

Investment Performance Review
Period Ending September 30, 2022

Butler County Employees Retirement Plan



3rd Quarter 2022 Market Environment

The Economy

- Broadly, global markets declined during the 3rd quarter as inflation remained elevated, causing global central banks further drain liquidity from the market, and geopolitical risks increased as the conflict in Ukraine escalated.
- While inflation moderated slightly in the US, it showed signs of increasing, especially in Europe, where UK and German inflation reached multi-decade highs. US CPI was 8.3% in August, down from 9.1% at the end of the 2nd quarter.
- The US Federal Reserve Bank (the Fed) continued to increase interest rates during the quarter by raising 0.75% at the July and September meetings. Importantly, the Fed signaled it was committed to fight inflation by additional rate hikes if needed.
- The US labor market showed its resiliency during the quarter by adding an estimated 1.1 million jobs. As a result, the unemployment rate fell to 3.5% in September. The number of workers re-entering the workforce increased slightly during the period as wage growth remained strong.
- Real estate markets were under pressure during the quarter as rising interest rates pushed mortgages to their highest levels since 2007. As of September, the average 30-year fixed mortgage was roughly 6.7%, up from roughly 3.0% last year at the same time.

Equity (Domestic and International)

- US equities declined during the 3rd quarter as concerns regarding inflation, the path of interest rates, and a slowing global economy acted as headwinds. Small cap growth was the best performing domestic segment of the equity market relative to other US market capitalizations and styles during the period while large cap value performed the worst.
- Momentum was decidedly negative in international stocks during the 3rd quarter. The escalating conflict in Ukraine, rising inflation in Europe, and tightening monetary policy all contributed to the decline. The continued strength of the US dollar, which rose against most major developed market and emerging market currencies, also acted as a headwind. Finally, China continued its zero-tolerance policy regarding Covid-19, which led to additional restrictions.

Fixed Income

- While inflation fell slightly during the quarter, the Fed continued increasing interest rates which acted as a headwind for fixed income performance during the quarter. US interest rates moved significantly higher during the quarter with the US 10-Year Treasury bond rising 83 basis points to close at 3.80%.
- Performance across all bond market sectors was negative during the quarter, with US high yield corporate bonds and US Treasury bonds down the least.
- The combination of higher coupons and a shorter maturity profile relative to high quality government bonds was the primary driver of the relative outperformance of high yield bonds during the period.
- US Treasury bonds declined less than other investment grade bond market sectors during the quarter. During periods of increased volatility, investors have historically preferred the safety of government bonds over those with credit risk.

Market Themes

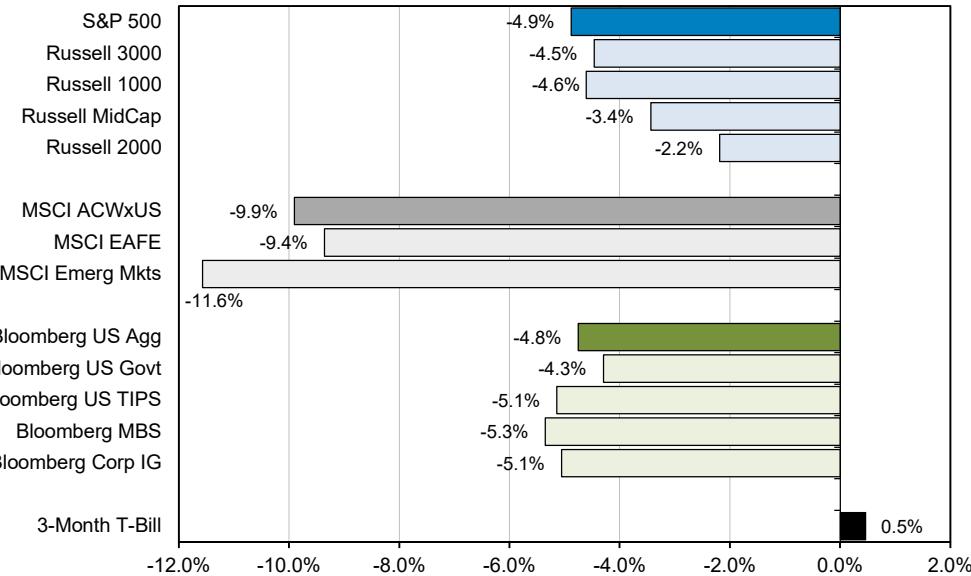
- Central banks remained hawkish during the quarter with several banks raising interest rates to fight higher inflation. The Fed, the Bank of England, and European Central Bank all raised rates during the quarter. Additionally, the Fed is currently allowing bonds to mature without reinvesting (quantitative tightening), while other banks are also considering similar actions. The outcome would be additional liquidity from the market.
- The escalating crisis in Ukraine spilled over as several gas pipelines were attacked in the Baltic Sea. The result was further disruption of energy supplies to Europe, Germany in particular. Energy costs have risen significantly since the start of the conflict which have negatively impacted economic activity in the region.
- US equity markets experienced their third consecutive quarter of negative performance during the 3rd quarter. Growth-oriented stocks outperformed value stocks as investors believe the Fed will begin slowing the rise of interest rates as economic growth declines. Historically, growth stocks have outperformed value stocks as the economy reaches the trough following a recession.
- Interest rates rose across the Treasury yield curve during the quarter as the Fed hiked interest rates by 0.75% at both the July and September meetings. The 3rd quarter marks the third consecutive quarter the bond market has suffered negative absolute returns. Long-term mortgage and investment grade corporate bonds underperformed during the quarter given their maturity profiles. High yield bonds outperformed primarily due to their shorter maturity profile and higher coupons.



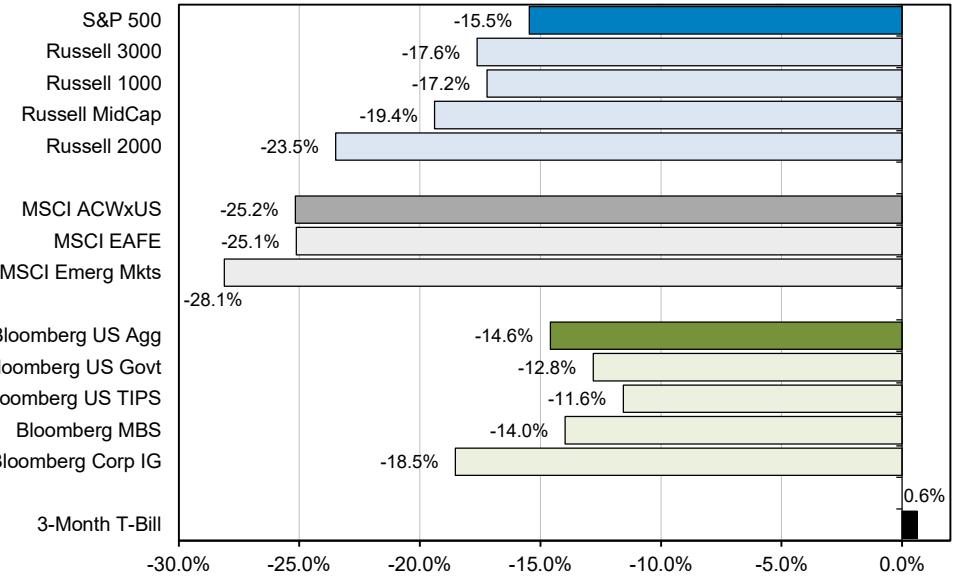
- Negative momentum continued during the 3rd quarter as broad US equity markets experienced negative returns. Factors that contributed to performance included elevated inflation, tighter monetary policy, continued geopolitical events in Ukraine, and expectations of slower economic growth. For the period, the S&P 500 large cap benchmark returned -4.9%, compared to -3.4% for mid-cap and -2.2% for small cap indices.
- Like domestic equities, developed markets international equities also suffered negative results for the 3rd quarter. Europe was negatively impacted by higher-than-expected inflation, the conflict in Ukraine, uncertainty regarding energy supplies, and rising interest rates. Emerging markets were also negatively impacted by war in Ukraine and a strengthening USD. During the period, the MSCI EAFE Index returned -9.4% while the MSCI Emerging Markets Index declined by -11.6%.
- For the quarter, performance of the bond market was broadly negative due to continued concerns about inflation and the FOMC's decision to raise interest rates twice during the period. The Bloomberg (BB) US Aggregate Index returned -4.8%, for the period while Investment Grade Corporate bonds posted a return of -5.1%.

- Performance for developed equity markets was strongly negative over the trailing 1-year period. The primary drivers of return during the period were weakening global economic growth, more restrictive monetary policy from global central banks, and elevated inflation. The S&P 500 large cap stock index led equity market performance for the year with a return of -15.5%. The outlier was the MSCI ACWI ex-US index which declined by -25.2% for the year.
- Over the trailing 1-year period, international markets fell with the developed market MSCI EAFE Index returning -25.1% while the MSCI Emerging Markets Index fell by -28.1%. Global economic growth slowed throughout the year and both developed and emerging markets were negatively impacted by a strong USD and continued geopolitical concerns.
- Bond market returns disappointed over the trailing 1-year period due primarily to concerns about rising inflation and the expectation of higher future interest rates. US TIPS were the best performing sector returning -11.6% while investment grade corporate bonds was the worst, falling -18.5%.

Quarter Performance



1-Year Performance

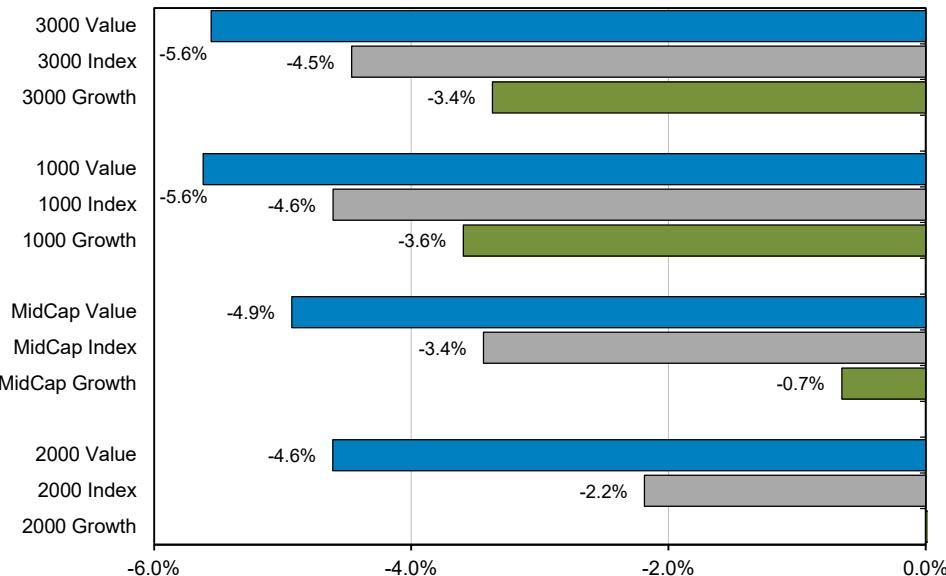


Source: Investment Metrics

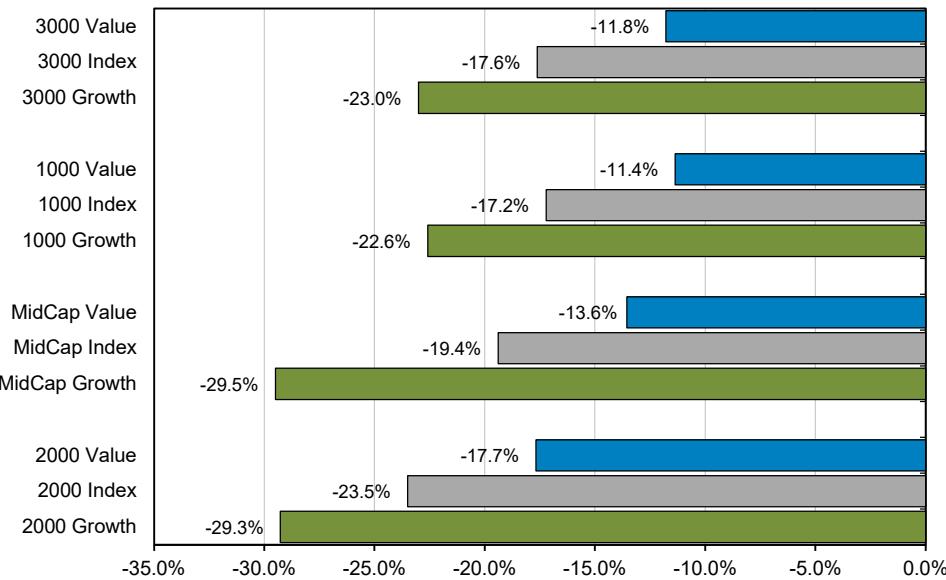
- Volatility was high during the 3rd quarter as broad US equity markets rose sharply before falling to close the period with negative results across both the style and market capitalization spectrums. Leadership switched during the quarter with small cap stocks outperforming, followed by mid and large cap issues. The Russell 2000 Index declined by -2.2% for the quarter while the Russell Mid Cap Index and the Russell 1000 Index fell by -3.4% and -4.6%, respectively.
- Performance across styles and market capitalizations was disparate during the quarter. Large, mid, and small cap growth stocks all outperformed their value counterparts. For the period, the Russell 2000 Growth Index was the best relative performing style index, posting a return of 0.0%. Large and mid cap value stocks were the laggards during the period with the Russell Large Cap Value Index and Russell Mid Cap Value Index falling by -5.6% and -4.9%, respectfully.
- Performance across all market capitalizations and styles was negative over the trailing 1-year period. Unlike the 3rd quarter, large cap stocks outperformed mid and small cap stocks for the year. The Russell 1000 Index return of -17.2% for the year, significantly outperformed both its mid and small cap growth index counterparts. The outlier during the period was the Russell 2000 Index which returned -23.5%.
- There was wide performance dispersion within across all style-based indexes. Value significantly outperformed growth over the year. Within large cap stocks, the Russell 1000 Value returned -11.4% compared to -22.6% for the Russell Large Cap Growth benchmark. The Russell Mid Cap Value Index returned -13.6% while the Russell 2000 Value Index returned -17.7% for the period. In comparison, the Russell Mid Cap Growth Index returned -29.5%, while the Russell 2000 Growth Index declined by -29.3%.

Source: Investment Metrics

Quarter Performance - Russell Style Series

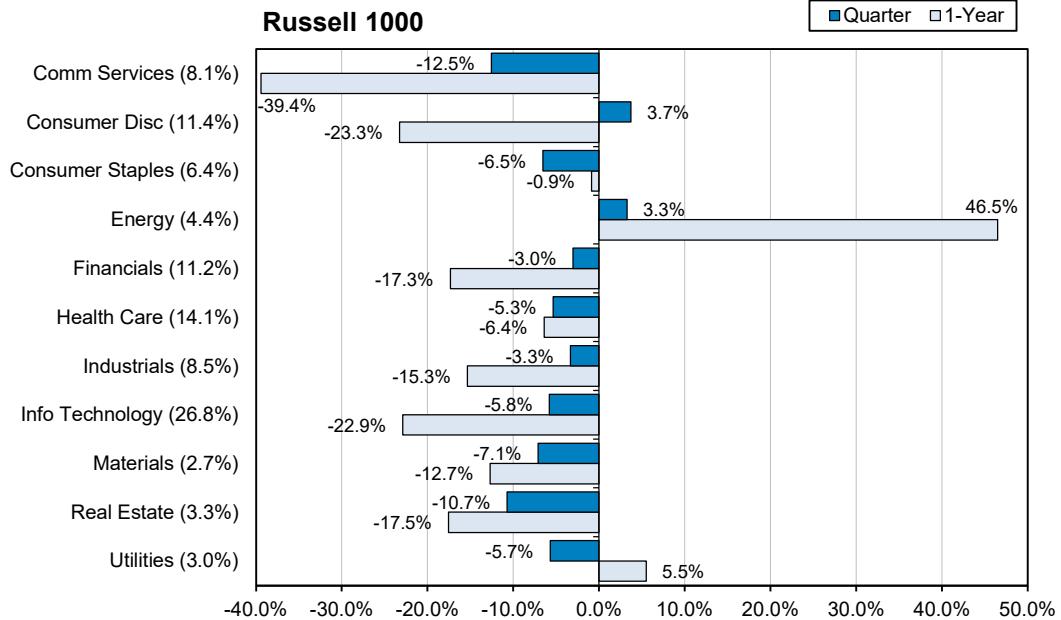


1-Year Performance - Russell Style Series

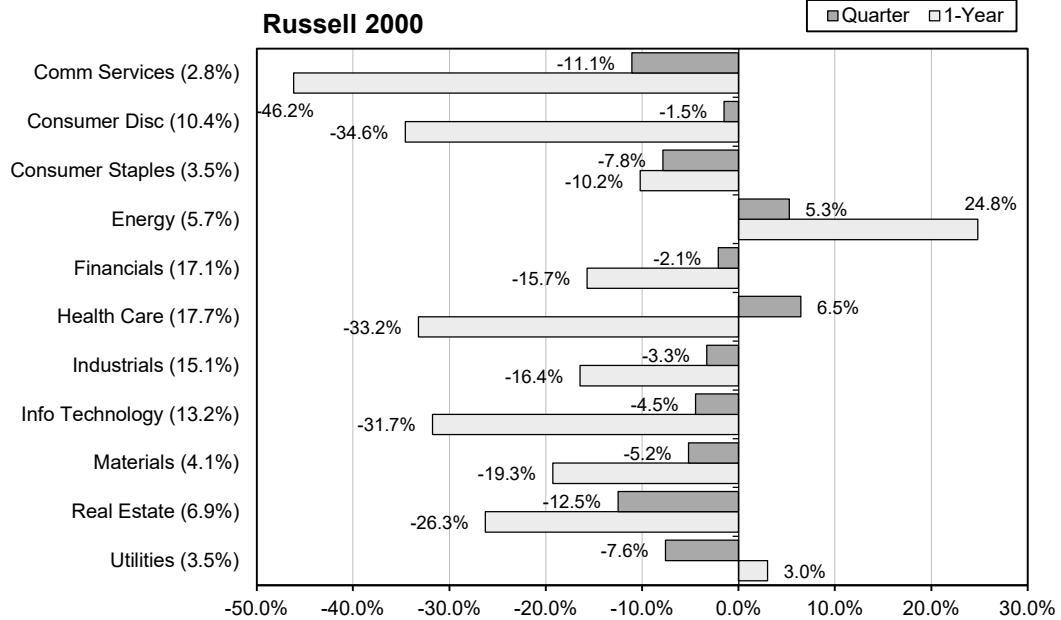


The Market Environment
GICS Sector Performance & (Sector Weight)
As of September 30, 2022

- Economic sector performance was negative across nine of the eleven large cap economic sectors for the 3rd quarter. Four sectors outpaced the return of the broad index on a relative basis during the period.
- Consumer Discretionary (3.7%) and Energy (3.3%) were the only sectors with positive absolute performance during the period. Additionally, Financials (-3.0%) and Industrials (-3.3%) outperformed the broad index. Strong consumer demand acted as a tailwind for consumer-related stocks during the quarter. Energy continued its relative outperformance as the price of oil remained elevated.
- For the full year, six sectors exceeded the return of the broad large cap benchmark: Energy (46.5%), Utilities (5.5%), Consumer Staples (-0.9%), Health Care (-6.4%), Materials (-12.7%), and Industrials (-15.3%). The weakest economic sector performance in the Russell 1000 for the year was Communication Services which declined by returns (-39.4%).



- Small cap sector performance was also mixed during the quarter with two economic sectors posting positive performance relative to return of the broader Russell 2000 Index (-2.2%). Health Care (6.5%), and Energy (5.3%) were the best performing sectors for the period. Real Estate (-12.5%), and Communication Services (-11.1%) were the worst performing sectors for the quarter.
- For the trailing 1-year period, six of the eleven sectors outpaced the broad benchmark's return. Not surprisingly, sector performance was led by Energy (24.8%), Utilities (3.0%), Consumer Staples (-10.2%), Financials (-15.7%), and Industrials (-16.4%). The weakest sector over the full year was Communication Services (-46.2%), followed by Consumer Discretionary (-34.6%).



Source: Morningstar Direct

As a result of the GICS classification changes on 9/28/2018 and certain associated reporting limitations, sector performance represents backward looking performance for the prior year of each sector's current constituency, post creation of the Communication Services sector.

The Market Environment
Top 10 Index Weights & Quarterly Performance for the Russell 1000 & 2000
As of September 30, 2022

Top 10 Weighted Stocks				
Russell 1000	Weight	1-Qtr Return	1-Year Return	Sector
Apple Inc	6.31%	1.22%	-1.79%	Information Technology
Microsoft Corp	5.21%	-9.12%	-16.69%	Information Technology
Amazon.com Inc	3.00%	6.39%	-31.20%	Consumer Discretionary
Tesla Inc	2.02%	18.17%	2.61%	Consumer Discretionary
Alphabet Inc Class A	1.72%	-12.22%	-28.45%	Communication Services
Alphabet Inc Class C	1.55%	-12.09%	-27.85%	Communication Services
Berkshire Hathaway Inc Class B	1.44%	-2.20%	-2.17%	Financials
UnitedHealth Group Inc	1.41%	-1.36%	30.94%	Health Care
Johnson & Johnson	1.28%	-7.35%	3.82%	Health Care
Exxon Mobil Corp	1.09%	2.91%	55.15%	Energy

Top 10 Weighted Stocks				
Russell 2000	Weight	1-Qtr Return	1-Year Return	Sector
ShockWave Medical Inc	0.45%	45.5%	35.1%	Health Care
Biohaven Pharmaceutical Holding Co	0.43%	3.7%	8.8%	Health Care
Chart Industries Inc	0.31%	10.1%	-3.5%	Industrials
Karuna Therapeutics Inc	0.30%	77.8%	83.9%	Health Care
Apellis Pharmaceuticals Inc	0.28%	51.0%	107.2%	Health Care
Murphy USA Inc	0.28%	18.2%	65.3%	Consumer Discretionary
Texas Roadhouse Inc	0.27%	19.8%	-2.4%	Consumer Discretionary
SouthState Corp	0.27%	3.2%	8.5%	Financials
RBC Bearings Inc	0.27%	12.4%	-2.1%	Industrials
EMCOR Group Inc	0.27%	12.3%	0.5%	Information Technology

Top 10 Performing Stocks (by Quarter)				
Russell 1000	Weight	1-Qtr Return	1-Year Return	Sector
Signify Health Inc Ordinary Shares	0.01%	111.23%	63.12%	Health Care
First Solar Inc	0.04%	94.14%	38.56%	Information Technology
Wolfspeed Inc	0.04%	62.90%	28.03%	Information Technology
Penumbra Inc	0.02%	52.26%	-28.86%	Health Care
Oak Street Health Inc Ordinary Shares	0.01%	49.15%	-42.35%	Health Care
Sarepta Therapeutics Inc	0.03%	47.47%	19.53%	Health Care
Constellation Energy Corp	0.08%	45.54%	N/A	Energy
The Trade Desk Inc Class A	0.08%	42.64%	-15.01%	Information Technology
Nutanix Inc Class A	0.01%	42.38%	-44.75%	Information Technology
Enphase Energy Inc	0.11%	42.12%	85.02%	Energy

Top 10 Performing Stocks (by Quarter)				
Russell 2000	Weight	1-Qtr Return	1-Year Return	Sector
Akero Therapeutics Inc	0.04%	260.3%	52.3%	Health Care
Forma Therapeutics Holdings Inc	0.03%	189.6%	-14.0%	Health Care
Velo3D Inc	0.01%	185.5%	-52.9%	Industrials
Ventyx Biosciences Inc	0.04%	185.4%	N/A	Health Care
Verve Therapeutics Inc	0.06%	124.8%	-26.9%	Health Care
AN2 Therapeutics Inc	0.00%	124.3%	N/A	Health Care
Prothena Corp PLC	0.10%	123.3%	-14.9%	Health Care
Target Hospitality Corp Class A	0.02%	121.0%	238.3%	Consumer Discretionary
1Life Healthcare Inc Ordinary Shares	0.14%	118.8%	-15.3%	Health Care
Global Blood Therapeutics Inc	0.19%	113.1%	167.3%	Health Care

Bottom 10 Performing Stocks (by Quarter)				
Russell 1000	Weight	1-Qtr Return	1-Year Return	Sector
Sotera Health Co Ordinary Shares	0.00%	-65.2%	-73.9%	Health Care
Novavax Inc	0.00%	-64.6%	-91.2%	Health Care
Spectrum Brands Holdings Inc	0.00%	-52.1%	-58.4%	Consumer Staples
AMC Entertainment Holdings Inc	0.01%	-48.6%	-81.7%	Communication Services
WeWork Inc	0.00%	-47.2%	N/A	Real Estate
The Scotts Miracle Gro Co A	0.01%	-45.4%	-70.1%	Materials
AppLovin Corp Ordinary Shares	0.01%	-43.4%	-73.1%	Information Technology
Azenta Inc	0.01%	-40.6%	-58.1%	Health Care
NCR Corp	0.01%	-38.9%	-51.0%	Information Technology
Enhabit Inc Shs	0.00%	-38.9%	N/A	Health Care

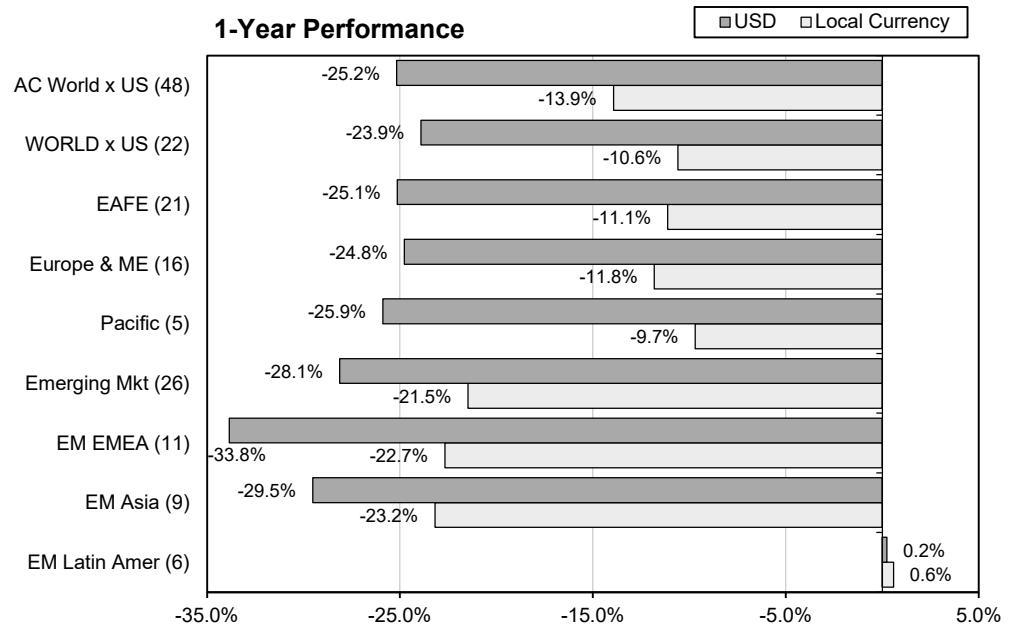
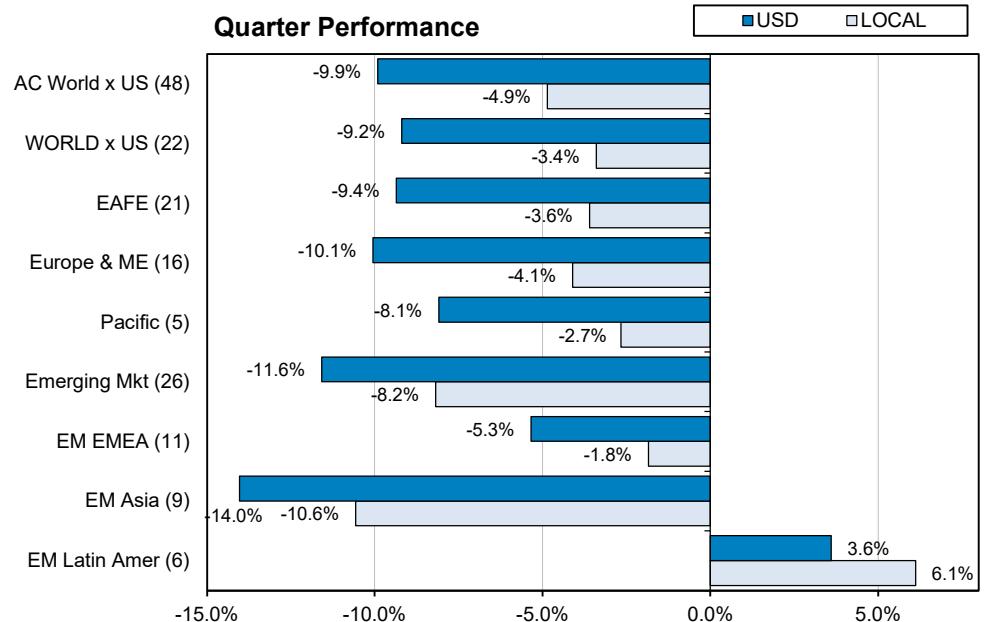
Bottom 10 Performing Stocks (by Quarter)				
Russell 2000	Weight	1-Qtr Return	1-Year Return	Sector
Leafly Holdings Inc	0.00%	-84.9%	0.0%	Communication Services
VistaGen Therapeutics Inc	0.00%	-82.7%	N/A	Health Care
Faraday Future Intelligent Electric Inc	0.00%	-75.5%	N/A	Consumer Discretionary
SelectQuote Inc Ordinary Shares	0.00%	-70.6%	-94.4%	Financials
IronNet Inc	0.00%	-68.8%	N/A	Information Technology
Core Scientific Inc Ord Shs - Class A	0.00%	-67.9%	N/A	Consumer Discretionary
Rockley Photonics Holdings Ltd	0.00%	-67.4%	N/A	Information Technology
Loyalty Ventures Inc Ordinary Shares	0.00%	-66.1%	0.0%	Communication Services
Cryptyde Inc	0.00%	-65.9%	0.0%	Materials
Vintage Wine Estates Inc	0.00%	-64.8%	-72.9%	Consumer Staples

Source: Morningstar Direct



The Market Environment
International and Regional Market Index Performance (Country Count)
As of September 30, 2022

- Most developed and emerging market international equity indexes tracked in the chart posted negative returns in both US dollar (USD) and local currency (LC) terms for the 3rd quarter. The outlier during the period was the Latin America region. Higher commodity prices and demand benefited export-driven countries like Brazil. The developed market MSCI EAFE Index returned -9.4% in USD and -3.6% in LC terms for the period, while the MSCI Emerging Markets Index declined by -11.6% in USD and -8.2% in LC terms.



Source: MSCI Global Index Monitor (Returns are Net)



The Market Environment
US Dollar International Index Attribution & Country Detail
As of September 30, 2022

MSCI - EAFE	Sector Weight	Quarter Return	1-Year Return
Communication Services	4.8%	-13.7%	-28.6%
Consumer Discretionary	11.3%	-9.8%	-32.3%
Consumer Staples	11.3%	-7.1%	-17.3%
Energy	4.9%	-5.0%	6.0%
Financials	17.6%	-9.6%	-22.1%
Health Care	13.5%	-10.6%	-19.8%
Industrials	15.0%	-8.3%	-31.5%
Information Technology	7.9%	-8.3%	-38.9%
Materials	7.5%	-8.9%	-21.3%
Real Estate	2.8%	-13.1%	-29.1%
Utilities	3.4%	-13.3%	-20.3%
Total	100.0%	-9.4%	-25.1%

MSCI - ACWIxUS	Sector Weight	Quarter Return	1-Year Return
Communication Services	6.1%	-16.5%	-32.0%
Consumer Discretionary	11.4%	-13.0%	-32.3%
Consumer Staples	9.4%	-6.4%	-16.7%
Energy	6.2%	-6.3%	-5.0%
Financials	20.7%	-7.9%	-18.3%
Health Care	9.6%	-11.0%	-23.5%
Industrials	12.1%	-8.2%	-28.7%
Information Technology	10.8%	-12.1%	-39.3%
Materials	8.2%	-7.9%	-21.1%
Real Estate	2.4%	-14.5%	-29.8%
Utilities	3.4%	-10.9%	-16.0%
Total	100.0%	-9.9%	-25.2%

MSCI - Emerging Mkt	Sector Weight	Quarter Return	1-Year Return
Communication Services	9.7%	-19.3%	-36.2%
Consumer Discretionary	14.0%	-18.7%	-33.7%
Consumer Staples	6.6%	-4.5%	-17.8%
Energy	5.3%	-2.6%	-30.1%
Financials	22.6%	-5.1%	-14.3%
Health Care	3.9%	-13.8%	-42.8%
Industrials	5.8%	-9.9%	-20.8%
Information Technology	18.3%	-15.5%	-36.1%
Materials	8.7%	-7.4%	-26.3%
Real Estate	2.0%	-19.3%	-31.9%
Utilities	3.2%	-4.3%	-8.0%
Total	100.0%	-11.6%	-28.1%

Country	MSCI-EAFE Weight	MSCI-ACWIxUS Weight	Quarter Return	1- Year Return
Japan	22.6%	14.1%	-7.7%	-29.3%
United Kingdom	15.5%	9.7%	-10.8%	-14.1%
France	11.3%	7.1%	-8.9%	-24.0%
Switzerland	10.7%	6.7%	-7.5%	-16.5%
Australia	8.0%	5.0%	-6.7%	-16.4%
Germany	7.6%	4.7%	-12.6%	-37.1%
Netherlands	4.1%	2.6%	-10.7%	-38.2%
Sweden	3.4%	2.1%	-8.8%	-35.7%
Hong Kong	3.0%	1.9%	-17.0%	-22.3%
Denmark	2.6%	1.7%	-12.3%	-23.5%
Spain	2.4%	1.5%	-14.1%	-25.6%
Italy	2.3%	1.4%	-8.5%	-28.5%
Singapore	1.6%	1.0%	-1.5%	-22.1%
Belgium	1.0%	0.6%	-13.2%	-27.3%
Finland	1.0%	0.6%	-7.2%	-25.0%
Norway	0.8%	0.5%	-15.3%	-20.7%
Israel	0.8%	0.5%	-1.9%	-21.8%
Ireland	0.6%	0.4%	-5.5%	-38.9%
Portugal	0.2%	0.1%	-11.0%	-12.9%
Austria	0.2%	0.1%	-15.2%	-40.9%
New Zealand	0.2%	0.1%	-8.6%	-33.4%
Total EAFE Countries	100.0%	62.5%	-9.4%	-25.1%
Canada			8.2%	-7.8%
Total Developed Countries	70.7%	9.2%		-23.9%
China			9.2%	-22.5%
Taiwan			4.0%	-14.5%
India			4.5%	6.5%
Korea			3.1%	-16.4%
Brazil			1.7%	8.5%
Saudi Arabia			1.4%	-0.1%
South Africa			1.0%	-12.3%
Mexico			0.7%	-5.4%
Thailand			0.6%	-2.9%
Indonesia			0.6%	7.8%
Malaysia			0.4%	-7.1%
United Arab Emirates			0.4%	-2.5%
Qatar			0.4%	3.1%
Kuwait			0.3%	-5.5%
Philippines			0.2%	-13.6%
Poland			0.2%	-25.1%
Chile			0.2%	3.2%
Turkey			0.1%	16.3%
Peru			0.1%	-0.9%
Greece			0.1%	-7.5%
Colombia			0.0%	-18.5%
Czech Republic			0.0%	-19.2%
Hungary			0.0%	-15.0%
Egypt			0.0%	-1.3%
Total Emerging Countries	29.3%	-11.6%		-28.1%
Total ACWIxUS Countries		100.0%	-9.9%	-25.2%

Source: Morningstar Direct, MSCI Global Index Monitor (Returns are Net in USD)

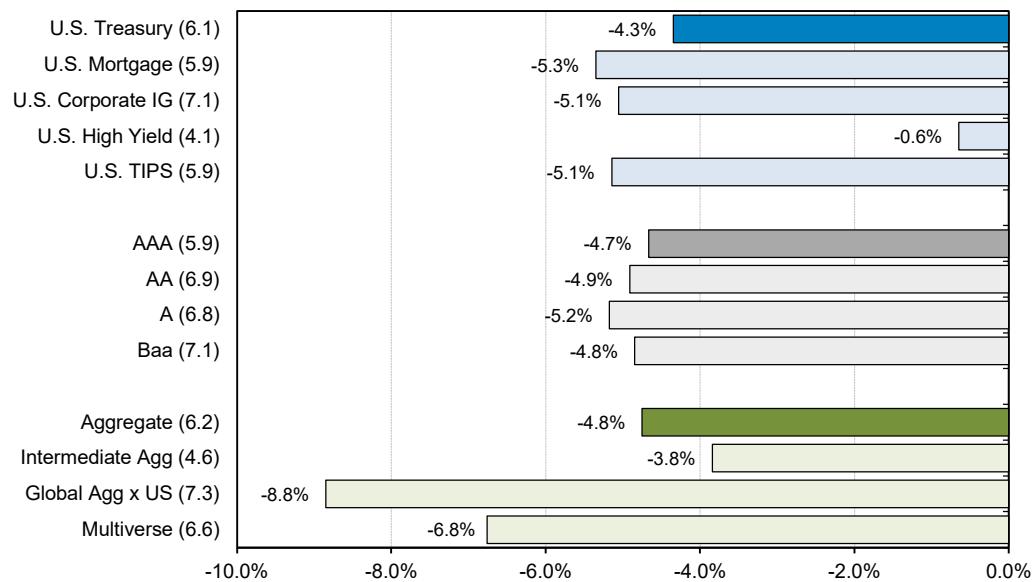
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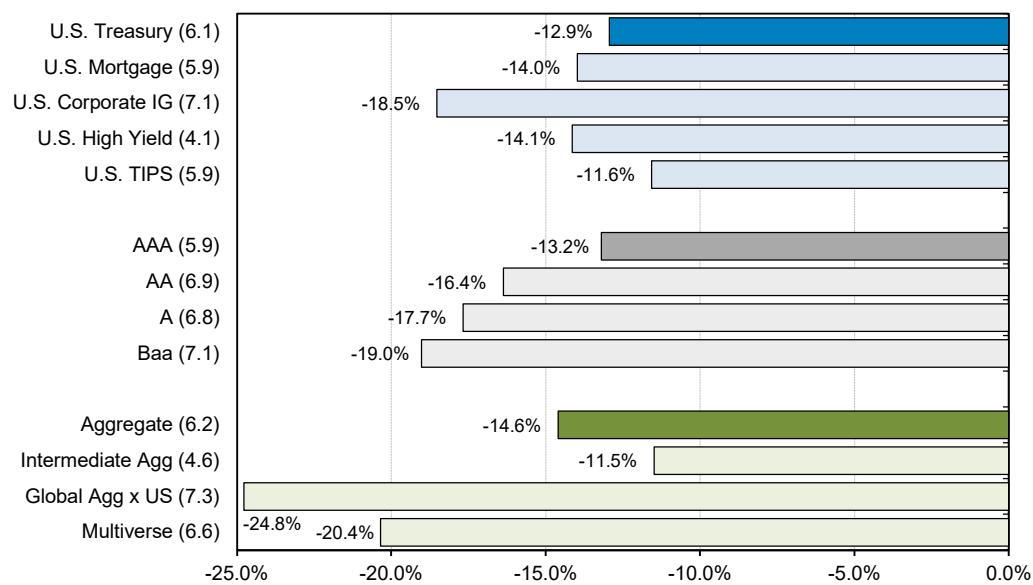
The Market Environment
Domestic Bond Sector & Broad/Global Bond Market Performance (Duration)
As of September 30, 2022

- Fixed income market results were broadly negative during the 3rd quarter. Investors' concerns about rising inflation, combined with expectations of higher US interest rates, detracted from performance. As a result, US Treasury yields continued to rise across the maturity curve throughout the quarter.
- The return for the BB US Aggregate Bond Index, the bellwether investment grade benchmark, was down -4.8% for the period.
- Performance across the investment grade index's segments was also negative during the period with the US Corporate Investment Grade bonds returning -5.1% and the US Mortgage index component posting a return of -5.3%.
- High yield bonds outperformed their investment grade counterparts, but still declined by -0.6%. US TIPS, which have delivered strong performance in recent periods, posted a decline of -5.1% as investors' expectations of future inflation declined.
- Outside of domestic markets, the BB Global Aggregate ex US Index posted a return of -8.8% for the quarter. Like domestic bonds, global bond index performance was negatively impacted by rising interest rates and a strengthening USD, which acted as a drag on domestic index returns.
- Over the trailing 1-year period, domestic investment grade benchmark performance was negative, led lower by investment grade corporate bonds (-18.5%), followed by mortgage-backed bonds (-14.0%), US Treasury bonds (-12.9%), and US TIPS (-11.6%). The bellwether Bloomberg US Aggregate Bond Index (-14.6%) declined for the year.
- Lower quality high yield corporate bonds outperformed their investment grade counterparts on a relative basis with the Bloomberg US High Yield Index returning -14.1% for the period.
- Performance for non-US bonds was broadly negative for the year with the developed market Bloomberg Global Aggregate ex US Index falling by -24.9%. The combination of rising interest rates overseas, persistent inflation, and USD strength hindered index performance for the year.

Quarter Performance



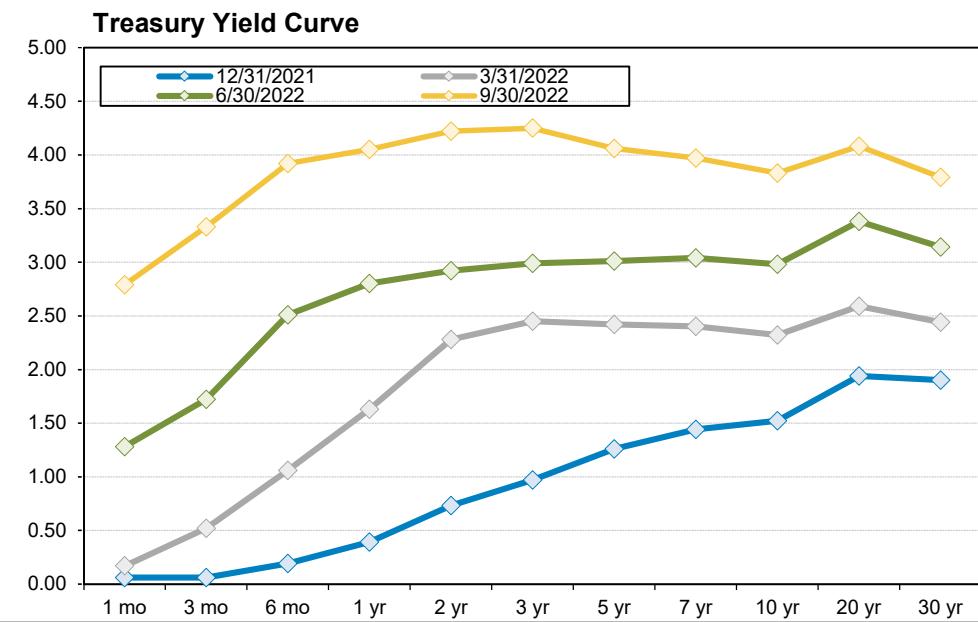
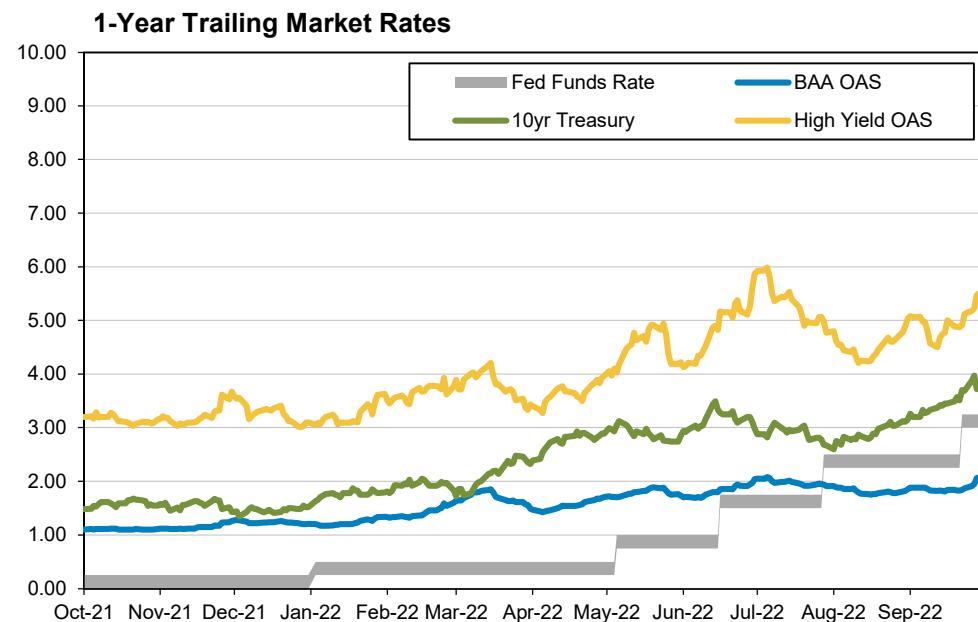
1-Year Performance



Source: Bloomberg



- The gray band across the graph illustrates the range of the current Fed Funds Rate. In the 3rd quarter this year, the Fed raised its target rate range from 1.75% to 3.25%. During its recent September meeting, the Federal Open Market Committee (FOMC) stated it intends to continue to remove liquidity from the market by raising interest rates and also allowing bonds held on its balance sheet to mature without reinvesting those proceeds. Importantly, the FOMC stated that it will remain vigilant in its fight against persistently higher inflation.
- The yield on the US 10-year Treasury (green line) ended the period higher as concerns over the pace of inflation, combined with the Fed's announced rate increase, drove yields higher. Interest rates continued to climb during the quarter, reaching a high of roughly 4.00% during the latter part of September 2022, before settling at 3.83% at the end of the month.
- The blue line illustrates changes in the BAA OAS (Option Adjusted Spread). This measure quantifies the additional yield premium that investors require to purchase and hold non-US Treasury investment grade issues. For the full year, the spread widened slightly from 1.10% to 2.06%. High Yield OAS was largely unchanged during the year as spreads rose from 3.17% to 5.43%. High Yield spreads reached as high as 5.80% in early July before trading lower the remainder of the quarter.
- The lower graph provides a snapshot of the US Treasury yield curve at the end of each of the last four quarters. Short-term rates continued to rise during the 3rd quarter as the FOMC continued raising rates to combat rising inflation. Both intermediate and longer-term rates were modestly higher across the curve, albeit less dramatically than short-term rates. The curve remained inverted between 2-year rates and 10-year rates. Said differently, the short-term rate was higher than the long-term rate. Historically, a persistent inversion of these two key rates has been an indication of a future recession within 6- to 24-months.



Source: US Department of Treasury, FRED (Federal Reserve of St. Louis)

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PLEASE NOTE ALL PERFORMANCE IN THIS REPORT IS NET OF FEES.

Comparative Performance
Total Fund
As of September 30, 2022

Comparative Performance Trailing Returns											
	QTR	FYTD	1 YR	2 YR	3 YR	5 YR	10 YR	15 YR	Inception	Inception Date	
Total Fund Performance	-5.15 (85)	-20.99 (80)	-17.03 (70)	-0.20 (59)	1.27 (90)	3.04 (89)	5.93 (64)	5.02 (57)	5.52 (48)	01/01/2001	
Total Fund Policy	-4.91 (76)	-19.99 (68)	-16.19 (59)	0.55 (51)	2.15 (80)	3.54 (85)	6.17 (50)	5.45 (26)	5.67 (41)		
Allocation Index	-5.16 (85)	-21.00 (80)	-17.05 (70)	-0.15 (59)	1.33 (90)	3.12 (89)	N/A	N/A	N/A		
All Public Plans-Total Fund Median	-4.27	-18.82	-15.69	0.58	3.53	4.66	6.15	5.10	5.49		
All Public Plan Sponsor Universes with 50% or Less Equities											
Total Fund Performance	-5.15 (97)	-20.99 (100)	-17.03 (99)	-0.20 (41)	1.27 (67)	3.04 (67)	5.93 (45)	5.02 (N/A)	5.52 (N/A)	01/01/2001	
Total Fund Policy	-4.91 (95)	-19.99 (97)	-16.19 (89)	0.55 (38)	2.15 (47)	3.54 (64)	6.17 (36)	5.45 (N/A)	5.67 (N/A)		
All Public Plans <= 50% Equities Median	-3.94	-15.25	-12.60	-0.78	2.07	3.73	5.79	N/A	N/A		
All Public Plan Sponsor Universes with 60% or More Equities											
Total Fund Performance	-5.15 (38)	-20.99 (50)	-17.03 (35)	-0.20 (50)	1.27 (92)	3.04 (94)	5.93 (68)	5.02 (53)	5.52 (N/A)	01/01/2001	
Total Fund Policy	-4.91 (21)	-19.99 (38)	-16.19 (29)	0.55 (40)	2.15 (82)	3.54 (88)	6.17 (50)	5.45 (29)	5.67 (N/A)		
All Public Plans >=60% Equities Median	-5.23	-21.11	-17.92	-0.22	3.37	4.76	6.09	5.10	N/A		

Returns for periods greater than one year are annualized.
 Returns are expressed as percentages.



Comparative Performance
Total Fund
As of September 30, 2022

	QTR	FYTD	1 YR	2 YR	3 YR	5 YR	10 YR	15 YR	Inception	Inception Date
Domestic Equity										
Total Fund Domestic Equity	-4.32	-23.22	-15.92	6.62	6.49	7.34	N/A	N/A	8.17	07/01/2014
Vanguard Inst'l Index Fund (VINIX)	-4.89 (16)	-23.89 (13)	-15.50 (12)	N/A	N/A	N/A	N/A	N/A	N/A	11/01/2020
S&P 500 Index	-4.88 (5)	-23.87 (3)	-15.47 (1)	4.83 (1)	8.16 (3)	9.24 (2)	11.70 (1)	8.03 (1)	6.53 (2)	
IM S&P 500 Index (MF) Median	-4.94	-24.04	-15.73	4.50	7.84	8.91	11.24	7.58	6.19	
Vanguard Growth Index (VIGIX)	-3.79 (31)	-33.04 (49)	-25.85 (38)	-2.54 (30)	9.51 (16)	10.99 (17)	12.70 (19)	N/A	12.63 (14)	05/01/2010
Vanguard Growth Index Hybrid	-3.78 (31)	-33.03 (49)	-25.84 (38)	-2.52 (29)	9.54 (16)	11.01 (17)	12.75 (18)	9.61 (12)	12.69 (12)	
Russell 1000 Growth Index	-3.60 (26)	-30.66 (25)	-22.59 (20)	-0.72 (16)	10.67 (8)	12.16 (8)	13.70 (7)	10.10 (7)	13.42 (6)	
IM U.S. Large Cap Growth Equity (MF) Median	-4.41	-33.10	-27.73	-4.88	7.08	9.29	11.66	8.43	11.38	
Vanguard Value Index (VIVIX)	-5.74 (55)	-14.58 (22)	-6.63 (16)	11.23 (28)	6.16 (32)	7.07 (28)	10.49 (16)	N/A	11.82 (18)	07/01/2009
Vanguard Value Index Hybrid	-5.72 (54)	-14.56 (22)	-6.59 (15)	11.26 (28)	6.17 (31)	7.08 (28)	10.53 (14)	6.55 (29)	11.87 (17)	
Russell 1000 Value Index	-5.62 (52)	-17.75 (60)	-11.36 (67)	9.39 (47)	4.36 (74)	5.29 (74)	9.17 (54)	5.70 (54)	10.98 (44)	
IM U.S. Large Cap Value Equity (MF) Median	-5.57	-16.74	-9.58	9.14	5.34	6.09	9.29	5.79	10.77	
Vanguard Mid-Cap 400 Index Fund I (VSPMX)	-2.46 (14)	-21.55 (67)	-15.30 (67)	10.29 (35)	5.95 (30)	N/A	N/A	N/A	5.83 (56)	12/01/2018
S&P MidCap 400 Index	-2.46 (14)	-21.52 (66)	-15.25 (66)	10.35 (34)	6.01 (29)	5.82 (37)	10.04 (20)	7.93 (9)	5.89 (55)	
IM U.S. Mid Cap Core Equity (MF) Median	-4.32	-20.76	-14.07	8.66	4.68	5.27	8.80	6.25	6.03	
Vanguard Small-Cap 600 Index I (VSMSX)	-5.22 (69)	-23.22 (54)	-18.91 (54)	13.04 (40)	5.48 (36)	N/A	N/A	N/A	4.19 (45)	12/01/2018
S&P SmallCap 600 Index	-5.20 (68)	-23.16 (53)	-18.83 (53)	13.12 (39)	5.48 (36)	4.84 (23)	10.09 (6)	7.77 (8)	4.20 (45)	
IM U.S. Small Cap Core Equity (MF) Median	-4.48	-23.02	-18.44	11.60	4.60	3.57	8.28	6.19	3.97	

Returns for periods greater than one year are annualized.
 Returns are expressed as percentages.



Comparative Performance
Total Fund
As of September 30, 2022

	QTR	FYTD	1 YR	2 YR	3 YR	5 YR	10 YR	15 YR	Inception	Inception Date
International Equity										
Total Fund Performance - International Equity	-10.29	-27.73	-27.24	-4.85	-2.33	-1.43	N/A	N/A	0.35	07/01/2014
Vanguard Intl Value (VTRIX)	-9.27 (10)	-23.69 (51)	N/A	N/A	N/A	N/A	N/A	N/A	-19.95 (57)	12/01/2021
MSCI AC World ex USA Value	-10.29 (35)	-20.53 (22)	-19.46 (22)	3.17 (29)	-1.54 (66)	-1.51 (49)	2.47 (93)	0.28 (75)	-16.26 (25)	
IM International Multi-Cap Value Equity (MF) Median	-11.08	-23.65	-21.96	0.86	-0.78	-1.54	3.62	0.52	-19.20	
Vanguard Intl Growth (VWILX)	-10.16 (67)	-38.55 (84)	N/A	N/A	N/A	N/A	N/A	N/A	-39.35 (90)	12/01/2021
MSCI AC World ex USA Growth	-9.30 (42)	-31.64 (47)	-30.00 (49)	-9.40 (67)	-1.08 (60)	0.51 (49)	4.31 (77)	1.66 (68)	-29.57 (47)	
IM International Multi-Cap Growth Equity (MF) Median	-9.60	-32.17	-30.47	-7.34	-0.21	0.46	4.88	2.36	-29.98	
Vanguard FTSE AW ex-US SC Index (VFSNX)	-9.93 (32)	-30.40 (68)	-28.95 (38)	-3.85 (74)	N/A	N/A	N/A	N/A	9.31 (30)	04/01/2020
FTSE Global ex U.S. Small Cap Index (Net)	-9.16 (20)	-30.31 (68)	-29.16 (41)	-3.64 (74)	-0.83 (21)	-1.73 (17)	N/A	N/A	9.25 (30)	
IM International SMID Cap Core Equity (MF) Median	-10.65	-29.58	-29.51	-2.03	-2.00	-3.01	3.16	N/A	7.91	
Vanguard Developed Markets Index (VTMNX)	-10.49 (55)	-27.70 (49)	-25.54 (42)	-2.91 (33)	-1.26 (37)	-0.62 (29)	4.04 (21)	N/A	4.93 (37)	07/01/2009
Vanguard Spliced Developed ex U.S. Index (Net)	-9.59 (29)	-27.40 (44)	-25.55 (42)	-2.62 (31)	-1.08 (33)	-0.51 (25)	4.06 (20)	0.86 (41)	4.94 (37)	
MSCI EAFE (Net) Index	-9.36 (24)	-27.09 (40)	-25.13 (35)	-2.98 (34)	-1.83 (52)	-0.84 (33)	3.67 (33)	0.61 (45)	4.64 (46)	
IM International Multi-Cap Equity (MF) Median	-10.36	-27.74	-26.06	-4.16	-1.78	-1.42	3.29	0.38	4.45	
Vanguard Emerging Markets Index (VEMIX)	-10.73 (45)	-23.98 (14)	-24.29 (16)	-5.31 (24)	-0.52 (26)	-0.68 (24)	1.45 (36)	N/A	0.93 (40)	10/01/2010
FTSE Emerging Mkts All Cap China A Inclusion Index	-9.78 (34)	-23.55 (12)	-23.89 (14)	-4.38 (22)	0.14 (19)	-0.13 (18)	2.18 (24)	1.14 (24)	1.53 (24)	
MSCI Emerging Markets (Net) Index	-11.57 (61)	-27.16 (31)	-28.11 (31)	-7.82 (40)	-2.07 (43)	-1.81 (39)	1.05 (46)	0.27 (46)	0.71 (47)	
IM Emerging Markets Equity (MF) Median	-11.00	-29.27	-29.88	-9.55	-2.54	-2.37	0.91	0.11	0.55	

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 Returns are expressed as percentages.



Comparative Performance
Total Fund
As of September 30, 2022

	QTR	FYTD	1 YR	2 YR	3 YR	5 YR	10 YR	15 YR	Inception	Inception Date
Fixed Income										
Total Fund Performance - Fixed Income	-3.33	-13.60	-13.54	-6.16	-2.36	0.20	N/A	N/A	1.05	07/01/2014
Vanguard Short Term Bond Index (VBITX)	-2.11 (98)	-6.61 (90)	-7.24 (91)	-3.70 (99)	-0.95 (88)	0.51 (75)	N/A	N/A	0.83 (58)	04/01/2013
Bloomberg 1-5 Year Gov/Credit Idx	-2.16 (99)	-6.62 (90)	-7.29 (92)	-3.68 (98)	-0.90 (87)	0.55 (72)	0.88 (54)	2.01 (19)	0.87 (53)	
IM U.S. Short Term Investment Grade (MF) Median	-0.99	-4.73	-5.21	-1.72	-0.14	0.85	0.91	1.59	0.90	
Vanguard Total Bond Index (VBTIX)	-4.65 (47)	-14.58 (26)	-14.65 (26)	-8.03 (53)	-3.26 (55)	N/A	N/A	N/A	-3.36 (57)	09/01/2019
Bloomberg U.S. Aggregate Index	-4.75 (60)	-14.61 (28)	-14.60 (24)	-8.00 (50)	-3.26 (55)	-0.27 (44)	0.89 (51)	2.74 (48)	-3.34 (54)	
IM U.S. Broad Market Core Fixed Income (MF) Median	-4.67	-15.17	-15.29	-8.01	-3.22	-0.33	0.90	2.71	-3.30	
Vanguard High Yield Bond Fund (VWEAX)	-0.85 (57)	-13.20 (27)	-12.74 (28)	-2.92 (67)	-0.90 (47)	1.36 (31)	N/A	N/A	2.92 (20)	12/01/2014
Bloomberg U.S. Corp High Yield	-0.65 (40)	-14.74 (58)	-14.14 (56)	-2.25 (48)	-0.45 (32)	1.57 (23)	3.94 (12)	5.71 (3)	3.16 (11)	
IM U.S. High Yield Bonds (MF) Median	-0.78	-14.45	-13.92	-2.39	-0.94	1.00	3.10	4.51	2.30	
Vanguard International Bond (VTIFX)	-3.25 (25)	-12.84 (23)	-12.99 (21)	-7.19 (28)	-4.16 (28)	0.05 (15)	N/A	N/A	0.95 (8)	05/01/2015
Bloomberg Global Agg ex-USD Flt Adj RIC Cpd (H)	-3.09 (24)	-12.79 (21)	-12.89 (21)	-7.10 (28)	-4.06 (26)	0.17 (11)	N/A	N/A	0.95 (8)	
IM International Fixed Income (MF) Median	-6.68	-20.28	-20.96	-11.36	-7.21	-4.26	-2.07	1.40	-2.49	
Vanguard EM Bond (VEGBX)	-2.67 (17)	-20.80 (43)	N/A	N/A	N/A	N/A	N/A	N/A	-19.42 (42)	12/01/2021
Bloomberg Emerging Markets USD Aggregate Index	-4.06 (49)	-20.50 (42)	-20.92 (38)	-9.61 (63)	-5.26 (53)	-1.56 (42)	1.39 (39)	4.18 (50)	-19.72 (43)	
IM Emerging Markets Debt (MF) Median	-4.08	-21.48	-22.23	-8.96	-5.23	-1.92	1.16	4.12	-20.26	
REIT										
Vanguard Real Estate Index Fund (VGSNX)	-11.01 (66)	-29.28 (60)	-18.70 (65)	4.17 (64)	-1.59 (55)	3.11 (54)	6.26 (31)	N/A	7.79 (33)	10/01/2010
Vanguard Spliced REIT Index	-10.98 (63)	-29.20 (56)	-18.62 (63)	4.29 (60)	-1.49 (54)	3.19 (53)	6.34 (29)	5.06 (32)	7.86 (32)	
IM Real Estate Sector (MF) Median	-10.74	-28.99	-17.59	4.71	-1.30	3.31	5.83	4.38	7.38	

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 Returns are expressed as percentages.



Comparative Performance
Total Fund
As of September 30, 2022

	QTR	FYTD	1 YR	2 YR	3 YR	5 YR	10 YR	15 YR	Inception	Inception Date
Total Fund - Domestic Equity	-4.32	-23.22	-15.92	6.62	6.49	7.34	N/A	N/A	8.17	07/01/2014
Total Domestic Large Cap Equity	-4.89	-23.87	-15.77	3.72	6.01	7.83	N/A	N/A	8.86	06/01/2014
S&P 500 Index	-4.88	-23.87	-15.47	4.83	8.16	9.24	11.70	8.03	9.83	
Large Cap Growth	-3.79	-33.04	-25.85	-2.05	9.87	11.19	N/A	N/A	11.32	06/01/2014
Vanguard Growth Index Hybrid	-3.78	-33.03	-25.84	-2.52	9.54	11.01	12.75	9.61	11.21	
Russell 1000 Growth Index	-3.60	-30.66	-22.59	-0.72	10.67	12.16	13.70	10.10	12.30	
Large Cap Core	-4.89	-23.88	-15.56	3.03	4.23	6.65	N/A	N/A	7.99	06/01/2014
S&P 500 Index	-4.88	-23.87	-15.47	4.83	8.16	9.24	11.70	8.03	9.83	
Large Cap Value	-5.74	-14.58	-6.63	11.23	6.16	7.05	N/A	N/A	8.20	06/01/2014
Vanguard Value Index Hybrid	-5.72	-14.56	-6.59	11.26	6.17	7.08	10.53	6.55	8.17	
Russell 1000 Value Index	-5.62	-17.75	-11.36	9.39	4.36	5.29	9.17	5.70	6.53	
Mid Cap Equity	-2.46	-21.55	-15.30	10.29	5.95	5.80	N/A	N/A	7.19	06/01/2014
Mid Cap Hybrid Index	-2.46	-21.52	-15.25	10.35	6.01	5.80	10.03	N/A	7.20	
Small Cap Equity	-5.22	-23.22	-18.91	13.04	5.48	4.61	N/A	N/A	6.39	06/01/2014
Small Cap Hybrid Index	-5.20	-23.16	-18.83	13.12	5.48	4.65	9.18	N/A	6.39	
Total Fund - International Equity	-10.29	-27.73	-27.24	-4.85	-2.33	-1.43	N/A	N/A	0.35	07/01/2014
Small Cap - International Equity	-9.93	-30.40	-28.95	-3.85	N/A	N/A	N/A	N/A	9.31	04/01/2020
FTSE Global ex U.S. Small Cap Index (Net)	-9.16	-30.31	-29.16	-3.64	-0.83	-1.73	N/A	N/A	9.25	
Developed Markets - International Equity	-10.49	-27.70	-25.54	-2.91	-1.26	-0.62	N/A	N/A	1.03	06/01/2014
Vanguard Spliced Developed ex U.S. Index (Net)	-9.59	-27.40	-25.55	-2.62	-1.08	-0.51	4.06	0.86	1.13	
Emerging Markets - International Equity	-10.73	-23.98	-24.15	-5.23	-0.46	-0.64	N/A	N/A	1.06	06/01/2014
FTSE Emerging Mkts All Cap China A Inclusion Index	-9.78	-23.55	-23.89	-4.38	0.14	-0.13	2.18	1.14	1.80	
MSCI Emerging Markets (Net) Index	-11.57	-27.16	-28.11	-7.82	-2.07	-1.81	1.05	0.27	0.52	

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 Returns are expressed as percentages.



Comparative Performance
Total Fund
As of September 30, 2022

	QTR	FYTD	1 YR	2 YR	3 YR	5 YR	10 YR	15 YR	Inception	Inception Date
Total Fund - Fixed Income	-3.33	-13.60	-13.54	-6.16	-2.36	0.20	N/A	N/A	1.05	07/01/2014
Short - Term Fixed Income	-2.11	-6.61	-7.24	-3.70	-1.00	0.49	N/A	N/A	0.79	06/01/2014
Bloomberg 1-5 Year Gov/Credit Iidx	-2.16	-6.62	-7.29	-3.68	-0.90	0.55	0.88	2.01	0.86	
High Yield - Fixed Income	-0.85	-13.20	-12.74	-2.92	-0.90	1.36	N/A	N/A	2.91	11/01/2014
Blmbg. U.S. Corp High Yield	-0.65	-14.74	-14.14	-2.25	-0.45	1.57	3.94	5.71	3.03	
Non-US Fixed Income	-3.25	-12.84	-12.99	-7.19	-4.16	0.05	N/A	N/A	1.01	05/01/2015
Blmbg. Global Agg ex-USD Flt Adj RIC Cpd (H)	-3.09	-12.79	-12.89	-7.10	-4.06	0.17	N/A	N/A	0.95	
Real Estate	-11.01	-29.28	-18.70	4.17	-1.59	3.11	N/A	N/A	4.85	06/01/2014
Vanguard Spliced REIT Index	-10.98	-29.20	-18.62	4.29	-1.49	3.19	6.34	5.06	5.09	

Returns for periods greater than one year are annualized.
 Returns are expressed as percentages.



Comparative Performance
Total Fund
As of September 30, 2022

Comparative Performance Trailing Returns										
	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Total Fund Performance	14.00	9.84	20.21	-5.76	13.91	8.58	-0.72	8.24	18.07	13.88
Total Fund Policy	13.81	11.44	19.49	-4.94	13.67	8.48	-0.69	8.15	16.99	14.31
Allocation Index	14.11	9.90	19.76	-5.32	14.25	7.44	-0.62	N/A	N/A	N/A
Domestic Equity										
Total Fund Domestic Equity	26.91	13.96	29.77	-7.16	20.07	13.45	-0.10	N/A	33.56	16.18
Twin Capital Low Volatility	N/A	5.51 (93)	29.24 (60)	-5.37 (57)	19.16 (83)	16.03 (9)	-1.31 (80)	12.91 (59)	N/A	N/A
S&P 500 Index	28.71 (38)	18.40 (46)	31.49 (34)	-4.38 (41)	21.83 (55)	11.96 (32)	1.38 (55)	13.69 (43)	32.39 (61)	16.00 (46)
IM U.S. Large Cap Core Equity (SA+CF) Median	27.80	17.61	30.09	-5.07	22.08	10.48	1.52	13.42	33.17	15.66
Twin Capital Enhanced Index	N/A	15.07 (61)	29.73 (51)	-6.43 (69)	20.37 (79)	11.66 (57)	2.42 (27)	13.42 (62)	N/A	N/A
S&P 500 Index	28.71 (61)	18.40 (48)	31.49 (33)	-4.38 (31)	21.83 (65)	11.96 (56)	1.38 (46)	13.69 (57)	32.39 (72)	16.00 (66)
IM U.S. Large Cap Enhanced Index Equity (SA+CF) Median	29.03	17.38	29.78	-5.30	22.60	12.31	1.22	14.00	33.46	16.69
Vanguard Inst'l Index Fund (VINIX)	28.67 (8)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S&P 500 Index	28.71 (1)	18.40 (9)	31.49 (3)	-4.38 (7)	21.83 (1)	11.96 (3)	1.38 (2)	13.69 (1)	32.39 (1)	16.00 (2)
IM S&P 500 Index (MF) Median	28.25	18.05	31.06	-4.66	21.37	11.55	0.96	13.17	31.77	15.44
Vanguard Growth Index (VIGIX)	27.27 (20)	40.20 (28)	37.25 (12)	-3.32 (72)	27.82 (64)	6.11 (19)	3.23 (75)	13.70 (17)	32.44 (69)	16.99 (30)
Vanguard Growth Index Hybrid	27.30 (19)	40.27 (28)	37.31 (11)	-3.34 (73)	27.86 (64)	6.16 (18)	3.38 (72)	13.69 (17)	32.51 (68)	17.14 (28)
Russell 1000 Growth Index	27.60 (17)	38.49 (34)	36.39 (19)	-1.51 (54)	30.21 (39)	7.08 (10)	5.67 (49)	13.05 (24)	33.48 (57)	15.26 (46)
IM U.S. Large Cap Growth Equity (MF) Median	22.39	35.62	33.26	-1.22	29.28	2.21	5.61	10.49	34.12	14.81
Vanguard Value Index (VIVIX)	26.48 (44)	2.30 (70)	25.83 (59)	-5.42 (22)	17.14 (47)	16.87 (21)	-0.81 (18)	13.20 (10)	33.01 (38)	15.12 (60)
Vanguard Value Index Hybrid	26.51 (43)	2.26 (71)	25.85 (59)	-5.40 (22)	17.16 (46)	16.93 (20)	-0.86 (19)	13.29 (9)	33.20 (35)	15.22 (58)
Russell 1000 Value Index	25.16 (63)	2.80 (61)	26.54 (50)	-8.27 (45)	13.66 (82)	17.34 (17)	-3.83 (69)	13.45 (8)	32.53 (44)	17.51 (27)
IM U.S. Large Cap Value Equity (MF) Median	25.96	3.82	26.50	-8.61	16.95	13.85	-3.00	10.82	32.11	15.79
Vanguard Mid-Cap 400 Index Fund I (VSPMX)	24.67 (59)	13.58 (26)	26.13 (72)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S&P MidCap 400 Index	24.76 (59)	13.66 (26)	26.20 (72)	-11.08 (40)	16.24 (38)	20.74 (12)	-2.18 (29)	9.77 (41)	33.50 (58)	17.88 (25)
IM U.S. Mid Cap Core Equity (MF) Median	25.73	8.44	28.59	-11.64	14.94	14.51	-3.74	8.88	34.49	15.88
Vanguard Small-Cap 600 Index I (VSMSX)	26.74 (37)	11.46 (40)	22.74 (62)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S&P SmallCap 600 Index	26.82 (36)	11.29 (41)	22.78 (61)	-8.48 (9)	13.23 (38)	26.56 (16)	-1.97 (21)	5.76 (34)	41.31 (18)	16.33 (33)
IM U.S. Small Cap Core Equity (MF) Median	25.12	9.89	23.94	-12.71	12.09	21.66	-4.35	4.71	36.85	14.81

Returns for periods greater than one year are annualized.
 Returns are expressed as percentages.



Comparative Performance
Total Fund
As of September 30, 2022

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
International Equity										
Total Fund Performance - International Equity	6.98	10.24	21.55	-14.50	28.00	5.26	-5.56	N/A	13.97	19.18
Vanguard Intl Value (VTRIX)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MSCI AC World ex USA Value	11.13 (69)	-0.21 (74)	16.45 (72)	-13.45 (16)	23.35 (64)	9.59 (18)	-9.59 (96)	-4.60 (43)	15.65 (96)	17.69 (48)
IM International Multi-Cap Value Equity (MF) Median	12.67	3.54	18.80	-16.15	24.73	4.03	-2.29	-5.21	23.66	17.42
Vanguard Intl Growth (VWILX)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MSCI AC World ex USA Growth	5.37 (74)	22.56 (39)	27.84 (49)	-14.10 (46)	32.47 (40)	0.50 (51)	-0.91 (77)	-2.29 (35)	15.86 (81)	17.07 (77)
IM International Multi-Cap Growth Equity (MF) Median	10.12	20.55	27.73	-14.42	30.71	0.51	1.40	-3.79	20.30	19.51
Vanguard FTSE AW ex-US SC Index (VFSNX)	12.76 (55)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
FTSE Global ex U.S. Small Cap Index (Net)	13.02 (53)	11.40 (14)	21.55 (30)	-18.91 (39)	29.78 (50)	3.93 (29)	-0.61 (82)	-4.34 (30)	N/A	N/A
IM International SMID Cap Core Equity (MF) Median	13.19	5.76	19.58	-19.67	29.44	-0.75	4.70	-6.30	24.68	20.35
Vanguard Developed Markets Index (VTMNX)	11.44 (35)	10.27 (42)	22.14 (43)	-14.49 (35)	26.46 (46)	2.46 (35)	-0.19 (44)	-5.62 (55)	22.07 (34)	18.92 (27)
Vanguard Spliced Developed ex U.S. Index (Net)	11.57 (33)	10.00 (44)	22.34 (42)	-14.79 (38)	26.31 (47)	2.29 (37)	-0.28 (45)	-4.85 (44)	22.71 (28)	17.32 (55)
MSCI EAFE (Net) Index	11.26 (37)	7.82 (57)	22.01 (45)	-13.79 (25)	25.03 (62)	1.00 (52)	-0.81 (52)	-4.90 (45)	22.78 (27)	17.32 (55)
IM International Multi-Cap Equity (MF) Median	10.28	8.74	21.55	-15.87	25.85	1.12	-0.74	-5.32	20.36	17.65
Vanguard Emerging Markets Index (VEMIX)	0.92 (36)	15.26 (65)	20.37 (50)	-14.54 (29)	31.43 (72)	11.76 (26)	-15.39 (68)	0.72 (18)	-5.06 (80)	18.06 (57)
FTSE Emerging Mkts All Cap China A Inclusion Index	1.76 (32)	15.84 (61)	20.81 (47)	-14.49 (29)	31.46 (72)	10.66 (34)	-13.28 (46)	2.96 (10)	-2.82 (60)	18.48 (54)
MSCI Emerging Markets (Net) Index	-2.54 (58)	18.31 (47)	18.42 (63)	-14.57 (30)	37.28 (43)	11.19 (29)	-14.92 (62)	-2.19 (43)	-2.60 (58)	18.23 (56)
IM Emerging Markets Equity (MF) Median	-1.62	17.66	20.17	-16.45	35.66	8.25	-13.73	-3.01	-1.45	18.78

Returns for periods greater than one year are annualized.
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Comparative Performance
Total Fund
As of September 30, 2022

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Fixed Income										
Total Fund Performance - Fixed Income	0.05	6.75	10.16	-0.71	3.82	4.79	-0.18	N/A	-3.65	7.39
Vanguard Short Term Bond Index (VBITX)	-0.97 (94)	4.71 (11)	4.84 (24)	1.37 (42)	1.19 (71)	1.51 (59)	0.98 (9)	1.32 (13)	N/A	N/A
Bloomberg 1-5 Year Gov/Credit Idx	-0.97 (94)	4.71 (11)	5.01 (18)	1.38 (41)	1.27 (66)	1.56 (56)	0.97 (9)	1.42 (11)	0.28 (63)	2.24 (69)
IM U.S. Short Term Investment Grade (MF) Median	0.02	3.02	4.11	1.24	1.46	1.69	0.27	0.67	0.47	3.12
Vanguard Total Bond Index (VBTIX)	-1.65 (64)	7.73 (65)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bloomberg U.S. Aggregate Index	-1.55 (60)	7.51 (73)	8.72 (53)	0.01 (18)	3.54 (54)	2.65 (62)	0.55 (20)	5.97 (27)	-2.02 (54)	4.21 (81)
IM U.S. Broad Market Core Fixed Income (MF) Median	-1.33	8.15	8.76	-0.62	3.60	2.90	0.04	5.55	-1.97	6.04
Vanguard High Yield Bond Fund (VWEAX)	3.78 (79)	5.38 (51)	15.90 (9)	-2.87 (46)	7.13 (31)	11.27 (86)	-1.31 (13)	N/A	N/A	N/A
Bloomberg U.S. Corp High Yield	5.28 (42)	7.11 (20)	14.32 (38)	-2.08 (22)	7.50 (21)	17.13 (8)	-4.47 (58)	2.45 (24)	7.44 (32)	15.81 (26)
IM U.S. High Yield Bonds (MF) Median	4.93	5.43	13.83	-2.97	6.63	13.80	-3.96	1.50	6.72	14.57
Vanguard International Bond (VTIFX)	-2.17 (20)	4.59 (75)	7.89 (25)	3.00 (2)	2.43 (86)	4.69 (35)	N/A	N/A	N/A	N/A
Bloomberg Global Agg ex-USD Flt Adj RIC Cpd (H)	-2.10 (19)	4.75 (72)	8.06 (24)	3.16 (1)	2.57 (82)	4.90 (33)	1.34 (3)	9.14 (9)	1.26 (16)	N/A
IM International Fixed Income (MF) Median	-5.39	6.55	6.64	-2.47	9.80	3.34	-5.82	0.63	-3.74	7.43
Vanguard EM Bond (VEGBX)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Bloomberg Emerging Markets USD Aggregate Index	-1.65 (43)	6.52 (53)	13.11 (78)	-2.46 (16)	8.17 (94)	9.88 (77)	1.29 (17)	4.76 (31)	-4.12 (29)	17.95 (70)
IM Emerging Markets Debt (MF) Median	-1.94	6.76	14.80	-4.96	11.72	11.65	-1.16	2.39	-5.44	20.07
REIT										
Vanguard Real Estate Index Fund (VGSNX)	40.47 (61)	-4.67 (54)	29.02 (33)	-5.93 (54)	4.93 (58)	8.51 (21)	2.56 (58)	30.17 (36)	2.46 (29)	17.64 (33)
Vanguard Spliced REIT Index	40.56 (60)	-4.55 (53)	29.03 (33)	-5.86 (52)	5.07 (54)	8.60 (20)	2.52 (58)	30.38 (30)	2.47 (29)	17.77 (30)
IM Real Estate Sector (MF) Median	41.32	-4.31	27.32	-5.71	5.32	6.34	2.91	29.47	1.64	16.91

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 Returns are expressed as percentages.



Comparative Performance
Total Fund
As of September 30, 2022

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Total Fund - Domestic Equity	26.91	13.96	29.77	-7.16	20.07	13.45	-0.10	N/A	33.56	16.18
Total Domestic Large Cap Equity	27.04	14.02	30.31	-5.16	20.67	13.09	1.00	N/A	N/A	N/A
S&P 500 Index	28.71	18.40	31.49	-4.38	21.83	11.96	1.38	13.69	32.39	16.00
Large Cap Growth	27.27	41.61	37.36	-3.51	27.82	5.87	3.78	N/A	N/A	N/A
Vanguard Growth Index Hybrid	27.30	40.27	37.31	-3.34	27.86	6.16	3.38	13.69	32.51	17.14
Russell 1000 Growth Index	27.60	38.49	36.39	-1.51	30.21	7.08	5.67	13.05	33.48	15.26
Large Cap Core	27.04	9.03	29.41	-5.71	19.57	14.29	0.18	N/A	N/A	N/A
S&P 500 Index	28.71	18.40	31.49	-4.38	21.83	11.96	1.38	13.69	32.39	16.00
Large Cap Value	26.48	2.30	25.83	-5.50	17.14	16.87	-0.27	N/A	N/A	N/A
Vanguard Value Index Hybrid	26.51	2.26	25.85	-5.40	17.16	16.93	-0.86	13.29	33.20	15.22
Russell 1000 Value Index	25.16	2.80	26.54	-8.27	13.66	17.34	-3.83	13.45	32.53	17.51
Mid Cap Equity	24.67	13.58	26.13	-10.44	19.29	11.23	-1.31	N/A	N/A	N/A
Mid Cap Hybrid Index	24.76	13.66	26.20	-10.67	19.30	11.25	-1.28	13.83	35.21	16.04
Small Cap Equity	26.74	11.46	22.74	-10.45	16.25	18.32	-3.63	N/A	N/A	N/A
Small Cap Hybrid Index	26.82	11.29	22.78	-10.32	16.24	18.26	-3.68	7.54	37.77	18.20
Total Fund - International Equity	6.98	10.24	21.55	-14.50	28.00	5.26	-5.56	N/A	13.97	19.18
Small Cap - International Equity	12.76	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
FTSE Global ex U.S. Small Cap Index (Net)	13.02	11.40	21.55	-18.91	29.78	3.93	-0.61	-4.34	N/A	N/A
Developed Markets - International Equity	11.44	10.27	22.14	-14.49	26.46	2.46	-0.41	N/A	N/A	N/A
Vanguard Spliced Developed ex U.S. Index (Net)	11.57	10.00	22.34	-14.79	26.31	2.29	-0.28	-4.85	22.71	17.32
Emerging Markets - International Equity	1.10	15.26	20.37	-14.54	31.43	11.76	-15.80	N/A	N/A	N/A
FTSE Emerging Mkts All Cap China A Inclusion Index	1.76	15.84	20.81	-14.49	31.46	10.66	-13.28	2.96	-2.82	18.48
MSCI Emerging Markets (Net) Index	-2.54	18.31	18.42	-14.57	37.28	11.19	-14.92	-2.19	-2.60	18.23

Returns for periods greater than one year are annualized.
 Returns are expressed as percentages.



Comparative Performance
Total Fund
As of September 30, 2022

	2021	2020	2019	2018	2017	2016	2015	2014	2013	2012
Total Fund - Fixed Income	0.05	6.75	10.16	-0.71	3.82	4.79	-0.18	N/A	-3.65	7.39
Short - Term Fixed Income	-0.97	4.71	4.71	1.37	1.19	1.51	0.98	N/A	N/A	N/A
Bloomberg 1-5 Year Gov/Credit Idx	-0.97	4.71	5.01	1.38	1.27	1.56	0.97	1.42	0.28	2.24
High Yield - Fixed Income	3.78	5.38	15.90	-2.87	6.65	10.89	-1.28	N/A	N/A	N/A
Blmbg. U.S. Corp High Yield	5.28	7.11	14.32	-2.08	7.50	17.13	-4.47	2.45	7.44	15.81
Non-US Fixed Income	-2.17	4.59	7.89	3.00	2.43	4.69	N/A	N/A	N/A	N/A
Blmbg. Global Agg ex-USD Flt Adj RIC Cpd (H)	-2.10	4.75	8.06	3.16	2.57	4.90	1.34	9.14	1.26	N/A
Real Estate	40.47	-4.67	29.02	-5.93	4.93	8.51	2.56	N/A	N/A	N/A
Vanguard Spliced REIT Index	40.56	-4.55	29.03	-5.86	5.07	8.60	2.52	30.38	2.47	17.77

Returns for periods greater than one year are annualized.
 Returns are expressed as percentages.



Multi Time Period Statistics
Butler County Employees Retirement Plan
As of September 30, 2022

Multi Time Period Statistics												
	3 YR Return		3 YR Standard Deviation		3 YR Sharpe Ratio		5 YR Return		5 YR Standard Deviation		5 YR Sharpe Ratio	
Total Fund Performance	1.27		14.06		0.12		3.04		12.27		0.21	
Total Fund Policy	2.15		13.75		0.18		3.54		11.91		0.26	
Vanguard Instl Indx;Inst (VINIX) *	8.14	(9)	20.02	(34)	0.46	(9)	9.21	(9)	17.92	(36)	0.52	
S&P 500 Index	8.16		20.02		0.46		9.24		17.92		0.52	
IM S&P 500 Index (MF) Median	7.84		20.01		0.45		8.91		17.91		0.50	
Vanguard Growth Index (VIGIX)	9.51	(16)	23.58	(19)	0.48	(20)	10.99	(17)	20.71	(28)	0.55	
Vanguard Growth Index Hybrid	9.54		23.60		0.48		11.01		20.72		0.55	
IM U.S. Large Cap Growth Equity (MF) Median	7.08		22.63		0.39		9.29		20.08		0.49	
Vanguard Value Index (VIVIX)	6.16	(32)	18.86	(69)	0.38	(33)	7.07	(28)	17.04	(69)	0.42	
Vanguard Value Index Hybrid	6.17		18.87		0.38		7.08		17.04		0.42	
IM U.S. Large Cap Value Equity (MF) Median	5.34		19.62		0.34		6.09		17.65		0.36	
Vanguard S&P MC400;Inst (VSPMX) *	5.95	(30)	23.44	(22)	0.34	(34)	5.75	(39)	21.18	(20)	0.32	
S&P MidCap 400 Index	6.01		23.44		0.34		5.82		21.18		0.32	
IM U.S. Mid Cap Core Equity (MF) Median	4.68		22.26		0.30		5.27		19.74		0.30	
Vanguard S&P SC600;Inst (VSMSX) *	5.48	(36)	24.83	(53)	0.32	(37)	4.83	(23)	22.59	(47)	0.27	
S&P SmallCap 600 Index	5.48		24.82		0.32		4.84		22.59		0.27	
IM U.S. Small Cap Core Equity (MF) Median	4.60		24.88		0.29		3.57		22.57		0.22	

* Mutual fund returns were used for this report if 3 & 5 year client specific results were not available.

The Vanguard Emerging Market Stock Index Fund performance shown may be different than actual performance as the client was invested in the ETF before transferring to the mutual fund.

All performance is reported net of fees.



Multi Time Period Statistics
Butler County Employees Retirement Plan
As of September 30, 2022

	3 YR Return		3 YR Standard Deviation		3 YR Sharpe Ratio		5 YR Return		5 YR Standard Deviation		5 YR Sharpe Ratio	
Vanguard Intl Val;Inv (VTRIX)*	-0.43	(47)	20.36	(10)	0.05	(45)	-0.27	(45)	17.68	(36)	0.01	(44)
MSCI EAFE Index	-1.38		18.84		-0.01		-0.36		16.50		-0.01	
IM International Large Cap Core Equity (MF) Median	-0.93		18.94		0.01		-0.66		16.73		-0.03	
Vanguard Intl Gro;Adm (VWILX)*	3.99	(9)	23.10	(4)	0.26	(12)	3.45	(14)	20.73	(2)	0.21	(14)
MSCI EAFE Growth Index	-1.18		18.73		0.00		1.03		16.40		0.08	
IM International Large Cap Growth Equity (MF) Median	0.28		19.15		0.08		1.06		17.14		0.08	
Vanguard FTSEUSSC;Ins (VFSNX) *	-0.84	(32)	22.53	(38)	0.05	(32)	-1.61	(49)	19.35	(52)	-0.04	(48)
FTSE Global ex U.S. Small Cap Index (Net)	-0.83		22.66		0.05		-1.73		19.41		-0.05	
IM International SMID Cap Growth Equity (MF) Median	-1.99		22.30		0.00		-1.67		19.35		-0.05	
Vanguard Developed Markets Index (VTMNX)	-1.26	(37)	19.64	(50)	0.00	(37)	-0.62	(29)	17.21	(53)	-0.02	(28)
Vanguard Spliced Developed ex U.S. Index (Net)	-1.08		19.59		0.01		-0.51		17.12		-0.01	
IM International Multi-Cap Equity (MF) Median	-1.78		19.64		-0.02		-1.42		17.35		-0.06	
Vanguard Emerging Markets Index (VEMIX)	-0.52	(26)	18.34	(93)	0.03	(29)	-0.68	(24)	16.94	(91)	-0.02	(27)
FTSE Emerging Mkts All Cap China A Inclusion Index	0.14		18.39		0.07		-0.13		16.90		0.01	
IM Emerging Markets Equity (MF) Median	-2.54		20.19		-0.06		-2.37		18.30		-0.10	
Vanguard Short Term Bond Index (VBITX)	-0.95	(88)	2.40	(55)	-0.63	(90)	0.51	(75)	2.16	(50)	-0.29	(77)
Bloomberg 1-5 Year Gov/Credit Idx	-0.90		2.40		-0.61		0.55		2.17		-0.27	
IM U.S. Short Term Investment Grade (MF) Median	-0.14		2.51		-0.22		0.85		2.15		-0.11	
Vanguard Tot Bd;Inst (VBTIX) *	-3.26	(55)	5.31	(83)	-0.70	(77)	-0.24	(40)	4.77	(74)	-0.27	(51)
Blmbg. U.S. Aggregate Index	-3.26		5.29		-0.70		-0.27		4.73		-0.28	
IM U.S. Broad Market Core Fixed Income (MF) Median	-3.22		5.84		-0.62		-0.33		5.05		-0.27	
Vanguard High Yield Bond Fund (VWEAX)	-0.90	(47)	9.92	(79)	-0.10	(57)	1.36	(31)	8.32	(77)	0.07	(32)
Vanguard High Yield Corporate Composite Index	-0.42		9.97		-0.05		1.74		8.18		0.11	
IM U.S. High Yield Bonds (MF) Median	-0.94		10.68		-0.09		1.00		8.83		0.03	

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Multi Time Period Statistics
Butler County Employees Retirement Plan
As of September 30, 2022

	3 YR Return		3 YR Standard Deviation		3 YR Sharpe Ratio		5 YR Return		5 YR Standard Deviation		5 YR Sharpe Ratio	
Vanguard Tot Itl Bl;Inst (VTIFX) *	-4.17	(28)	4.99	(87)	-0.93	(59)	0.04	(16)	4.42	(89)	-0.23	(16)
Blmbg. Global Agg ex-USD Flt Adj RIC Cpd (H)	-4.06		4.91		-0.92		0.17		4.37		-0.20	
IM International Fixed Income (MF) Median	-7.21		7.87		-0.87		-4.26		7.46		-0.56	
Vanguard Em Mkt Bond;Adm (VEGBX)*	-2.20	(7)	12.51	(70)	-0.16	(7)	N/A		N/A		N/A	
JPM GBI-EM Diversified	-9.69		12.12		-0.82		-6.18		11.84		-0.57	
IM Emerging Markets Debt - LC (MF) Median	-5.24		13.02		-0.39		-2.79		12.36		-0.25	
Vanguard Real Estate Index Fund (VGSNX)	-1.59	(55)	22.00	(35)	0.01	(54)	3.11	(54)	19.29	(32)	0.20	(57)
Vanguard Spliced REIT Index	-1.49		21.99		0.02		3.19		19.27		0.20	
IM Real Estate Sector (MF) Median	-1.30		21.76		0.02		3.31		18.87		0.21	

* Mutual fund returns were used for this report if 3 & 5 year client specific results were not available.

The Vanguard Emerging Market Stock Index Fund performance shown may be different than actual performance as the client was invested in the ETF before transferring to the mutual fund.
All performance is reported net of fees.



Multi Time Period Statistics
Butler County Employees Retirement Plan
As of September 30, 2022

Multi Time Period Statistics												
	10 YR Return		10 YR Standard Deviation		10 YR Sharpe Ratio		15 YR Return		15 YR Standard Deviation		15 YR Sharpe Ratio	
Total Fund Performance	5.93		10.80		0.53		5.02		11.98		0.41	
Total Fund Policy	6.17		10.59		0.55		5.45		12.00		0.44	
Vanguard Instl Indx;Inst (VINIX) *	11.67	(3)	15.12	(12)	0.77	(3)	8.02	(2)	17.57	(14)	0.49	
S&P 500 Index	11.70		15.12		0.77		8.03		17.57		0.49	
IM S&P 500 Index (MF) Median	11.24		15.10		0.74		7.58		17.54		0.47	
Vanguard Growth Index (VIGIX)	12.70	(19)	17.71	(44)	0.73	(25)	N/A		N/A		N/A	
Vanguard Growth Index Hybrid	12.75		17.73		0.74		9.61		19.33		0.54	
IM U.S. Large Cap Growth Equity (MF) Median	11.66		17.62		0.68		8.43		19.66		0.48	
Vanguard Value Index (VIVIX)	10.49	(16)	14.38	(70)	0.73	(13)	N/A		N/A		N/A	
Vanguard Value Index Hybrid	10.53		14.38		0.73		6.55		17.46		0.41	
IM U.S. Large Cap Value Equity (MF) Median	9.29		14.96		0.63		5.79		18.25		0.37	
Vanguard S&P MC400;Inst (VSPMX)	9.97	(13)	18.87	(65)	0.57	(13)	N/A		N/A		N/A	
S&P MidCap 400 Index	10.04		18.87		0.57		7.93		21.10		0.44	
IM U.S. SMID Cap Core Equity (MF) Median	8.56		19.35		0.48		6.30		21.68		0.36	
Vanguard S&P SC600;Inst (VSMSX)	10.07	(6)	21.03	(49)	0.54	(8)	N/A		N/A		N/A	
S&P SmallCap 600 Index	10.09		21.02		0.54		7.77		22.60		0.42	
IM U.S. Small Cap Core Equity (MF) Median	8.28		21.01		0.46		6.19		22.93		0.35	

The Vanguard Emerging Market Stock Index Fund performance shown may be different than actual performance as the client was invested in the ETF before transferring to the mutual fund.
All performance is reported net of fees.



Multi Time Period Statistics
Butler County Employees Retirement Plan
As of September 30, 2022

	10 YR Return		10 YR Standard Deviation		10 YR Sharpe Ratio		15 YR Return		15 YR Standard Deviation		15 YR Sharpe Ratio	
Vanguard Intl Val;Inv (VTRIX)	3.98	(43)	16.82	(36)	0.28	(43)	1.05	(50)	20.47	(32)	0.12	(48)
MSCI EAFE Index	4.15		15.27		0.30		1.09		19.36		0.12	
IM International Large Cap Core Equity (MF) Median	3.79		15.74		0.28		1.04		20.06		0.12	
Vanguard Intl Gro;Adm (VWILX)	7.62	(7)	21.22	(2)	0.42	(20)	4.22	(11)	23.45	(1)	0.26	(16)
MSCI EAFE Growth Index	5.08		15.55		0.36		2.00		19.05		0.17	
IM International Large Cap Growth Equity (MF) Median	4.99		16.29		0.33		2.71		20.11		0.20	
Vanguard FTSEUSSC;Ins (VFSNX)	3.42	(80)	18.74	(54)	0.24	(80)	N/A		N/A		N/A	
FTSE Global ex U.S. Small Cap Index (Net)	N/A		N/A		N/A		N/A		N/A		N/A	
IM International SMID Cap Growth Equity (MF) Median	4.24		19.02		0.29		1.98		23.14		0.17	
Vanguard Developed Markets Index (VTMNX)	4.04	(21)	16.00	(64)	0.29	(20)	N/A		N/A		N/A	
Vanguard Spliced Developed ex U.S. Index (Net)	4.06		15.90		0.29		0.86		19.69		0.11	
IM International Multi-Cap Equity (MF) Median	3.29		16.37		0.24		0.38		20.19		0.09	
Vanguard EM St I;Inst (VEMIX)*	1.46	(35)	17.25	(85)	0.13	(37)	0.45	(41)	22.56	(82)	0.11	(43)
Vanguard Spliced Emerging Markets Index (Net)	1.51		17.00		0.14		0.57		22.42		0.11	
IM Emerging Markets Equity (MF) Median	0.91		18.72		0.11		0.11		23.36		0.09	
Vanguard Sh-Tm B;Inst (VBITX)	0.82	(58)	2.09	(46)	0.09	(58)	N/A		N/A		N/A	
Bloomberg 1-5 Year Gov/Credit Idx	0.88		2.09		0.11		2.01		2.30		0.61	
IM U.S. Short Term Investment Grade (MF) Median	0.91		2.01		0.13		1.59		2.47		0.37	
Vanguard Tot Bd;Inst (VBTIX)	0.86	(53)	4.44	(69)	0.07	(53)	2.73	(49)	4.29	(76)	0.50	(28)
Blmbg. U.S. Aggregate Index	0.89		4.36		0.07		2.74		4.22		0.51	
IM U.S. Broad Market Core Fixed Income (MF) Median	0.90		4.60		0.07		2.71		4.80		0.44	
Vanguard HY Corp;Adm (VWEAX)	3.57	(25)	7.05	(93)	0.44	(14)	4.97	(22)	8.97	(91)	0.50	(5)
Blmbg. U.S. Corp High Yield	3.94		8.32		0.42		5.71		11.65		0.47	
IM U.S. High Yield Bonds (MF) Median	3.10		8.22		0.33		4.51		10.77		0.40	

The Vanguard Emerging Market Stock Index Fund performance shown may be different than actual performance as the client was invested in the ETF before transferring to the mutual fund.
All performance is reported net of fees.

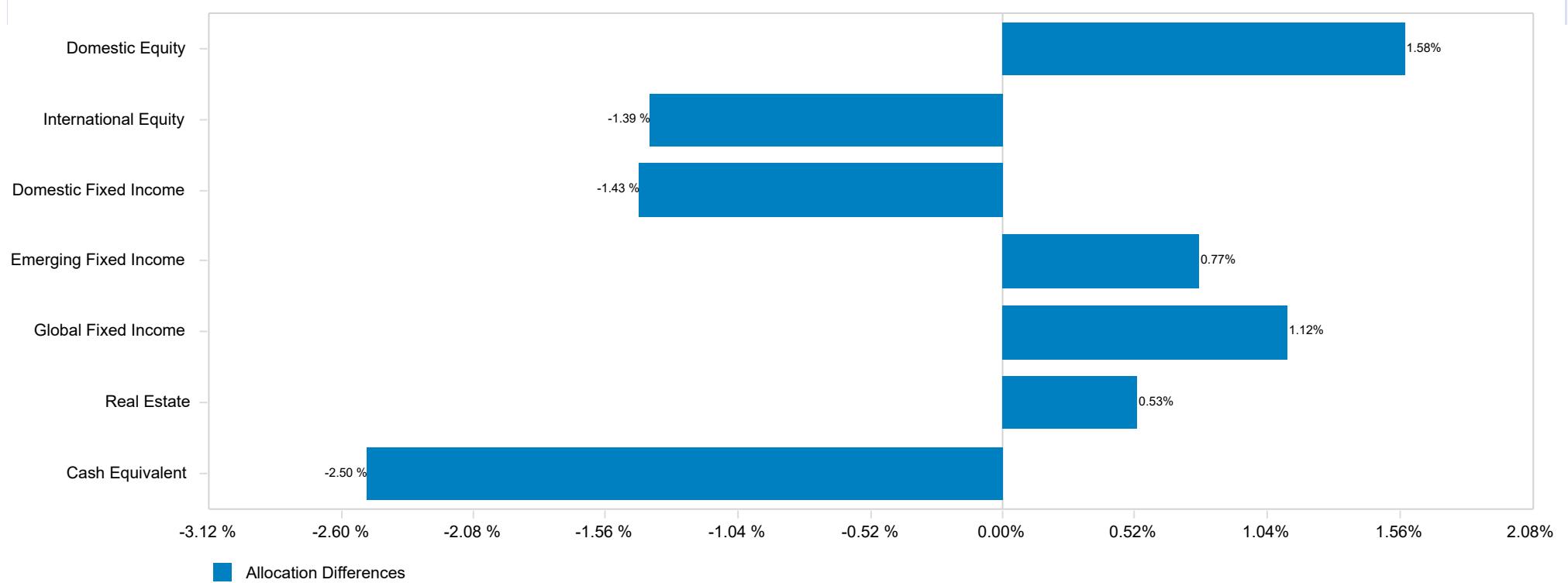


Multi Time Period Statistics
Butler County Employees Retirement Plan
As of September 30, 2022

	10 YR Return	10 YR Standard Deviation	10 YR Sharpe Ratio	15 YR Return	15 YR Standard Deviation	15 YR Sharpe Ratio
Vanguard Tot Itl Bl;Inst (VTIFX)	N/A	N/A	N/A	N/A	N/A	N/A
Blmbg. Global Agg ex-USD Flt Adj RIC Cpd (H)	N/A	N/A	N/A	N/A	N/A	N/A
IM International Fixed Income (MF) Median	-2.07	8.60	-0.29	1.40	9.31	0.12
Vanguard Em Mkt Bond;Adm (VEGBX)	N/A	N/A	N/A	N/A	N/A	N/A
JPM GBI-EM Diversified	-3.30	11.91	-0.28	0.56	12.23	0.05
IM Emerging Markets Debt - LC (MF) Median	-1.26	12.76	-0.09	N/A	N/A	N/A
Vanguard RE Idx;Inst (VGSNX)	6.25	(31)	16.77	(37)	0.41	(40)
Vanguard Spliced REIT Index	6.34	16.78	0.41	5.05	5.06	23.90
IM Real Estate Sector (MF) Median	5.83	16.49	0.39	(32)	4.38	23.64
				23.90	(38)	0.31
						(33)

The Vanguard Emerging Market Stock Index Fund performance shown may be different than actual performance as the client was invested in the ETF before transferring to the mutual fund.
All performance is reported net of fees.





Asset Allocation Compliance

	Current Allocation (%)	Target Allocation (%)	Minimum Allocation (%)	Maximum Allocation (%)
Domestic Equity	41.58	40.00	15.00	65.00
International Equity	13.61	15.00	5.00	25.00
Domestic Fixed Income	31.07	32.50	15.00	50.00
Emerging Fixed Income	3.27	2.50	0.00	5.00
Global Fixed Income	3.62	2.50	0.00	5.00
Real Estate	5.53	5.00	0.00	10.00
Cash Equivalent	0.00	2.50	0.00	5.00
Total Fund	100.00	100.00	N/A	N/A

1. Over most periods of time, the following investment managers have met performance expectations net of fees:

- Vanguard Institutional Index Fund.
- Vanguard Growth Index Fund.
- Vanguard Value Index Fund.
- Vanguard S&P 400 Mid Cap Index Fund.
- Vanguard S&P 600 Small Cap Index Fund.
- Vanguard Developed Markets Index Fund.
- Vanguard Small Cap International Index Fund.
- Vanguard Emerging Markets Index Fund.
- Vanguard Total Bond Index Fund.
- Vanguard Short-Term Bond Index Fund.
- Vanguard High Yield Bond Fund.
- Vanguard Total International Bond Fund. The Vanguard High Yield Bond Fund is an actively managed high yield bond fund that invests in higher-rated bonds to minimize default risk and principal loss.
- Vanguard Real Estate Index Fund.

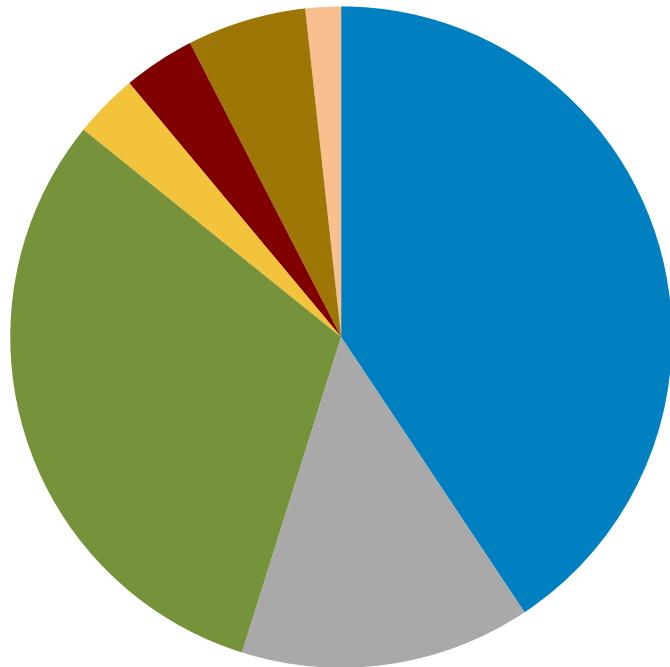
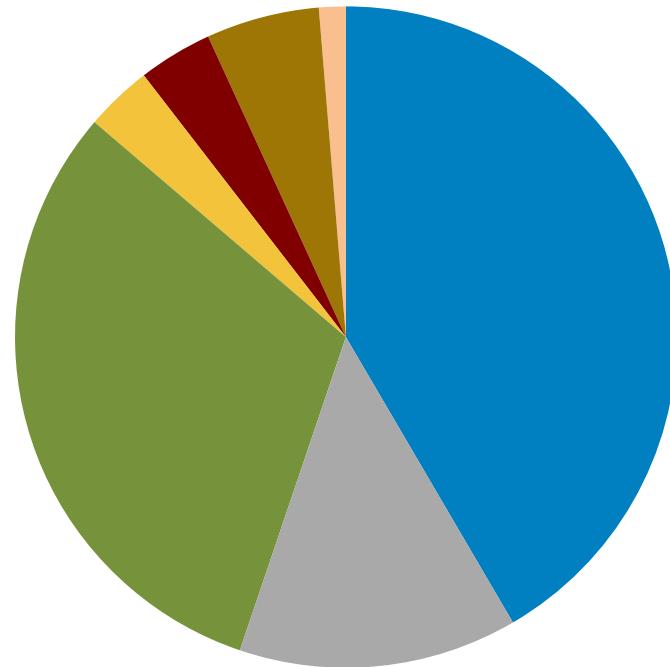
2. Over most periods of the time, the following investment managers have trailed performance expectations net of fees:

- None.

3. The following investment managers do not have enough history to make any meaningful conclusions:

- Vanguard International Value Fund.
- Vanguard International Growth Fund.
- Vanguard Emerging Markets Bond Fund.

4. At this time, all investment managers should continue to be retained.

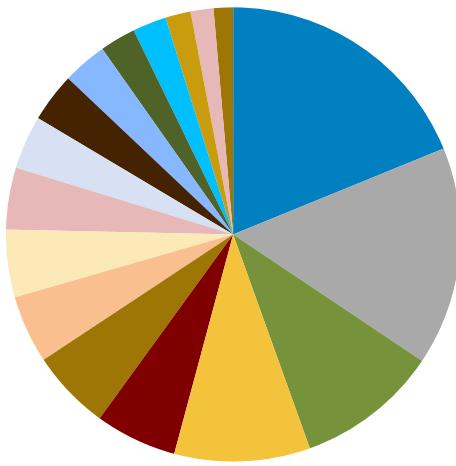
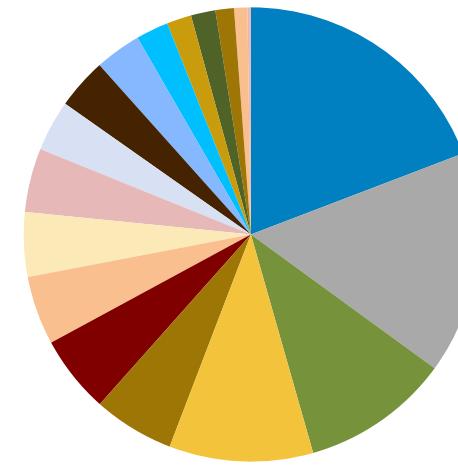
Asset Allocation By Segment as of
June 30, 2022 : \$230,147,657Asset Allocation By Segment as of
September 30, 2022 : \$215,269,854

Allocation

Segments	Market Value	Allocation
Domestic Equity	93,556,803	40.7
International Equity	32,660,777	14.2
Domestic Fixed Income	71,231,224	31.0
Emerging Fixed Income	7,256,758	3.2
Global Fixed Income	8,060,216	3.5
Real Estate	13,378,348	5.8
Cash	4,003,531	1.7

Allocation

Segments	Market Value	Allocation
Domestic Equity	89,510,915	41.6
International Equity	29,300,574	13.6
Domestic Fixed Income	66,886,716	31.1
Emerging Fixed Income	7,049,069	3.3
Global Fixed Income	7,796,977	3.6
Real Estate	11,905,476	5.5
Cash	2,820,127	1.3

Asset Allocation By Manager as of
June 30, 2022 : \$230,147,657Asset Allocation By Manager as of
September 30, 2022 : \$215,269,854

Allocation

	Market Value	Allocation
Vanguard Total Bond Index (VBTIX)	43,309,592	18.8
Vanguard Inst'l Index Fund (VINIX)	35,844,997	15.6
Vanguard Mid-Cap 400 Index Fund I (VSPMX)	23,313,027	10.1
Vanguard High Yield Bond Fund (VWEAX)	22,224,865	9.7
Vanguard Real Estate Index Fund (VGSNX)	13,378,348	5.8
Vanguard Value Index (VIVIX)	13,128,269	5.7
Vanguard Small-Cap 600 Index I (VSMSX)	11,116,361	4.8
Vanguard Emerging Markets Index (VEMIX)	11,083,158	4.8
Vanguard Growth Index (VIGIX)	10,154,148	4.4
Vanguard Developed Markets Index (VTMNX)	8,753,398	3.8
Vanguard International Bond (VTIFX)	8,067,250	3.5
Vanguard EM Bond (VEGBX)	7,283,958	3.2
Vanguard Short Term Bond Index (VBITX)	5,887,972	2.6
Vanguard FTSE AW ex-US SC Index (VFSNX)	5,517,819	2.4
Vanguard Intl Value (VTRIX)	4,150,632	1.8
NMA	3,743,172	1.6
Vanguard Intl Growth (VWILX)	3,155,771	1.4
Cash	34,920	0.0

Allocation

	Market Value	Allocation
Vanguard Total Bond Index (VBTIX)	41,296,894	19.2
Vanguard Inst'l Index Fund (VINIX)	34,092,007	15.8
Vanguard Mid-Cap 400 Index Fund I (VSPMX)	22,738,561	10.6
Vanguard High Yield Bond Fund (VWEAX)	22,035,297	10.2
Vanguard Value Index (VIVIX)	12,375,018	5.7
Vanguard Real Estate Index Fund (VGSNX)	11,905,476	5.5
Vanguard Small-Cap 600 Index I (VSMSX)	10,536,281	4.9
Vanguard Emerging Markets Index (VEMIX)	9,894,449	4.6
Vanguard Growth Index (VIGIX)	9,769,048	4.5
Vanguard Developed Markets Index (VTMNX)	7,834,856	3.6
Vanguard International Bond (VTIFX)	7,805,066	3.6
Vanguard EM Bond (VEGBX)	7,089,567	3.3
Vanguard FTSE AW ex-US SC Index (VFSNX)	4,970,036	2.3
Vanguard Intl Value (VTRIX)	3,766,072	1.7
Vanguard Short Term Bond Index (VBITX)	3,755,405	1.7
Vanguard Intl Growth (VWILX)	2,835,160	1.3
Cash	2,035,425	0.9
NMA	535,235	0.2

Asset Allocation Attributes																	
	Domestic Equity		International Equity		Domestic Fixed Income		Emerging Fixed Income		Global Fixed Income		Real Estate		Cash		Total Fund		
	(\$)	%	(\$)	%	(\$)	%	(\$)	%	(\$)	%	(\$)	%	(\$)	%	(\$)	%	
Vanguard Inst'l Index Fund (VINIX)	34,092	100.0	-	-	-	-	-	-	-	-	-	-	-	-	34,092	15.8	
Vanguard Value Index (VIVIX)	12,375	100.0	-	-	-	-	-	-	-	-	-	-	-	-	12,375	5.7	
Vanguard Small-Cap 600 Index I (VSMSX)	10,536	100.0	-	-	-	-	-	-	-	-	-	-	-	-	10,536	4.9	
Vanguard Mid-Cap 400 Index Fund I (VSPMX)	22,739	100.0	-	-	-	-	-	-	-	-	-	-	-	-	22,739	10.6	
Vanguard Growth Index (VIGIX)	9,769	100.0	-	-	-	-	-	-	-	-	-	-	-	-	9,769	4.5	
Twin Capital Enhanced Index	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0	
Vanguard Intl Value (VTRIX)	-	-	3,766	100.0	-	-	-	-	-	-	-	-	-	-	3,766	1.7	
Vanguard Intl Growth (VWILX)	-	-	2,835	100.0	-	-	-	-	-	-	-	-	-	-	2,835	1.3	
Vanguard FTSE AW ex-US SC Index (VFSNX)	-	-	4,970	100.0	-	-	-	-	-	-	-	-	-	-	4,970	2.3	
Vanguard Developed Markets Index (VTMNX)	-	-	7,835	100.0	-	-	-	-	-	-	-	-	-	-	7,835	3.6	
Vanguard Emerging Markets Index (VEMIX)	-	-	9,894	100.0	-	-	-	-	-	-	-	-	-	-	9,894	4.6	
Vanguard High Yield Bond Fund (VWEAX)	-	-	-	-	21,932	99.5	-	-	-	-	-	-	-	103	0.5	22,035	10.2
Vanguard Short Term Bond Index (VBITX)	-	-	-	-	3,748	99.8	-	-	-	-	-	-	-	8	0.2	3,755	1.7
Vanguard Total Bond Index (VBTIX)	-	-	-	-	41,206	99.8	-	-	-	-	-	-	-	90	0.2	41,297	19.2
Vanguard International Bond (VTIFX)	-	-	-	-	-	-	-	-	7,797	99.9	-	-	-	8	0.1	7,805	3.6
Vanguard EM Bond (VEGBX)	-	-	-	-	-	-	7,049	99.4	-	-	-	-	-	40	0.6	7,090	3.3
Vanguard Real Estate Index Fund (VGSNX)	-	-	-	-	-	-	-	-	-	-	11,905	100.0	-	-	11,905	5.5	
Cash	-	-	-	-	-	-	-	-	-	-	-	-	-	2,035	100.0	2,035	0.9
NMA	-	-	-	-	-	-	-	-	-	-	-	-	-	535	100.0	535	0.2
Total Fund	89,511	41.6	29,301	13.6	66,887	31.1	7,049	3.3	7,797	3.6	11,905	5.5	2,820	1.3	215,270	100.0	

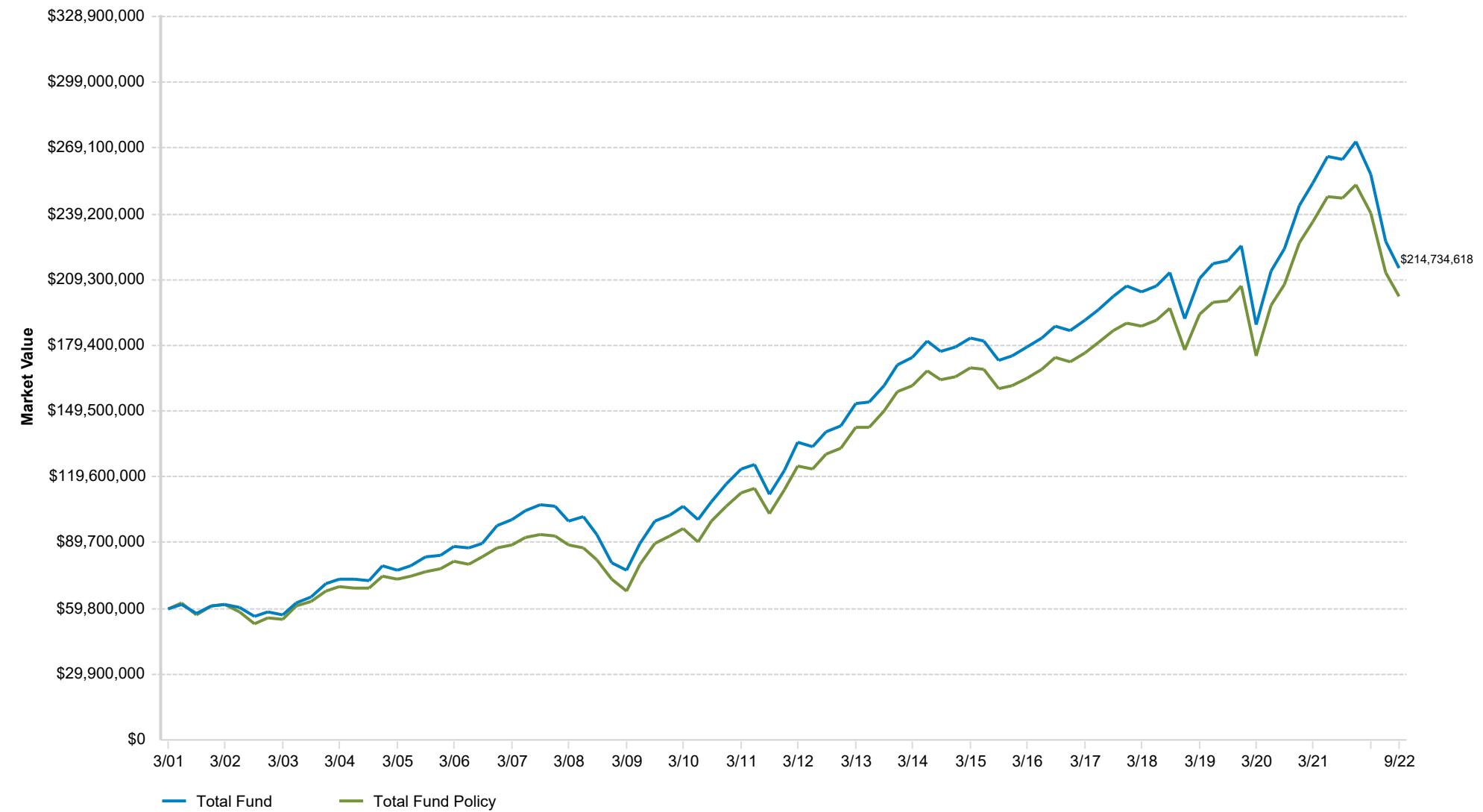


Schedule of Investable Assets

Total Fund

January 1, 2001 To September 30, 2022

Schedule of Investable Assets



Schedule of Investable Assets

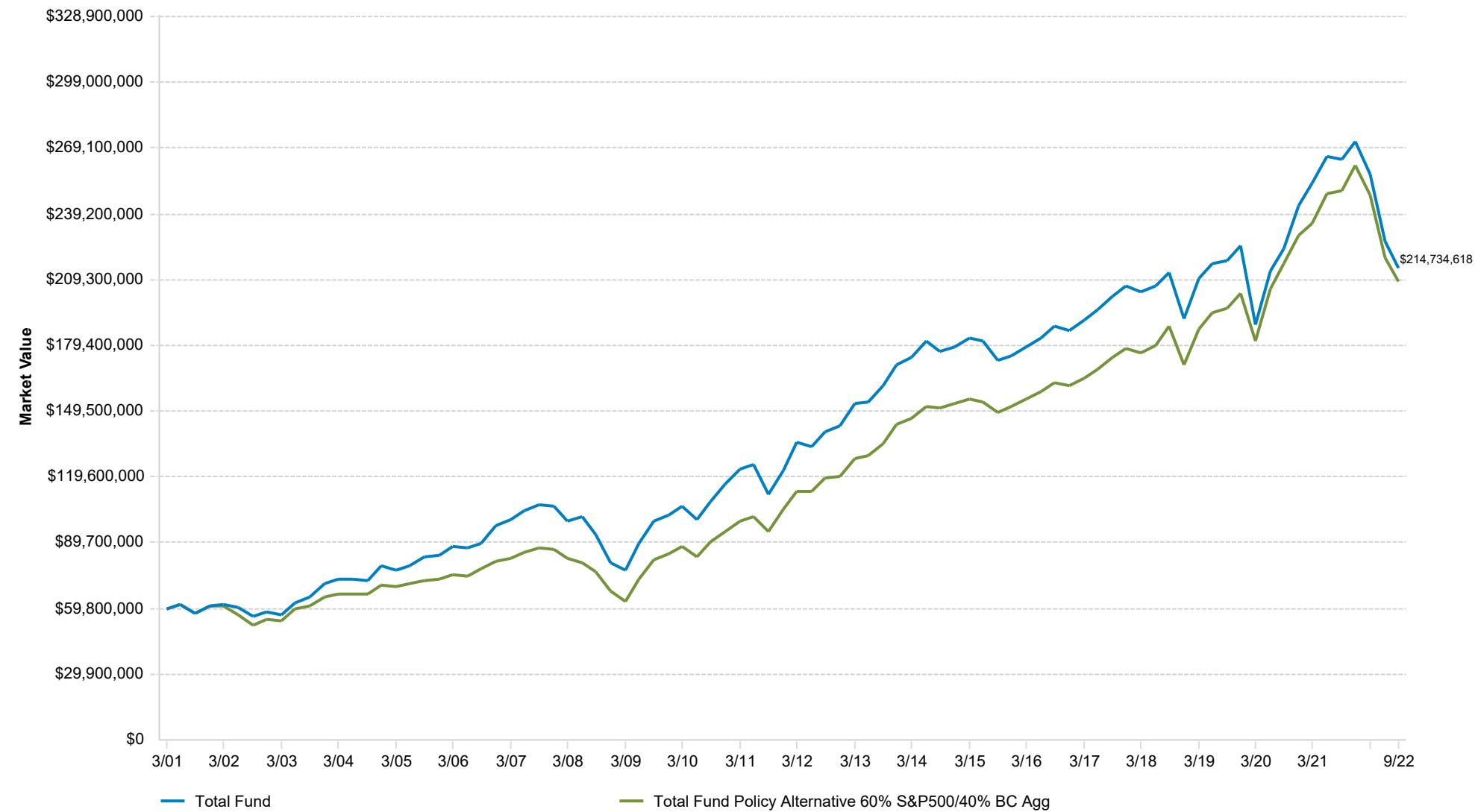
Periods Ending	Beginning Market Value \$	Net Cash Flow \$	Gain/Loss \$	Ending Market Value \$	%Return
Jan-2001 To Sep-2022	59,528,253	-19,554,123	174,760,488	214,734,618	235.97

Does not include Non-Measured Assets (NMA).



Schedule of Investable Assets
Total Fund
January 1, 2001 To September 30, 2022

Schedule of Investable Assets



Schedule of Investable Assets

Periods Ending	Beginning Market Value \$	Net Cash Flow \$	Gain/Loss \$	Ending Market Value \$	%Return
Jan-2001 To Sep-2022	59,528,253	-19,554,123	174,760,488	214,734,618	235.97

Does not include Non-Measured Assets (NMA).



Fee Analysis
Total Fund
As of September 30, 2022

	Estimated Annual Fee (%)	Market Value (\$)	Estimated Annual Fee (\$)	Fee Schedule
Vanguard Inst'l Index Fund (VINIX)	0.03	34,092,007	10,228	0.03 % of Assets
Vanguard Growth Index (VIGIX)	0.04	9,769,048	3,908	0.04 % of Assets
Vanguard Value Index (VIVIX)	0.04	12,375,018	4,950	0.04 % of Assets
Vanguard Mid-Cap 400 Index Fund I (VSPMX)	0.08	22,738,561	18,191	0.08 % of Assets
Vanguard Small-Cap 600 Index I (VSMSX)	0.08	10,536,281	8,429	0.08 % of Assets
Vanguard Intl Value (VTRIX)	0.35	3,766,072	13,181	0.35 % of Assets
Vanguard Intl Growth (VWILX)	0.33	2,835,160	9,356	0.33 % of Assets
Vanguard FTSE AW ex-US SC Index (VFSNX)	0.11	4,970,036	5,467	0.11 % of Assets
Vanguard Developed Markets Index (VTMNX)	0.05	7,834,856	3,917	0.05 % of Assets
Vanguard Emerging Markets Index (VEMIX)	0.10	9,894,449	9,894	0.10 % of Assets
Vanguard Short Term Bond Index (VBITX)	0.05	3,755,405	1,878	0.05 % of Assets
Vanguard Total Bond Index (VBTIX)	0.03	41,296,894	12,389	0.03 % of Assets
Vanguard High Yield Bond Fund (VWEAX)	0.13	22,035,297	28,646	0.13 % of Assets
Vanguard International Bond (VTIFX)	0.07	7,805,066	5,464	0.07 % of Assets
Vanguard EM Bond (VEGBX)	0.45	7,089,567	31,903	0.45 % of Assets
Vanguard Real Estate Index Fund (VGSNX)	0.10	11,905,476	11,905	0.10 % of Assets
Total Fund Performance	0.08	214,734,618	179,706	

Does not include Non-Measured Assets (NMA).



Financial Reconciliation
Total Fund
as of September 30, 2022

Quarter To Date	Market Value 07/01/2022	Management Fees	Net Flows	Return On Investment	Market Value 09/30/2022
Domestic Equity					
Vanguard Inst'l Index Fund (VINIX)	35,844,997	-	-	-1,752,990	34,092,007
Vanguard Value Index (VIVIX)	13,128,269	-	-	-753,251	12,375,018
Vanguard Small-Cap 600 Index I (VSMSX)	11,116,361	-	-	-580,080	10,536,281
Vanguard Mid-Cap 400 Index Fund I (VSPMX)	23,313,027	-	-	-574,467	22,738,561
Vanguard Growth Index (VIGIX)	10,154,148	-	-	-385,100	9,769,048
International Equity					
Vanguard Intl Value (VTRIX)	4,150,632	-	-	-384,560	3,766,072
Vanguard Intl Growth (VWILX)	3,155,771	-	-	-320,612	2,835,160
Vanguard FTSE AW ex-US SC Index (VFSNX)	5,517,819	-	-	-547,783	4,970,036
Vanguard Developed Markets Index (VTMNX)	8,753,398	-	-	-918,541	7,834,856
Vanguard Emerging Markets Index (VEMIX)	11,083,158	-	-	-1,188,708	9,894,449
Fixed Income					
Vanguard Short Term Bond Index (VBITX)	5,887,972	-	-2,000,000	-132,567	3,755,405
Vanguard Total Bond Index (VBTIX)	43,309,592	-	-	-2,012,699	41,296,894
Vanguard High Yield Bond Fund (VWEAX)	22,224,865	-	-	-189,568	22,035,297
Vanguard International Bond (VTIFX)	8,067,250	-	-	-262,184	7,805,066
Vanguard EM Bond (VEGBX)	7,283,958	-	-	-194,390	7,089,567
REIT					
Vanguard Real Estate Index Fund (VGSNX)	13,378,348	-	-	-1,472,872	11,905,476
Cash	34,920	-	2,000,000	506	2,035,425
Total Fund Performance	226,404,485	-	-	-11,669,867	214,734,618
NMA	3,743,172	-	-3,207,936	-	535,235
Total Fund	230,147,657	-	-3,207,936	-11,669,867	215,269,854

Financial Reconciliation
Total Fund
as of September 30, 2022

Year To Date	Market Value 01/01/2022	Management Fees	Net Flows	Return On Investment	Market Value 09/30/2022
Domestic Equity					
Vanguard Inst'l Index Fund (VINIX)	44,790,891	-	-	-10,698,884	34,092,007
Vanguard Value Index (VIVIX)	14,487,646	-	-	-2,112,628	12,375,018
Vanguard Small-Cap 600 Index I (VSMSX)	13,722,499	-	-	-3,186,218	10,536,281
Vanguard Mid-Cap 400 Index Fund I (VSPMX)	28,985,592	-	-	-6,247,031	22,738,561
Vanguard Growth Index (VIGIX)	14,588,707	-	-	-4,819,659	9,769,048
Twin Capital Enhanced Index	15,820	-	-16,212	392	-
International Equity					
Vanguard Intl Value (VTRIX)	4,935,181	-	-	-1,169,109	3,766,072
Vanguard Intl Growth (VWILX)	4,613,759	-	-	-1,778,599	2,835,160
Vanguard FTSE AW ex-US SC Index (VFSNX)	7,140,659	-	-	-2,170,623	4,970,036
Vanguard Developed Markets Index (VTMINX)	10,837,143	-	-	-3,002,287	7,834,856
Vanguard Emerging Markets Index (VEMIX)	13,016,328	-	-	-3,121,878	9,894,449
Fixed Income					
Vanguard Short Term Bond Index (VBITX)	6,171,714	-	-2,000,000	-416,309	3,755,405
Vanguard Total Bond Index (VBTIX)	48,343,193	-	-	-7,046,300	41,296,894
Vanguard High Yield Bond Fund (VWEAX)	25,387,557	-	-	-3,352,261	22,035,297
Vanguard International Bond (VTIFX)	8,954,893	-	-	-1,149,828	7,805,066
Vanguard EM Bond (VEGBX)	8,951,542	-	-	-1,861,974	7,089,567
REIT					
Vanguard Real Estate Index Fund (VGSNX)	16,834,302	-	-	-4,928,826	11,905,476
Cash	17,519	-	2,016,492	1,415	2,035,425
Total Fund Performance	271,794,945	-	280	-57,060,607	214,734,618
NMA	2,929,815	-	-2,394,580	-	535,235
Total Fund	274,724,760	-	-2,394,300	-57,060,607	215,269,854

Goals

- Maintain the actuarial soundness of the Plan in order to meet future obligations by preserving the inflation adjusted value of the Plan's assets after all investment expenses, administrative costs, benefit payments and refunds.
- Obtain an average annual rate of investment return equal to or greater than the actuarial assumed rate of 7.5% (net of fees), with an emphasis over a longer term (fifteen year) trailing period.

Asset Allocation Ranges (Based on IPS Second Addendum)

Asset Class	Minimum	Target	Maximum
Large Cap Core	10%	15%	20%
Large Cap Value	0%	5%	10%
Large Cap Growth	0%	5%	10%
Mid Cap Core	5%	10%	15%
Small Cap Core	0%	5%	10%
International Developed Markets	5%	7.5%	15%
International Emerging Markets	0%	5%	10%
All World ex US Small Cap	0%	2.5%	5%
Aggregate Fixed Income	10%	20%	30%
Short-Term Fixed Income	0%	2.5%	5%
High Yield Fixed Income	5%	10%	15%
Non-US Fixed Income	0%	5%	10%
Real Estate	0%	5%	10%
Cash	0%	2.5%	5%

Rebalancing Policy

The Investment Consultant will monitor the asset allocation policy and shall recommend any necessary rebalancing on a quarterly basis, or more frequently. At each quarterly Board meeting, the Investment Consultant will provide the Plan's actual and target allocations (including ranges). Upon any Board approval, the Investment Consultant will initiate rebalancing.

Other Portfolio Guidelines and Restrictions

- Additional investment policies and guidelines are contained in the formal Investment Policy Statement.

Portfolio Guidelines and Restrictions

Equity Guidelines

- Equity investment manager of a separate account should diversify their portfolio in an attempt to minimize the impact of a substantial loss in any specific sector, industry or company.
- No more than 5% of each manager's equity holdings shall be invested in the securities of any one company (valued at market).
- The economic sector weightings shall not exceed the greater of two and half times the appropriate benchmark, valued at market, or 15% of the equity portfolio.
- The market for individual security holdings in the equity portfolio shall be liquid enough to allow for easy monetization.

Fixed Income Guidelines

- A fixed income investment manager of a separate account should diversify their portfolio in an attempt to minimize the adverse effects of interest rate fluctuations and default risk.
- No more than 5% of the fixed income portfolio in any one issuer, excluding direct and/or indirect obligations of the US Government.
- The market for individual security holdings in the fixed income shall be liquid enough to allow for easy monetization.
- The minimum quality rating for any fixed income security is an “investment grade” rating as determined by at least one nationally recognized credit ratings agency. Bond held in the fixed income portfolio must be rated investment grade (“Baa/BBB”) or better by at least one agency, with the exception of securities held in a high-yield bond fund.
- The duration of the bonds held in the portfolios are at the discretion of the investment manager(s). However, the effective duration of the fixed income security should be within +/-20% of the index.

Cash & Equivalents Restrictions

- Commercial paper must be rated A-1 or P-1 by at least one nationally recognized credit rating agency.

Permissible Investments

- Permissible investments include those identified in the Plan's Asset Allocation Policy, subject to state statute and local ordinance.

Prohibited Investments

- Prohibited investments include those not specifically identified in the Plan's Asset Allocation Policy without prior approval of the Board, upon recommendation of the Investment Consultant.

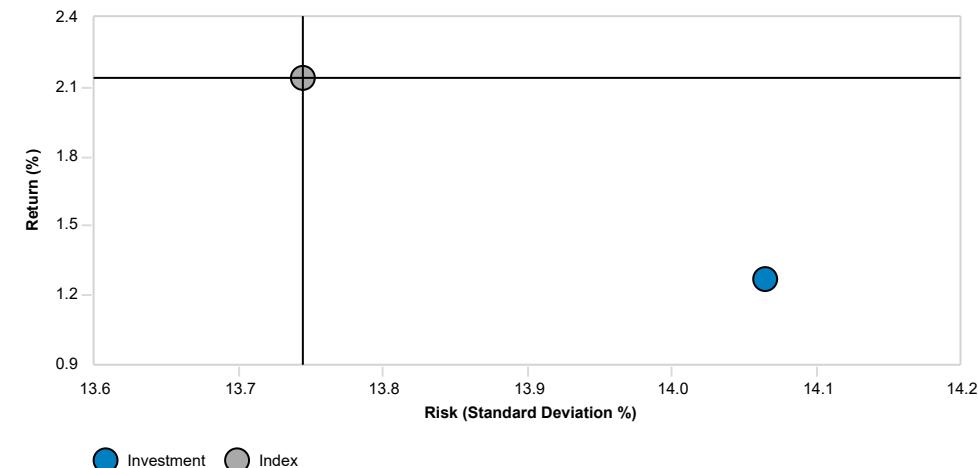
Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	1.27	14.06	0.12	100.22	7	105.05	5
Index	2.15	13.75	0.18	100.00	7	100.00	5

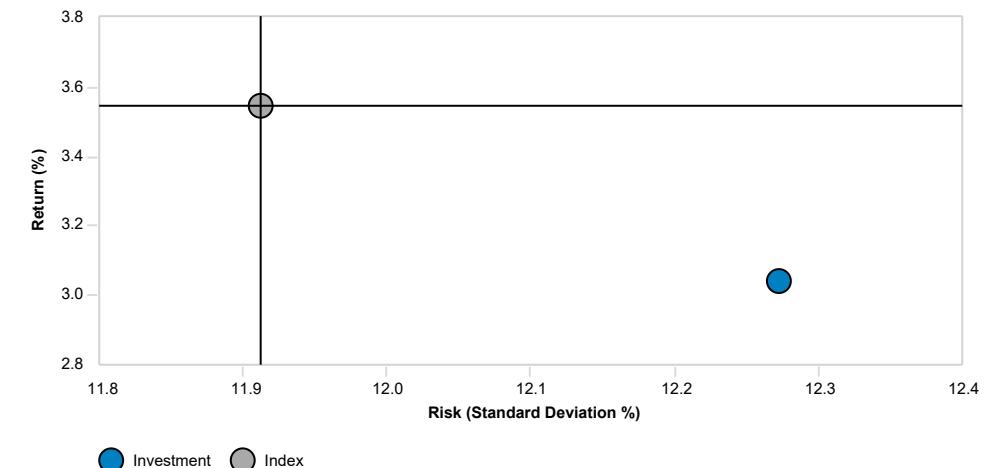
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	3.04	12.27	0.21	101.21	13	104.82	7
Index	3.54	11.91	0.26	100.00	13	100.00	7

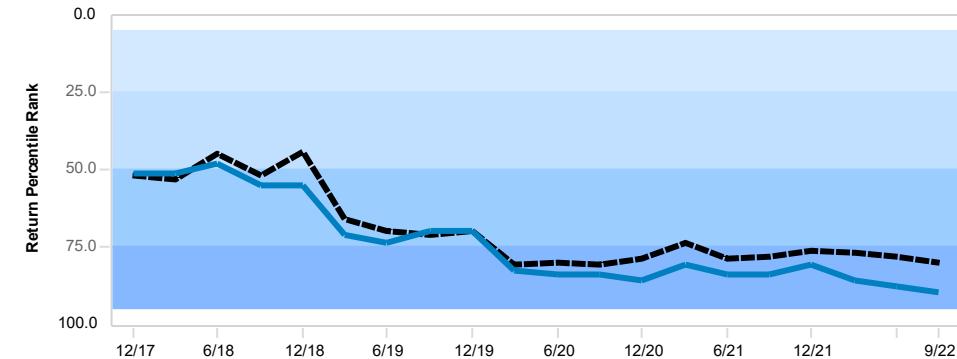
Risk and Return 3 Years



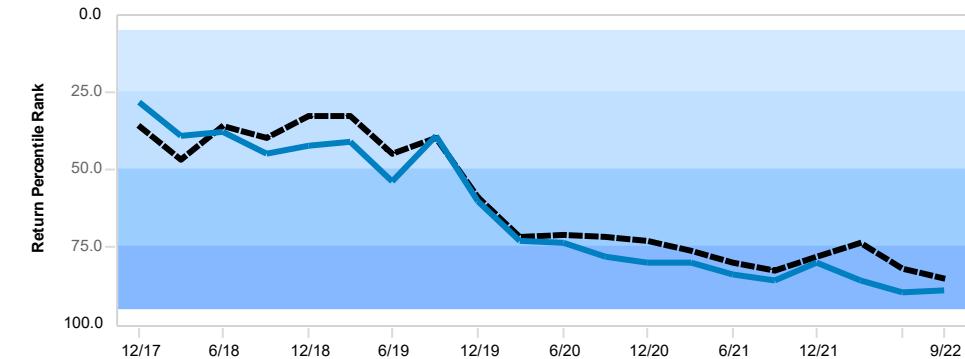
Risk and Return 5 Years



3 Year Rolling Percentile Rank All Public Plans-Total Fund



5 Year Rolling Percentile Rank All Public Plans-Total Fund



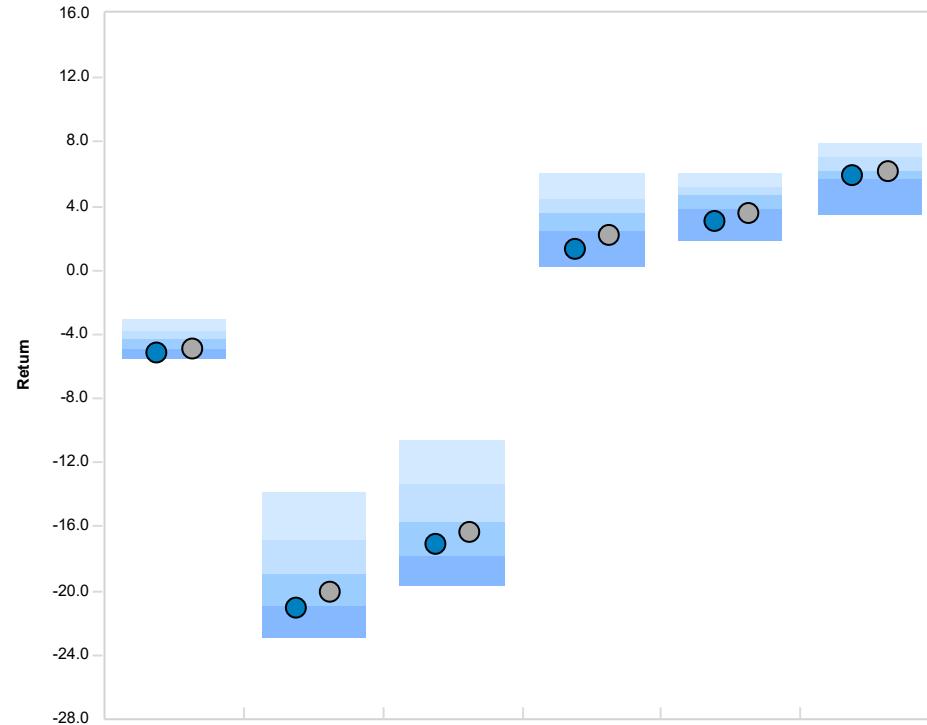
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	0 (0%)	1 (5%)	8 (40%)	11 (55%)
Index	20	0 (0%)	2 (10%)	8 (40%)	10 (50%)

	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	0 (0%)	7 (35%)	4 (20%)	9 (45%)
Index	20	0 (0%)	8 (40%)	6 (30%)	6 (30%)

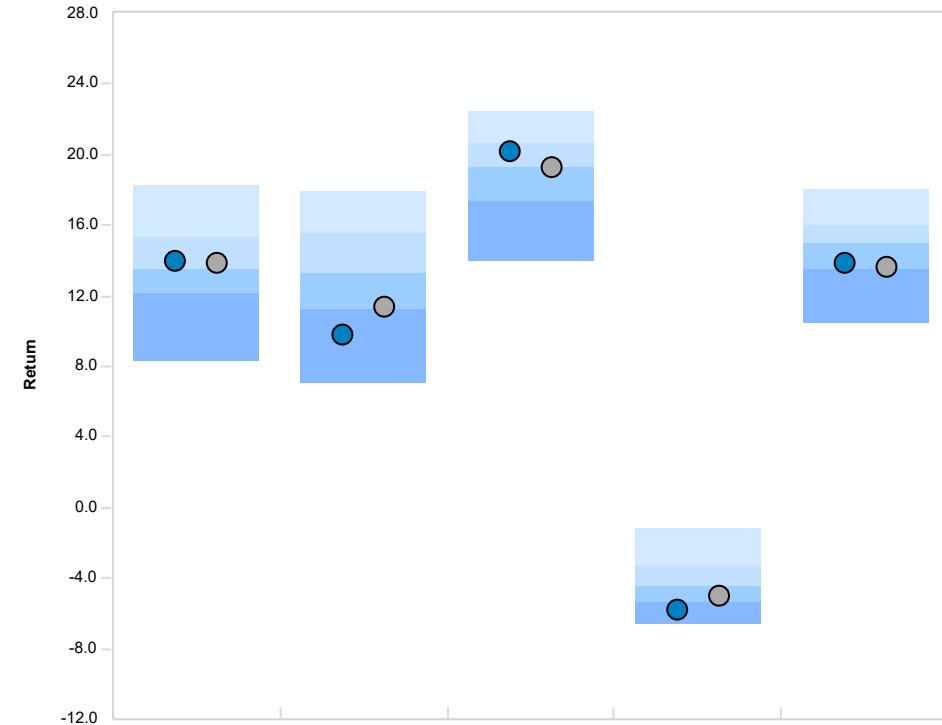
Does not include Non-Measured Assets (NMA).



Plan Sponsor Peer Group Analysis vs. All Public Plans-Total Fund



Plan Sponsor Peer Group Analysis vs. All Public Plans-Total Fund



	QTR	YTD	1 YR	3 YR	5 YR	10 YR
● Investment	-5.15 (84)	-20.99 (79)	-17.03 (69)	1.27 (90)	3.04 (90)	5.93 (66)
○ Index	-4.93 (77)	-20.10 (68)	-16.37 (60)	2.15 (81)	3.56 (86)	6.17 (50)
Median	-4.28	-18.96	-15.69	3.53	4.66	6.15

	2021	2020	2019	2018	2017
● Investment	14.00 (43)	9.84 (86)	20.21 (36)	-5.76 (86)	13.91 (68)
○ Index	13.87 (47)	11.44 (73)	19.29 (51)	-4.94 (64)	13.67 (74)
Median	13.57	13.28	19.35	-4.44	14.96

Financial Reconciliation Since Inception Ending September 30, 2022

	Market Value 04/01/2001	Net Flows	Return On Investment	Market Value 09/30/2022
Investment	59,528,253	-20,400,163	175,606,528	214,734,618

Comparative Performance

	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022	1 Qtr Ending Dec-2021	1 Qtr Ending Sep-2021	1 Qtr Ending Jun-2021	1 Qtr Ending Mar-2021
Investment	-11.85	-5.51	5.02	-0.74	4.84	4.32
Index	-11.37	-5.06	4.75	-0.48	4.86	4.12

Does not include Non-Measured Assets (NMA).



Strategy Review
Vanguard Instl Indx;Inst (VINIX) | S&P 500 Index
As of September 30, 2022

Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	8.14	20.02	0.46	99.96	8	100.04	4
Index	8.16	20.02	0.46	100.00	8	100.00	4

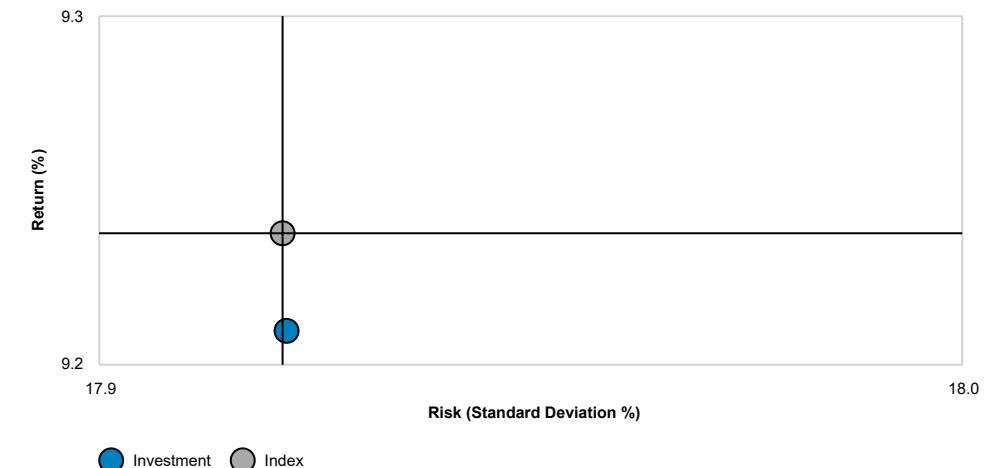
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	9.21	17.92	0.52	99.95	14	100.05	6
Index	9.24	17.92	0.52	100.00	14	100.00	6

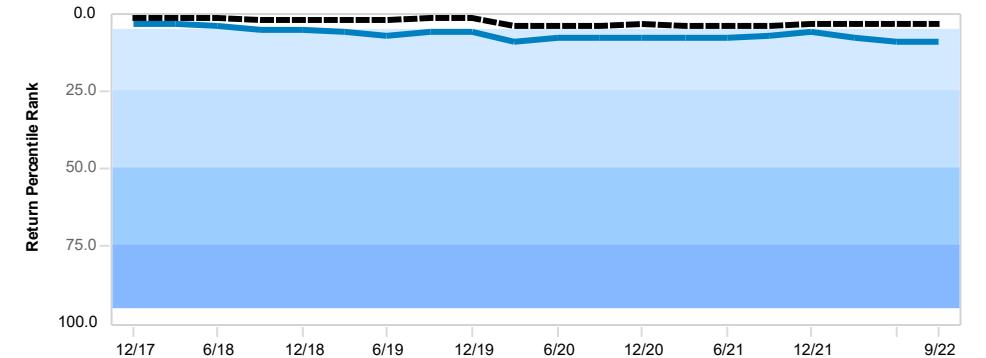
Risk and Return 3 Years



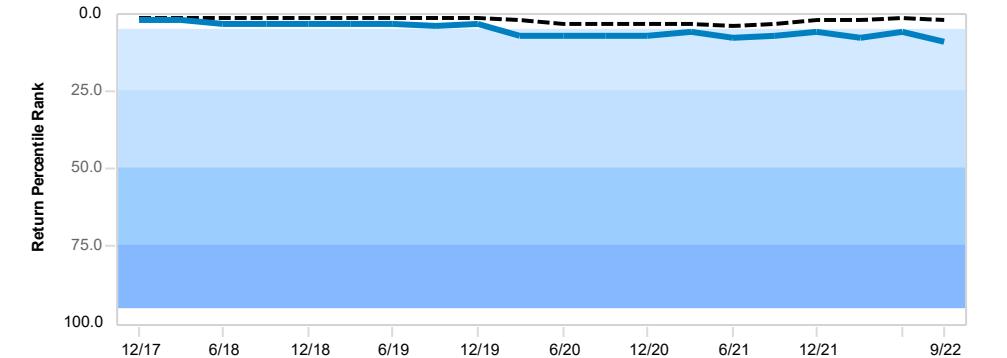
Risk and Return 5 Years



3 Year Rolling Percentile Rank IM S&P 500 Index (MF)



5 Year Rolling Percentile Rank IM S&P 500 Index (MF)



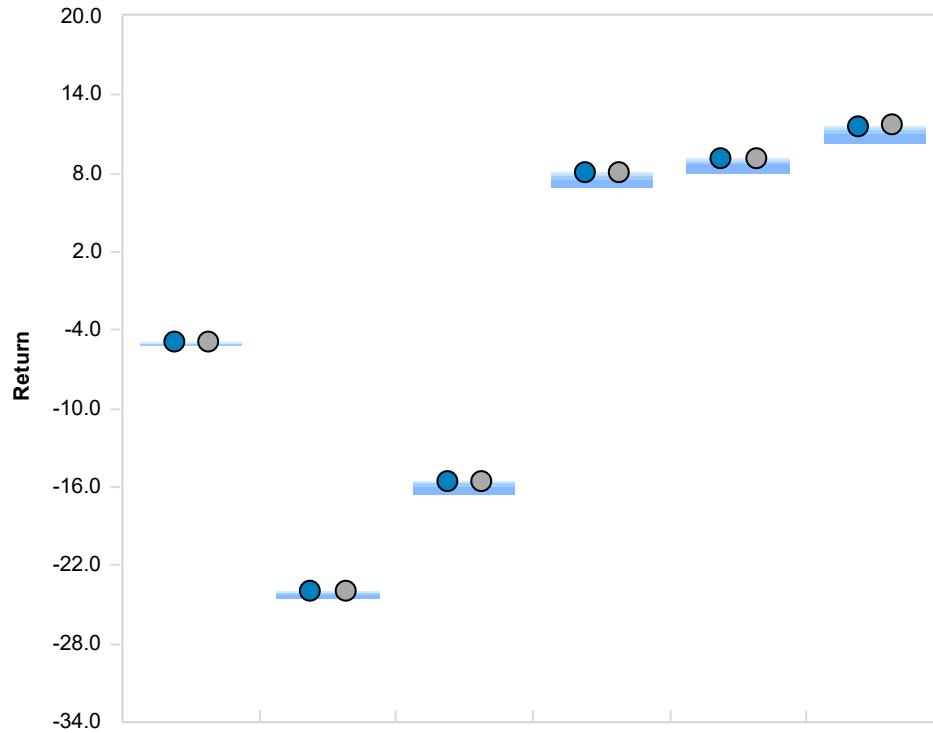
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	20 (100%)	0 (0%)	0 (0%)	0 (0%)
Index	20	20 (100%)	0 (0%)	0 (0%)	0 (0%)

	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	20 (100%)	0 (0%)	0 (0%)	0 (0%)
Index	20	20 (100%)	0 (0%)	0 (0%)	0 (0%)

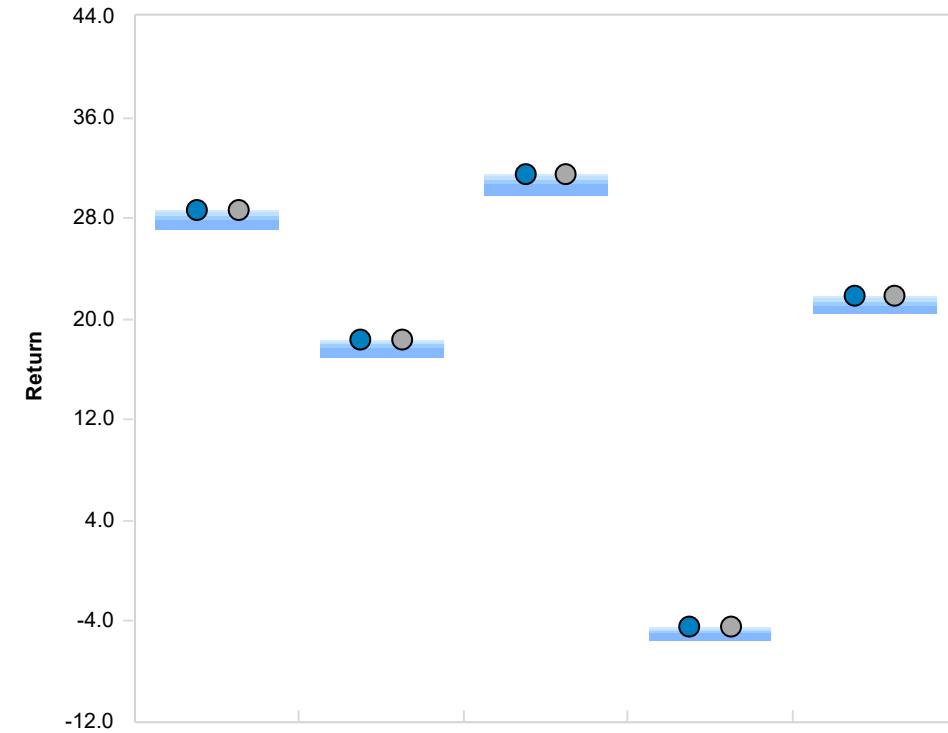
Inception date for VINIX is 12/2020. Manager returns for VINIX have been used for this report.



Peer Group Analysis - IM S&P 500 Index (MF)



Peer Group Analysis - IM S&P 500 Index (MF)



	QTR	YTD	1 YR	3 YR	5 YR	10 YR
Investment	-4.89 (16)	-23.89 (13)	-15.50 (13)	8.14 (9)	9.21 (9)	11.67 (3)
Index	-4.88 (5)	-23.87 (3)	-15.47 (1)	8.16 (3)	9.24 (2)	11.70 (1)
Median	-4.94	-24.04	-15.73	7.84	8.91	11.24

	2021	2020	2019	2018	2017
Investment	28.67 (7)	18.39 (12)	31.46 (5)	-4.42 (15)	21.79 (7)
Index	28.71 (1)	18.40 (9)	31.49 (3)	-4.38 (7)	21.83 (1)
Median	28.25	18.05	31.06	-4.66	21.37

Financial Reconciliation Since Inception Ending September 30, 2022

No data found.

Comparative Performance

	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022	1 Qtr Ending Dec-2021	1 Qtr Ending Sep-2021	1 Qtr Ending Jun-2021	1 Qtr Ending Mar-2021
Investment	-16.11 (14)	-4.60 (9)	11.02 (13)	0.57 (10)	8.54 (12)	6.18 (9)
Index	-16.10 (8)	-4.60 (6)	11.03 (3)	0.58 (1)	8.55 (3)	6.17 (10)
Median	-16.17	-4.68	10.94	0.51	8.46	6.08

Inception date for VINIX is 12/2020. Manager returns for VINIX have been used for this report.



Fund Information

Fund Name :	Vanguard Institutional Index Fund: Vanguard Institutional Index Fund; Institutional Shares	Portfolio Assets :	\$257,195 Million
Fund Family :	Vanguard	Portfolio Manager :	Butler/Louie
Ticker :	VINIX	PM Tenure :	2000--2017
Inception Date :	07/31/1990	Fund Style :	IM S&P 500 Index (MF)
Fund Assets :	\$106,028 Million	Style Benchmark :	S&P 500 Index
Portfolio Turnover :	3%		

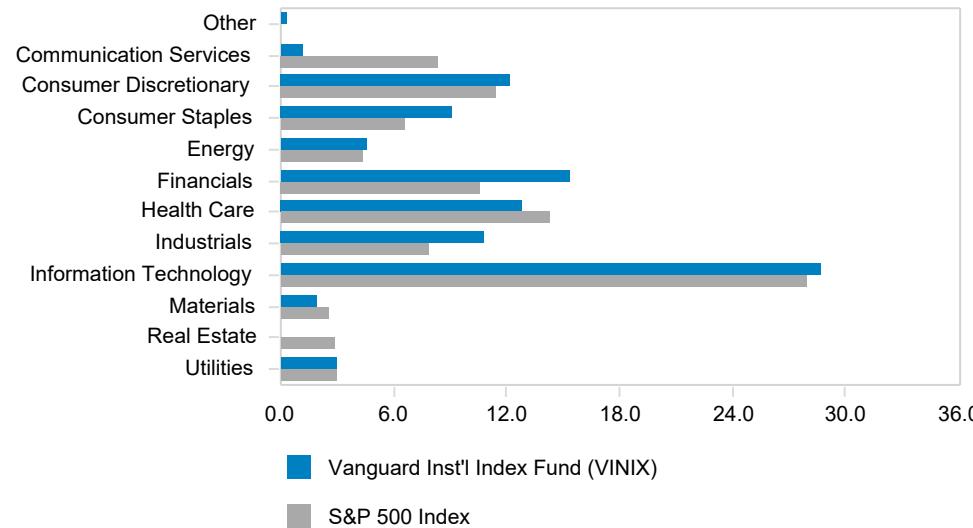
Portfolio Characteristics As of 07/31/2022

	Portfolio	Benchmark
Total Securities	505	503
Avg. Market Cap	531,002,638,959	560,612,928,840
Price/Earnings (P/E)	28.16	11.93
Price/Book (P/B)	9.07	4.08
Dividend Yield	1.89	1.58
Annual EPS	49.98	14.49
5 Yr EPS	19.16	18.74
3 Yr EPS Growth	19.43	N/A
Beta	N/A	1.00

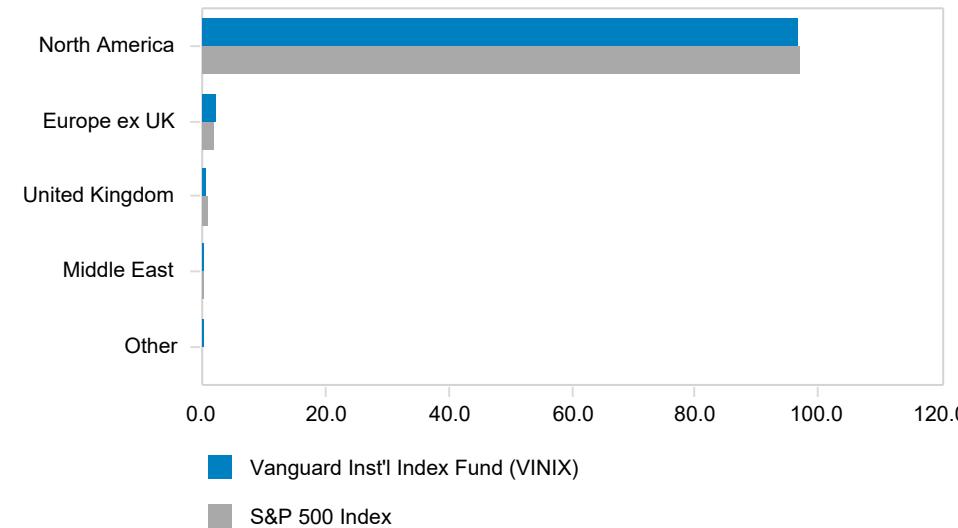
Top Ten Securities As of 07/31/2022

Apple Inc ORD	7.2 %
Microsoft Corp ORD	6.0 %
Amazon.com Inc ORD	3.4 %
Tesla Inc ORD	2.2 %
Alphabet Inc Class A ORD	2.0 %
Alphabet Inc Class C ORD	1.8 %
Berkshire Hathaway Inc ORD	1.6 %
UnitedHealth Group Inc ORD	1.5 %
Johnson & Johnson ORD	1.3 %
NVIDIA Corp ORD	1.3 %

Sector Weights As of 07/31/2022



Region Weights As of 07/31/2022



Statistics provided by Lipper. Most recent available data shown.



Strategy Review
Vanguard Growth Index (VIGIX) | Vanguard Growth Index Hybrid
As of September 30, 2022

Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	9.51	23.58	0.48	99.92	8	100.00	4
Index	9.54	23.60	0.48	100.00	8	100.00	4

Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	10.99	20.71	0.55	99.93	15	100.00	5
Index	11.01	20.72	0.55	100.00	15	100.00	5

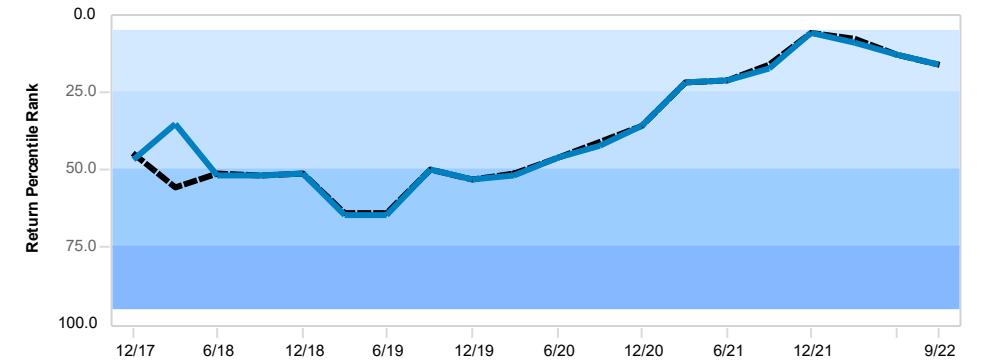
Risk and Return 3 Years



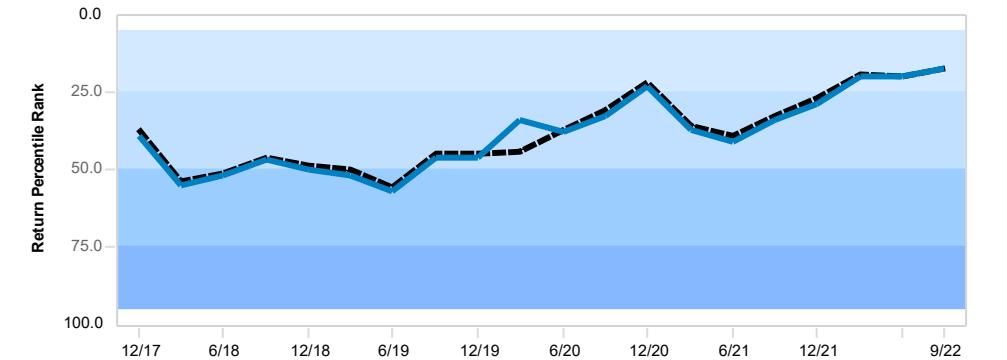
Risk and Return 5 Years



3 Year Rolling Percentile Rank IM U.S. Large Cap Growth Equity (MF)



5 Year Rolling Percentile Rank IM U.S. Large Cap Growth Equity (MF)

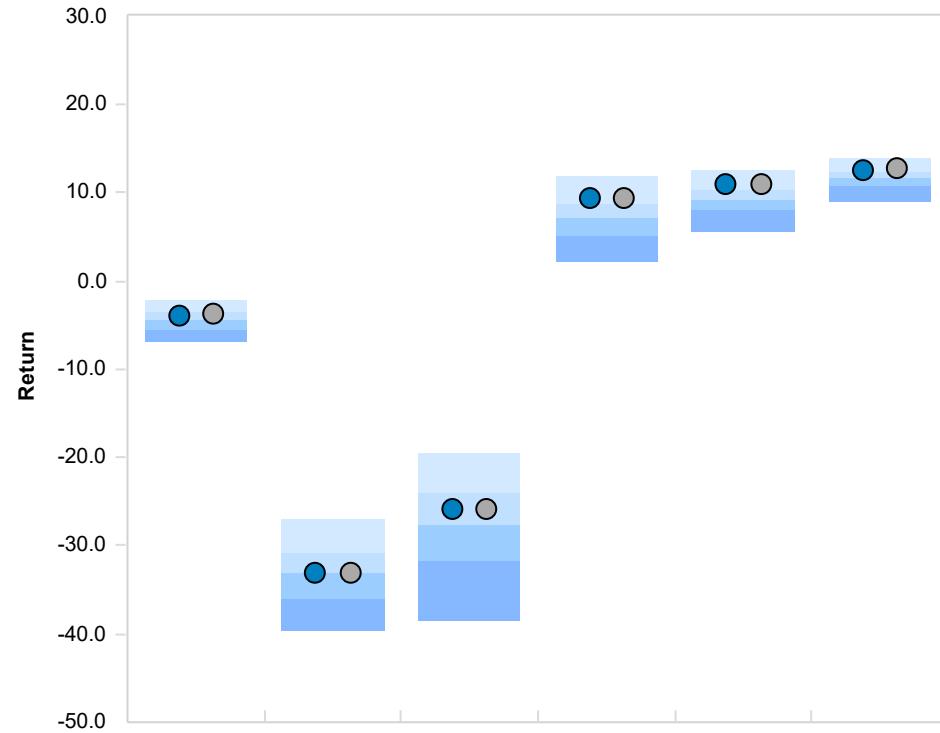


	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	7 (35%)	6 (30%)	7 (35%)	0 (0%)
Index	20	7 (35%)	5 (25%)	8 (40%)	0 (0%)

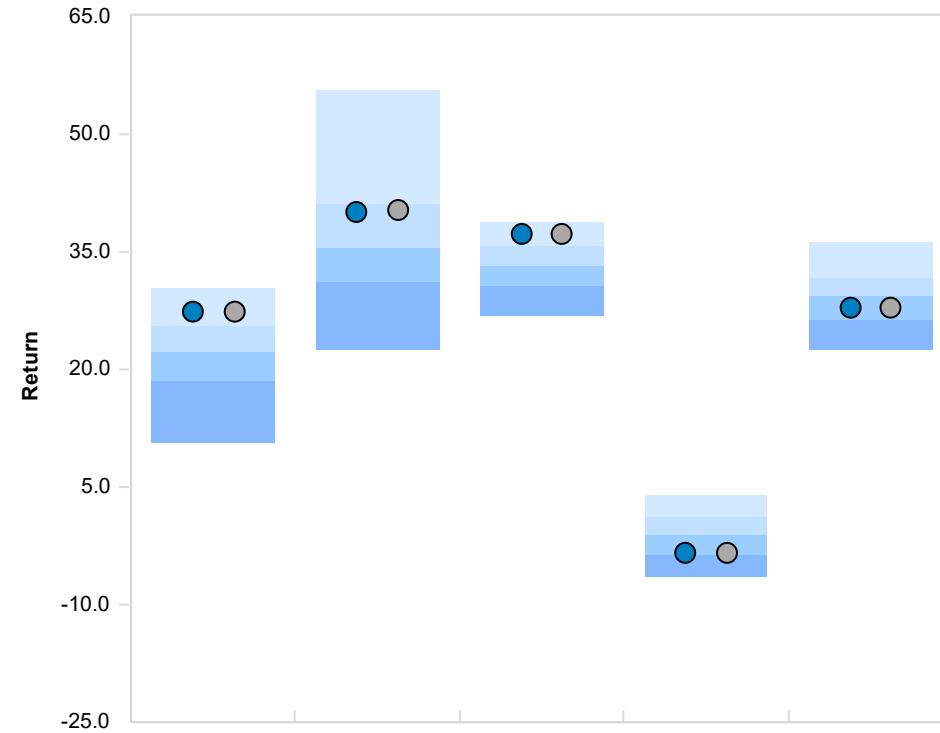
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	4 (20%)	12 (60%)	4 (20%)	0 (0%)
Index	20	4 (20%)	13 (65%)	3 (15%)	0 (0%)



Peer Group Analysis - IM U.S. Large Cap Growth Equity (MF)



Peer Group Analysis - IM U.S. Large Cap Growth Equity (MF)



	QTR	YTD	1 YR	3 YR	5 YR	10 YR
Investment	-3.79 (31)	-33.04 (49)	-25.85 (38)	9.51 (16)	10.99 (17)	12.70 (19)
Index	-3.78 (31)	-33.03 (49)	-25.84 (38)	9.54 (16)	11.01 (17)	12.75 (18)
Median	-4.41	-33.10	-27.73	7.08	9.29	11.66

	2021	2020	2019	2018	2017
Investment	27.27 (20)	40.20 (28)	37.25 (12)	-3.32 (72)	27.82 (64)
Index	27.30 (19)	40.27 (28)	37.31 (11)	-3.34 (73)	27.86 (64)
Median	22.39	35.62	33.26	-1.22	29.28

Financial Reconciliation Since Inception Ending September 30, 2022

	Market Value 05/01/2010	Net Flows	Return On Investment	Market Value 09/30/2022
Investment	16,642,537	-27,644,975	20,771,486	9,769,048

Comparative Performance

	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022	1 Qtr Ending Dec-2021	1 Qtr Ending Sep-2021	1 Qtr Ending Jun-2021	1 Qtr Ending Mar-2021
Investment	-22.41	-10.29	10.73	1.38	11.70	1.49
Index	-22.42	-10.28	10.74	1.39	11.71	1.50



Fund Information

Fund Name :	Vanguard Index Funds: Vanguard Growth Index Fund; Institutional Class Shares	Portfolio Assets :	\$152,058 Million
Fund Family :	Vanguard	Portfolio Manager :	O'Reilly/Nejman
Ticker :	VIGIX	PM Tenure :	2000--2016
Inception Date :	05/14/1998	Fund Style :	IM U.S. Large Cap Growth Equity (MF)
Fund Assets :	\$21,701 Million	Style Benchmark :	CRSP U.S. Large Cap Growth TR Index
Portfolio Turnover :	8%		

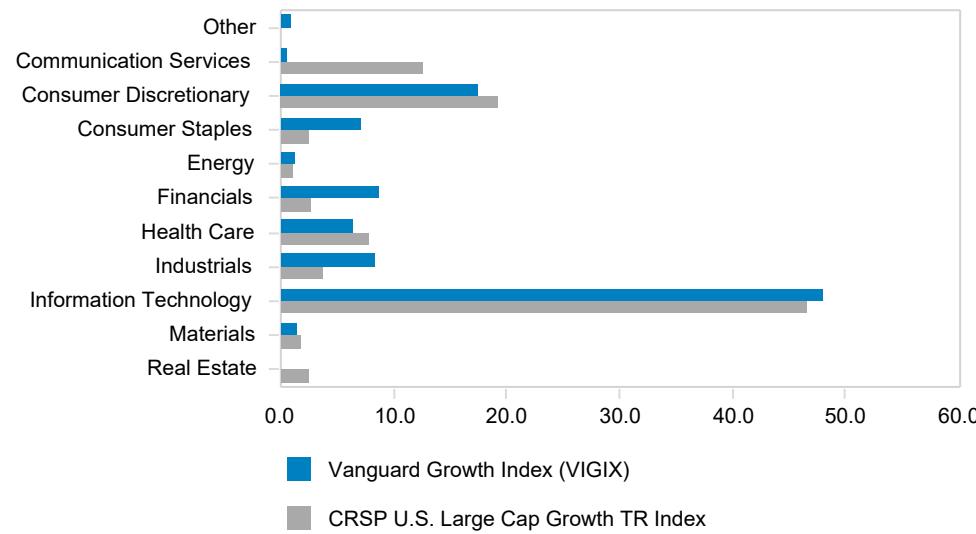
Portfolio Characteristics As of 07/31/2022

	Portfolio	Benchmark
Total Securities	262	260
Avg. Market Cap	843,602,029,581	888,573,643,959
Price/Earnings (P/E)	35.57	10.18
Price/Book (P/B)	13.13	8.14
Dividend Yield	1.02	0.63
Annual EPS	48.13	18.86
5 Yr EPS	26.21	23.40
3 Yr EPS Growth	23.36	N/A
Beta (5 Years, Monthly)	1.00	1.00

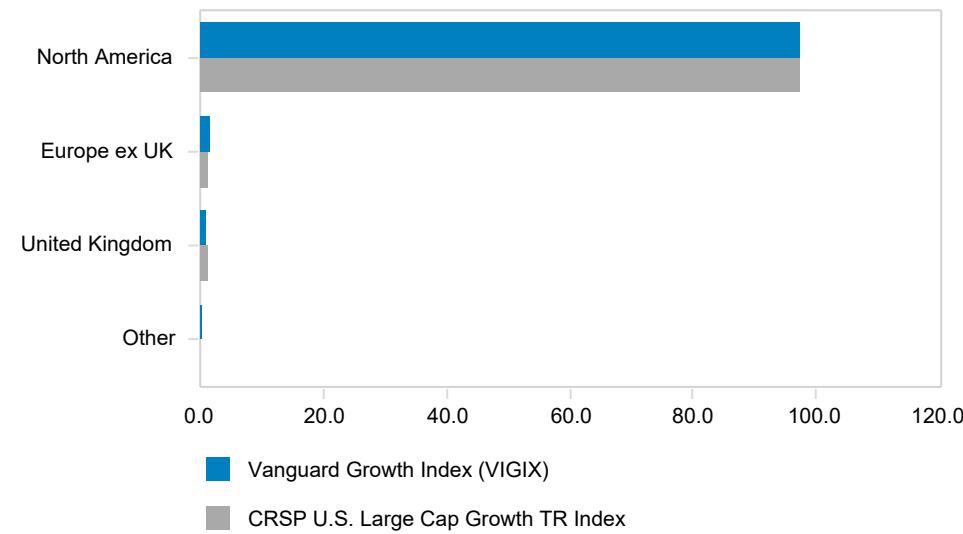
Top Ten Securities As of 07/31/2022

Apple Inc ORD	13.3 %
Microsoft Corp ORD	11.2 %
Amazon.com Inc ORD	6.2 %
Tesla Inc ORD	4.2 %
Alphabet Inc Class A ORD	3.7 %
Alphabet Inc Class C ORD	3.3 %
NVIDIA Corp ORD	2.3 %
Meta Platforms Inc ORD	1.9 %
Visa Inc ORD	1.8 %
Home Depot Inc ORD	1.7 %

Sector Weights As of 07/31/2022



Region Weights As of 07/31/2022



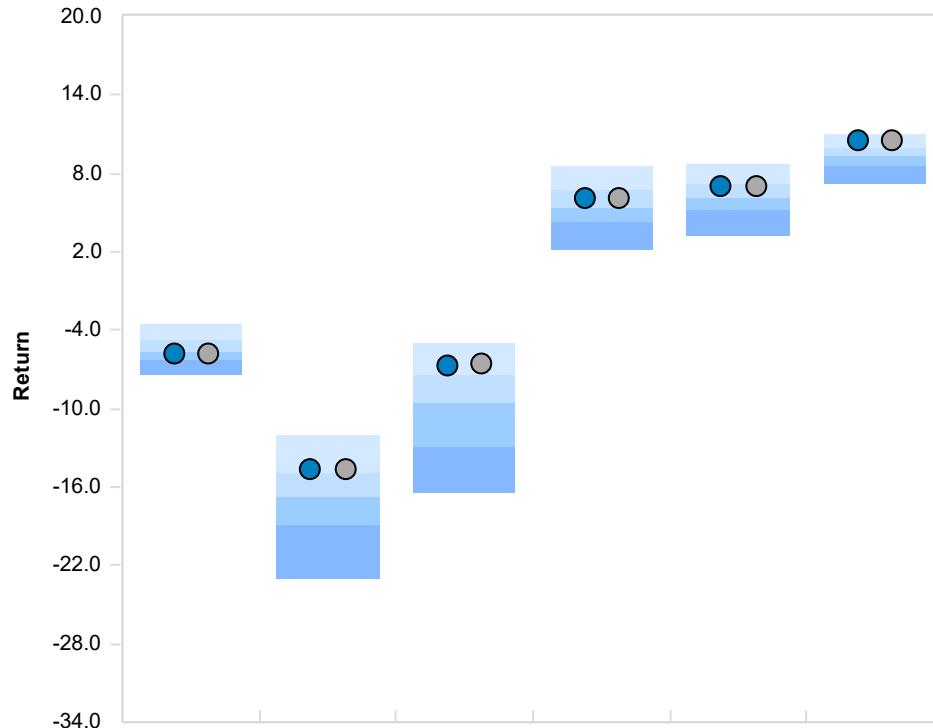
Statistics provided by Lipper. Most recent available data shown.



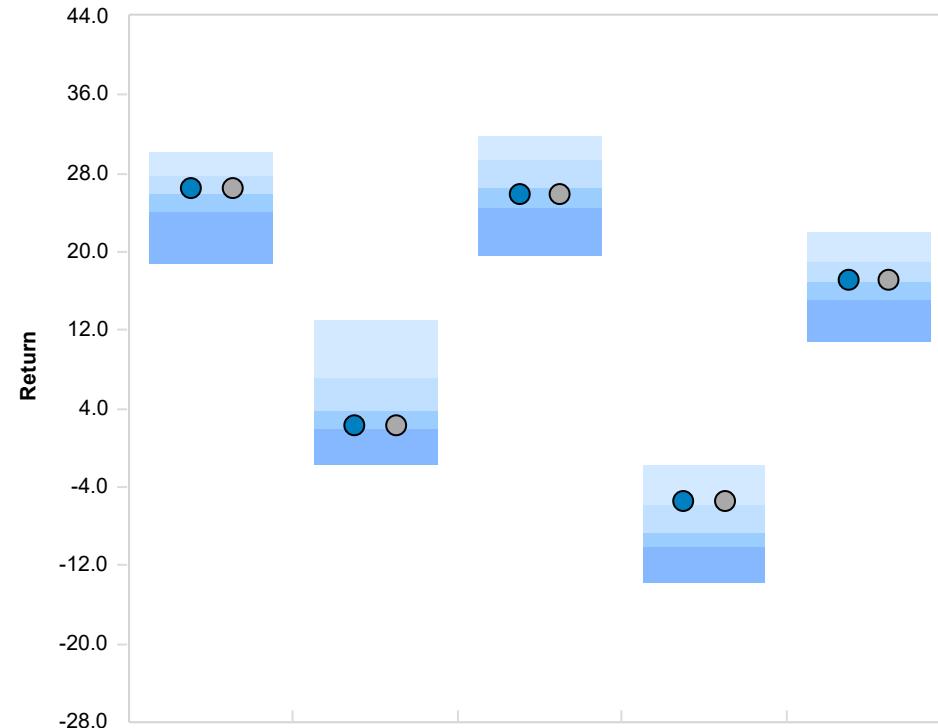
Strategy Review
Vanguard Value Index (VIVIX) | Vanguard Value Index Hybrid
As of September 30, 2022

Historical Statistics 3 Years								Historical Statistics 5 Years							
	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters		Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	6.16	18.86	0.38	99.97	8	99.97	4	Index	7.07	17.04	0.42	99.98	14	100.04	6
Index	6.17	18.87	0.38	100.00	8	100.00	4	Investment	7.08	17.04	0.42	100.00	14	100.00	6
Risk and Return 3 Years								Risk and Return 5 Years							
Return (%)								Return (%)							
6.2								7.1							
6.1								7.0							
18.7								17.0							
18.8								17.1							
18.9															

Peer Group Analysis - IM U.S. Large Cap Value Equity (MF)



Peer Group Analysis - IM U.S. Large Cap Value Equity (MF)



	QTR	YTD	1 YR	3 YR	5 YR	10 YR
Investment	-5.74 (55)	-14.58 (22)	-6.63 (16)	6.16 (32)	7.07 (28)	10.49 (16)
Index	-5.72 (54)	-14.56 (22)	-6.59 (15)	6.17 (31)	7.08 (28)	10.53 (14)
Median	-5.57	-16.74	-9.58	5.34	6.09	9.29

	2021	2020	2019	2018	2017
Investment	26.48 (44)	2.30 (70)	25.83 (59)	-5.42 (22)	17.14 (47)
Index	26.51 (43)	2.26 (71)	25.85 (59)	-5.40 (22)	17.16 (46)
Median	25.96	3.82	26.50	-8.61	16.95

Financial Reconciliation Since Inception Ending September 30, 2022

	Market Value 07/01/2009	Net Flows	Return On Investment	Market Value 09/30/2022
Investment	1,021,656	-963,564	12,316,925	12,375,018

Comparative Performance

	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022	1 Qtr Ending Dec-2021	1 Qtr Ending Sep-2021	1 Qtr Ending Jun-2021	1 Qtr Ending Mar-2021
Investment	-10.27	0.99	9.31	-0.94	5.24	10.99
Index	-10.27	1.00	9.33	-0.94	5.25	10.99



Fund Information

Fund Name : Vanguard Index Funds: Vanguard Value Index Fund; Institutional Shares
 Fund Family : Vanguard
 Ticker : VIVIX
 Inception Date : 07/02/1998
 Fund Assets : \$15,379 Million
 Portfolio Turnover : 9%

Portfolio Assets : \$146,180 Million
 Portfolio Manager : O'Reilly/Nejman
 PM Tenure : 1998--2016
 Fund Style : IM U.S. Large Cap Value Equity (MF)
 Style Benchmark : CRSP U.S. Large Cap Value TR Index

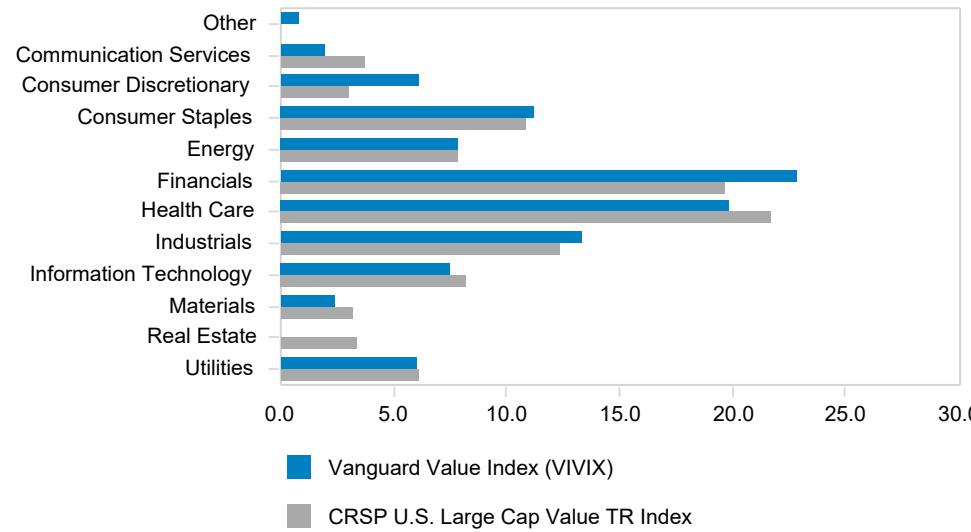
Portfolio Characteristics As of 07/31/2022

	Portfolio	Benchmark
Total Securities	346	344
Avg. Market Cap	158,554,402,274	167,872,213,283
Price/Earnings (P/E)	20.98	15.18
Price/Book (P/B)	4.97	2.71
Dividend Yield	2.51	2.56
Annual EPS	49.85	545.81
5 Yr EPS	12.15	13.82
3 Yr EPS Growth	15.94	N/A
Beta (5 Years, Monthly)	1.00	1.00

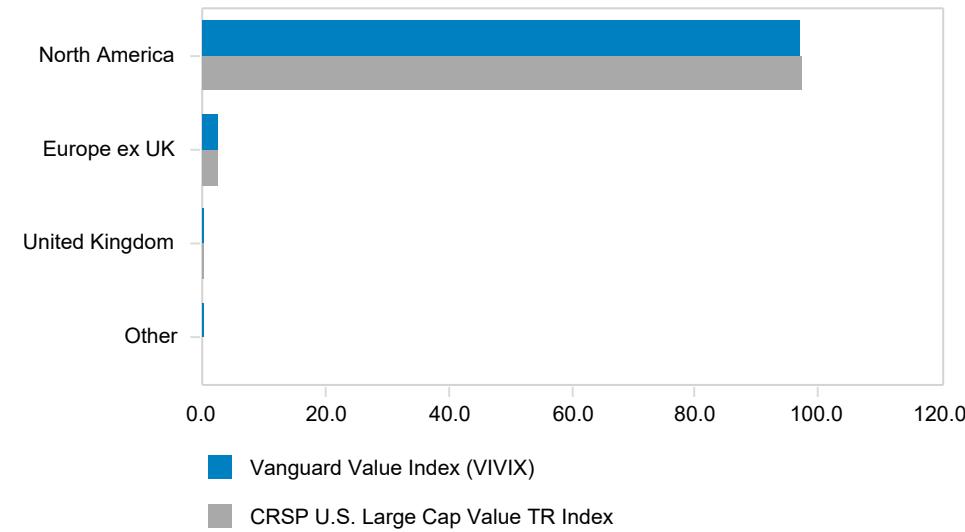
Top Ten Securities As of 07/31/2022

Berkshire Hathaway Inc ORD	3.1 %
UnitedHealth Group Inc ORD	3.0 %
Johnson & Johnson ORD	2.7 %
Exxon Mobil Corp ORD	2.4 %
JPMorgan Chase & Co ORD	2.0 %
Procter & Gamble Co ORD	2.0 %
Chevron Corp ORD	1.7 %
Pfizer Inc ORD	1.7 %
Eli Lilly and Co ORD	1.7 %
AbbVie Inc ORD	1.5 %

Sector Weights As of 07/31/2022



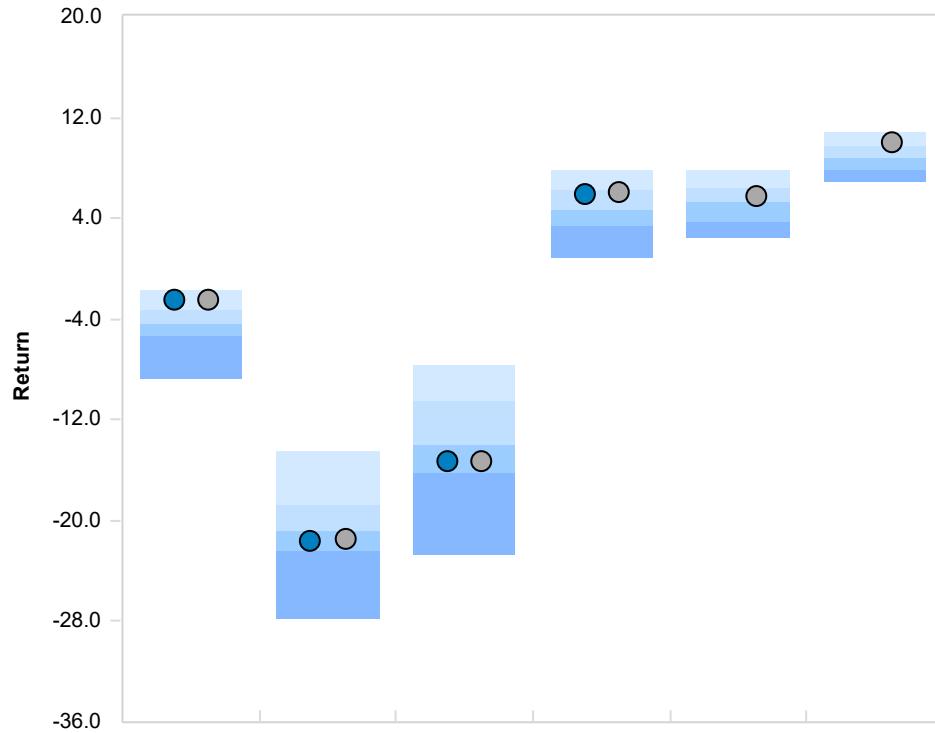
Region Weights As of 07/31/2022



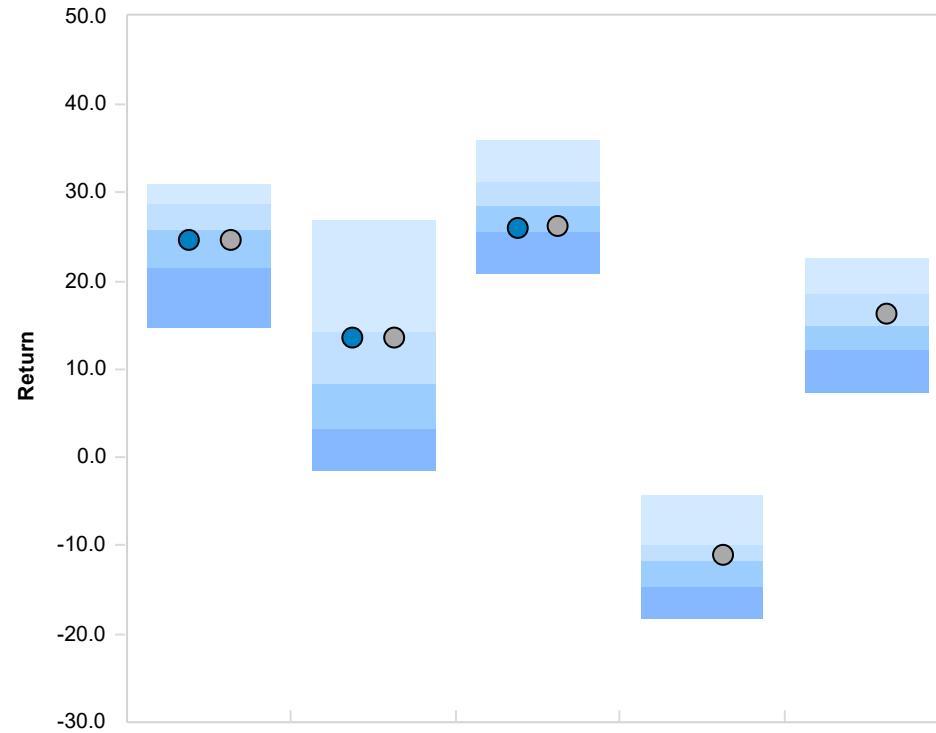
Statistics provided by Lipper. Most recent available data shown.



Peer Group Analysis - IM U.S. Mid Cap Core Equity (MF)



Peer Group Analysis - IM U.S. Mid Cap Core Equity (MF)



	QTR	YTD	1 YR	3 YR	5 YR	10 YR
Investment	-2.46 (14)	-21.55 (67)	-15.30 (67)	5.95 (30)	N/A	N/A
Index	-2.46 (14)	-21.52 (66)	-15.25 (66)	6.01 (29)	5.82 (37)	10.04 (20)
Median	-4.32	-20.76	-14.07	4.68	5.27	8.80

	2021	2020	2019	2018	2017
Investment	24.67 (59)	13.58 (26)	26.13 (72)	N/A	N/A
Index	24.76 (59)	13.66 (26)	26.20 (72)	-11.08 (40)	16.24 (38)
Median	25.73	8.44	28.59	-11.64	14.94

Financial Reconciliation Since Inception Ending September 30, 2022

	Market Value 12/01/2018	Net Flows	Return On Investment	Market Value 09/30/2022
Investment	21,384,601	-4,500,000	5,853,960	22,738,561

Comparative Performance

	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022	1 Qtr Ending Dec-2021	1 Qtr Ending Sep-2021	1 Qtr Ending Jun-2021	1 Qtr Ending Mar-2021
Investment	-15.43 (77)	-4.89 (59)	7.97 (59)	-1.78 (76)	3.62 (85)	13.45 (24)
Index	-15.42 (77)	-4.88 (58)	8.00 (58)	-1.76 (76)	3.64 (84)	13.47 (23)
Median	-13.63	-4.08	8.20	-0.87	5.14	10.47



Fund Information

Fund Name :	Vanguard Admiral Funds: Vanguard S&P Mid-Cap 400 Index Fund; Institutional Shares	Portfolio Assets :	\$2,775 Million
Fund Family :	Vanguard	Portfolio Manager :	Coleman/Khan
Ticker :	VSPMX	PM Tenure :	2015-2017
Inception Date :	12/15/2010	Fund Style :	IM S&P Midcap 400 Index Funds (MF)
Fund Assets :	\$1,368 Million	Style Benchmark :	S&P MidCap 400 Index
Portfolio Turnover :	16%		

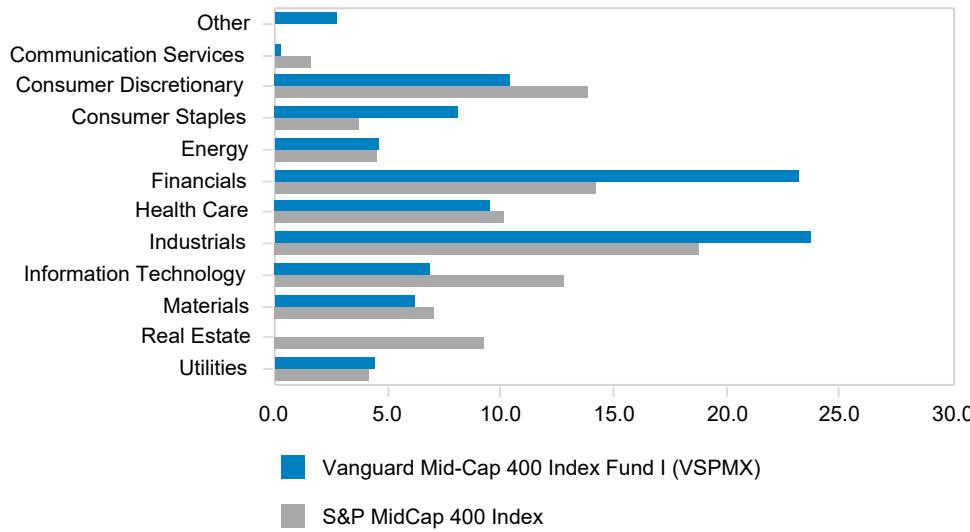
Portfolio Characteristics As of 07/31/2022

	Portfolio	Benchmark
Total Securities	404	401
Avg. Market Cap	6,922,658,228	6,910,984,660
Price/Earnings (P/E)	23.39	13.68
Price/Book (P/B)	4.24	2.56
Dividend Yield	2.18	1.58
Annual EPS	50.31	4.97
5 Yr EPS	17.27	21.29
3 Yr EPS Growth	18.53	N/A
Beta (3 Years, Monthly)	1.00	1.00

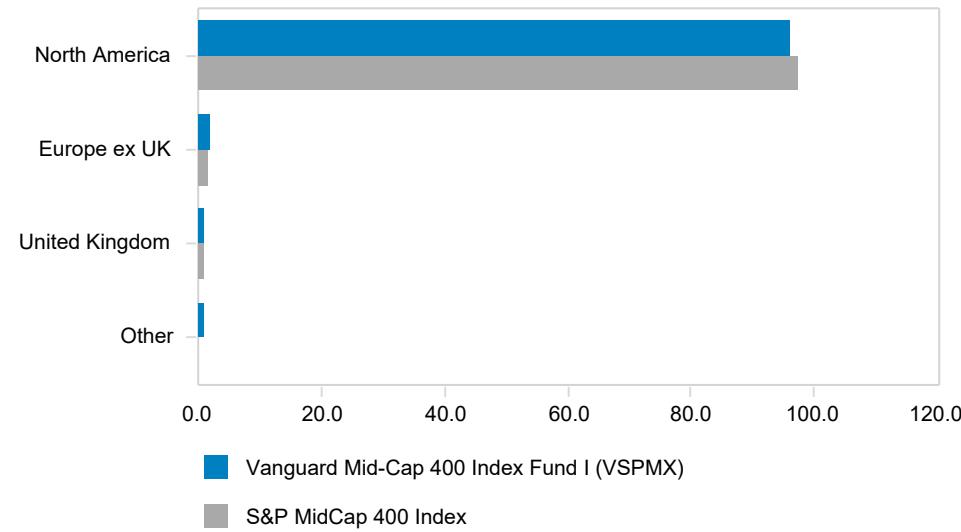
Top Ten Securities As of 07/31/2022

Vanguard Market Liquidity Fund	1.1 %
Targa Resources Corp ORD	0.7 %
Carlisle Companies Inc ORD	0.7 %
Steel Dynamics Inc ORD	0.6 %
EQT Corp ORD	0.6 %
Fair Isaac Corp ORD	0.6 %
First Horizon Corp ORD	0.6 %
Essential Utilities Inc ORD	0.6 %
Service Corporation International	0.6 %
Reliance Steel & Aluminum Co ORD	0.5 %

Sector Weights As of 07/31/2022



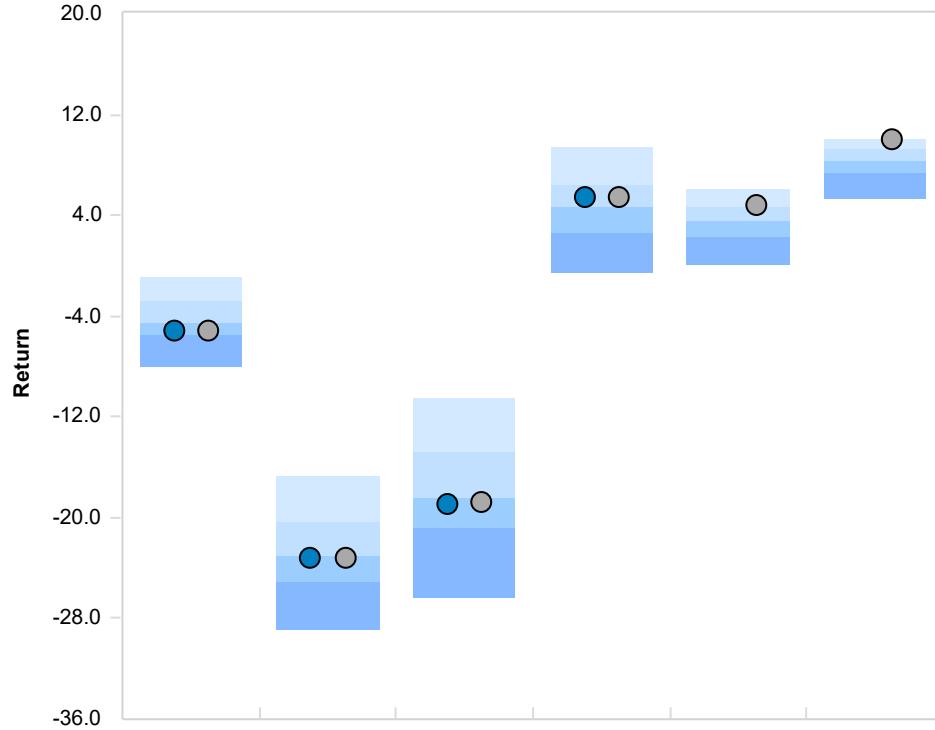
Region Weights As of 07/31/2022



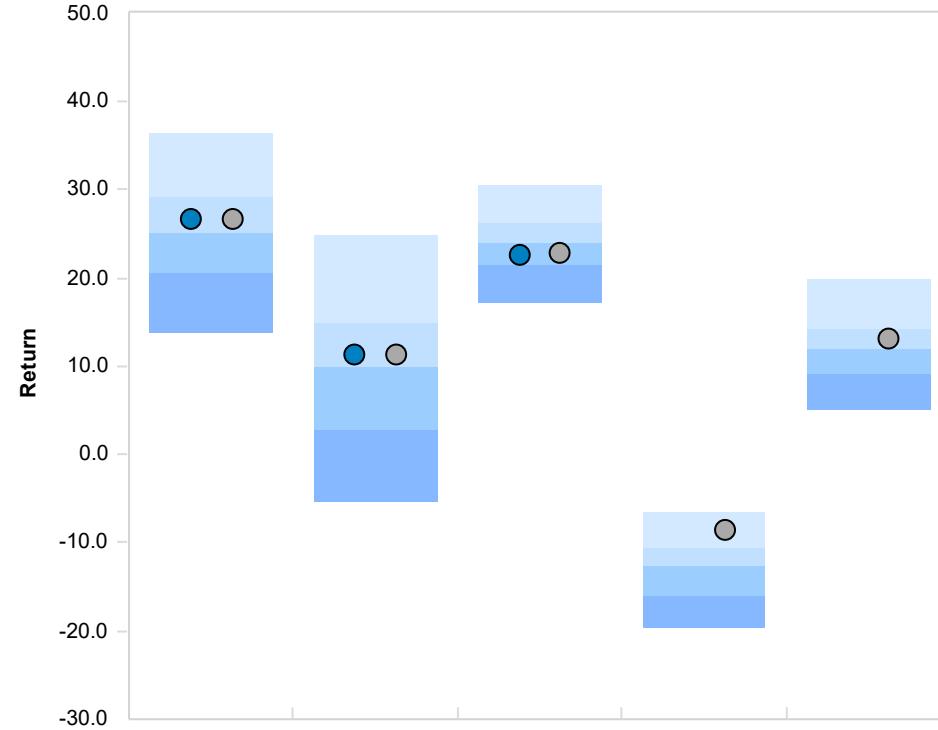
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Peer Group Analysis - IM U.S. Small Cap Core Equity (MF)



Peer Group Analysis - IM U.S. Small Cap Core Equity (MF)



	QTR	YTD	1 YR	3 YR	5 YR	10 YR
Investment	-5.22 (69)	-23.22 (54)	-18.91 (54)	5.48 (36)	N/A	N/A
Index	-5.20 (68)	-23.16 (53)	-18.83 (53)	5.48 (36)	4.84 (23)	10.09 (6)
Median	-4.48	-23.02	-18.44	4.60	3.57	8.28

	2021	2020	2019	2018	2017
Investment	26.74 (37)	11.46 (40)	22.74 (62)	N/A	N/A
Index	26.82 (36)	11.29 (41)	22.78 (61)	-8.48 (9)	13.23 (38)
Median	25.12	9.89	23.94	-12.71	12.09

Financial Reconciliation Since Inception Ending September 30, 2022

	Market Value 12/01/2018	Net Flows	Return On Investment	Market Value 09/30/2022
Investment	10,695,104	-2,500,000	2,341,177	10,536,281

Comparative Performance

	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022	1 Qtr Ending Dec-2021	1 Qtr Ending Sep-2021	1 Qtr Ending Jun-2021	1 Qtr Ending Mar-2021
Investment	-14.14 (42)	-5.65 (51)	5.61 (57)	-2.86 (61)	4.49 (37)	18.24 (29)
Index	-14.11 (41)	-5.62 (50)	5.64 (56)	-2.84 (61)	4.51 (36)	18.24 (29)
Median	-14.56	-5.65	5.94	-2.38	4.05	15.68



Fund Information

Fund Name :	Vanguard Admiral Funds: Vanguard S&P Small-Cap 600 Index Fund; Institutional Shares	Portfolio Assets :	\$4,116 Million
Fund Family :	Vanguard	Portfolio Manager :	Coleman/Butler
Ticker :	VSMSX	PM Tenure :	2013-2015
Inception Date :	12/15/2010	Fund Style :	IM U.S. Small Cap Core Equity (MF)
Fund Assets :	\$2,089 Million	Style Benchmark :	S&P SmallCap 600 Index
Portfolio Turnover :	18%		

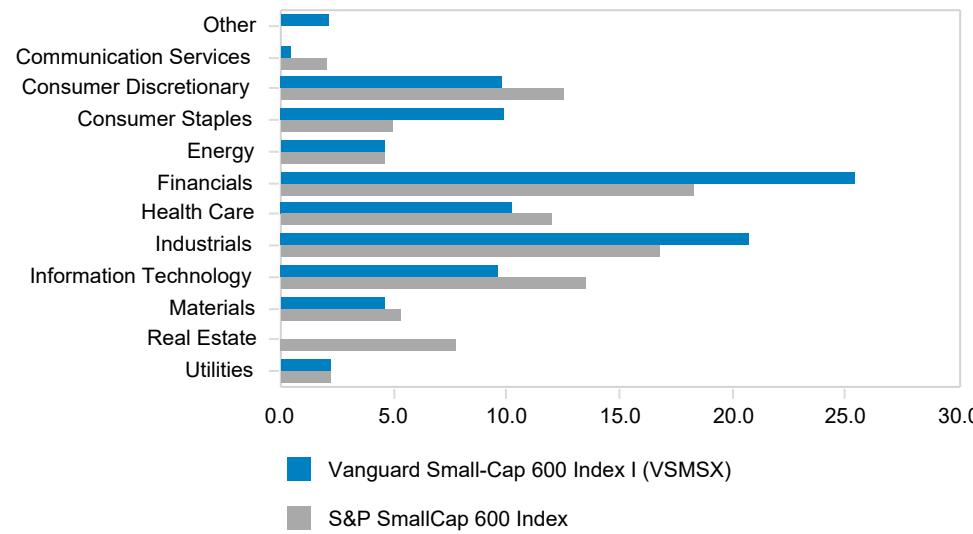
Portfolio Characteristics As of 07/31/2022

	Portfolio	Benchmark
Total Securities	606	601
Avg. Market Cap	2,398,718,594	2,409,988,812
Price/Earnings (P/E)	22.88	12.60
Price/Book (P/B)	3.15	2.16
Dividend Yield	2.49	1.50
Annual EPS	46.21	3.11
5 Yr EPS	13.86	16.47
3 Yr EPS Growth	14.86	N/A
Beta (3 Years, Monthly)	1.00	1.00

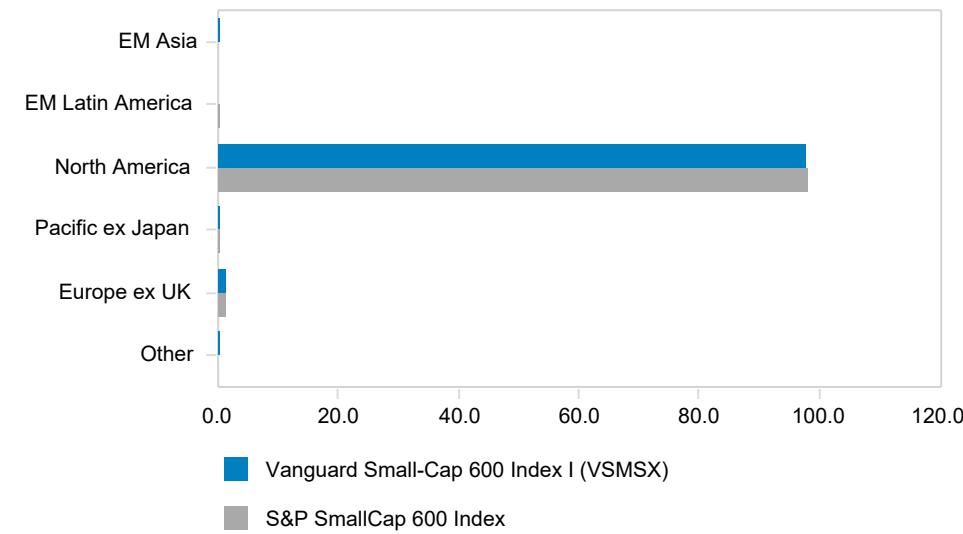
Top Ten Securities As of 07/31/2022

Agree Realty Corp ORD	0.6 %
Ufp Industries Inc ORD	0.6 %
Exservice Holdings Inc ORD	0.6 %
Lantheus Holdings Inc ORD	0.6 %
Exponent Inc ORD	0.6 %
Rogers Corp ORD	0.5 %
SM Energy Co ORD	0.5 %
AMN Healthcare Services Inc ORD	0.5 %
Helmerich and Payne Inc ORD	0.5 %
Balchem Corp ORD	0.5 %

Sector Weights As of 07/31/2022



Region Weights As of 07/31/2022



Statistics provided by Lipper. Most recent available data shown.



Strategy Review
Vanguard Developed Markets Index (VTMNX) | Vanguard Spliced Developed ex U.S. Index (Net)
As of September 30, 2022

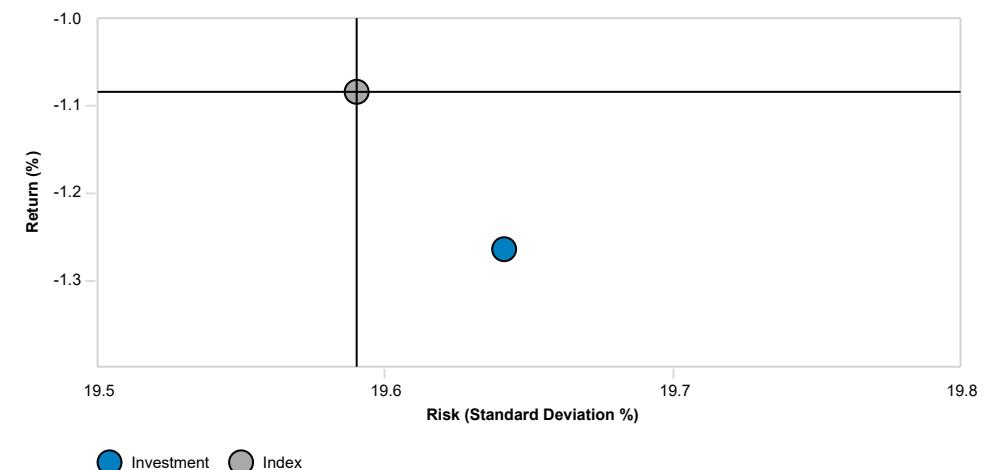
Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	-1.26	19.64	0.00	101.10	7	101.77	5
Index	-1.08	19.59	0.01	100.00	7	100.00	5

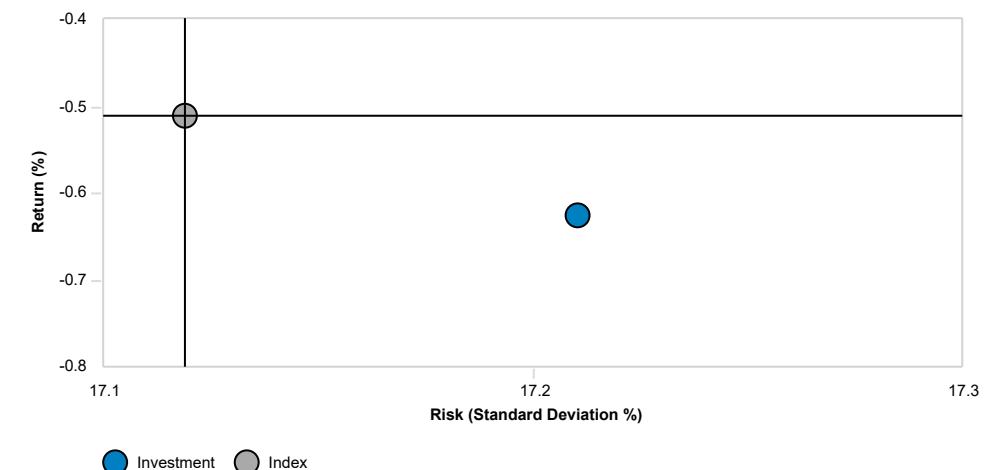
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	-0.62	17.21	-0.02	100.90	11	101.35	9
Index	-0.51	17.12	-0.01	100.00	11	100.00	9

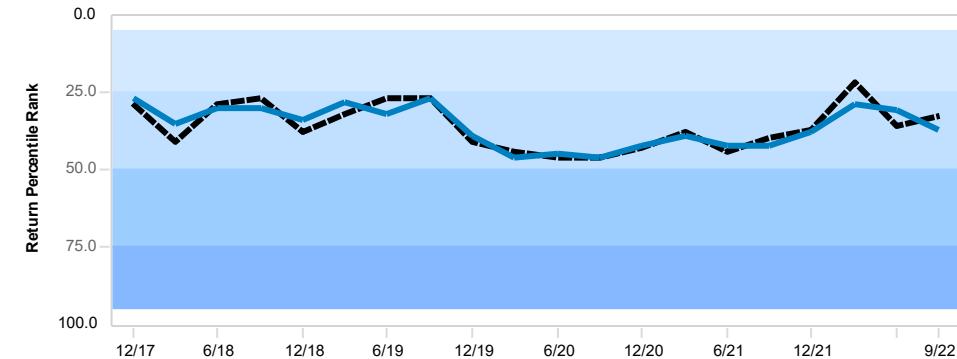
Risk and Return 3 Years



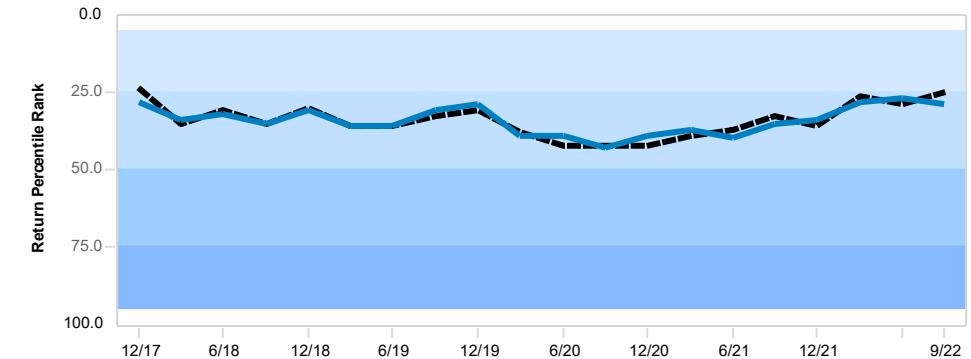
Risk and Return 5 Years



3 Year Rolling Percentile Rank IM International Multi-Cap Equity (MF)



5 Year Rolling Percentile Rank IM International Multi-Cap Equity (MF)

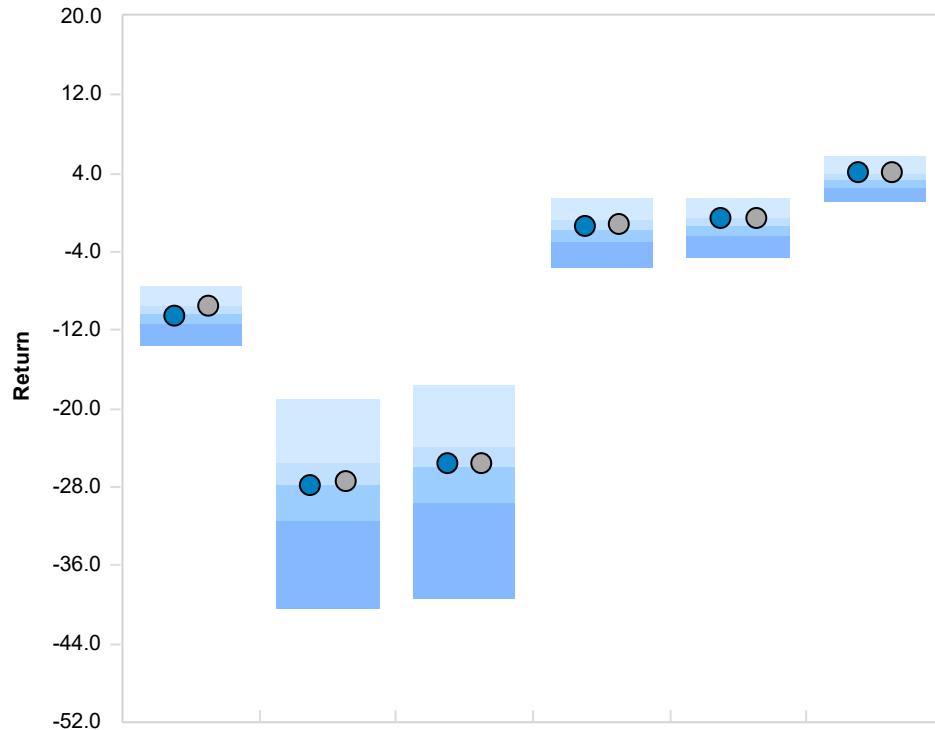


	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	0 (0%)	20 (100%)	0 (0%)	0 (0%)
Index	20	1 (5%)	19 (95%)	0 (0%)	0 (0%)

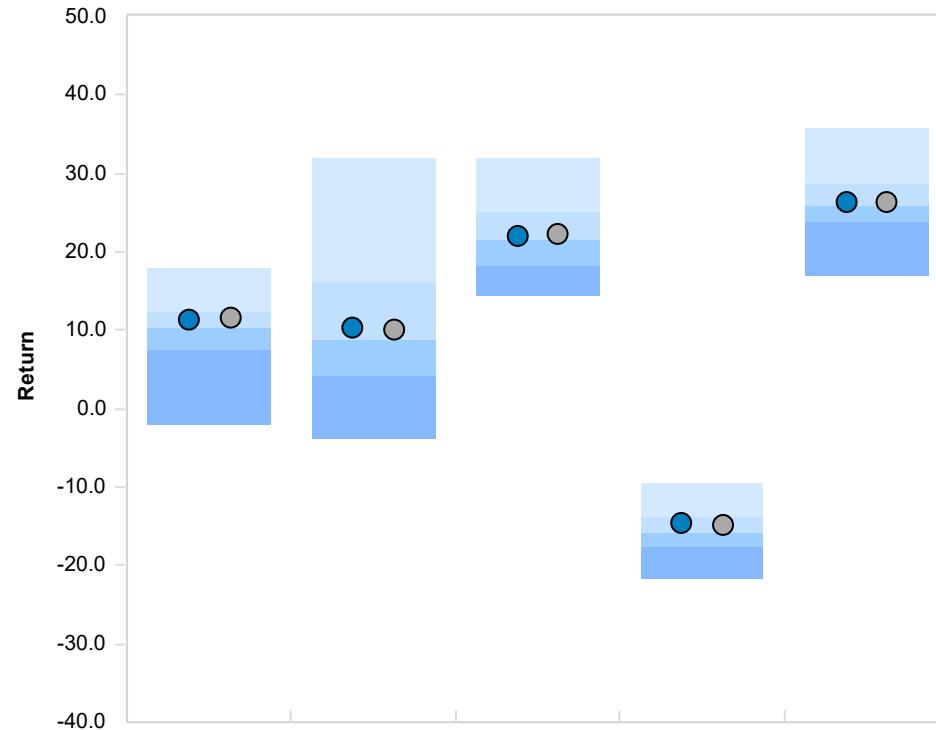
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	0 (0%)	20 (100%)	0 (0%)	0 (0%)
Index	20	2 (10%)	18 (90%)	0 (0%)	0 (0%)

Strategy Review
Vanguard Developed Markets Index (VTMNX) | Vanguard Spliced Developed ex U.S. Index (Net)
As of September 30, 2022

Peer Group Analysis - IM International Multi-Cap Equity (MF)



Peer Group Analysis - IM International Multi-Cap Equity (MF)



Financial Reconciliation Since Inception Ending September 30, 2022

	Market Value 07/01/2009	Net Flows	Return On Investment	Market Value 09/30/2022
Investment	253,831	45,927	7,535,097	7,834,856

Comparative Performance

	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022	1 Qtr Ending Dec-2021	1 Qtr Ending Sep-2021	1 Qtr Ending Jun-2021	1 Qtr Ending Mar-2021
Investment	-14.04	-6.04	2.99	-1.56	5.66	4.03
Index	-15.23	-5.27	2.55	-1.06	5.69	4.05

Mutual Fund Holdings Analysis
Vanguard Developed Markets Index (VTMNX)
September 30, 2022

Fund Information

Fund Name :	Vanguard Tax-Managed Funds: Vanguard Developed Markets Index Fund; Institutional Shares	Portfolio Assets :	\$141,865 Million
Fund Family :	Vanguard	Portfolio Manager :	Franquin/Perre
Ticker :	VTMNX	PM Tenure :	2013–2017
Inception Date :	01/04/2001	Fund Style :	IM International Multi-Cap Core Equity (MF)
Fund Assets :	\$13,608 Million	Style Benchmark :	FTSE Developed x North America Index (Net)
Portfolio Turnover :	3%		

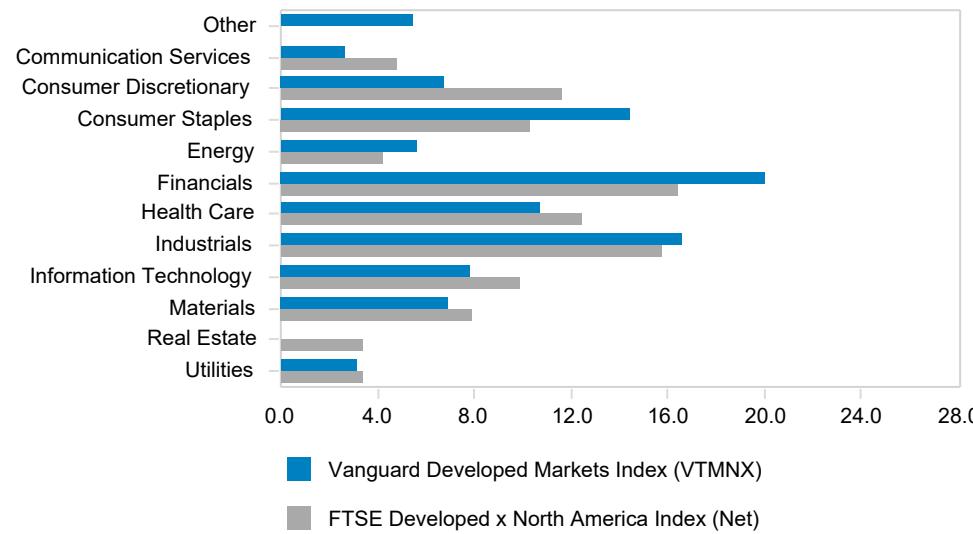
Portfolio Characteristics As of 07/31/2022

	Portfolio	Benchmark
Total Securities	4,150	1,551
Avg. Market Cap	61,914,051,496	69,271,930,183
Price/Earnings (P/E)	20.34	12.28
Price/Book (P/B)	3.63	2.41
Dividend Yield	3.22	3.38
Annual EPS	47.18	915.49
5 Yr EPS	12.95	14.62
3 Yr EPS Growth	10.30	N/A
Beta (5 Years, Monthly)	1.02	1.00

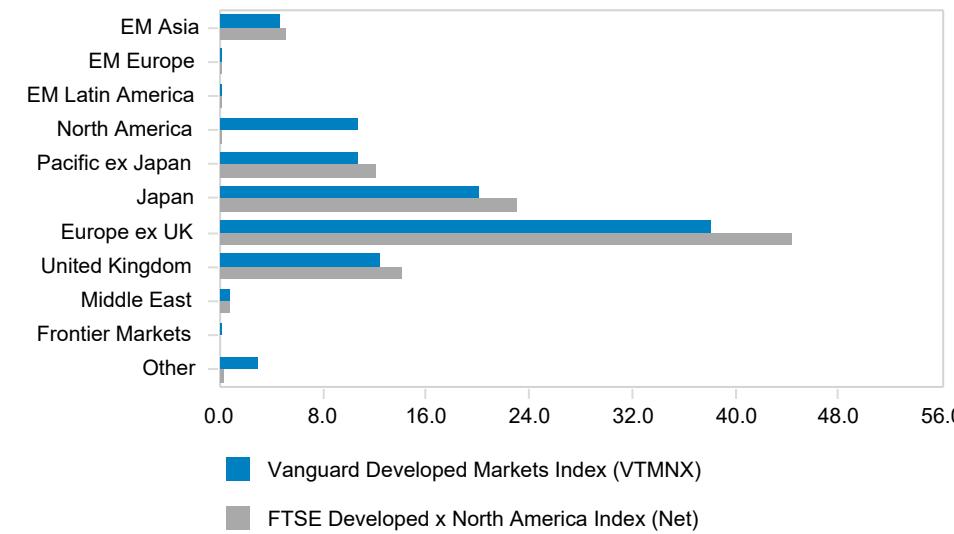
Top Ten Securities As of 07/31/2022

Vanguard Market Liquidity Fund	2.4 %
Nestle SA ORD	1.7 %
Roche Holding AG	1.1 %
Samsung Electronics Co Ltd ORD	1.1 %
ASML Holding NV ORD	1.1 %
AstraZeneca PLC ORD	1.0 %
Shell PLC ORD	1.0 %
Toyota Motor Corp ORD	1.0 %
Novo Nordisk A/S ORD	0.9 %
Novartis AG ORD	0.9 %

Sector Weights As of 07/31/2022



Region Weights As of 07/31/2022



Statistics provided by Lipper. Most recent available data shown.



Strategy Review
Vanguard Emerging Markets Index (VEMIX) | FTSE Emerging Mkts All Cap China A Inclusion Index
As of September 30, 2022

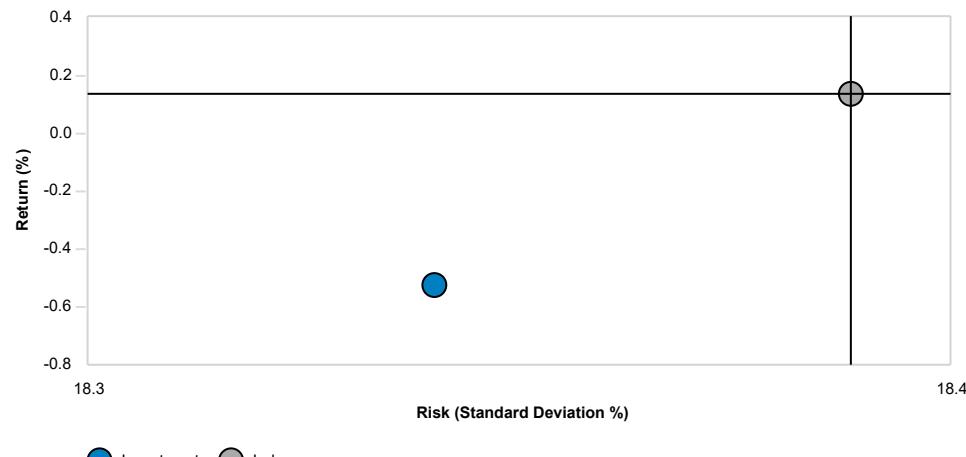
Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment Index	-0.52 0.14	18.34 18.39	0.03 0.07	97.23 100.00	6 6	99.86 100.00	6 6

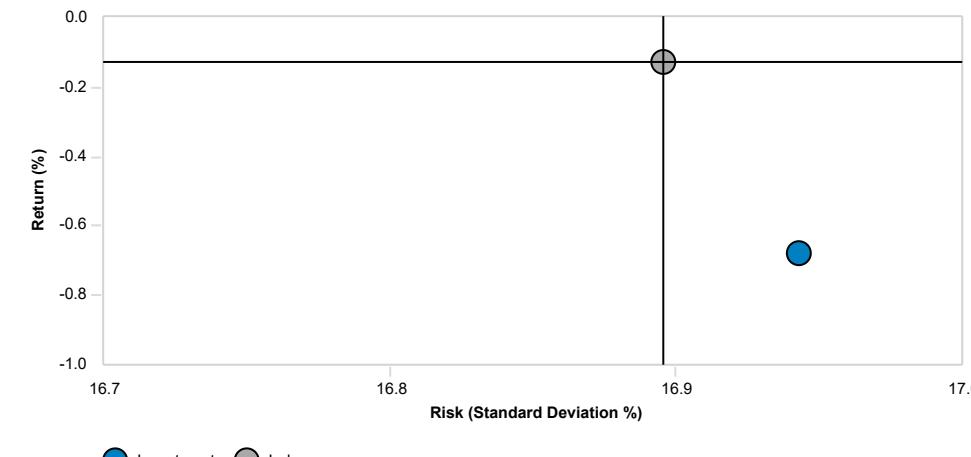
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment Index	-0.68 -0.13	16.94 16.90	-0.02 0.01	98.53 100.00	10 10	100.87 100.00	10 10

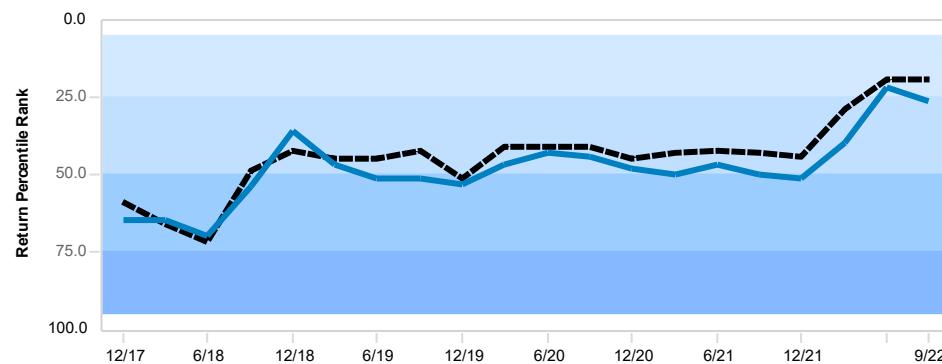
Risk and Return 3 Years



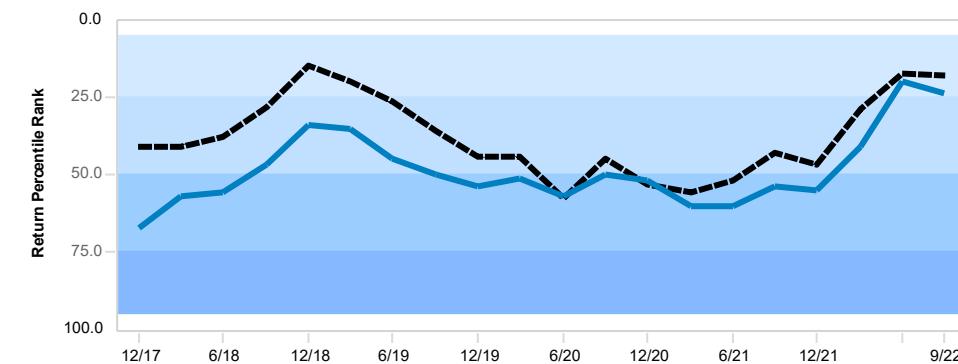
Risk and Return 5 Years



3 Year Rolling Percentile Rank IM Emerging Markets Equity (MF)



5 Year Rolling Percentile Rank IM Emerging Markets Equity (MF)

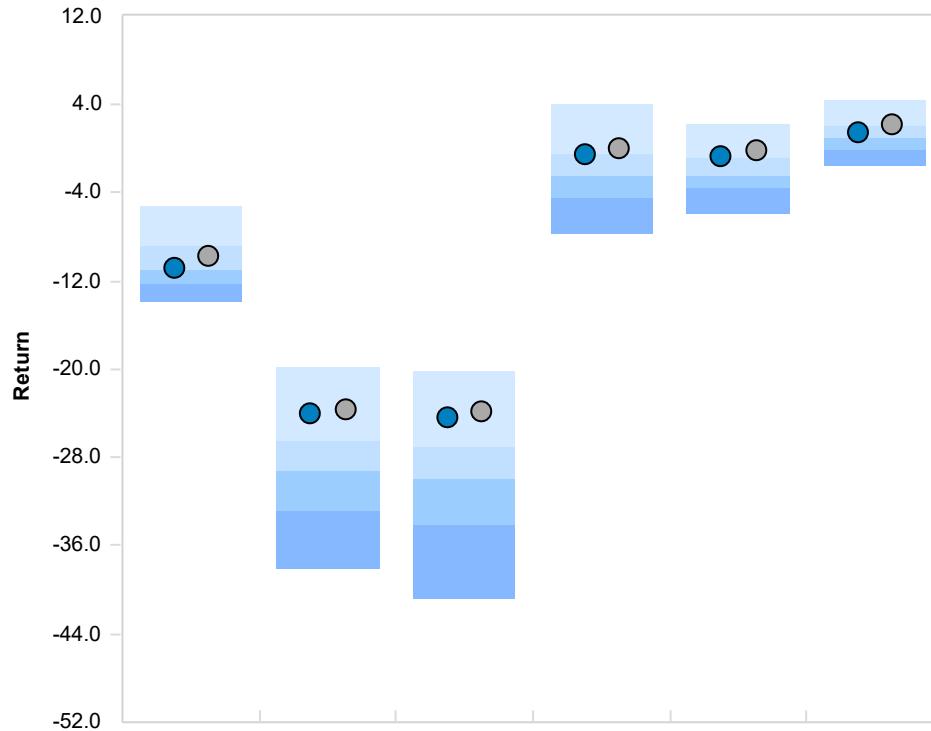


	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	1 (5%)	11 (55%)	8 (40%)	0 (0%)
Index	20	2 (10%)	14 (70%)	4 (20%)	0 (0%)

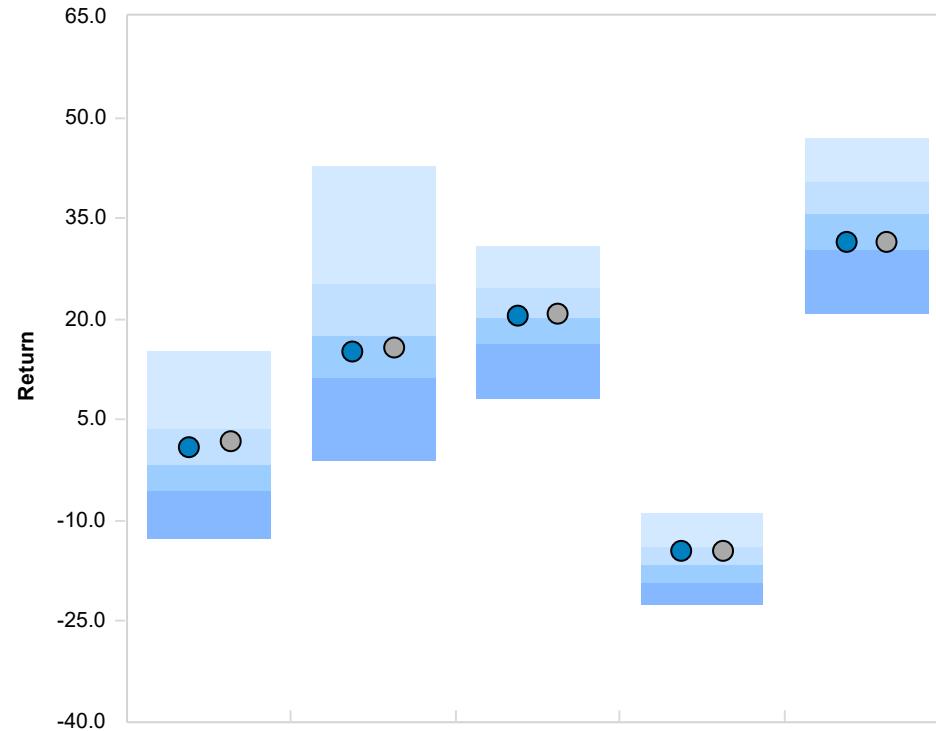
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	2 (10%)	7 (35%)	11 (55%)	0 (0%)
Index	20	4 (20%)	12 (60%)	4 (20%)	0 (0%)

Strategy Review
Vanguard Emerging Markets Index (VEMIX) | FTSE Emerging Mkts All Cap China A Inclusion Index
As of September 30, 2022

Peer Group Analysis - IM Emerging Markets Equity (MF)



Peer Group Analysis - IM Emerging Markets Equity (MF)



Financial Reconciliation Since Inception Ending September 30, 2022

	Market Value 10/01/2010	Net Flows	Return On Investment	Market Value 09/30/2022
Investment	5,147,163	3,164,289	1,582,997	9,894,449

Comparative Performance

	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022	1 Qtr Ending Dec-2021	1 Qtr Ending Sep-2021	1 Qtr Ending Jun-2021	1 Qtr Ending Mar-2021
Investment	-9.18	-6.24	-0.40	-6.97	5.16	3.57
Index	-10.40	-5.42	-0.45	-6.31	5.78	3.14



Fund Information

Fund Name :	Vanguard International Equity Index Funds: Vanguard Emerging Markets Stock Index Fund; Instl Class Shares	Portfolio Assets :	\$96,850 Million
Fund Family :	Vanguard	Portfolio Manager :	Perre/Miller
Ticker :	VEMIX	PM Tenure :	2008--2016
Inception Date :	06/22/2000	Fund Style :	IM Emerging Markets Equity (MF)
Fund Assets :	\$6,532 Million	Style Benchmark :	FTSE Emerging Mkts All Cap China A Inclusion Index
Portfolio Turnover :	9%		

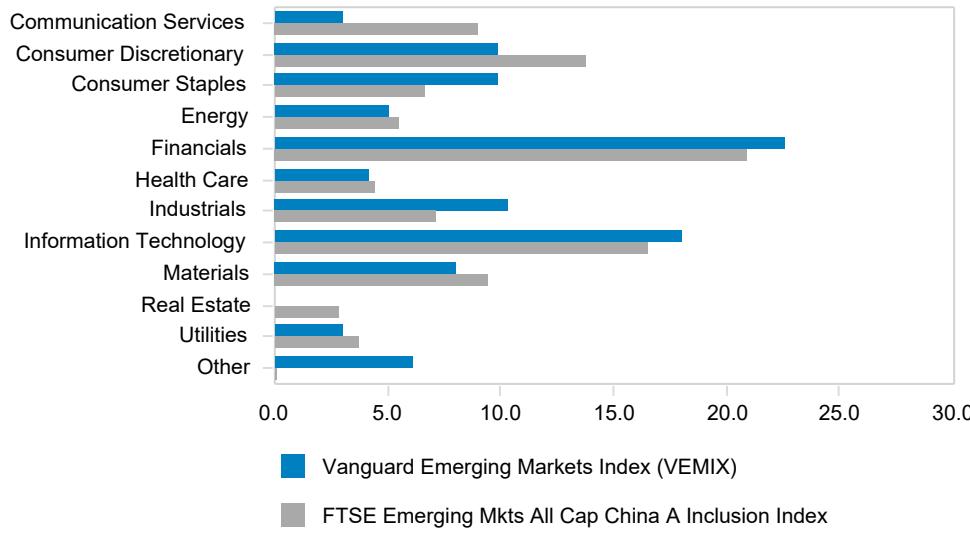
Portfolio Characteristics As of 07/31/2022

	Portfolio	Benchmark
Total Securities	4,517	4,297
Avg. Market Cap	85,497,903,115	82,836,361,979
Price/Earnings (P/E)	21.23	11.42
Price/Book (P/B)	3.93	2.68
Dividend Yield	3.97	3.53
Annual EPS	32.04	33.42
5 Yr EPS	16.46	16.43
3 Yr EPS Growth	18.81	N/A
Beta (5 Years, Monthly)	1.00	1.00

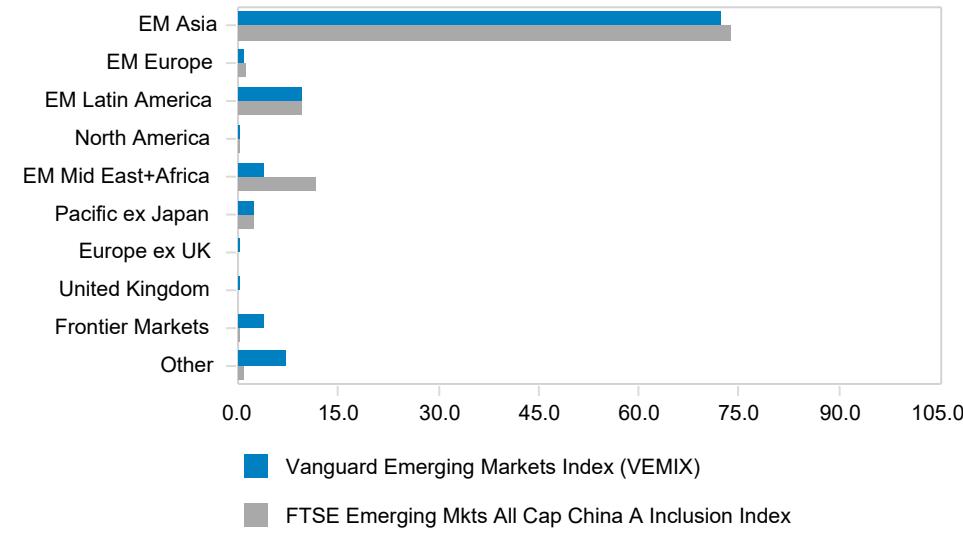
Top Ten Securities As of 07/31/2022

Taiwan Semiconductor Manufacturing	4.9 %
Tencent Holdings Ltd ORD	3.4 %
Alibaba Group Holding Ltd ORD	2.5 %
Vanguard Market Liquidity Fund	1.8 %
Reliance Industries Ltd ORD	1.6 %
Meituan ORD	1.3 %
TAIWAN SEMICONDUCTOR MNFTG ADR	1.1 %
JD.Com Inc ORD	1.0 %
Infosys Ltd ORD	1.0 %
China Construction Bank Corp ORD	0.9 %

Sector Weights As of 07/31/2022



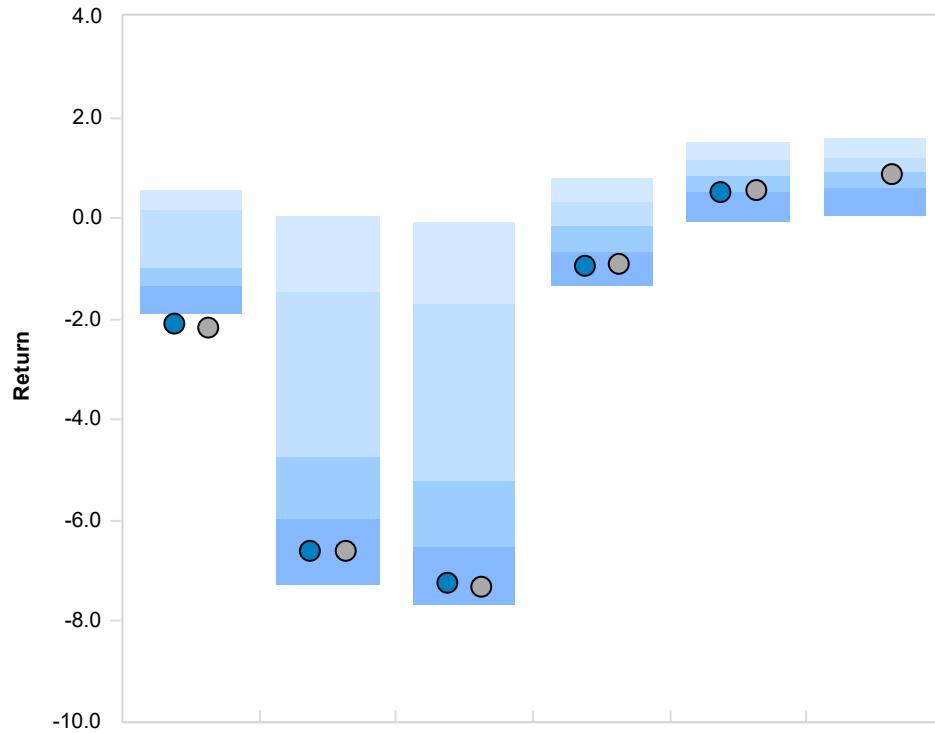
Region Weights As of 07/31/2022



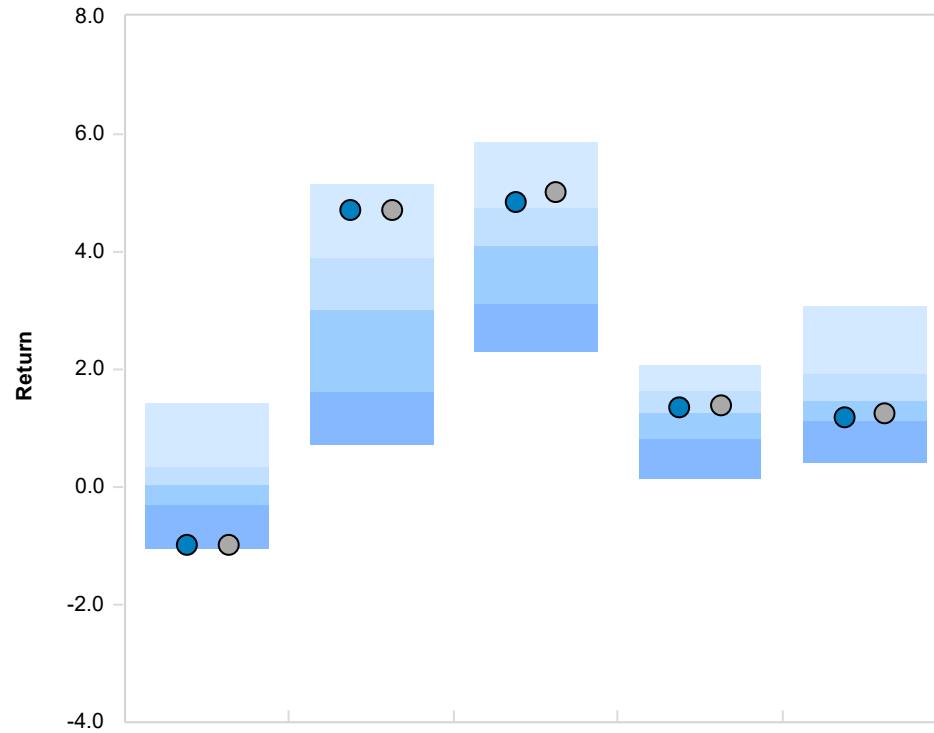
Statistics provided by Lipper. Most recent available data shown.



Peer Group Analysis - IM U.S. Short Term Investment Grade (MF)



Peer Group Analysis - IM U.S. Short Term Investment Grade (MF)



Financial Reconciliation Since Inception Ending September 30, 2022

	Market Value 04/01/2013	Net Flows	Return On Investment	Market Value 09/30/2022
Investment	10,001,804	-7,569,350	1,322,951	3,755,405

Comparative Performance

	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022	1 Qtr Ending Dec-2021	1 Qtr Ending Sep-2021	1 Qtr Ending Jun-2021	1 Qtr Ending Mar-2021
Investment	-1.15	-3.48	-0.68	0.00	0.30	-0.60
Index	-1.14	-3.45	-0.72	0.05	0.27	-0.57

Mutual Fund Holdings Analysis
Vanguard Short Term Bond Index (VBITX)
September 30, 2022

Fund Information

Fund Name :	Vanguard Bond Index Funds: Vanguard Short-Term Bond Index Fund; Institutional Class Shares	Portfolio Assets :	\$73,593 Million
Fund Family :	Vanguard	Portfolio Manager :	Joshua C. Barrickman
Ticker :	VBITX	PM Tenure :	2013
Inception Date :	09/27/2011	Fund Style :	IM U.S. Short Term Investment Grade (MF)
Fund Assets :	\$6,299 Million	Style Benchmark :	Bloomberg U.S. Aggregate 1-3 Yrs
Portfolio Turnover :	37%		

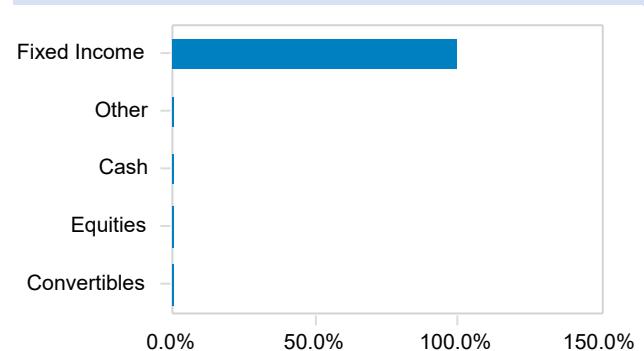
Fund Characteristics As of 06/30/2022

Avg. Coupon	2.00 %
Nominal Maturity	N/A
Effective Maturity	2.90 Years
Duration	2.70 Years
SEC 30 Day Yield	N/A
Avg. Credit Quality	AA

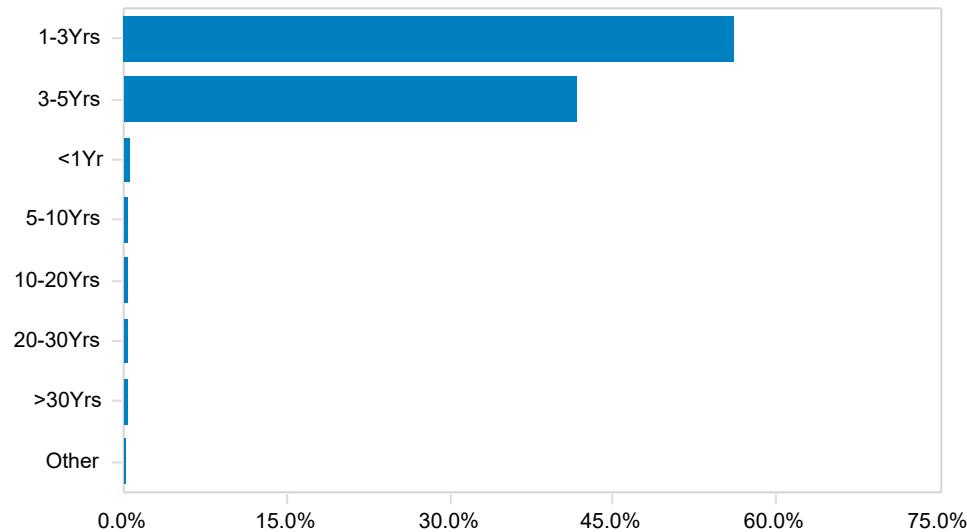
Top Ten Securities As of 06/30/2022

Government Agency Securities	34.1 %
Treasury Notes/Bonds	34.1 %
Corporate Notes/Bonds	25.9 %
Fgn. Currency Denominated Bonds	5.8 %

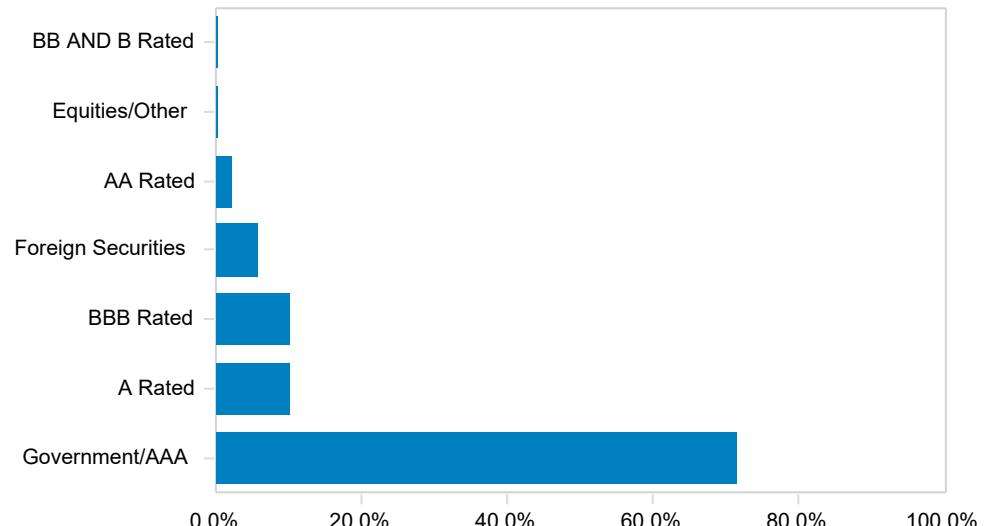
Asset Allocation As of 06/30/2022



Maturity Distribution As of 06/30/2022



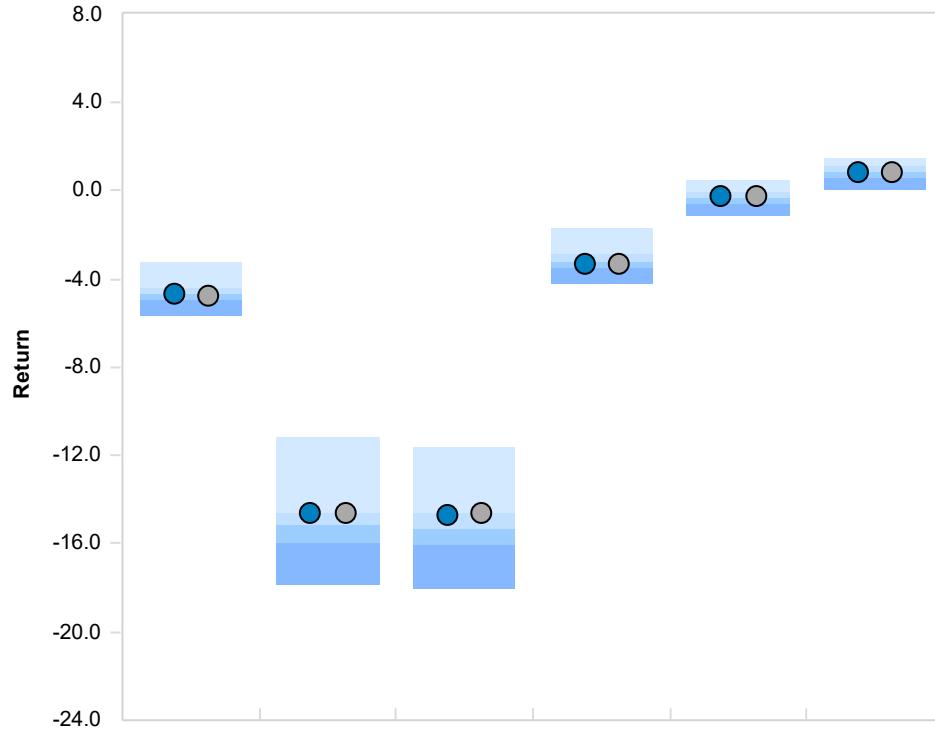
Sector/Quality Allocation As of 06/30/2022



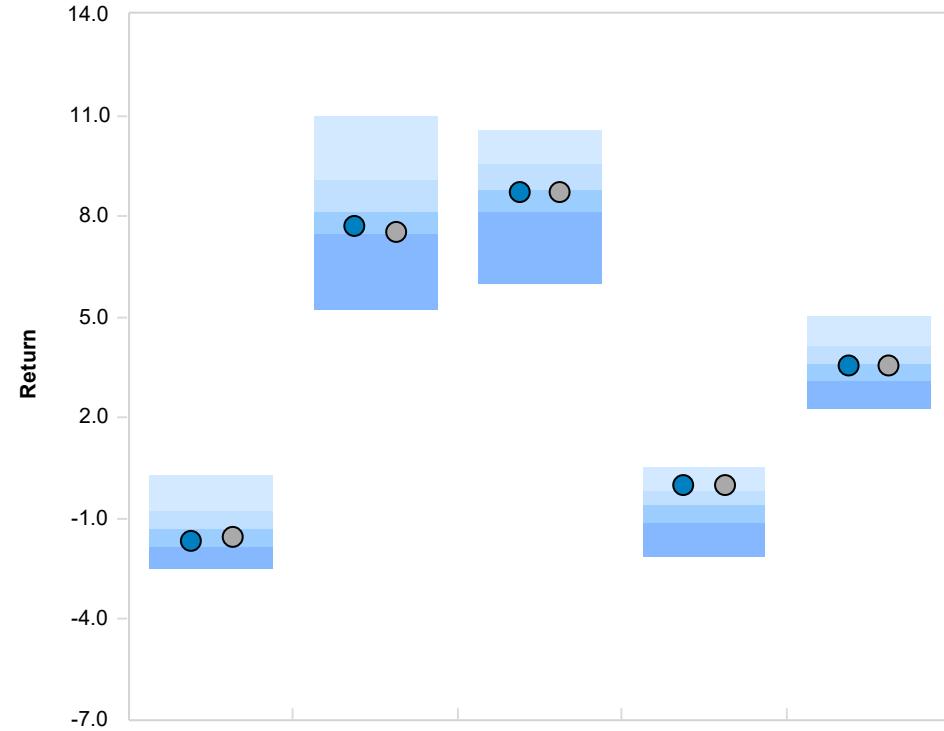
Statistics provided by Lipper. Most recent available data shown.



Peer Group Analysis - IM U.S. Broad Market Core Fixed Income (MF)



Peer Group Analysis - IM U.S. Broad Market Core Fixed Income (MF)



Financial Reconciliation Since Inception Ending September 30, 2022

No data found.

Comparative Performance

	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022	1 Qtr Ending Dec-2021	1 Qtr Ending Sep-2021	1 Qtr Ending Jun-2021	1 Qtr Ending Mar-2021
Investment	-4.71 (17)	-5.98 (51)	-0.08 (39)	0.11 (29)	2.00 (42)	-3.61 (88)
Index	-4.69 (15)	-5.93 (47)	0.01 (21)	0.05 (45)	1.83 (64)	-3.38 (73)
Median	-5.35	-5.98	-0.14	0.03	1.94	-3.07

Inception Date for VBTIX is 9/2019. Manager returns for VBTIX have been used for this report.



Fund Information

Fund Name :	Vanguard Bond Index Funds: Vanguard Total Bond Market Index Fund; Institutional Shares	Portfolio Assets :	\$293,631 Million
Fund Family :	Vanguard	Portfolio Manager :	Joshua C. Barrickman
Ticker :	VBTIX	PM Tenure :	2013
Inception Date :	09/18/1995	Fund Style :	IM U.S. Broad Market Core Fixed Income (MF)
Fund Assets :	\$43,817 Million	Style Benchmark :	Bloomberg U.S. Aggregate
Portfolio Turnover :	69%		

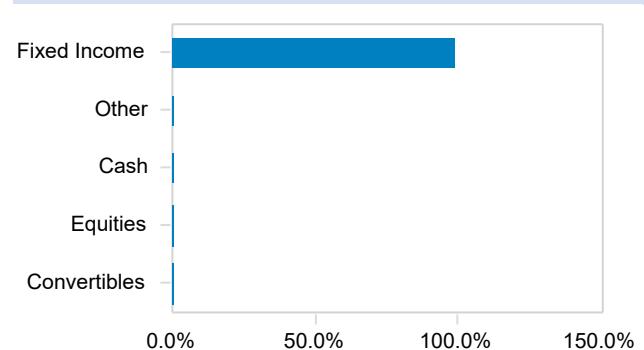
Fund Characteristics As of 06/30/2022

Avg. Coupon	2.60 %
Nominal Maturity	N/A
Effective Maturity	8.90 Years
Duration	6.70 Years
SEC 30 Day Yield	2.7
Avg. Credit Quality	AA

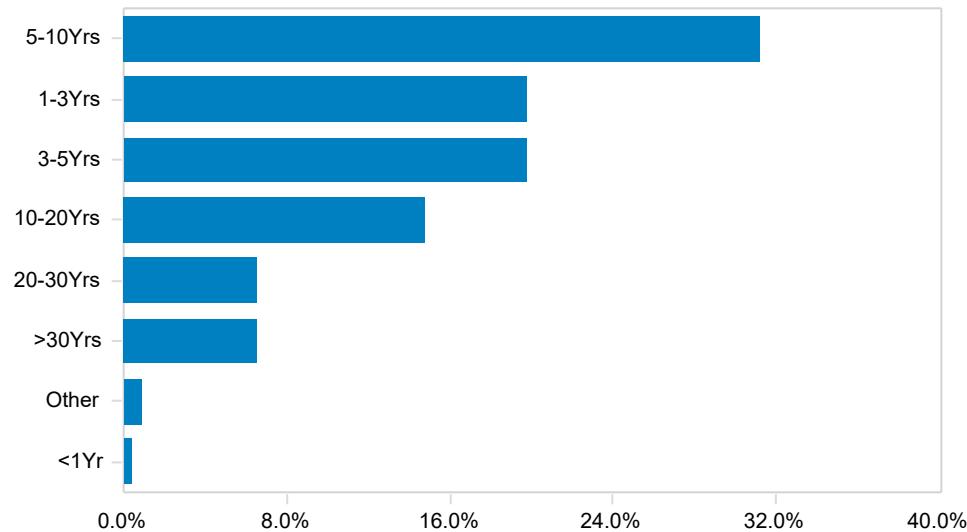
Top Ten Securities As of 06/30/2022

Corporate Notes/Bonds	26.7 %
Government Agency Securities	23.0 %
Treasury Notes/Bonds	23.0 %
GNMA and Other Mtg Backed	22.4 %
Fgn. Currency Denominated Bonds	3.7 %
Asset Backed Securities	0.4 %

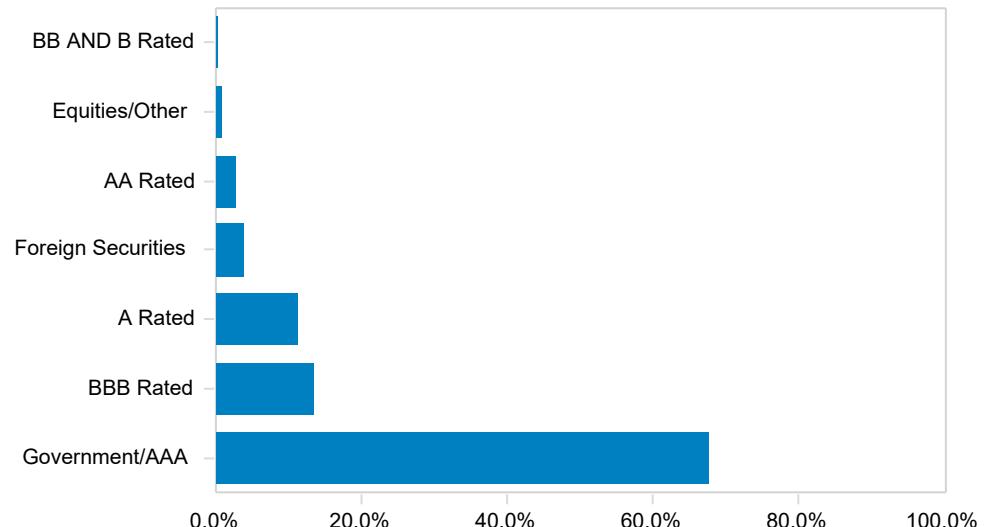
Asset Allocation As of 06/30/2022



Maturity Distribution As of 06/30/2022



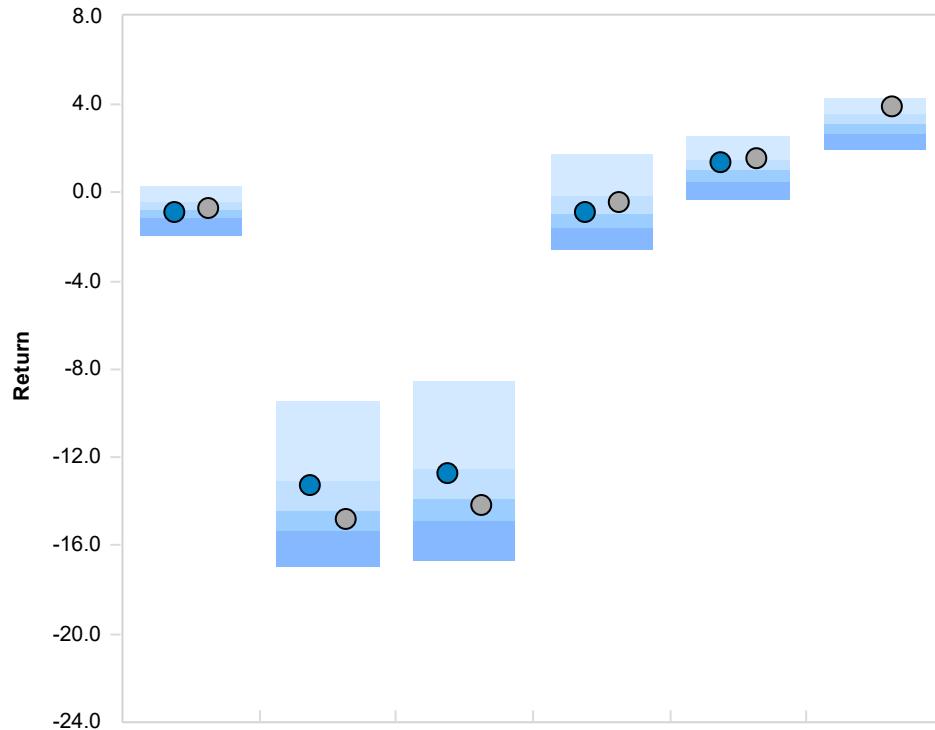
Sector/Quality Allocation As of 06/30/2022



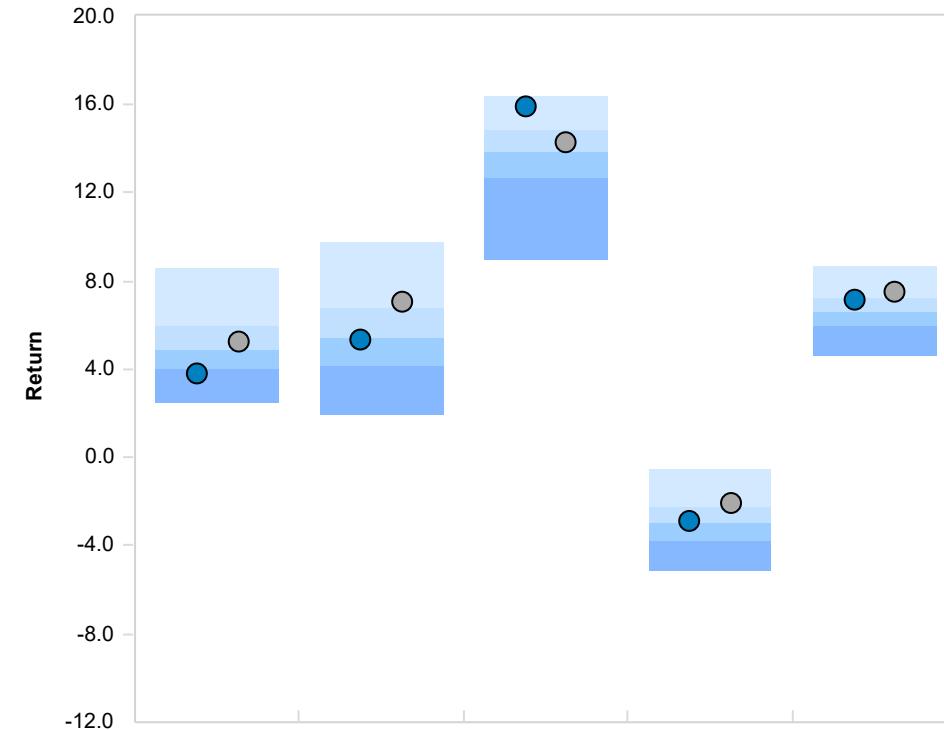
Statistics provided by Lipper. Most recent available data shown.



Peer Group Analysis - IM U.S. High Yield Bonds (MF)



Peer Group Analysis - IM U.S. High Yield Bonds (MF)



Financial Reconciliation Since Inception Ending September 30, 2022

	Market Value 12/01/2014	Net Flows	Return On Investment	Market Value 09/30/2022
Investment	12,642,764	5,350,000	4,042,533	22,035,297

Comparative Performance

	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022	1 Qtr Ending Dec-2021	1 Qtr Ending Sep-2021	1 Qtr Ending Jun-2021	1 Qtr Ending Mar-2021
Investment	-8.62	-4.20	0.53	0.88	2.42	-0.09
Index	-9.83	-4.84	0.71	0.89	2.74	0.85



Mutual Fund Holdings Analysis
Vanguard High Yield Bond Fund (VWEAX)
September 30, 2022

Fund Information

Fund Name :	Vanguard Fixed Income Securities Funds: Vanguard High-Yield Corporate Fund; Admiral Shares	Portfolio Assets :	\$25,423 Million
Fund Family :	Vanguard	Portfolio Manager :	Hong/Shortsleeve/Chang
Ticker :	VWEAX	PM Tenure :	2008--2022--2022
Inception Date :	11/12/2001	Fund Style :	IM U.S. High Yield Bonds (MF)
Fund Assets :	\$22,273 Million	Style Benchmark :	FTSE High Yield Market Index
Portfolio Turnover :	31%		

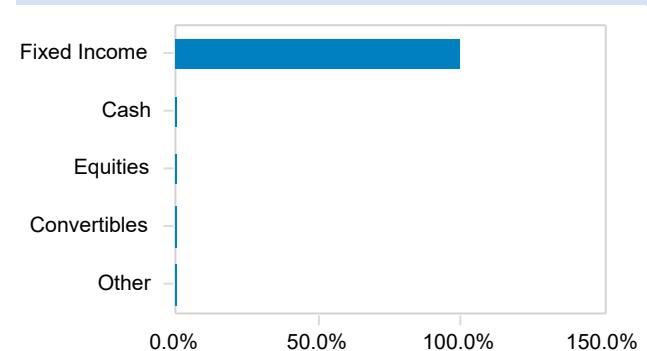
Fund Characteristics As of 06/30/2022

Avg. Coupon	4.80 %
Nominal Maturity	N/A
Effective Maturity	6.10 Years
Duration	4.30 Years
SEC 30 Day Yield	6.5
Avg. Credit Quality	BB

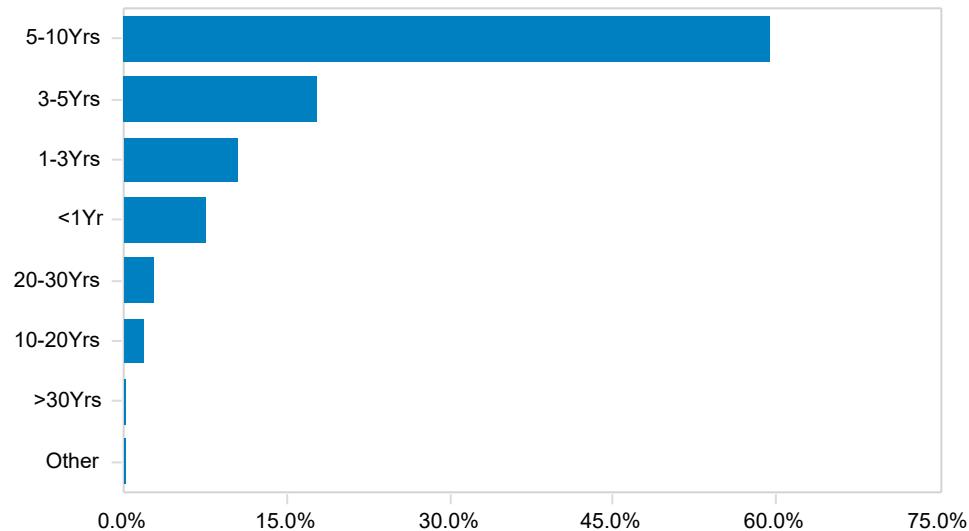
Top Ten Securities As of 06/30/2022

Corporate Notes/Bonds	95.8 %
Government Agency Securities	2.1 %
Treasury Notes/Bonds	2.1 %

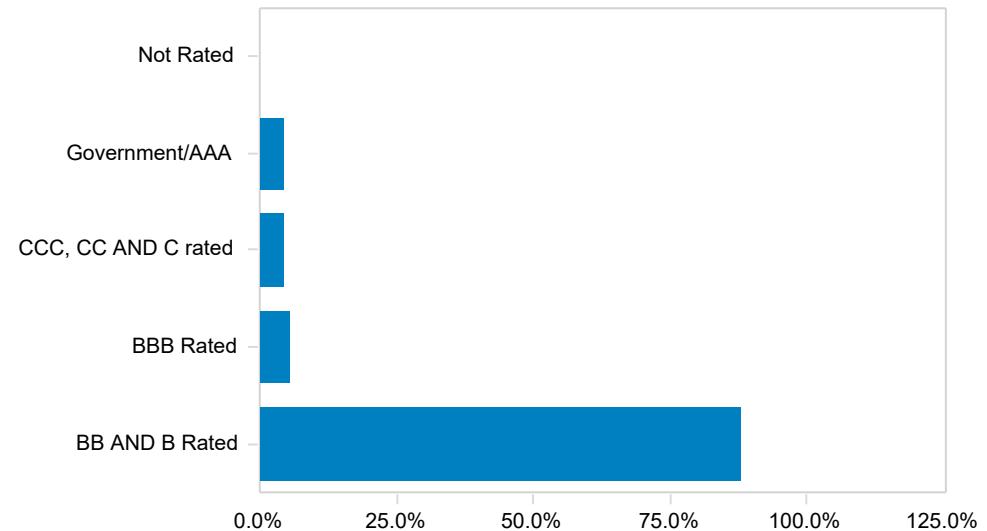
Asset Allocation As of 06/30/2022



Maturity Distribution As of 06/30/2022



Sector/Quality Allocation As of 06/30/2022

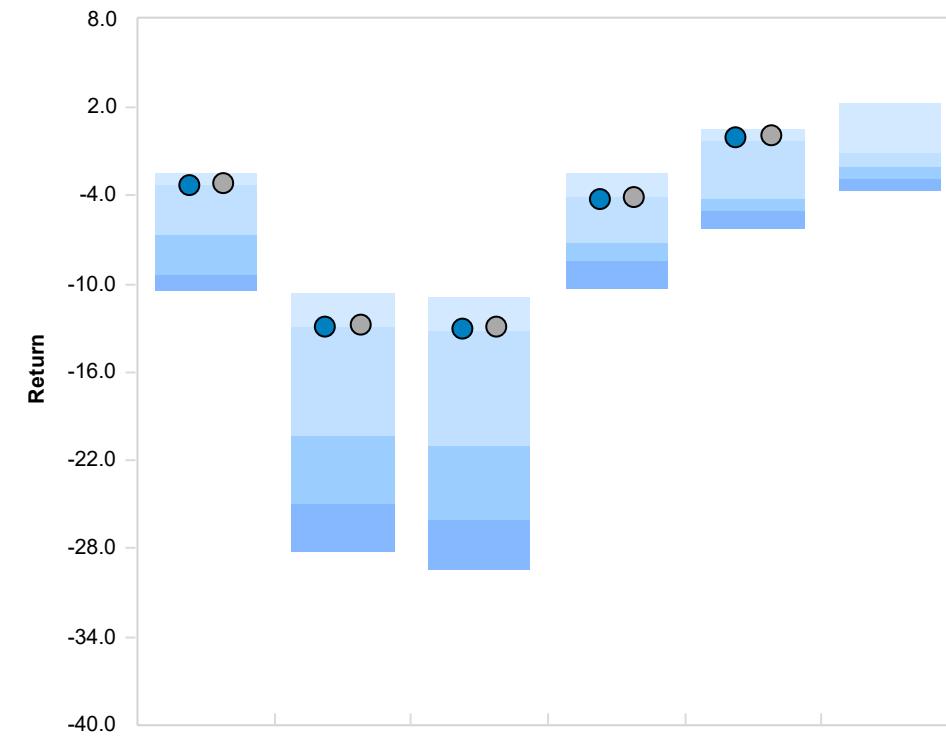


Statistics provided by Lipper. Most recent available data shown.

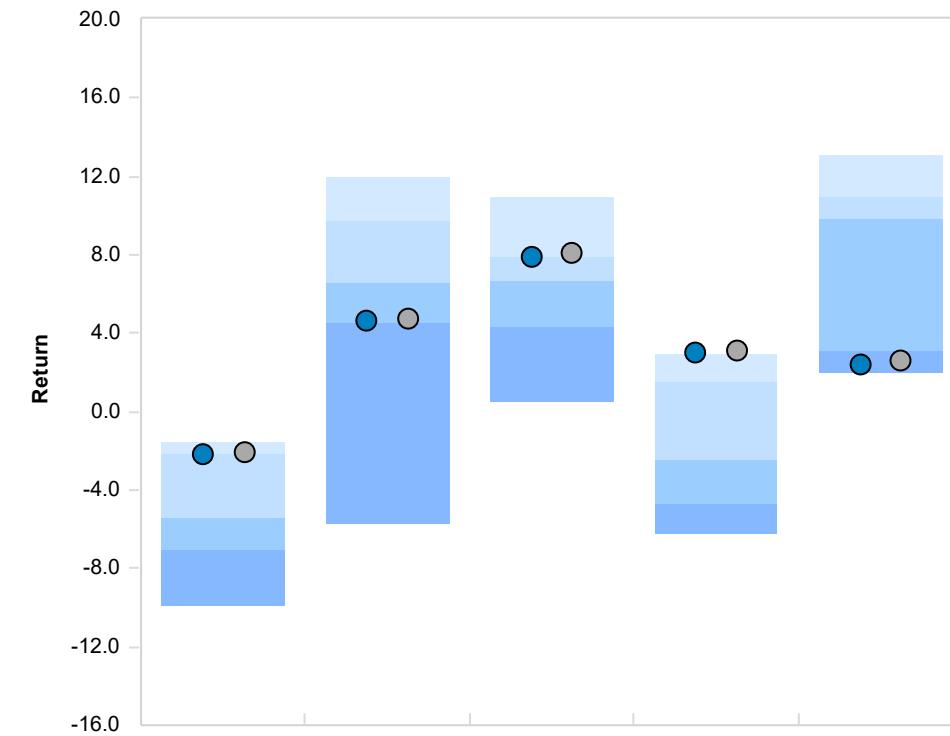


Strategy Review
Vanguard International Bond (VTIFX) | Blmbg. Global Agg ex-USD Flt Adj RIC Cpd (H)
As of September 30, 2022

Peer Group Analysis - IM International Fixed Income (MF)



Peer Group Analysis - IM International Fixed Income (MF)



Financial Reconciliation Since Inception Ending September 30, 2022

	Market Value 06/01/2015	Net Flows	Return On Investment	Market Value 09/30/2022
Investment	9,329,282	-2,425,000	900,784	7,805,066

Comparative Performance

	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022	1 Qtr Ending Dec-2021	1 Qtr Ending Sep-2021	1 Qtr Ending Jun-2021	1 Qtr Ending Mar-2021
Investment	-5.19	-4.98	-0.18	0.03	0.30	-2.32
Index	-5.23	-5.04	-0.12	-0.01	0.26	-2.22
Median	-5.23	-5.04	-0.12	-0.01	0.26	-2.22



Fund Information

Fund Name :	Vanguard Charlotte Funds: Vanguard Total International Bond Index Fund; Institutional Class Shares	Portfolio Assets :	\$83,059 Million
Fund Family :	Vanguard	Portfolio Manager :	Joshua C. Barrickman
Ticker :	VTIFX	PM Tenure :	2013
Inception Date :	05/31/2013	Fund Style :	IM International Fixed Income (MF)
Fund Assets :	\$11,808 Million	Style Benchmark :	FTSE Non-U.S. World Government Bond
Portfolio Turnover :	25%		

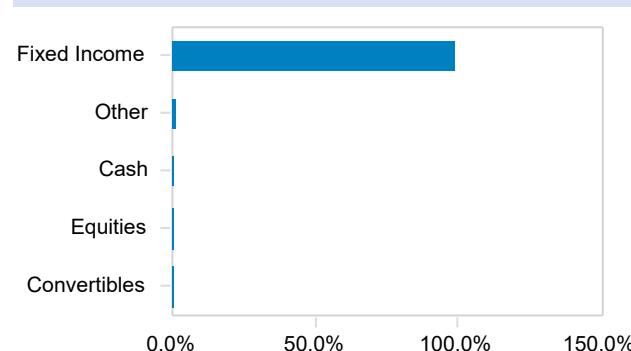
Fund Characteristics As of 06/30/2022

Avg. Coupon	1.80 %
Nominal Maturity	N/A
Effective Maturity	9.10 Years
Duration	7.70 Years
SEC 30 Day Yield	N/A
Avg. Credit Quality	N/A

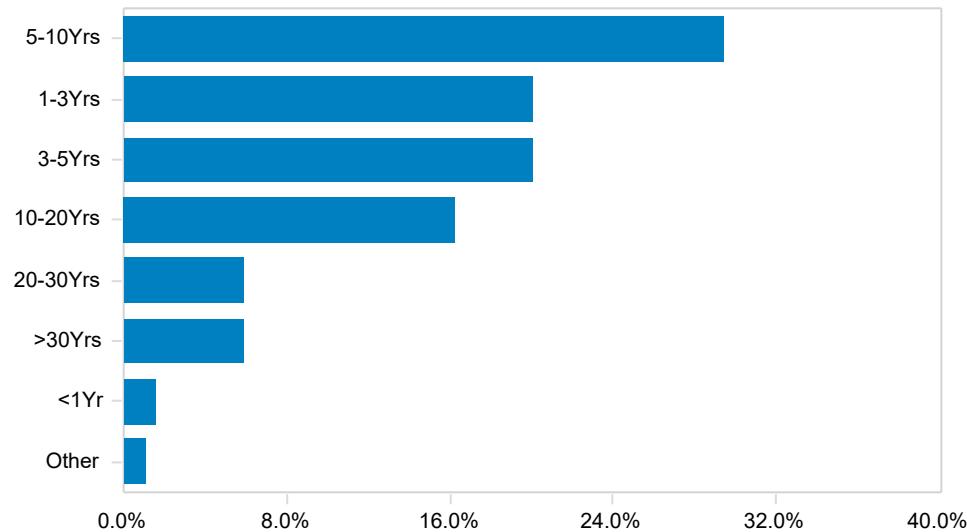
Top Ten Securities As of 06/30/2022

Fgn. Currency Denominated Bonds	80.1 %
Corporate Notes/Bonds	14.0 %
Asset Backed Securities	4.8 %

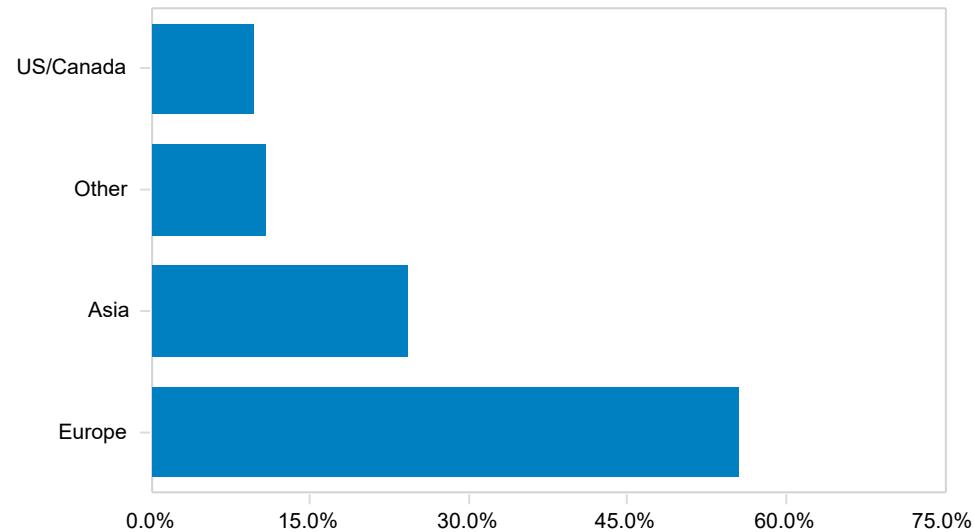
Asset Allocation As of 06/30/2022



Maturity Distribution As of 06/30/2022



Sector/Quality Allocation As of 06/30/2022



Statistics provided by Lipper. Most recent available data shown.



Strategy Review
Vanguard Real Estate Index Fund (VGSNX) | Vanguard Spliced REIT Index
As of September 30, 2022

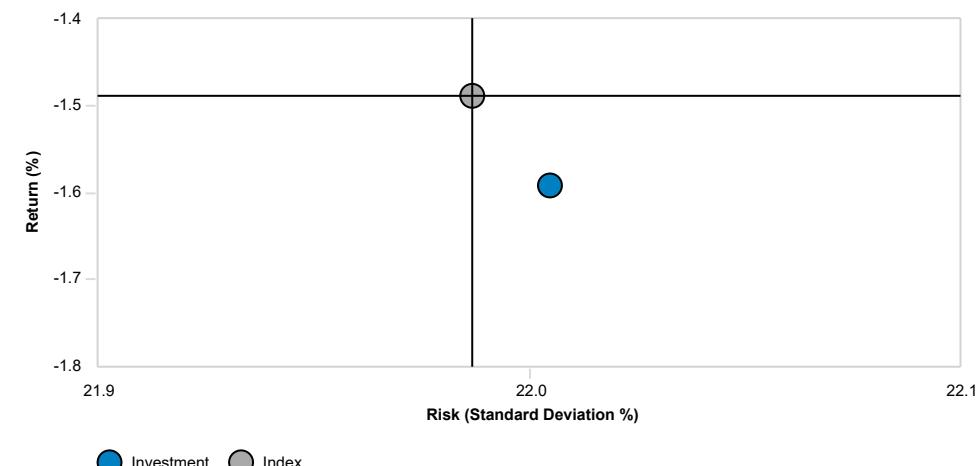
Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	-1.59	22.00	0.01	99.85	8	100.19	4
Index	-1.49	21.99	0.02	100.00	8	100.00	4

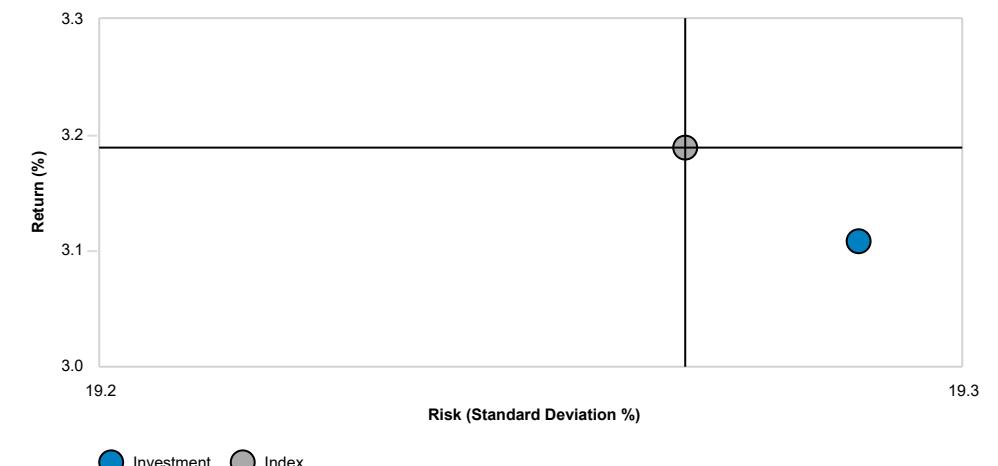
Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	3.11	19.29	0.20	99.88	14	100.18	6
Index	3.19	19.27	0.20	100.00	14	100.00	6

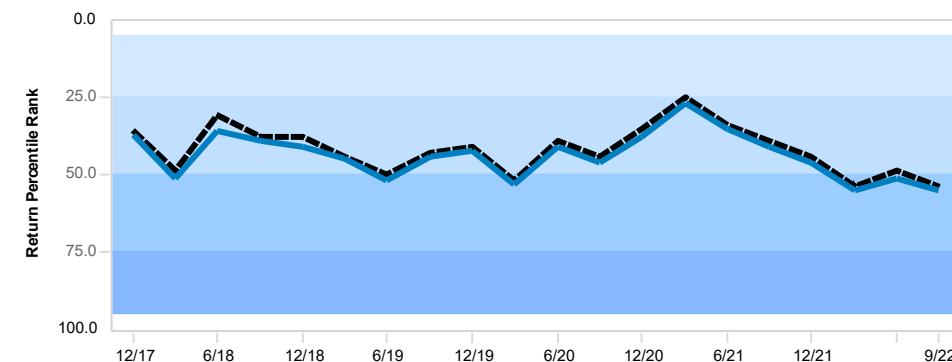
Risk and Return 3 Years



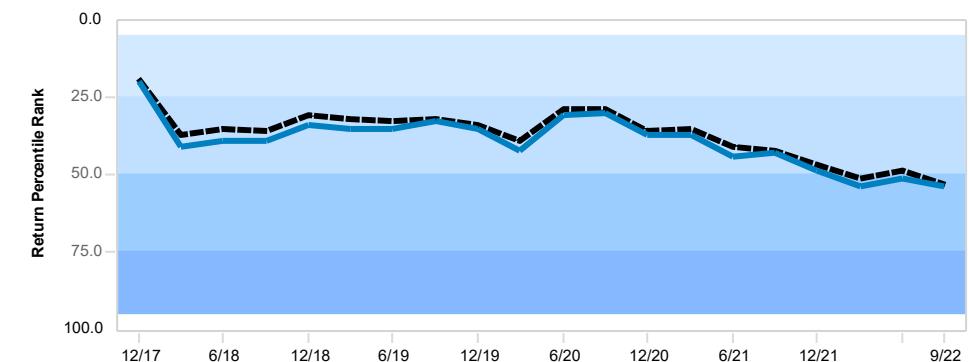
Risk and Return 5 Years



3 Year Rolling Percentile Rank IM Real Estate Sector (MF)



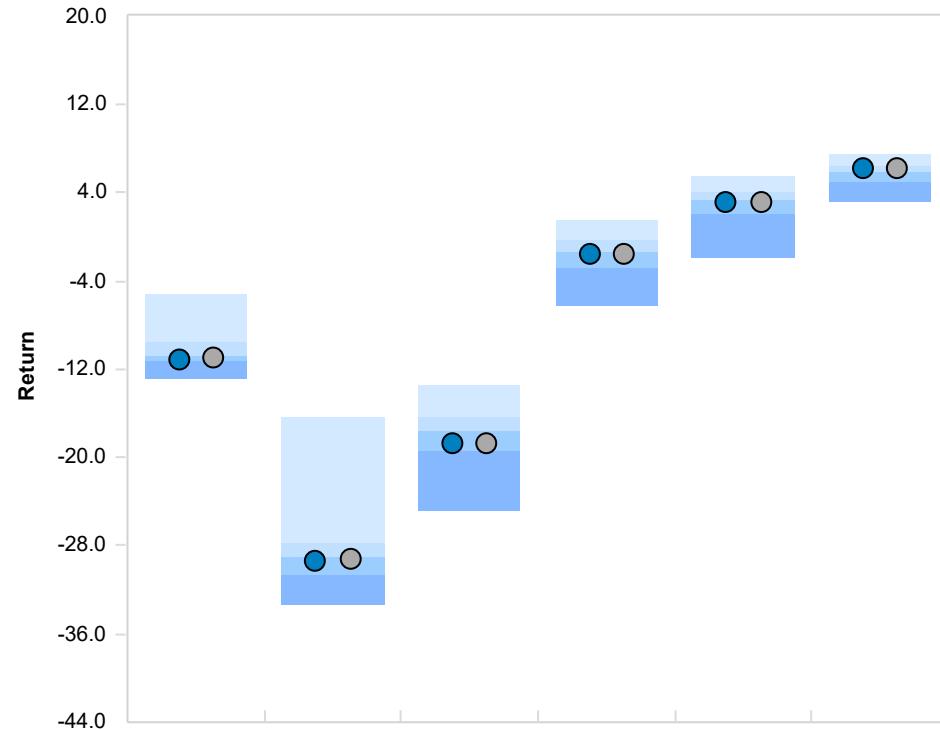
5 Year Rolling Percentile Rank IM Real Estate Sector (MF)



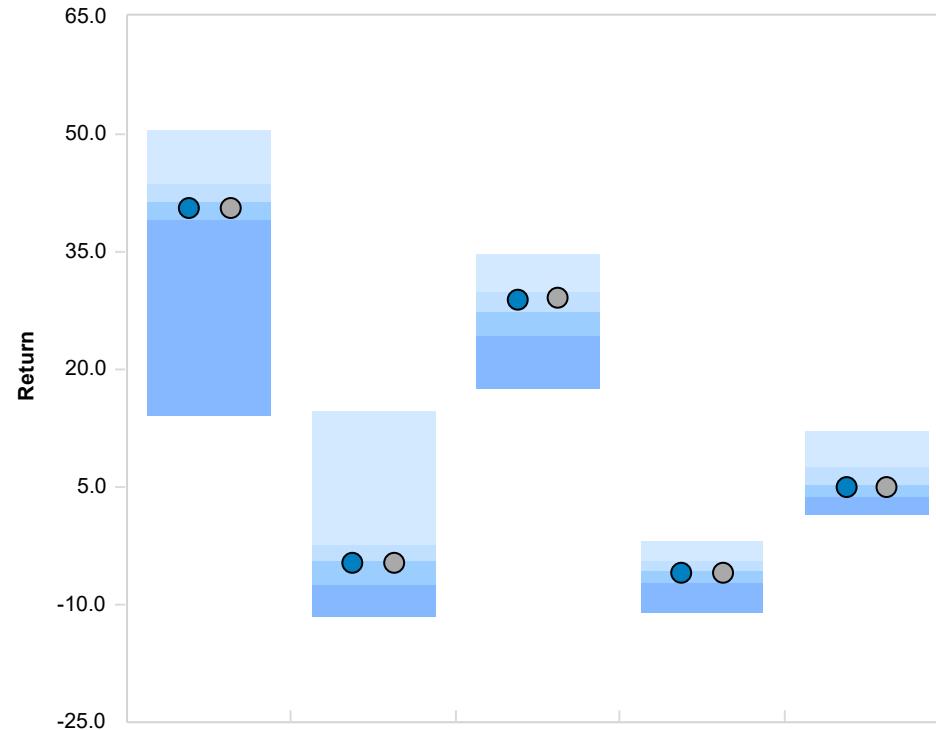
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	0 (0%)	14 (70%)	6 (30%)	0 (0%)
Index	20	1 (5%)	16 (80%)	3 (15%)	0 (0%)

	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	1 (5%)	16 (80%)	3 (15%)	0 (0%)
Index	20	1 (5%)	17 (85%)	2 (10%)	0 (0%)

Peer Group Analysis - IM Real Estate Sector (MF)



Peer Group Analysis - IM Real Estate Sector (MF)



Financial Reconciliation Since Inception Ending September 30, 2022

	Market Value 10/01/2010	Net Flows	Return On Investment	Market Value 09/30/2022
Investment	4,801,552	-1,776,630	8,880,554	11,905,476

Comparative Performance

	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022	1 Qtr Ending Dec-2021	1 Qtr Ending Sep-2021	1 Qtr Ending Jun-2021	1 Qtr Ending Mar-2021
Investment	-15.48 (42)	-5.97 (64)	14.96 (66)	0.67 (64)	11.67 (69)	8.69 (29)
Index	-15.43 (38)	-5.95 (61)	14.94 (66)	0.70 (62)	11.69 (69)	8.73 (26)
Median	-15.81	-5.29	15.66	1.07	12.08	7.84



Mutual Fund Holdings Analysis
Vanguard Real Estate Index Fund (VGSNX)
September 30, 2022

Fund Information

Fund Name :	Vanguard Specialized Funds: Vanguard Real Estate Index Fund; Institutional Class Shares	Portfolio Assets :	\$75,842 Million
Fund Family :	Vanguard	Portfolio Manager :	O'Reilly/Nejman
Ticker :	VGSNX	PM Tenure :	2003--2016
Inception Date :	12/02/2003	Fund Style :	IM Real Estate Sector (MF)
Fund Assets :	\$11,729 Million	Style Benchmark :	Vanguard Spliced REIT Index
Portfolio Turnover :	7%		

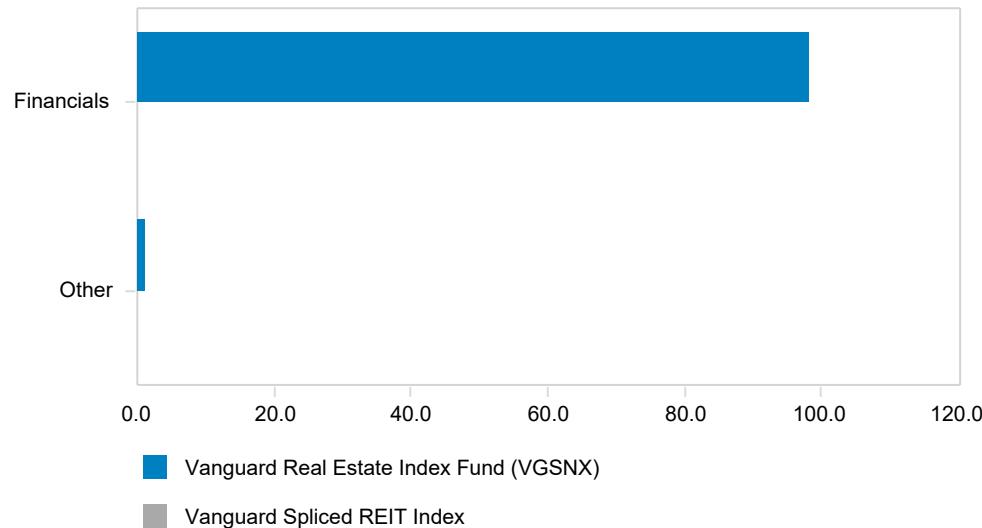
Portfolio Characteristics As of 07/31/2022

	Portfolio	Benchmark
Total Securities	171	N/A
Avg. Market Cap	44,156,831,719	-
Price/Earnings (P/E)	43.10	N/A
Price/Book (P/B)	5.81	N/A
Dividend Yield	3.42	N/A
Annual EPS	52.99	N/A
5 Yr EPS	9.31	N/A
3 Yr EPS Growth	15.17	N/A
Beta (5 Years, Monthly)	1.00	1.00

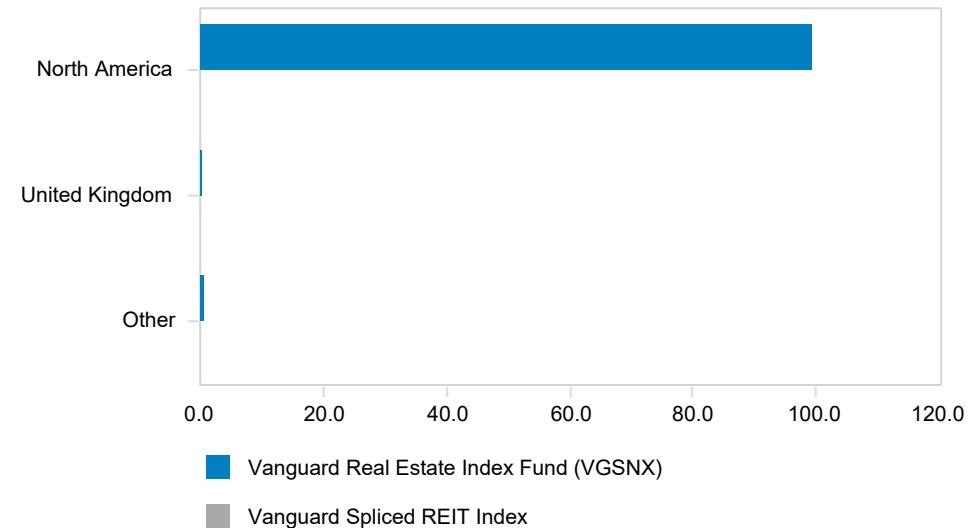
Top Ten Securities As of 07/31/2022

Vanguard Real Estate II Index Fund;Insti	11.7 %
American Tower Corp ORD	7.4 %
Prologis Inc ORD	5.9 %
Crown Castle Inc ORD	4.7 %
Equinix Inc ORD	3.8 %
Public Storage ORD	3.1 %
Realty Income Corp ORD	2.6 %
Welltower OP LLC ORD	2.2 %
SBA Communications Corp ORD	2.2 %
Digital Realty Trust Inc ORD	2.1 %

Sector Weights As of 07/31/2022



Region Weights As of 07/31/2022



Statistics provided by Lipper. Most recent available data shown.



Total Fund Policy			
Allocation Mandate	Weight (%)	Allocation Mandate	Weight (%)
Jan-1979		Jul-2014	
Russell 1000 Growth Index	20.00	CRSP U.S. Large Cap Value TR Index	8.00
Russell 1000 Value Index	20.00	CRSP U.S. Large Cap Growth TR Index	8.00
MSCI EAFE (Net) Index	10.00	CRSP U.S. Mid Cap TR Index	10.00
Bloomberg Intermediate US Govt/Credit Idx	40.00	CRSP U.S. Small Cap TR Index	5.00
Russell 2000 Index	10.00	Vanguard Spliced Emerging Markets Index (Net)	4.00
90 Day U.S. Treasury Bill	0.00	Vanguard Spliced Developed ex U.S. Index (Net)	9.00
Jun-2010		Blmbg. U.S. Gov/Credit: 5-10 Yr	7.50
Russell 1000 Value Index	15.00	Bloomberg U.S. TIPS Index	7.50
MSCI US Prime Market Growth	15.00	Bloomberg 1-5 Year Gov/Credit Idx	7.50
MSCI US Mid Cap 450 Index	10.00	Bloomberg US TIPS 0-5 Year Index	7.50
Russell 2000 Index	10.00	Vanguard Spliced REIT Index	10.00
MSCI EAFE (Net) Index	10.00	90 Day U.S. Treasury Bill	1.00
MSCI Emerging Markets (Net) Index	5.00	S&P 500 Index	15.00
Blmbg. U.S. Gov/Credit: 5-10 Yr	15.00		
Bloomberg U.S. TIPS Index	15.00		
Vanguard Spliced REIT Index	5.00		
Jun-2013			
CRSP U.S. Large Cap Value TR Index	15.00		
CRSP U.S. Large Cap Growth TR Index	15.00		
CRSP U.S. Mid Cap TR Index	10.00		
CRSP U.S. Small Cap TR Index	10.00		
Vanguard Spliced Emerging Markets Index (Net)	5.00		
Vanguard Spliced Developed ex U.S. Index (Net)	10.00		
Blmbg. U.S. Gov/Credit: 5-10 Yr	7.50		
Bloomberg U.S. TIPS Index	7.50		
Bloomberg 1-5 Year Gov/Credit Idx	7.50		
Bloomberg US TIPS 0-5 Year Index	7.50		
Vanguard Spliced REIT Index	4.00		
90 Day U.S. Treasury Bill	1.00		

Allocation Mandate	Weight (%)	Allocation Mandate	Weight (%)
Jun-2015		Oct-2019	
CRSP U.S. Large Cap Value TR Index	5.00	S&P 500 Index	15.00
CRSP U.S. Large Cap Growth TR Index	5.00	CRSP U.S. Large Cap Value TR Index	5.00
CRSP U.S. Mid Cap TR Index	10.00	CRSP U.S. Large Cap Growth TR Index	5.00
CRSP U.S. Small Cap TR Index	5.00	S&P MidCap 400 Index	10.00
Vanguard Spliced Emerging Markets Index (Net)	5.00	S&P SmallCap 600 Index	5.00
Vanguard Spliced Developed ex U.S. Index (Net)	10.00	FTSE Developed All Cap ex-U.S. Index	10.00
Blmbg. U.S. Gov/Credit: 5-10 Yr	7.50	FTSE Emerging Mkts All Cap China A Inclusion Index	5.00
Bloomberg U.S. TIPS Index	5.00	Blmbg. U.S. Aggregate Index	20.00
Bloomberg 1-5 Year Gov/Credit Idx	7.50	Bloomberg 1-5 Year Gov/Credit Idx	2.50
Bloomberg US TIPS 0-5 Year Index	5.00	Blmbg. U.S. Corp High Yield	10.00
Vanguard Spliced REIT Index	5.00	Blmbg. Global Agg ex-USD Flt Adj RIC Cpd (H)	5.00
90 Day U.S. Treasury Bill	2.50	Vanguard Spliced REIT Index	5.00
S&P 500 Index	15.00	90 Day U.S. Treasury Bill	2.50
Blmbg. U.S. Corp High Yield	7.50		
Blmbg. Global Agg ex-USD Flt Adj RIC Cpd (H)	5.00		
Dec-2018		Mar-2020	
CRSP U.S. Large Cap Value TR Index	5.00	S&P 500 Index	15.00
CRSP U.S. Large Cap Growth TR Index	5.00	CRSP U.S. Large Cap Value TR Index	5.00
S&P MidCap 400 Index	10.00	CRSP U.S. Large Cap Growth TR Index	5.00
S&P SmallCap 600 Index	5.00	S&P MidCap 400 Index	10.00
Vanguard Spliced Emerging Markets Index (Net)	5.00	S&P SmallCap 600 Index	5.00
Vanguard Spliced Developed ex U.S. Index (Net)	10.00	FTSE Developed All Cap ex-U.S. Index	7.50
Blmbg. U.S. Gov/Credit: 5-10 Yr	7.50	FTSE Emerging Mkts All Cap China A Inclusion Index	5.00
Bloomberg U.S. TIPS Index	5.00	FTSE Global ex U.S. Small Cap Index (Net)	2.50
Bloomberg 1-5 Year Gov/Credit Idx	7.50	Blmbg. U.S. Aggregate Index	20.00
Bloomberg US TIPS 0-5 Year Index	5.00	Bloomberg 1-5 Year Gov/Credit Idx	2.50
Vanguard Spliced REIT Index	5.00	Blmbg. U.S. Corp High Yield	10.00
90 Day U.S. Treasury Bill	2.50	Blmbg. Global Agg ex-USD Flt Adj RIC Cpd (H)	5.00
S&P 500 Index	15.00	Vanguard Spliced REIT Index	5.00
Blmbg. U.S. Corp High Yield	7.50	90 Day U.S. Treasury Bill	2.50
Blmbg. Global Agg ex-USD Flt Adj RIC Cpd (H)	5.00		

Mid Cap Index Policy	
Allocation Mandate	Weight (%)
Oct-2010	
Vanguard Spliced Mid Cap Index	100.00
Dec-2018	
S&P MidCap 400 Index	100.00

Small Cap Index Policy	
Allocation Mandate	Weight (%)
Jul-2009	
Vanguard Spliced Small Cap Index	100.00
Dec-2018	
S&P SmallCap 600 Index	100.00

Vanguard Spliced REIT Index History

MSCI US REIT Index adjusted to include a 2% cash position (Lipper Money Market Average) through April 30, 2009

MSCI US REIT Index through February 1, 2018

MSCI US Investable Market Real Estate 25/50 Transition Index through July 24, 2018

MSCI US Investable Market Real Estate 25/50 Index thereafter



Active Return	- Arithmetic difference between the manager's performance and the designated benchmark return over a specified time period.
Alpha	- A measure of the difference between a portfolio's actual performance and its expected return based on its level of risk as determined by beta. It determines the portfolio's non-systemic return, or its historical performance not explained by movements of the market.
Beta	- A measure of the sensitivity of a portfolio to the movements in the market. It is a measure of the portfolio's systematic risk.
Consistency	- The percentage of quarters that a product achieved a rate of return higher than that of its benchmark. Higher consistency indicates the manager has contributed more to the product's performance.
Distributed to Paid In (DPI)	- The ratio of money distributed to Limited Partners by the fund, relative to contributions. It is calculated by dividing cumulative distributions by paid in capital. This multiple shows the investor how much money they got back. It is a good measure for evaluating a fund later in its life because there are more distributions to measure against.
Down Market Capture	- The ratio of average portfolio performance over the designated benchmark during periods of negative returns. A lower value indicates better product performance
Downside Risk	- A measure similar to standard deviation that utilizes only the negative movements of the return series. It is calculated by taking the standard deviation of the negative quarterly set of returns. A higher factor is indicative of a riskier product.
Excess Return	- Arithmetic difference between the manager's performance and the risk-free return over a specified time period.
Excess Risk	- A measure of the standard deviation of a portfolio's performance relative to the risk free return.
Information Ratio	- This calculates the value-added contribution of the manager and is derived by dividing the active rate of return of the portfolio by the tracking error. The higher the Information Ratio, the more the manager has added value to the portfolio.
Public Market Equivalent (PME)	- Designs a set of analyses used in the Private Equity Industry to evaluate the performance of a Private Equity Fund against a public benchmark or index.
R-Squared	- The percentage of a portfolio's performance that can be explained by the behavior of the appropriate benchmark. A high R-Squared means the portfolio's performance has historically moved in the same direction as the appropriate benchmark.
Return	- Compounded rate of return for the period.
Sharpe Ratio	- Represents the excess rate of return over the risk free return divided by the standard deviation of the excess return. The result is an absolute rate of return per unit of risk. A higher value demonstrates better historical risk-adjusted performance.
Standard Deviation	- A statistical measure of the range of a portfolio's performance. It represents the variability of returns around the average return over a specified time period.
Total Value to Paid In (TVPI)	- The ratio of the current value of remaining investments within a fund, plus the total value of all distributions to date, relative to the total amount of capital paid into the fund to date. It is a good measure of performance before the end of a fund's life
Tracking Error	- This is a measure of the standard deviation of a portfolio's returns in relation to the performance of its designated market benchmark.
Treynor Ratio	- Similar to Sharpe ratio but utilizes beta rather than excess risk as determined by standard deviation. It is calculated by taking the excess rate of return above the risk free rate divided by beta to derive the absolute rate of return per unit of risk. A higher value indicates a product has achieved better historical risk-adjusted performance.
Up Market Capture	- The ratio of average portfolio performance over the designated benchmark during periods of positive returns. A higher value indicates better product performance.

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