yale.edu/~shiller/data.htm.
Data as of September 30, 2015.

Equity market does not appear grossly “overvalued” when adjusted for low rates

Shiller CAPE versus estimated fair-value CAPE

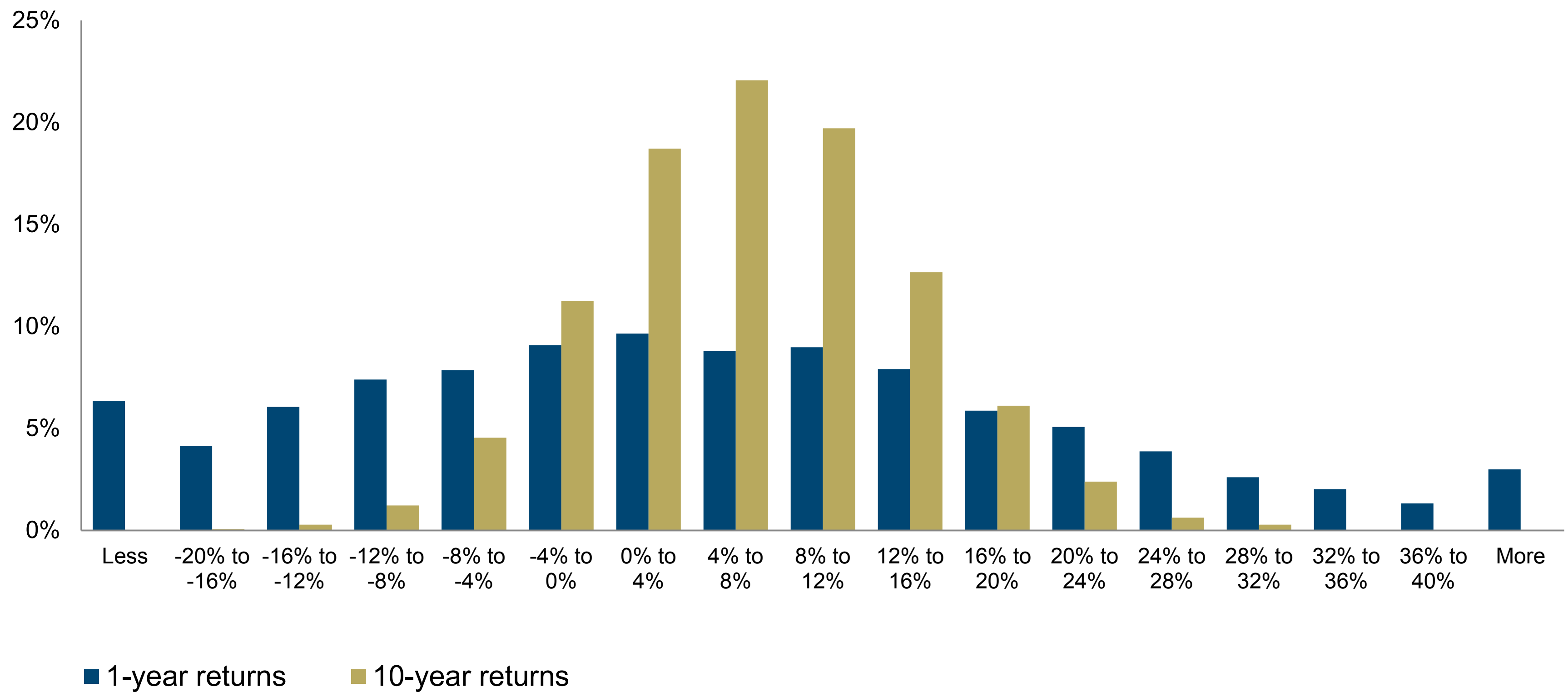


Notes: Fair-value CAPE (cyclically adjusted price/earnings) is based on a statistical model that corrects CAPE measures for the level of inflation expectations and for interest rates. The statistical model specification is a three-variable vector error correction (VEC), including equity earnings-yield (S&P 500 Index), U.S. ten-year trailing inflation, and 10-year U.S. Treasury yield estimated over the period January 1940–September 2015.

Sources: Vanguard calculations, based on data from Robert Shiller website, at aida.wss.yale.edu/~shiller/data.htm; U.S. Bureau of Labor Statistics; and Federal Reserve Board.

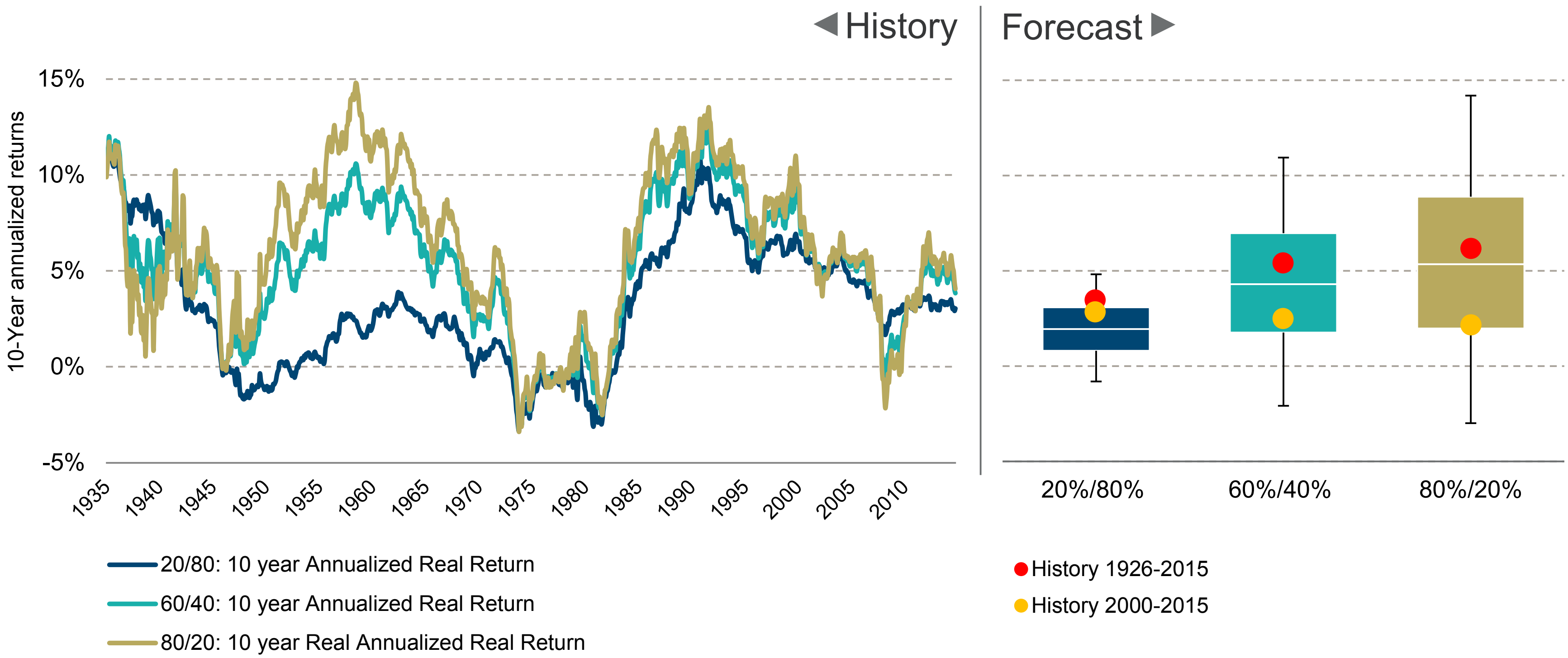
Lack of near-term predictability is another reason Vanguard stresses a long-term perspective

Average return on U.S. stock VCMM estimated probability distribution



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, 2014. Results from the model may vary with each use and over time. For more information, please see the important information slide.

Projected ten-year real return outlook for balanced portfolios



IMPORTANT: The projections or other information generated by the 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 the VCMM are derived from 10,000 simulations for each modeled asset class in USD. Simulations are as of September 30, 2015. Results from the model may vary with each use and over time.
Notes: Forecast displays 5th/25th/50th/75th/95th percentile ranges of 10,000 VCMM simulations for projected ten-year annualized real returns in USD. Historical returns are computed using indexes defined in “Indexes used in our historical calculations”, in appendix. The equity portfolio is 60% U.S. equity and 40% global ex-U.S. equity. The bond portfolio is 70% U.S. bonds and 30% global ex-U.S. bonds.
Source: Vanguard.

Appendix

A scorecard for growth convergence

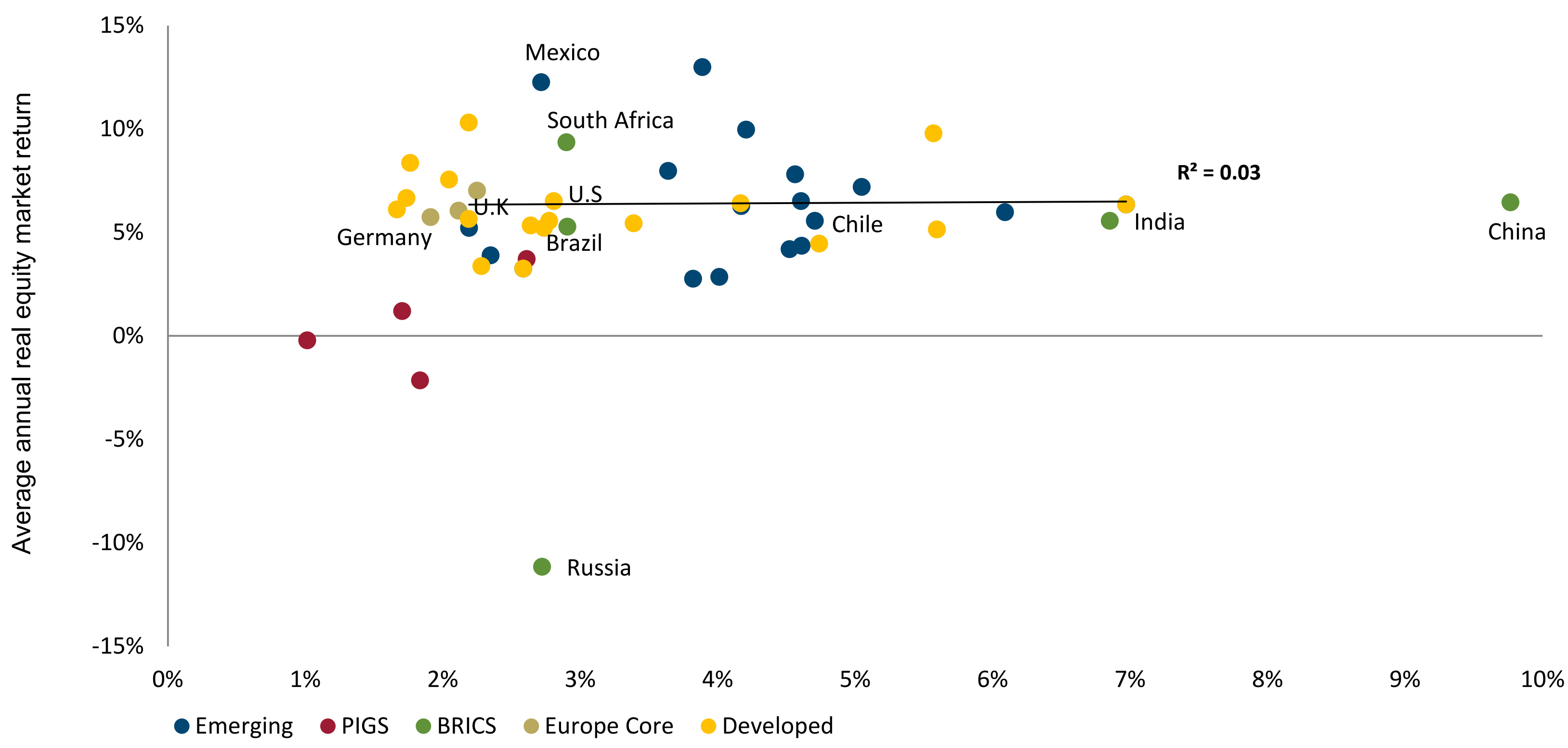
	United States	Euro Area	China	Japan	United Kingdom	Canada	Australia
Percentage of world GNP	22.4%	17.1%	13.3%	6.2%	3.7%	2.3%	1.9%
Estimated trend growth rates (%)							
Pre-recession average (1990-2007)	3.0	2.0	10.0	1.4	2.9	2.5	3.4
Projected future (2016-2020)	2.1	1.1	6.3	1.5	2.1	2.0	2.8
Growth headwinds							
Slowing growth of labor force *Slower population growth and aging of population*	Highly significant	Highly significant	Highly significant	Highly significant	Moderately significant	Highly significant	Highly significant
Private sector debt deleveraging *Debt-deleveraging cycle, constraining willingness to spend*	Not present	Moderately significant	Highly significant	Moderately significant	Not present	Highly significant	Highly significant
Sluggish capital investment *Falling cost of technology and demographic effects on businesses' growth plans*	Highly significant	Highly significant	Moderately significant	Highly significant	Highly significant	Moderately significant	Moderately significant
Fiscal sustainability and committed austerity *Unsustainable debt dynamics may result in suboptimal policies and uncertainty*	Moderately significant	Moderately significant	Moderately significant	Highly significant	Moderately significant	Not present	Moderately significant
Commodity exports dependency *Weak commodity price outlook*	Not present	Not present	Not present	Not present	Not present	Highly significant	Highly significant
Currency strength *Tighter financial conditions, weaker manufacturing and exports*	Highly significant	Not present	Highly significant	Not present	Highly significant	Not present	Not present
Rising income inequality *Falling purchasing power of consumers with highest propensity to spend*	Highly significant	Moderately significant	Highly significant	Moderately significant	Highly significant	Highly significant	Not present

Highly significant factor · Moderately significant factor · Factor not present

Notes: Slowing growth of labor force: Birth rates minus mortality rates (slope of the trend line, 1960–present); Private-sector debt deleveraging: Percentage increase in household debt (% of GDP) from 2008 to December 2015; Sluggish capital investment: Difference between average fixed capital formation as percentage of GDP, 2000–2007 and 2008–latest; Fiscal sustainability and committed fiscal austerity: Fiscal space estimates based on Moody's Economy.com model, as of February 2015 and difference in structural government budget balance over next two years (2016–2017); Commodity exports dependency: Qualitative assessment of commodity export dependence; Currency strength: Level of real effective exchange rate as of September 2015 (>100, overvalued/<100, undervalued); Rising income inequality: Average percentage point change in the income share of top 1% of income (1980–2010). Also, for China, we factor local government debt into our debt deleveraging rating.
Sources: Vanguard calculations, based on data from International Monetary Fund (IMF)—World Economic Outlook, Organisation for Economic Co-operation and Development ,United Nations, U.S. Bureau of Economic Analysis, U.S. Federal Reserve System, Moody's Analytics, and Thomson Reuters Datastream.

Economic growth and equity returns: Be wary of the allure of high economic growth

Real GDP growth and real stock returns 1970–2015



Notes: Figures display each country's average annualized real GDP growth rate along with that country's average annualized real stock return. We include all members of the FTSE All World Index (except the United Arab Emirates, for a lack of return history). The period covered begins in 1970, with the starting point for each country depending on the availability of both returns and GDP data (most developed markets have data from 1970 onward, and most emerging markets have data from 1988 onward). Real growth rates are computed using data from the IMF's World Economic Outlook database (for data prior to 1980, we use the April 2004 database; otherwise we use the April 2013 database). Return data are based on MSCI country indexes spliced with FTSE indexes once the latter are available. Both growth and return data are in real local terms, with the index returns deflated using the GDP deflator from the IMF databases. The 95% confidence interval for the cross-sectional regression slope of returns on GDP growth is –0.51 to 0.61, with an R-squared of 0.00. Source: Vanguard, based on data from the IMF, MSCI, and FTSE.

Portfolio summary

Vanguard®

COMMUNITY FOUNDATION FOR MUSKEGON COUNTY

Monthly Performance Summary

December 31, 2015

	Market Value ($)	Current Allocation (%)	Policy Allocation (%)	Current Month (%)	Three Months (%)	One Year (%)	Three Years (%)	Five Years (%)	Ten Years (%)	Since Client Inception (%)*
Vanguard® Total Stock Market Index Fund Institutional Shares	53,265,848.87	37.15	36.00	-2.03	6.26	0.42	14.70	12.17	7.52	-
Spliced Total Stock Market Index				-2.03	6.25	0.40	14.70	12.18	7.51	-
Multi-Cap Core Fund Average				-2.55	4.45	-2.29	12.26	9.61	5.81	-
Total Equity Domestic	**53,265,848.87**	**37.15**	**36.00**	**-2.03**	**6.26**	**0.42**	**-**	**-**	**-**	**6.28**
Spliced Total Stock Market Idx				**-2.03**	**6.25**	**0.40**	**14.70**	**12.18**	**7.51**	**6.27**
Vanguard® Total International Stock Index Fund Inst Shares	33,472,105.98	23.34	24.00	-2.02	2.75	-4.24	1.86	1.34	-	-
Spliced Total Int'l Stock Index				-1.59	3.61	-4.29	2.29	1.43	2.95	-
International Fund Average				-1.80	3.63	-1.32	3.82	2.64	2.73	-
Total Equity International	**33,472,105.98**	**23.34**	**24.00**	**-2.02**	**2.75**	**-4.24**	**-**	**-**	**-**	**-6.19**
Spliced Total Int'l Stock Index				**-1.59**	**3.61**	**-4.29**	**2.29**	**1.43**	**2.95**	**-5.74**
Total Equity	**86,737,954.85**	**60.49**	**60.00**	**-2.03**	**4.88**	**-1.42**	**-**	**-**	**-**	**1.26**

	Market Value ($)	Current Allocation (%)	Policy Allocation (%)	Current Month (%)	Three Months (%)	One Year (%)	Three Years (%)	Five Years (%)	Ten Years (%)	Since Client Inception (%)*
Vanguard® Total Bond Market Index Fund Institutional Shares	40,953,260.58	28.56	30.00	-0.37	-0.60	0.41	1.34	3.15	4.50	-
Spliced Barclays US Agg Float-Adj Ix				-0.35	-0.61	0.44	1.39	3.25	4.52	-
Spl Interm Inv-Grade Debt Funds Avg				-0.54	-0.60	-0.11	1.08	3.20	3.93	-
Total Fixed Income Investment Grade	**40,953,260.58**	**28.56**	**30.00**	**-0.37**	**-0.60**	**0.41**	**-**	**-**	**-**	**2.04**
Spl Barclays US Agg Float-Adj Ix				**-0.35**	**-0.61**	**0.44**	**1.39**	**3.25**	**4.52**	**2.10**
Total Fixed Income	**40,953,260.58**	**28.56**	**30.00**	**-0.37**	**-0.60**	**0.41**	**-**	**-**	**-**	**2.04**
Vanguard® REIT Index Fund Institutional Shares	15,701,187.39	10.95	10.00	1.87	7.10	2.45	11.00	11.83	7.59	-
REIT Spliced Index				1.83	7.08	2.52	11.06	11.88	7.53	-
Real Estate Fund Average				1.24	6.40	2.16	9.85	10.94	6.37	-
Total Other Investments Domestic	**15,701,187.39**	**10.95**	**10.00**	**1.87**	**7.10**	**2.45**	**-**	**-**	**-**	**10.09**
MSCI US REIT Index				**1.83**	**7.08**	**2.52**	**11.06**	**11.88**	**7.35**	**10.19**
Total Other Investments	**15,701,187.39**	**10.95**	**10.00**	**1.87**	**7.10**	**2.45**	**-**	**-**	**-**	**10.09**
Total Portfolio	**143,392,402.82**	**100.00**	**100.00**	**-1.14**	**3.48**	**-0.38**	**-**	**-**	**-**	**2.55**
Total Portfolio - Net of Fee				**-1.14**	**3.47**	**-0.43**	**-**	**-**	**-**	**2.51**
Composite Benchmark^				**-1.04**	**3.66**	**-0.20**	**-**	**-**	**-**	**2.66**
Total Portfolio IRR				**-1.14**	**3.47**	**-0.37**	**-**	**-**	**-**	**2.33**

* Since Client Inception returns for the Total Portfolio represent the period beginning 04/30/2014. Sub-asset class returns reflect the client inception date of their respective sub-asset class.

^ 36% Spliced Total Stock Market Index/30% Spliced Barclays US Agg Float-Adj Ix/24% Spliced Total Int'l Stock Index/10% REIT Spliced Index since 04/30/2014

† Rows within the Current Allocation column may not add because of rounding.

Asset allocation summary of CFMC VIAS composite portfolio
As of December 31, 2015

Investment	Market value as of December 31, 2015	Target allocation	Actual weight	Variance
Domestic equity				
Total Stock Market Index Fund Institutional Shares	$53,265,849	36.0%	36.2%	0.2%
Domestic equity subtotal	*$53,265,849*	*36.0%*	*36.2%*	*0.2%*
International equity				
Total International Stock Index Fund Institutional Shares	$33,472,106	24.0%	22.7%	–1.3%
International equity subtotal	*$33,472,106*	*24.0%*	*22.7%*	*–1.3%*
Fixed income				
Total Bond Market Index Fund Institutional Shares	$40,953,261	30.0%	30.4%	0.4%
Total Bond Market ETF (held at PNC in pledge)*	$3,876,010			
Fixed income subtotal	*$44,829,270*	*30.0%*	*30.4%*	*0.4%*
Other investments				
REIT Index Fund	$15,701,187	10.0%	10.7%	0.7%
Other investments subtotal	*$15,701,187*	*10.0%*	*10.7%*	*0.7%*
Total portfolio	**$147,268,412**	**100.0%**	**100.0%**	

* Total Bond Market ETF market value is reported by Community Foundation for Muskegon County staff.

Historical portfolio performance

Community Foundation for Muskegon County (CFMC)
Quarterly Summary of Combined Historical Performance
For the period ending 12/31/2015

				Annualized return			Calendar return				
	Quarter	**YTD**	**1 year**	**3 year**	**5 year**	**10 year**	**2014**	**2013**	**2012**	**2011**	**2010**
CFMC Composite Portfolio	3.47	–0.42	–0.42	5.74	5.07	4.71	5.68	12.35	12.21	–3.47	13.95
CFMC Composite Benchmark *	3.66	–0.20	–0.20	8.42	7.70	5.85	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 December 31, 2015

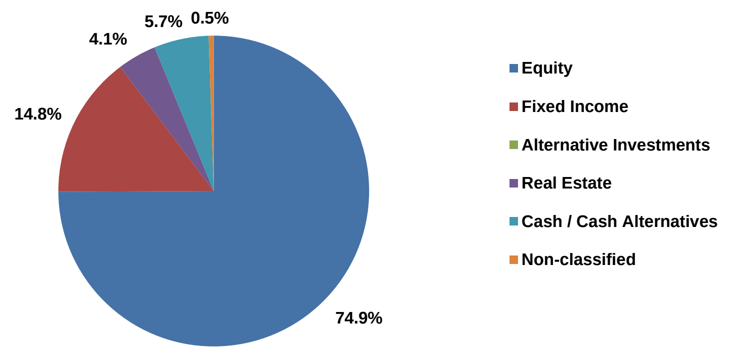
Community Foundation for Muskegon County (CFMC)
Quarterly Summary of Investment Performance of Segregated Accounts
For the period ending 12/31/2015

Account name	Investment manager	Q4 2015 return	YTD 2015	Market value as of 12/31/15
Freedom – Willard Bosma	RJ	+3.13%	–2.75%	$419,532
Maykol Bond	ML	–0.97%	+0.08%	$107,057
J. Hanna / M. Murphy	UBS	+3.47%	–1.63%	$1,014,136
Ernest E. Settle	UBS	+3.47%	–1.77%	$1,092,873
Cutler	Schwab	+1.76%	–4.24%	$195,813
The 2012 Fund	Schwab	+0.00%	+0.01%	$1,054,775
MI Heritage Trails (MICHHT)	UBS	+3.27%	–1.59%	$1,158,380
Hilt Landing Proj. (Hiltlp)	UBS	+0.00%	+0.02%	$38,372
Donahue	NW	+0.04%	–0.02%	$102,852
G & B Hilt Fund (hilt05)	UBS	+3.31%	–2.76%	$6,457,074
Collins	RJ	+6.26%	–1.58%	$622,258
Smith	RJ	+3.12%	–5.10%	$61,090
Bush Scholarship (bushj)	AGLC	+0.40%	+1.68%	$15,767
Paine Family Foundation	Chemical	—	—	$8,000,928

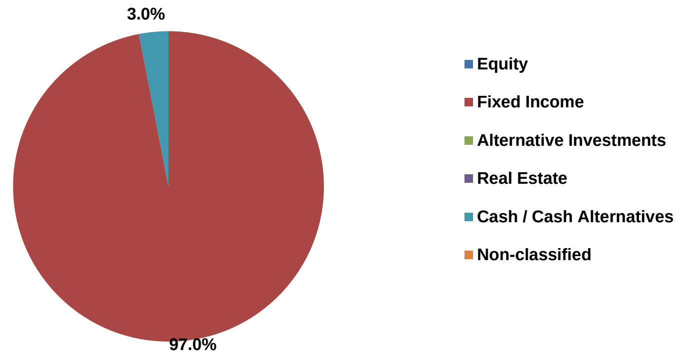
Note: Vanguard cannot independently validate the accuracy of the returns shown above.
Note: Performance net of investment manager fees.
All returns are manually calculated using data provided by the investment providers and CFMC staff. Return calculation reflects beginning period and ending period market 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 12/31/2015

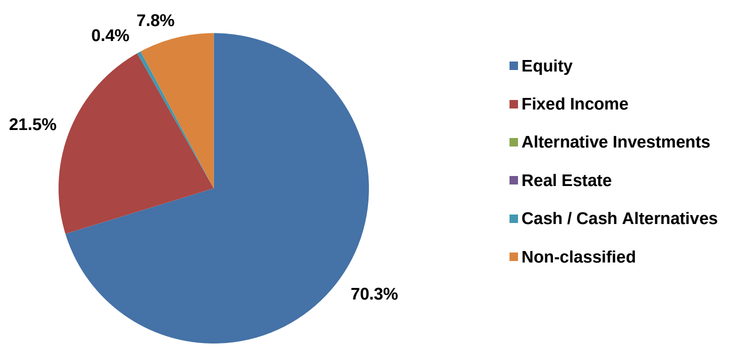
RJ - Freedom - Willard Bosma ($419,532)



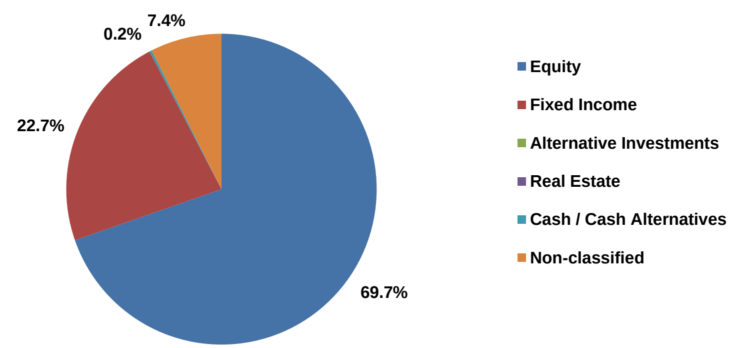
ML - Maykol Bond ($107,057)



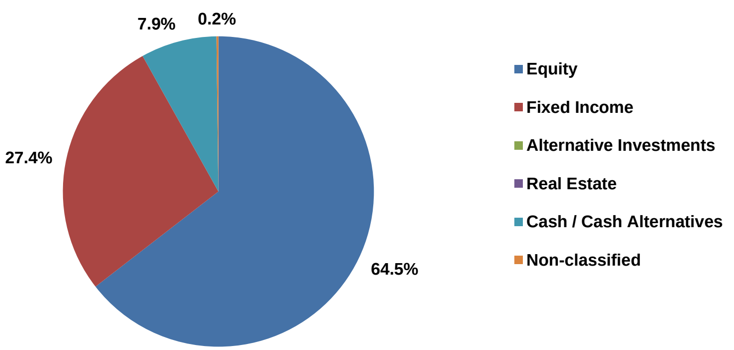
UBS - J Hanna/M Murphy ($1,014,136)



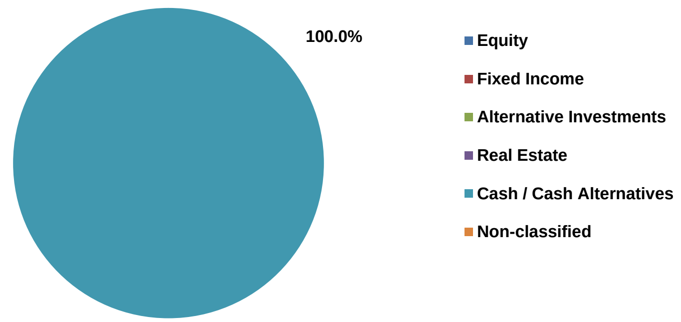
UBS - Ernest E Settle ($1,092,873)



Schwab - Cutler ($195,813)



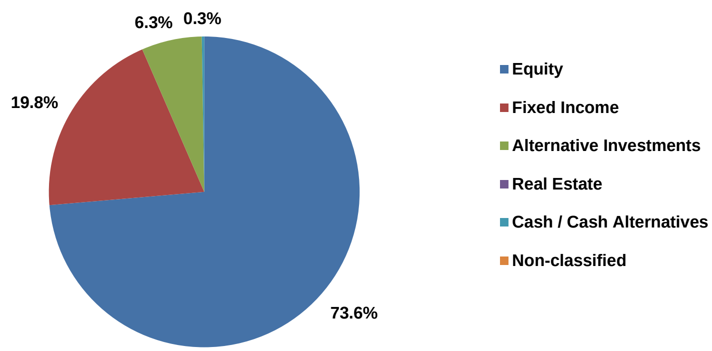
Schwab - The 2012 Fund ($1,054,775)



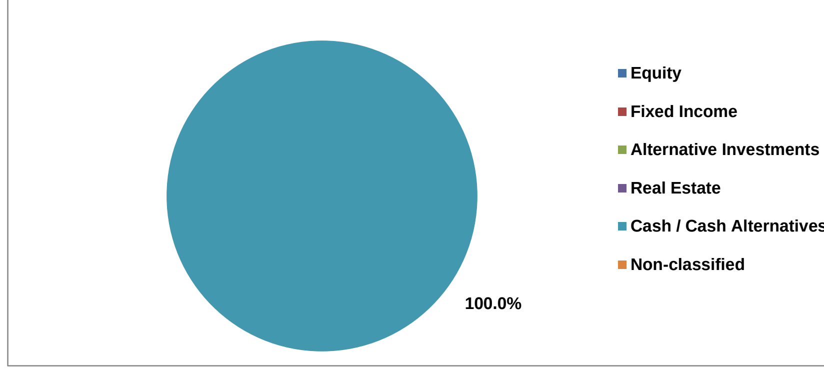
Note: Asset allocation data sourced from investment manager statements. Vanguard cannot independently validate the accuracy of the data provided.

Community Foundation for Muskegon County (CFMC)
Quarterly Asset Allocation Summary of Segregated Accounts - As of 12/31/2015

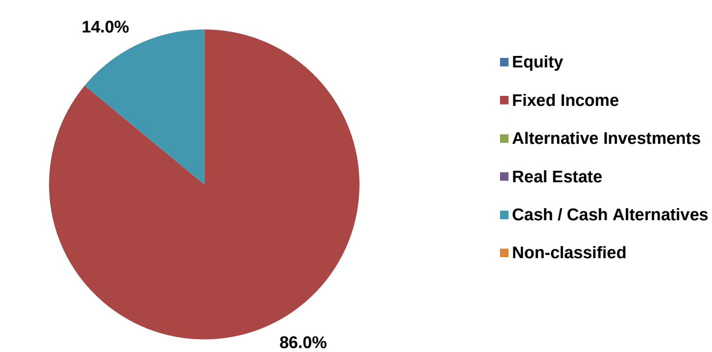
UBS - MI Heritage Trails (MICHHT) ($1,158,380)



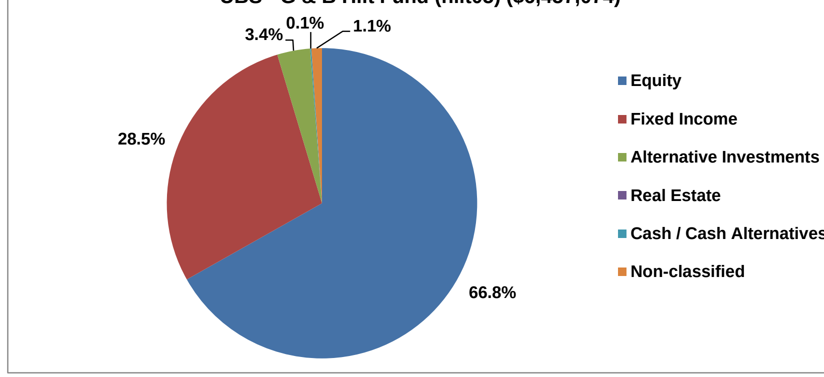
UBS - Hilt Landing Proj. (Hiltlp) ($38,372)



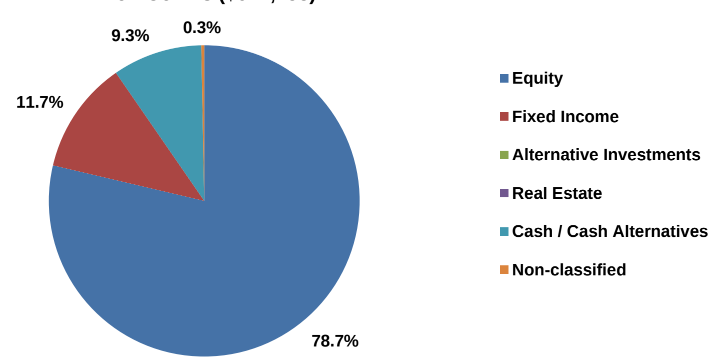
NW - Donahue ($102,852)



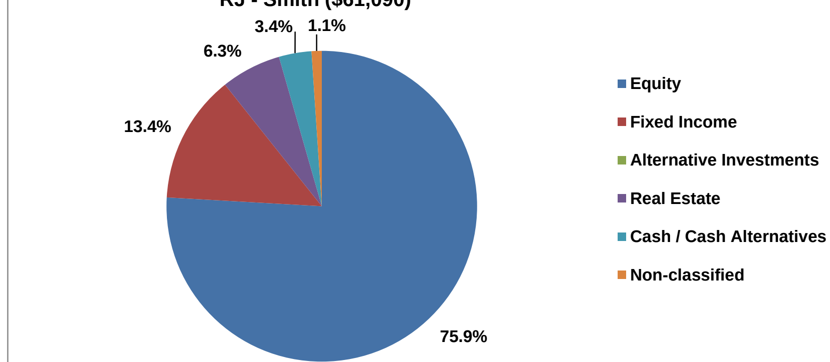
UBS - G & B Hilt Fund (hilt05) ($6,457,074)



RJ - Collins ($622,258)

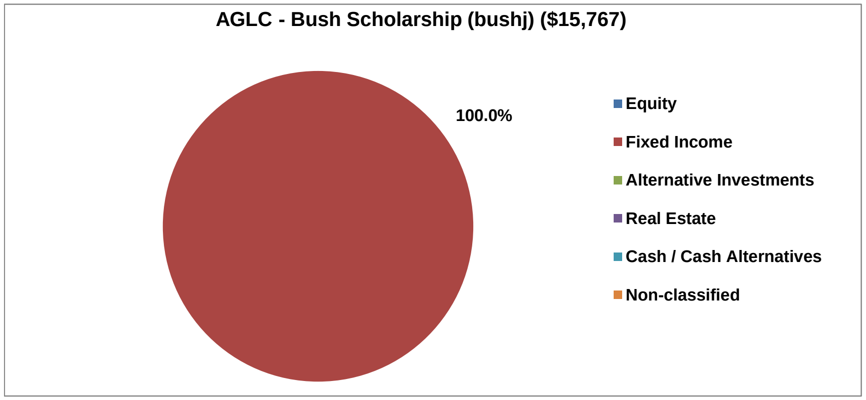


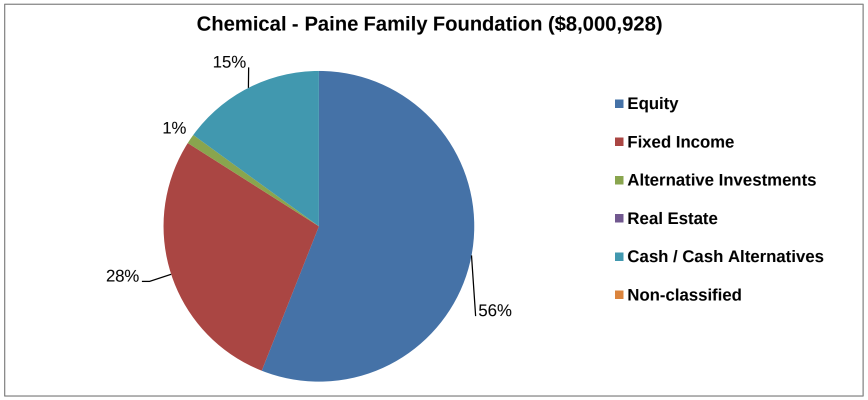
RJ - Smith ($61,090)

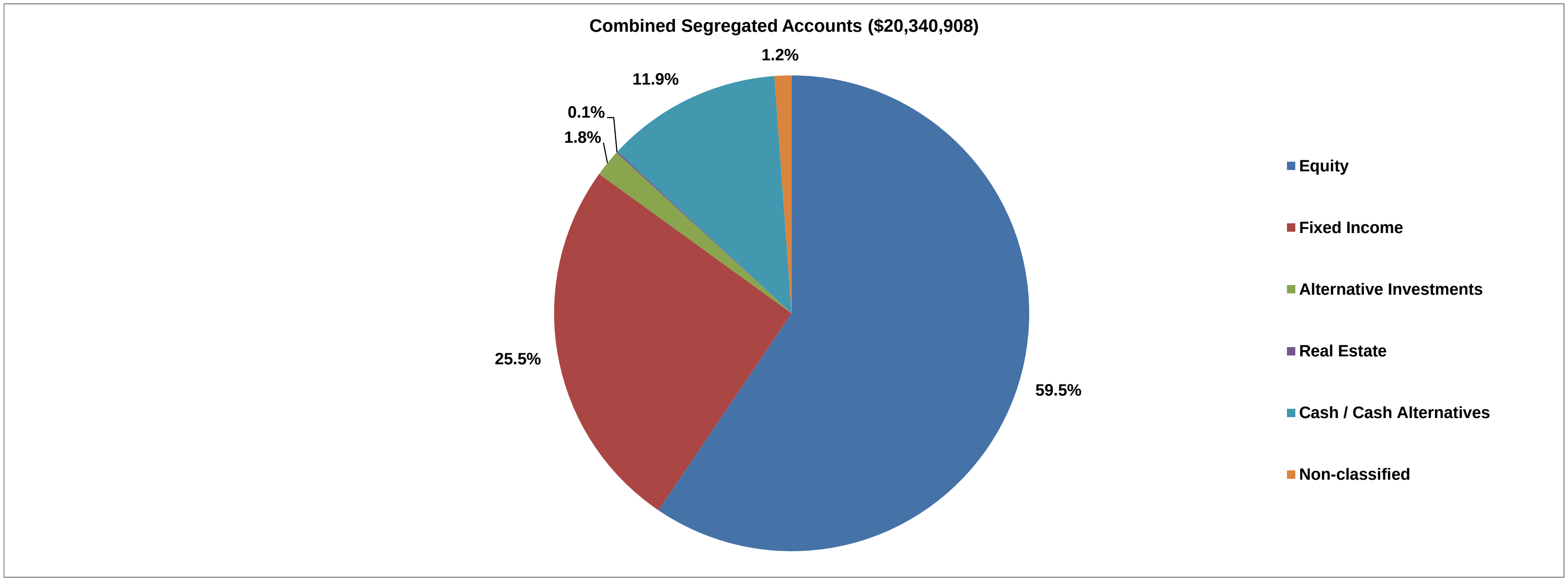


Note: Asset allocation data sourced from investment manager statements. Vanguard cannot independently validate the accuracy of the data provided.

Community Foundation for Muskegon County (CFMC)
Quarterly Asset Allocation Summary of Segregated Accounts - As of 12/31/2015







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

Asset allocation and spending analysis

Analysis

Objective:

- Examine risk / reward trade-offs for different asset allocations

Initial assets:

- $140.0 million

Spending:

- 4%; smoothed over 16 quarters

Time horizon:

- 10 years for asset allocation analysis
- 20 years for spending analysis

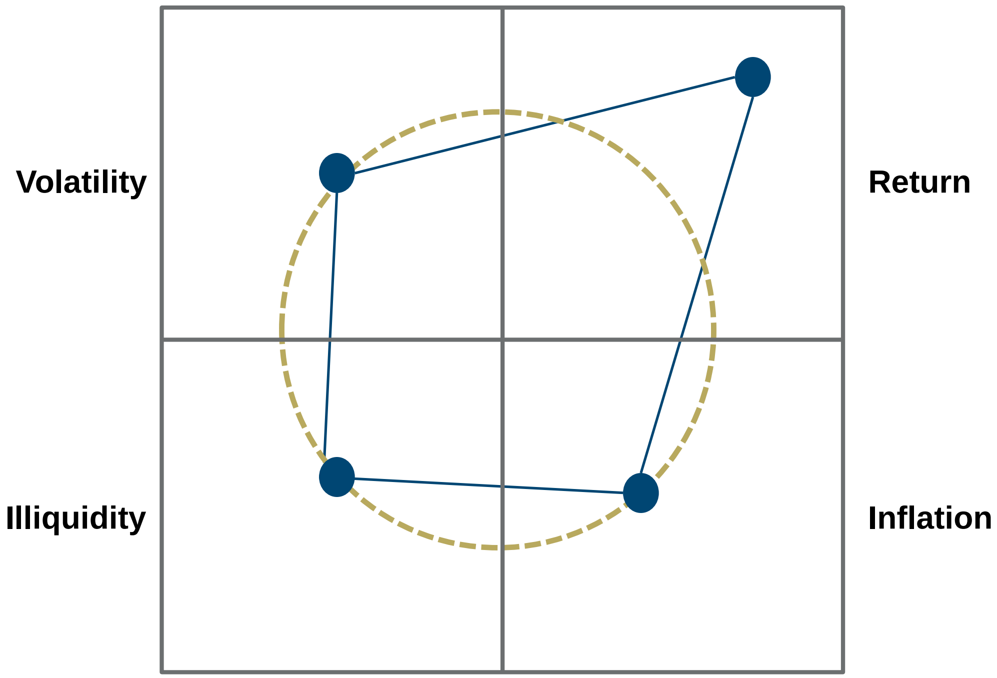
Frontier constraints:

- International equity: up to 40% of total equity
- REITs: up to 10%

Portfolio construction is risk management

Risk/return considerations crucial

Vanguard risk grid

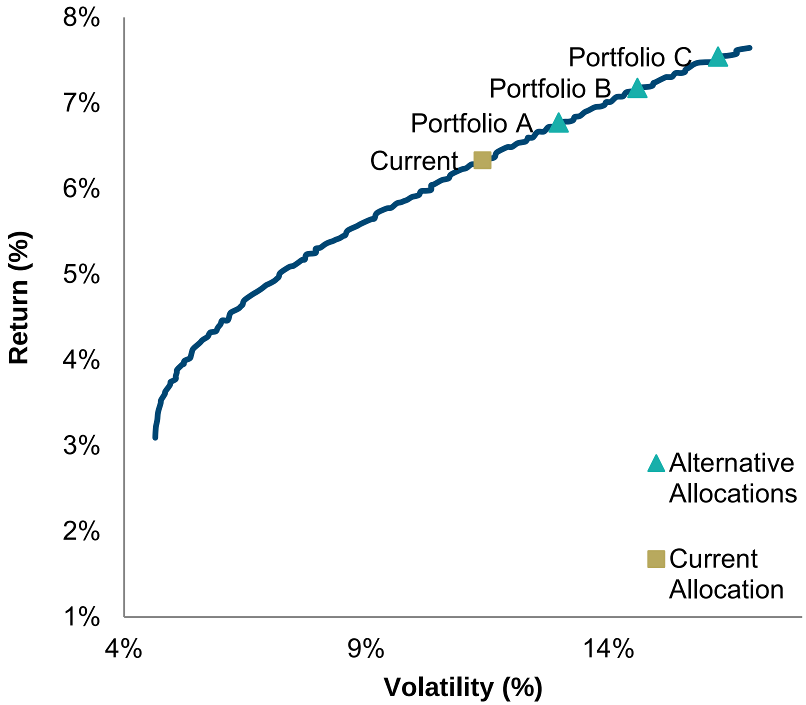


Key considerations

- Returns compensate for taking risk
- Be comfortable with what risks are being taken
- Probability vs. magnitude

Efficient frontier analysis

Efficient frontier



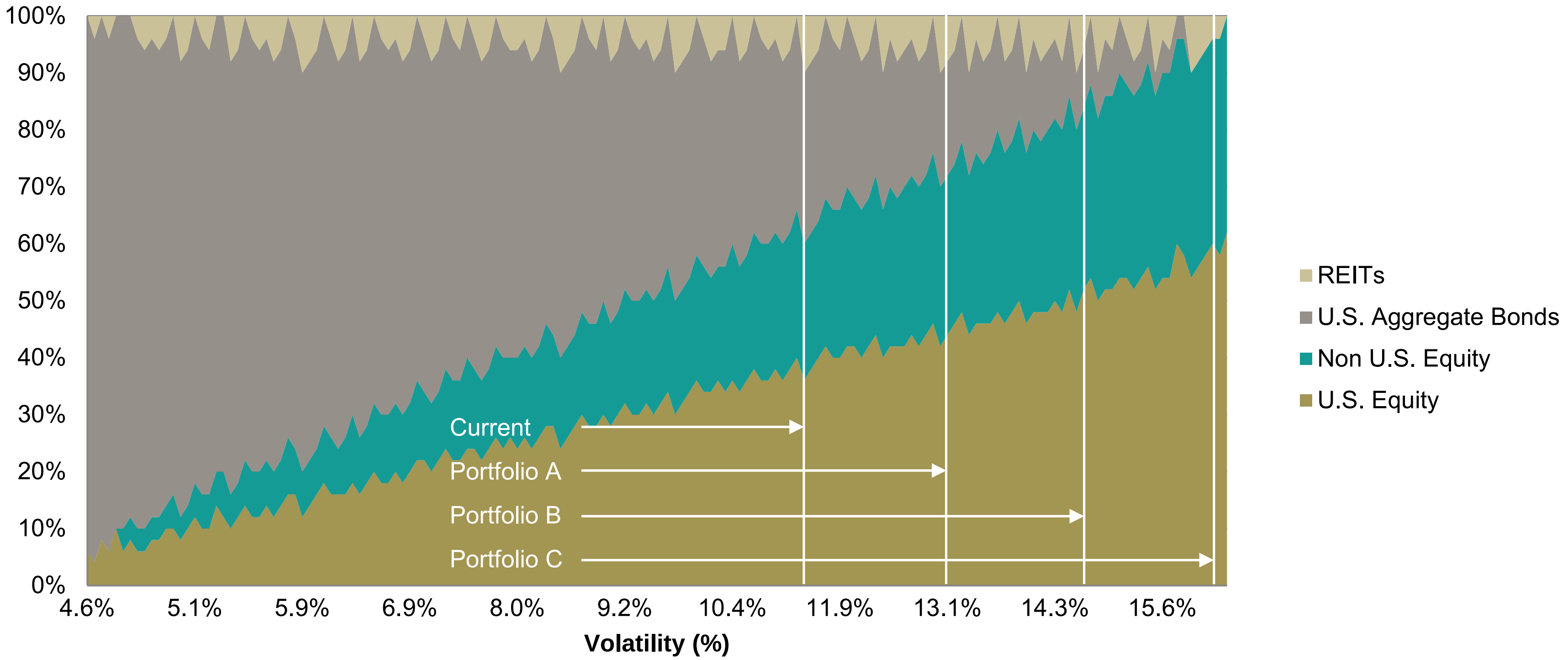
The simulated portfolios below are efficient alternatives to the current portfolio

Asset classes	Current	Portfolio A	Portfolio B	Portfolio C
U.S. Equity	36%	42%	48%	54%
Non U.S. Equity	24%	28%	32%	36%
U.S. Aggregate Bonds	30%	20%	10%	0%
REITs	10%	10%	10%	10%
Median returns	**6.3%**	**6.8%**	**7.2%**	**7.5%**
Median real returns	**4.5%**	**4.9%**	**5.3%**	**5.7%**
Median volatility	**11.4%**	**13.0%**	**14.6%**	**16.3%**
Median Sharpe ratio	**0.37**	**0.37**	**0.37**	**0.37**
Stock/Bond/REIT (%)	**60/30/10**	**70/20/10**	**80/10/10**	**90/0/10**

Note: Sharpe ratio calculates return (reward) per unit of risk; $(R_x - r_f)/\sigma_{(x-r)}$; R_f =2.5%; Sharpe ratio listed to the right is the median value for 10,000 scenarios.

Asset allocation map

- The lower volatility portfolios are to the left and contain more fixed income while the higher volatility portfolios are to the right and contain more equities

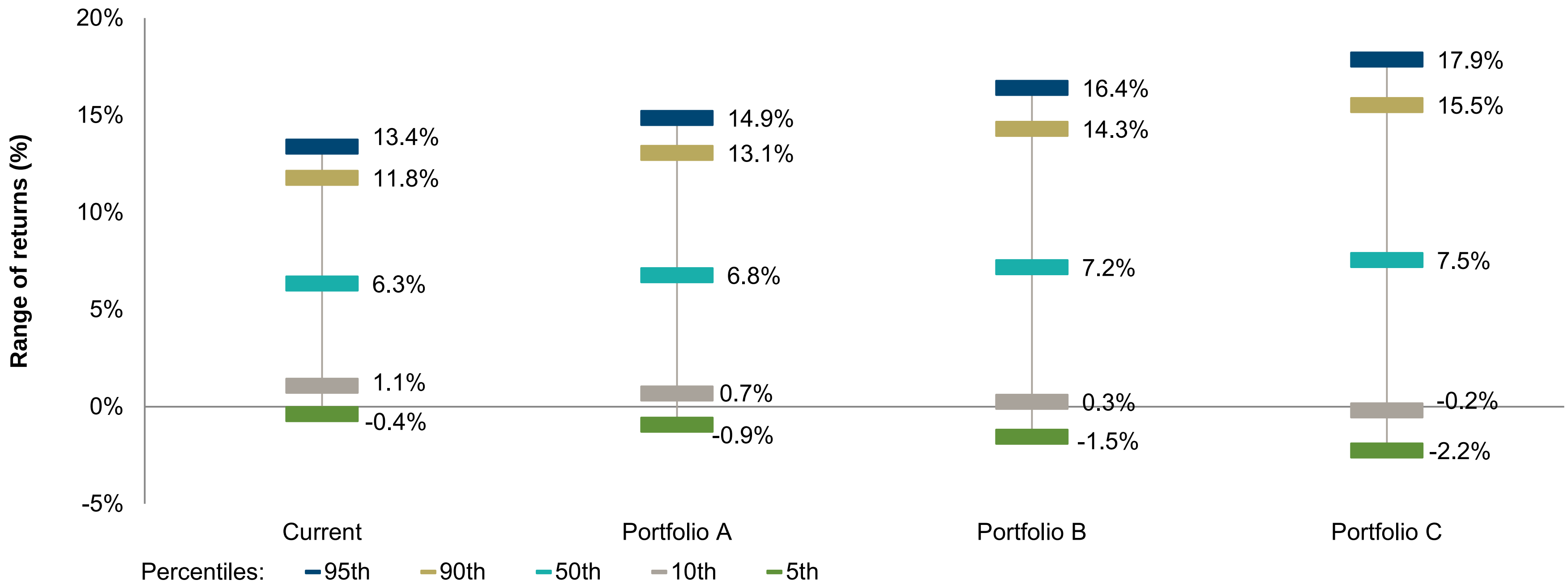


	Current	Portfolio A	Portfolio B	Portfolio C
Median returns	6.3%	6.8%	7.2%	7.5%
Median volatility	11.4%	13.0%	14.6%	16.3%
Sharpe ratio	0.37	0.37	0.37	0.37

Portfolio return analysis

- Of the alternative portfolios, Portfolio A has the narrowest range of projected returns with the lowest projected volatility as it has the lowest exposure to equities
- Conversely, Portfolio C has the widest range of projected returns and the highest projected volatility due to the portfolio's higher equity exposure

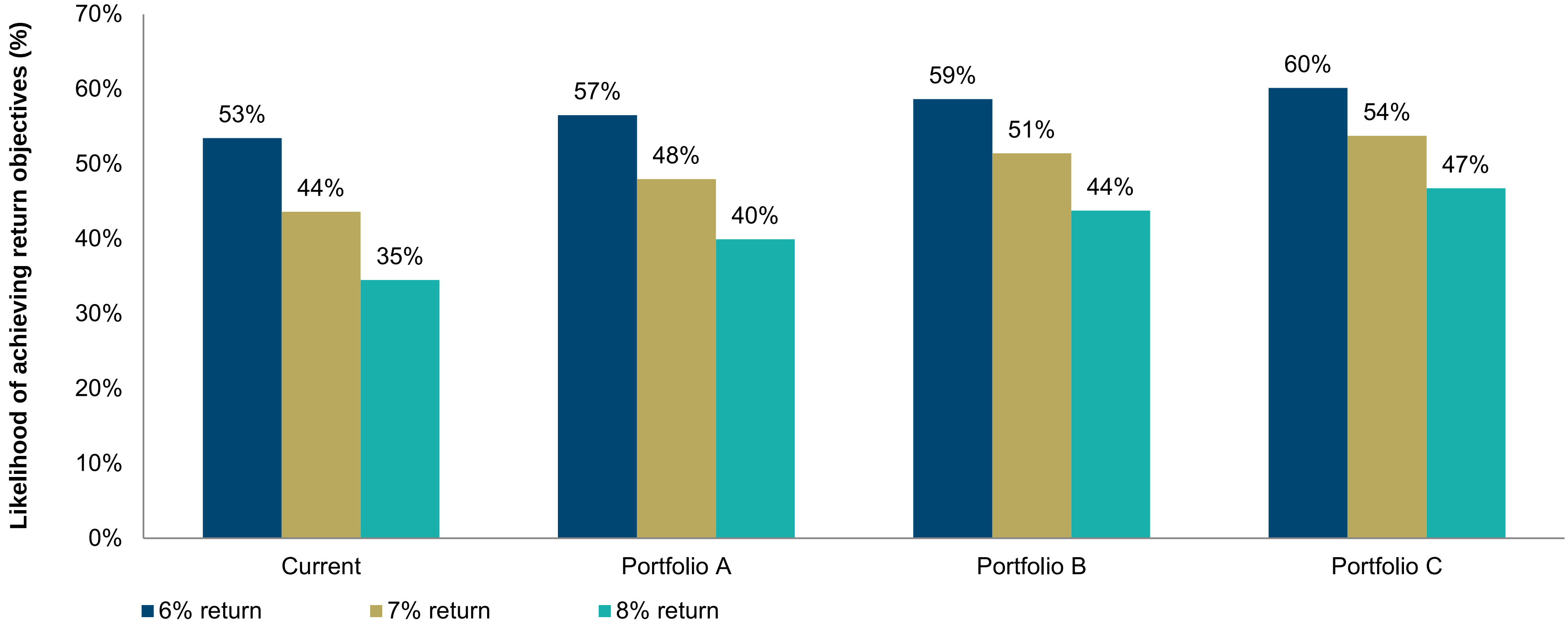
Volatility	Return



Asset return goals

- Below, several return objectives are examined to demonstrate the ability to consistently meet a target rate of return; the probabilities of achieving a designated return objective increase with the level of equity exposure

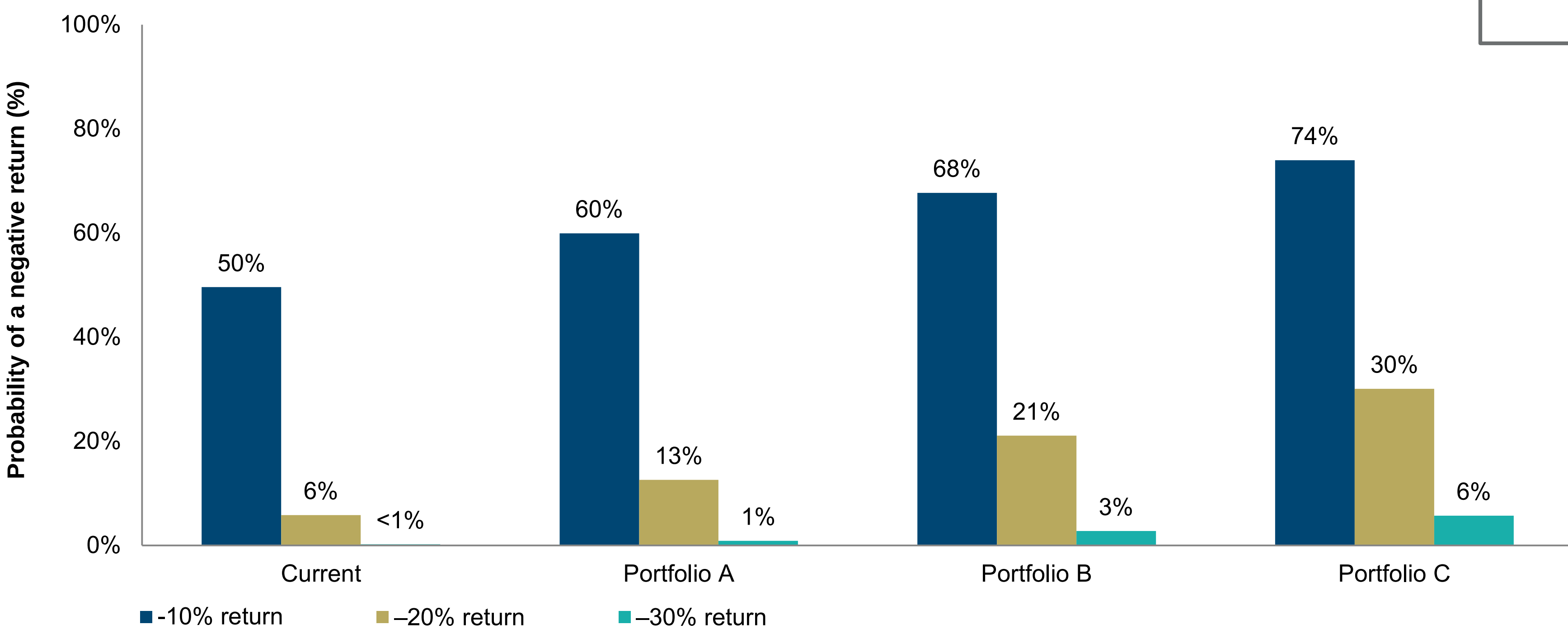
Volatility	Return



Downside risk

- In any single year, there is a high probability that the portfolio realizes a flat return; the probability of a negative return increases with higher equity exposure

Volatility	Return



Note: 10-year time horizon.

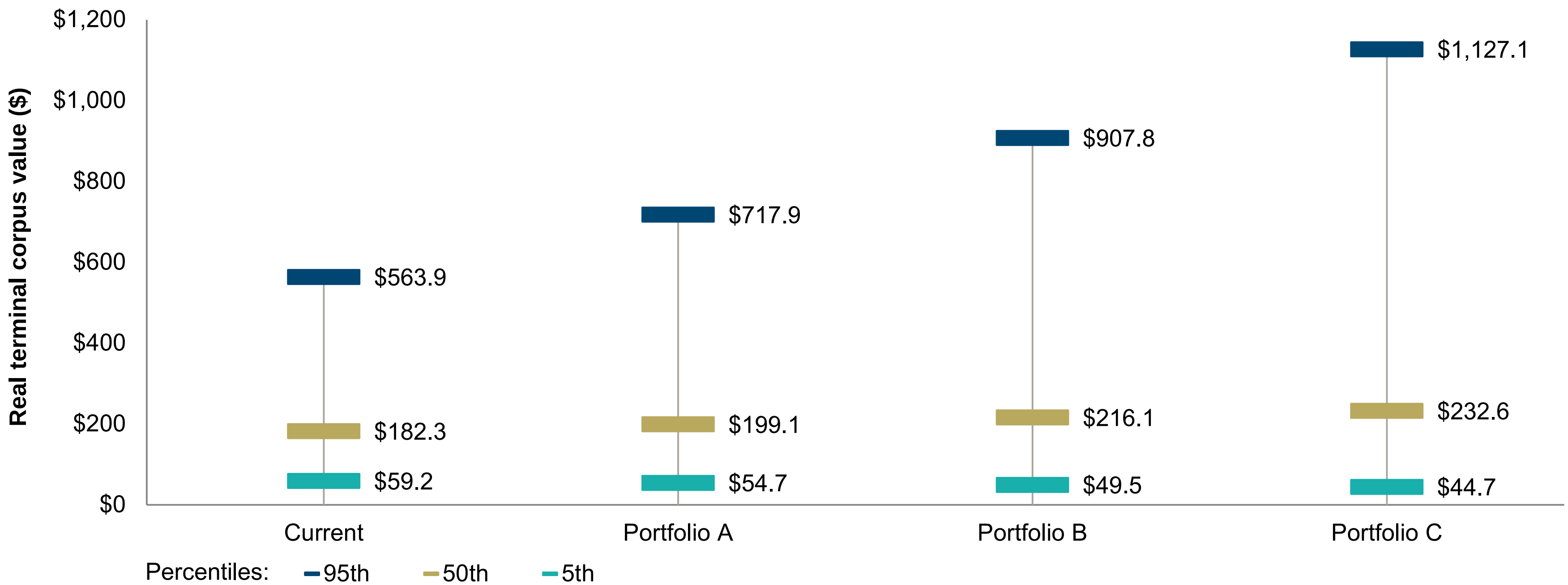
Spending: 4% smoothed over 4 years

Horizon: 20 years

Real corpus analysis

- Of the alternative portfolios, Portfolio A has the lowest real median terminal corpus value while Portfolio C has the highest

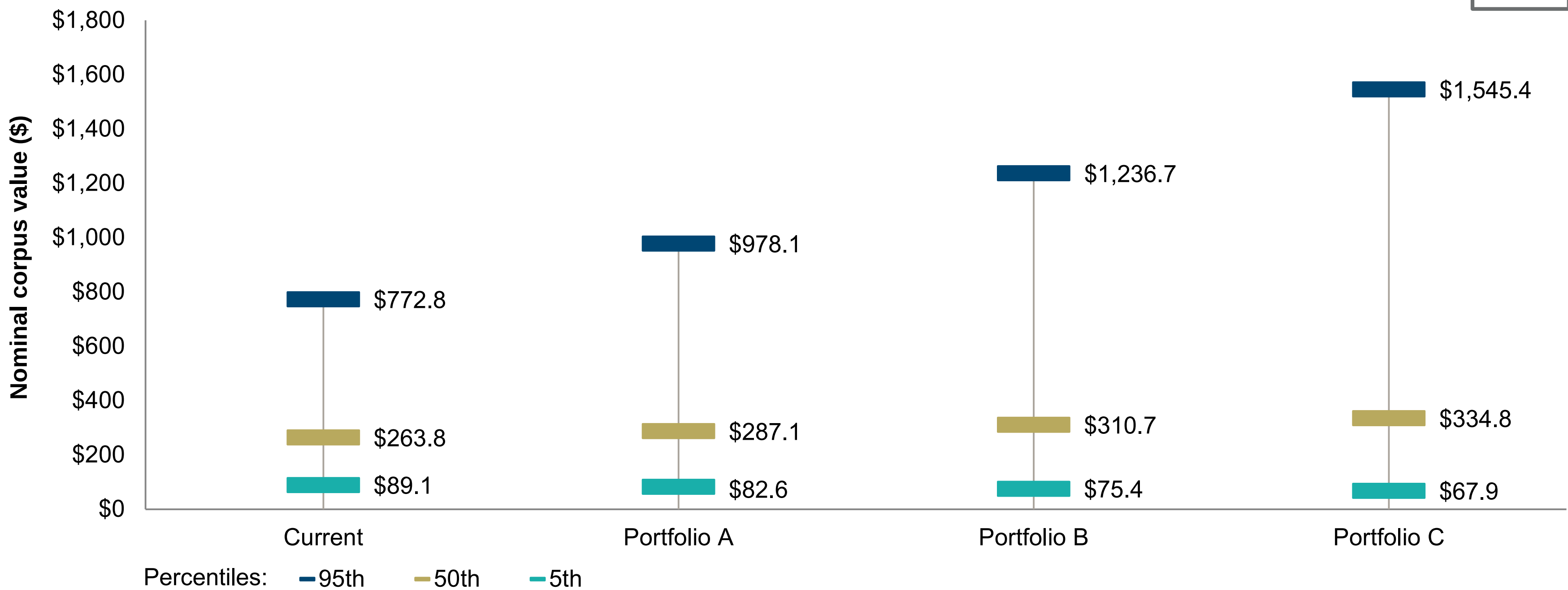
Volatility	Return
	Inflation



Nominal corpus analysis

- Of the alternative portfolios, Portfolio A has the lowest nominal median terminal corpus value while Portfolio C has the highest

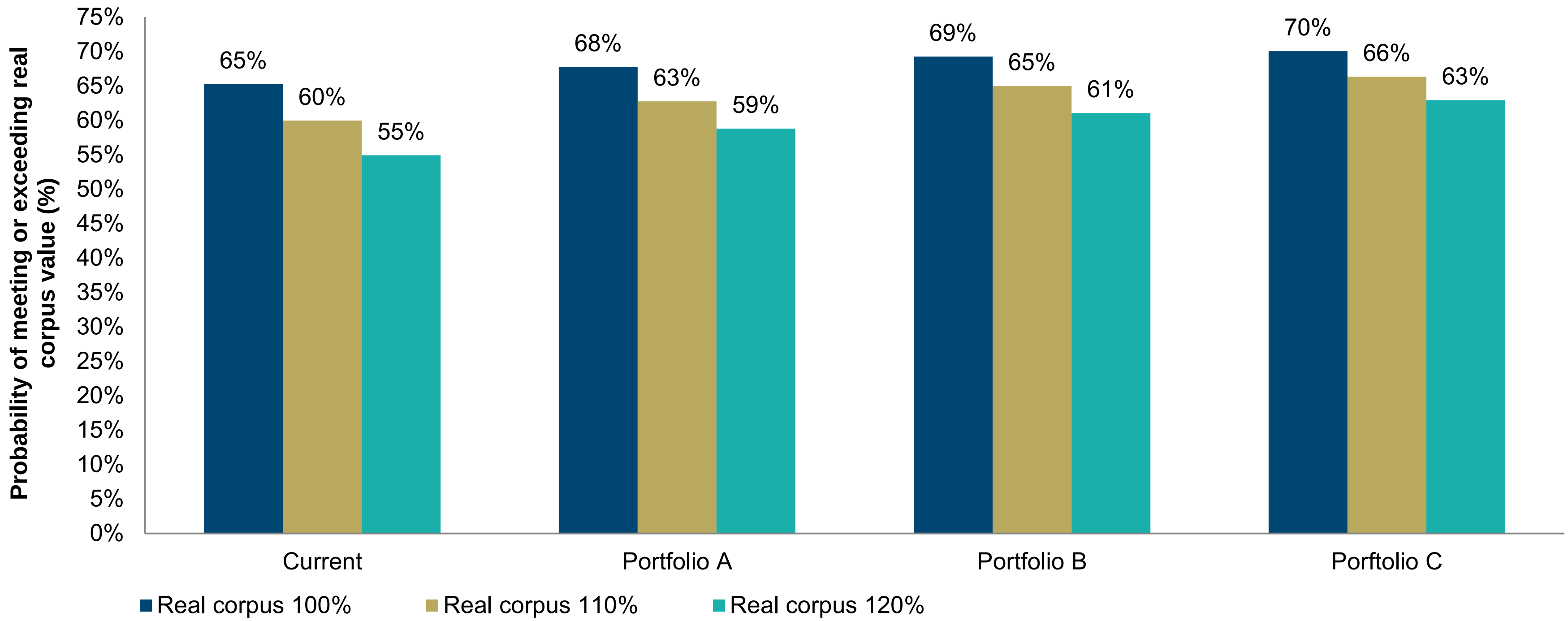
Volatility	Return
	Inflation



Maintaining or exceeding real corpus

- The portfolios with higher levels of equities have a greater probability of maintaining or growing real corpus value over a 20 year time period

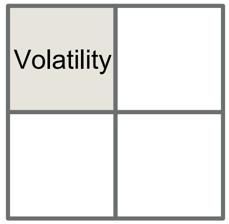
Volatility	
	Inflation

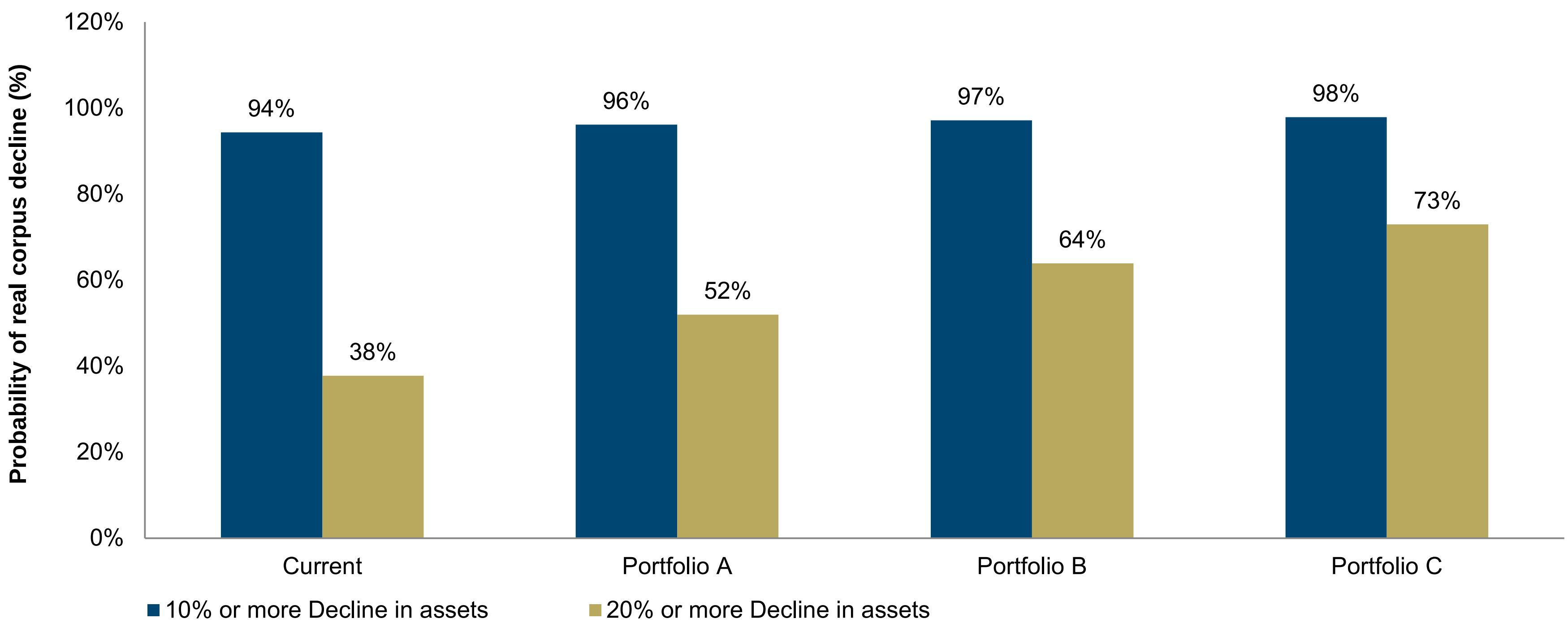


Note: 10-year time horizon.

Downside risk

The probability of realizing a decline in real corpus value is commensurate with the level of risk, portfolios with higher equity exposure have a higher probability of realizing a down-side event

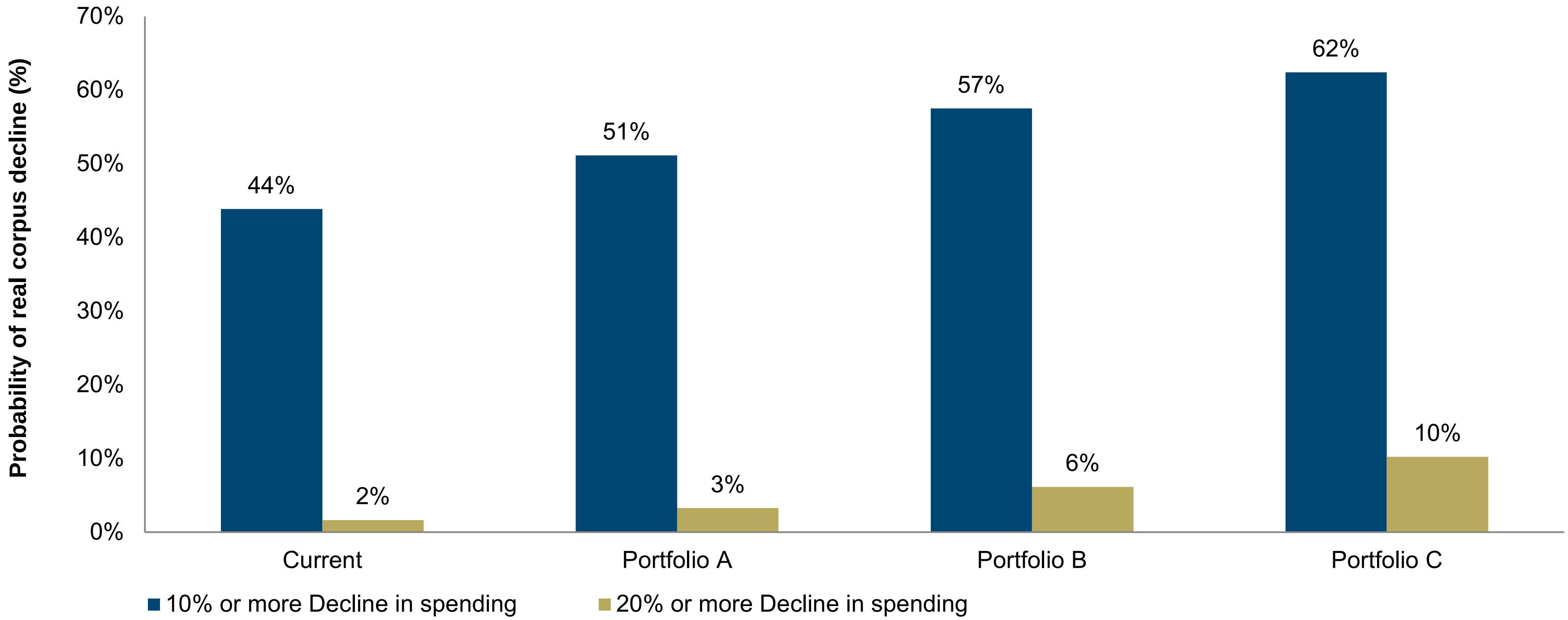




Note: 20-year time horizon.

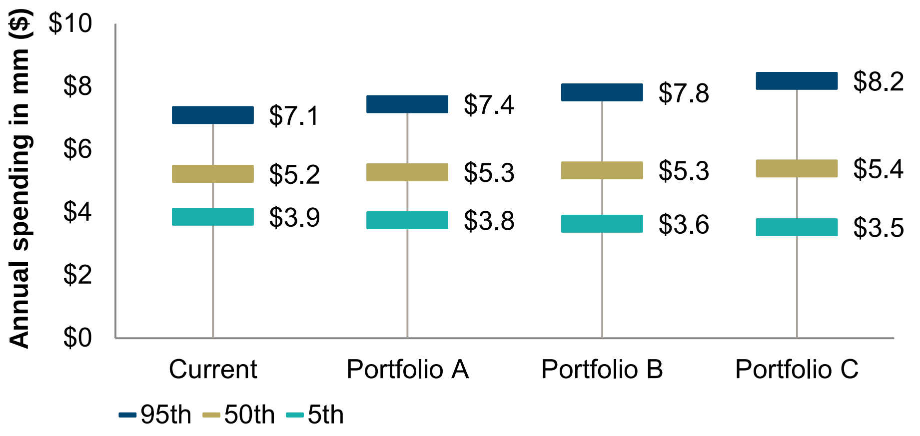
Spending declines

The probability of realizing a decline in real spending is commensurate with the level of risk, therefore portfolios with greater equity exposure have a greater probability of larger declines in spending

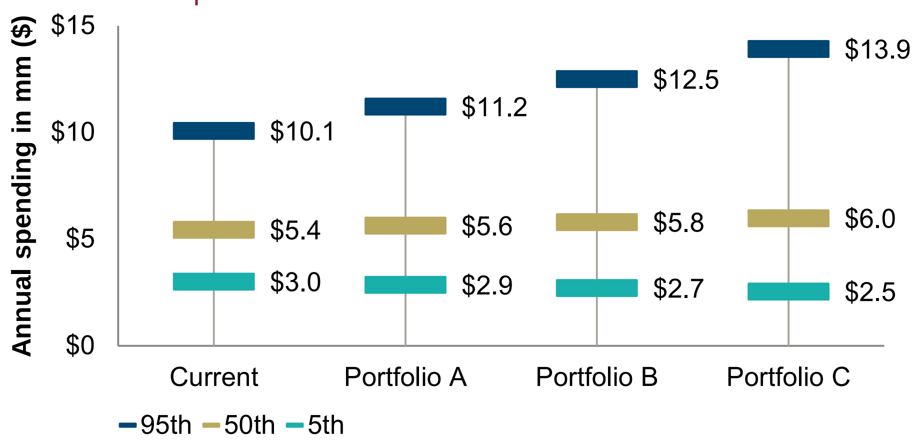


Dispersion of annual spending

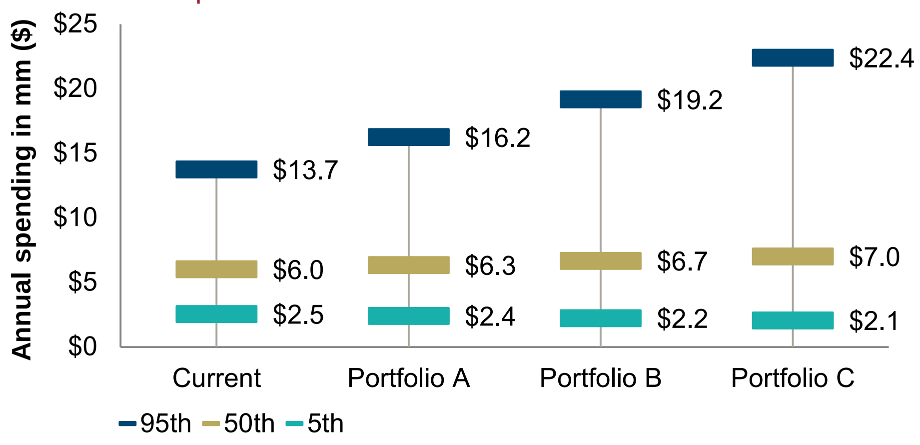
5 Year dispersion



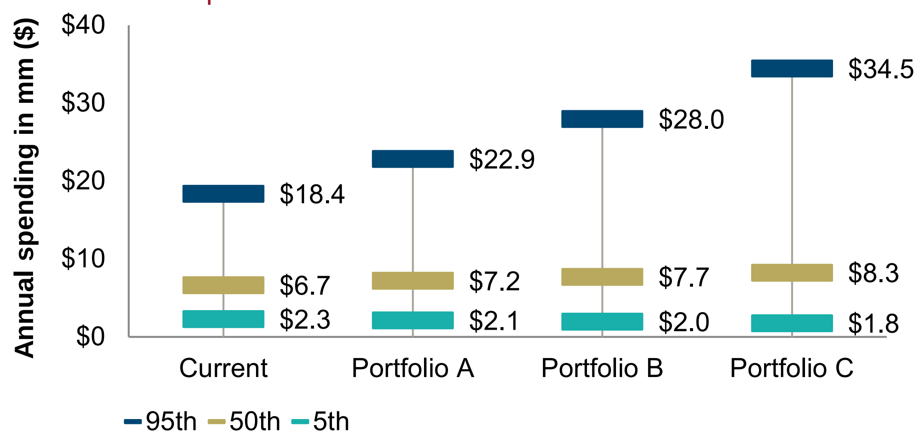
10 Year dispersion



15 Year dispersion

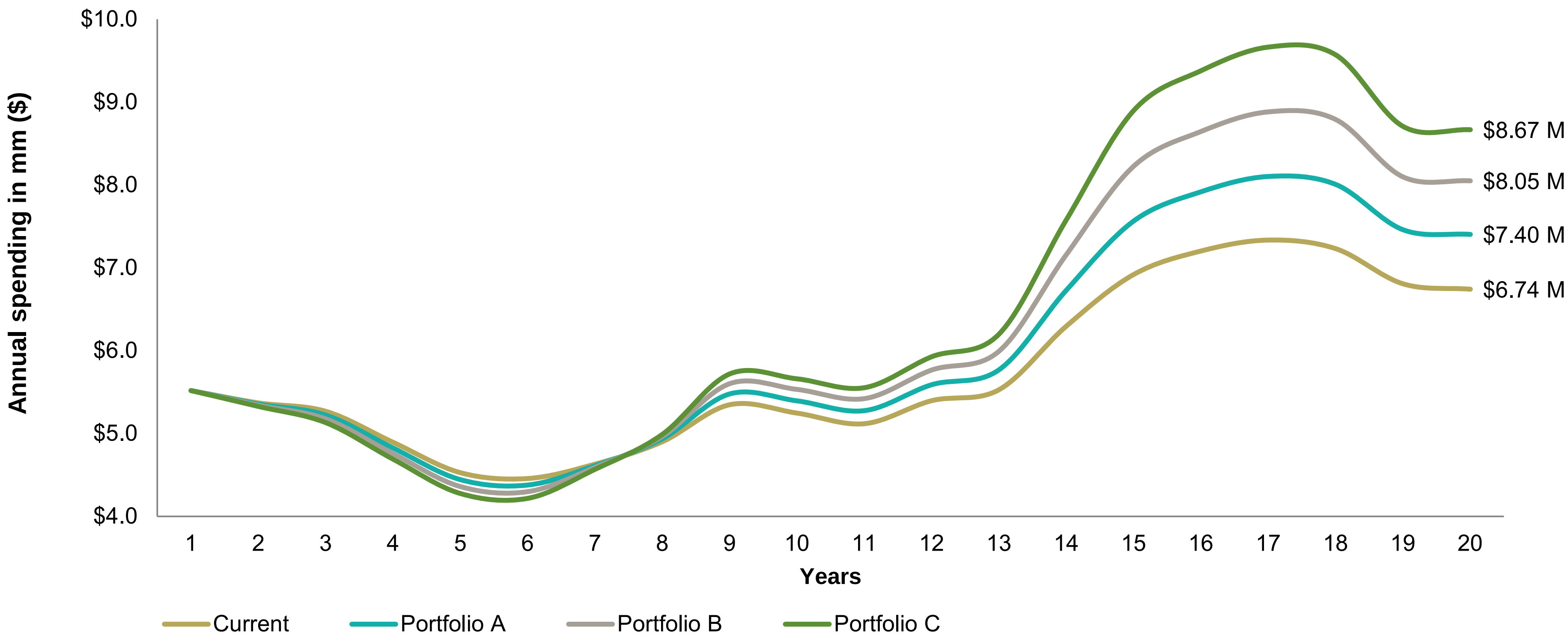


20 Year dispersion



Median spending path

High probability spending scenario



Volatility breakdown

- Equity exposure is the key source of volatility in all of the simulated portfolios

Volatility

	Current		Portfolio A		Portfolio B		Portfolio C	
	Source of risk	Asset allocation	Source of risk	Asset allocation	Source of risk	Asset allocation	Source of risk	Asset allocation
U.S. Equity	53%	36%	54%	42%	55%	48%	56%	54%
Non U.S. Equity	35%	24%	36%	28%	37%	32%	37%	36%
U.S. Aggregate Bonds	2%	30%	1%	20%	0%	10%	0%	0%
REITs	10%	10%	9%	10%	8%	10%	7%	10%

Model return simulation summary statistics
10-year time horizon as of June 30, 2015

Asset class returns

10-year time horizon			Return percentiles			Volatility
Asset class	**5th**	**25th**	**50th**	**75th**	**95th**	
U.S. Equity	–4.7%	1.9%	6.7%	11.5%	18.7%	17.6%
Non U.S. Equity	–1.8%	4.3%	8.8%	13.5%	20.3%	18.6%
U.S. Aggregate Bonds	1.4%	2.2%	2.8%	3.3%	4.2%	4.8%
REITs	–3.9%	1.1%	4.7%	8.3%	13.7%	19.3%
Inflation	0.0%	1.0%	1.7%	2.4%	3.4%	2.3%

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 June 30, 2015. Results from the model may vary with each use and over time. For more information on VCMM, see the Important Information slide.

Model return simulation summary statistics
10-year time horizon as of June 30, 2015

Asset class correlations

	U.S. Equity	Non U.S. Equity	U.S. Aggregate Bonds	REITs
U.S. Equity	1			
Non U.S. Equity	0.78	1		
U.S. Aggregate Bonds	0.01	0.05	1	
REITs	0.54	0.40	0.03	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 June 30, 2015. Results from the model may vary with each use and over time. For more information on VCMM, see the Important Information slide.

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The performance data shown represents 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 www.vanguard.com/performance.

An investment in a money market fund is not insured or guaranteed by the Federal Deposit Insurance Corporation or any other government agency. Although a money market fund seeks to preserve the value of your investment at $1 per share, it is possible to lose money by investing in such a fund.

Total Portfolio Net of Fees returns reflect the deduction of fund expense ratios, purchase or redemption fees, and any advisory service fee applied to the client portfolio.

Total Portfolio returns represent client-specific time-weighted returns (TWR) are presented gross of any applicable service fees with the exception of mutual fund expense ratios and other security-level expenses.

Internal rates of return (IRR) are net of any applicable service fees, include account-specific cashflows, and are not directly comparable to a benchmark, since benchmarks do not include cashflows.

Client performance inception date is generally the first month-end after initial funding.

Performance figures assume the reinvestment of dividends and capital gains distributions. The fund performance percentages are based on fund total return data, adjusted for expenses, obtained from Lipper, a Thomson Reuters Company. The total return data was not adjusted for fees and loads.

The performance of an index is not an exact representation of any particular investment, as you cannot invest directly in an index. Benchmark comparative indexes represent unmanaged or average returns on various financial assets, which can be compared with funds' total returns for the purpose of measuring relative performance.

The Russell 1000 Growth Index is used as the comparative benchmark for the PRIMECAP Fund in this report; The S&P 500 is the fund's primary benchmark, as indicated in the fund prospectus.

The Spliced Core Bond Funds Average contains the returns of the Intermediate Inv-Grade Debt Funds Average through 8/31/2013; Core Bond Funds Average thereafter.

The Spliced Barclays U.S. Aggregate Float Adjusted Index contains the returns of the Barclays U.S. Aggregate Bond Index through December 31, 2009; Barclays U.S. Aggregate Float Adjusted Index thereafter.

The Spliced Barclays U.S. Long Government/Credit Float Adjusted Index contains the returns of the Barclays U.S. Long Government/Credit Bond Index through December 31, 2009; Barclays U.S. Long Government/Credit Float Adjusted Index thereafter.

The Spliced Barclays U.S. 1-5 Year Government/Credit Float Adjusted Index contains the returns of the Barclays U.S. 1-5 Year Government/Credit Bond Index through December 31, 2009; Barclays U.S. 1-5 Year Government/Credit Float Adjusted Index thereafter.

The Spliced Barclays U.S. 5-10 Year Government/Credit Float Adjusted Index contains the returns of the Barclays U.S. 5-10 Year Government/Credit Bond Index through December 31, 2009; Barclays U.S. 5-10 Year Government/Credit Float Adjusted Index thereafter.

The Spliced Total Stock Market Index contains Dow Jones U.S. Total Stock Market Index (formerly known as the Dow Jones Wilshire 5000 Index) through May 31, 2005; MSCI US Broad Market Index through June 2, 2013; and CRSP US Total Market Index thereafter.

The Spliced Institutional Total Stock Market Index contains the returns of the Dow Jones U.S. Total Stock Market Index (formerly known as the Dow Jones Wilshire 5000 Index through April 8, 2005; the MSCI US Broad Market Index through January 14, 2013; and the CRSP US Total Market Index thereafter.

The Spliced EAFE + Emerging Markets Index contains the returns of the Total International Composite Index through August 31, 2006; MSCI EAFE + Emerging Markets Index thereafter. Returns for the MSCI EAFE + Emerging Markets Index are adjusted for withholding taxes applicable to Luxembourg holding companies.

The Spliced Extended Market Index contains the returns of the Dow Jones U.S. Completion Total Stock Market Index until June 17, 2005; S&P Transitional Completion Index through September 16, 2005; S&P Completion Index thereafter.

The Spliced Large Cap Growth Index contains the returns of the MSCI US Prime Market 750 Index through January 30, 2013, and the CRSP US Large Cap Index thereafter.

The Spliced Mid Cap Index contains the returns of the S&P MidCap 400 Index through May 16, 2003; the MSCI US Mid Cap 450 Index through January 30, 2013; and the CRSP US Mid Cap Index thereafter.

The Spliced Value Index contains the S&P 500 Value Index (formerly known as the S&P 500/Barra Value Index) through May 16, 2003; MSCI US Prime Market Value Index through April 16, 2013; CRSP US Large Cap Value Index thereafter.

The Spliced Growth Index contains the S&P 500 Growth Index (formerly known as the S&P 500/Barra Growth Index) through May 16, 2003; MSCI US Prime Market Growth Index through April 16, 2013; and CRSP US Large Cap Growth Index thereafter.

The Spliced Small Cap Index contains the returns of the Russell 2000 Index through May 16, 2003; the MSCI US Small Cap 1750 Index through January 30, 2013; and the CRSP US Small Cap Index thereafter.

The Spliced Small Cap Value Index contains the SmallCap 600 Value Index (formerly known as the S&P SmallCap 600/Barra Value Index) through May 16, 2003; MSCI US Small Cap Value Index through April 16, 2013; CRSP US Small Cap Value Index thereafter.

The Spliced Small Cap Growth Index contains the S&P SmallCap 600 Growth Index (formerly known as the S&P SmallCap 600/Barra Value Index) through May 16, 2003; MSCI US Small Cap Growth Index through April 16, 2013; and CRSP US Small Cap Growth Index thereafter.

The Spliced Small and Mid Cap Index contains the returns of the Russell 2800 Index through May 31, 2003; MSCI US Small + Mid Cap 2200 Index thereafter.

The Convertibles Composite Index contains the returns of the CS First Boston Convertible Index until November 30, 2004; Bank of America Merrill Lynch All US Convertibles Index through December 31, 2010; and 70% Bank of America Merrill Lynch All US Convertibles Index and 30% Bank of America Merrill Lynch Global 300 Convertibles ex-US Index thereafter.

The Spliced Emerging Markets Index contains the returns of the Select Emerging Markets Index through August 23, 2006; the MSCI Emerging Markets Index through January 9, 2013; the FTSE Emerging Transition Index through June 27, 2013; FTSE Emerging Index through November 1, 2015; and the FTSE Emerging Markets All Cap China A Transition Index thereafter.

The Spliced Precious Metals and Mining Index contain the returns of the MSCI Gold Mines Index through December 31, 1994; S&P/Citigroup World Equity Gold Index through June 30, 2005; S&P Global Custom Metals and Mining Index thereafter.

The Spliced International Index contains the returns of the MSCI EAFE Index through May 31, 2010; MSCI All Country World Index ex USA thereafter.

The Spliced Total International Stock Index consists of the 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.

The Spliced Energy Index contains the returns of the S&P 500 Index through November 30, 2000; S&P Energy Sector Index through May 31, 2010; MSCI All Country World Energy Index thereafter.

The Spliced Health Care Index contains the returns of the S&P 500 Index through December 31, 2001; S&P Health Care Index through May 31, 2010; MSCI All Country World Health Care Index thereafter.

The Spliced Total World Stock Index consists of the FTSE All-World Index through December 16, 2011; FTSE Global All Cap Index thereafter.

The S&P 500/Citigroup Value Index contains the returns of the S&P 500/Barra Value Index though December 16, 2005; S&P 500/Citigroup Value Index thereafter.

The S&P 500/Citigroup Growth Index contains the returns of the S&P 500/Barra Growth Index though December 16, 2005; then the S&P 500/Citigroup Growth Index thereafter.

The S&P MidCap 400/Citigroup Growth Index contains the returns of the S&P MidCap 400/Barra Growth Index though December 16, 2005; S&P MidCap 400/Citigroup Growth Index thereafter.

The S&P MidCap 400/Citigroup Value Index contains the returns of the S&P MidCap 400/Barra Value Index though December 16, 2005; S&P MidCap 400/Citigroup Value Index thereafter.

The S&P SmallCap 600/Citigroup Growth Index contains the returns of the S&P SmallCap 600/Barra Growth Index though December 16, 2005; S&P SmallCap 600/Citigroup Growth Index thereafter.

The S&P SmallCap 600/Citigroup Value Index contains the returns of the S&P SmallCap 600/Barra Value Index though December 16, 2005; S&P SmallCap 600/Citigroup Value Index thereafter.

The Tax-Managed Balanced Composite Index contains the weighted returns of 50% Russell 1000 Index and 50% Barclays 7 Year Municipal Bond Index through January 31, 2002 and 50% Russell 1000 Index and 50% Barclays 1-15 Year Index thereafter.

The Spliced Intermediate-Term Tax-Exempt Index contains the returns of the Barclays 7 Year Municipal Bond Index through January 31, 2002; Barclays 1-15 Year Municipal Bond index thereafter.

The Spliced MA Tax-Exempt Index contains the returns of the Barclays 10 Year Municipal Bond Index through August 31, 2003; Barclays MA Municipal Index thereafter.

The NJ Long-Term Tax-Exempt Index contains the returns of the Barclays 10 Year Municipal Bond Index through August 31, 2003; Barclays NJ Municipal Index thereafter.

The Spliced PA Tax-Exempt Money Market Funds Avg contains the returns of the PA Tax-Exempt MM Funds Average through 8/31/2013; Other States Tax-Exempt MM Fds Avg thereafter.

The Spliced Developed Europe Index contains the MSCI Europe Index through March 26, 2013; the FTSE Developed Europe Index through September 30, 2015; then the FTSE Developed Europe All Cap Index thereafter.

The Spliced Pacific Stock Index contains the MSCI Pacific Index through March 26, 2013; the FTSE Developed Asia Pacific Index through September 30, 2015; then the FTSE Developed Asia Pacific All Cap Index thereafter.

The Spliced Developed Markets Index contains the MSCI EAFE Index through April 16, 2013; FTSE Developed ex North America Index thereafter.

The Spliced Developed Markets ex North America Index contains the MSCI EAFE Index through May 28, 2013; FTSE Developed ex North America Index through December 20, 2015; FTSE Developed All Cap ex US Transition Index thereafter.

The Spliced Mid Cap Growth Index contains the MSCI US Mid Cap Growth Index through April 16, 2013; CRSP US Mid Cap Growth Index thereafter.

The Spliced Mid Cap Value Index contains the MSCI US Mid Cap Value Index through April 16, 2013; CRSP US Mid Cap Value Index thereafter.

The REIT Spliced Index contains MSCI US REIT Index adjusted to include a 2% cash position (Lipper Money Market Average) through April 30, 2009; MSCI US REIT Index thereafter.

The Spliced Social Index contains Calvert Social Index through December 16, 2005; FTSE4Good US Select Index thereafter.

The Spliced Intermediate-Term Investment Grade Debt Funds Average contains the returns of the Intermediate-Term Inv-Grade Debt Funds Average through 09/01/2013; Core Bond Funds Average thereafter.

The Wellington Composite Index contains 65% S&P 500 Index and 35% Lehman U.S. Long Credit AA or Better Bond Index through February 29, 2000; 65% S&P 500 Index and 35% Barclays U.S. Credit A or Better Bond Index thereafter.

The Wellesley Income Composite Index is weighted 65% bonds and 35% stocks. For Bonds: Lehman U.S. Long Credit AA or Better Bond Index through March 31, 2000, and Barclays U.S. Credit A or Better Bond Index thereafter. For stocks: 26% S&P 500/Barra Value Index and 9% S&P Utilities Index through June 30, 1996, when the utilities component was split into the S&P Utilities Index (4.5%) and the S&P Telephone Index (4.5%); as of January 1, 2002, the S&P Telephone Index was replaced by the S&P Integrated Telecommunication Services Index; as of July 1, 2006, the S&P 500/Barra Value Index was replaced by the S&P 500/Citigroup Value Index; as of August 1, 2007, the three stock indexes were replaced by the FTSE High Dividend Yield Index.

The Balanced Composite Index contains two unmanaged benchmarks, weighted 60% Dow Jones U.S. Total Stock Market Index (formerly known as the Dow Jones Wilshire 5000 Index) and 40% Lehman Brothers U.S. Aggregate Bond Index through May 31, 2005; 60% MSCI US Broad Market Index and 40% Barclays U.S. Aggregate Bond Index through December 31, 2009; 60% MSCI US Broad Market Index and 40% Barclays U.S. Aggregate Float Adjusted Index through January 14, 2013; and 60% CRSP US Total Market Index and 40% Barclays U.S. Aggregate Float Adjusted Index thereafter.

The Dividend Growth Spliced Index (formerly known as the Utilities Composite Index prior to December 6, 2002) contains the index weightings: 40% S&P Utilities Index, 40% S&P Telephone Index, and 20% Lehman Brothers Utility Bond Index though April 30, 1999; 63.75% S&P Utilities Index, 21.25% S&P Telephone Index, and 15% Lehman Brothers Utility Bond Index through March 31, 2000; 75% S&P Utilities Index and 25% S&P Integrated Telecommunication Services Index through December 6, 2002; 100% Russell 1000 through January 2010; 100% NASDAQ US Dividend Achievers Select Index (formerly known as the Dividend Achievers Select Index.

The STAR Composite Index contains 62.5% Dow Jones U.S. Total Stock Market Index, 25% Barclays U.S. Aggregate Bond Index, and 12.5% Citigroup Three-Month U.S. Treasury Bill Index through December 31, 2002; 50% Dow Jones U.S. Total Stock Market Index, 25% Barclays U.S. Aggregate Bond Index, 12.5% Barclays U.S. 1–5 Year Credit Bond Index, and 12.5% MSCI EAFE Index through April 22, 2005; 50% MSCI US Broad Market Index, 25% Barclays U.S. Aggregate Bond Index, 12.5% Barclays U.S. 1–5 Year Credit Bond Index, and 12.5% MSCI EAFE Index through September 30, 2010; and 43.75% MSCI US Broad Market Index, 25% Barclays U.S. Aggregate Bond Index, 12.5% Barclays U.S. 1–5 Year Credit Bond Index, and 18.75% MSCI All Country World Index ex USA thereafter. MSCI international benchmark returns are adjusted for withholding taxes..

The REIT Spliced Index contains MSCI US REIT Index adjusted to include a 2% cash position (Lipper Money Market Average) through April 30, 2009; MSCI US REIT Index thereafter.

The High-Yield Corporate Composite Index consists of 95% Barclays U.S. High-Yield Ba/B 2% Issuer Capped Index and 5% Barclays U.S. 1-5 Year Treasury Bond Index

The Spliced Equity Income Index contains Russell 1000 Value Index through July 31, 2007; FTSE High Dividend Yield Index thereafter.

MSCI Provisional Index Series returns beginning November 16, 2001.

Important information

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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.

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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 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 would retire and leave the workforce. The fund 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 is not guaranteed at any time, including on or after the target date.

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