

Investment Performance Review  
Period Ending March 31, 2023

## **Butler County Employees Retirement Plan**

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## **1st Quarter 2023 Market Environment**



## **The Economy**

- US GDP growth is expected to wane in the coming quarters as the impact from higher interest rates continues to spread through the broader economy. The final measure of 1st quarter GDP was revised downward to 1.7%. Global GDP growth also remains challenged with higher energy prices continuing to act as a headwind, especially in Europe. China has fully reopened after almost three years of COVID-19 restrictions, which boosted estimates and performance for the region.
- The US Federal Reserve Bank (the Fed) continued to increase interest rates during the quarter with two successive 0.25% increases in the Fed Funds rate in January and February. While the Fed's policy remains hawkish on fighting high inflation, the press release from the February meeting took on a more dovish tone.
- The US labor market continues to show its resiliency, adding roughly 236 thousand jobs during the 1st quarter. As a result, the unemployment rate fell to 3.5% in March. Noticeably, the labor market is showing signs of declining growth which could soon signal an inflection point in economic output and the fight against inflation.
- The global banking sector came under duress in the 1st quarter of 2023, triggered by the second and third-largest regional bank failures in US history. The combination of aggressive Fed rate hikes and questionable capital deployment by Silicon Valley Bank led to a flurry of depositor withdrawals and rocked general confidence in the overall banking system.

## **Equity (Domestic and International)**

- US equities moved broadly higher during the 1st quarter despite concerns regarding stubbornly high inflation, the potential for additional rate hikes, slowing global GDP growth, and shaken confidence in the global banking system. Large cap growth was the best performing domestic segment of the equity market during the period while small cap value performed the worst.
- International stocks also experienced strong returns during the 1st quarter. US Dollar (USD) and local currency (LCL) performance were both solid as the USD remained largely unchanged for the quarter. Non-US GDP growth, particularly in Europe, remained under pressure as restrictive central bank policies and elevated energy prices acted as a headwind. Finally, China's reopening from its restrictive COVID-19 policies is well underway and has proven to be a greater tailwind to the region than previously expected.

## **Fixed Income**

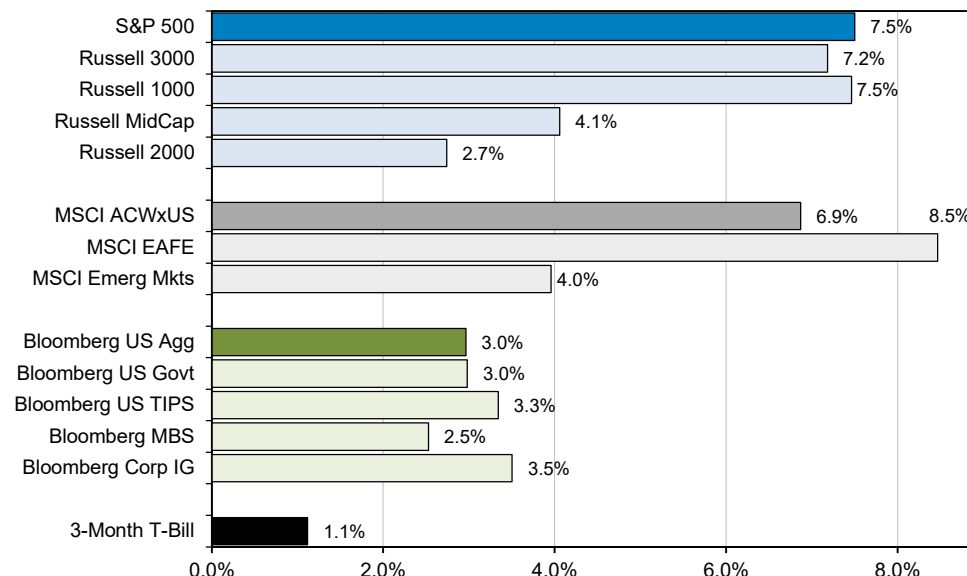
- While inflation continues to decline quarter-over-quarter, the Fed maintained their inflation-fighting policy stance, increasing interest rates twice, totaling 0.50%. Despite the short-term increases, yields beyond 1-year actually fell during the quarter with the bellwether US 10-Year Treasury bond closing March at 3.48%, 0.40% lower than year-end.
- Performance across domestic bond market sectors was positive during the quarter, led by corporate investment grade bonds. Global bonds slightly outperformed domestic fixed income for the quarter.
- A combination of higher coupons and narrower credit spreads were the primary drivers of lower quality corporate results during the period.
- US Treasury bonds rebounded this quarter as yields at longer maturities fell and investors fled to safety amidst troubles in the banking sector.

## **Market Themes**

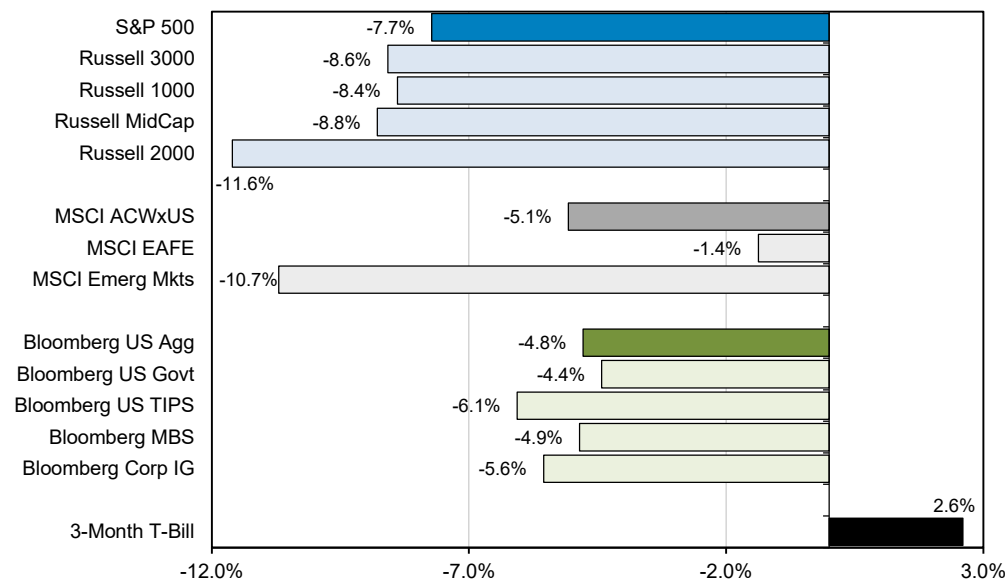
- Central banks remained vigilant in their fight against inflation with the Fed, the Bank of England, and the European Central Bank continuing on the path of raising interest rates during the quarter. However, recession fears and softening inflation readings led to a recovery in asset prices as market expectations grew there may be fewer, less drastic rate hikes going forward.
- The conflict in Ukraine continues as a major geopolitical event without a clear resolution in sight. Energy costs remain elevated, which continues to negatively impact the economic growth outlook for the region.
- Short-term interest rates rose across most developed markets as central banks continued to tighten. Despite concerns about the potential for slowing economic growth, lower-quality corporate bonds slightly outpaced higher-quality government bonds.
- Both US and international equity markets continued to recover from the disappointing year that was 2022 on expectations that inflation would continue to moderate and central banks would slow the pace of monetary tightening.

- Domestic equity markets started 2023 with solid results led by large cap companies, but each index remains negative over the trailing 1-year period. Factors contributing to the quarter's results include declining inflation readings, expectations the Fed would slow the pace of future interest rate increases, and China's economic reopening from its self-imposed COVID-19 restrictions. For the period, the S&P 500 large cap benchmark returned 7.5%, versus 4.1% for mid cap, and 2.7% for small cap benchmarks.
- Like domestic equities, international developed and emerging market equities delivered positive results for the 1st quarter. Europe continues to face headwinds from higher-than-expected inflation, elevated energy prices, geopolitical risks related to the conflict in Ukraine, and rising interest rates. Emerging markets benefited from China's return to the global economy. The developed market MSCI EAFE Index returned 8.5% for the quarter and the MSCI Emerging Markets Index rose by 4.0%.
- For the quarter, performance of the bond market was broadly positive due to lower inflation and falling yields beyond 1-year maturities. The Bloomberg (BB) US Aggregate Index returned 3.0% for the period while investment grade corporate bonds posted a moderately higher return of 3.5%.
- US equity markets were negative over the trailing 1-year period, though much of this weak performance occurred at the beginning of the timeframe and will continue to roll off in the coming quarters. The S&P 500 Index return of -7.7% for the year was largely driven by concerns related to rising inflation, tighter monetary policy, and recession fears. The weakest relative performance for the year was the Russell 2000 Index, which declined -11.6%.
- Over the trailing 1-year period, international markets also declined. The MSCI EAFE Index returned -1.4% while the MSCI Emerging Markets Index fell a much larger -10.7%. Continued concerns related to Ukraine, elevated inflation, and slowing global economic growth negatively impacted markets. However, USD weakness and easing energy prices acted as a tailwind to international performance in the second half of 2022.
- Bond markets followed a largely similar narrative to equities, finishing the trailing 1-year period in negative territory. While bond market performance was impacted by similar factors to equity market performance, the primary driver of results over the prior year was dramatically higher interest rates, which directly and immediately impact bond prices and index performance. US mortgage backed and Government issues were the least negative sectors returning -4.9% and -4.4%, respectively, for the year. US TIPS suffered the year's largest loss, falling -6.1%.

### Quarter Performance



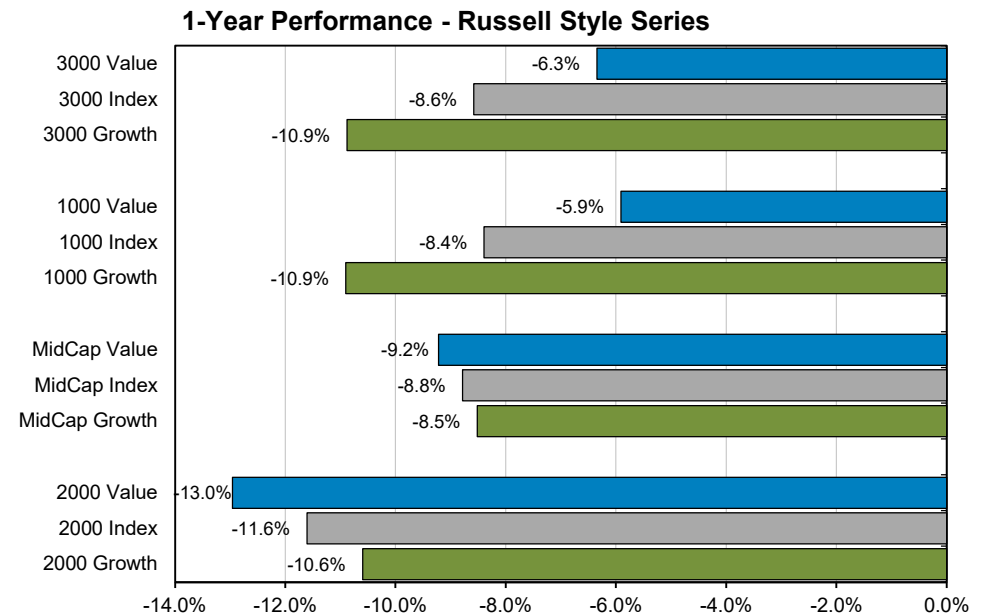
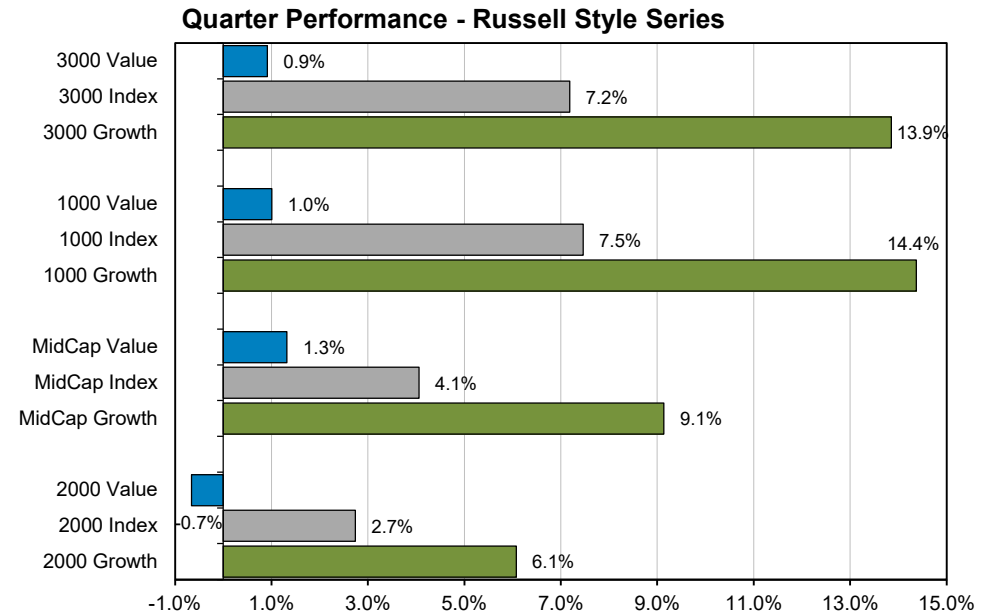
### 1-Year Performance



Source: Investment Metrics



- Domestic equity core benchmarks pulled back from their February highs, but each finished the quarter with solid, positive results. Concerns regarding the regional banking sector and the financial sector's large weight in the value benchmarks weighed heavily on style-based index performance. Large cap stocks led results for the capitalization-based benchmarks and finished well ahead of both the mid cap and small cap indices for the quarter. Growth benchmarks, with their lower weight in the financial sector and larger weight in the information technology sector, produced the quarter's strongest results at all capitalization levels. The Russell 1000 Growth Index topped the quarter, returning 14.4% followed by the Russell Mid Cap Growth Index and the Russell 2000 Growth Index, which rose by 9.1% and 6.1%, respectively.
- Large, mid, and small cap growth stocks each outperformed their value counterparts by a wide margin for the quarter. While it is only a single quarter, this performance reversed 2022's dominant trend of value-based benchmarks outpacing their growth counterparts. Large and mid cap stocks managed small, positive returns of 1.0% and 1.3%, respectively, for the quarter while the Russell 2000 Value Index fell -0.7%.
- The 1st quarter's positive performance was not enough to offset the challenging performance experienced by domestic equity markets during 2022. All market capitalizations and styles remain in sizable negative territory over the trailing 1-year period. Within large cap stocks, the Russell 1000 Value Index returned a disappointing -5.9% but was down much less than the Russell Large Cap Growth Index, which fell -10.9% for the year.
- Outside of large cap issues, 2023's strong 1st quarter growth benchmark results were enough to push growth results over their value equivalents at both mid and small cap levels for the year. The Russell Mid Cap Value Index returned -9.2% and the small cap Russell 2000 Value Index returned -13.0% for the period. The growth benchmark counterparts at both capitalization levels were each down less than value.

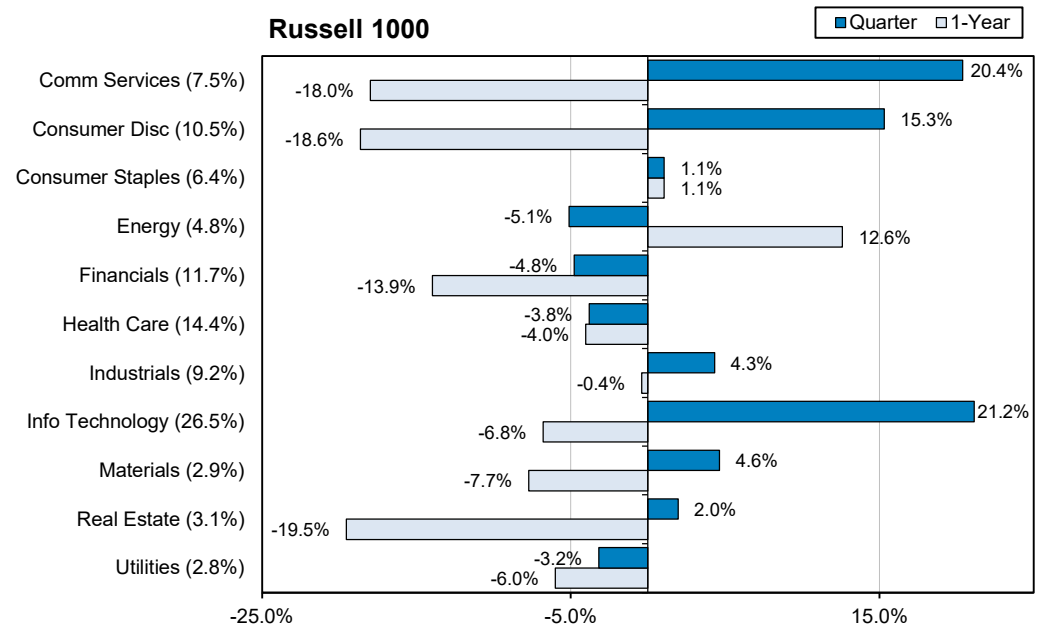


Source: Investment Metrics

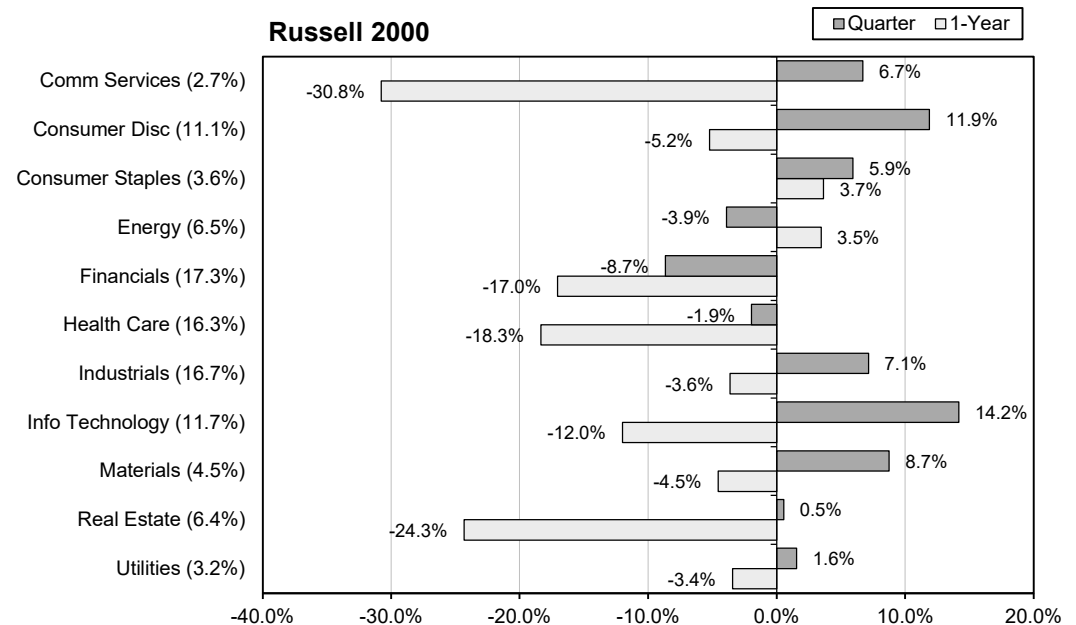


- Economic sector performance was mixed during the quarter. Seven of 11 economic sectors posted positive absolute performance for the quarter but just three managed to outpace the return of the broad index.
- After a challenging 2022, the information technology sector rebounded during the quarter on hopes that inflation was softening, and that the Fed would soon end its rate hiking cycle. The sector returned an impressive 21.2% in the quarter. The other two sectors that outpaced the headline index's return for the quarter were communication services (20.4%) and consumer discretionary (15.3%). The energy (-5.1%), financials (-4.8%), health care (-3.8%), and utilities (-3.2%) sectors each posted negative performance for the quarter.
- Eight small cap economic sectors posted positive results during the quarter and six exceeded the 2.7% return of the broader Russell 2000 Index. The consumer discretionary (11.9%) and information technology (14.2%) sectors each posted double-digit gains for the quarter while the energy (-3.9%), financials (-8.7%), and health care (-18.3%) sectors posted negative returns.
- For the full year, seven economic sectors exceeded the return of the broad large cap benchmark, but only the energy (12.6%) and consumer staples (1.1%) sectors managed to post positive performance for the period. The weakest economic sector in the Russell 1000 for the year was Real Estate, which declined by -19.5% and was heavily impacted by rising interest rates.
- Similar to large cap sector performance, for the trailing 1-year period only two small cap sectors were positive. Energy was the best performing sector followed by consumer staples, which posted returns of 3.5% and 3.7%, respectively. Four of the 11 economic sectors were down less than the broad small cap benchmark's return of -11.6%. The worst performing sector for the year was communication services with a return of -30.8%. However, the information technology (-12.0%), financials (-17.0%), health care (-18.3%), and real estate (-24.3%) sectors were also down significantly for the year.

**Russell 1000**



**Russell 2000**



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 March 31, 2023

Top 10 Weighted Stocks				
Russell 1000	Weight	1-Qtr Return	1-Year Return	Sector
Apple Inc	6.5%	27.1%	-5.0%	Information Technology
Microsoft Corp	5.7%	20.5%	-5.6%	Information Technology
Amazon.com Inc	2.4%	23.0%	-36.6%	Consumer Discretionary
NVIDIA Corp	1.7%	90.1%	1.9%	Information Technology
Alphabet Inc Class A	1.6%	17.6%	-25.4%	Communication Services
Berkshire Hathaway Inc Class B	1.5%	0.0%	-12.5%	Financials
Alphabet Inc Class C	1.4%	17.2%	-25.5%	Communication Services
Tesla Inc	1.4%	68.4%	-42.2%	Consumer Discretionary
Meta Platforms Inc Class A	1.2%	76.1%	-4.7%	Communication Services
Exxon Mobil Corp	1.2%	0.2%	37.5%	Energy

Top 10 Performing Stocks (by Quarter)				
Russell 1000	Weight	1-Qtr Return	1-Year Return	Sector
Sotera Health Co Ordinary Shares	0.0%	115.0%	-17.3%	Health Care
Carvana Co Class A	0.0%	106.5%	-91.8%	Consumer Discretionary
Coinbase Global Inc Ordinary Shares	0.0%	90.9%	-64.4%	Financials
NVIDIA Corp	1.7%	90.1%	1.9%	Information Technology
Oak Street Health Inc Ordinary Shares	0.0%	79.8%	43.9%	Health Care
Meta Platforms Inc Class A	1.2%	76.1%	-4.7%	Communication Services
DraftKings Inc Ordinary Shs - Class A	0.0%	70.0%	-0.6%	Consumer Discretionary
Spotify Technology SA	0.0%	69.2%	-11.5%	Communication Services
Tesla Inc	1.4%	68.4%	-42.2%	Consumer Discretionary
Roku Inc Class A	0.0%	61.7%	-47.5%	Communication Services

Bottom 10 Performing Stocks (by Quarter)				
Russell 1000	Weight	1-Qtr Return	1-Year Return	Sector
First Republic Bank	0.0%	-88.5%	-91.3%	Financials
PacWest Bancorp	0.0%	-57.2%	-76.6%	Financials
Lumen Technologies Inc Ordinary Shs	0.0%	-49.2%	-75.4%	Communication Services
WeWork Inc	0.0%	-45.6%	-88.6%	Real Estate
Enviva Inc	0.0%	-44.4%	-61.2%	Energy
Western Alliance Bancorp	0.0%	-40.0%	-56.3%	Financials
Zions Bancorp NA	0.0%	-38.6%	-52.9%	Financials
Charles Schwab Corp	0.2%	-36.9%	-37.1%	Financials
Comerica Inc	0.0%	-34.0%	-49.8%	Financials
DISH Network Corp Class A	0.0%	-33.5%	-70.5%	Communication Services

Top 10 Weighted Stocks				
Russell 2000	Weight	1-Qtr Return	1-Year Return	Sector
Iridium Communications Inc	0.3%	20.7%	53.9%	Communication Services
ShockWave Medical Inc	0.3%	5.5%	4.6%	Health Care
EMCOR Group Inc	0.3%	9.9%	45.0%	Industrials
Crocs Inc	0.3%	16.6%	65.5%	Consumer Discretionary
Texas Roadhouse Inc	0.3%	19.4%	31.8%	Consumer Discretionary
Saia Inc	0.3%	29.8%	11.6%	Industrials
Inspire Medical Systems Inc	0.3%	-7.1%	-8.8%	Health Care
RBC Bearings Inc	0.3%	11.2%	20.0%	Industrials
Kinsale Capital Group Inc	0.3%	14.8%	31.9%	Financials
Apellis Pharmaceuticals Inc	0.3%	27.6%	29.8%	Health Care

Top 10 Performing Stocks (by Quarter)				
Russell 2000	Weight	1-Qtr Return	1-Year Return	Sector
Cipher Mining Inc	0.0%	316.1%	-36.0%	Information Technology
SelectQuote Inc Ordinary Shares	0.0%	223.0%	-22.2%	Financials
C3.ai Inc Ordinary Shares - Class A	0.1%	200.0%	47.9%	Information Technology
Riot Platforms Inc	0.1%	194.7%	-52.8%	Information Technology
Oscar Health Inc Class A	0.0%	165.9%	-34.4%	Financials
Marathon Digital Holdings Inc	0.0%	155.0%	-68.8%	Information Technology
Aurinia Pharmaceuticals Inc	0.1%	153.7%	-11.5%	Health Care
Reata Pharmaceuticals Inc Class A	0.1%	139.3%	177.5%	Health Care
Atlas Technical Consultants Inc	0.0%	136.7%	N/A	Industrials
Berkshire Grey Inc Ordinary Shares	0.0%	128.5%	-52.1%	Industrials

Bottom 10 Performing Stocks (by Quarter)				
Russell 2000	Weight	1-Qtr Return	1-Year Return	Sector
Cerberus Cyber Sentinel Corp	0.0%	-86.7%	-93.6%	Information Technology
Cytxera Technologies Inc	0.0%	-84.1%	-97.5%	Information Technology
Bed Bath & Beyond Inc	0.0%	-83.0%	-98.1%	Consumer Discretionary
Pear Therapeutics Inc Class A	0.0%	-78.4%	-95.0%	Health Care
Veru Inc	0.0%	-78.0%	-76.0%	Consumer Staples
Sunlight Financial Holdings Inc	0.0%	-75.8%	-93.8%	Financials
Esperion Therapeutics Inc	0.0%	-74.5%	-65.7%	Health Care
Nektar Therapeutics	0.0%	-68.9%	-87.0%	Health Care
Vintage Wine Estates Inc Ordinary Shs	0.0%	-67.2%	-89.2%	Consumer Staples
Bright Health Group Inc	0.0%	-66.1%	-88.6%	Financials

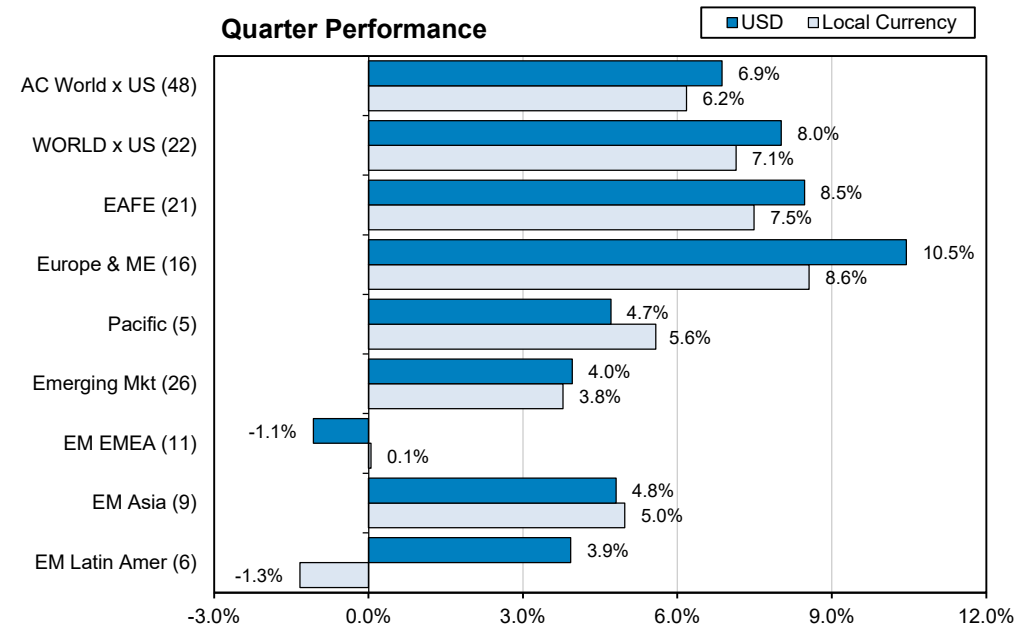
Source: Morningstar Direct



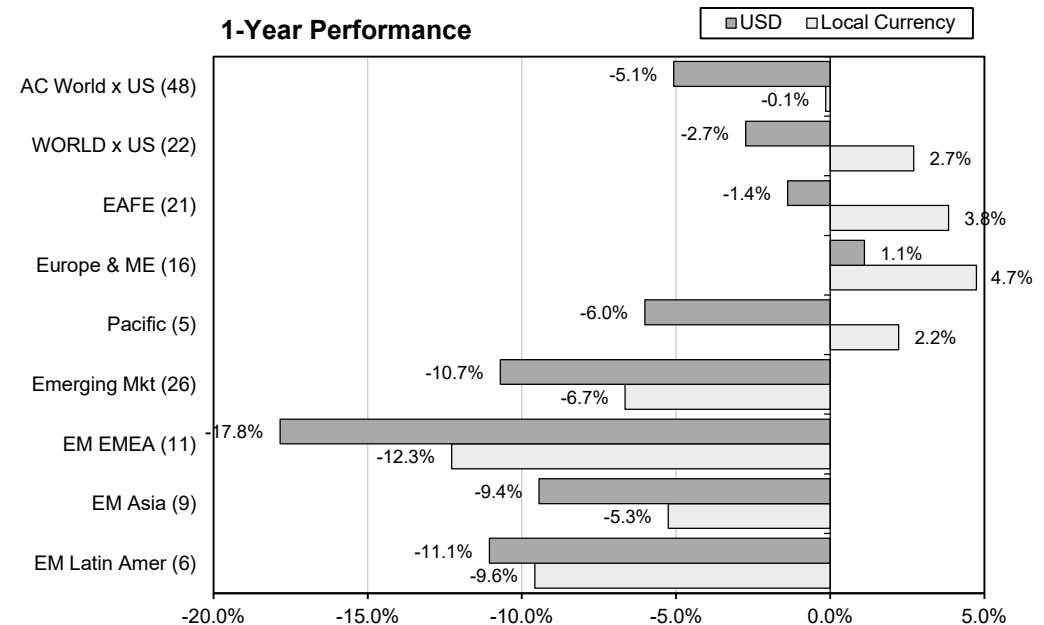
- Many of the International developed and emerging market benchmarks posted positive performance in both USD and LCL terms for the 1st quarter. A weakening USD acted as a slight tailwind for non-US index performance during the quarter. Higher energy prices and the reopening of China drove performance, especially in emerging markets. Europe and Middle East sub-index led results, returning a strong 10.5% in USD and 8.6% in LCL. The developed market MSCI EAFE Index returned a solid 8.5% in USD and 7.5% in LCL terms for the period, and the MSCI Emerging Markets Index rose by 4.0% in USD and 3.8% in LCL terms.

- The trailing 1-year results for international developed and emerging markets remain in negative territory in USD terms. A strong dollar over most of the trailing 1-year period was the dominant USD performance factor, shaving 5.2% off broad developed market performance and 4.0% from emerging market results. Developed market performance was positive in LCL terms with the MSCI EAFE Index returning -1.4% in USD and 3.8% in LCL terms for the year. The MSCI Emerging Markets Index declined by -10.7% in USD and -6.7% in LCL terms for the period. Performance in the EMEA (Europe, Middle East, and Africa) regional benchmark significantly detracted from emerging market index performance with a return of -17.8% in USD and -12.3% in LCL terms.

### Quarter Performance



### 1-Year Performance



Source: MSCI Global Index Monitor (Returns are Net)





**The Market Environment**  
**US Dollar International Index Attribution & Country Detail**  
As of March 31, 2023

MSCI - EAFE	Sector Weight	Quarter Return	1-Year Return
Communication Services	4.5%	10.5%	-6.5%
Consumer Discretionary	12.0%	17.0%	5.0%
Consumer Staples	10.4%	7.6%	1.3%
Energy	4.5%	0.4%	9.6%
Financials	17.7%	2.5%	-1.1%
Health Care	13.2%	5.4%	-2.6%
Industrials	15.6%	11.9%	-0.5%
Information Technology	8.6%	19.0%	-4.1%
Materials	7.7%	7.6%	-6.5%
Real Estate	2.4%	-2.1%	-20.4%
Utilities	3.4%	8.2%	-1.2%
<b>Total</b>	<b>100.0%</b>	<b>8.5%</b>	<b>-1.4%</b>

MSCI - ACWIXUS	Sector Weight	Quarter Return	1-Year Return
Communication Services	6.1%	11.2%	-7.1%
Consumer Discretionary	11.9%	11.3%	1.7%
Consumer Staples	8.9%	6.5%	1.1%
Energy	5.5%	-0.3%	0.8%
Financials	19.9%	1.4%	-7.5%
Health Care	9.6%	4.2%	-4.4%
Industrials	12.7%	10.0%	-1.8%
Information Technology	11.8%	17.2%	-9.5%
Materials	8.3%	5.9%	-10.5%
Real Estate	2.1%	-1.7%	-19.7%
Utilities	3.2%	3.3%	-5.9%
<b>Total</b>	<b>100.0%</b>	<b>6.9%</b>	<b>-5.1%</b>

MSCI - Emerging Mkt	Sector Weight	Quarter Return	1-Year Return
Communication Services	10.6%	12.6%	-7.4%
Consumer Discretionary	13.9%	1.5%	-3.9%
Consumer Staples	6.3%	2.4%	-0.6%
Energy	4.7%	-0.3%	-4.8%
Financials	21.0%	-0.9%	-13.6%
Health Care	3.8%	-4.9%	-15.4%
Industrials	6.0%	2.2%	-6.3%
Information Technology	20.5%	14.7%	-13.9%
Materials	8.7%	2.4%	-15.6%
Real Estate	1.9%	-1.6%	-18.7%
Utilities	2.6%	-10.5%	-14.4%
<b>Total</b>	<b>100.0%</b>	<b>4.0%</b>	<b>-10.7%</b>

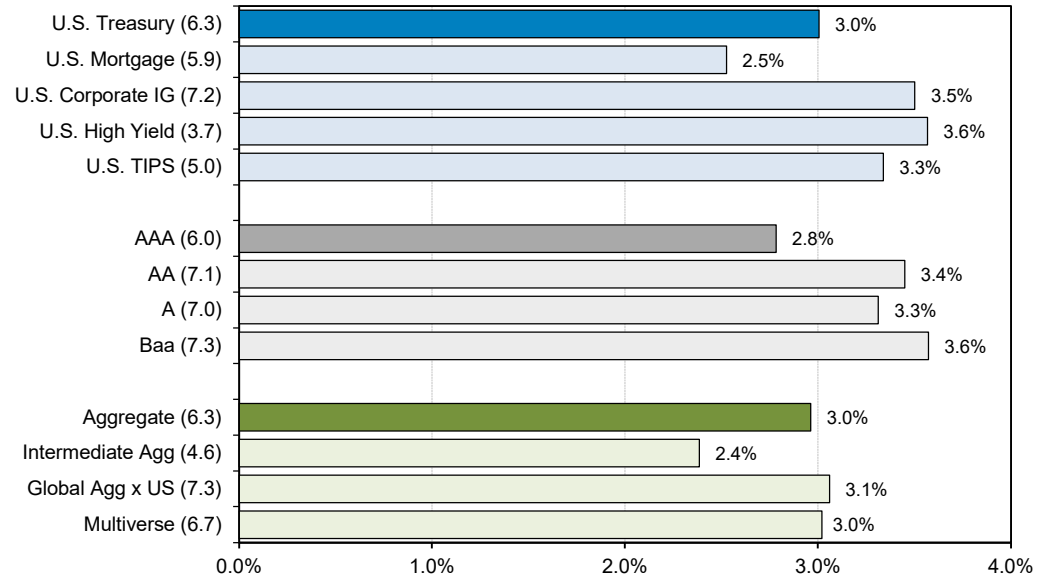
Country	MSCI-EAFE Weight	MSCI-ACWIXUS Weight	Quarter Return	1-Year Return
Japan	21.5%	13.9%	6.2%	-5.2%
United Kingdom	14.8%	9.6%	6.1%	-0.8%
France	12.5%	8.1%	14.6%	8.8%
Switzerland	10.0%	6.5%	6.7%	-6.8%
Germany	8.7%	5.6%	14.7%	2.2%
Australia	7.5%	4.8%	2.8%	-9.2%
Netherlands	4.6%	3.0%	16.6%	2.0%
Sweden	3.4%	2.2%	9.5%	-7.2%
Denmark	3.1%	2.0%	12.4%	14.2%
Hong Kong	2.7%	1.8%	-2.4%	-5.3%
Spain	2.6%	1.7%	15.7%	11.9%
Italy	2.5%	1.6%	14.7%	9.1%
Singapore	1.5%	1.0%	7.1%	-3.1%
Belgium	1.0%	0.7%	6.3%	-2.2%
Finland	1.0%	0.6%	-0.3%	-4.2%
Ireland	0.8%	0.5%	21.4%	12.1%
Israel	0.7%	0.4%	0.8%	-20.6%
Norway	0.7%	0.4%	-7.2%	-21.6%
Portugal	0.2%	0.1%	3.4%	1.3%
New Zealand	0.2%	0.1%	8.0%	2.1%
Austria	0.2%	0.1%	2.6%	-5.7%
<b>Total EAFE Countries</b>	<b>100.0%</b>	<b>64.8%</b>	<b>17.3%</b>	<b>-14.5%</b>
Canada		7.5%	4.3%	-13.1%
<b>Total Developed Countries</b>		<b>72.3%</b>	<b>16.2%</b>	<b>-14.3%</b>
China		9.1%	4.7%	-4.7%
Taiwan		4.2%	14.8%	-13.7%
India		3.6%	-6.4%	-12.2%
Korea		3.3%	9.6%	-14.4%
Brazil		1.4%	-3.2%	-18.7%
Saudi Arabia		1.1%	0.1%	-19.0%
South Africa		1.0%	-0.6%	-20.6%
Mexico		0.7%	20.3%	8.6%
Thailand		0.6%	-1.7%	-0.9%
Indonesia		0.5%	6.0%	0.2%
Malaysia		0.4%	-3.6%	-10.9%
United Arab Emirates		0.3%	-7.5%	-28.4%
Qatar		0.3%	-0.7%	-22.6%
Kuwait		0.2%	-3.7%	-11.3%
Philippines		0.2%	2.4%	-13.7%
Poland		0.2%	-1.0%	-20.1%
Turkey		0.2%	-9.4%	52.8%
Chile		0.2%	5.2%	-3.0%
Greece		0.1%	15.8%	14.8%
Peru		0.1%	8.3%	-12.2%
Czech Republic		0.1%	33.0%	10.3%
Hungary		0.1%	2.9%	-12.1%
Columbia		0.0%	-13.5%	-39.2%
Egypt		0.0%	-3.6%	-2.6%
<b>Total Emerging Countries</b>		<b>27.7%</b>	<b>4.0%</b>	<b>-10.7%</b>
<b>Total ACWIXUS Countries</b>		<b>100.0%</b>	<b>6.9%</b>	<b>-5.1%</b>

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

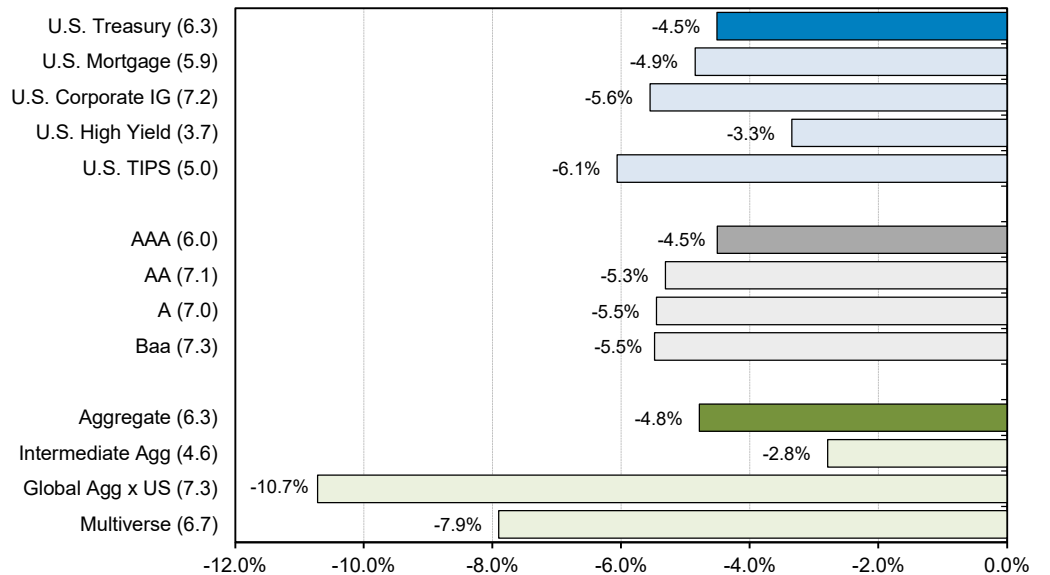


- After a challenging 2022 in fixed income markets brought on by the largest and most rapid increase in interest rates since the early 80's, the 1st quarter's positive bond benchmark results were a welcome relief. Despite two additional rate increases during the quarter, bond prices were aided by softening inflation and expectations that the Fed was nearing the end of its historic rate hiking cycle.
- The BB US Aggregate Bond Index, the bellwether US investment grade benchmark, returned a solid 3.0% for the period. Performance across the investment grade index's segments was also positive during the period with the US Corporate Investment Grade Index returning 3.5% and the US Mortgage Index component posting a return of 2.5%. Outside of the aggregate index's components, high yield bonds rose 3.6% and US TIPS posted a return of 3.3% for the quarter. The Bloomberg Global Aggregate ex US Index posted a similar return to the US bond benchmark with a return of 3.1% for the quarter.
- Over the trailing 1-year period, the BB US Aggregate Bond Index declined by -4.8% and each of the benchmark's sub-components fell in a narrow band above and below the broad index's return. US TIPS, which are excluded from the aggregate index, dropped by -6.1% for the year. Lower quality high yield corporate bonds, which have a much shorter duration, were down less than their investment grade counterparts with the Bloomberg US High Yield Index returning -3.3% for the year.
- Performance for non-US bonds was also negative for the year with the developed market Bloomberg Global Aggregate ex US Index falling by -10.7%. The combination of rising interest rates, elevated inflation, geopolitical risks, and USD strength earlier in the year hindered non-US index performance.

### Quarter Performance



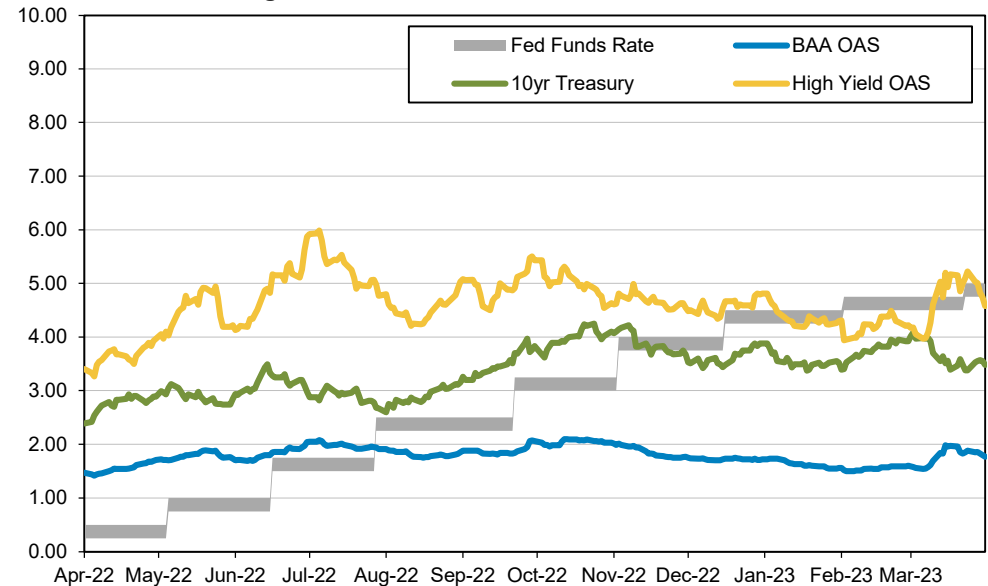
### 1-Year Performance



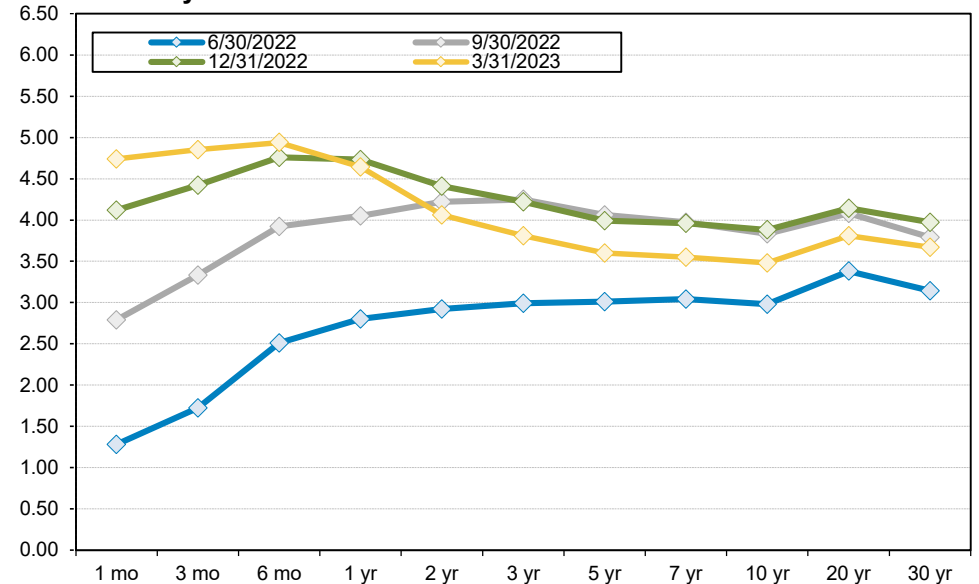
Source: Bloomberg

- The gray band across the graph illustrates the range of the current Fed Funds Rate. During the 1st quarter the Fed raised the lower end of its target rate range from 4.25% to 4.75% through two successive 0.25% increases in February and March. After its March meeting, the Federal Open Market Committee (FOMC) altered a phrase in its press release that had been included since the beginning of this rate increase cycle. Their revised release stated - "some additional policy firming may be appropriate" and it removed "ongoing increases in the target range will be appropriate." The FOMC also stated that it would continue its policy of removing liquidity from the market by allowing bonds held on its balance sheet to mature without reinvesting those proceeds. While subtle, the capital market interpreted this change favorably in terms of the future path of interest rates.
- The yield on the US 10-year Treasury (green line) ended the period slightly lower as concerns over the state of the economy and March's banking disruption drove yields. The closing yield on the 10-Year Treasury was 3.88% at year-end but finished the quarter 0.40% lower at 3.48%. The benchmark's rate peaked in October, cresting at just over 4.00% before pulling back to its current level.
- 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 1.42% to 1.80%. High Yield OAS spreads rose from roughly 3.27% at the beginning of the year to 4.74% at year-end. High yield spreads reached their highs in July 2022 at a level of 5.80% before trading lower the remainder of the year. A spike in both the BAA OAS and High Yield spreads is visible in March following a short-lived banking crisis of confidence addressed quickly by the FDIC and supported further by the Fed's aggressive short-term par loan program. Both spread measures traded lower on the news of the Government's intervention but were still elevated from pre-crisis levels at the end 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 1st quarter as the Fed increased interest rates twice to combat elevated inflation. Despite these short-term rate increases, at the end of the quarter both intermediate and longer-term yields were slightly lower than they were at the end of the 3rd quarter of 2022. The yield curve remains inverted (short-term rates higher than long-term rates) between 2-year and 10-year maturities. Historically, a persistent inversion of these two key rates has been a precursor of an economic recession within 6- to 24-months.

### 1-Year Trailing Market Rates



### Treasury Yield Curve



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 Trailing Returns

	QTR	FYTD	1 YR	2 YR	3 YR	5 YR	10 YR	15 YR	Inception	Inception Date
<b>Total Fund Performance</b>	<b>4.72 (46)</b>	<b>4.72 (46)</b>	<b>-6.48 (82)</b>	<b>-1.73 (78)</b>	<b>9.66 (73)</b>	<b>4.86 (91)</b>	<b>6.33 (69)</b>	<b>6.17 (58)</b>	<b>5.92 (38)</b>	<b>01/01/2001</b>
Total Fund Policy	4.60 (51)	4.60 (51)	-6.20 (76)	-1.34 (69)	10.32 (56)	5.23 (83)	6.42 (69)	6.58 (29)	6.04 (32)	
Allocation Index	4.70 (47)	4.70 (47)	-6.52 (83)	-1.75 (79)	9.70 (72)	4.86 (91)	N/A	N/A	N/A	
All Public Plans-Total Fund Median	4.60	4.60	-5.66	-1.05	10.68	6.02	6.73	6.28	5.76	
<b>All Public Plan Sponsor Universes with 50% or Less Equities</b>										
<b>Total Fund Performance</b>	<b>4.72 (N/A)</b>	<b>4.72 (N/A)</b>	<b>-6.48 (N/A)</b>	<b>-1.73 (N/A)</b>	<b>9.66 (N/A)</b>	<b>4.86 (N/A)</b>	<b>6.33 (N/A)</b>	<b>6.17 (N/A)</b>	<b>5.92 (N/A)</b>	<b>01/01/2001</b>
Total Fund Policy	4.60 (N/A)	4.60 (N/A)	-6.20 (N/A)	-1.34 (N/A)	10.32 (N/A)	5.23 (N/A)	6.42 (N/A)	6.58 (N/A)	6.04 (N/A)	
All Public Plans =< 50% Equities Median	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	
<b>All Public Plan Sponsor Universes with 60% or More Equities</b>										
<b>Total Fund Performance</b>	<b>4.72 (55)</b>	<b>4.72 (55)</b>	<b>-6.48 (77)</b>	<b>-1.73 (76)</b>	<b>9.66 (79)</b>	<b>4.86 (96)</b>	<b>6.33 (78)</b>	<b>6.17 (58)</b>	<b>5.92 (33)</b>	<b>01/01/2001</b>
Total Fund Policy	4.60 (57)	4.60 (57)	-6.20 (70)	-1.34 (67)	10.32 (68)	5.23 (89)	6.42 (77)	6.58 (28)	6.04 (28)	
All Public Plans >=60% Equities Median	4.84	4.84	-5.77	-1.08	10.84	6.11	6.78	6.29	5.62	

# Comparative Performance

## Total Fund

As of March 31, 2023

	QTR	FYTD	1 YR	2 YR	3 YR	5 YR	10 YR	15 YR	Inception	Inception Date
<b>Domestic Equity</b>										
<b>Total Fund Domestic Equity</b>	<b>5.82</b>	<b>5.82</b>	<b>-7.27</b>	<b>0.97</b>	<b>19.12</b>	<b>9.18</b>	<b>N/A</b>	<b>N/A</b>	<b>9.42</b>	<b>07/01/2014</b>
Vanguard Inst'l Index Fund (VINIX)	7.49 (13)	7.49 (13)	-7.77 (10)	3.26 (11)	N/A	N/A	N/A	N/A	N/A	11/01/2020
S&P 500 Index	7.50 (5)	7.50 (5)	-7.73 (2)	3.30 (1)	18.60 (1)	11.19 (1)	12.24 (1)	10.06 (1)	11.66 (1)	
IM S&P 500 Index (MF) Median	7.43	7.43	-8.01	2.95	18.25	10.83	11.78	9.58	11.26	
Vanguard Growth Index (VIGIX)	17.25 (14)	17.25 (14)	-12.61 (47)	-0.85 (26)	17.48 (16)	12.90 (13)	13.61 (20)	N/A	13.49 (13)	05/01/2010
Vanguard Growth Index Hybrid	17.27 (14)	17.27 (14)	-12.59 (47)	-0.83 (26)	17.52 (16)	12.93 (13)	13.65 (19)	11.55 (12)	13.55 (12)	
Russell 1000 Growth Index	14.37 (37)	14.37 (37)	-10.90 (25)	1.21 (9)	18.58 (8)	13.66 (8)	14.59 (7)	12.11 (6)	14.24 (6)	
IM U.S. Large Cap Growth Equity (MF) Median	13.68	13.68	-12.88	-2.87	14.60	10.72	12.57	10.38	12.27	
Vanguard Value Index (VIVIX)	-1.00 (80)	-1.00 (80)	-3.98 (35)	5.12 (22)	18.71 (43)	8.86 (35)	10.53 (20)	N/A	12.40 (20)	07/01/2009
Vanguard Value Index Hybrid	-1.00 (80)	-1.00 (80)	-3.95 (35)	5.15 (21)	18.73 (43)	8.87 (35)	10.56 (19)	8.58 (25)	12.44 (19)	
Russell 1000 Value Index	1.01 (33)	1.01 (33)	-5.91 (67)	2.50 (73)	17.93 (54)	7.50 (67)	9.13 (58)	7.68 (55)	11.59 (41)	
IM U.S. Large Cap Value Equity (MF) Median	0.15	0.15	-4.96	3.58	18.15	8.02	9.36	7.87	11.33	
Vanguard Mid-Cap 400 Index Fund I (VSPMX)	3.79 (30)	3.79 (30)	-5.17 (33)	-0.45 (63)	22.02 (19)	N/A	N/A	N/A	8.58 (42)	12/01/2018
S&P MidCap 400 Index	3.81 (30)	3.81 (30)	-5.12 (33)	-0.39 (62)	22.10 (19)	7.67 (39)	9.80 (19)	9.82 (9)	8.64 (41)	
IM U.S. Mid Cap Core Equity (MF) Median	2.31	2.31	-6.60	0.35	19.49	6.91	8.47	8.13	8.15	
Vanguard Small-Cap 600 Index I (VSMSX)	2.55 (54)	2.55 (54)	-8.89 (59)	-4.01 (60)	21.69 (43)	N/A	N/A	N/A	6.44 (50)	12/01/2018
S&P SmallCap 600 Index	2.57 (53)	2.57 (53)	-8.82 (57)	-3.93 (60)	21.71 (42)	6.30 (32)	9.87 (5)	9.64 (10)	6.45 (49)	
IM U.S. Small Cap Core Equity (MF) Median	2.71	2.71	-8.33	-3.22	21.16	5.52	8.01	8.09	6.39	

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



# Comparative Performance

## Total Fund

As of March 31, 2023

	QTR	FYTD	1 YR	2 YR	3 YR	5 YR	10 YR	15 YR	Inception	Inception Date
<b>International Equity</b>										
<b>Total Fund Performance - International Equity</b>	<b>6.69</b>	<b>6.69</b>	<b>-6.05</b>	<b>-5.42</b>	<b>11.78</b>	<b>1.29</b>	<b>N/A</b>	<b>N/A</b>	<b>2.48</b>	<b>07/01/2014</b>
Vanguard Intl Value (VTRIX)	8.65 (35)	8.65 (35)	1.13 (51)	N/A	N/A	N/A	N/A	N/A	0.51 (74)	12/01/2021
MSCI AC World ex USA Value	5.33 (97)	5.33 (97)	-3.32 (90)	0.25 (71)	14.54 (78)	1.90 (84)	3.67 (100)	2.42 (79)	1.61 (68)	
IM International Multi-Cap Value Equity (MF) Median	7.46	7.46	1.25	1.80	16.52	3.07	5.23	2.98	2.57	
Vanguard Intl Growth (VWILX)	12.50 (10)	12.50 (10)	-6.81 (72)	N/A	N/A	N/A	N/A	N/A	-17.93 (90)	12/01/2021
MSCI AC World ex USA Growth	8.69 (46)	8.69 (46)	-6.03 (65)	-5.97 (60)	9.81 (75)	3.71 (58)	5.45 (81)	3.64 (77)	-10.34 (52)	
IM International Multi-Cap Growth Equity (MF) Median	8.59	8.59	-4.17	-5.27	11.88	4.02	6.14	4.66	-9.94	
Vanguard FTSE AW ex-US SC Index (VFSNX)	5.99 (59)	5.99 (59)	-9.95 (94)	-5.20 (80)	14.42 (66)	N/A	N/A	N/A	14.42 (66)	04/01/2020
FTSE Global ex U.S. Small Cap Index (Net)	5.72 (82)	5.72 (82)	-11.05 (100)	-5.43 (80)	14.07 (77)	0.73 (67)	4.01 (83)	N/A	14.07 (77)	
IM International SMID Cap Core Equity (MF) Median	6.54	6.54	-5.62	-3.13	15.60	1.27	5.60	N/A	15.60	
Vanguard Developed Markets Index (VTMNX)	7.79 (51)	7.79 (51)	-2.88 (50)	-1.13 (40)	13.86 (32)	3.44 (23)	5.26 (22)	N/A	6.53 (33)	07/01/2009
Vanguard Spliced Developed ex U.S. Index (Net)	7.62 (55)	7.62 (55)	-4.10 (63)	-1.30 (42)	13.54 (37)	3.43 (23)	5.22 (24)	3.14 (39)	6.48 (35)	
MSCI EAFE (Net) Index	8.47 (38)	8.47 (38)	-1.38 (38)	-0.12 (27)	12.99 (47)	3.52 (21)	5.00 (32)	3.00 (44)	6.32 (41)	
IM International Multi-Cap Equity (MF) Median	7.84	7.84	-2.91	-2.00	12.78	2.49	4.63	2.77	6.04	
Vanguard Emerging Markets Index (VEMIX)	3.60 (79)	3.60 (79)	-9.10 (48)	-8.87 (28)	9.53 (33)	-0.02 (30)	2.22 (38)	N/A	1.82 (45)	10/01/2010
FTSE Emerging Mkts All Cap China A Inclusion Index	3.11 (84)	3.11 (84)	-9.79 (53)	-8.25 (25)	9.87 (30)	0.50 (23)	2.85 (26)	2.42 (29)	2.36 (31)	
MSCI Emerging Markets (Net) Index	3.96 (73)	3.96 (73)	-10.70 (64)	-11.03 (41)	7.83 (52)	-0.91 (46)	2.00 (45)	1.69 (47)	1.74 (46)	
IM Emerging Markets Equity (MF) Median	5.02	5.02	-9.28	-11.91	7.93	-1.08	1.77	1.55	1.62	

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Returns are expressed as percentages.





# Comparative Performance

## Total Fund

As of March 31, 2023

	QTR	FYTD	1 YR	2 YR	3 YR	5 YR	10 YR	15 YR	Inception	Inception Date
<b>Fixed Income</b>										
<b>Total Fund Performance - Fixed Income</b>	<b>3.11</b>	<b>3.11</b>	<b>-3.47</b>	<b>-3.20</b>	<b>-0.33</b>	<b>1.59</b>	<b>N/A</b>	<b>N/A</b>	<b>1.65</b>	<b>07/01/2014</b>
Vanguard Short Term Bond Index (VBITX)	1.93 (9)	1.93 (9)	-0.31 (72)	-2.10 (89)	-0.81 (98)	1.28 (60)	1.09 (54)	N/A	1.09 (54)	04/01/2013
Bloomberg 1-5 Year Gov/Credit Idx	1.82 (17)	1.82 (17)	-0.33 (73)	-2.10 (89)	-0.79 (97)	1.32 (57)	1.13 (48)	1.85 (35)	1.13 (48)	
IM U.S. Short Term Investment Grade (MF) Median	1.50	1.50	0.23	-1.00	1.30	1.38	1.12	1.68	1.12	
Vanguard Total Bond Index (VBTIX)	3.16 (46)	3.16 (46)	-4.70 (18)	-4.39 (21)	-2.77 (86)	N/A	N/A	N/A	-1.60 (56)	09/01/2019
Blmbg. U.S. Aggregate Index	2.96 (68)	2.96 (68)	-4.78 (22)	-4.47 (26)	-2.77 (86)	0.90 (43)	1.36 (45)	2.71 (58)	-1.58 (54)	
IM U.S. Broad Market Core Fixed Income (MF) Median	3.14	3.14	-5.31	-4.77	-1.85	0.85	1.32	2.84	-1.51	
Vanguard High Yield Bond Fund (VWEAX)	3.19 (58)	3.19 (58)	-1.95 (14)	-1.22 (23)	4.74 (71)	3.25 (21)	N/A	N/A	3.72 (16)	12/01/2014
Blmbg. U.S. Corp High Yield	3.57 (34)	3.57 (34)	-3.34 (40)	-2.01 (47)	5.91 (36)	3.21 (22)	4.10 (12)	6.56 (5)	3.91 (11)	
IM U.S. High Yield Bonds (MF) Median	3.29	3.29	-3.75	-2.12	5.45	2.58	3.27	5.33	3.07	
Vanguard International Bond (VTIFX)	3.58 (2)	3.58 (2)	-5.03 (25)	-4.94 (36)	-2.68 (52)	0.33 (15)	N/A	N/A	1.33 (8)	05/01/2015
Blmbg. Global Agg ex-USD Flt Adj RIC Cpd (H)	3.18 (17)	3.18 (17)	-5.16 (32)	-5.04 (41)	-2.69 (53)	0.39 (14)	2.09 (7)	N/A	1.30 (8)	
IM International Fixed Income (MF) Median	2.58	2.58	-6.26	-6.76	-2.46	-2.86	-1.07	1.26	-1.11	
Vanguard EM Bond (VEGBX)	2.54 (33)	2.54 (33)	-2.90 (35)	N/A	N/A	N/A	N/A	N/A	-7.02 (39)	12/01/2021
Blmbg. Emerging Markets USD Aggregate Index	2.15 (42)	2.15 (42)	-4.64 (43)	-6.09 (73)	0.06 (96)	0.31 (51)	2.07 (41)	4.61 (49)	-9.60 (72)	
IM Emerging Markets Debt (MF) Median	1.99	1.99	-5.11	-5.22	2.34	0.35	1.87	4.59	-8.52	
<b>REIT</b>										
Vanguard Real Estate Index Fund (VGSNX)	1.79 (82)	1.79 (82)	-20.10 (52)	-1.47 (74)	9.85 (57)	5.84 (46)	5.81 (41)	N/A	7.99 (33)	10/01/2010
Vanguard Spliced REIT Index	1.83 (81)	1.83 (81)	-20.00 (50)	-1.38 (71)	9.96 (54)	5.92 (43)	5.89 (36)	6.31 (33)	8.06 (31)	
IM Real Estate Sector (MF) Median	2.56	2.56	-20.05	-0.35	10.12	5.73	5.61	5.65	7.59	

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Returns are expressed as percentages.



# Comparative Performance

## Total Fund

As of March 31, 2023

	QTR	FYTD	1 YR	2 YR	3 YR	5 YR	10 YR	15 YR	Inception	Inception Date
<b>Total Fund - Domestic Equity</b>	<b>5.82</b>	<b>5.82</b>	<b>-7.27</b>	<b>0.97</b>	<b>19.12</b>	<b>9.18</b>	<b>N/A</b>	<b>N/A</b>	<b>9.42</b>	<b>07/01/2014</b>
Total Domestic Large Cap Equity	7.24	7.24	-7.78	2.44	17.12	9.81	N/A	N/A	10.12	06/01/2014
S&P 500 Index	7.50	7.50	-7.73	3.30	18.60	11.19	12.24	10.06	11.06	
Large Cap Growth	17.25	17.25	-12.61	-0.85	17.88	13.10	N/A	N/A	12.64	06/01/2014
Vanguard Growth Index Hybrid	17.27	17.27	-12.59	-0.83	17.52	12.93	13.65	11.55	12.53	
Russell 1000 Growth Index	14.37	14.37	-10.90	1.21	18.58	13.66	14.59	12.11	13.55	
Large Cap Core	7.49	7.49	-7.83	2.34	15.77	8.68	N/A	N/A	9.29	06/01/2014
S&P 500 Index	7.50	7.50	-7.73	3.30	18.60	11.19	12.24	10.06	11.06	
Large Cap Value	-0.85	-0.85	-3.84	5.20	18.77	8.87	N/A	N/A	9.30	06/01/2014
Vanguard Value Index Hybrid	-1.00	-1.00	-3.95	5.15	18.73	8.87	10.56	8.58	9.25	
Russell 1000 Value Index	1.01	1.01	-5.91	2.50	17.93	7.50	9.13	7.68	7.69	
Mid Cap Equity	3.93	3.93	-5.04	-0.38	22.08	7.63	N/A	N/A	8.49	06/01/2014
Mid Cap Hybrid Index	3.81	3.81	-5.12	-0.39	22.10	7.60	9.93	N/A	8.48	
Small Cap Equity	2.55	2.55	-8.89	-4.01	21.69	5.99	N/A	N/A	7.38	06/01/2014
Small Cap Hybrid Index	2.57	2.57	-8.82	-3.93	21.71	6.03	8.81	N/A	7.39	
<b>Total Fund - International Equity</b>	<b>6.69</b>	<b>6.69</b>	<b>-6.05</b>	<b>-5.42</b>	<b>11.78</b>	<b>1.29</b>	<b>N/A</b>	<b>N/A</b>	<b>2.48</b>	<b>07/01/2014</b>
Small Cap - International Equity	5.99	5.99	-9.95	-5.20	14.42	N/A	N/A	N/A	14.42	04/01/2020
FTSE Global ex U.S. Small Cap Index (Net)	5.72	5.72	-11.05	-5.43	14.07	0.73	4.01	N/A	14.07	
Developed Markets - International Equity	7.79	7.79	-2.88	-1.13	13.86	3.44	N/A	N/A	3.67	06/01/2014
Vanguard Spliced Developed ex U.S. Index (Net)	7.62	7.62	-4.10	-1.30	13.54	3.43	5.22	3.14	3.66	
Emerging Markets - International Equity	3.60	3.60	-9.10	-8.79	9.60	0.01	N/A	N/A	2.32	06/01/2014
FTSE Emerging Mkts All Cap China A Inclusion Index	3.11	3.11	-9.79	-8.25	9.87	0.50	2.85	2.42	2.97	
MSCI Emerging Markets (Net) Index	3.96	3.96	-10.70	-11.03	7.83	-0.91	2.00	1.69	1.99	

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Returns are expressed as percentages.



# Comparative Performance

## Total Fund

As of March 31, 2023

	QTR	FYTD	1 YR	2 YR	3 YR	5 YR	10 YR	15 YR	Inception	Inception Date
<b>Total Fund - Fixed Income</b>	<b>3.11</b>	<b>3.11</b>	<b>-3.47</b>	<b>-3.20</b>	<b>-0.33</b>	<b>1.59</b>	<b>N/A</b>	<b>N/A</b>	<b>1.65</b>	<b>07/01/2014</b>
Short - Term Fixed Income	1.93	1.93	-0.31	-2.10	-0.81	1.26	N/A	N/A	1.09	06/01/2014
Bloomberg 1-5 Year Gov/Credit Idx	1.82	1.82	-0.33	-2.10	-0.79	1.32	1.13	1.85	1.15	
High Yield - Fixed Income	3.19	3.19	-1.95	-1.22	4.74	3.25	N/A	N/A	3.70	11/01/2014
Blmbg. U.S. Corp High Yield	3.57	3.57	-3.34	-2.01	5.91	3.21	4.10	6.56	3.78	
Non-US Fixed Income	3.58	3.58	-5.03	-4.94	-2.68	0.33	N/A	N/A	1.39	05/01/2015
Blmbg. Global Agg ex-USD Flt Adj RIC Cpd (H)	3.18	3.18	-5.16	-5.04	-2.69	0.39	2.09	N/A	1.30	
<b>Real Estate</b>	<b>1.79</b>	<b>1.79</b>	<b>-20.10</b>	<b>-1.47</b>	<b>9.85</b>	<b>5.84</b>	<b>N/A</b>	<b>N/A</b>	<b>5.29</b>	<b>06/01/2014</b>
Vanguard Spliced REIT Index	1.83	1.83	-20.00	-1.38	9.96	5.92	5.89	6.31	5.52	

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



# Comparative Performance

## Total Fund

As of March 31, 2023

Comparative Performance Trailing Returns										
	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
<b>Total Fund Performance</b>	<b>-15.61</b>	<b>14.00</b>	<b>9.84</b>	<b>20.21</b>	<b>-5.76</b>	<b>13.91</b>	<b>8.58</b>	<b>-0.72</b>	<b>8.24</b>	<b>18.07</b>
Total Fund Policy	-14.86	13.81	11.44	19.49	-4.94	13.67	8.48	-0.69	8.15	16.99
Allocation Index	-15.63	14.11	9.90	19.76	-5.32	14.25	7.44	-0.62	N/A	N/A
<b>Domestic Equity</b>										
<b>Total Fund Domestic Equity</b>	<b>-16.59</b>	<b>26.91</b>	<b>13.96</b>	<b>29.77</b>	<b>-7.16</b>	<b>20.07</b>	<b>13.45</b>	<b>-0.10</b>	<b>N/A</b>	<b>33.56</b>
Twin Capital Low Volatility	N/A	N/A	5.51 (93)	29.24 (59)	-5.37 (57)	19.16 (83)	16.03 (9)	-1.31 (80)	12.91 (59)	N/A
S&P 500 Index	-18.11 (67)	28.71 (37)	18.40 (45)	31.49 (33)	-4.38 (40)	21.83 (55)	11.96 (32)	1.38 (55)	13.69 (43)	32.39 (61)
IM U.S. Large Cap Core Equity (SA+CF) Median	-16.47	27.74	17.53	30.06	-5.07	22.08	10.49	1.51	13.42	33.16
Twin Capital Enhanced Index	N/A	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
S&P 500 Index	-18.11 (58)	28.71 (60)	18.40 (48)	31.49 (33)	-4.38 (31)	21.83 (65)	11.96 (56)	1.38 (46)	13.69 (57)	32.39 (72)
IM U.S. Large Cap Enhanced Index Equity (SA+CF) Median	-17.85	29.13	17.38	29.78	-5.30	22.60	12.31	1.22	14.00	33.46
Vanguard Inst'l Index Fund (VINIX)	-18.14 (12)	28.67 (8)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
S&P 500 Index	-18.11 (3)	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)
IM S&P 500 Index (MF) Median	-18.38	28.25	18.05	31.06	-4.66	21.37	11.55	0.96	13.17	31.77
Vanguard Growth Index (VIGIX)	-33.14 (70)	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)
Vanguard Growth Index Hybrid	-33.13 (69)	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)
Russell 1000 Growth Index	-29.14 (27)	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)
IM U.S. Large Cap Growth Equity (MF) Median	-31.30	22.39	35.62	33.26	-1.22	29.28	2.21	5.61	10.49	34.12
Vanguard Value Index (VIVIX)	-2.05 (12)	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)
Vanguard Value Index Hybrid	-2.01 (11)	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)
Russell 1000 Value Index	-7.54 (66)	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)
IM U.S. Large Cap Value Equity (MF) Median	-6.10	25.96	3.82	26.50	-8.61	16.95	13.85	-3.00	10.82	32.11
Vanguard Mid-Cap 400 Index Fund I (VSPMX)	-13.11 (50)	24.67 (59)	13.58 (26)	26.13 (72)	N/A	N/A	N/A	N/A	N/A	N/A
S&P MidCap 400 Index	-13.06 (50)	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)
IM U.S. Mid Cap Core Equity (MF) Median	-13.21	25.73	8.44	28.59	-11.64	14.94	14.51	-3.74	8.88	34.49
Vanguard Small-Cap 600 Index I (VSMX)	-16.18 (56)	26.74 (37)	11.46 (40)	22.74 (62)	N/A	N/A	N/A	N/A	N/A	N/A
S&P SmallCap 600 Index	-16.10 (54)	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)
IM U.S. Small Cap Core Equity (MF) Median	-15.78	25.12	9.89	23.94	-12.71	12.09	21.66	-4.35	4.71	36.85

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



# Comparative Performance

## Total Fund

As of March 31, 2023

	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
<b>International Equity</b>										
<b>Total Fund Performance - International Equity</b>	<b>-18.46</b>	<b>6.98</b>	<b>10.24</b>	<b>21.55</b>	<b>-14.50</b>	<b>28.00</b>	<b>5.26</b>	<b>-5.56</b>	<b>N/A</b>	<b>13.97</b>
Vanguard Intl Value (VTRIX)	-11.66 (76)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MSCI AC World ex USA Value	-7.95 (44)	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)
IM International Multi-Cap Value Equity (MF) Median	-9.47	12.67	3.54	18.80	-16.15	24.73	4.03	-2.29	-5.21	23.66
Vanguard Intl Growth (VWILX)	-30.79 (86)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
MSCI AC World ex USA Growth	-22.80 (48)	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)
IM International Multi-Cap Growth Equity (MF) Median	-23.50	10.12	20.55	27.73	-14.42	30.71	0.51	1.40	-3.79	20.30
Vanguard FTSE AW ex-US SC Index (VFSNX)	-21.25 (85)	12.76 (55)	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)	-21.58 (87)	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
IM International SMID Cap Core Equity (MF) Median	-17.04	13.19	5.76	19.58	-19.67	29.44	-0.75	4.70	-6.30	24.68
Vanguard Developed Markets Index (VTMNX)	-15.34 (47)	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)
Vanguard Spliced Developed ex U.S. Index (Net)	-15.58 (49)	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)
MSCI EAFE (Net) Index	-14.45 (40)	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)
IM International Multi-Cap Equity (MF) Median	-15.71	10.28	8.74	21.55	-15.87	25.85	1.12	-0.74	-5.32	20.36
Vanguard Emerging Markets Index (VEMIX)	-17.74 (21)	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)
FTSE Emerging Mkts All Cap China A Inclusion Index	-17.26 (19)	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)
MSCI Emerging Markets (Net) Index	-20.09 (32)	-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)
IM Emerging Markets Equity (MF) Median	-22.44	-1.62	17.66	20.17	-16.45	35.66	8.25	-13.73	-3.01	-1.45

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



# Comparative Performance

## Total Fund

As of March 31, 2023

	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
<b>Fixed Income</b>										
<b>Total Fund Performance - Fixed Income</b>	<b>-11.27</b>	<b>0.05</b>	<b>6.75</b>	<b>10.16</b>	<b>-0.71</b>	<b>3.82</b>	<b>4.79</b>	<b>-0.18</b>	<b>N/A</b>	<b>-3.65</b>
Vanguard Short Term Bond Index (VBITX)	-5.61 (91)	-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
Bloomberg 1-5 Year Gov/Credit Idx	-5.50 (89)	-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)
IM U.S. Short Term Investment Grade (MF) Median	-3.78	0.02	3.02	4.11	1.24	1.46	1.69	0.27	0.67	0.47
Vanguard Total Bond Index (VBTIX)	-13.15 (26)	-1.65 (64)	7.73 (65)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Blmbg. U.S. Aggregate Index	-13.01 (21)	-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)
IM U.S. Broad Market Core Fixed Income (MF) Median	-13.67	-1.33	8.15	8.76	-0.62	3.60	2.90	0.04	5.55	-1.97
Vanguard High Yield Bond Fund (VWEAX)	-8.97 (18)	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
Blmbg. U.S. Corp High Yield	-11.19 (57)	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)
IM U.S. High Yield Bonds (MF) Median	-10.94	4.93	5.43	13.83	-2.97	6.63	13.80	-3.96	1.50	6.72
Vanguard International Bond (VTIFX)	-12.89 (48)	-2.17 (20)	4.59 (75)	7.89 (25)	3.00 (2)	2.43 (86)	4.69 (35)	N/A	N/A	N/A
Blmbg. Global Agg ex-USD Flt Adj RIC Cpd (H)	-12.72 (44)	-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)
IM International Fixed Income (MF) Median	-12.94	-5.39	6.55	6.64	-2.47	9.80	3.34	-5.82	0.63	-3.74
Vanguard EM Bond (VEGBX)	-13.02 (40)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Blmbg. Emerging Markets USD Aggregate Index	-15.26 (69)	-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)
IM Emerging Markets Debt (MF) Median	-14.18	-1.94	6.76	14.80	-4.96	11.72	11.65	-1.16	2.39	-5.44
<b>REIT</b>										
Vanguard Real Estate Index Fund (VGSNX)	-26.20 (51)	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)
Vanguard Spliced REIT Index	-26.12 (47)	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)
IM Real Estate Sector (MF) Median	-26.17	41.32	-4.31	27.32	-5.71	5.32	6.34	2.91	29.47	1.64

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



# Comparative Performance

## Total Fund

As of March 31, 2023

	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
<b>Total Fund - Domestic Equity</b>	<b>-16.59</b>	<b>26.91</b>	<b>13.96</b>	<b>29.77</b>	<b>-7.16</b>	<b>20.07</b>	<b>13.45</b>	<b>-0.10</b>	<b>N/A</b>	<b>33.56</b>
Total Domestic Large Cap Equity	-17.98	27.04	14.02	30.31	-5.16	20.67	13.09	1.00	N/A	N/A
S&P 500 Index	-18.11	28.71	18.40	31.49	-4.38	21.83	11.96	1.38	13.69	32.39
Large Cap Growth	-33.14	27.27	41.61	37.36	-3.51	27.82	5.87	3.78	N/A	N/A
Vanguard Growth Index Hybrid	-33.13	27.30	40.27	37.31	-3.34	27.86	6.16	3.38	13.69	32.51
Russell 1000 Growth Index	-29.14	27.60	38.49	36.39	-1.51	30.21	7.08	5.67	13.05	33.48
Large Cap Core	-18.20	27.04	9.03	29.41	-5.71	19.57	14.29	0.18	N/A	N/A
S&P 500 Index	-18.11	28.71	18.40	31.49	-4.38	21.83	11.96	1.38	13.69	32.39
Large Cap Value	-2.05	26.48	2.30	25.83	-5.50	17.14	16.87	-0.27	N/A	N/A
Vanguard Value Index Hybrid	-2.01	26.51	2.26	25.85	-5.40	17.16	16.93	-0.86	13.29	33.20
Russell 1000 Value Index	-7.54	25.16	2.80	26.54	-8.27	13.66	17.34	-3.83	13.45	32.53
Mid Cap Equity	-13.11	24.67	13.58	26.13	-10.44	19.29	11.23	-1.31	N/A	N/A
Mid Cap Hybrid Index	-13.06	24.76	13.66	26.20	-10.67	19.30	11.25	-1.28	13.83	35.21
Small Cap Equity	-16.18	26.74	11.46	22.74	-10.45	16.25	18.32	-3.63	N/A	N/A
Small Cap Hybrid Index	-16.10	26.82	11.29	22.78	-10.32	16.24	18.26	-3.68	7.54	37.77
<b>Total Fund - International Equity</b>	<b>-18.46</b>	<b>6.98</b>	<b>10.24</b>	<b>21.55</b>	<b>-14.50</b>	<b>28.00</b>	<b>5.26</b>	<b>-5.56</b>	<b>N/A</b>	<b>13.97</b>
Small Cap - International Equity	-21.25	12.76	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)	-21.58	13.02	11.40	21.55	-18.91	29.78	3.93	-0.61	-4.34	N/A
Developed Markets - International Equity	-15.34	11.44	10.27	22.14	-14.49	26.46	2.46	-0.41	N/A	N/A
Vanguard Spliced Developed ex U.S. Index (Net)	-15.58	11.57	10.00	22.34	-14.79	26.31	2.29	-0.28	-4.85	22.71
Emerging Markets - International Equity	-17.74	1.10	15.26	20.37	-14.54	31.43	11.76	-15.80	N/A	N/A
FTSE Emerging Mkts All Cap China A Inclusion Index	-17.26	1.76	15.84	20.81	-14.49	31.46	10.66	-13.28	2.96	-2.82
MSCI Emerging Markets (Net) Index	-20.09	-2.54	18.31	18.42	-14.57	37.28	11.19	-14.92	-2.19	-2.60

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



# Comparative Performance

## Total Fund

As of March 31, 2023

	2022	2021	2020	2019	2018	2017	2016	2015	2014	2013
<b>Total Fund - Fixed Income</b>	<b>-11.27</b>	<b>0.05</b>	<b>6.75</b>	<b>10.16</b>	<b>-0.71</b>	<b>3.82</b>	<b>4.79</b>	<b>-0.18</b>	<b>N/A</b>	<b>-3.65</b>
Short - Term Fixed Income	-5.61	-0.97	4.71	4.71	1.37	1.19	1.51	0.98	N/A	N/A
Bloomberg 1-5 Year Gov/Credit Idx	-5.50	-0.97	4.71	5.01	1.38	1.27	1.56	0.97	1.42	0.28
High Yield - Fixed Income	-8.97	3.78	5.38	15.90	-2.87	6.65	10.89	-1.28	N/A	N/A
Blmbg. U.S. Corp High Yield	-11.19	5.28	7.11	14.32	-2.08	7.50	17.13	-4.47	2.45	7.44
Non-US Fixed Income	-12.89	-2.17	4.59	7.89	3.00	2.43	4.69	N/A	N/A	N/A
Blmbg. Global Agg ex-USD Flt Adj RIC Cpd (H)	-12.72	-2.10	4.75	8.06	3.16	2.57	4.90	1.34	9.14	1.26
<b>Real Estate</b>	<b>-26.20</b>	<b>40.47</b>	<b>-4.67</b>	<b>29.02</b>	<b>-5.93</b>	<b>4.93</b>	<b>8.51</b>	<b>2.56</b>	<b>N/A</b>	<b>N/A</b>
Vanguard Spliced REIT Index	-26.12	40.56	-4.55	29.03	-5.86	5.07	8.60	2.52	30.38	2.47

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Returns are expressed as percentages.





**Multi Time Period Statistics**  
**Butler County Employees Retirement Plan**  
As of March 31, 2023

**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	9.66		13.17		0.70		4.86		12.94		0.32	
Total Fund Policy	10.03		12.71		0.75		5.23		12.47		0.36	
Vanguard Instl Indx;Inst (VINIX) *	18.57	(8)	18.96	(30)	0.95	(8)	11.16	(7)	18.48	(36)	0.59	(7)
S&P 500 Index	18.60		18.96		0.95		11.19		18.48		0.59	
IM S&P 500 Index (MF) Median	18.25		18.95		0.93		10.83		18.47		0.57	
Vanguard Growth Index (VIGIX)	17.48	(16)	23.81	(22)	0.76	(25)	12.90	(13)	21.57	(21)	0.61	(19)
Vanguard Growth Index Hybrid	17.52		23.82		0.76		12.93		21.58		0.61	
IM U.S. Large Cap Growth Equity (MF) Median	14.60		22.60		0.68		10.72		20.78		0.53	
Vanguard Value Index (VIVIX)	18.71	(43)	16.95	(71)	1.04	(27)	8.86	(35)	17.77	(67)	0.49	(35)
Vanguard Value Index Hybrid	18.73		16.95		1.05		8.87		17.77		0.49	
IM U.S. Large Cap Value Equity (MF) Median	18.15		17.57		1.00		8.02		18.30		0.44	
Vanguard S&P MC400;Inst (VSPMX) *	22.02	(19)	20.78	(7)	1.02	(35)	7.61	(41)	22.17	(14)	0.38	(44)
S&P MidCap 400 Index	22.10		20.79		1.02		7.67		22.18		0.38	
IM U.S. Mid Cap Core Equity (MF) Median	19.49		19.11		0.98		6.91		20.54		0.36	
Vanguard S&P SC600;Inst (VSMSX) *	21.69	(43)	21.97	(39)	0.96	(49)	6.28	(33)	23.81	(41)	0.32	(33)
S&P SmallCap 600 Index	21.71		21.95		0.97		6.30		23.81		0.32	
IM U.S. Small Cap Core Equity (MF) Median	21.16		21.58		0.96		5.52		23.70		0.29	

\* 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 March 31, 2023

	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)*	15.70	(26)	19.01	(47)	0.82	(28)	3.55	(65)	18.99	(34)	0.21	(70)
MSCI EAFE Index	13.52		17.90		0.75		4.03		17.48		0.23	
IM International Large Cap Core Equity (MF) Median	13.42		18.95		0.74		3.78		18.26		0.22	
Vanguard Intl Gro;Adm (VWILX)*	13.84	(35)	24.81	(3)	0.61	(82)	6.87	(25)	22.43	(1)	0.35	(33)
MSCI EAFE Growth Index	11.30		19.10		0.61		5.26		17.56		0.30	
IM International Large Cap Growth Equity (MF) Median	12.76		19.32		0.68		4.79		18.37		0.27	
Vanguard FTSExUSSC;Ins (VFSNX) *	14.42	(21)	19.50	(75)	0.75	(18)	0.93	(53)	20.16	(52)	0.08	(52)
FTSE Global ex U.S. Small Cap Index (Net)	14.07		19.26		0.74		0.73		19.96		0.07	
IM International SMID Cap Growth Equity (MF) Median	12.39		20.36		0.60		1.04		20.17		0.08	
Vanguard Developed Markets Index (VTMNX)	13.86	(32)	18.96	(46)	0.74	(35)	3.44	(23)	18.53	(51)	0.20	(24)
Vanguard Spliced Developed ex U.S. Index (Net)	13.54		18.29		0.74		3.43		18.03		0.20	
IM International Multi-Cap Equity (MF) Median	12.78		18.74		0.70		2.49		18.54		0.15	
Vanguard Emerging Markets Index (VEMIX)	9.53	(33)	17.35	(93)	0.56	(29)	-0.02	(30)	18.17	(89)	0.01	(34)
FTSE Emerging Mkts All Cap China A Inclusion Index	9.87		17.18		0.58		0.50		17.86		0.04	
IM Emerging Markets Equity (MF) Median	7.93		19.49		0.44		-1.08		19.76		-0.03	
Vanguard Short Term Bond Index (VBITX)	-0.81	(98)	2.83	(25)	-0.60	(93)	1.28	(60)	2.49	(45)	-0.04	(60)
Bloomberg 1-5 Year Gov/Credit Idx	-0.79		2.80		-0.60		1.32		2.49		-0.02	
IM U.S. Short Term Investment Grade (MF) Median	1.30		2.30		0.23		1.38		2.38		0.00	
Vanguard Tot Bd;Inst (VBTIX) *	-2.77	(86)	6.24	(73)	-0.56	(87)	0.93	(41)	5.47	(71)	-0.06	(44)
Blmbg. U.S. Aggregate Index	-2.77		6.20		-0.57		0.90		5.42		-0.07	
IM U.S. Broad Market Core Fixed Income (MF) Median	-1.85		6.48		-0.40		0.85		5.73		-0.07	
Vanguard High Yield Bond Fund (VWEAX)	4.74	(71)	8.52	(60)	0.48	(69)	3.25	(21)	8.62	(78)	0.25	(18)
Vanguard High Yield Corporate Composite Index	5.21		8.57		0.53		3.44		8.45		0.28	
IM U.S. High Yield Bonds (MF) Median	5.45		8.67		0.55		2.58		9.21		0.17	

\* 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 March 31, 2023

	3 YR Return		3 YR Standard Deviation		3 YR Sharpe Ratio		5 YR Return		5 YR Standard Deviation		5 YR Sharpe Ratio	
Vanguard Tot Intl BI;Inst (VTIFX) *	-2.70	(54)	5.61	(73)	-0.62	(88)	0.32	(16)	4.97	(86)	-0.19	(18)
Blmbg. Global Agg ex-USD Flt Adj RIC Cpd (H)	-2.69		5.39		-0.64		0.39		4.82		-0.19	
IM International Fixed Income (MF) Median	-2.46		8.38		-0.41		-2.86		7.70		-0.42	
Vanguard Em Mkt Bond;Adm (VEGBX)*	4.59	(24)	11.71	(16)	0.37	(27)	3.99	(1)	11.16	(85)	0.28	(4)
JPM GBI-EM Diversified	-1.83		12.06		-0.17		-4.20		12.45		-0.40	
IM Emerging Markets Debt - LC (MF) Median	3.32		11.38		0.27		-1.27		12.99		-0.14	
Vanguard Real Estate Index Fund (VGSNX)	9.85	(57)	20.15	(29)	0.52	(59)	5.84	(46)	19.85	(33)	0.32	(48)
Vanguard Spliced REIT Index	9.96		20.13		0.53		5.92		19.84		0.32	
IM Real Estate Sector (MF) Median	10.12		19.92		0.53		5.73		19.42		0.31	

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**Multi Time Period Statistics**  
**Butler County Employees Retirement Plan**  
As of March 31, 2023

**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	6.33		10.85		0.54		6.17		11.98		0.50	
Total Fund Policy	6.43		10.61		0.56		6.58		11.96		0.54	
Vanguard Instl Indx;Inst (VINIX) *	12.21	(3)	15.02	(12)	0.79	(4)	10.05	(2)	17.32	(14)	0.61	(2)
S&P 500 Index	12.24		15.02		0.80		10.06		17.32		0.61	
IM S&P 500 Index (MF) Median	11.78		15.00		0.77		9.58		17.29		0.58	
Vanguard Growth Index (VIGIX)	13.61	(20)	18.13	(41)	0.76	(29)	N/A		N/A		N/A	
Vanguard Growth Index Hybrid	13.65		18.14		0.76		11.55		19.39		0.63	
IM U.S. Large Cap Growth Equity (MF) Median	12.57		17.82		0.71		10.38		19.59		0.58	
Vanguard Value Index (VIVIX)	10.53	(20)	14.59	(69)	0.71	(17)	N/A		N/A		N/A	
Vanguard Value Index Hybrid	10.56		14.59		0.71		8.58		17.41		0.53	
IM U.S. Large Cap Value Equity (MF) Median	9.36		15.12		0.62		7.87		18.04		0.48	
Vanguard S&P MC400;Inst (VSPMX)	9.73	(13)	18.74	(69)	0.55	(13)	N/A		N/A		N/A	
S&P MidCap 400 Index	9.80		18.74		0.55		9.82		20.94		0.53	
IM U.S. SMID Cap Core Equity (MF) Median	8.09		19.36		0.46		8.11		21.60		0.44	
Vanguard S&P SC600;Inst (VSMSX)	9.85	(5)	20.94	(49)	0.52	(7)	N/A		N/A		N/A	
S&P SmallCap 600 Index	9.87		20.93		0.52		9.64		22.38		0.50	
IM U.S. Small Cap Core Equity (MF) Median	8.01		20.92		0.44		8.09		22.67		0.44	

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**Multi Time Period Statistics**  
**Butler County Employees Retirement Plan**  
As of March 31, 2023

	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)	5.32	(37)	17.44	(35)	0.34	(49)	3.33	(72)	20.77	(39)	0.23	(74)
MSCI EAFE Index	5.50		16.11		0.36		3.49		19.73		0.24	
IM International Large Cap Core Equity (MF) Median	5.29		16.70		0.34		3.59		20.31		0.25	
Vanguard Intl Gro;Adm (VWILX)	9.13	(6)	21.65	(2)	0.47	(22)	6.57	(10)	23.60	(1)	0.36	(23)
MSCI EAFE Growth Index	6.39		16.26		0.42		4.30		19.40		0.28	
IM International Large Cap Growth Equity (MF) Median	6.48		16.99		0.39		4.84		20.23		0.30	
Vanguard FTSExUSSC;Ins (VFSNX)	4.30	(79)	19.09	(66)	0.28	(77)	N/A		N/A		N/A	
FTSE Global ex U.S. Small Cap Index (Net)	4.01		18.99		0.26		N/A		N/A		N/A	
IM International SMID Cap Growth Equity (MF) Median	5.04		19.51		0.31		4.37		23.25		0.27	
Vanguard Developed Markets Index (VTMNX)	5.26	(22)	16.73	(59)	0.34	(21)	N/A		N/A		N/A	
Vanguard Spliced Developed ex U.S. Index (Net)	5.22		16.57		0.34		3.14		19.98		0.22	
IM International Multi-Cap Equity (MF) Median	4.63		17.11		0.30		2.77		20.42		0.21	
Vanguard EM St I;Inst (VEMIX)*	2.22	(38)	17.29	(90)	0.17	(39)	1.76	(44)	22.45	(84)	0.16	(47)
Vanguard Spliced Emerging Markets Index (Net)	2.26		17.09		0.17		1.85		22.29		0.17	
IM Emerging Markets Equity (MF) Median	1.77		18.99		0.14		1.55		23.37		0.16	
Vanguard Sh-Tm B;Inst (VBITX)	1.09	(54)	2.17	(47)	0.12	(54)	N/A		N/A		N/A	
Bloomberg 1-5 Year Gov/Credit Idx	1.13		2.17		0.14		1.85		2.18		0.55	
IM U.S. Short Term Investment Grade (MF) Median	1.12		2.08		0.14		1.68		2.46		0.39	
Vanguard Tot Bd;Inst (VBTIX)	1.34	(48)	4.55	(71)	0.13	(46)	2.70	(59)	4.28	(80)	0.49	(37)
Blmbg. U.S. Aggregate Index	1.36		4.47		0.14		2.71		4.22		0.50	
IM U.S. Broad Market Core Fixed Income (MF) Median	1.32		4.71		0.12		2.84		4.83		0.46	
Vanguard HY Corp;Adm (VWEAX)	3.89	(17)	7.15	(92)	0.45	(10)	5.76	(24)	8.95	(93)	0.59	(5)
Blmbg. U.S. Corp High Yield	4.10		8.37		0.42		6.56		11.59		0.55	
IM U.S. High Yield Bonds (MF) Median	3.27		8.27		0.33		5.33		10.75		0.47	

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.  
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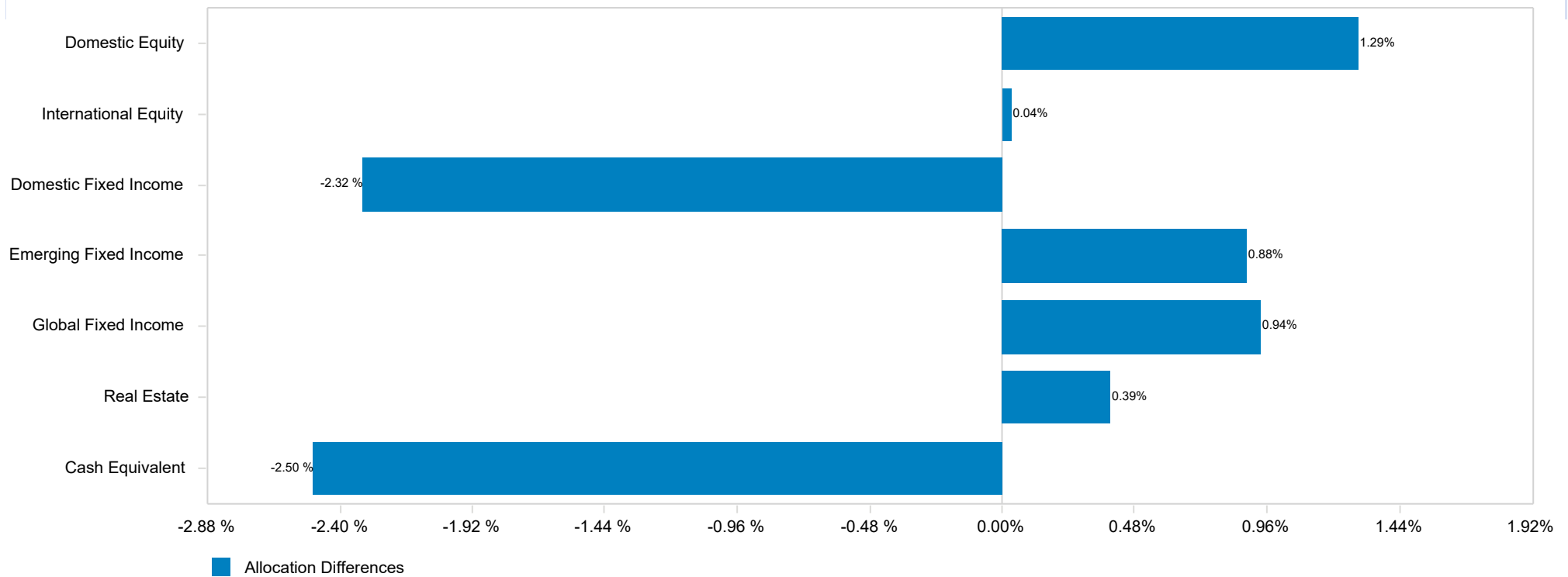


Multi Time Period Statistics  
Butler County Employees Retirement Plan  
As of March 31, 2023

	10 YR Return		10 YR Standard Deviation		10 YR Sharpe Ratio		15 YR Return		15 YR Standard Deviation		15 YR Sharpe Ratio	
Vanguard Tot Intl BI;Inst (VTIFX)	N/A		N/A		N/A		N/A		N/A		N/A	
Blmbg. Global Agg ex-USD Flt Adj RIC Cpd (H)	2.09		4.14		0.32		N/A		N/A		N/A	
IM International Fixed Income (MF) Median	-1.07		8.99		-0.20		1.26		9.05		0.11	
Vanguard Em Mkt Bond;Adm (VEGBX)	N/A		N/A		N/A		N/A		N/A		N/A	
JPM GBI-EM Diversified	-2.14		12.48		-0.18		1.12		12.54		0.10	
IM Emerging Markets Debt - LC (MF) Median	-0.12		13.05		-0.01		N/A		N/A		N/A	
Vanguard RE Idx;Inst (VGSNX)	5.80	(42)	16.67	(38)	0.37	(44)	6.30	(33)	23.59	(34)	0.36	(36)
Vanguard Spliced REIT Index	5.89		16.68		0.38		6.31		23.59		0.36	
IM Real Estate Sector (MF) Median	5.61		16.45		0.37		5.65		23.25		0.33	

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	41.29	40.00	15.00	65.00
International Equity	15.04	15.00	5.00	25.00
Domestic Fixed Income	30.18	32.50	15.00	50.00
Emerging Fixed Income	3.38	2.50	0.00	5.00
Global Fixed Income	3.44	2.50	0.00	5.00
Real Estate	5.39	5.00	0.00	10.00
Cash Equivalent	0.00	2.50	0.00	5.00
<b>Total Fund</b>	<b>100.00</b>	<b>100.00</b>	<b>N/A</b>	<b>N/A</b>

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.

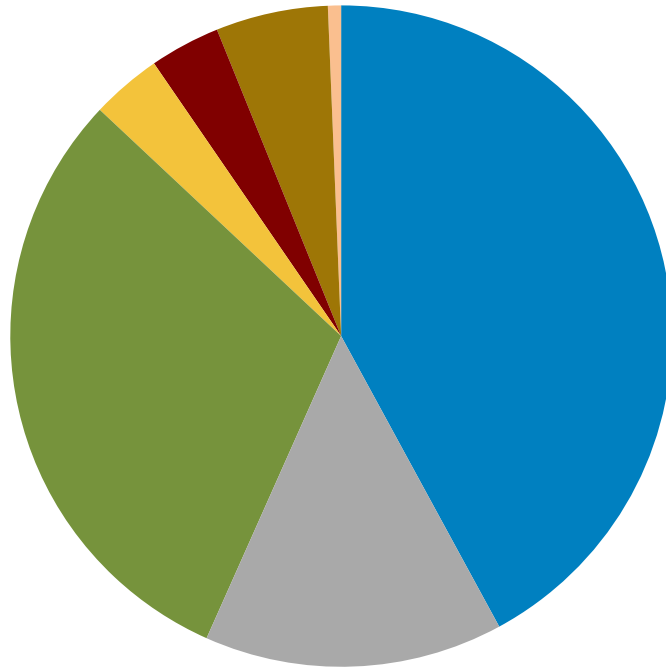
3. The following investment managers do not have enough history to make any meaningful conclusions:

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

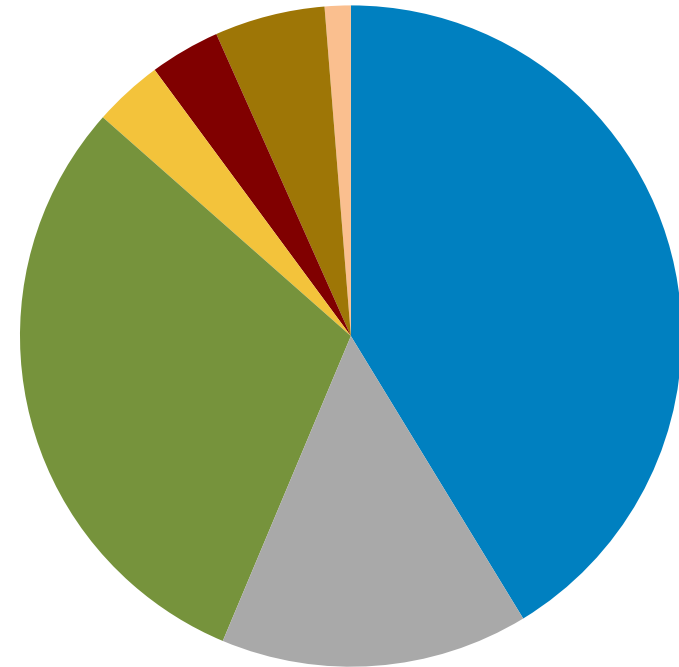
4. At this time, all investment managers should continue to be retained.



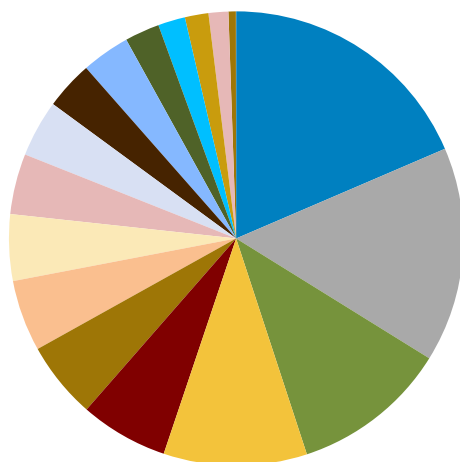
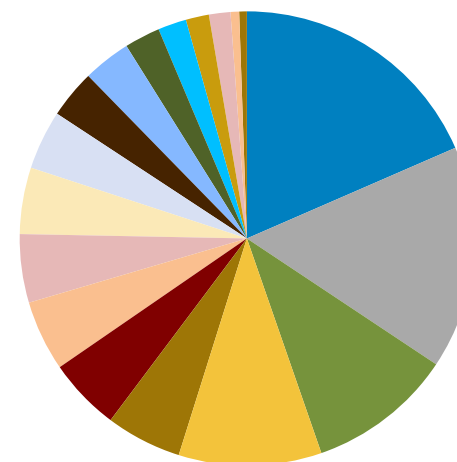
Asset Allocation By Segment as of  
December 31, 2022 : \$226,499,809



Asset Allocation By Segment as of  
March 31, 2023 : \$234,581,238



Allocation			Allocation		
Segments	Market Value	Allocation	Segments	Market Value	Allocation
Domestic Equity	95,300,856	42.1	Domestic Equity	96,858,183	41.3
International Equity	33,057,593	14.6	International Equity	35,270,591	15.0
Domestic Fixed Income	68,675,773	30.3	Domestic Fixed Income	70,803,670	30.2
Emerging Fixed Income	7,786,237	3.4	Emerging Fixed Income	7,939,259	3.4
Global Fixed Income	7,801,035	3.4	Global Fixed Income	8,068,423	3.4
Real Estate	12,424,512	5.5	Real Estate	12,646,913	5.4
Cash	1,453,802	0.6	Cash	2,994,200	1.3

Asset Allocation By Manager as of  
Dec-2022 : \$226,499,809Asset Allocation By Manager as of  
Mar-2023 : \$234,581,238

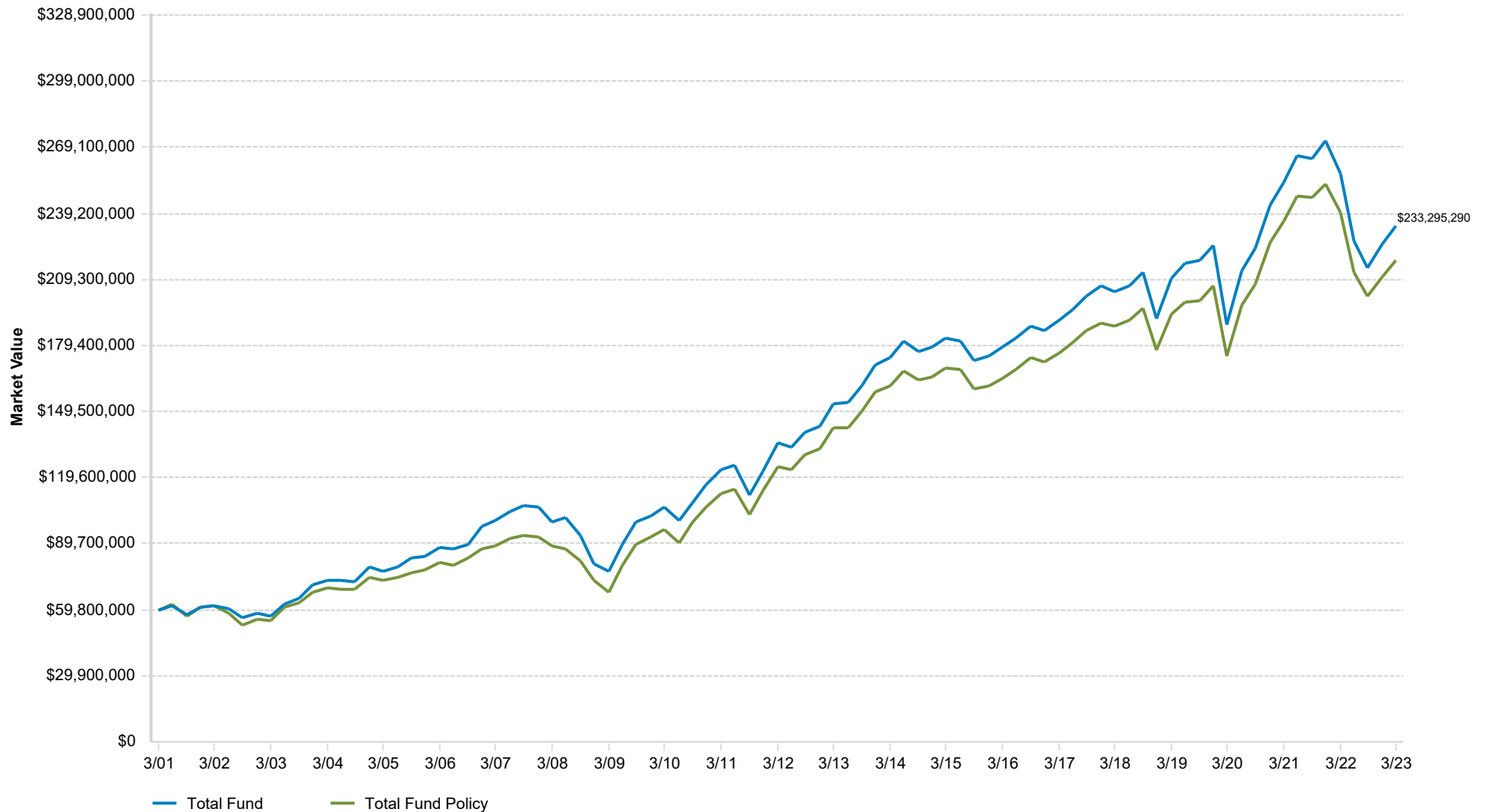
Allocation			Allocation		
	Market Value	Allocation		Market Value	Allocation
Vanguard Total Bond Index (VBTIX)	41,986,723	18.5	Vanguard Total Bond Index (VBTIX)	43,315,084	18.5
Vanguard Inst'l Index Fund (VINIX)	34,668,004	15.3	Vanguard Inst'l Index Fund (VINIX)	37,263,668	15.9
Vanguard Mid-Cap 400 Index Fund I (VSPMX)	25,186,430	11.1	Vanguard Mid-Cap 400 Index Fund I (VSPMX)	24,255,228	10.3
Vanguard High Yield Bond Fund (VWEAX)	23,109,650	10.2	Vanguard High Yield Bond Fund (VWEAX)	23,847,781	10.2
Vanguard Value Index (VIVIX)	14,189,986	6.3	Vanguard Real Estate Index Fund (VGSNX)	12,646,913	5.4
Vanguard Real Estate Index Fund (VGSNX)	12,424,512	5.5	Vanguard Value Index (VIVIX)	12,105,916	5.2
Vanguard Small-Cap 600 Index I (VSMSX)	11,501,932	5.1	Vanguard Small-Cap 600 Index I (VSMSX)	11,795,780	5.0
Vanguard Emerging Markets Index (VEMIX)	10,707,303	4.7	Vanguard Growth Index (VIGIX)	11,437,591	4.9
Vanguard Growth Index (VIGIX)	9,754,505	4.3	Vanguard Emerging Markets Index (VEMIX)	11,092,686	4.7
Vanguard Developed Markets Index (VTMNX)	9,174,392	4.1	Vanguard Developed Markets Index (VTMNX)	9,889,381	4.2
Vanguard International Bond (VTIFX)	7,801,035	3.4	Vanguard International Bond (VTIFX)	8,080,256	3.4
Vanguard EM Bond (VEGBX)	7,786,237	3.4	Vanguard EM Bond (VEGBX)	7,984,011	3.4
Vanguard FTSE AW ex-US SC Index (VFSNX)	5,623,130	2.5	Vanguard FTSE AW ex-US SC Index (VFSNX)	5,959,695	2.5
Vanguard Intl Value (VTRIX)	4,359,758	1.9	Vanguard Intl Value (VTRIX)	4,736,693	2.0
Vanguard Short Term Bond Index (VBITX)	3,795,614	1.7	Vanguard Short Term Bond Index (VBITX)	3,868,875	1.6
Vanguard Intl Growth (VWILX)	3,193,010	1.4	Vanguard Intl Growth (VWILX)	3,592,136	1.5
NMA	1,198,200	0.5	Cash	1,423,596	0.6
Cash	39,388	0.0	NMA	1,285,948	0.5

**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)	37,264	100.0	-	-	-	-	-	-	-	-	-	-	-	-	37,264	15.9
Vanguard Value Index (VIVIX)	12,106	100.0	-	-	-	-	-	-	-	-	-	-	-	-	12,106	5.2
Vanguard Small-Cap 600 Index I (VSM SX)	11,796	100.0	-	-	-	-	-	-	-	-	-	-	-	-	11,796	5.0
Vanguard Mid-Cap 400 Index Fund I (VSPMX)	24,255	100.0	-	-	-	-	-	-	-	-	-	-	-	-	24,255	10.3
Vanguard Growth Index (VIGIX)	11,438	100.0	-	-	-	-	-	-	-	-	-	-	-	-	11,438	4.9
Twin Capital Enhanced Index	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0
Vanguard Intl Value (VTRIX)	-	-	4,737	100.0	-	-	-	-	-	-	-	-	-	-	4,737	2.0
Vanguard Intl Growth (VWILX)	-	-	3,592	100.0	-	-	-	-	-	-	-	-	-	-	3,592	1.5
Vanguard FTSE AW ex-US SC Index (VFSNX)	-	-	5,960	100.0	-	-	-	-	-	-	-	-	-	-	5,960	2.5
Vanguard Developed Markets Index (VTMNX)	-	-	9,889	100.0	-	-	-	-	-	-	-	-	-	-	9,889	4.2
Vanguard Emerging Markets Index (VEMIX)	-	-	11,093	100.0	-	-	-	-	-	-	-	-	-	-	11,093	4.7
Vanguard High Yield Bond Fund (VWEAX)	-	-	-	-	23,735	99.5	-	-	-	-	-	-	113	0.5	23,848	10.2
Vanguard Short Term Bond Index (VBITX)	-	-	-	-	3,862	99.8	-	-	-	-	-	-	7	0.2	3,869	1.6
Vanguard Total Bond Index (VBTIX)	-	-	-	-	43,207	99.8	-	-	-	-	-	-	108	0.2	43,315	18.5
Vanguard International Bond (VTIFX)	-	-	-	-	-	-	-	-	8,068	99.9	-	-	12	0.1	8,080	3.4
Vanguard EM Bond (VEGBX)	-	-	-	-	-	-	7,939	99.4	-	-	-	-	45	0.6	7,984	3.4
Vanguard Real Estate Index Fund (VGSNX)	-	-	-	-	-	-	-	-	-	-	12,647	100.0	-	-	12,647	5.4
Cash	-	-	-	-	-	-	-	-	-	-	-	-	1,424	100.0	1,424	0.6
NMA	-	-	-	-	-	-	-	-	-	-	-	-	1,286	100.0	1,286	0.5
<b>Total Fund</b>	<b>96,858</b>	<b>41.3</b>	<b>35,271</b>	<b>15.0</b>	<b>70,804</b>	<b>30.2</b>	<b>7,939</b>	<b>3.4</b>	<b>8,068</b>	<b>3.4</b>	<b>12,647</b>	<b>5.4</b>	<b>2,994</b>	<b>1.3</b>	<b>234,581</b>	<b>100.0</b>



**Schedule of Investable Assets**



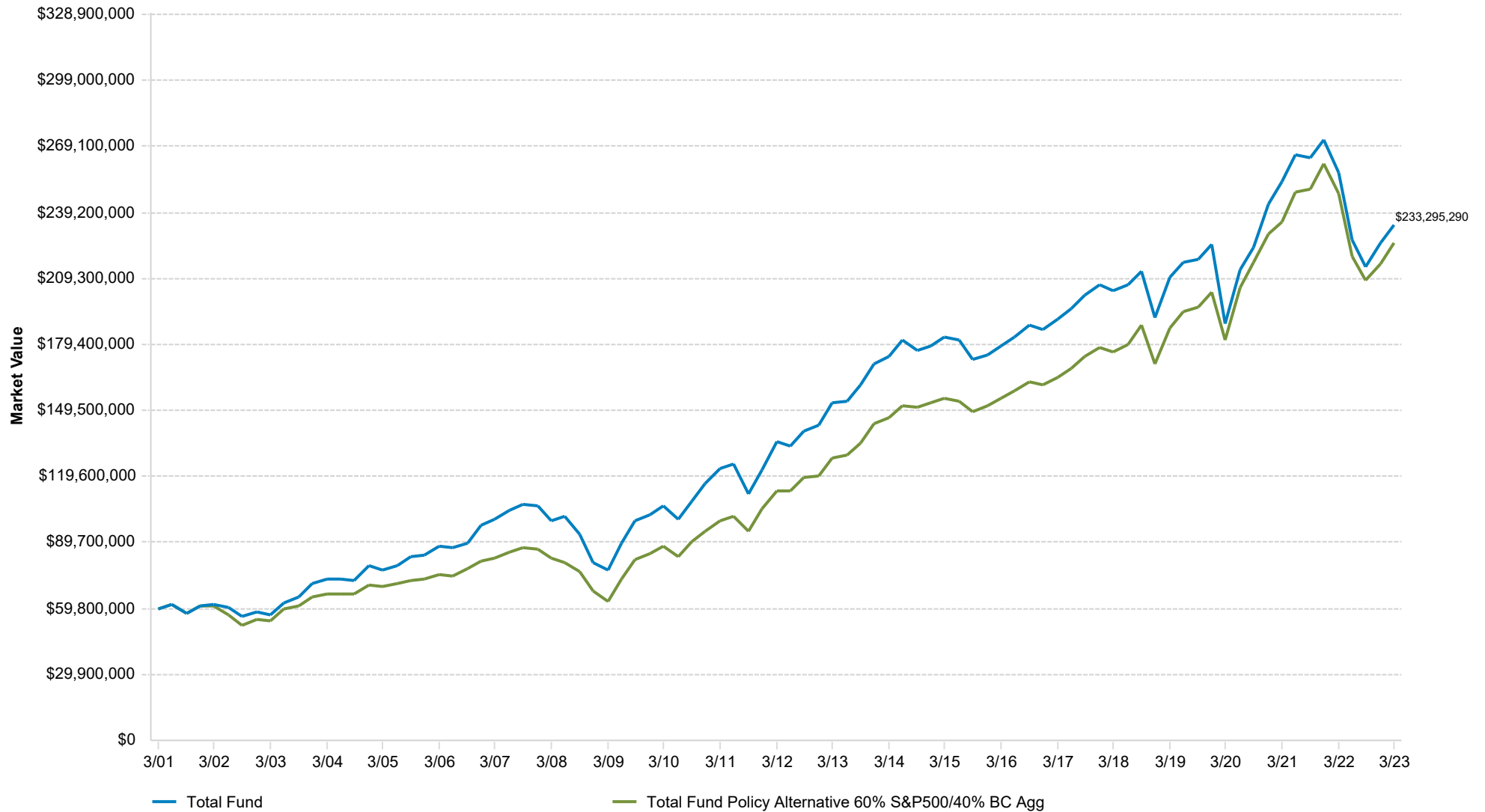
**Schedule of Investable Assets**

Periods Ending	Beginning Market Value \$	Net Cash Flow \$	Gain/Loss \$	Ending Market Value \$	%Return
Jan-2001 To Mar-2023	59,528,253	-26,184,569	199,951,606	233,295,290	275.79

Does not include Non-Measured Assets (NMA).



**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 Mar-2023	59,528,253	-26,184,569	199,951,606	233,295,290	275.79

Does not include Non-Measured Assets (NMA).



**Fee Analysis**  
**Total Fund**  
**As of March 31, 2023**

	Estimated Annual Fee (%)	Market Value (\$)	Estimated Annual Fee (\$)	Fee Schedule
Vanguard Inst'l Index Fund (VINIX)	0.03	37,263,668	11,179	0.03 % of Assets
Vanguard Growth Index (VIGIX)	0.04	11,437,591	4,575	0.04 % of Assets
Vanguard Value Index (VIVIX)	0.04	12,105,916	4,842	0.04 % of Assets
Vanguard Mid-Cap 400 Index Fund I (VSPMX)	0.08	24,255,228	19,404	0.08 % of Assets
Vanguard Small-Cap 600 Index I (VSM SX)	0.08	11,795,780	9,437	0.08 % of Assets
Vanguard Intl Value (VTRIX)	0.35	4,736,693	16,578	0.35 % of Assets
Vanguard Intl Growth (VWILX)	0.33	3,592,136	11,854	0.33 % of Assets
Vanguard FTSE AW ex-US SC Index (VFSNX)	0.11	5,959,695	6,556	0.11 % of Assets
Vanguard Developed Markets Index (VTMNX)	0.05	9,889,381	4,945	0.05 % of Assets
Vanguard Emerging Markets Index (VEMIX)	0.10	11,092,686	11,093	0.10 % of Assets
Vanguard Short Term Bond Index (VBITX)	0.05	3,868,875	1,934	0.05 % of Assets
Vanguard Total Bond Index (VBTIX)	0.03	43,315,084	12,995	0.03 % of Assets
Vanguard High Yield Bond Fund (VWEAX)	0.13	23,847,781	31,002	0.13 % of Assets
Vanguard International Bond (VTIFX)	0.07	8,080,256	5,656	0.07 % of Assets
Vanguard EM Bond (VEGBX)	0.45	7,984,011	35,928	0.45 % of Assets
Vanguard Real Estate Index Fund (VGSNX)	0.10	12,646,913	12,647	0.10 % of Assets
<b>Total Fund Performance</b>	<b>0.09</b>	<b>233,295,290</b>	<b>200,625</b>	

Does not include Non-Measured Assets (NMA).



Quarter To Date	Market Value 01/01/2023	Management Fees	Net Flows	Return On Investment	Market Value 03/31/2023
<b>Domestic Equity</b>					
Vanguard Inst'l Index Fund (VINIX)	34,668,004	-	-	2,595,664	37,263,668
Vanguard Value Index (VIVIX)	14,189,986	-	-2,000,000	-84,070	12,105,916
Vanguard Small-Cap 600 Index I (VSM SX)	11,501,932	-	-	293,847	11,795,780
Vanguard Mid-Cap 400 Index Fund I (VSPMX)	25,186,430	-	-2,000,000	1,068,798	24,255,228
Vanguard Growth Index (VIGIX)	9,754,505	-	-	1,683,086	11,437,591
<b>International Equity</b>					
Vanguard Intl Value (VTRIX)	4,359,758	-	-	376,935	4,736,693
Vanguard Intl Growth (VWILX)	3,193,010	-	-	399,126	3,592,136
Vanguard FTSE AW ex-US SC Index (VFSNX)	5,623,130	-	-	336,566	5,959,695
Vanguard Developed Markets Index (VTMNX)	9,174,392	-	-	714,989	9,889,381
Vanguard Emerging Markets Index (VEMIX)	10,707,303	-	-	385,383	11,092,686
<b>Fixed Income</b>					
Vanguard Short Term Bond Index (VBITX)	3,795,614	-	-	73,261	3,868,875
Vanguard Total Bond Index (VBTIX)	41,986,723	-	-	1,328,361	43,315,084
Vanguard High Yield Bond Fund (VWEAX)	23,109,650	-	-	738,131	23,847,781
Vanguard International Bond (VTIFX)	7,801,035	-	-	279,220	8,080,256
Vanguard EM Bond (VEGBX)	7,786,237	-	-	197,774	7,984,011
<b>REIT</b>					
Vanguard Real Estate Index Fund (VGSNX)	12,424,512	-	-	222,401	12,646,913
Cash	39,388	-	1,369,554	14,654	1,423,596
<b>Total Fund Performance</b>	<b>225,301,609</b>	<b>-</b>	<b>-2,630,446</b>	<b>10,624,127</b>	<b>233,295,290</b>
NMA	1,198,200	-	87,748	-	1,285,948
<b>Total Fund</b>	<b>226,499,809</b>	<b>-</b>	<b>-2,542,698</b>	<b>10,624,127</b>	<b>234,581,238</b>

Year To Date					
	Market Value 01/01/2023	Management Fees	Net Flows	Return On Investment	Market Value 03/31/2023
<b>Domestic Equity</b>					
Vanguard Inst'l Index Fund (VINIX)	34,668,004	-	-	2,595,664	37,263,668
Vanguard Value Index (VIVIX)	14,189,986	-	-2,000,000	-84,070	12,105,916
Vanguard Small-Cap 600 Index I (VSMSX)	11,501,932	-	-	293,847	11,795,780
Vanguard Mid-Cap 400 Index Fund I (VSPMX)	25,186,430	-	-2,000,000	1,068,798	24,255,228
Vanguard Growth Index (VIGIX)	9,754,505	-	-	1,683,086	11,437,591
Twin Capital Enhanced Index	-	-	-	-	-
<b>International Equity</b>					
Vanguard Intl Value (VTRIX)	4,359,758	-	-	376,935	4,736,693
Vanguard Intl Growth (VWILX)	3,193,010	-	-	399,126	3,592,136
Vanguard FTSE AW ex-US SC Index (VFSNX)	5,623,130	-	-	336,566	5,959,695
Vanguard Developed Markets Index (VTMNX)	9,174,392	-	-	714,989	9,889,381
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<b>Fixed Income</b>					
Vanguard Short Term Bond Index (VBITX)	3,795,614	-	-	73,261	3,868,875
Vanguard Total Bond Index (VBTIX)	41,986,723	-	-	1,328,361	43,315,084
Vanguard High Yield Bond Fund (VWEAX)	23,109,650	-	-	738,131	23,847,781
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Vanguard Real Estate Index Fund (VGSNX)	12,424,512	-	-	222,401	12,646,913
Cash	39,388	-	1,369,554	14,654	1,423,596
<b>Total Fund Performance</b>	<b>225,301,609</b>	<b>-</b>	<b>-2,630,446</b>	<b>10,624,127</b>	<b>233,295,290</b>
NMA	1,198,200	-	87,748	-	1,285,948
<b>Total Fund</b>	<b>226,499,809</b>	<b>-</b>	<b>-2,542,698</b>	<b>10,624,127</b>	<b>234,581,238</b>



### 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.



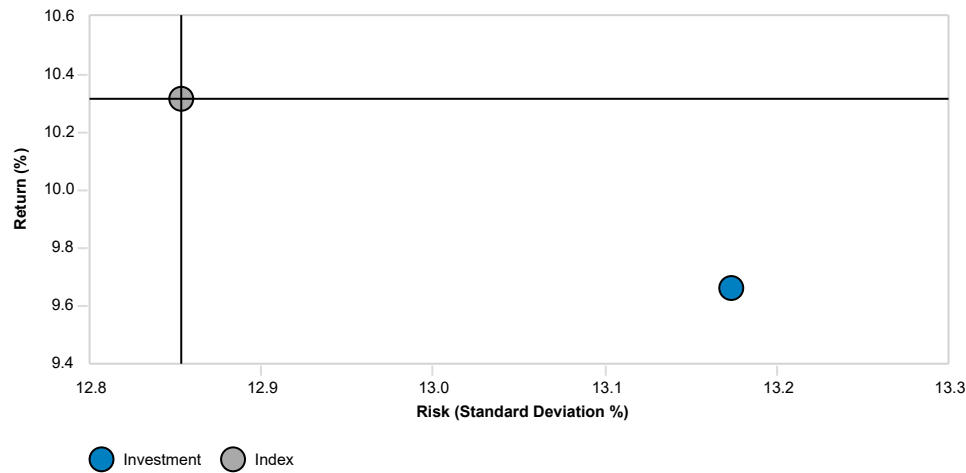
### Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	9.66	13.17	0.70	100.90	8	105.75	4
Index	10.32	12.85	0.76	100.00	8	100.00	4

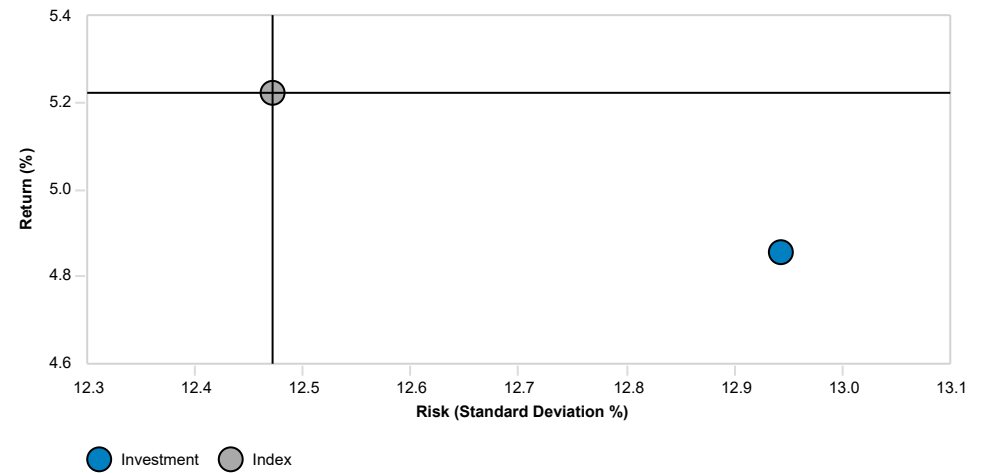
### Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	4.86	12.94	0.32	102.33	14	105.38	6
Index	5.23	12.47	0.36	100.00	14	100.00	6

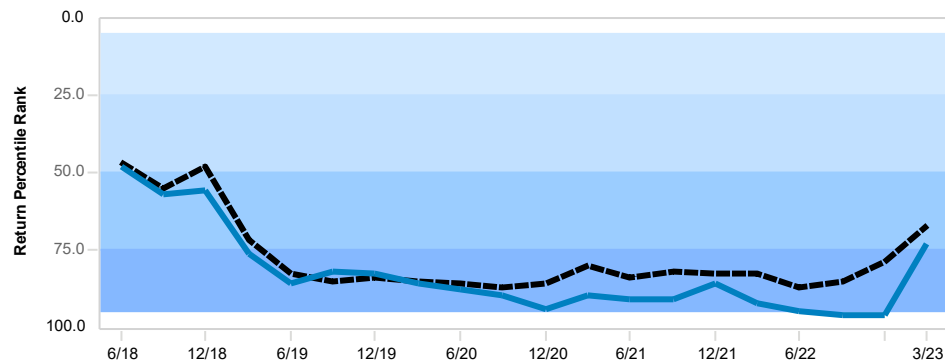
### Risk and Return 3 Years



### Risk and Return 5 Years

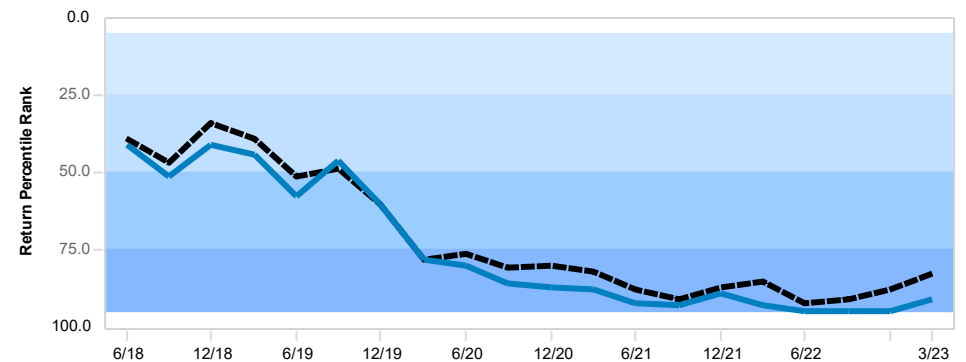


### 3 Year Rolling Percentile Rank All Public Plans-Total Fund



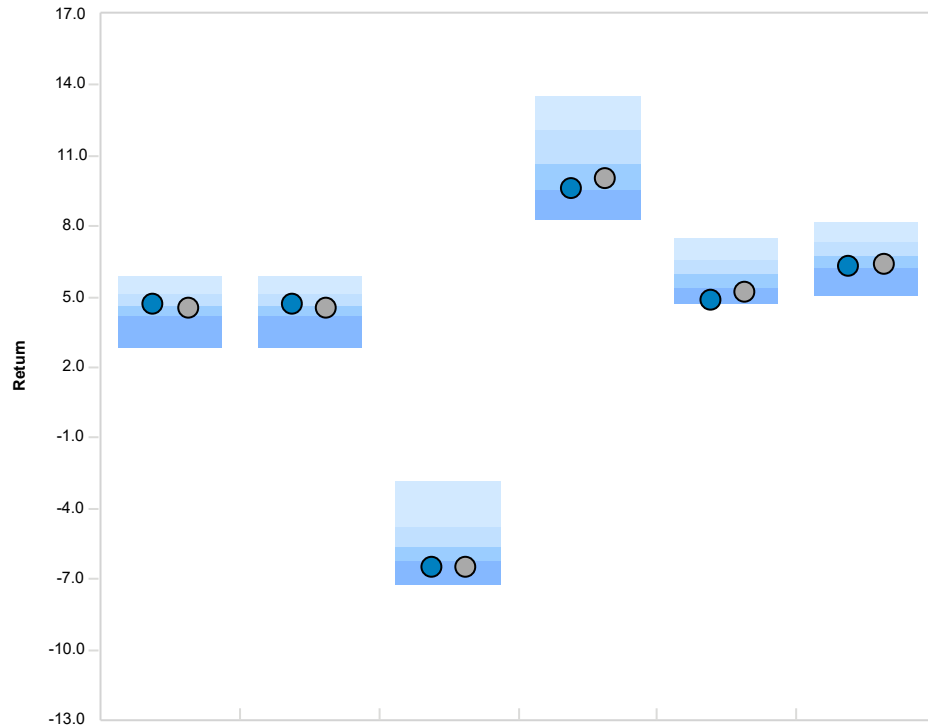
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	0 (0%)	1 (5%)	3 (15%)	16 (80%)
Index	20	0 (0%)	2 (10%)	3 (15%)	15 (75%)

### 5 Year Rolling Percentile Rank All Public Plans-Total Fund

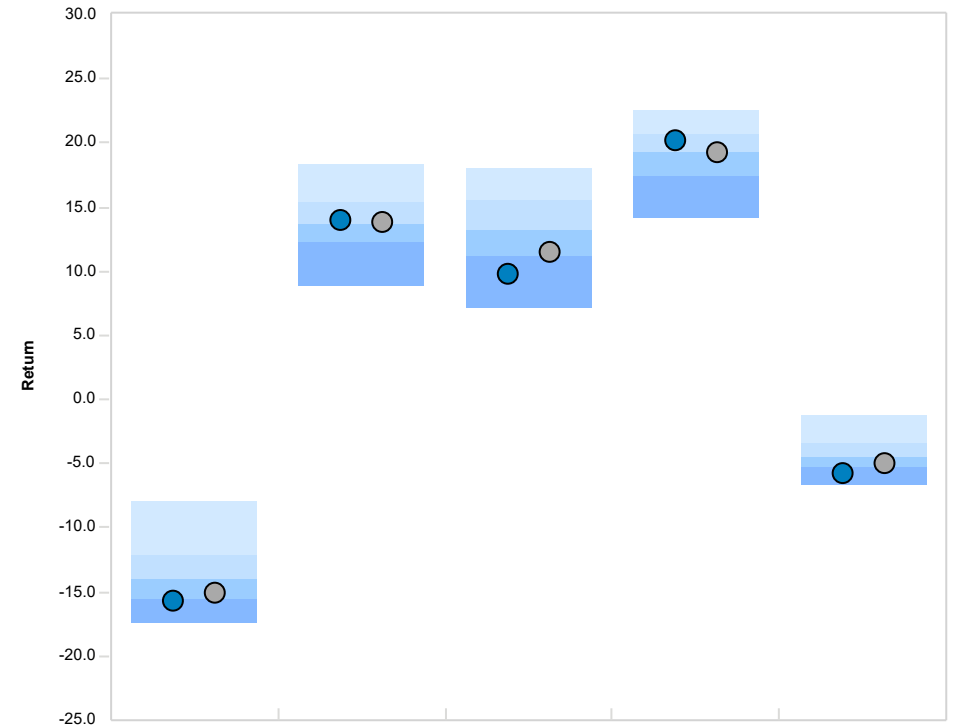


	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	0 (0%)	4 (20%)	3 (15%)	13 (65%)
Index	20	0 (0%)	5 (25%)	2 (10%)	13 (65%)

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



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



#### Financial Reconciliation Since Inception Ending March 31, 2023

	Market Value 04/01/2001	Net Flows	Return On Investment	Market Value 03/31/2023
Investment	59,528,253	-27,030,609	200,797,646	233,295,290

#### Comparative Performance

	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022	1 Qtr Ending Dec-2021	1 Qtr Ending Sep-2021
Investment	6.81	-5.15	-11.85	-5.51	5.02	-0.74
Index	6.41	-4.91	-11.37	-5.06	4.75	-0.48

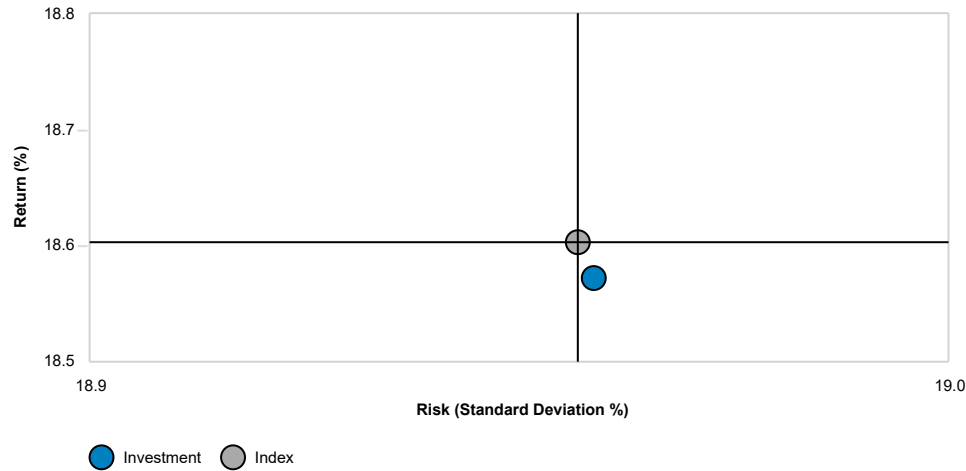
### Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	18.57	18.96	0.95	99.97	9	100.07	3
Index	18.60	18.96	0.95	100.00	9	100.00	3

### Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	11.16	18.48	0.59	99.95	15	100.05	5
Index	11.19	18.48	0.59	100.00	15	100.00	5

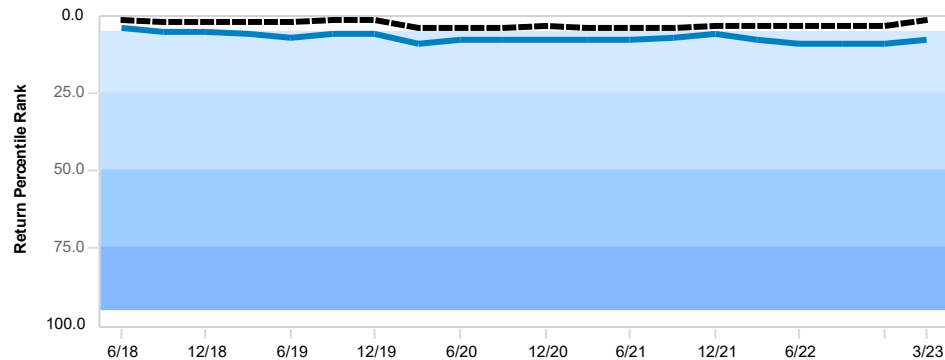
### Risk and Return 3 Years



### Risk and Return 5 Years

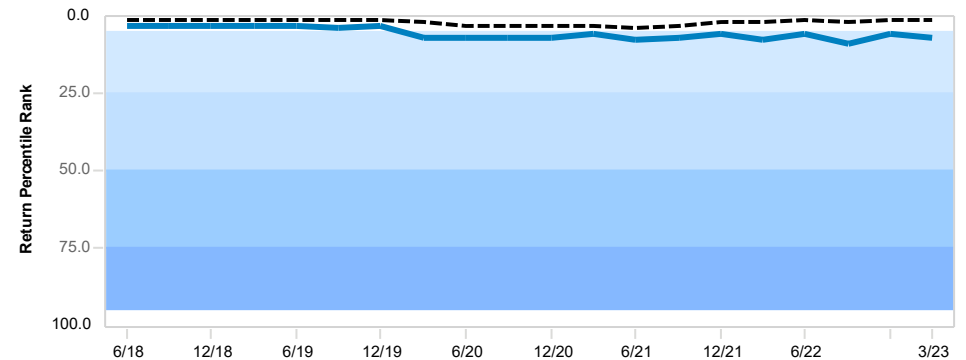


### 3 Year Rolling Percentile Rank IM S&P 500 Index (MF)



	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%)

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

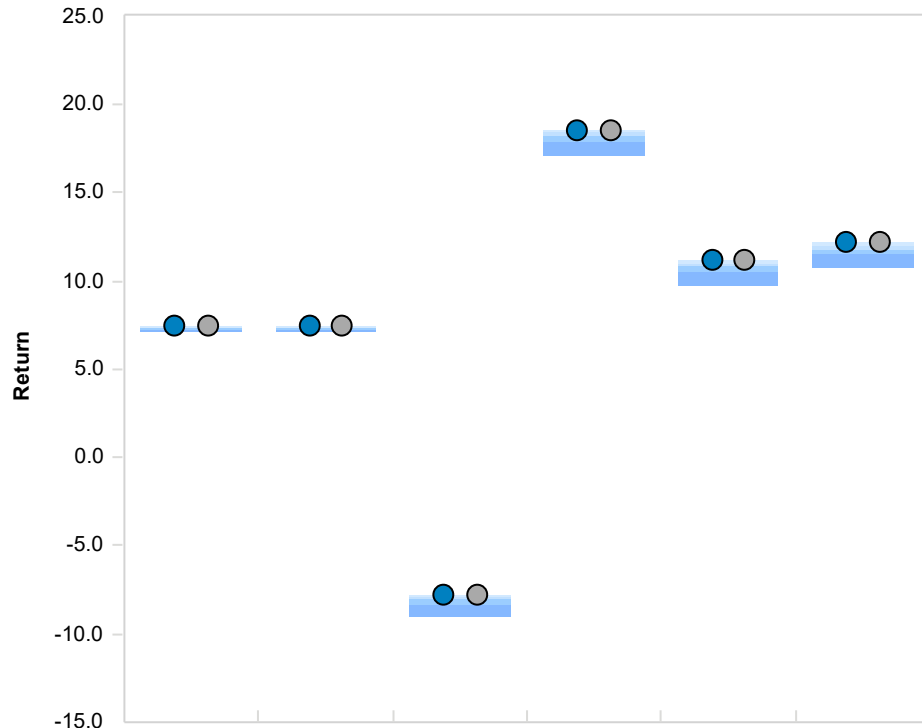


	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	20 (100%)	0 (0%)	0 (0%)	0 (0%)
Index	20	20 (100%)	0 (0%)	0 (0%)	0 (0%)

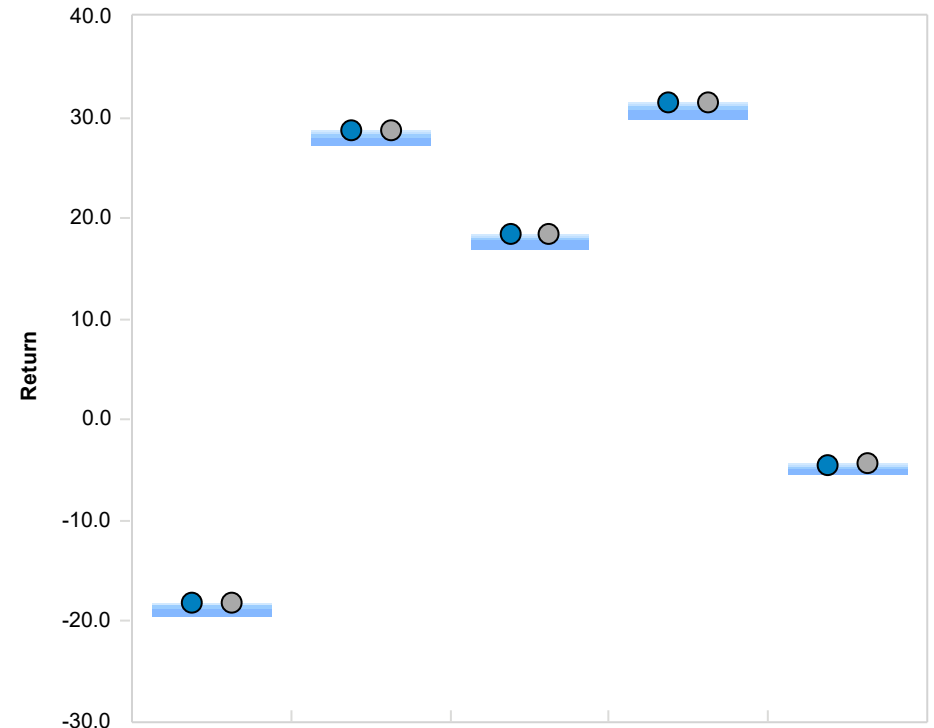
Inception date for VINIX is 12/2020. Manager returns for VINIX have been used for this report.



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



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



**Financial Reconciliation Since Inception Ending March 31, 2023**

No data found.

**Comparative Performance**

	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022	1 Qtr Ending Dec-2021	1 Qtr Ending Sep-2021
Investment	7.55 (15)	-4.89 (16)	-16.11 (14)	-4.60 (9)	11.02 (13)	0.57 (10)
Index	7.56 (8)	-4.88 (5)	-16.10 (8)	-4.60 (6)	11.03 (3)	0.58 (1)
Median	7.46	-4.94	-16.17	-4.68	10.94	0.51

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 :	\$238,451 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 :	\$101,722 Million	Style Benchmark :	S&P 500 Index
Portfolio Turnover :	3%		

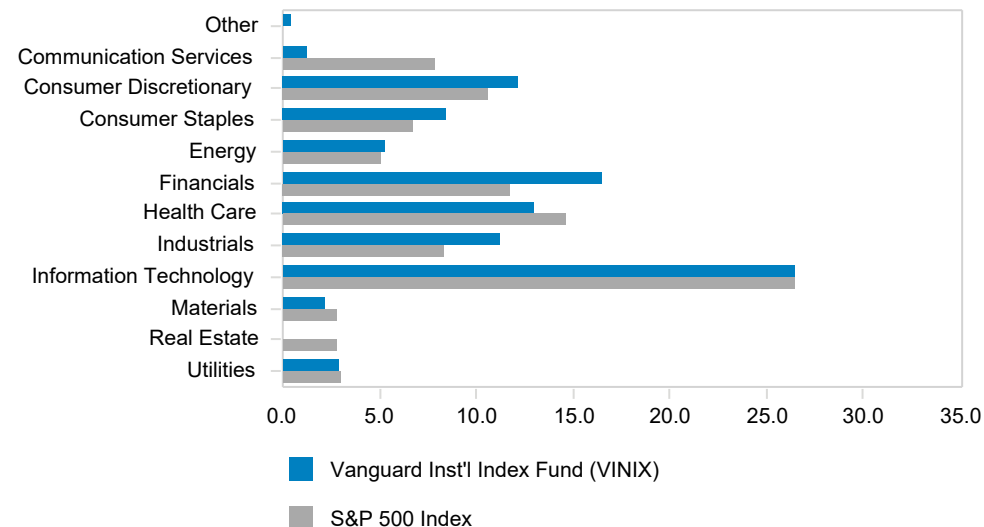
### Portfolio Characteristics As of 01/31/2023

	Portfolio	Benchmark
Total Securities	505	503
Avg. Market Cap	430,988,230,319	452,134,517,664
Price/Earnings (P/E)	27.96	20.64
Price/Book (P/B)	8.50	4.00
Dividend Yield	1.97	1.68
Annual EPS	28.21	13.85
5 Yr EPS	18.13	19.68
3 Yr EPS Growth	20.02	N/A
Beta	N/A	1.00

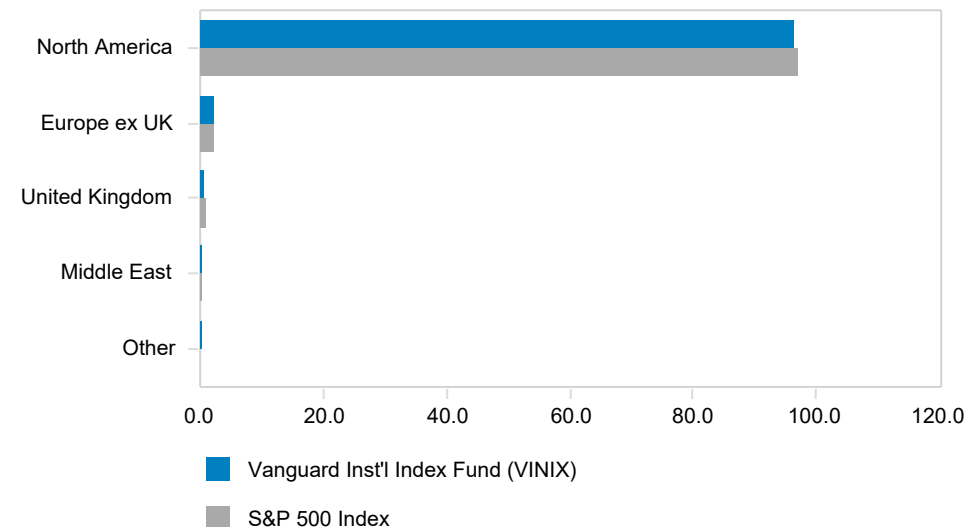
### Top Ten Securities As of 01/31/2023

Apple Inc ORD	6.3 %
Microsoft Corp ORD	5.4 %
Amazon.com Inc ORD	2.7 %
Alphabet Inc Class A ORD	1.7 %
Berkshire Hathaway Inc ORD	1.6 %
Alphabet Inc Class C ORD	1.6 %
NVIDIA Corp ORD	1.4 %
Exxon Mobil Corp ORD	1.4 %
UnitedHealth Group Inc ORD	1.4 %
Tesla Inc ORD	1.4 %

### Sector Weights As of 01/31/2023



### Region Weights As of 01/31/2023



Statistics provided by Lipper. Most recent available data shown.



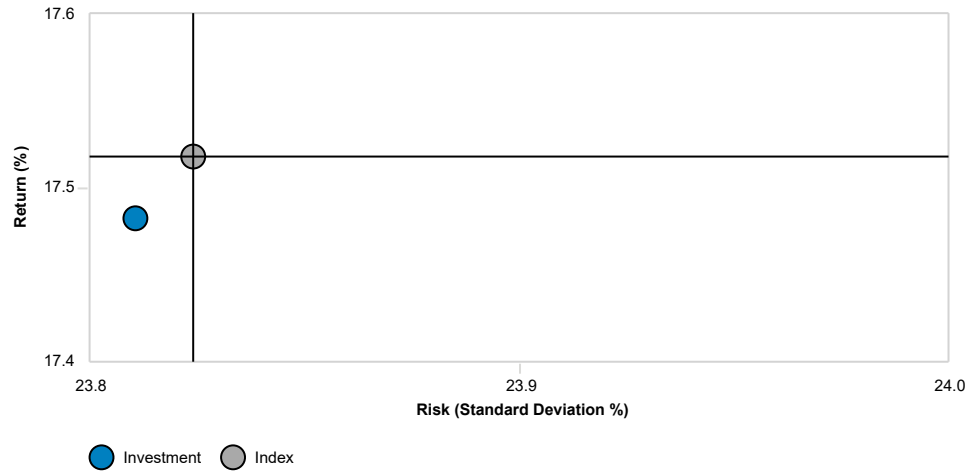
### Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	17.48	23.81	0.76	99.92	8	100.00	4
Index	17.52	23.82	0.76	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	12.90	21.57	0.61	99.94	14	100.01	6
Index	12.93	21.58	0.61	100.00	14	100.00	6

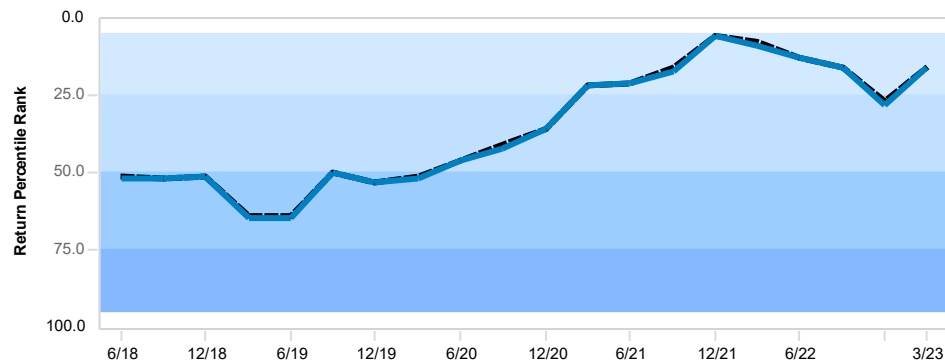
### Risk and Return 3 Years



### Risk and Return 5 Years

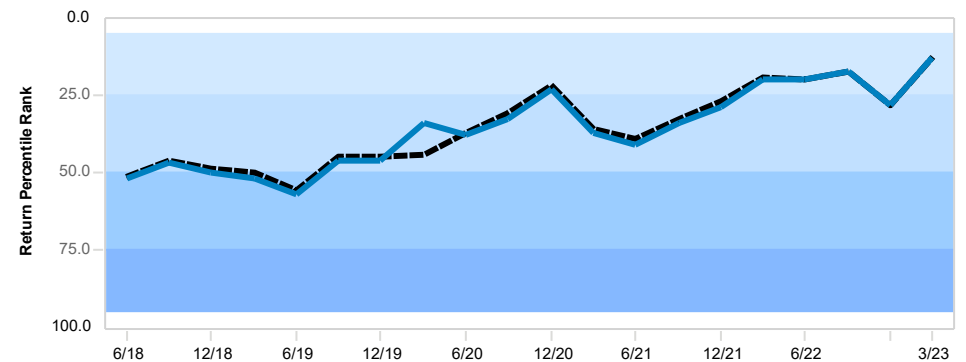


### 3 Year Rolling Percentile Rank IM U.S. Large Cap Growth Equity (MF)



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

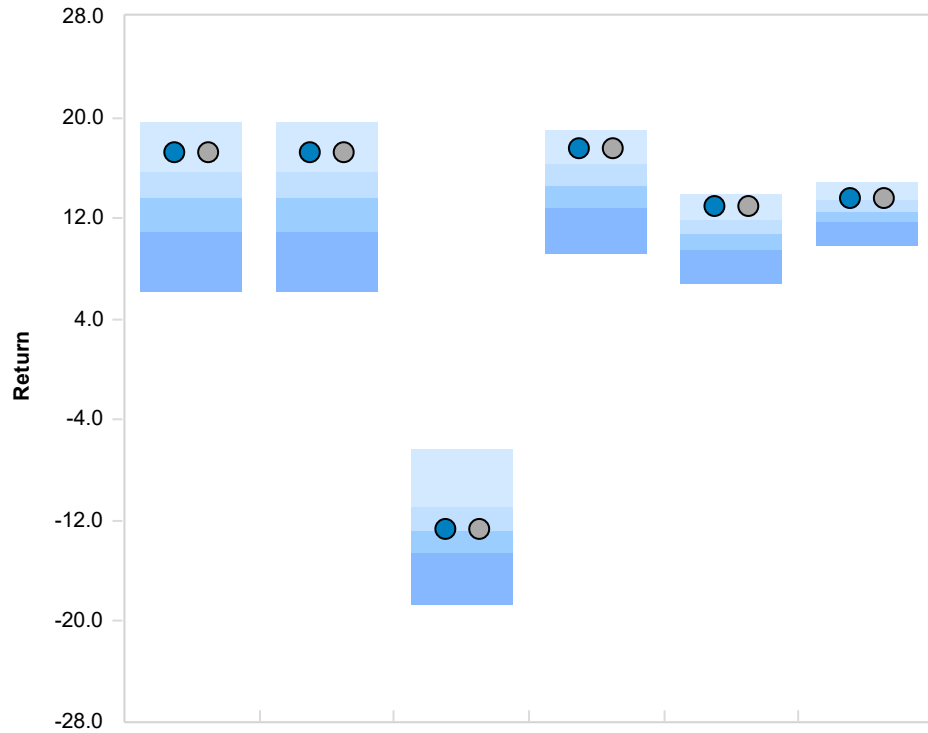
### 5 Year Rolling Percentile Rank IM U.S. Large Cap Growth Equity (MF)



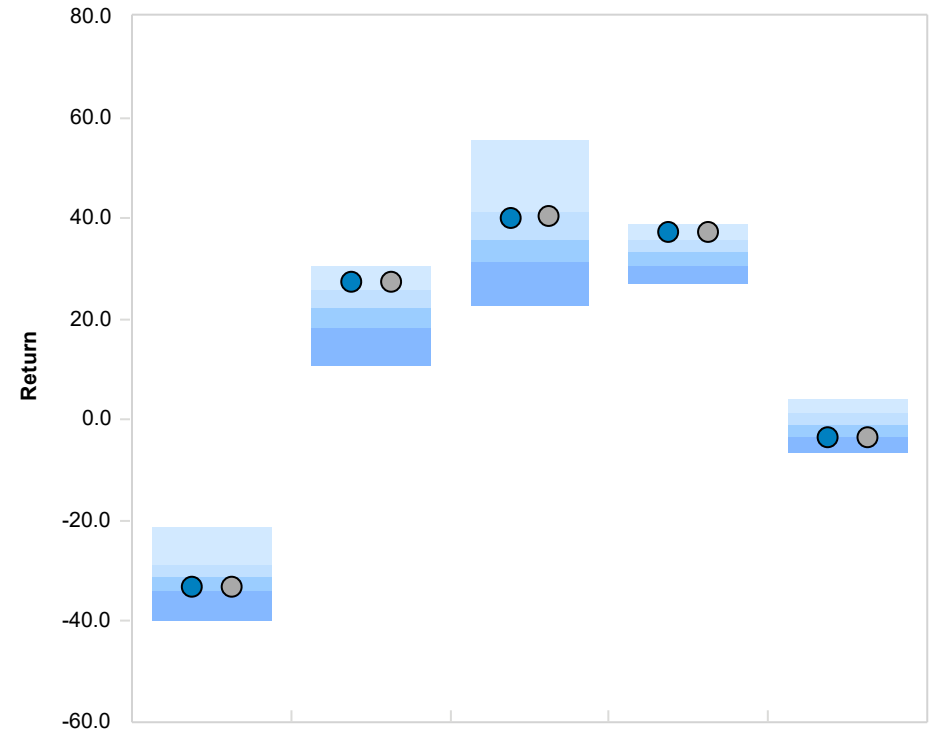
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	5 (25%)	12 (60%)	3 (15%)	0 (0%)
Index	20	5 (25%)	13 (65%)	2 (10%)	0 (0%)



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



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



**Financial Reconciliation Since Inception Ending March 31, 2023**

	Market Value 05/01/2010	Net Flows	Return On Investment	Market Value 03/31/2023
Investment	16,642,537	-27,644,975	22,440,029	11,437,591

**Comparative Performance**

	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022	1 Qtr Ending Dec-2021	1 Qtr Ending Sep-2021
Investment	-0.15	-3.79	-22.41	-10.29	10.73	1.38
Index	-0.15	-3.78	-22.42	-10.28	10.74	1.39





### Fund Information

Fund Name : Vanguard Index Funds: Vanguard Growth Index Fund; Institutional Class Shares  
Fund Family : Vanguard  
Ticker : VIGIX  
Inception Date : 05/14/1998  
Fund Assets : \$21,801 Million  
Portfolio Turnover : 8%

Portfolio Assets : \$159,327 Million  
Portfolio Manager : O'Reilly/Nejman  
PM Tenure : 2000--2016  
Fund Style : IM U.S. Large Cap Growth Equity (MF)  
Style Benchmark : CRSP U.S. Large Cap Growth TR Index

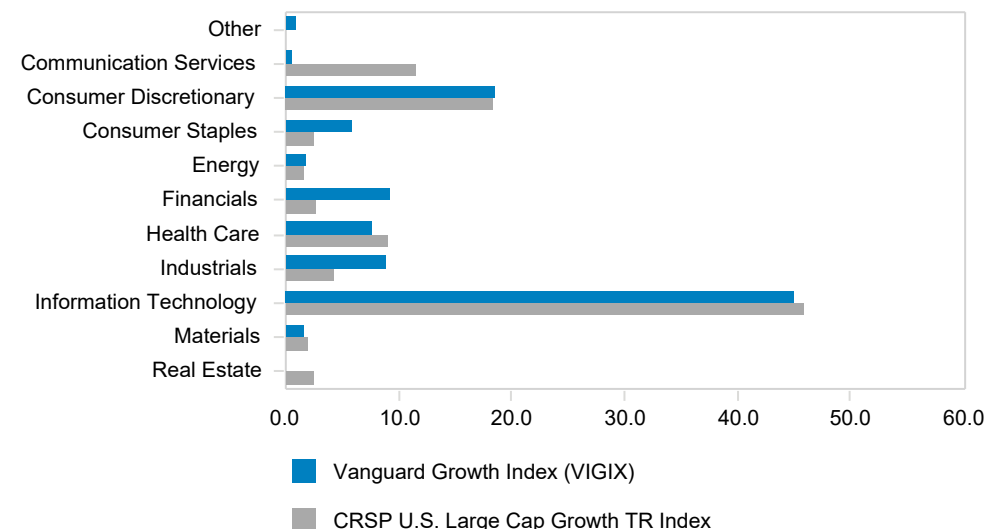
### Portfolio Characteristics As of 01/31/2023

	Portfolio	Benchmark
Total Securities	255	246
Avg. Market Cap	686,383,904,881	717,969,558,992
Price/Earnings (P/E)	34.86	29.20
Price/Book (P/B)	12.63	7.59
Dividend Yield	1.14	0.74
Annual EPS	30.54	17.52
5 Yr EPS	24.53	23.49
3 Yr EPS Growth	21.72	N/A
Beta (5 Years, Monthly)	1.00	1.00

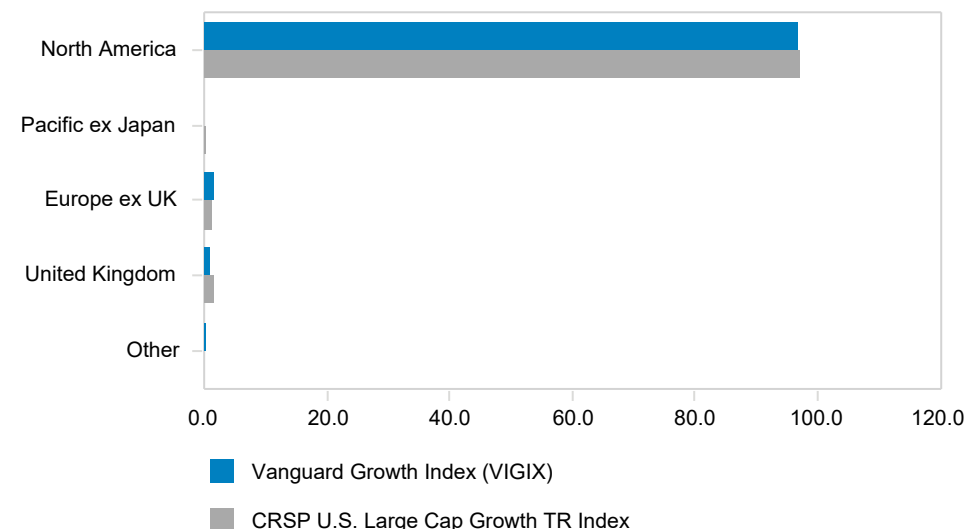
### Top Ten Securities As of 01/31/2023

Apple Inc ORD	12.6 %
Microsoft Corp ORD	10.7 %
Amazon.com Inc ORD	5.2 %
Alphabet Inc Class A ORD	3.4 %
Alphabet Inc Class C ORD	3.0 %
Tesla Inc ORD	2.7 %
NVIDIA Corp ORD	2.6 %
Visa Inc ORD	2.1 %
Home Depot Inc ORD	1.9 %
Mastercard Inc ORD	1.8 %

### Sector Weights As of 01/31/2023



### Region Weights As of 01/31/2023



Statistics provided by Lipper. Most recent available data shown.



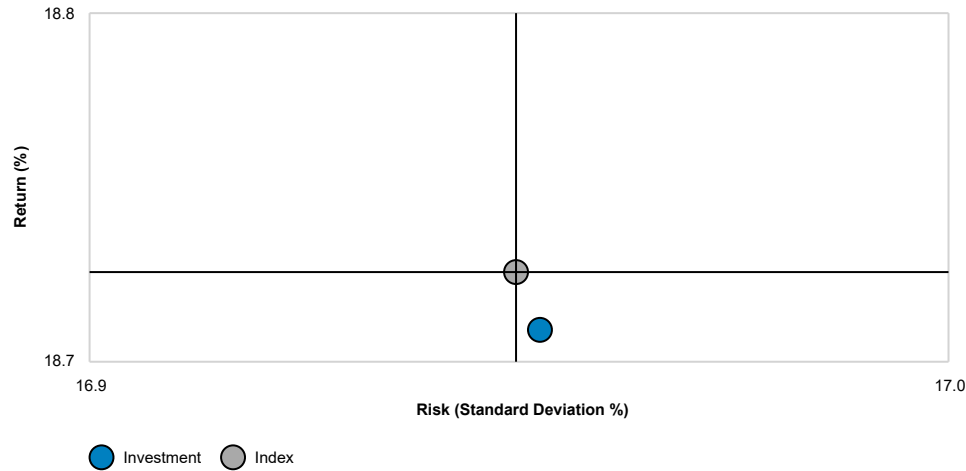
### Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	18.71	16.95	1.04	99.97	8	100.02	4
Index	18.73	16.95	1.05	100.00	8	100.00	4

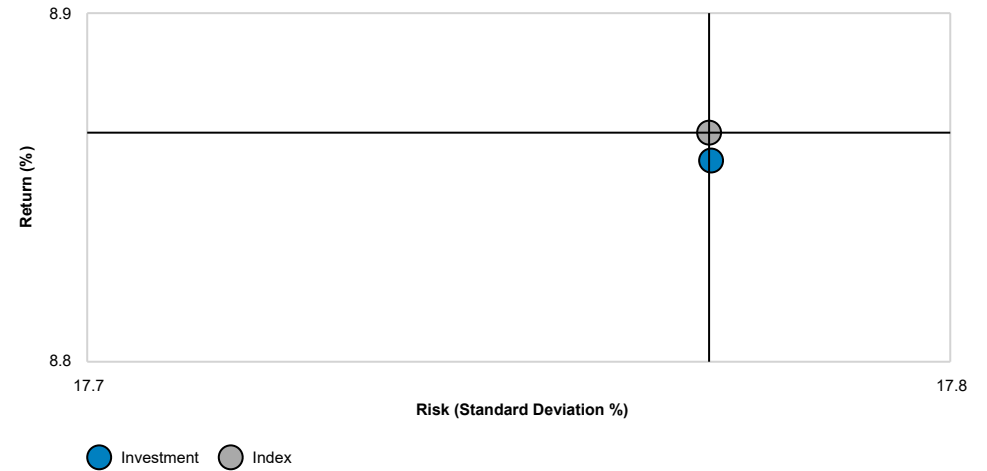
### Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	8.86	17.77	0.49	100.00	14	100.04	6
Index	8.87	17.77	0.49	100.00	14	100.00	6

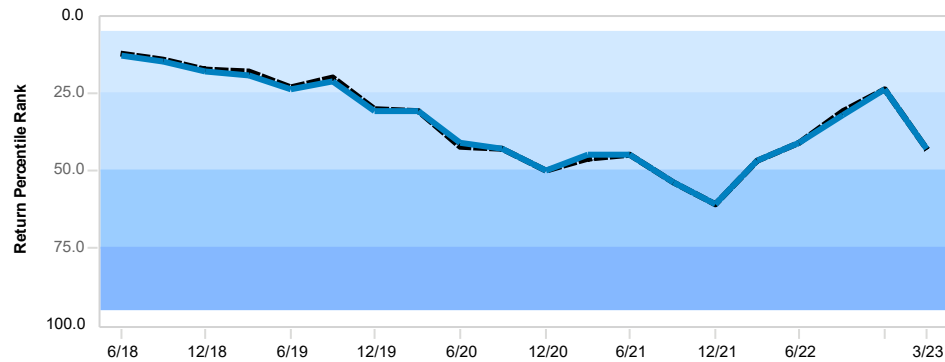
### Risk and Return 3 Years



### Risk and Return 5 Years

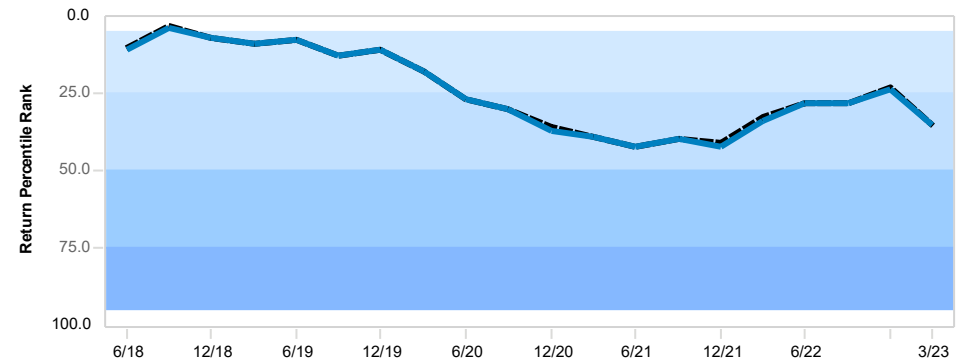


### 3 Year Rolling Percentile Rank IM U.S. Large Cap Value Equity (MF)



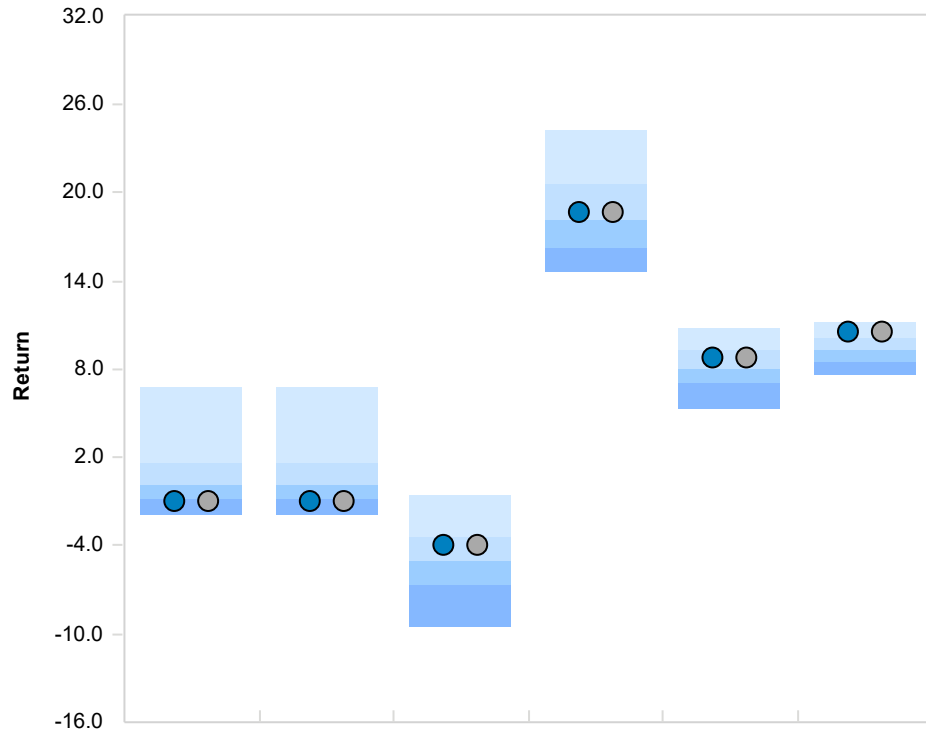
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	7 (35%)	11 (55%)	2 (10%)	0 (0%)
Index	20	7 (35%)	11 (55%)	2 (10%)	0 (0%)

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

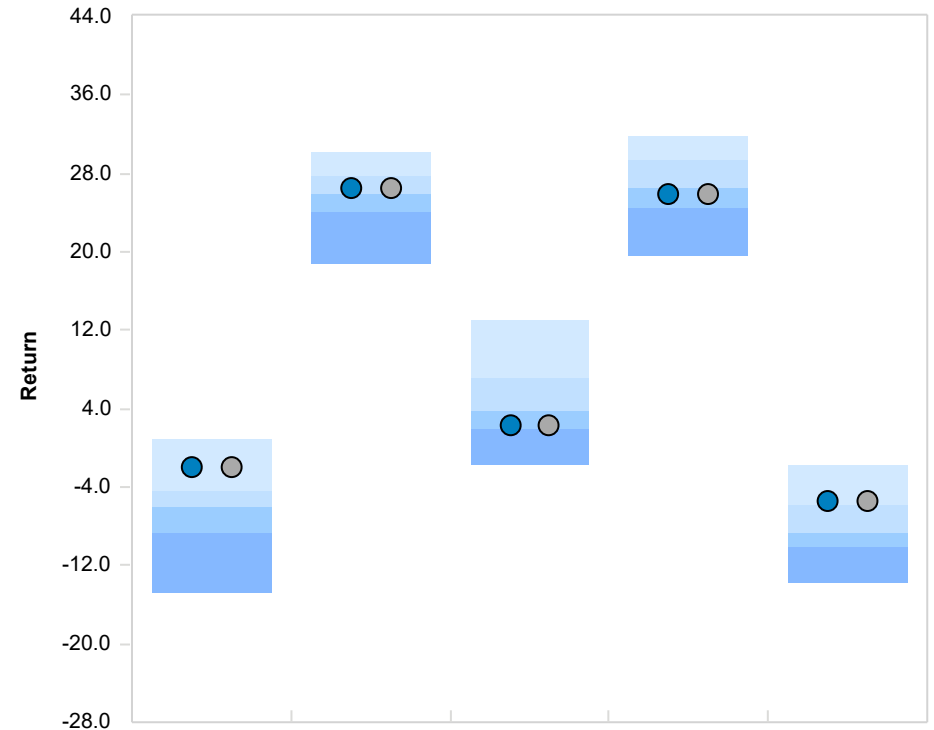


	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	9 (45%)	11 (55%)	0 (0%)	0 (0%)
Index	20	9 (45%)	11 (55%)	0 (0%)	0 (0%)

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



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



**Financial Reconciliation Since Inception Ending March 31, 2023**

	Market Value 07/01/2009	Net Flows	Return On Investment	Market Value 03/31/2023
Investment	1,021,656	-2,963,564	14,047,824	12,105,916

**Comparative Performance**

	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022	1 Qtr Ending Dec-2021	1 Qtr Ending Sep-2021
Investment	14.67	-5.74	-10.27	0.99	9.31	-0.94
Index	14.68	-5.72	-10.27	1.00	9.33	-0.94



### 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 : \$16,453 Million  
Portfolio Turnover : 9%

Portfolio Assets : \$150,645 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

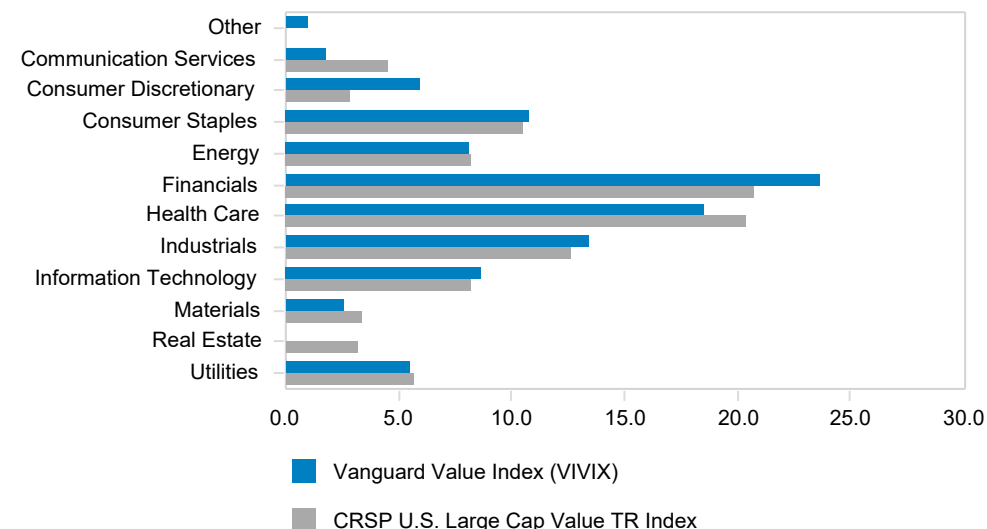
### Portfolio Characteristics As of 01/31/2023

	Portfolio	Benchmark
Total Securities	345	344
Avg. Market Cap	163,511,937,593	172,353,530,393
Price/Earnings (P/E)	21.64	16.22
Price/Book (P/B)	4.84	2.78
Dividend Yield	2.51	2.52
Annual EPS	25.27	535.34
5 Yr EPS	12.53	16.11
3 Yr EPS Growth	18.19	N/A
Beta (5 Years, Monthly)	1.00	1.00

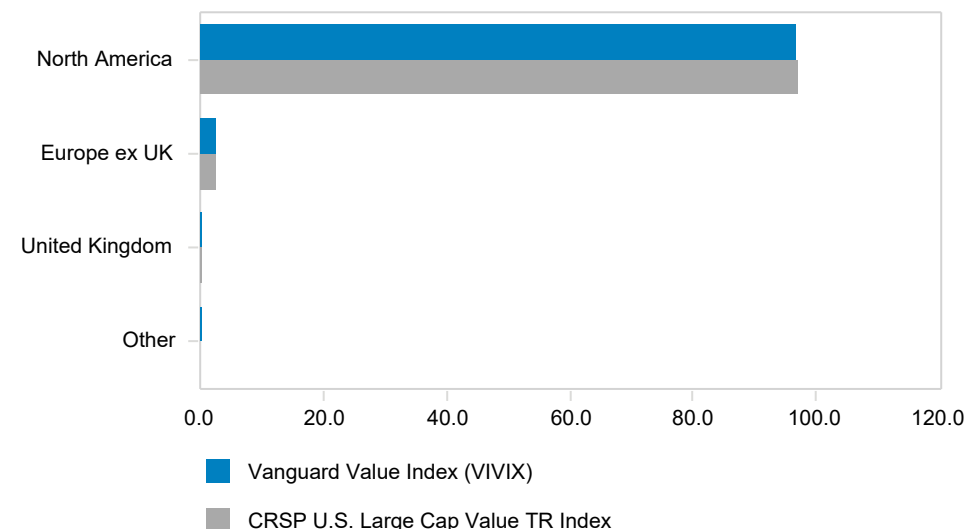
### Top Ten Securities As of 01/31/2023

Berkshire Hathaway Inc ORD	3.1 %
Exxon Mobil Corp ORD	2.7 %
UnitedHealth Group Inc ORD	2.7 %
Johnson & Johnson ORD	2.4 %
JPMorgan Chase & Co ORD	2.3 %
Procter & Gamble Co ORD	1.9 %
Chevron Corp ORD	1.7 %
Merck & Co Inc ORD	1.6 %
Abbvie Inc ORD	1.5 %
Pfizer Inc ORD	1.4 %

### Sector Weights As of 01/31/2023



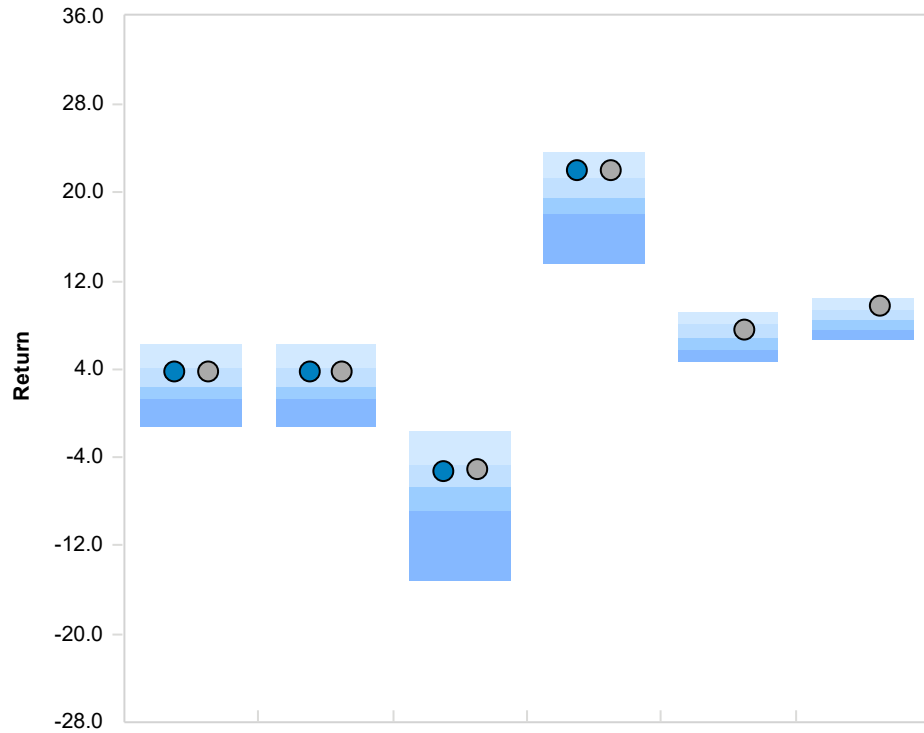
### Region Weights As of 01/31/2023



Statistics provided by Lipper. Most recent available data shown.

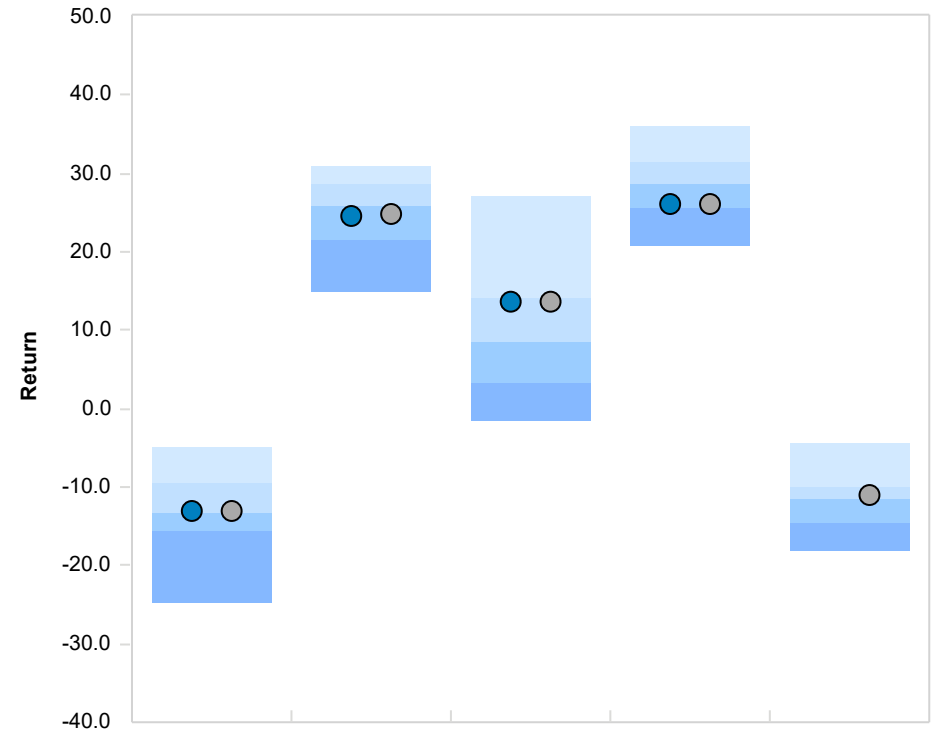


**Peer Group Analysis - IM U.S. Mid Cap Core Equity (MF)**



	QTR	YTD	1 YR	3 YR	5 YR	10 YR
Investment	3.79 (30)	3.79 (30)	-5.17 (33)	22.02 (19)	N/A	N/A
Index	3.81 (30)	3.81 (30)	-5.12 (33)	22.10 (19)	7.67 (39)	9.80 (19)
Median	2.31	2.31	-6.60	19.49	6.91	8.47

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



	2022	2021	2020	2019	2018
Investment	-13.11 (50)	24.67 (59)	13.58 (26)	26.13 (72)	N/A
Index	-13.06 (50)	24.76 (59)	13.66 (26)	26.20 (72)	-11.08 (40)
Median	-13.21	25.73	8.44	28.59	-11.64

**Financial Reconciliation Since Inception Ending March 31, 2023**

	Market Value 12/01/2018	Net Flows	Return On Investment	Market Value 03/31/2023
Investment	21,384,601	-6,500,000	9,370,626	24,255,228

**Comparative Performance**

	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022	1 Qtr Ending Dec-2021	1 Qtr Ending Sep-2021
Investment	10.77 (35)	-2.46 (14)	-15.43 (77)	-4.89 (59)	7.97 (59)	-1.78 (76)
Index	10.78 (35)	-2.46 (14)	-15.42 (77)	-4.88 (58)	8.00 (58)	-1.76 (76)
Median	9.63	-4.32	-13.63	-4.08	8.20	-0.87



### Fund Information

Fund Name : Vanguard Admiral Funds: Vanguard S&P Mid-Cap 400 Index Fund; Institutional Shares  
 Fund Family : Vanguard  
 Ticker : VSPMX  
 Inception Date : 12/15/2010  
 Fund Assets : \$1,389 Million  
 Portfolio Turnover : 11%

Portfolio Assets : \$2,925 Million  
 Portfolio Manager : Khan/Narzikul  
 PM Tenure : 2017--2023  
 Fund Style : IM S&P Midcap 400 Index Funds (MF)  
 Style Benchmark : S&P MidCap 400 Index

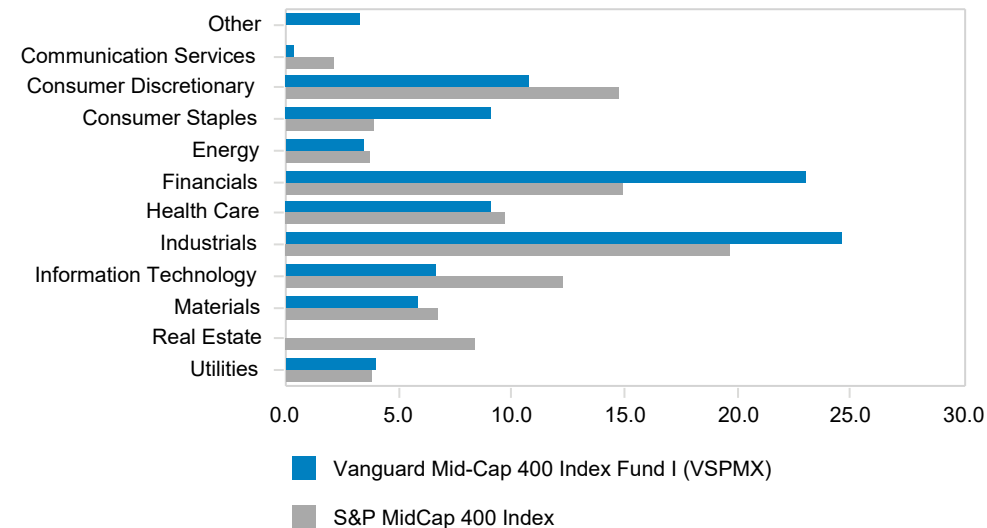
### Portfolio Characteristics As of 01/31/2023

	Portfolio	Benchmark
Total Securities	403	401
Avg. Market Cap	7,219,762,843	7,143,825,416
Price/Earnings (P/E)	23.76	14.06
Price/Book (P/B)	4.37	2.62
Dividend Yield	2.29	1.65
Annual EPS	41.38	4.71
5 Yr EPS	17.65	17.79
3 Yr EPS Growth	17.51	N/A
Beta (3 Years, Monthly)	1.00	1.00

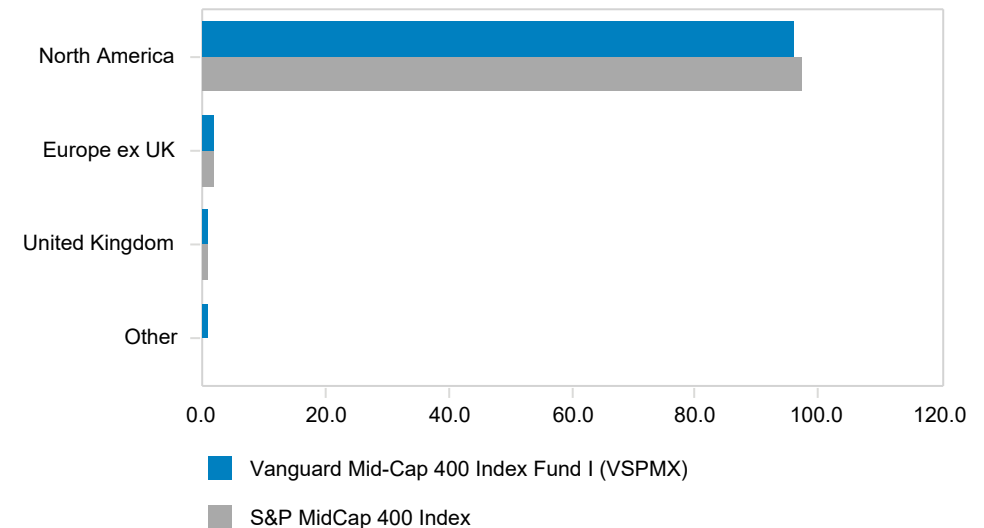
### Top Ten Securities As of 01/31/2023

Vanguard Market Liquidity Fund	1.1 %
Fair Isaac Corp ORD	0.7 %
Reliance Steel & Aluminum Co ORD	0.6 %
First Horizon Corp ORD	0.6 %
Axon Enterprise Inc ORD	0.6 %
Carlisle Companies Inc ORD	0.6 %
Hubbell Inc ORD	0.5 %
AECOM ORD	0.5 %
United Therapeutics Corp ORD	0.5 %
Builders FirstSource Inc ORD	0.5 %

### Sector Weights As of 01/31/2023



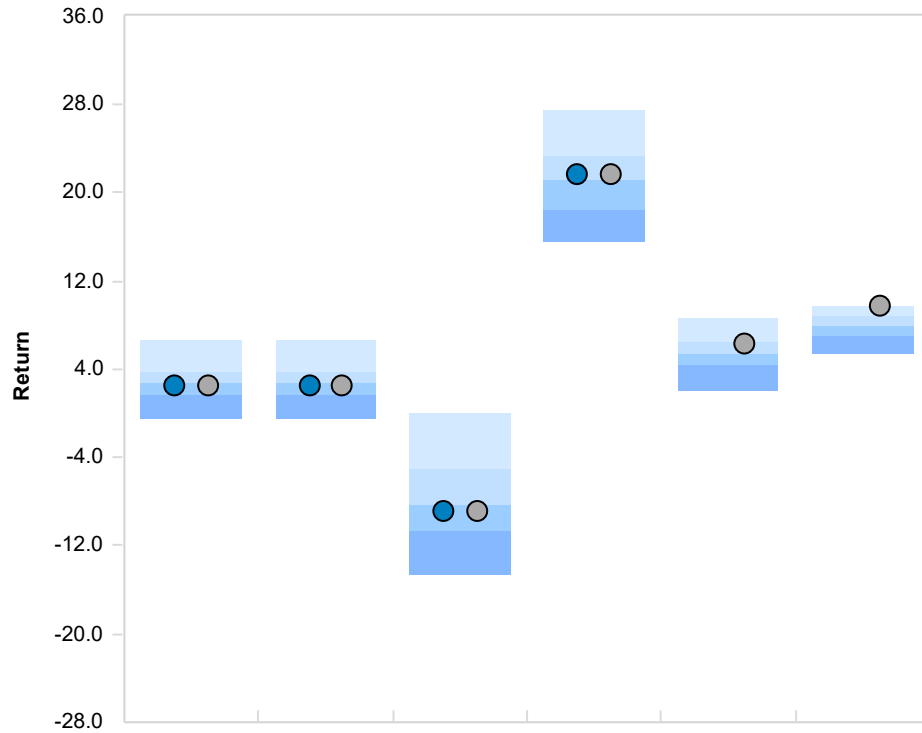
### Region Weights As of 01/31/2023



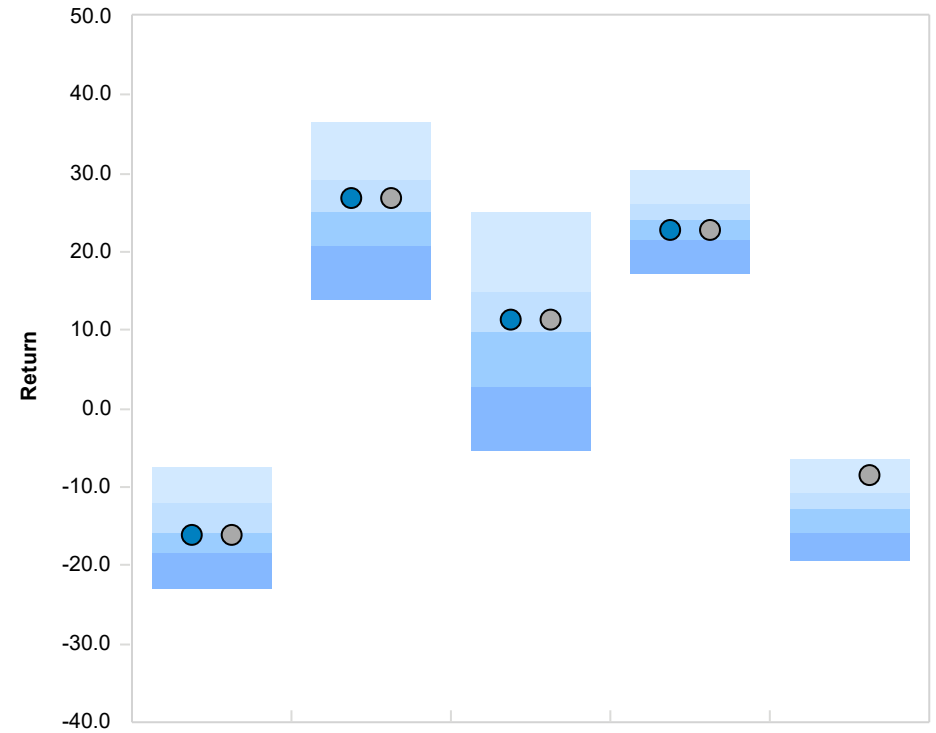
Statistics provided by Lipper. Most recent available data shown.



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



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



**Financial Reconciliation Since Inception Ending March 31, 2023**

	Market Value 12/01/2018	Net Flows	Return On Investment	Market Value 03/31/2023
Investment	10,695,104	-2,500,000	3,600,675	11,795,780

**Comparative Performance**

	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022	1 Qtr Ending Dec-2021	1 Qtr Ending Sep-2021
Investment	9.17 (58)	-5.22 (69)	-14.14 (42)	-5.65 (51)	5.61 (57)	-2.86 (61)
Index	9.19 (58)	-5.20 (68)	-14.11 (41)	-5.62 (50)	5.64 (56)	-2.84 (61)
Median	9.65	-4.48	-14.56	-5.65	5.94	-2.38



### Fund Information

Fund Name :	Vanguard Admiral Funds: Vanguard S&P Small-Cap 600 Index Fund; Institutional Shares	Portfolio Assets :	\$4,186 Million
Fund Family :	Vanguard	Portfolio Manager :	Butler/Narzikul
Ticker :	VSMX	PM Tenure :	2015--2023
Inception Date :	12/15/2010	Fund Style :	IM U.S. Small Cap Core Equity (MF)
Fund Assets :	\$1,923 Million	Style Benchmark :	S&P SmallCap 600 Index
Portfolio Turnover :	12%		

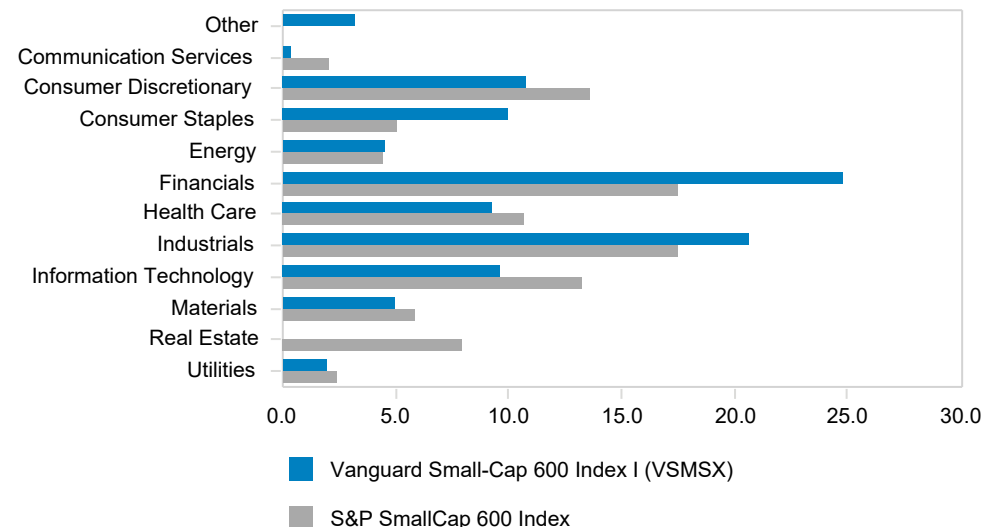
### Portfolio Characteristics As of 01/31/2023

	Portfolio	Benchmark
Total Securities	607	601
Avg. Market Cap	2,422,408,620	2,445,515,182
Price/Earnings (P/E)	22.86	12.50
Price/Book (P/B)	3.03	2.11
Dividend Yield	2.59	1.59
Annual EPS	39.80	3.08
5 Yr EPS	14.76	17.21
3 Yr EPS Growth	15.26	N/A
Beta (3 Years, Monthly)	1.00	1.00

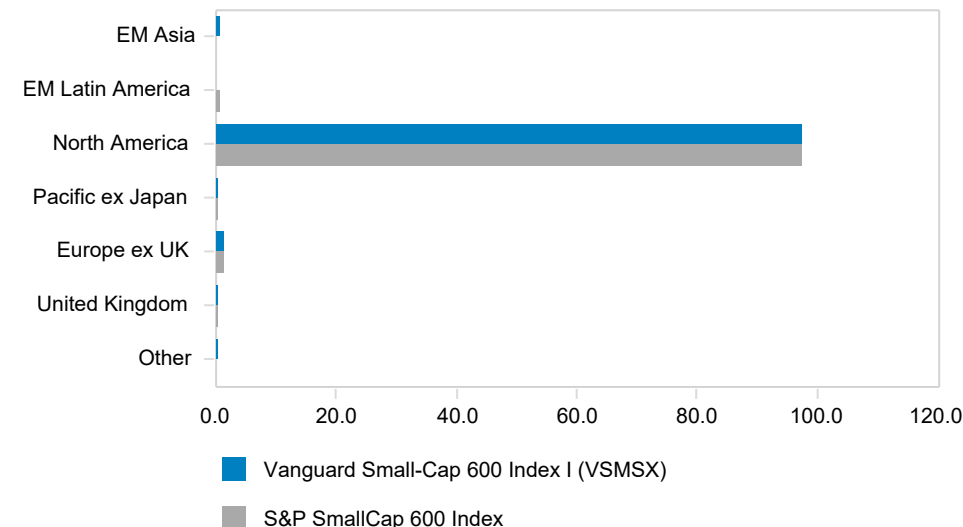
### Top Ten Securities As of 01/31/2023

Agree Realty Corp ORD	0.7 %
Ufp Industries Inc ORD	0.6 %
Applied Industrial Technologies	0.6 %
Exponent Inc ORD	0.5 %
Ensign Group Inc ORD	0.5 %
Helmerich and Payne Inc ORD	0.5 %
SPS Commerce Inc ORD	0.5 %
Asbury Automotive Group Inc ORD	0.5 %
Fabrinet ORD	0.5 %
ATI Inc ORD	0.5 %

### Sector Weights As of 01/31/2023



### Region Weights As of 01/31/2023



Statistics provided by Lipper. Most recent available data shown.





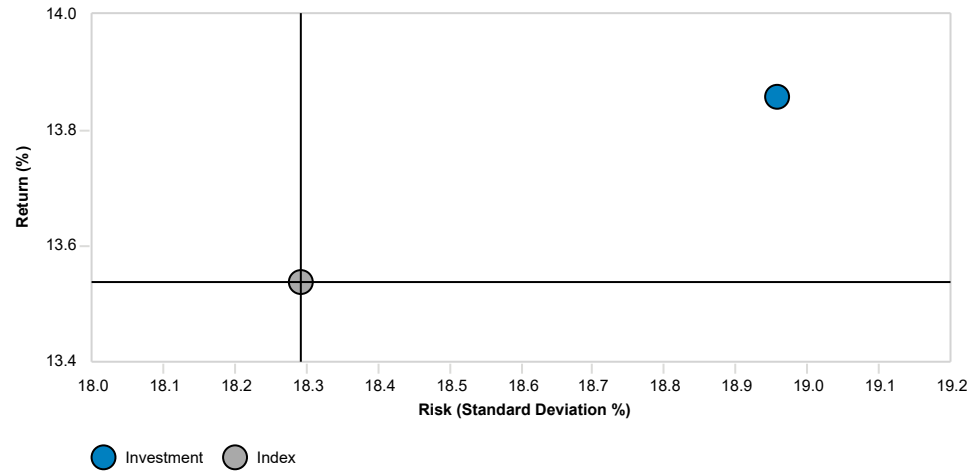
### Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	13.86	18.96	0.74	105.09	8	106.88	4
Index	13.54	18.29	0.74	100.00	8	100.00	4

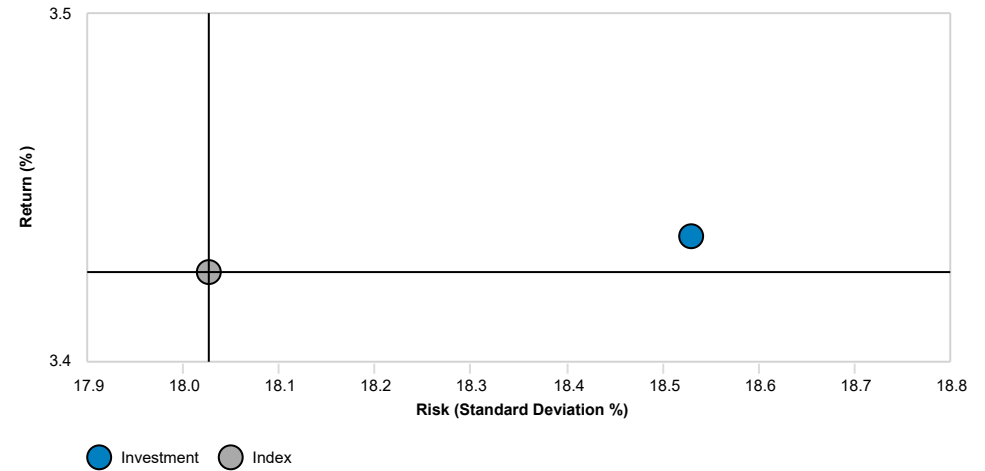
### Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	3.44	18.53	0.20	103.85	12	104.27	8
Index	3.43	18.03	0.20	100.00	12	100.00	8

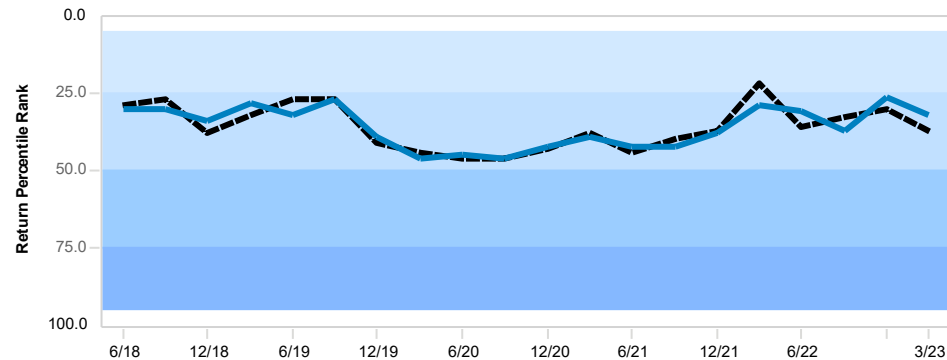
### Risk and Return 3 Years



### Risk and Return 5 Years

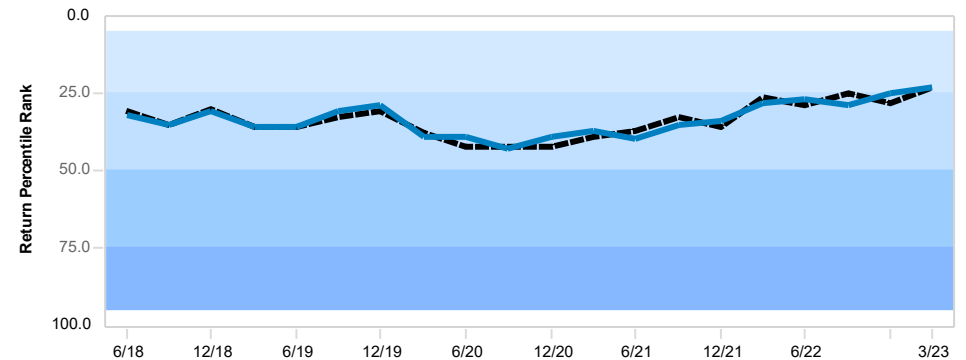


### 3 Year Rolling Percentile Rank IM International Multi-Cap Equity (MF)



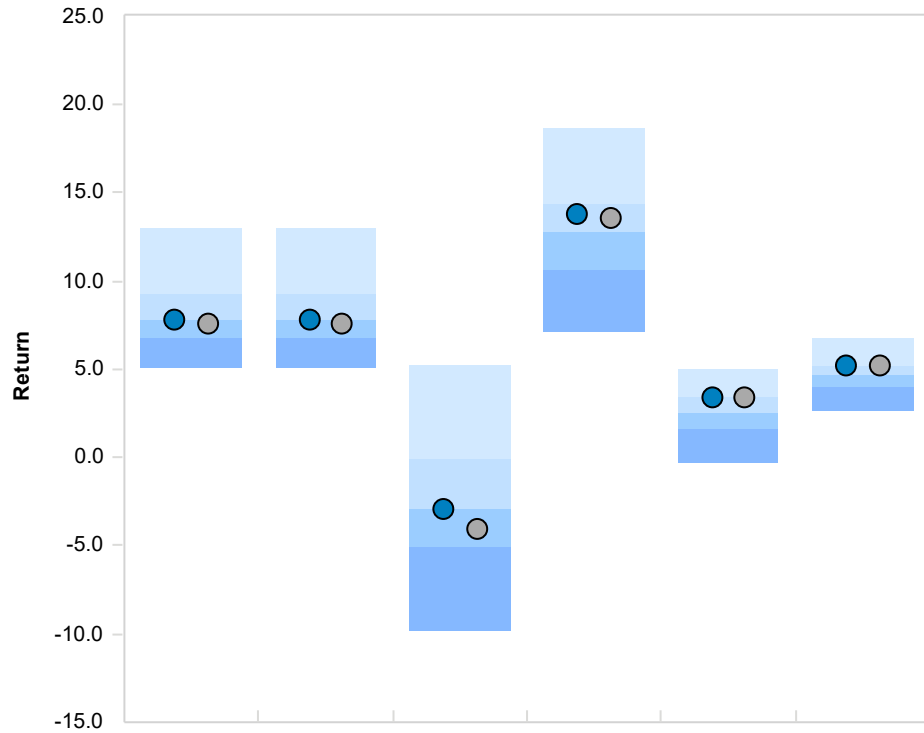
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	0 (0%)	20 (100%)	0 (0%)	0 (0%)
Index	20	1 (5%)	19 (95%)	0 (0%)	0 (0%)

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

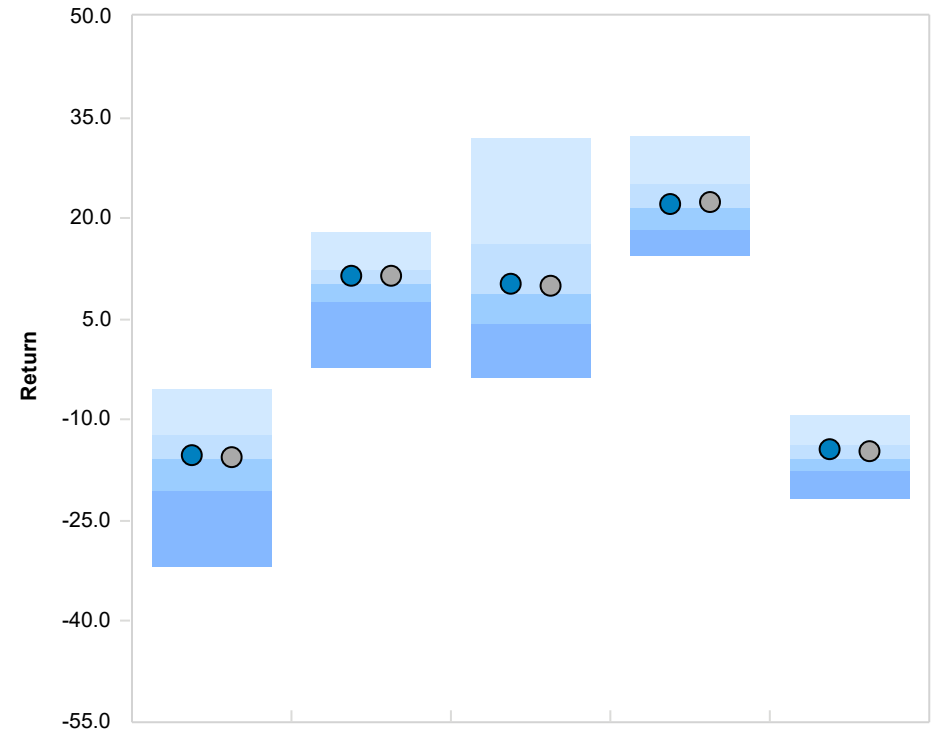


	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	2 (10%)	18 (90%)	0 (0%)	0 (0%)
Index	20	2 (10%)	18 (90%)	0 (0%)	0 (0%)

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



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



**Financial Reconciliation Since Inception Ending March 31, 2023**

	Market Value 07/01/2009	Net Flows	Return On Investment	Market Value 03/31/2023
Investment	253,831	45,927	9,589,622	9,889,381

**Comparative Performance**

	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022	1 Qtr Ending Dec-2021	1 Qtr Ending Sep-2021
Investment	17.10	-10.49	-14.04	-6.04	2.99	-1.56
Index	16.28	-9.59	-15.23	-5.27	2.55	-1.06

### Fund Information

Fund Name : Vanguard Tax-Managed Funds: Vanguard Developed Markets Index Fund; Institutional Shares  
 Fund Family : Vanguard  
 Ticker : VTMNX  
 Inception Date : 01/04/2001  
 Fund Assets : \$14,341 Million  
 Portfolio Turnover : 3%

Portfolio Assets : \$160,821 Million  
 Portfolio Manager : Franquin/Perre  
 PM Tenure : 2013--2017  
 Fund Style : IM International Multi-Cap Core Equity (MF)  
 Style Benchmark : FTSE Developed x North America Index (Net)

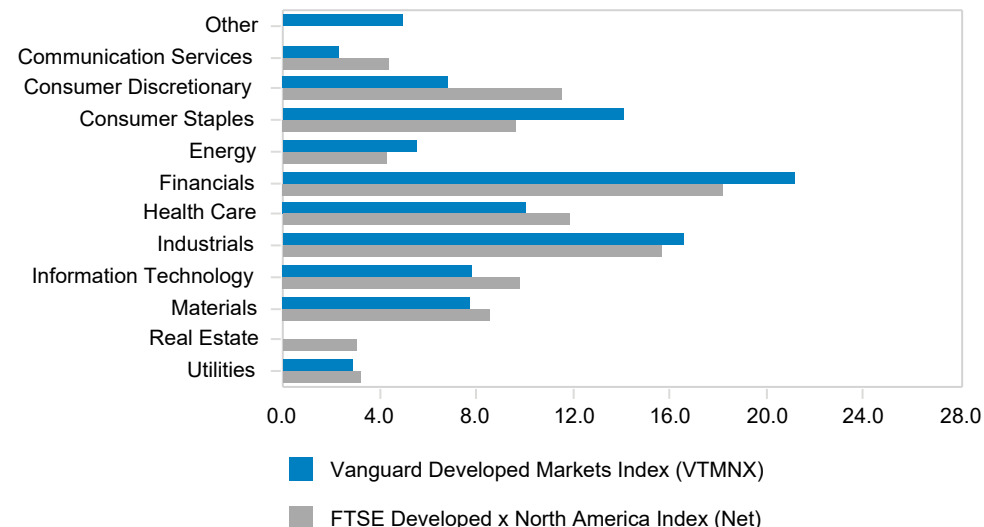
### Portfolio Characteristics As of 01/31/2023

	Portfolio	Benchmark
Total Securities	4,111	1,511
Avg. Market Cap	67,902,830,785	78,388,564,620
Price/Earnings (P/E)	20.82	12.49
Price/Book (P/B)	3.73	2.29
Dividend Yield	3.25	3.18
Annual EPS	41.93	878.76
5 Yr EPS	12.60	10.36
3 Yr EPS Growth	10.87	N/A
Beta (5 Years, Monthly)	1.03	1.00

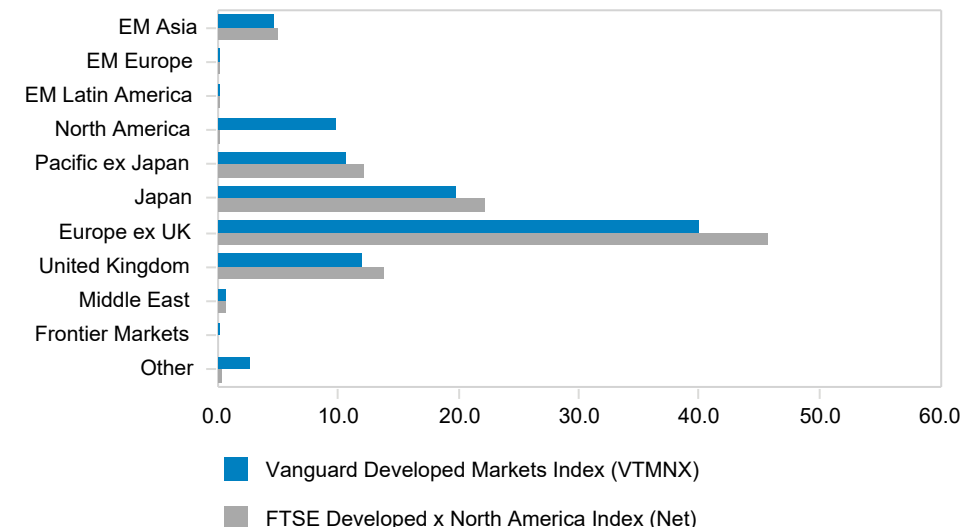
### Top Ten Securities As of 01/31/2023

Vanguard Market Liquidity Fund	2.1 %
Nestle SA ORD	1.5 %
ASML Holding NV ORD	1.2 %
Samsung Electronics Co Ltd ORD	1.1 %
LVMH Moet Hennessy Louis Vuitton	1.0 %
Roche Holding AG	1.0 %
Novo Nordisk A/S ORD	1.0 %
Shell PLC ORD	1.0 %
AstraZeneca PLC ORD	0.9 %
Novartis AG ORD	0.9 %

### Sector Weights As of 01/31/2023



### Region Weights As of 01/31/2023



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 March 31, 2023

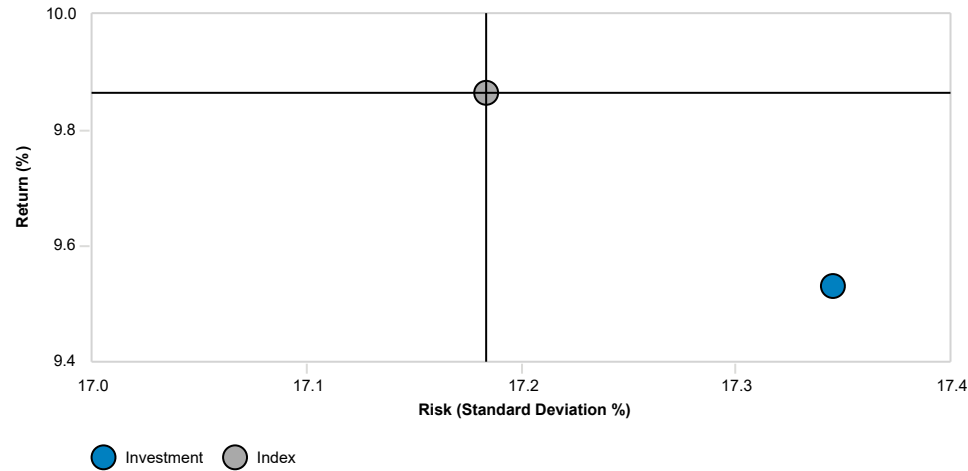
### Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	9.53	17.35	0.56	100.06	7	101.67	5
Index	9.87	17.18	0.58	100.00	7	100.00	5

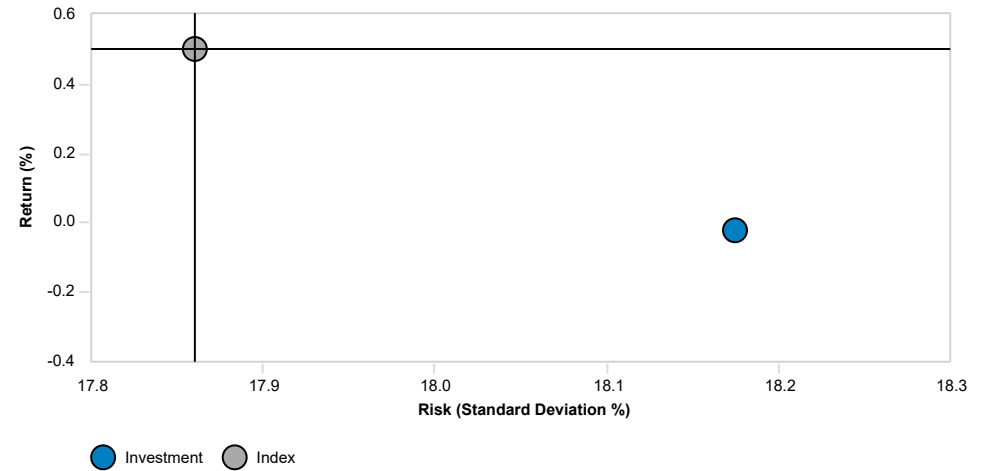
### Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	-0.02	18.17	0.01	100.56	10	102.65	10
Index	0.50	17.86	0.04	100.00	10	100.00	10

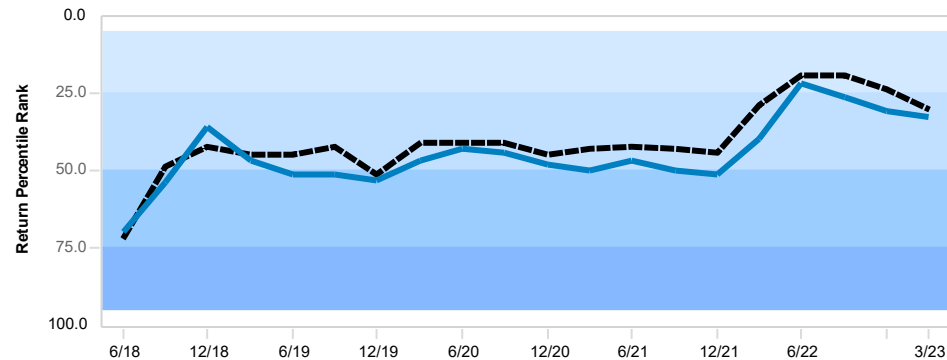
### Risk and Return 3 Years



### Risk and Return 5 Years

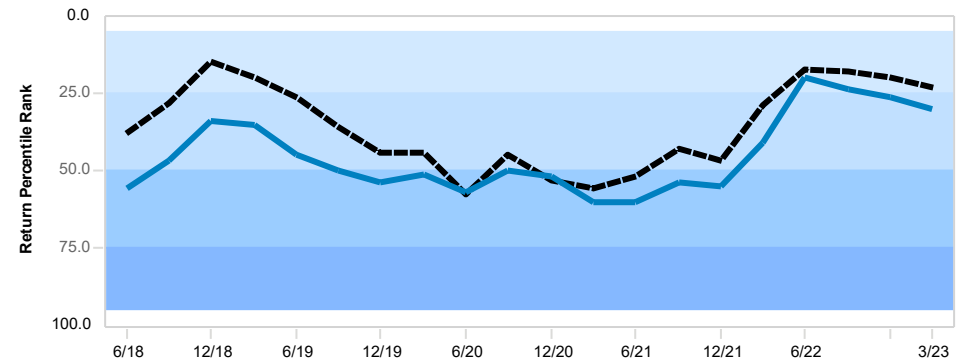


### 3 Year Rolling Percentile Rank IM Emerging Markets Equity (MF)



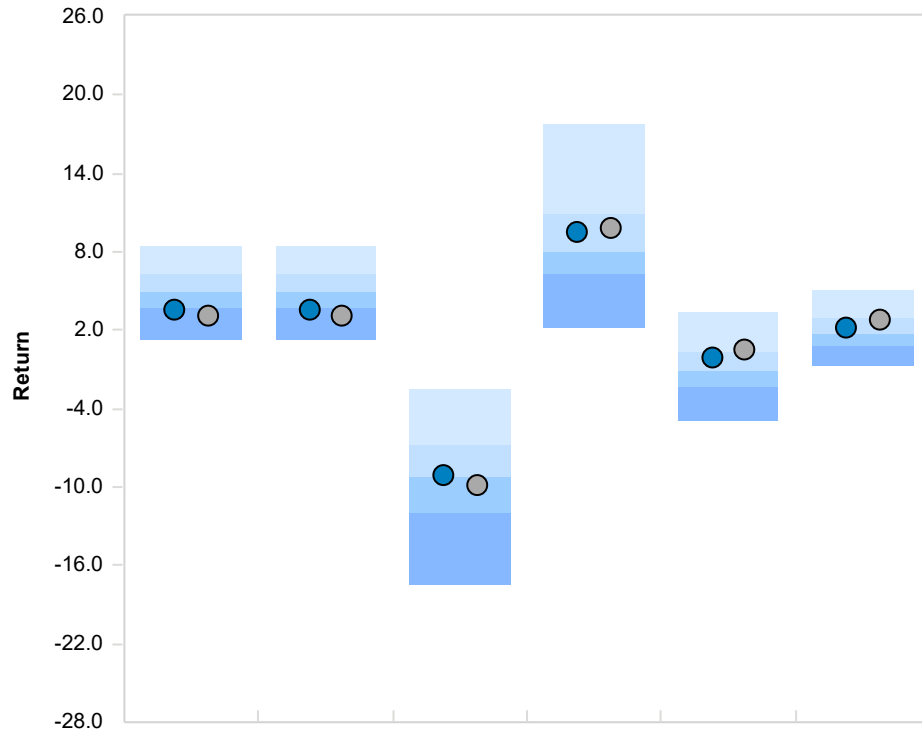
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	1 (5%)	13 (65%)	6 (30%)	0 (0%)
Index	20	3 (15%)	15 (75%)	2 (10%)	0 (0%)

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

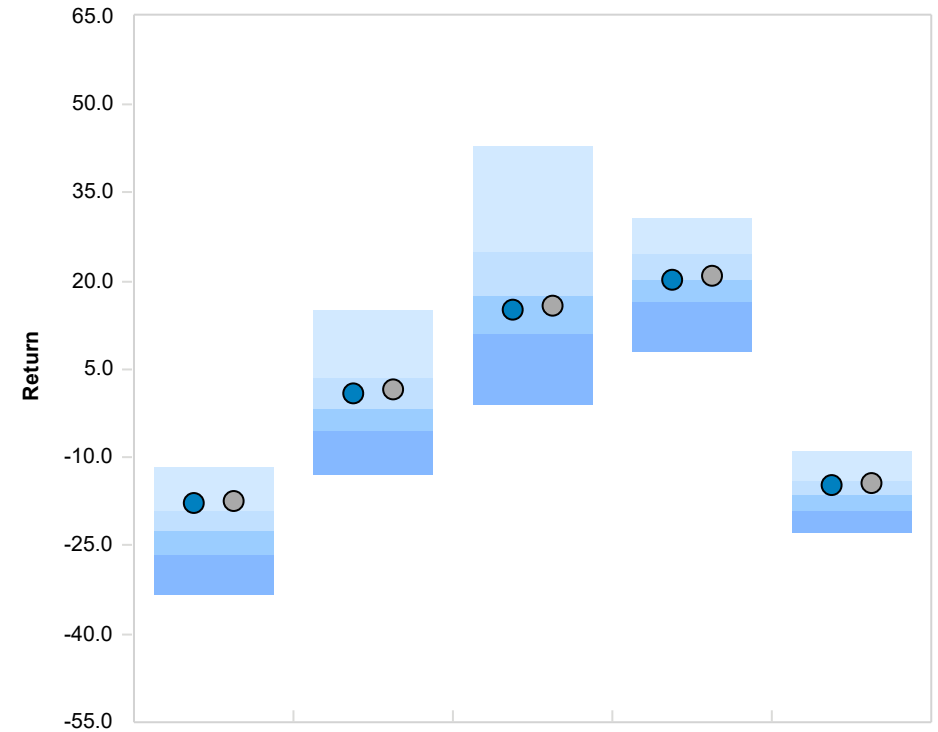


	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	2 (10%)	9 (45%)	9 (45%)	0 (0%)
Index	20	6 (30%)	10 (50%)	4 (20%)	0 (0%)

**Peer Group Analysis - IM Emerging Markets Equity (MF)**



**Peer Group Analysis - IM Emerging Markets Equity (MF)**



**Financial Reconciliation Since Inception Ending March 31, 2023**

	Market Value 10/01/2010	Net Flows	Return On Investment	Market Value 03/31/2023
Investment	5,147,163	3,164,289	2,781,233	11,092,686

**Comparative Performance**

	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022	1 Qtr Ending Dec-2021	1 Qtr Ending Sep-2021
Investment	8.22	-10.73	-9.18	-6.24	-0.40	-6.97
Index	8.23	-9.78	-10.40	-5.42	-0.45	-6.31



### Fund Information

Fund Name : Vanguard International Equity Index Funds: Vanguard Emerging Markets Stock Index Fund; Instl Class Shares  
Fund Family : Vanguard  
Ticker : VEMIX  
Inception Date : 06/22/2000  
Fund Assets : \$6,950 Million  
Portfolio Turnover : 7%

Portfolio Assets : \$98,582 Million

Portfolio Manager : Perre/Miller  
PM Tenure : 2008--2016  
Fund Style : IM Emerging Markets Equity (MF)  
Style Benchmark : FTSE Emerging Mkts All Cap China A Inclusion Index

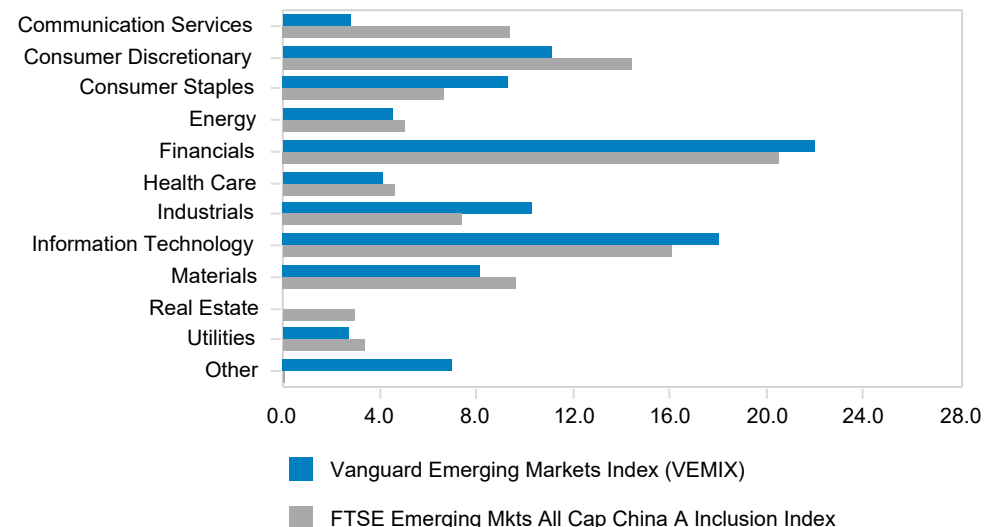
### Portfolio Characteristics As of 01/31/2023

	Portfolio	Benchmark
Total Securities	4,697	4,471
Avg. Market Cap	88,917,941,237	85,298,780,434
Price/Earnings (P/E)	22.12	12.09
Price/Book (P/B)	3.82	2.74
Dividend Yield	4.03	3.45
Annual EPS	35.06	34.16
5 Yr EPS	18.06	16.81
3 Yr EPS Growth	21.66	N/A
Beta (5 Years, Monthly)	1.01	1.00

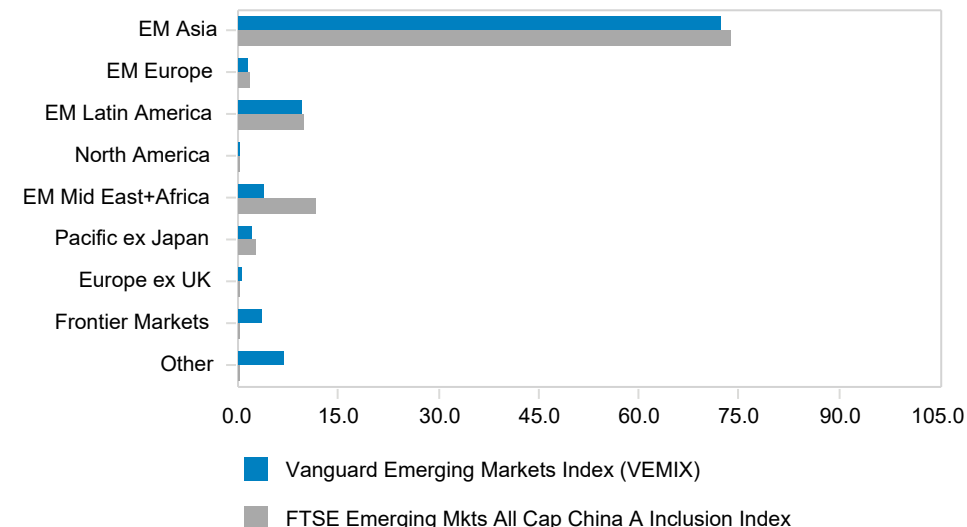
### Top Ten Securities As of 01/31/2023

Taiwan Semiconductor Manufacturing	4.8 %
Tencent Holdings Ltd ORD	4.0 %
Alibaba Group Holding Ltd ORD	2.8 %
Vanguard Market Liquidity Fund	2.7 %
Meituan ORD	1.4 %
Reliance Industries Ltd ORD	1.3 %
Vale SA ORD	1.0 %
TAIWAN SEMICONDUCTOR MNFTG ADR	1.0 %
JD.Com Inc ORD	1.0 %
Infosys Ltd ORD	0.9 %

### Sector Weights As of 01/31/2023



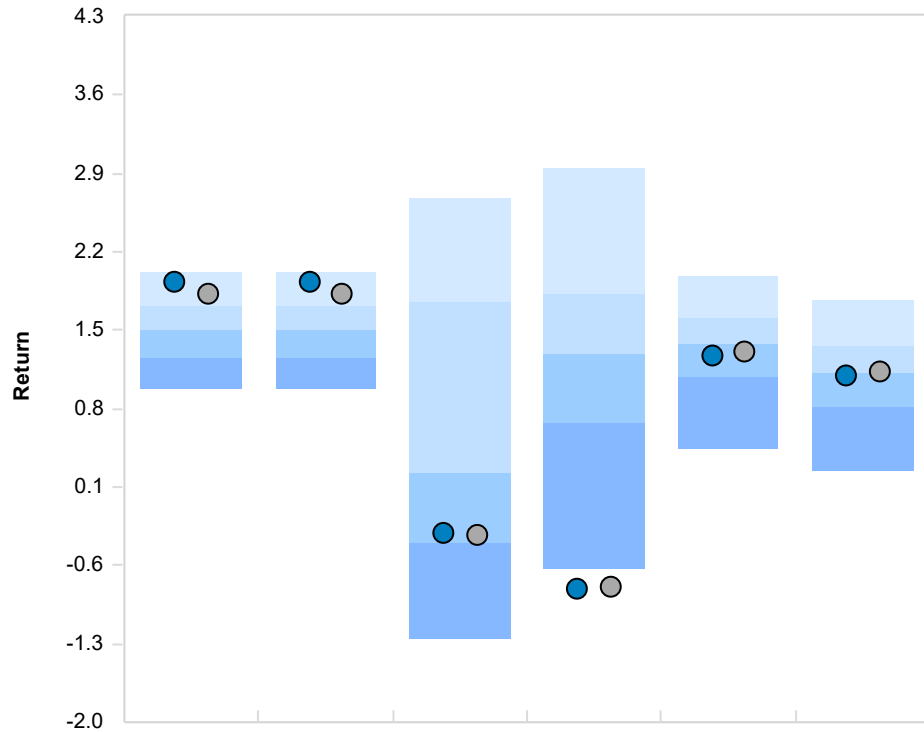
### Region Weights As of 01/31/2023



Statistics provided by Lipper. Most recent available data shown.

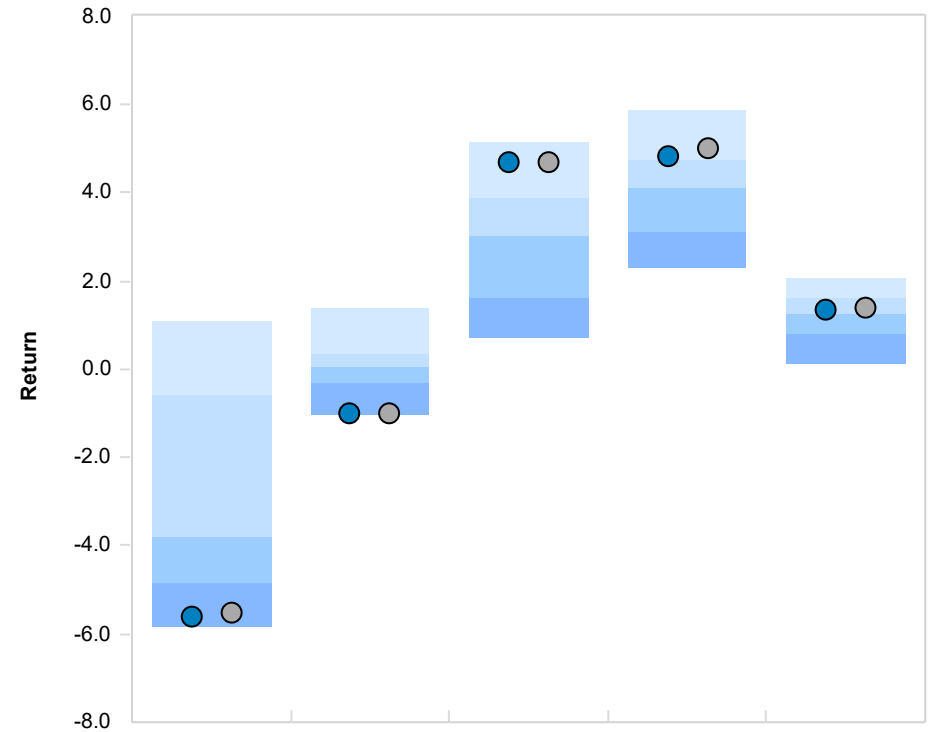


**Peer Group Analysis - IM U.S. Short Term Investment Grade (MF)**



	QTR	YTD	1 YR	3 YR	5 YR	10 YR
Investment	1.93 (9)	1.93 (9)	-0.31 (72)	-0.81 (98)	1.28 (60)	1.09 (54)
Index	1.82 (17)	1.82 (17)	-0.33 (73)	-0.79 (97)	1.32 (57)	1.13 (48)
Median	1.50	1.50	0.23	1.30	1.38	1.12

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



	2022	2021	2020	2019	2018
Investment	-5.61 (91)	-0.97 (94)	4.71 (11)	4.84 (24)	1.37 (42)
Index	-5.50 (89)	-0.97 (94)	4.71 (11)	5.01 (18)	1.38 (41)
Median	-3.78	0.02	3.02	4.11	1.24

**Financial Reconciliation Since Inception Ending March 31, 2023**

	Market Value 04/01/2013	Net Flows	Return On Investment	Market Value 03/31/2023
Investment	10,001,804	-7,569,350	1,436,421	3,868,875

**Comparative Performance**

	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022	1 Qtr Ending Dec-2021	1 Qtr Ending Sep-2021
Investment	1.07	-2.11	-1.15	-3.48	-0.68	0.00
Index	1.20	-2.16	-1.14	-3.45	-0.72	0.05

### Fund Information

Fund Name :	Vanguard Bond Index Funds: Vanguard Short-Term Bond Index Fund; Institutional Class Shares	Portfolio Assets :	\$69,853 Million
Fund Family :	Vanguard	Portfolio Manager :	Joshua C. Barrickman
Ticker :	VBIX	PM Tenure :	2013
Inception Date :	09/27/2011	Fund Style :	IM U.S. Short Term Investment Grade (MF)
Fund Assets :	\$5,642 Million	Style Benchmark :	Bloomberg U.S. Aggregate 1-3 Yrs
Portfolio Turnover :	37%		

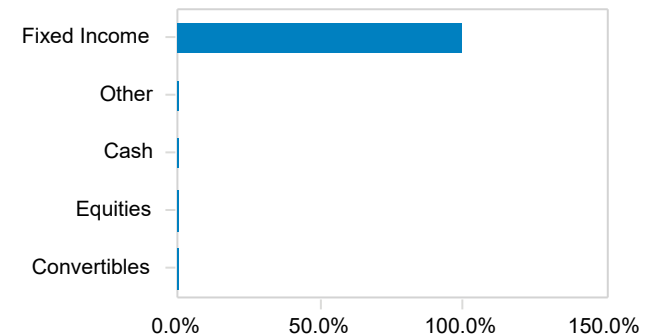
### Fund Characteristics As of 12/31/2022

Avg. Coupon	2.28 %
Nominal Maturity	N/A
Effective Maturity	2.80 Years
Duration	2.60 Years
SEC 30 Day Yield	N/A
Avg. Credit Quality	AA

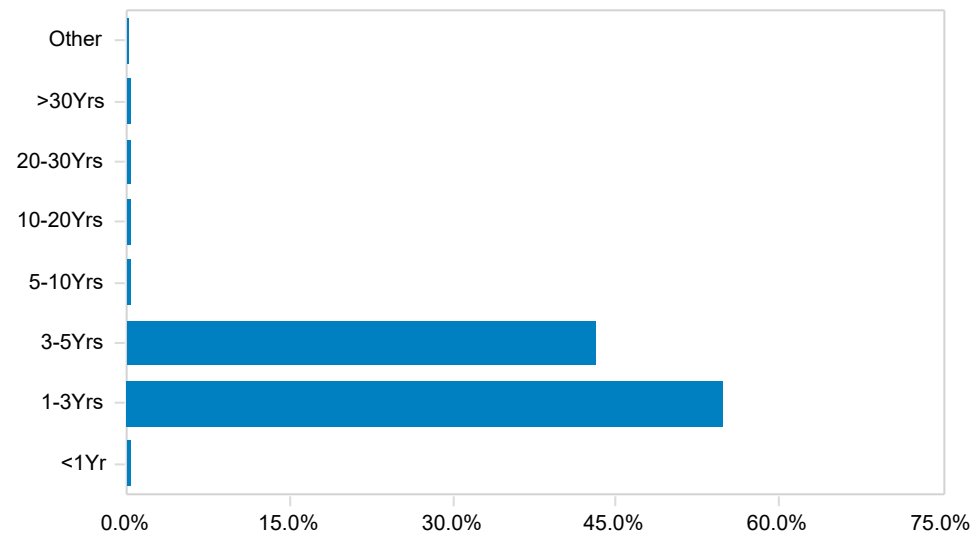
### Top Ten Securities As of 12/31/2022

Government Agency Securities	33.8 %
Treasury Notes/Bonds	33.8 %
Corporate Notes/Bonds	26.9 %
Fgn. Currency Denominated Bonds	5.6 %

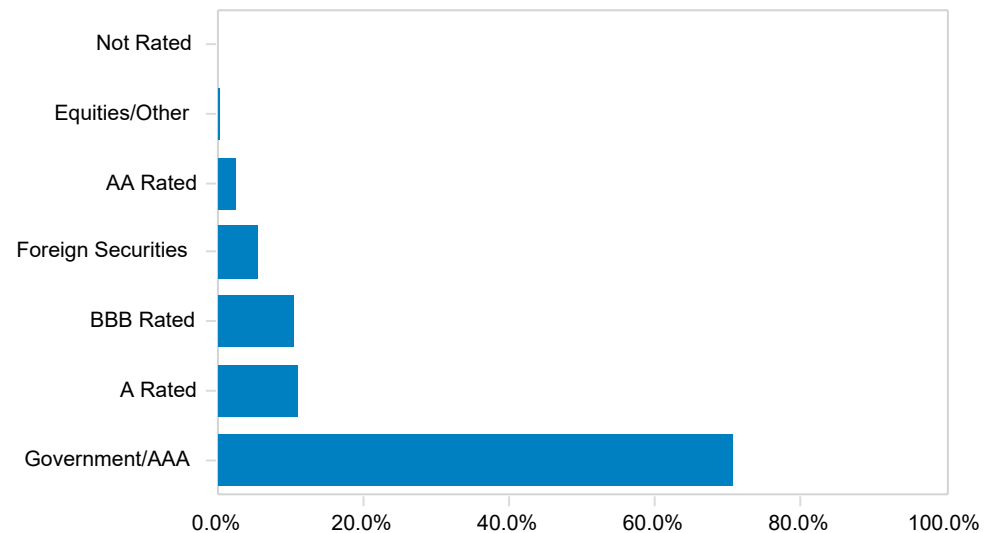
### Asset Allocation As of 12/31/2022



### Maturity Distribution As of 12/31/2022

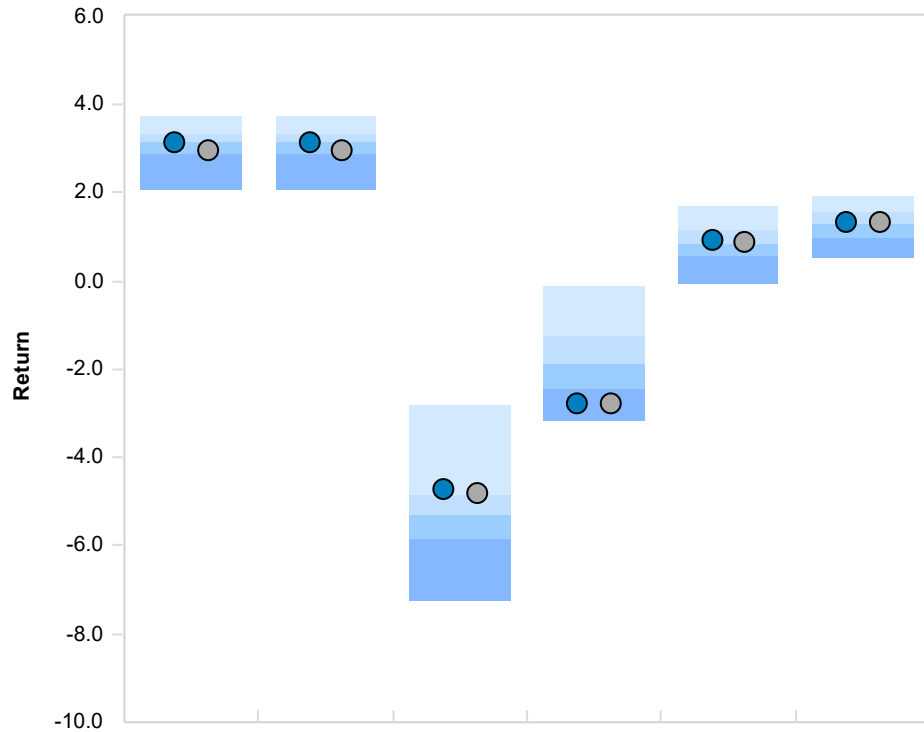


### Sector/Quality Allocation As of 12/31/2022

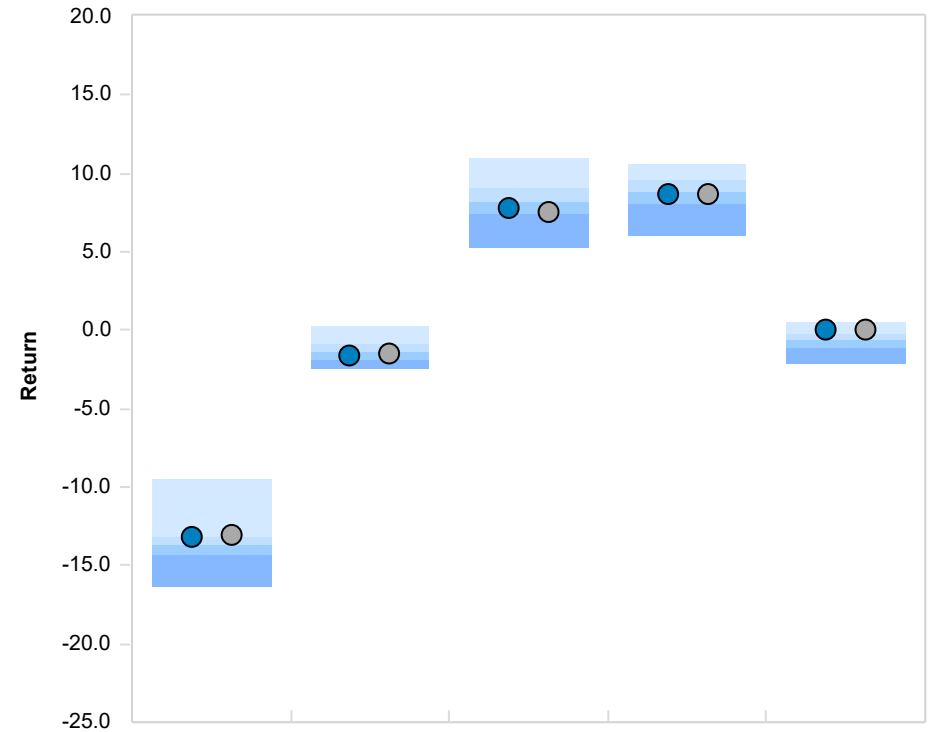




**Peer Group Analysis - IM U.S. Broad Market Core Fixed Income (MF)**



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



**Financial Reconciliation Since Inception Ending March 31, 2023**

No data found.

**Comparative Performance**

	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022	1 Qtr Ending Dec-2021	1 Qtr Ending Sep-2021
Investment	1.67 (56)	-4.65 (47)	-4.71 (17)	-5.98 (51)	-0.08 (39)	0.11 (29)
Index	1.87 (35)	-4.75 (60)	-4.69 (15)	-5.93 (47)	0.01 (21)	0.05 (45)
Median	1.71	-4.67	-5.35	-5.98	-0.14	0.03

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 :	\$297,940 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 :	\$41,986 Million	Style Benchmark :	Bloomberg U.S. Aggregate
Portfolio Turnover :	69%		

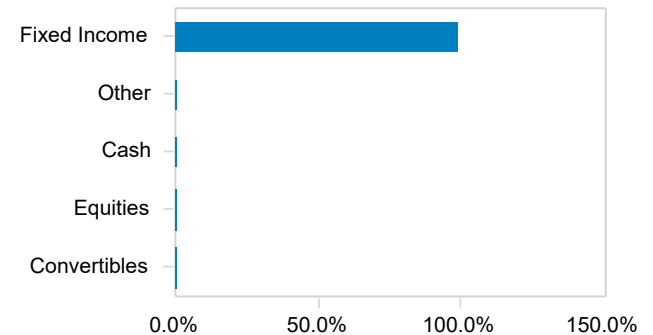
### Fund Characteristics As of 12/31/2022

Avg. Coupon	2.80 %
Nominal Maturity	N/A
Effective Maturity	8.90 Years
Duration	6.50 Years
SEC 30 Day Yield	2.7
Avg. Credit Quality	AA

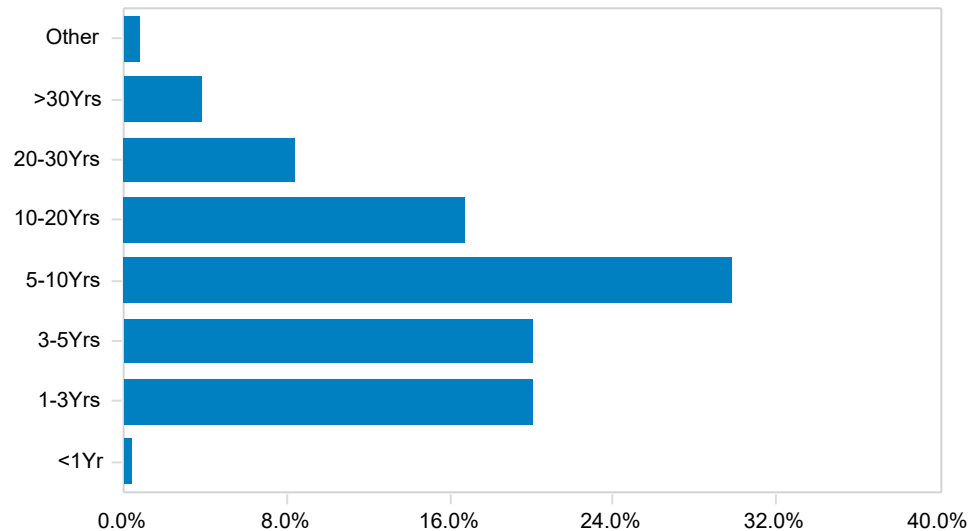
### Top Ten Securities As of 12/31/2022

Corporate Notes/Bonds	26.9 %
Government Agency Securities	23.0 %
Treasury Notes/Bonds	23.0 %
GNMA and Other Mtg Backed	22.4 %
Fgn. Currency Denominated Bonds	3.5 %
Asset Backed Securities	0.5 %

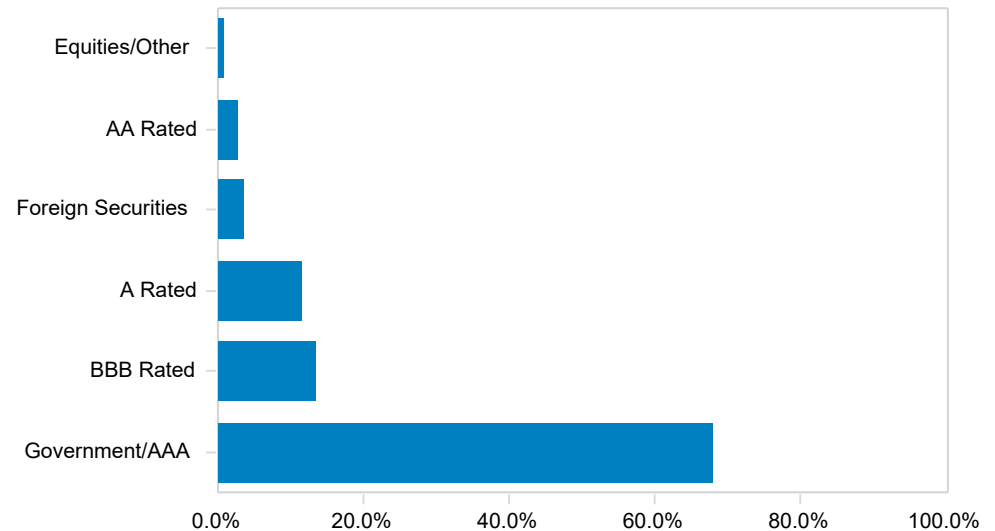
### Asset Allocation As of 12/31/2022



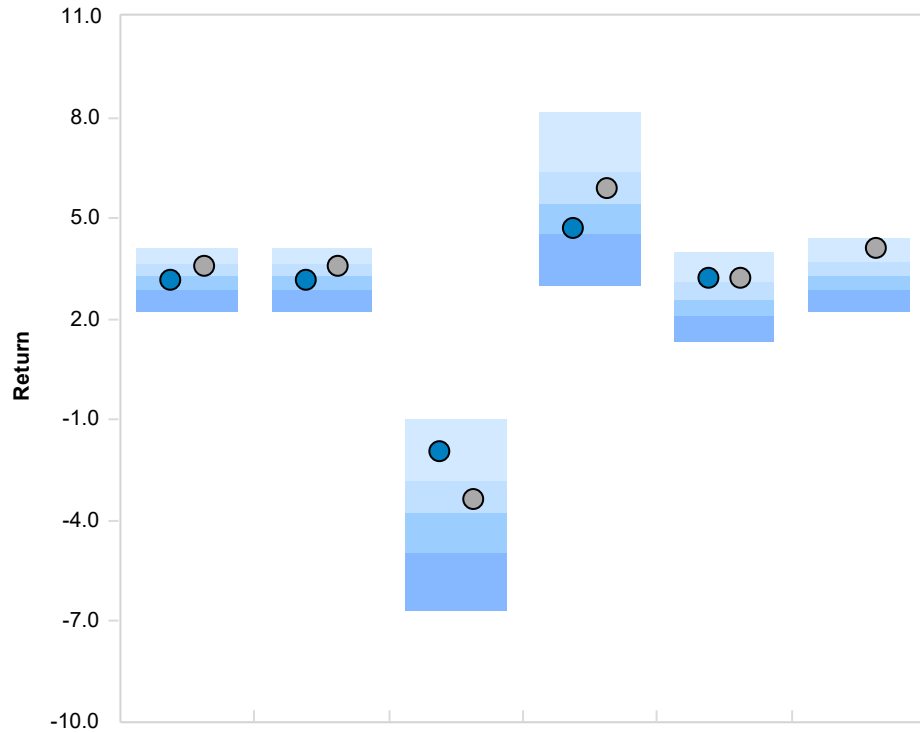
### Maturity Distribution As of 12/31/2022



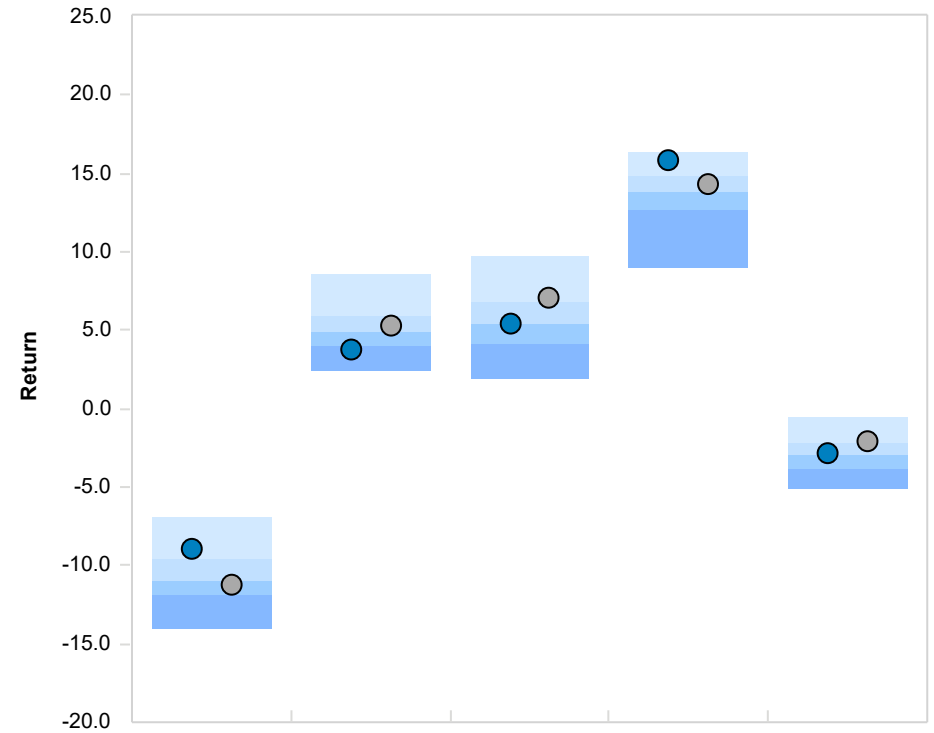
### Sector/Quality Allocation As of 12/31/2022



**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 March 31, 2023**

	Market Value 12/01/2014	Net Flows	Return On Investment	Market Value 03/31/2023
Investment	12,642,764	5,350,000	5,855,017	23,847,781

**Comparative Performance**

	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022	1 Qtr Ending Dec-2021	1 Qtr Ending Sep-2021
Investment	4.88	-0.85	-8.62	-4.20	0.53	0.88
Index	4.17	-0.65	-9.83	-4.84	0.71	0.89

### Fund Information

Fund Name :	Vanguard Fixed Income Securities Funds: Vanguard High-Yield Corporate Fund; Admiral Shares	Portfolio Assets :	\$23,256 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 :	\$20,253 Million	Style Benchmark :	FTSE High Yield Market Index
Portfolio Turnover :	31%		

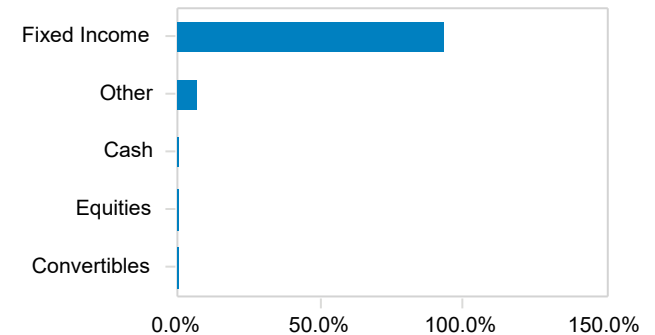
### Fund Characteristics As of 12/31/2022

Avg. Coupon	4.89 %
Nominal Maturity	N/A
Effective Maturity	5.60 Years
Duration	3.90 Years
SEC 30 Day Yield	6.5
Avg. Credit Quality	BB

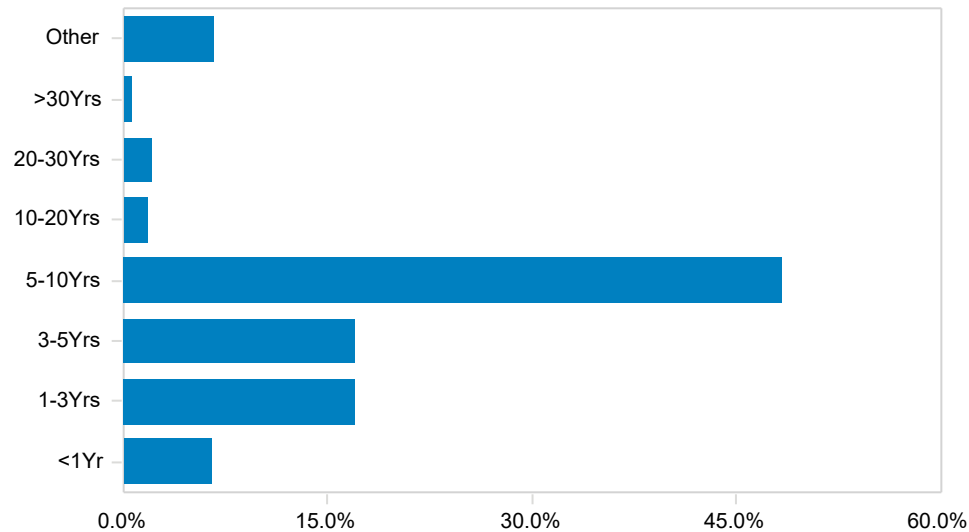
### Top Ten Securities As of 12/31/2022

Corporate Notes/Bonds	87.4 %
Government Agency Securities	2.9 %
Treasury Notes/Bonds	2.9 %
Fgn. Currency Denominated Bonds	0.1 %

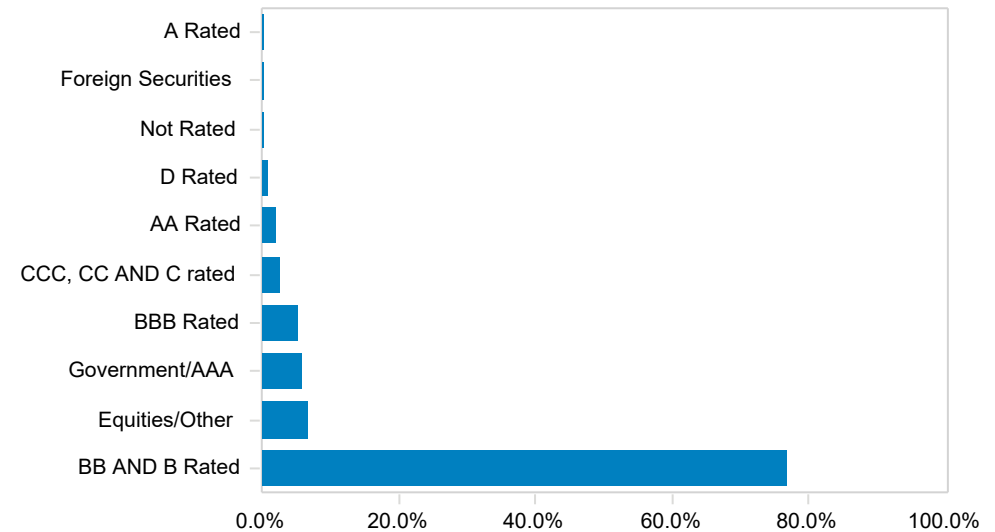
### Asset Allocation As of 12/31/2022



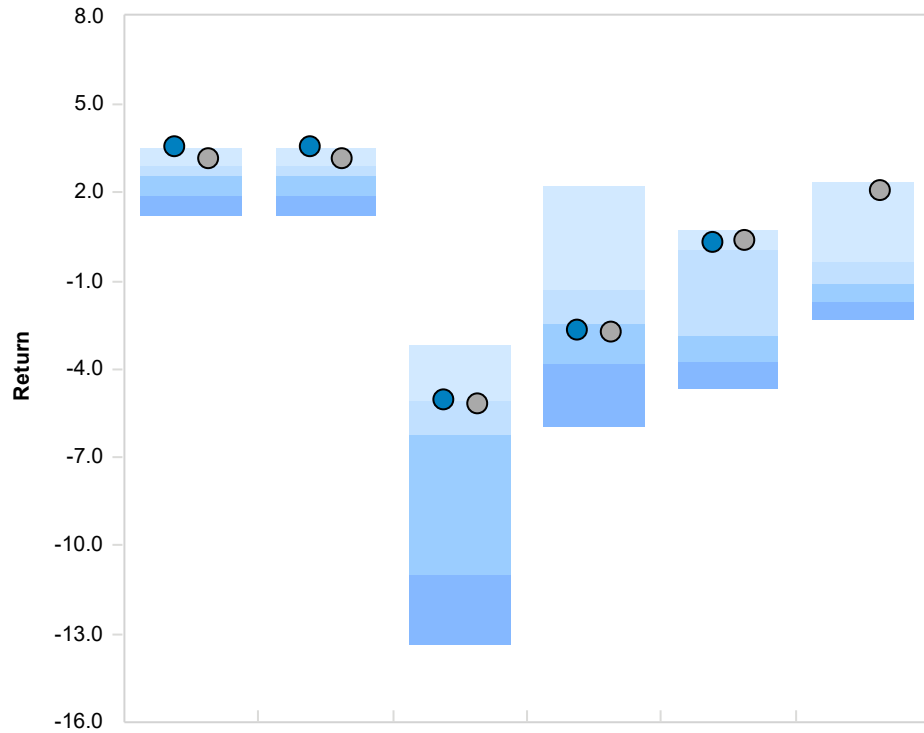
### Maturity Distribution As of 12/31/2022



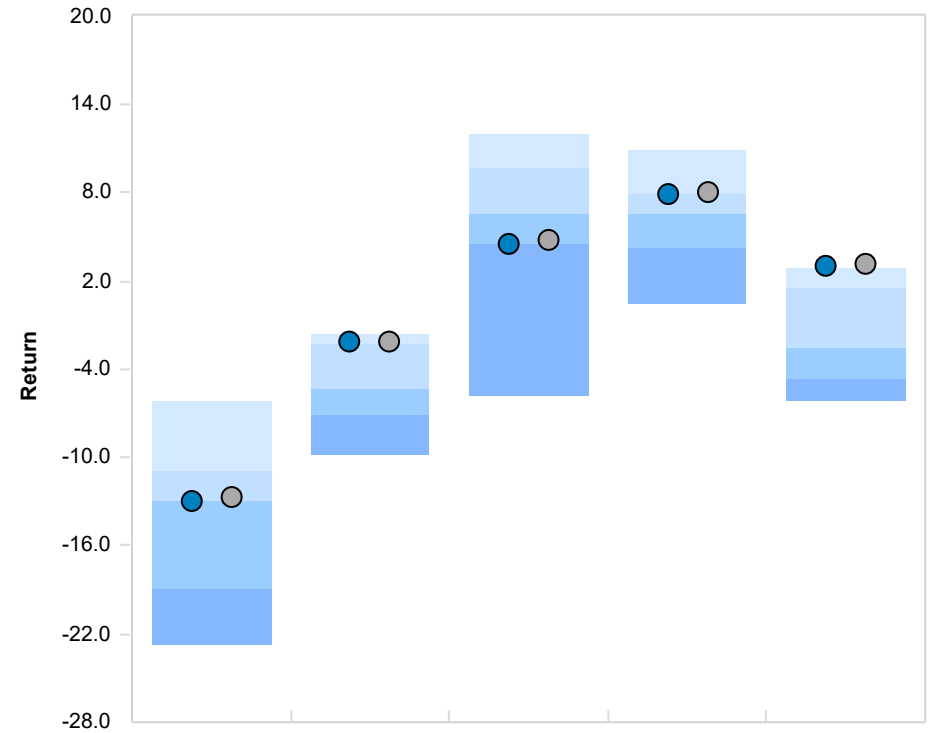
### Sector/Quality Allocation As of 12/31/2022



**Peer Group Analysis - IM International Fixed Income (MF)**



**Peer Group Analysis - IM International Fixed Income (MF)**



**Financial Reconciliation Since Inception Ending March 31, 2023**

	Market Value 06/01/2015	Net Flows	Return On Investment	Market Value 03/31/2023
Investment	9,329,282	-2,425,000	1,175,973	8,080,256

**Comparative Performance**

	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022	1 Qtr Ending Dec-2021	1 Qtr Ending Sep-2021
Investment	-0.05	-3.25	-5.19	-4.98	-0.18	0.03
Index	0.08	-3.09	-5.23	-5.04	-0.12	-0.01
Median	0.08	-3.09	-5.23	-5.04	-0.12	-0.01



### Fund Information

Fund Name : Vanguard Charlotte Funds: Vanguard Total International Bond Index Fund; Institutional Class Shares	Portfolio Assets : \$84,328 Million
Fund Family : Vanguard	Portfolio Manager : Barrickman/Talone
Ticker : VTIFX	PM Tenure : 2013--2022
Inception Date : 05/31/2013	Fund Style : IM International Fixed Income (MF)
Fund Assets : \$11,946 Million	Style Benchmark : FTSE Non-U.S. World Government Bond
Portfolio Turnover : 27%	

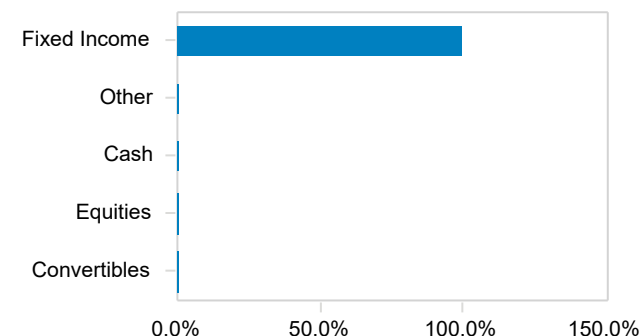
### Fund Characteristics As of 12/31/2022

Avg. Coupon	1.95 %
Nominal Maturity	N/A
Effective Maturity	8.90 Years
Duration	7.40 Years
SEC 30 Day Yield	N/A
Avg. Credit Quality	N/A

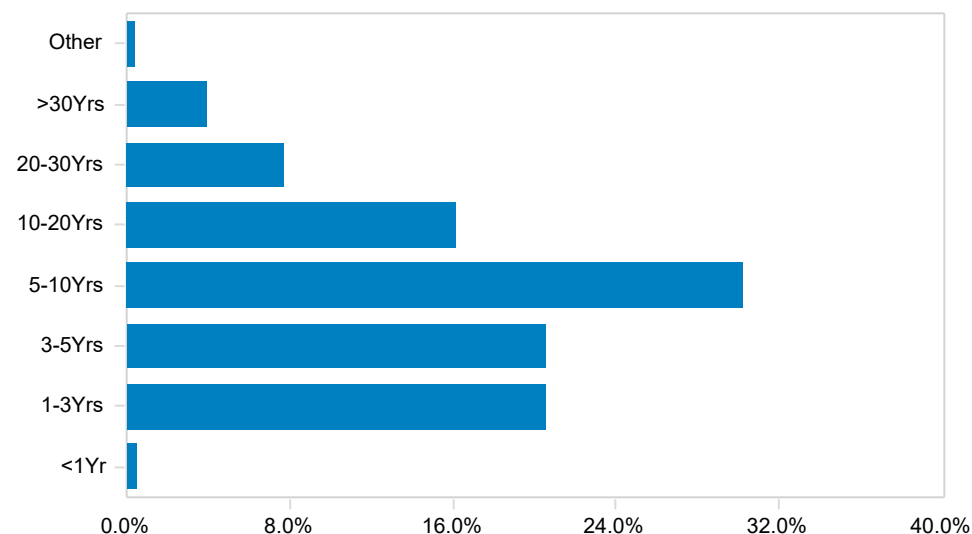
### Top Ten Securities As of 12/31/2022

Fgn. Currency Denominated Bonds	79.7 %
Corporate Notes/Bonds	14.8 %
Asset Backed Securities	5.2 %

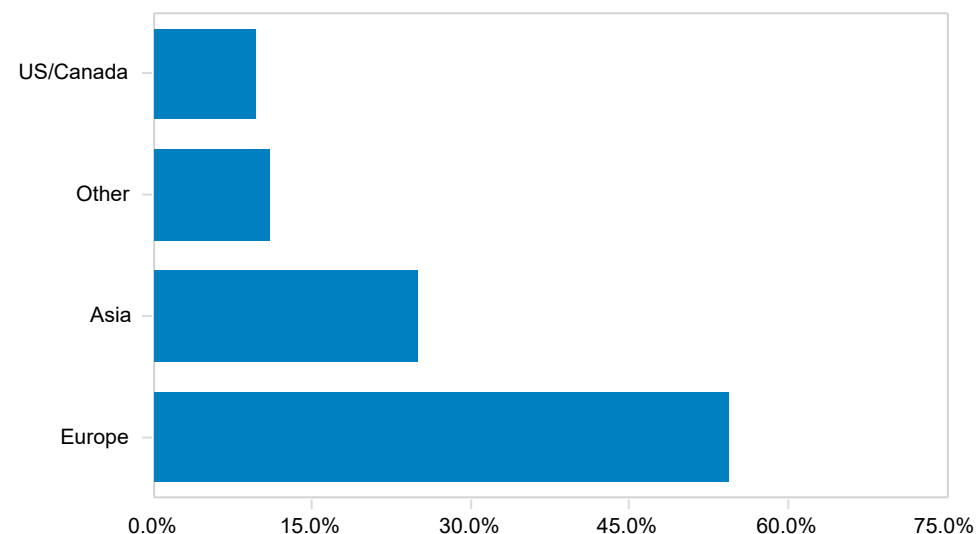
### Asset Allocation As of 12/31/2022



### Maturity Distribution As of 12/31/2022



### Sector/Quality Allocation As of 12/31/2022



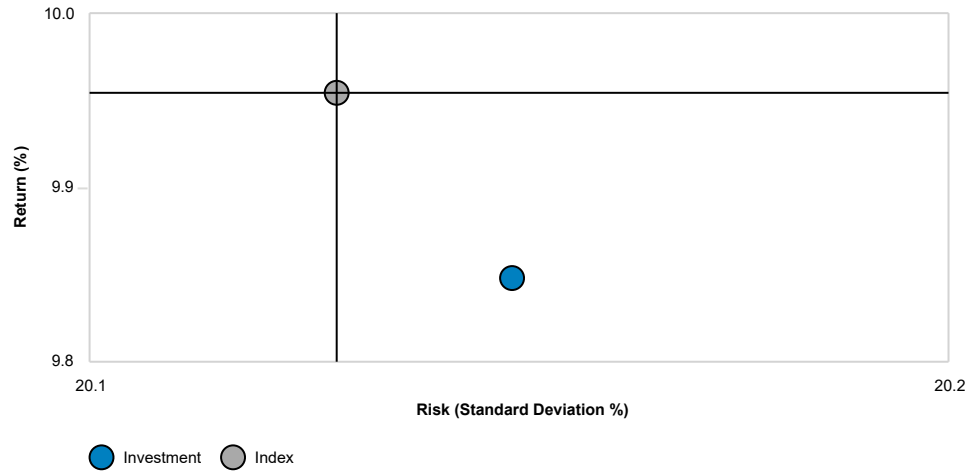
### Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	9.85	20.15	0.52	99.91	9	100.25	3
Index	9.96	20.13	0.53	100.00	9	100.00	3

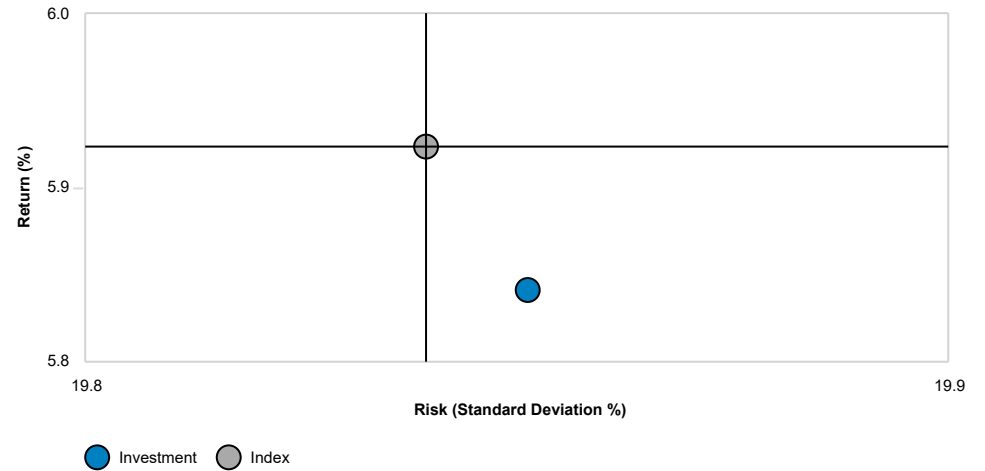
### Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	5.84	19.85	0.32	99.84	15	100.12	5
Index	5.92	19.84	0.32	100.00	15	100.00	5

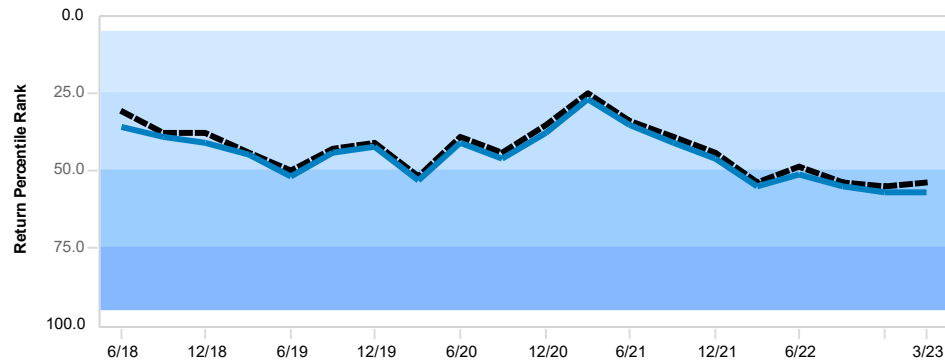
### Risk and Return 3 Years



### Risk and Return 5 Years

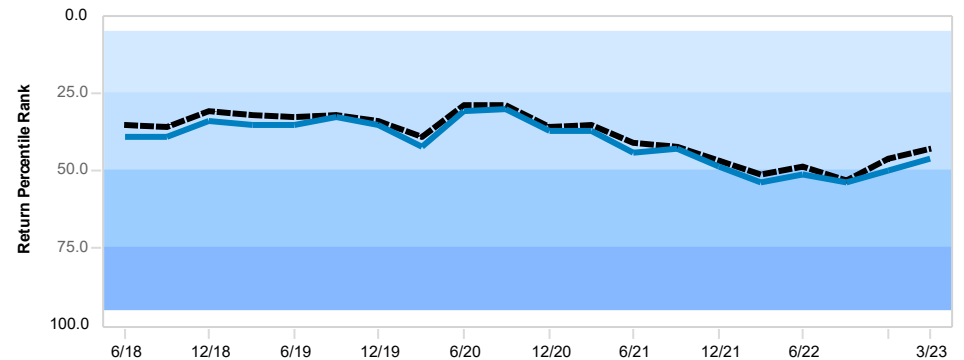


### 3 Year Rolling Percentile Rank IM Real Estate Sector (MF)



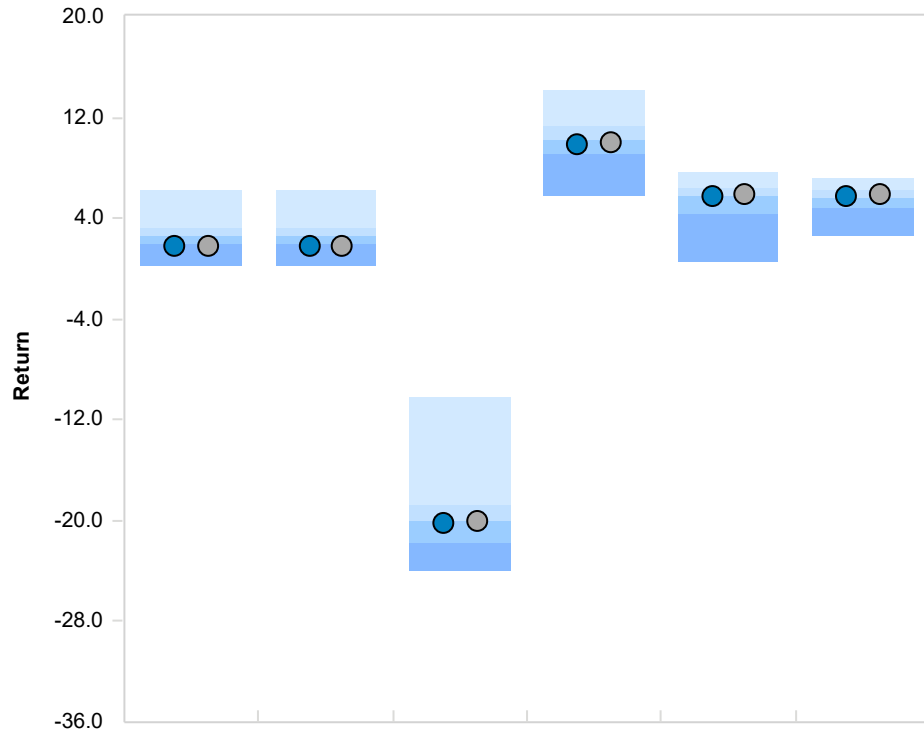
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	0 (0%)	13 (65%)	7 (35%)	0 (0%)
Index	20	1 (5%)	14 (70%)	5 (25%)	0 (0%)

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



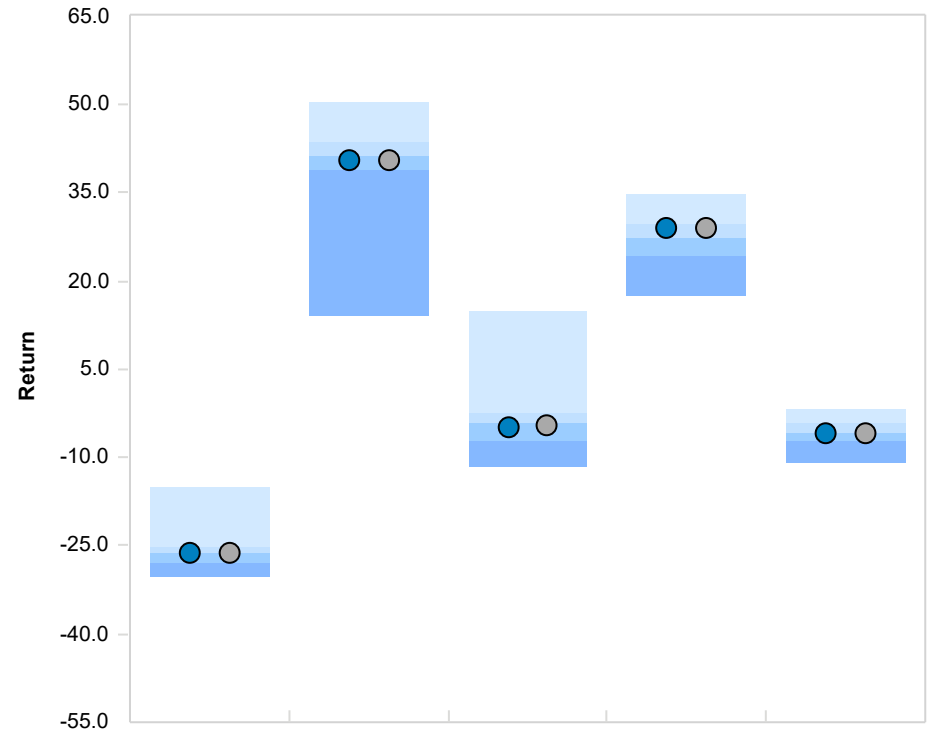
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	0 (0%)	17 (85%)	3 (15%)	0 (0%)
Index	20	0 (0%)	18 (90%)	2 (10%)	0 (0%)

**Peer Group Analysis - IM Real Estate Sector (MF)**



	QTR	YTD	1 YR	3 YR	5 YR	10 YR
Investment	1.79 (82)	1.79 (82)	-20.10 (52)	9.85 (57)	5.84 (46)	5.81 (41)
Index	1.83 (81)	1.83 (81)	-20.00 (50)	9.96 (54)	5.92 (43)	5.89 (36)
Median	2.56	2.56	-20.05	10.12	5.73	5.61

**Peer Group Analysis - IM Real Estate Sector (MF)**



	2022	2021	2020	2019	2018
Investment	-26.20 (51)	40.47 (61)	-4.67 (54)	29.02 (33)	-5.93 (54)
Index	-26.12 (47)	40.56 (60)	-4.55 (53)	29.03 (33)	-5.86 (52)
Median	-26.17	41.32	-4.31	27.32	-5.71

**Financial Reconciliation Since Inception Ending March 31, 2023**

	Market Value 10/01/2010	Net Flows	Return On Investment	Market Value 03/31/2023
Investment	4,801,552	-1,776,630	9,621,991	12,646,913

**Comparative Performance**

	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022	1 Qtr Ending Dec-2021	1 Qtr Ending Sep-2021
Investment	4.36 (25)	-11.01 (66)	-15.48 (42)	-5.97 (64)	14.96 (66)	0.67 (64)
Index	4.35 (27)	-10.98 (63)	-15.43 (38)	-5.95 (61)	14.94 (66)	0.70 (62)
Median	3.86	-10.74	-15.81	-5.29	15.66	1.07





### Fund Information

Fund Name :	Vanguard Specialized Funds: Vanguard Real Estate Index Fund; Institutional Class Shares	Portfolio Assets :	\$64,445 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 :	\$9,836 Million	Style Benchmark :	Vanguard Spliced REIT Index
Portfolio Turnover :	7%		

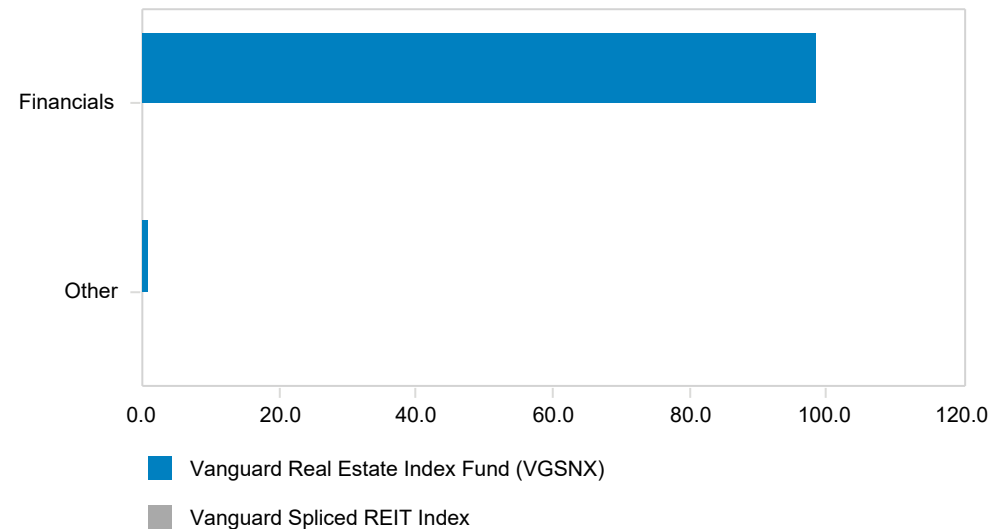
### Portfolio Characteristics As of 01/31/2023

	Portfolio	Benchmark
Total Securities	170	N/A
Avg. Market Cap	43,840,692,079	-
Price/Earnings (P/E)	38.77	N/A
Price/Book (P/B)	5.44	N/A
Dividend Yield	3.87	N/A
Annual EPS	45.93	N/A
5 Yr EPS	11.80	N/A
3 Yr EPS Growth	15.34	N/A
Beta (5 Years, Monthly)	1.00	1.00

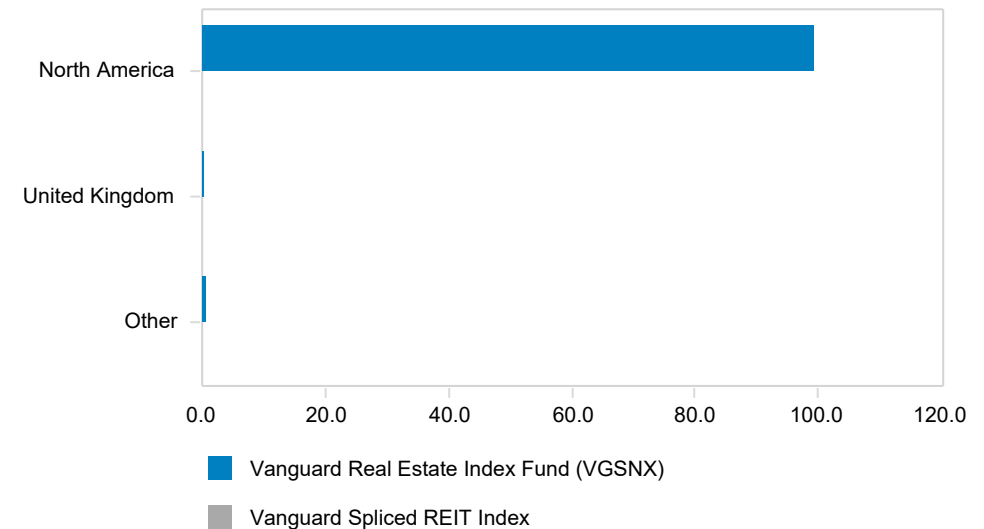
### Top Ten Securities As of 01/31/2023

Vanguard Real Estate II Index Fund;Insti	12.2 %
Prologis Inc ORD	7.6 %
American Tower Corp ORD	6.7 %
Equinix Inc ORD	4.3 %
Crown Castle Inc ORD	4.1 %
Public Storage ORD	3.1 %
Realty Income Corp ORD	2.7 %
Simon Property Group Inc ORD	2.6 %
Welltower Inc ORD	2.2 %
SBA Communications Corp ORD	2.1 %

### Sector Weights As of 01/31/2023



### Region Weights As of 01/31/2023



Statistics provided by Lipper. Most recent available data shown.



<b>Total Fund Policy</b>			
<b>Allocation Mandate</b>	<b>Weight (%)</b>	<b>Allocation Mandate</b>	<b>Weight (%)</b>
<b>Jan-1979</b>		<b>Jul-2014</b>	
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
<b>Jun-2010</b>		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	<b>Nov-2014</b>	
Bloomberg U.S. TIPS Index	15.00	CRSP U.S. Large Cap Value TR Index	8.00
Vanguard Spliced REIT Index	5.00	CRSP U.S. Large Cap Growth TR Index	8.00
<b>Jun-2013</b>		CRSP U.S. Mid Cap TR Index	10.00
CRSP U.S. Large Cap Value TR Index	15.00	CRSP U.S. Small Cap TR Index	5.00
CRSP U.S. Large Cap Growth TR Index	15.00	Vanguard Spliced Emerging Markets Index (Net)	4.00
CRSP U.S. Mid Cap TR Index	10.00	Vanguard Spliced Developed ex U.S. Index (Net)	9.00
CRSP U.S. Small Cap TR Index	10.00	Blmbg. U.S. Gov/Credit: 5-10 Yr	7.00
Vanguard Spliced Emerging Markets Index (Net)	5.00	Bloomberg U.S. TIPS Index	7.00
Vanguard Spliced Developed ex U.S. Index (Net)	10.00	Bloomberg 1-5 Year Gov/Credit Idx	7.00
Blmbg. U.S. Gov/Credit: 5-10 Yr	7.50	Bloomberg US TIPS 0-5 Year Index	7.00
Bloomberg U.S. TIPS Index	7.50	Vanguard Spliced REIT Index	5.00
Bloomberg 1-5 Year Gov/Credit Idx	7.50	90 Day U.S. Treasury Bill	1.00
Bloomberg US TIPS 0-5 Year Index	7.50	S&P 500 Index	15.00
Vanguard Spliced REIT Index	4.00	Blmbg. U.S. Corp High Yield	7.00
90 Day U.S. Treasury Bill	1.00		

**Benchmark History**  
**Investment Policy Benchmarks**  
As of March 31, 2023

Allocation Mandate	Weight (%)
<b>Jun-2015</b>	
CRSP U.S. Large Cap Value TR Index	5.00
CRSP U.S. Large Cap Growth TR Index	5.00
CRSP U.S. Mid Cap TR Index	10.00
CRSP U.S. Small Cap TR Index	5.00
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	5.00
Bloomberg 1-5 Year Gov/Credit Idx	7.50
Bloomberg US TIPS 0-5 Year Index	5.00
Vanguard Spliced REIT Index	5.00
90 Day U.S. Treasury Bill	2.50
S&P 500 Index	15.00
Blmbg. U.S. Corp High Yield	7.50
Blmbg. Global Agg ex-USD Flt Adj RIC Cpd (H)	5.00
<b>Dec-2018</b>	
CRSP U.S. Large Cap Value TR Index	5.00
CRSP U.S. Large Cap Growth TR Index	5.00
S&P MidCap 400 Index	10.00
S&P SmallCap 600 Index	5.00
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	5.00
Bloomberg 1-5 Year Gov/Credit Idx	7.50
Bloomberg US TIPS 0-5 Year Index	5.00
Vanguard Spliced REIT Index	5.00
90 Day U.S. Treasury Bill	2.50
S&P 500 Index	15.00
Blmbg. U.S. Corp High Yield	7.50
Blmbg. Global Agg ex-USD Flt Adj RIC Cpd (H)	5.00

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



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

<b>Small Cap Index Policy</b>	
<b>Allocation Mandate</b>	<b>Weight (%)</b>
<b>Jul-2009</b>	
Vanguard Spliced Small Cap Index	100.00
<b>Dec-2018</b>	
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



<b>Active Return</b>	- Arithmetic difference between the manager's performance and the designated benchmark return over a specified time period.
<b>Alpha</b>	- 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.
<b>Beta</b>	- A measure of the sensitivity of a portfolio to the movements in the market. It is a measure of the portfolio's systematic risk.
<b>Consistency</b>	- 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.
<b>Distributed to Paid In (DPI)</b>	- 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.
<b>Down Market Capture</b>	- The ratio of average portfolio performance over the designated benchmark during periods of negative returns. A lower value indicates better product performance
<b>Downside Risk</b>	- 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.
<b>Excess Return</b>	- Arithmetic difference between the manager's performance and the risk-free return over a specified time period.
<b>Excess Risk</b>	- A measure of the standard deviation of a portfolio's performance relative to the risk free return.
<b>Information Ratio</b>	- 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.
<b>Public Market Equivalent (PME)</b>	- 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.
<b>R-Squared</b>	- 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.
<b>Return</b>	- Compounded rate of return for the period.
<b>Sharpe Ratio</b>	- 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.
<b>Standard Deviation</b>	- 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.
<b>Total Value to Paid In (TVPI)</b>	- 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
<b>Tracking Error</b>	- This is a measure of the standard deviation of a portfolio's returns in relation to the performance of its designated market benchmark.
<b>Treynor Ratio</b>	- 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.
<b>Up Market Capture</b>	- 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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