

Investment Performance Review  
Period Ending September 30, 2023

## **Butler County Employees Retirement Plan**

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## **3rd Quarter 2023 Market Environment**



## **The Economy**

- The US Federal Reserve Bank (the Fed) continued to increase interest rates during the quarter with an additional 0.25% increase in the Fed Funds rate in late July, followed by a pause at the September Federal Open Market Committee (FOMC) meeting. The Fed continues to prioritize fighting high inflation with the press release from the July meeting detailing the FOMC's commitment to returning inflation to its 2% target rate. In addition, the committee members have agreed to continue reducing the Fed's balance sheet by reducing holdings in Treasuries, agency debt and agency mortgage-backed securities.
- The US labor market continues to show signs of weakening. Private payroll growth for the month of September showed growth well below estimates, coming in at just 89,000 new jobs for the month.
- Capital market yields have risen to their highest levels in over a decade as market participants are demanding a greater premium on long-term Treasury securities. The 30-year Treasury yield jumped 0.88% during the quarter signaling that market participants are anticipating higher levels of both inflation and policy interest rates.
- The Atlanta Fed's GDPNow model's projected third-quarter GDP growth has been revised upward from the original estimates of 3.5% in July to 4.9% at the end of September. The main drivers of the upward revisions came in August upon the release of personal consumption and private domestic investment data from the US Bureau of Labor and Statistics.

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

- US equities moved broadly lower during the third quarter. The selloff was agnostic to size and style as all major domestic equity benchmarks finished the quarter with losses in the mid to high single-digit territory. After its encouraging performance in the second quarter, the large-cap S&P 500 benchmark fell by -3.3% for the third quarter. Small-cap stocks faced a deeper drawdown over the period with the Russell 2000 returning -5.1%. Contributing factors to this quarter's performance were, unsurprisingly, related to interest rates and the overall level of inflation in the economy.
- International stocks also came under pressure during the third quarter, reversing their positive results from last quarter. China continues to show signs of weakness as the cost of debt increases globally. Given China's large weight in the MSCI Emerging Market Index and its economic influence in the region, future prospects of growth for southeast Asia will be largely dependent on the strength of future growth for the country.

## **Fixed Income**

- While the US economy continues to see signs of disinflation, many of the Fed's preferred gauges continue to show inflation above their long-term target. During the quarter, the Fed maintained its inflation-fighting policy stance, increasing interest rates by 0.25% in July but opting to pause in September. The additional rate hike in July along with the possibility that additional rate hikes could occur later in the year, drove capital market yields sharply higher during the quarter.
- The mortgage-backed sector was the worst-performing sector during the quarter as the 10-year Treasury yield hit its highest level in 16 years. US Government securities were the worst-performing sector during the previous 12 months. US Treasuries have lagged corporate and securitized sectors as yields at longer maturities rose significantly and credit availability has tightened since last year.
- High-yield corporate bonds have held up better than higher-quality issues, aided by narrowing credit spreads, higher coupons, and generally shorter maturities. High-yield bonds were the best-performing segment of the domestic bond market during the quarter and on a trailing 12-month basis.

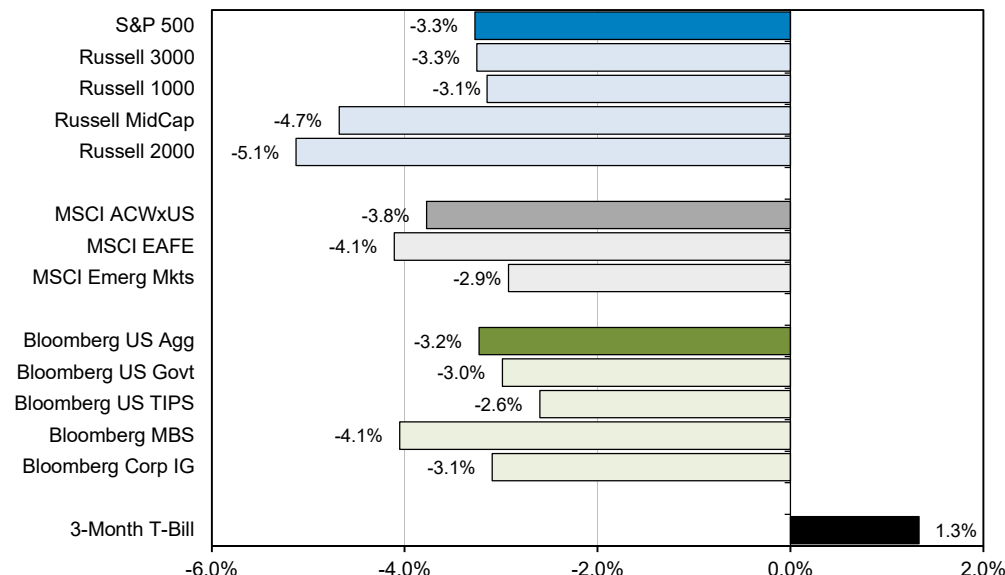
## **Market Themes**

- Economies around the globe continue to struggle with taming inflation. Markets are beginning to experience pressures brought on by higher costs of debt and pricing in expectations of higher interest rates for longer than originally anticipated. US Treasury yields on the long end of the par curve have risen sharply which threatens to undercut the economy by markedly raising borrowing costs.
- While energy costs have subsided from the initial shock of the Russian invasion in 2022, oil prices have been driven higher in recent months due to cuts in global production. This was soon followed by consumer-led demand destruction and expectations are that prices could soon subside.
- Despite concerns about slowing economic growth, lower-quality corporate bonds continue to outperform the government sector.
- US and international equity markets have struggled to maintain their recovery after last year's disappointment. Expectations that inflation would continue to moderate and central banks would slow the pace of their monetary tightening cycles have not taken shape as quickly as originally anticipated, leaving the consumer disadvantaged by higher price levels, higher interest rates, and weak availability of credit.

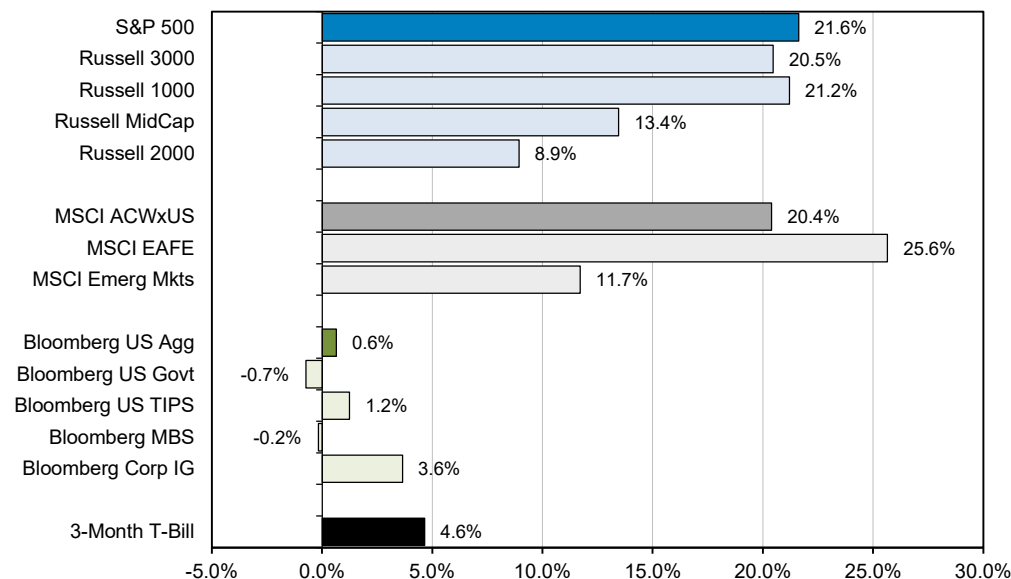


- Domestic equity markets struggled in the third quarter, reverting from the performance posted in the first half of 2023. Strong performance from domestic equities markets earlier in the year was enough to overshadow the third quarter's negative returns, leading to positive results for most domestic equity benchmarks on a trailing one-year basis. Macroeconomic challenges faced by the US economy for the past several quarters finally weighed on market participants, leading to dismal market returns. For the period, the Russell 1000 large-cap benchmark returned -3.1 % versus -4.7% for the Russell Mid Cap Index and -5.1% for the Russell 2000 small-cap index.
- International developed and emerging market equities also delivered disappointing results, in line with their domestic counterparts. Europe continues to face geopolitical risks related to the conflict in Ukraine and rising interest rates. However, inflation has eased somewhat due to higher rates and more manageable energy prices. The developed-market MSCI EAFE Index returned -4.1% for the quarter and the MSCI Emerging Markets Index fell by -2.9%.
- The domestic bond market continued its decline during the quarter due to the Fed's decision to hike policy rates an additional 0.25% and a re-shaping of the Treasury yield curve. The Bloomberg US Aggregate Index returned -3.2% for the quarter and investment-grade corporate bonds returned a similar -3.1%.
- Over the one-year trailing period, US equity markets were positive as the disappointing performance from much of 2022 rolled off. The S&P 500 Index climbed 21.6% for the trailing 12 months. The weakest relative performance for the year was the Russell 2000 Index, which still rose 8.9% over the last 12 months.
- International markets also shook off their poor 2022 performance. Over the trailing one-year period, the MSCI EAFE Index was the best-performing equity benchmark, returning 25.6% while the MSCI Emerging Markets Index posted a more modest 11.7%.
- Bond markets were generally flat over the previous 12 months. Investment-grade corporate bonds were the best-performing sector, posting a return of 3.6%. Meanwhile, Treasuries were negative, returning -0.7% over the previous 12 months. The bellwether fixed-income benchmark, the Bloomberg US Aggregate Index, returned a small, positive 0.6%.

### Quarter Performance



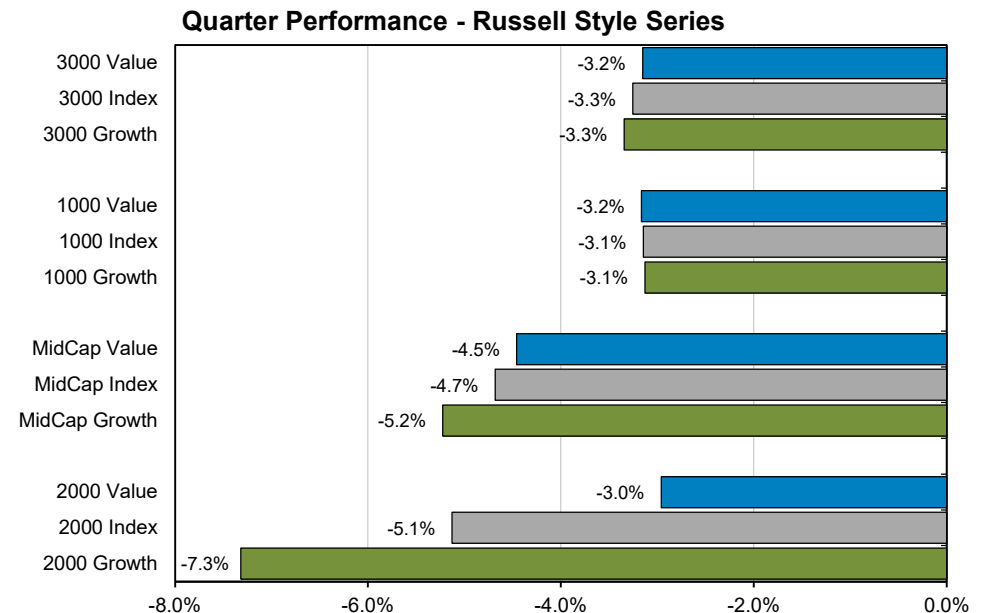
### 1-Year Performance



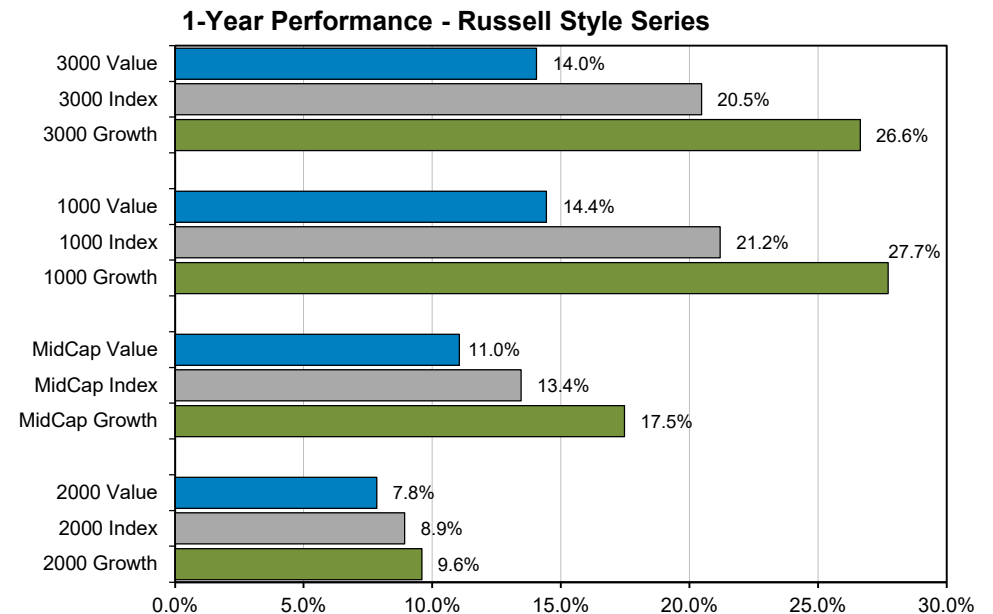
Source: Investment Metrics



- During the third quarter, core domestic equity benchmarks reversed course from their encouraging first-half 2023 performance. The selloff was agnostic to style as growth and value were down -3.3% and -3.2% respectively for the Russell 3000 Index, the broad market benchmark.
- Large-cap stocks once again led results for the capitalization-based benchmarks, besting both the mid-cap and small-cap indices for the quarter. Russell 1000 Index fell by -3.1% while the Russell 2000 Index fell by -5.1%.
- Among large-cap stocks, performance was relatively uniform across the style spectrum as growth fell by -3.1% and value fell by -3.2%. However, among small-cap stocks, performance across the style spectrum was disparate as growth fell by -7.3% and value fell by just -3.0%.



- The third quarter's reversal for domestic equity markets did not eclipse the rebound seen in the asset class during the first half of 2023 as each of the Russell indices were positive on a trailing 12-month basis. Within large-cap stocks, the Russell 1000 Growth Index maintains sizable dominance, returning 27.7% and leading the way among style-and-market-capitalization classifications. The worst-performing sub-index was the Russell 2000 Value, which posted a modest 7.8% return for the trailing 12 months.
- Growth rebounded from disappointing results in early 2022 and continues to lead value-based benchmarks in all market capitalization ranges over the trailing year. The Russell 2000 Growth Index returned 9.6%, outpacing the Russell 2000 Value Index return of 7.8%. The Russell 1000 Growth and Russell Midcap Growth benchmarks gained 27.7% and 17.5%, respectively, while their corresponding value index counterparts returned solid, but lagging, performance of 14.4% and 11.0%, respectively.

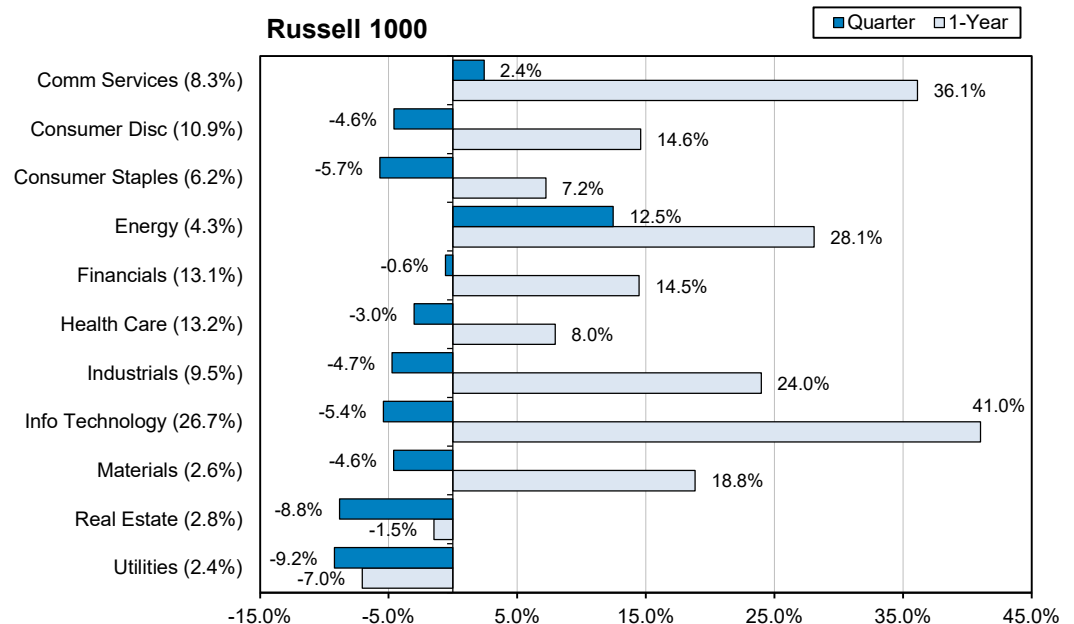


Source: Investment Metrics



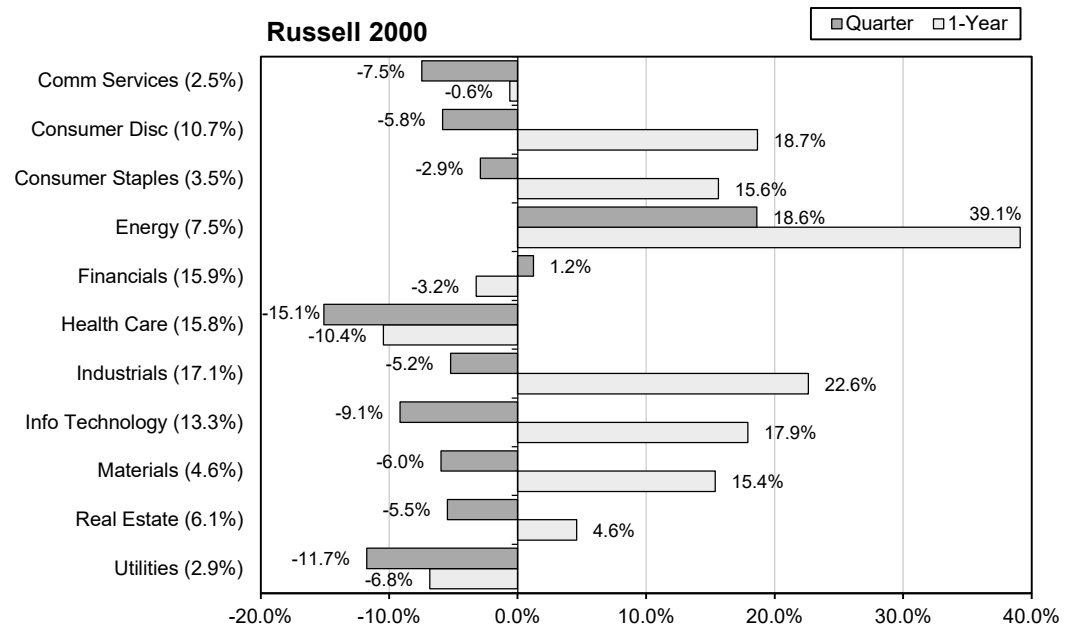
- Performance of the large-cap Russell 1000 Index was affected by negative performance in nine of 11 economic sectors during the quarter. However, four of the 11 sectors managed to outpace the core large-cap index.
- While domestic equities experienced challenges during the quarter, the energy sector managed a solid return of 12.5%. The other three sectors that outpaced the headline large-cap index's -3.1% return for the quarter were communication services (2.4%), financials (-0.6%) and health care (-3.0%). The worst-performing sectors during the quarter were utilities (-9.2%), and real estate (-8.8%).
- For the full year, four economic sectors exceeded the return of the broad large-cap index, and nine of the 11 sectors posted positive performance. The weakest economic sectors in the Russell 1000 for the year were utilities, and real estate which declined by -7.0% and -1.5%, respectively. Both sectors have been heavily impacted by rising energy costs and a market rotation away from defensive names.

**Russell 1000**



- Nine of 11 economic sectors in the small-cap benchmark posted negative results during the quarter while just three exceeded the -5.1% return of the Russell 2000 Index. The health care (-15.1%) and utilities (-11.7%) sectors detracted the most from small-cap performance, lagging the broad benchmark for the quarter. The two economic sectors that were positive for the quarter were energy (18.6%), and financials (1.2%).
- Similar to their large-cap peers, seven small-cap sectors were positive for the trailing 12 months. Energy posted the strongest sector result (39.1%) while the industrials sector also posting a return of more than 20% for the last 12 months. Just four of the 11 economic sectors fell short of the core small-cap benchmark's return of 8.9% over the trailing year. The worst-performing sector for the year was health care with a return of -10.4%. The utilities (-6.8%), financials (-3.2%), and communication services (-0.6%) sectors also posted negative results for the year.

**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 September 30, 2023

Top 10 Weighted Stocks				
Russell 1000	Weight	1-Qtr Return	1-Year Return	Sector
Apple Inc	6.4%	-11.6%	24.6%	Information Technology
Microsoft Corp	5.9%	-7.1%	36.9%	Information Technology
Amazon.com Inc	2.9%	-2.5%	12.5%	Consumer Discretionary
NVIDIA Corp	2.6%	2.8%	258.6%	Information Technology
Alphabet Inc Class A	2.0%	9.3%	36.8%	Communication Services
Tesla Inc	1.7%	-4.4%	-5.7%	Consumer Discretionary
Alphabet Inc Class C	1.7%	9.0%	37.1%	Communication Services
Meta Platforms Inc Class A	1.7%	4.6%	121.3%	Communication Services
Berkshire Hathaway Inc Class B	1.6%	2.7%	31.2%	Financials
Exxon Mobil Corp	1.2%	10.6%	39.1%	Energy

Top 10 Performing Stocks (by Quarter)				
Russell 1000	Weight	1-Qtr Return	1-Year Return	Sector
AppLovin Corp Ordinary Shares	0.0%	55.3%	105.0%	Information Technology
Vertiv Holdings Co Class A	0.0%	50.2%	283.0%	Industrials
Capri Holdings Ltd	0.0%	46.6%	36.9%	Consumer Discretionary
Rivian Automotive Inc Class A	0.0%	45.7%	-26.2%	Consumer Discretionary
Texas Pacific Land Corp	0.0%	38.8%	3.3%	Energy
Affirm Holdings Inc Ordinary Shares	0.0%	38.7%	13.4%	Financials
Splunk Inc	0.1%	37.9%	94.5%	Information Technology
H&R Block Inc	0.0%	36.2%	4.5%	Consumer Discretionary
Ollie's Bargain Outlet Holdings Inc	0.0%	33.2%	49.6%	Consumer Discretionary
Zions Bancorp NA	0.0%	31.4%	-28.4%	Financials

Bottom 10 Performing Stocks (by Quarter)				
Russell 1000	Weight	1-Qtr Return	1-Year Return	Sector
AMC Entertainment Holdings Inc	0.0%	-79.4%	-87.0%	Communication Services
Hawaiian Electric Industries Inc	0.0%	-65.0%	-62.4%	Utilities
NovoCure Ltd	0.0%	-61.1%	-78.7%	Health Care
Apellis Pharmaceuticals Inc	0.0%	-58.2%	-44.3%	Health Care
Viasat Inc	0.0%	-55.3%	-38.9%	Information Technology
Petco Health and Wellness Co Inc	0.0%	-54.0%	-63.4%	Consumer Discretionary
Driven Brands Holdings Inc	0.0%	-53.5%	-55.0%	Industrials
Olaplex Holdings Inc	0.0%	-47.6%	-79.6%	Consumer Staples
Masimo Corp	0.0%	-46.7%	-37.9%	Health Care
Spirit AeroSystems Holdings Inc	0.0%	-44.7%	-26.4%	Industrials

Top 10 Weighted Stocks				
Russell 2000	Weight	1-Qtr Return	1-Year Return	Sector
Super Micro Computer Inc	0.6%	10.0%	397.9%	Information Technology
Chart Industries Inc	0.3%	5.8%	-8.3%	Industrials
ChampionX Corp	0.3%	15.1%	84.2%	Energy
Chord Energy Corp Ordinary Shares	0.3%	6.3%	29.3%	Energy
Murphy Oil Corp	0.3%	19.1%	32.3%	Energy
Matador Resources Co	0.3%	14.0%	22.8%	Energy
Light & Wonder Inc Ordinary Shares	0.3%	3.7%	66.3%	Consumer Discretionary
Weatherford International PLC	0.3%	36.0%	179.7%	Energy
Simpson Manufacturing Co Inc	0.3%	8.4%	93.1%	Industrials
SPS Commerce Inc	0.3%	-11.2%	37.3%	Information Technology

Top 10 Performing Stocks (by Quarter)				
Russell 2000	Weight	1-Qtr Return	1-Year Return	Sector
Tango Therapeutics Inc	0.0%	239.2%	211.0%	Health Care
PolyMet Mining Corp	0.0%	166.3%	-22.3%	Materials
Cardlytics Inc	0.0%	161.1%	75.5%	Communication Services
Telephone and Data Systems Inc	0.1%	124.8%	41.3%	Communication Services
Thorne HealthTech Inc	0.0%	116.8%	115.4%	Consumer Staples
Immunovant Inc	0.1%	102.4%	588.0%	Health Care
Tetra Technologies Inc	0.0%	88.8%	77.7%	Energy
NextNav Inc	0.0%	74.8%	91.1%	Information Technology
Centrus Energy Corp Class A	0.0%	74.3%	38.5%	Energy
Hallador Energy Co	0.0%	68.3%	156.6%	Energy

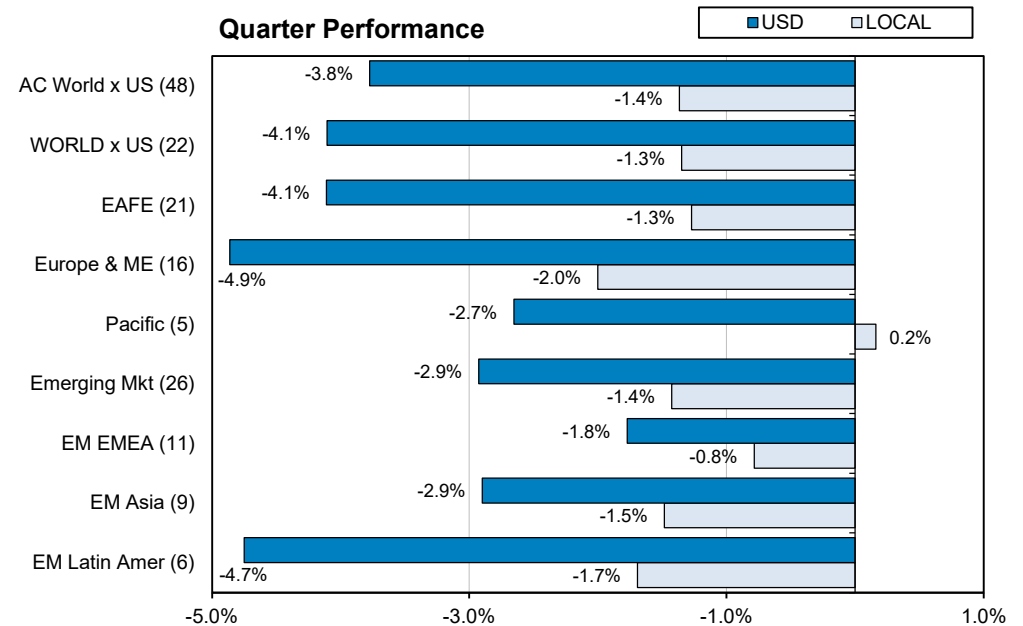
Bottom 10 Performing Stocks (by Quarter)				
Russell 2000	Weight	1-Qtr Return	1-Year Return	Sector
Outlook Therapeutics Inc	0.0%	-87.3%	-81.9%	Health Care
CXApp Inc Ordinary Shares	0.0%	-83.4%	-81.9%	Information Technology
Cano Health Inc Ordinary Shares	0.0%	-81.8%	-97.1%	Health Care
Loop Media Inc	0.0%	-79.2%	-88.9%	Communication Services
Akoustis Technologies Inc	0.0%	-76.3%	-74.6%	Information Technology
Benson Hill Inc	0.0%	-74.5%	-87.9%	Consumer Staples
TPI Composites Inc	0.0%	-74.4%	-76.5%	Industrials
Kodiak Sciences Inc	0.0%	-73.9%	-76.7%	Health Care
System1 Inc	0.0%	-73.1%	-80.8%	Communication Services
Presto Automation Inc	0.0%	-72.6%	-30.2%	Information Technology

Source: Morningstar Direct

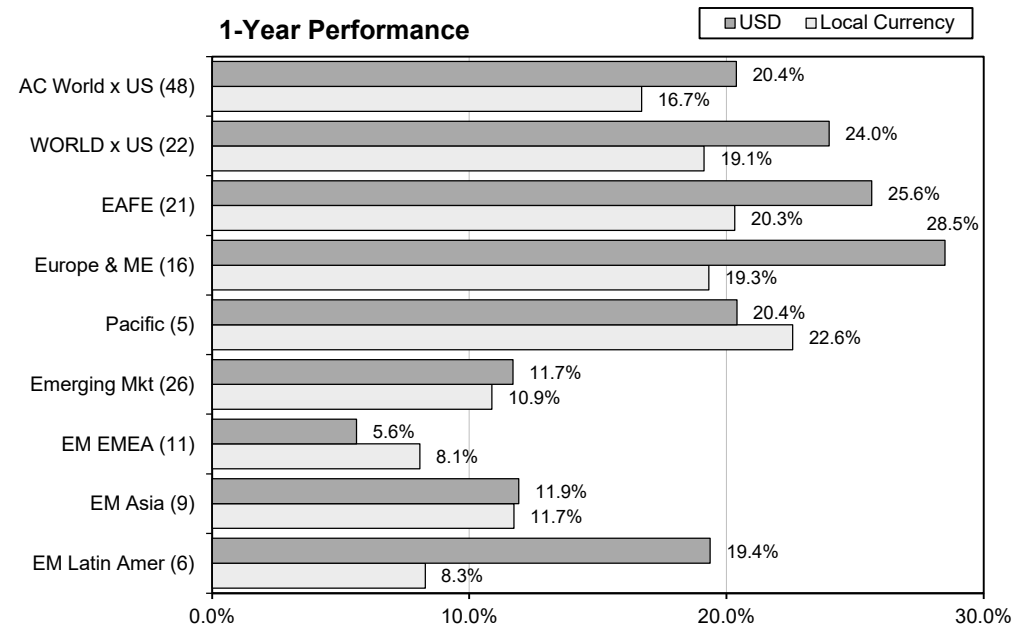


- International developed and emerging market benchmarks struggled in both US Dollar (USD) and local currency (LCL) terms. The strengthening USD contributed to weaker USD performance for non-US indices during the quarter. The developed-market MSCI EAFE Index struggled with a -4.1% return in USD and -1.3% in LCL terms for the period. The MSCI Emerging Markets Index fell by less than most developed market indices, returning -2.9% in USD and -1.4% in LCL terms.
- The EMEA index had the smallest drawdown for the quarter in USD terms, falling -1.8%. In local currency terms, the Pacific regional index exhibited a slight 0.2% gain during the quarter, the only positive return among its peers.
- Trailing one-year results were more appealing compared to the quarter's results. Much like domestic markets, trailing one-year performance for international developed and emerging markets rolled off their poor performance from 2022 resulting in strong returns for the trailing year. Additionally, LCL returns have outpaced USD returns for many developed markets due to the softening USD relative to many of the world's developed-market currencies over the year.
- Annual returns across emerging markets were broadly higher given their strong performance early in the year. Latin American results led the way with returns of 19.4% in USD and 8.3% in LCL terms. Performance in the EMEA regional benchmark detracted from emerging market index with the EMEA Index posting returns of 5.6% in USD and 8.1% in LCL terms. As a result, the broad MSCI Emerging Markets Index returned 11.7% in USD and 10.9% in LCL terms for the year.

### 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 September 30, 2023

MSCI - EAFE	Sector Weight	Quarter Return	1-Year Return
Communication Services	4.1%	-3.4%	14.4%
Consumer Discretionary	12.0%	-8.3%	32.8%
Consumer Staples	9.8%	-7.1%	9.9%
Energy	4.8%	11.6%	34.3%
Financials	19.1%	0.8%	33.9%
Health Care	13.4%	-3.1%	19.0%
Industrials	15.9%	-6.0%	32.9%
Information Technology	7.7%	-10.7%	29.2%
Materials	7.5%	-3.2%	23.7%
Real Estate	2.3%	-1.1%	5.4%
Utilities	3.4%	-8.8%	22.5%
<b>Total</b>	<b>100.0%</b>	<b>-4.1%</b>	<b>25.6%</b>

MSCI - ACWIxUS	Sector Weight	Quarter Return	1-Year Return
Communication Services	5.5%	-4.9%	13.0%
Consumer Discretionary	11.9%	-5.6%	22.3%
Consumer Staples	8.4%	-6.4%	9.0%
Energy	6.0%	9.0%	27.3%
Financials	21.2%	-0.7%	22.0%
Health Care	9.7%	-2.8%	17.2%
Industrials	13.1%	-5.8%	28.2%
Information Technology	11.3%	-8.7%	29.0%
Materials	7.9%	-3.3%	16.2%
Real Estate	2.0%	-1.1%	4.7%
Utilities	3.1%	-7.9%	11.4%
<b>Total</b>	<b>100.0%</b>	<b>-3.8%</b>	<b>20.4%</b>

MSCI - Emerging Mkt	Sector Weight	Quarter Return	1-Year Return
Communication Services	9.6%	-5.9%	12.5%
Consumer Discretionary	13.7%	0.8%	5.1%
Consumer Staples	6.2%	-4.4%	4.6%
Energy	5.3%	6.3%	23.8%
Financials	22.3%	-1.7%	10.2%
Health Care	3.8%	-0.8%	4.1%
Industrials	6.7%	-4.6%	11.5%
Information Technology	20.2%	-6.8%	25.8%
Materials	8.0%	-3.1%	6.5%
Real Estate	1.7%	-0.6%	1.5%
Utilities	2.6%	-3.0%	-5.5%
<b>Total</b>	<b>100.0%</b>	<b>-2.9%</b>	<b>11.7%</b>

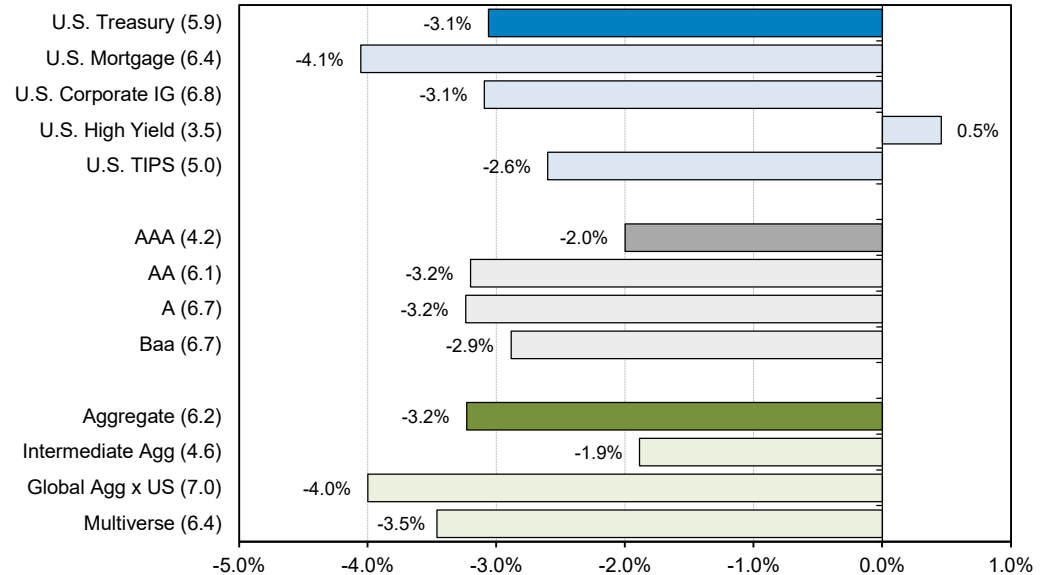
Country	MSCI-EAFE Weight	MSCI-ACWIxUS Weight	Quarter Return	1-Year Return
Japan	22.9%	14.7%	-2.4%	23.3%
United Kingdom	15.3%	9.8%	-2.8%	20.0%
France	12.1%	7.7%	-7.1%	31.4%
Switzerland	9.9%	6.4%	-5.5%	13.7%
Germany	8.3%	5.3%	-7.7%	32.3%
Australia	7.4%	4.7%	-4.7%	10.4%
Netherlands	4.3%	2.7%	-14.1%	24.8%
Denmark	3.3%	2.1%	2.0%	52.0%
Sweden	3.1%	2.0%	-5.7%	17.9%
Spain	2.6%	1.7%	-4.1%	40.4%
Italy	2.6%	1.7%	-2.4%	47.8%
Hong Kong	2.3%	1.5%	-12.1%	-6.1%
Singapore	1.5%	0.9%	-2.1%	6.2%
Belgium	1.0%	0.6%	-0.2%	20.0%
Finland	0.9%	0.6%	-6.0%	-1.9%
Norway	0.7%	0.5%	10.7%	12.9%
Israel	0.7%	0.4%	4.5%	0.1%
Ireland	0.5%	0.4%	-7.7%	40.6%
Portugal	0.2%	0.1%	-8.9%	7.1%
New Zealand	0.2%	0.1%	-10.0%	12.2%
Austria	0.2%	0.1%	-0.6%	34.9%
<b>Total EAFE Countries</b>	<b>100.0%</b>	<b>64.1%</b>	<b>-4.1%</b>	<b>25.6%</b>
Canada		7.6%	-4.7%	8.7%
<b>Total Developed Countries</b>		<b>71.7%</b>	<b>-4.1%</b>	<b>24.0%</b>
China		8.5%	-1.9%	5.2%
India		4.5%	2.7%	10.1%
Taiwan		4.2%	-7.4%	21.8%
Korea		3.5%	-6.6%	26.2%
Brazil		1.5%	-3.6%	15.3%
Saudi Arabia		1.2%	-4.4%	-5.9%
South Africa		0.9%	-4.6%	6.7%
Mexico		0.7%	-6.5%	33.7%
Indonesia		0.6%	-3.4%	1.5%
Thailand		0.5%	-4.5%	0.1%
United Arab Emirates		0.4%	6.1%	2.2%
Malaysia		0.4%	4.5%	5.2%
Qatar		0.3%	0.1%	-17.8%
Kuwait		0.2%	-2.7%	-1.9%
Poland		0.2%	-12.7%	59.1%
Turkey		0.2%	32.7%	74.9%
Philippines		0.2%	-3.8%	17.7%
Chile		0.1%	-9.8%	3.3%
Greece		0.1%	-7.8%	70.6%
Peru		0.1%	-4.0%	29.9%
Hungary		0.1%	0.5%	75.9%
Czech Republic		0.0%	1.0%	35.7%
Colombia		0.0%	0.1%	15.9%
Egypt		0.0%	15.3%	48.4%
<b>Total Emerging Countries</b>		<b>28.3%</b>	<b>-2.9%</b>	<b>11.7%</b>
<b>Total ACWIxUS Countries</b>		<b>100.0%</b>	<b>-3.8%</b>	<b>20.4%</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.

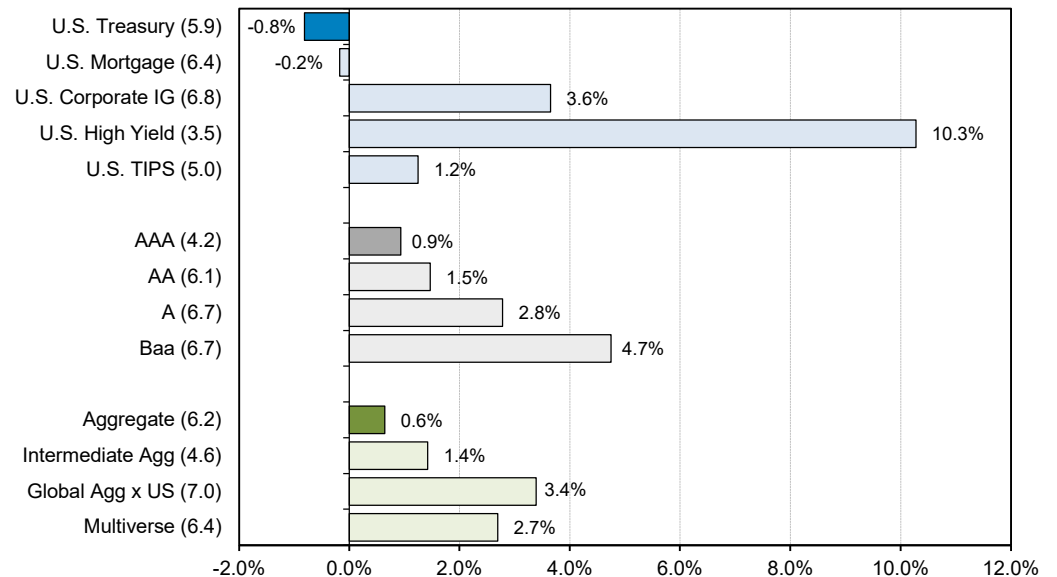


- Fixed income markets continued the decline that began in the second quarter. Yields remain elevated on the back of FOMC actions to hike policy rates throughout the year. After a challenging 2022 in fixed-income markets brought on by the largest and most rapid increase in interest rates since the early 1980s, higher yields and an expected slower pace of rate increases led investors to expect better outcomes in 2023. That expectation was challenged during the second and third quarters, as the additional 0.25% rate hike in July, and guidance toward potential future rate hikes weighed on the asset class and many of the major domestic fixed-income indices posted discouraging returns.
- The Bloomberg US Aggregate Bond Index, the bellwether US investment grade benchmark, declined -3.2% for the quarter. Beneath the headline benchmark, the Bloomberg US Corporate Investment Grade Index returned -3.1% and the US Mortgage Index posted a weaker -4.1%.
- Outside of the aggregate index's sub-components, high-yield bonds continued their rise with a return of 0.5% as credit spreads narrowed during the quarter. Additionally, US TIPS fell -2.6% for the quarter. The Bloomberg Global Aggregate ex-US Index lagged most domestic fixed-income indexes and the multiverse benchmark, posting a loss of -4.0% for the quarter.
- Over the trailing one-year period, the Bloomberg US Aggregate Bond Index gained just 0.6%. The benchmark's sub-components were highly dispersed with Treasuries falling -0.8% while corporate investment grade issues were up 3.6% over the previous 12 months. US TIPS, which are excluded from the aggregate index, increased by 1.2% for the year. High-yield corporate bonds, which have a much shorter duration, nearly tripled the returns of their investment grade counterparts with the Bloomberg US High Yield Index returning an impressive 10.3% for the trailing year.
- Performance for non-US bonds overcame the disappointing performance in 2022 with the Bloomberg Global Aggregate ex-US Index gaining 3.4%.

### Quarter Performance



### 1-Year Performance

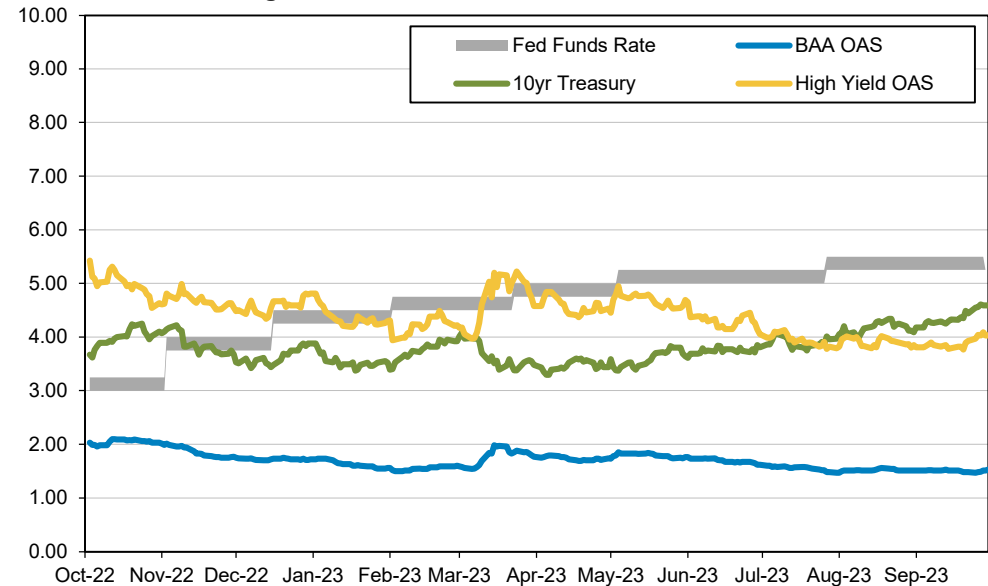


Source: Bloomberg

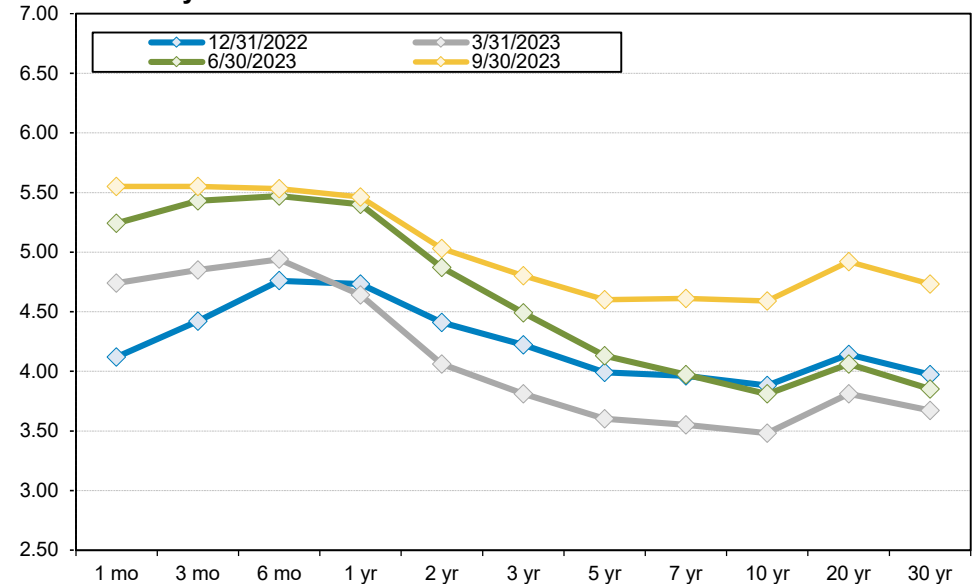


- The gray band across the graph illustrates the range of the current Fed Funds target rate. During the third quarter, the FOMC raised the lower end of its target rate range from 5.00% to 5.25% at their July meeting. While the FOMC paused further rate increases at their September meeting, several speeches and public comments since that meeting have made it clear that additional rate hikes should not be ruled out. While the overwhelming consensus has been that the Fed is moving towards the end of its rate hiking cycle, several statements and key macroeconomic statistics have shed doubt on timing of these expectations.
- The yield on the US 10-Year Treasury (green line) rose 0.78% largely due to increases in the policy rate and the potential for expected future inflationary pressure. The closing yield on the 10-Year Treasury was 4.59% as of September 29, 2023, and is up 71 basis points from its 3.88% yield at 2022 year-end. Capital market rates have now reached their highest levels in 16 years.
- The blue line illustrates changes in the BAA (Option Adjusted Spread) OAS for BAA-rated corporate bonds. This measure quantifies the additional yield premium that investors require to purchase and hold non-US Treasury investment grade issues with the lowest investment grade rating. For the full year, the spread narrowed from 2.05% to 1.53%, signaling a lower premium for credit risk than was the case a year prior. High-yield OAS spreads have narrowed from 5.92% in July 2022 to 4.03% as of the end of the quarter. Spikes in both the BAA OAS and High Yield spread measures were visible in the first quarter of 2023 following a short-lived crisis of confidence in the banking sector, which has since been addressed. Both spread measures traded lower on the news of the government's intervention, and as fears of possible contagion waned, credit spreads returned to their levels prior to February.
- 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 third quarter as the FOMC increased policy interest rates to continue combatting inflation. The Treasury yield curve has quickly exhibited a re-steepening with longer-term yields increasing at a faster pace than shorter-term yields. During the quarter, the 30-year yield jumped from 3.85% to 4.73% (an increase of 0.88%). Historically, a persistent inversion of the yield curve has been a precursor of an economic recession within six 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

## Total Fund

As of September 30, 2023

Comparative Performance Trailing Returns																			
	QTR		FYTD		1 YR		2 YR		3 YR		5 YR		10 YR		15 YR		Inception	Inception Date	
Total Fund Performance	-3.29	(72)	4.61	(57)	11.74	(35)	-3.71	(78)	3.63	(71)	4.00	(86)	5.77	(71)	6.75	(54)	5.79	(41)	01/01/2001
Total Fund Policy	-2.94	(54)	4.86	(51)	11.58	(39)	-3.30	(64)	4.10	(61)	4.40	(74)	6.02	(61)	7.18	(27)	5.92	(35)	
Allocation Index	-3.29	(72)	4.57	(60)	11.68	(37)	-3.76	(79)	3.65	(71)	3.89	(87)	N/A		N/A		N/A		
All Public Plans-Total Fund Median	-2.85		4.86		11.05		-2.69		4.40		5.05		6.23		6.80		5.65		
All Public Plan Sponsor Universes with 50% or Less Equities																			
Total Fund Performance	-3.29	(83)	4.61	(49)	11.74	(29)	-3.71	(87)	3.63	(78)	4.00	(83)	5.77	(66)	6.75	(45)	5.79	(44)	01/01/2001
Total Fund Policy	-2.94	(69)	4.86	(42)	11.58	(33)	-3.30	(78)	4.10	(68)	4.40	(71)	6.02	(56)	7.18	(23)	5.92	(35)	
All Public Plans =< 50% Equities Median	-2.44		4.56		10.55		-2.03		4.79		5.02		6.13		6.68		5.67		
All Public Plan Sponsor Universes with 60% or More Equities																			
Total Fund Performance	-3.29	(53)	4.61	(78)	11.74	(57)	-3.71	(69)	3.63	(72)	4.00	(93)	5.77	(82)	6.75	(74)	5.79	(55)	01/01/2001
Total Fund Policy	-2.94	(29)	4.86	(72)	11.58	(60)	-3.30	(53)	4.10	(60)	4.40	(85)	6.02	(78)	7.18	(34)	5.92	(48)	
All Public Plans >=60% Equities Median	-3.24		5.57		11.94		-3.20		4.27		5.16		6.39		6.98		5.81		

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



# Comparative Performance

## Total Fund

As of September 30, 2023

	QTR		FYTD		1 YR		2 YR		3 YR		5 YR		10 YR		15 YR		Inception	Inception Date
Domestic Equity																		
Total Fund Domestic Equity	-3.64		9.14		18.56		-0.16		10.46		7.87		N/A		N/A		9.25	07/01/2014
Vanguard Inst'l Index Fund (VINIX)	-3.28	(16)	13.04	(12)	21.57	(10)	1.36	(7)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	11/01/2020
S&P 500 Index	-3.27	(12)	13.07	(8)	21.62	(3)	1.39	(2)	10.15	(2)	9.92	(2)	11.91	(1)	11.28	(1)	11.48	(2)
IM S&P 500 Index (MF) Median	-3.34		12.83		21.25		1.07		9.78		9.58		11.52		10.81		11.09	
Vanguard Growth Index (VIGIX)	-3.69	(56)	28.30	(17)	28.11	(31)	-2.54	(30)	6.76	(22)	11.95	(12)	13.57	(17)	N/A		13.72	(13)
Vanguard Growth Index Hybrid	-3.68	(56)	28.35	(16)	28.16	(30)	-2.51	(29)	6.79	(21)	11.98	(11)	13.61	(16)	13.01	(15)	13.78	(12)
Russell 1000 Growth Index	-3.13	(35)	24.98	(33)	27.72	(35)	-0.57	(13)	7.97	(10)	12.42	(7)	14.48	(5)	13.67	(7)	14.43	(6)
IM U.S. Large Cap Growth Equity (MF) Median	-3.55		23.18		26.27		-4.52		4.70		9.57		12.33		11.83		12.46	
Vanguard Value Index (VIVIX)	-2.33	(48)	0.15	(71)	14.84	(53)	3.55	(21)	12.42	(39)	7.31	(39)	9.85	(19)	N/A		12.03	(22)
Vanguard Value Index Hybrid	-2.33	(48)	0.15	(71)	14.85	(53)	3.58	(21)	12.45	(38)	7.32	(38)	9.87	(19)	9.56	(30)	12.07	(21)
Russell 1000 Value Index	-3.16	(69)	1.79	(52)	14.44	(57)	0.71	(74)	11.05	(55)	6.23	(68)	8.45	(61)	8.59	(59)	11.22	(45)
IM U.S. Large Cap Value Equity (MF) Median	-2.36		2.02		15.11		2.02		11.44		6.71		8.73		8.92		11.01	
Vanguard Mid-Cap 400 Index Fund I (VSPMX)	-4.22	(51)	4.22	(24)	15.44	(22)	-1.12	(45)	11.98	(27)	N/A		N/A		N/A		7.75	(40)
S&P MidCap 400 Index	-4.20	(49)	4.27	(24)	15.51	(22)	-1.06	(44)	12.05	(26)	6.06	(39)	8.94	(15)	10.30	(12)	7.82	(38)
IM U.S. Mid Cap Core Equity (MF) Median	-4.22		2.84		12.46		-1.53		9.99		5.43		7.31		8.95		7.08	
Vanguard Small-Cap 600 Index I (VSMSX)	-4.94	(70)	0.77	(71)	10.01	(67)	-5.55	(66)	12.02	(50)	N/A		N/A		N/A		5.37	(56)
S&P SmallCap 600 Index	-4.93	(69)	0.81	(70)	10.08	(66)	-5.48	(65)	12.10	(49)	3.21	(57)	8.15	(12)	9.55	(14)	5.39	(56)
IM U.S. Small Cap Core Equity (MF) Median	-4.04		2.61		11.81		-3.84		11.99		3.47		6.77		8.32		5.60	

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



# Comparative Performance

## Total Fund

As of September 30, 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>-4.21</b>	<b>4.33</b>	<b>17.71</b>	<b>-7.45</b>	<b>2.14</b>	<b>1.67</b>	<b>N/A</b>	<b>N/A</b>	<b>2.09</b>	<b>07/01/2014</b>
Vanguard Intl Value (VTRIX)	-5.38 (93)	6.30 (86)	23.05 (88)	N/A	N/A	N/A	N/A	N/A	-0.82 (83)	12/01/2021
MSCI AC World ex USA Value	0.07 (15)	8.87 (56)	26.09 (74)	0.77 (56)	10.30 (49)	2.95 (70)	3.20 (86)	4.37 (77)	3.01 (45)	
IM International Multi-Cap Value Equity (MF) Median	-1.85	9.66	29.98	0.85	10.14	3.48	4.06	4.78	2.69	
Vanguard Intl Growth (VWILX)	-9.17 (82)	3.09 (77)	16.10 (80)	N/A	N/A	N/A	N/A	N/A	-17.41 (86)	12/01/2021
MSCI AC World ex USA Growth	-7.26 (63)	2.90 (77)	16.22 (80)	-9.81 (54)	-1.56 (68)	2.87 (63)	4.28 (75)	5.08 (78)	-10.35 (58)	
IM International Multi-Cap Growth Equity (MF) Median	-5.73	4.72	20.48	-8.10	1.31	3.53	4.84	5.86	-8.48	
Vanguard FTSE AW ex-US SC Index (VFSNX)	-3.38 (65)	4.33 (63)	18.04 (91)	-8.42 (81)	2.96 (91)	N/A	N/A	N/A	11.74 (77)	04/01/2020
FTSE Global ex U.S. Small Cap Index (Net)	-2.78 (45)	4.60 (63)	17.71 (92)	-8.68 (82)	3.01 (91)	1.40 (63)	3.23 (89)	N/A	11.60 (79)	
IM International SMID Cap Core Equity (MF) Median	-3.04	6.81	25.29	-5.56	6.48	2.73	4.20	N/A	12.82	
Vanguard Developed Markets Index (VTMNX)	-4.67 (55)	5.99 (52)	24.11 (44)	-3.87 (45)	5.37 (40)	3.19 (28)	4.03 (27)	N/A	6.17 (34)	07/01/2009
Vanguard Spliced Developed ex U.S. Index (Net)	-3.97 (39)	6.44 (46)	23.77 (46)	-4.01 (46)	5.49 (38)	3.21 (28)	4.05 (26)	4.82 (31)	6.16 (35)	
MSCI EAFE (Net) Index	-4.11 (44)	7.08 (33)	25.65 (33)	-3.01 (36)	5.75 (33)	3.24 (26)	3.82 (37)	4.66 (37)	5.99 (41)	
IM International Multi-Cap Equity (MF) Median	-4.43	6.10	23.08	-4.60	4.21	2.59	3.56	4.34	5.79	
Vanguard Emerging Markets Index (VEMIX)	-2.14 (24)	2.49 (59)	10.91 (66)	-8.36 (26)	-0.19 (32)	2.04 (30)	2.53 (35)	N/A	1.66 (43)	10/01/2010
FTSE Emerging Mkts All Cap China A Inclusion Index	-1.35 (16)	2.93 (54)	11.40 (62)	-7.92 (24)	0.62 (28)	2.57 (25)	3.19 (22)	4.68 (25)	2.25 (27)	
MSCI Emerging Markets (Net) Index	-2.93 (33)	1.82 (65)	11.70 (59)	-10.39 (43)	-1.73 (43)	0.55 (55)	2.07 (46)	3.76 (44)	1.51 (47)	
IM Emerging Markets Equity (MF) Median	-3.79	3.16	13.05	-11.00	-2.37	0.77	1.88	3.54	1.36	

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





# Comparative Performance

## Total Fund

As of September 30, 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>-1.93</b>	<b>0.91</b>	<b>3.63</b>	<b>-5.35</b>	<b>-3.00</b>	<b>0.94</b>	<b>N/A</b>	<b>N/A</b>	<b>1.33</b>	<b>07/01/2014</b>
Vanguard Short Term Bond Index (VBIRX)	0.15 (97)	1.44 (97)	2.52 (94)	-2.48 (96)	-1.67 (99)	1.09 (76)	1.05 (68)	N/A	0.99 (68)	04/01/2013
Bloomberg 1-5 Year Gov/Credit Idx	0.21 (95)	1.40 (98)	2.62 (92)	-2.46 (95)	-1.62 (98)	1.15 (73)	1.10 (64)	1.91 (48)	1.04 (64)	
IM U.S. Short Term Investment Grade (MF) Median	1.04	2.97	4.19	-0.80	0.14	1.50	1.28	1.89	1.20	
Vanguard Total Bond Index (VBTIX)	-3.08 (51)	-0.91 (51)	0.74 (52)	-7.27 (27)	-5.20 (56)	N/A	N/A	N/A	-2.37 (56)	09/01/2019
Blmbg. U.S. Aggregate Index	-3.23 (69)	-1.21 (70)	0.64 (57)	-7.29 (28)	-5.21 (56)	0.10 (48)	1.13 (50)	2.53 (68)	-2.38 (57)	
IM U.S. Broad Market Core Fixed Income (MF) Median	-3.08	-0.91	0.77	-7.60	-5.13	0.08	1.12	2.80	-2.30	
Vanguard High Yield Bond Fund (VWEAX)	-0.20 (87)	4.14 (82)	9.21 (58)	-2.38 (35)	0.97 (66)	2.82 (30)	N/A	N/A	3.61 (21)	12/01/2014
Blmbg. U.S. Corp High Yield	0.46 (46)	5.86 (27)	10.28 (29)	-2.69 (45)	1.76 (40)	2.96 (25)	4.24 (11)	7.25 (3)	3.94 (10)	
IM U.S. High Yield Bonds (MF) Median	0.40	5.18	9.52	-2.79	1.43	2.38	3.35	5.93	3.07	
Vanguard International Bond (VTIFX)	-1.46 (36)	2.21 (28)	2.16 (77)	-5.72 (27)	-4.17 (33)	0.03 (29)	N/A	N/A	1.09 (9)	05/01/2015
Blmbg. Global Agg ex-USD Flt Adj RIC Cpd (H)	-1.29 (33)	2.22 (28)	2.31 (73)	-5.60 (27)	-4.07 (32)	0.14 (29)	2.01 (8)	N/A	1.11 (9)	
IM International Fixed Income (MF) Median	-2.66	0.39	3.85	-6.94	-5.42	-2.32	-1.15	1.85	-1.43	
Vanguard EM Bond (VEGBX)	-0.89 (27)	4.21 (21)	14.45 (19)	N/A	N/A	N/A	N/A	N/A	-4.32 (28)	12/01/2021
Blmbg. Emerging Markets USD Aggregate Index	-2.31 (70)	0.91 (92)	7.56 (95)	-7.77 (72)	-4.21 (90)	0.23 (73)	2.35 (60)	4.97 (60)	-7.70 (80)	
IM Emerging Markets Debt (MF) Median	-1.91	2.54	11.76	-6.31	-2.24	1.10	2.45	5.25	-5.70	
<b>REIT</b>										
Vanguard Real Estate Index Fund (VGSNX)	-8.50 (79)	-5.34 (80)	-1.22 (71)	-10.38 (77)	2.34 (72)	2.46 (60)	5.54 (47)	N/A	7.07 (40)	10/01/2010
Vanguard Spliced REIT Index	-8.50 (79)	-5.26 (79)	-1.14 (69)	-10.31 (75)	2.45 (70)	2.54 (55)	5.62 (44)	5.82 (39)	7.14 (36)	
IM Real Estate Sector (MF) Median	-7.66	-3.49	0.19	-9.16	3.41	2.71	5.50	5.42	6.84	

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



# Comparative Performance

## Total Fund

As of September 30, 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>-3.64</b>	<b>9.14</b>	<b>18.56</b>	<b>-0.16</b>	<b>10.46</b>	<b>7.87</b>	<b>N/A</b>	<b>N/A</b>	<b>9.25</b>	<b>07/01/2014</b>
Total Domestic Large Cap Equity	-3.18	12.79	21.50	1.16	9.34	8.84	N/A	N/A	10.15	06/01/2014
S&P 500 Index	-3.27	13.07	21.62	1.39	10.15	9.92	11.91	11.28	11.04	
Large Cap Growth	-3.69	28.30	28.11	-2.54	7.12	12.15	N/A	N/A	13.01	06/01/2014
Vanguard Growth Index Hybrid	-3.68	28.35	28.16	-2.51	6.79	11.98	13.61	13.01	12.91	
Russell 1000 Growth Index	-3.13	24.98	27.72	-0.57	7.97	12.42	14.48	13.67	13.86	
Large Cap Core	-3.28	13.04	21.48	1.28	8.85	7.93	N/A	N/A	9.36	06/01/2014
S&P 500 Index	-3.27	13.07	21.62	1.39	10.15	9.92	11.91	11.28	11.04	
Large Cap Value	-2.33	0.31	15.02	3.63	12.48	7.32	N/A	N/A	8.91	06/01/2014
Vanguard Value Index Hybrid	-2.33	0.15	14.85	3.58	12.45	7.32	9.87	9.56	8.87	
Russell 1000 Value Index	-3.16	1.79	14.44	0.71	11.05	6.23	8.45	8.59	7.35	
Mid Cap Equity	-4.22	4.36	15.59	-1.05	12.03	6.20	N/A	N/A	8.06	06/01/2014
Mid Cap Hybrid Index	-4.20	4.27	15.51	-1.06	12.05	6.18	8.91	N/A	8.06	
Small Cap Equity	-4.94	0.77	10.01	-5.55	12.02	3.38	N/A	N/A	6.77	06/01/2014
Small Cap Hybrid Index	-4.93	0.81	10.08	-5.48	12.10	3.43	7.37	N/A	6.78	
<b>Total Fund - International Equity</b>	<b>-4.21</b>	<b>4.33</b>	<b>17.71</b>	<b>-7.45</b>	<b>2.14</b>	<b>1.67</b>	<b>N/A</b>	<b>N/A</b>	<b>2.09</b>	<b>07/01/2014</b>
Small Cap - International Equity	-3.38	4.33	18.04	-8.42	2.96	N/A	N/A	N/A	11.74	04/01/2020
FTSE Global ex U.S. Small Cap Index (Net)	-2.78	4.60	17.71	-8.68	3.01	1.40	3.23	N/A	11.60	
Developed Markets - International Equity	-4.67	5.99	24.11	-3.87	5.37	3.19	N/A	N/A	3.28	06/01/2014
Vanguard Spliced Developed ex U.S. Index (Net)	-3.97	6.44	23.77	-4.01	5.49	3.21	4.05	4.82	3.34	
Emerging Markets - International Equity	-2.14	2.49	10.91	-8.28	-0.13	2.07	N/A	N/A	2.08	06/01/2014
FTSE Emerging Mkts All Cap China A Inclusion Index	-1.35	2.93	11.40	-7.92	0.62	2.57	3.19	4.68	2.79	
MSCI Emerging Markets (Net) Index	-2.93	1.82	11.70	-10.39	-1.73	0.55	2.07	3.76	1.66	

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



# Comparative Performance

## Total Fund

As of September 30, 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>-1.93</b>	<b>0.91</b>	<b>3.63</b>	<b>-5.35</b>	<b>-3.00</b>	<b>0.94</b>	<b>N/A</b>	<b>N/A</b>	<b>1.33</b>	<b>07/01/2014</b>
Short - Term Fixed Income	0.15	1.44	2.52	-2.48	-1.67	1.07	N/A	N/A	0.98	06/01/2014
Bloomberg 1-5 Year Gov/Credit Idx	0.21	1.40	2.62	-2.46	-1.62	1.15	1.10	1.91	1.04	
High Yield - Fixed Income	-0.20	4.14	9.21	-2.38	0.97	2.82	N/A	N/A	3.59	11/01/2014
Blmbg. U.S. Corp High Yield	0.46	5.86	10.28	-2.69	1.76	2.96	4.24	7.25	3.82	
Non-US Fixed Income	-1.46	2.21	2.16	-5.72	-4.17	0.03	N/A	N/A	1.15	05/01/2015
Blmbg. Global Agg ex-USD Flt Adj RIC Cpd (H)	-1.29	2.22	2.31	-5.60	-4.07	0.14	2.01	N/A	1.11	
<b>Real Estate</b>	<b>-8.50</b>	<b>-5.34</b>	<b>-1.22</b>	<b>-10.38</b>	<b>2.34</b>	<b>2.46</b>	<b>N/A</b>	<b>N/A</b>	<b>4.18</b>	<b>06/01/2014</b>
Vanguard Spliced REIT Index	-8.50	-5.26	-1.14	-10.31	2.45	2.54	5.62	5.82	4.41	

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



# Comparative Performance

## Total Fund

As of September 30, 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 (60)	N/A
S&P 500 Index	-18.11 (67)	28.71 (37)	18.40 (46)	31.49 (33)	-4.38 (41)	21.83 (56)	11.96 (32)	1.38 (54)	13.69 (43)	32.39 (61)
IM U.S. Large Cap Core Equity (SA+CF) Median	-16.48	27.71	17.56	30.00	-5.07	22.15	10.48	1.51	13.41	33.26
Twin Capital Enhanced Index	N/A	N/A	15.07 (62)	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 (57)	28.71 (61)	18.40 (49)	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	29.14	17.77	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	-18.36	28.25	18.05	31.08	-4.66	21.37	11.55	0.97	13.18	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 (57)	26.74 (37)	11.46 (39)	22.74 (61)	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	-15.77	25.12	9.89	23.94	-12.71	12.09	21.66	-4.35	4.73	36.85

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



# Comparative Performance

## Total Fund

As of September 30, 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 (43)	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	-9.51	12.63	3.58	18.79	-16.13	24.72	4.02	-2.27	-5.22	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 (38)	27.84 (50)	-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	-23.55	10.09	20.55	27.73	-14.54	30.69	0.51	1.34	-3.79	20.27
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	-17.06	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 (34)	10.27 (43)	22.14 (43)	-14.49 (35)	26.46 (46)	2.46 (35)	-0.19 (44)	-5.62 (55)	22.07 (35)
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 (53)	-4.90 (45)	22.78 (28)
IM International Multi-Cap Equity (MF) Median	-15.71	10.28	8.74	21.55	-15.87	25.85	1.12	-0.72	-5.32	20.37
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 (62)	20.81 (47)	-14.49 (29)	31.46 (72)	10.66 (34)	-13.28 (46)	2.96 (10)	-2.82 (59)
MSCI Emerging Markets (Net) Index	-20.09 (32)	-2.54 (58)	18.31 (47)	18.42 (63)	-14.57 (29)	37.28 (43)	11.19 (29)	-14.92 (62)	-2.19 (43)	-2.60 (58)
IM Emerging Markets Equity (MF) Median	-22.47	-1.61	17.68	20.17	-16.46	35.66	8.25	-13.73	-3.00	-1.46

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



# Comparative Performance

## Total Fund

As of September 30, 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 (VBIRX)	-5.61 (91)	-0.97 (94)	4.71 (11)	4.84 (23)	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	4.12	1.24	1.45	1.68	0.27	0.67	0.47
Vanguard Total Bond Index (VBTIX)	-13.15 (27)	-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 (22)	-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	-13.66	-1.33	8.16	8.76	-0.62	3.60	2.90	0.04	5.55	-1.96
Vanguard High Yield Bond Fund (VWEAX)	-8.97 (18)	3.78 (80)	5.38 (52)	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 (58)	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	-10.97	4.94	5.43	13.83	-2.97	6.63	13.77	-3.98	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 (30)	-4.12 (30)
IM Emerging Markets Debt (MF) Median	-14.19	-1.97	6.76	14.75	-4.99	11.69	11.65	-1.16	2.39	-5.47
<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 September 30, 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 September 30, 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

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





Multi Time Period Statistics  
Butler County Employees Retirement Plan  
As of September 30, 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		3.63		12.77		0.21		4.00		13.26		0.23	
Total Fund Policy		4.00		12.18		0.24		4.40		12.77		0.27	
Vanguard Instl Indx;Inst (VINIX) *		10.12		(8)		17.60		(35)		0.54		(8)	
S&P 500 Index		10.15				17.60				0.54		(8)	
IM S&P 500 Index (MF) Median		9.77				17.60				0.52		(8)	
Vanguard Growth Index (VIGIX)		6.76		(22)		21.68		(23)		0.33		(27)	
Vanguard Growth Index Hybrid		6.79				21.69				0.34		(27)	
IM U.S. Large Cap Growth Equity (MF) Median		4.69				20.59				0.25		(27)	
Vanguard Value Index (VIVIX)		12.42		(39)		16.66		(66)		0.68		(30)	
Vanguard Value Index Hybrid		12.45				16.66				0.68		(30)	
IM U.S. Large Cap Value Equity (MF) Median		11.40				17.04				0.62		(30)	
Vanguard S&P MC400;Inst (VSPMX) *		11.98		(27)		20.18		(6)		0.58		(32)	
S&P MidCap 400 Index		12.05				20.18				0.58		(32)	
IM U.S. Mid Cap Core Equity (MF) Median		9.99				18.41				0.52		(32)	
Vanguard S&P SC600;Inst (VSMSX) *		12.02		(50)		21.87		(31)		0.55		(53)	
S&P SmallCap 600 Index		12.10				21.87				0.55		(53)	
IM U.S. Small Cap Core Equity (MF) Median		12.00				21.20				0.56		(53)	

\* 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.

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**Multi Time Period Statistics**  
**Butler County Employees Retirement Plan**  
As of September 30, 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)*	8.19	(23)	19.26	(18)	0.42	(18)	3.57	(48)	19.40	(40)	0.19	(48)
MSCI EAFE Index	6.28		17.96		0.33		3.74		17.83		0.20	
IM International Large Cap Core Equity (MF) Median	5.80		18.76		0.30		3.49		18.47		0.19	
Vanguard Intl Gro;Adm (VWILX)*	-4.38	(97)	23.08	(1)	-0.15	(97)	5.20	(34)	23.09	(1)	0.26	(41)
MSCI EAFE Growth Index	0.70		19.01		0.04		3.59		18.06		0.19	
IM International Large Cap Growth Equity (MF) Median	1.90		18.71		0.10		4.36		18.74		0.23	
Vanguard FTSExUSSC;Ins (VFSNX) *	2.96	(22)	18.28	(78)	0.16	(22)	1.55	(33)	20.48	(50)	0.10	(34)
FTSE Global ex U.S. Small Cap Index (Net)	3.01		17.95		0.16		1.40		20.28		0.09	
IM International SMID Cap Growth Equity (MF) Median	-0.74		19.04		-0.04		0.98		20.48		0.06	
Vanguard Developed Markets Index (VTMNX)	5.37	(40)	18.83	(40)	0.28	(41)	3.19	(28)	18.87	(48)	0.17	(29)
Vanguard Spliced Developed ex U.S. Index (Net)	5.49		18.18		0.29		3.21		18.38		0.17	
IM International Multi-Cap Equity (MF) Median	4.20		18.47		0.22		2.59		18.80		0.14	
Vanguard Emerging Markets Index (VEMIX)	-0.19	(32)	16.38	(89)	-0.03	(34)	2.04	(30)	18.36	(89)	0.11	(32)
FTSE Emerging Mkts All Cap China A Inclusion Index	0.62		15.94		0.01		2.57		18.03		0.14	
IM Emerging Markets Equity (MF) Median	-2.38		18.46		-0.13		0.76		20.02		0.05	
Vanguard Short Term Bond Index (VBIRX)	-1.67	(99)	2.80	(5)	-1.21	(83)	1.09	(76)	2.53	(44)	-0.23	(75)
Bloomberg 1-5 Year Gov/Credit Idx	-1.62		2.77		-1.21		1.15		2.52		-0.22	
IM U.S. Short Term Investment Grade (MF) Median	0.14		1.95		-0.81		1.50		2.36		-0.07	
Vanguard Tot Bd;Inst (VBTIX) *	-5.20	(55)	6.13	(65)	-1.12	(62)	0.15	(42)	5.59	(73)	-0.25	(52)
Blmbg. U.S. Aggregate Index	-5.21		6.12		-1.12		0.10		5.55		-0.26	
IM U.S. Broad Market Core Fixed Income (MF) Median	-5.13		6.18		-1.09		0.08		5.86		-0.25	
Vanguard High Yield Bond Fund (VWEAX)	0.97	(65)	7.72	(57)	-0.06	(65)	2.82	(29)	8.66	(79)	0.17	(29)
Vanguard High Yield Corporate Composite Index	1.12		7.55		-0.04		3.16		8.51		0.21	
IM U.S. High Yield Bonds (MF) Median	1.43		7.87		0.00		2.37		9.26		0.12	

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**Multi Time Period Statistics**  
**Butler County Employees Retirement Plan**  
As of September 30, 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) *	-4.19	(35)	5.45	(70)	-1.07	(85)	0.02	(31)	5.02	(84)	-0.31	(41)
Blmbg. Global Agg ex-USD Flt Adj RIC Cpd (H)	-4.07		5.24		-1.09		0.14		4.87		-0.30	
IM International Fixed Income (MF) Median	-5.42		8.36		-0.93		-2.32		7.68		-0.41	
Vanguard Em Mkt Bond;Adm (VEGBX)*	-1.17	(78)	10.39	(72)	-0.23	(82)	4.14	(5)	11.17	(80)	0.27	(5)
JPM GBI-EM Diversified	-4.75		11.94		-0.49		-1.30		11.81		-0.20	
IM Emerging Markets Debt - LC (MF) Median	-0.77		10.99		-0.17		1.65		12.41		0.06	
Vanguard Real Estate Index Fund (VGSNX)	2.34	(72)	20.45	(24)	0.13	(71)	2.46	(60)	20.29	(31)	0.14	(58)
Vanguard Spliced REIT Index	2.45		20.43		0.14		2.54		20.28		0.14	
IM Real Estate Sector (MF) Median	3.41		20.15		0.18		2.71		19.85		0.15	

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**Multi Time Period Statistics**  
**Butler County Employees Retirement Plan**  
As of September 30, 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	5.77		10.92		0.47		6.75		11.80		0.55	
Total Fund Policy	6.02		10.65		0.50		7.18		11.81		0.58	
Vanguard Instl Indx;Inst (VINIX) *	11.88	(3)	15.25	(13)	0.75	(4)	11.27	(2)	17.15	(13)	0.67	(2)
S&P 500 Index	11.91		15.25		0.75		11.28		17.15		0.67	
IM S&P 500 Index (MF) Median	11.50		15.23		0.73		10.81		17.12		0.65	
Vanguard Growth Index (VIGIX)	13.57	(17)	18.46	(38)	0.73	(26)	N/A		N/A		N/A	
Vanguard Growth Index Hybrid	13.61		18.48		0.73		13.01		19.25		0.70	
IM U.S. Large Cap Growth Equity (MF) Median	12.33		18.07		0.68		11.83		19.32		0.65	
Vanguard Value Index (VIVIX)	9.85	(19)	14.68	(69)	0.64	(17)	N/A		N/A		N/A	
Vanguard Value Index Hybrid	9.87		14.68		0.64		9.56		17.17		0.58	
IM U.S. Large Cap Value Equity (MF) Median	8.73		15.19		0.55		8.92		17.77		0.53	
Vanguard S&P MC400;Inst (VSPMX)*	8.88	(12)	18.81	(71)	0.49	(12)	N/A		N/A		N/A	
S&P MidCap 400 Index	8.94		18.81		0.50		10.30		20.72		0.55	
IM U.S. SMID Cap Core Equity (MF) Median	6.92		19.40		0.40		8.57		21.55		0.47	
Vanguard S&P SC600;Inst (VSMSX)*	8.13	(13)	20.92	(50)	0.43	(14)	N/A		N/A		N/A	
S&P SmallCap 600 Index	8.15		20.91		0.43		9.55		22.45		0.49	
IM U.S. Small Cap Core Equity (MF) Median	6.78		20.91		0.37		8.33		22.67		0.44	

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**Multi Time Period Statistics**  
**Butler County Employees Retirement Plan**  
As of September 30, 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)*	3.93	(63)	17.27	(38)	0.25	(75)	4.73	(79)	20.16	(33)	0.29	(83)
MSCI EAFE Index	4.32		15.88		0.28		5.16		18.94		0.32	
IM International Large Cap Core Equity (MF) Median	4.04		16.67		0.26		5.18		19.44		0.32	
Vanguard Intl Gro;Adm (VWILX)*	7.04	(10)	21.62	(2)	0.37	(25)	7.64	(11)	23.07	(1)	0.40	(30)
MSCI EAFE Growth Index	4.80		16.33		0.30		5.58		18.61		0.35	
IM International Large Cap Growth Equity (MF) Median	5.11		16.93		0.31		6.16		19.60		0.37	
Vanguard FTSExUSSC;Ins (VFSNX)*	3.46	(63)	18.79	(69)	0.22	(62)	N/A		N/A		N/A	
FTSE Global ex U.S. Small Cap Index (Net)	3.23		18.66		0.21		N/A		N/A		N/A	
IM International SMID Cap Growth Equity (MF) Median	3.88		19.14		0.24		6.30		22.29		0.36	
Vanguard Developed Markets Index (VTMNX)	4.03	(26)	16.52	(62)	0.26	(25)	N/A		N/A		N/A	
Vanguard Spliced Developed ex U.S. Index (Net)	4.05		16.33		0.26		4.82		19.18		0.30	
IM International Multi-Cap Equity (MF) Median	3.56		16.98		0.23		4.31		19.68		0.28	
Vanguard Emerging Markets Index (VEMIX)	2.53	(35)	17.01	(93)	0.17	(35)	N/A		N/A		N/A	
FTSE Emerging Mkts All Cap China A Inclusion Index	3.19		16.86		0.21		4.68		21.33		0.29	
IM Emerging Markets Equity (MF) Median	1.88		18.81		0.14		3.54		22.40		0.24	
Vanguard Sh-Tm B;Inst (VBITX)*	1.05	(69)	2.16	(47)	-0.01	(68)	N/A		N/A		N/A	
Bloomberg 1-5 Year Gov/Credit Idx	1.10		2.16		0.01		1.91		2.15		0.52	
IM U.S. Short Term Investment Grade (MF) Median	1.28		2.07		0.09		1.89		2.51		0.44	
Vanguard Tot Bd;Inst (VBTIX)*	1.12	(50)	4.61	(70)	0.03	(51)	2.52	(68)	4.38	(77)	0.41	(58)
Blmbg. U.S. Aggregate Index	1.13		4.54		0.03		2.53		4.32		0.42	
IM U.S. Broad Market Core Fixed Income (MF) Median	1.11		4.76		0.03		2.80		4.83		0.43	
Vanguard HY Corp;Adm (VWEAX)*	4.03	(16)	7.09	(93)	0.44	(9)	6.28	(27)	8.71	(94)	0.65	(4)
Vanguard High Yield Corporate Composite Index	4.09		7.40		0.43		6.45		9.15		0.64	
IM U.S. High Yield Bonds (MF) Median	3.35		8.24		0.31		5.93		10.48		0.52	

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Multi Time Period Statistics  
Butler County Employees Retirement Plan  
As of September 30, 2023

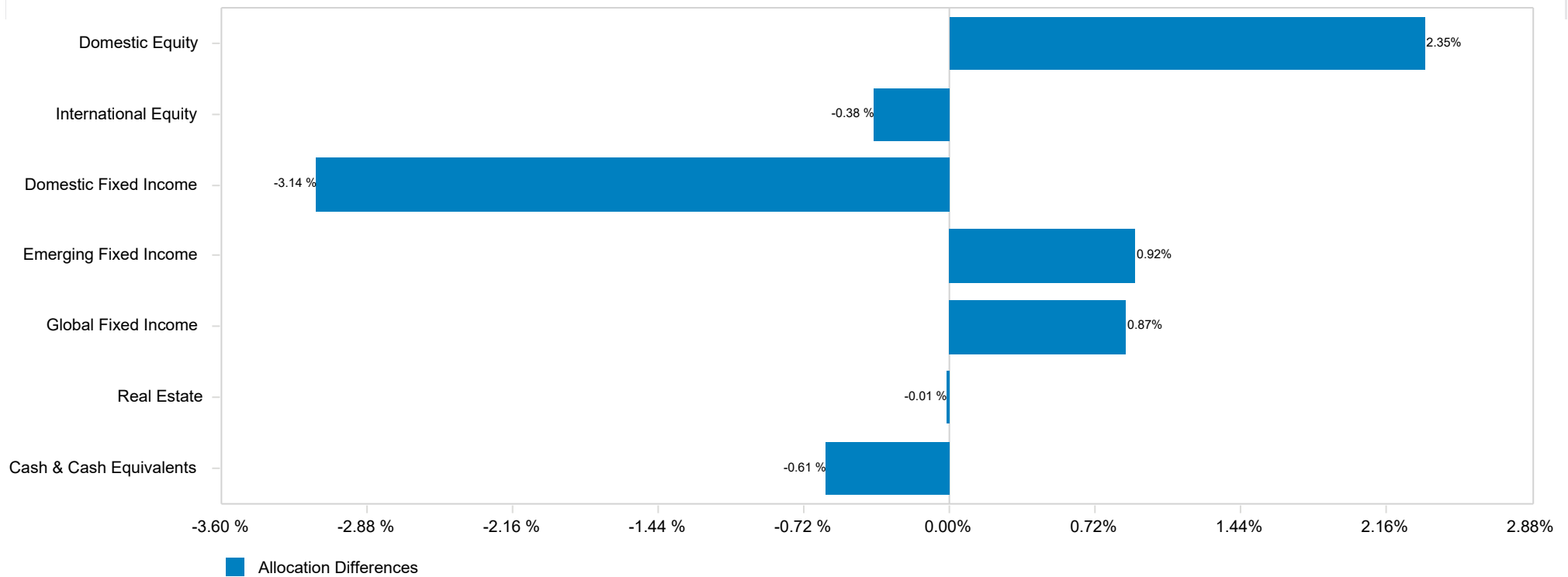
	10 YR Return		10 YR Standard Deviation		10 YR Sharpe Ratio		15 YR Return	15 YR Standard Deviation	15 YR Sharpe Ratio
Vanguard Tot Intl BI;Inst (VTIFX)*	1.84	(9)	4.16	(82)	0.20	(11)	N/A	N/A	N/A
Blmbg. Global Agg ex-USD Flt Adj RIC Cpd (H)	2.01		4.15		0.23		N/A	N/A	N/A
IM International Fixed Income (MF) Median	-1.15		8.03		-0.24		1.85	8.96	0.17
Vanguard Em Mkt Bond;Adm (VEGBX)*	N/A		N/A		N/A		N/A	N/A	N/A
JPM GBI-EM Diversified	-1.70		12.35		-0.17		1.26	12.56	0.10
IM Emerging Markets Debt - LC (MF) Median	0.57		12.93		0.03		N/A	N/A	N/A
Vanguard Real Estate Index Fund (VGSNX)	5.54		16.88		0.34		N/A	N/A	N/A
Vanguard Spliced REIT Index	5.62		16.89		0.34		5.82	23.66	0.33

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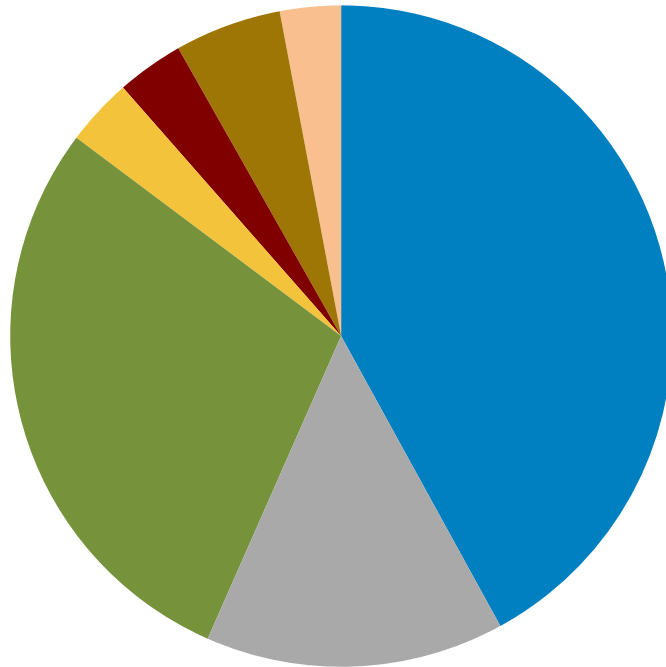




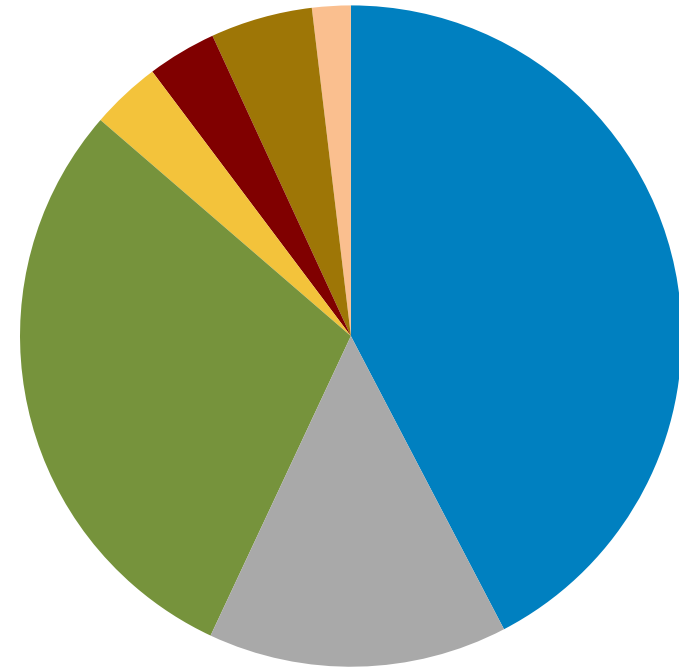
## Asset Allocation Compliance

	Current Allocation (%)	Target Allocation (%)	Minimum Allocation (%)	Maximum Allocation (%)
Domestic Equity	42.35	40.00	15.00	65.00
International Equity	14.62	15.00	5.00	25.00
Domestic Fixed Income	29.36	32.50	15.00	50.00
Emerging Fixed Income	3.42	2.50	0.00	5.00
Global Fixed Income	3.37	2.50	0.00	5.00
Real Estate	4.99	5.00	0.00	10.00
Cash & Cash Equivalents	1.89	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>

Asset Allocation By Segment as of  
June 30, 2023 : \$246,748,148.6

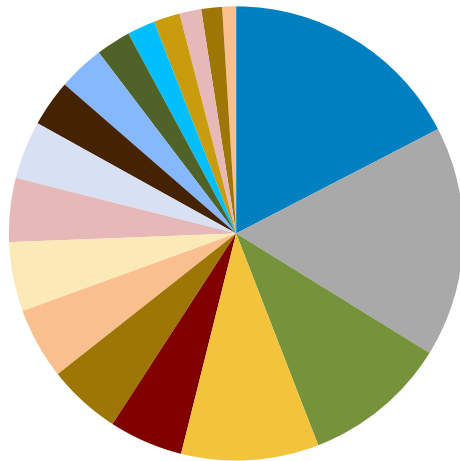
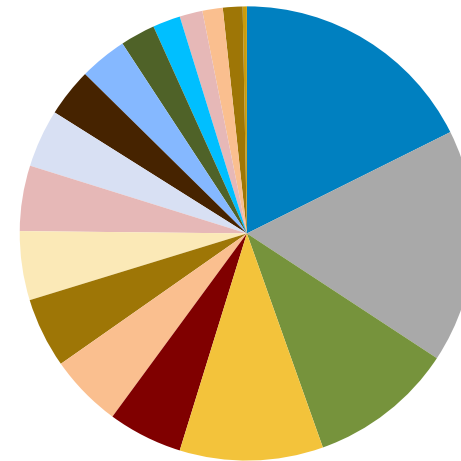


Asset Allocation By Segment as of  
September 30, 2023 : \$235,892,757.2



Allocation			Allocation		
Segments	Market Value	Allocation	Segments	Market Value	Allocation
Domestic Equity	103,670,743	42.0	Domestic Equity	99,896,426	42.3
International Equity	36,007,472	14.6	International Equity	34,490,147	14.6
Domestic Fixed Income	70,645,628	28.6	Domestic Fixed Income	69,269,083	29.4
Emerging Fixed Income	8,139,872	3.3	Emerging Fixed Income	8,064,888	3.4
Global Fixed Income	8,078,969	3.3	Global Fixed Income	7,960,381	3.4
Real Estate	12,853,432	5.2	Real Estate	11,760,647	5.0
Cash	7,352,034	3.0	Cash	4,451,186	1.9



Asset Allocation By Manager as of  
Jun-2023 : \$246,748,148.6Asset Allocation By Manager as of  
Sep-2023 : \$235,892,757.2

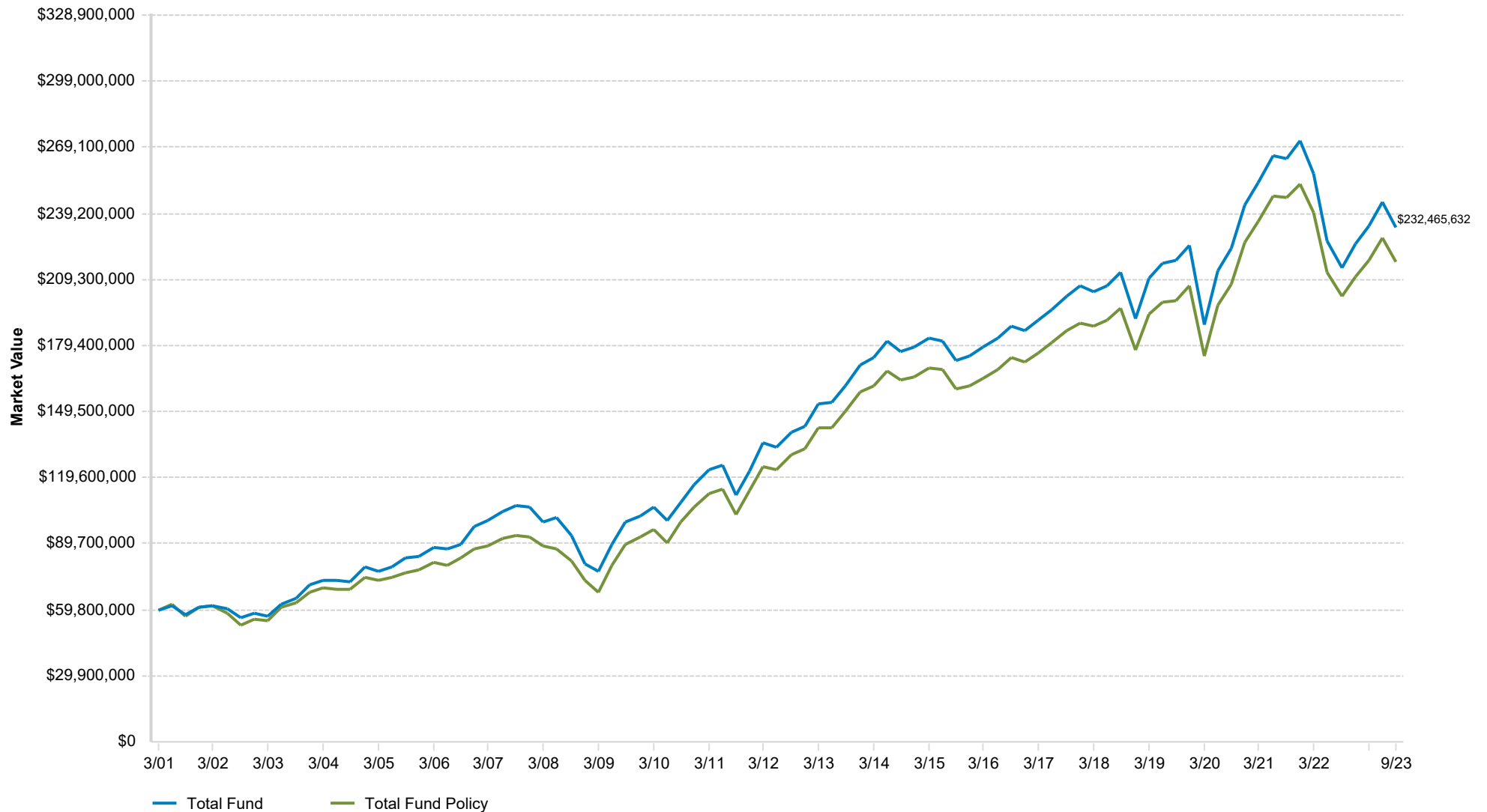
Allocation			Allocation		
	Market Value	Allocation		Market Value	Allocation
Vanguard Total Bond Index (VBTIX)	42,925,946	17.4	Vanguard Total Bond Index (VBTIX)	41,602,697	17.6
Vanguard Inst'l Index Fund (VINIX)	40,517,640	16.4	Vanguard Inst'l Index Fund (VINIX)	39,189,243	16.6
Vanguard Mid-Cap 400 Index Fund I (VSPMX)	25,427,425	10.3	Vanguard Mid-Cap 400 Index Fund I (VSPMX)	24,354,501	10.3
Vanguard High Yield Bond Fund (VWEAX)	24,114,726	9.8	Vanguard High Yield Bond Fund (VWEAX)	24,065,653	10.2
Vanguard Growth Index (VIGIX)	12,994,020	5.3	Vanguard Growth Index (VIGIX)	12,514,964	5.3
Vanguard Real Estate Index Fund (VGSNX)	12,853,432	5.2	Vanguard Value Index (VIVIX)	12,246,742	5.2
Vanguard Value Index (VIVIX)	12,538,475	5.1	Vanguard Real Estate Index Fund (VGSNX)	11,760,647	5.0
Vanguard Small-Cap 600 Index I (VSMSX)	12,193,183	4.9	Vanguard Small-Cap 600 Index I (VSMSX)	11,590,977	4.9
Vanguard Emerging Markets Index (VEMIX)	11,213,753	4.5	Vanguard Emerging Markets Index (VEMIX)	10,973,987	4.7
Vanguard Developed Markets Index (VTMNX)	10,200,527	4.1	Vanguard Developed Markets Index (VTMNX)	9,723,845	4.1
Vanguard EM Bond (VEGBX)	8,187,120	3.3	Vanguard EM Bond (VEGBX)	8,113,864	3.4
Vanguard International Bond (VTIFX)	8,091,904	3.3	Vanguard International Bond (VTIFX)	7,973,602	3.4
Vanguard FTSE AW ex-US SC Index (VFSNX)	6,071,553	2.5	Vanguard FTSE AW ex-US SC Index (VFSNX)	5,866,533	2.5
Vanguard Intl Value (VTRIX)	4,897,714	2.0	Vanguard Intl Value (VTRIX)	4,634,226	2.0
Disbursement & MF Cash	4,601,371	1.9	Vanguard Short Term Bond Index (VBIRX)	3,850,099	1.6
Vanguard Short Term Bond Index (VBIRX)	3,844,172	1.6	NMA	3,427,125	1.5
Vanguard Intl Growth (VWILX)	3,623,925	1.5	Vanguard Intl Growth (VWILX)	3,291,555	1.4
NMA	2,451,262	1.0	Disbursement & MF Cash	712,497	0.3

**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)	39,189	100.0	-	-	-	-	-	-	-	-	-	-	-	-	39,189	16.6
Vanguard Value Index (VIVIX)	12,247	100.0	-	-	-	-	-	-	-	-	-	-	-	-	12,247	5.2
Vanguard Small-Cap 600 Index I (VSM SX)	11,591	100.0	-	-	-	-	-	-	-	-	-	-	-	-	11,591	4.9
Vanguard Mid-Cap 400 Index Fund I (VSPMX)	24,355	100.0	-	-	-	-	-	-	-	-	-	-	-	-	24,355	10.3
Vanguard Growth Index (VIGIX)	12,515	100.0	-	-	-	-	-	-	-	-	-	-	-	-	12,515	5.3
Twin Capital Enhanced Index	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0
Vanguard Intl Value (VTRIX)	-	-	4,634	100.0	-	-	-	-	-	-	-	-	-	-	4,634	2.0
Vanguard Intl Growth (VWILX)	-	-	3,292	100.0	-	-	-	-	-	-	-	-	-	-	3,292	1.4
Vanguard FTSE AW ex-US SC Index (VFSNX)	-	-	5,867	100.0	-	-	-	-	-	-	-	-	-	-	5,867	2.5
Vanguard Developed Markets Index (VTMNX)	-	-	9,724	100.0	-	-	-	-	-	-	-	-	-	-	9,724	4.1
Vanguard Emerging Markets Index (VEMIX)	-	-	10,974	100.0	-	-	-	-	-	-	-	-	-	-	10,974	4.7
Vanguard High Yield Bond Fund (VWEAX)	-	-	-	-	23,941	99.5	-	-	-	-	-	-	125	0.5	24,066	10.2
Vanguard Short Term Bond Index (VBIRX)	-	-	-	-	3,841	99.8	-	-	-	-	-	-	9	0.2	3,850	1.6
Vanguard Total Bond Index (VBTIX)	-	-	-	-	41,487	99.7	-	-	-	-	-	-	116	0.3	41,603	17.6
Vanguard International Bond (VTIFX)	-	-	-	-	-	-	-	-	7,960	99.8	-	-	13	0.2	7,974	3.4
Vanguard EM Bond (VEGBX)	-	-	-	-	-	-	8,065	99.4	-	-	-	-	49	0.6	8,114	3.4
Vanguard Real Estate Index Fund (VGSNX)	-	-	-	-	-	-	-	-	-	-	11,761	100.0	-	-	11,761	5.0
Disbursement & MF Cash	-	-	-	-	-	-	-	-	-	-	-	-	712	100.0	712	0.3
NMA	-	-	-	-	-	-	-	-	-	-	-	-	3,427	100.0	3,427	1.5
<b>Total Fund</b>	<b>99,896</b>	<b>42.3</b>	<b>34,490</b>	<b>14.6</b>	<b>69,269</b>	<b>29.4</b>	<b>8,065</b>	<b>3.4</b>	<b>7,960</b>	<b>3.4</b>	<b>11,761</b>	<b>5.0</b>	<b>4,451</b>	<b>1.9</b>	<b>235,893</b>	<b>100.0</b>



**Schedule of Investable Assets**



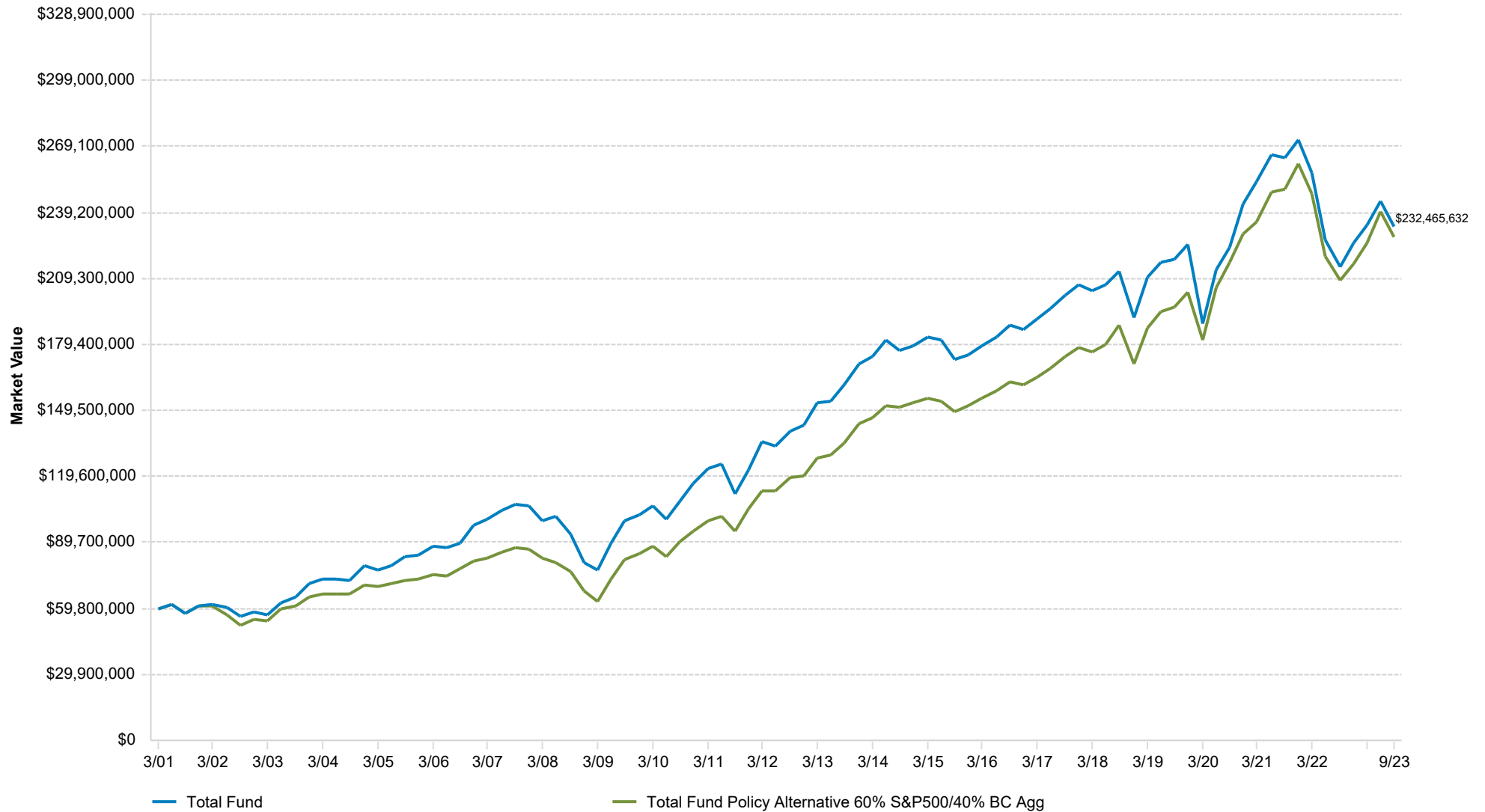
**Schedule of Investable Assets**

Periods Ending	Beginning Market Value \$	Net Cash Flow \$	Gain/Loss \$	Ending Market Value \$	%Return
Jan-2001 To Sep-2023	59,528,253	-26,975,025	199,912,405	232,465,632	275.41

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 Sep-2023	59,528,253	-26,975,025	199,912,405	232,465,632	275.41

Does not include Non-Measured Assets (NMA).



**Fee Analysis**  
**Total Fund**  
**As of September 30, 2023**

	Estimated Annual Fee (%)	Market Value (\$)	Estimated Annual Fee (\$)	Fee Schedule
Vanguard Inst'l Index Fund (VINIX)	0.03	39,189,243	11,757	0.03 % of Assets
Vanguard Growth Index (VIGIX)	0.04	12,514,964	5,006	0.04 % of Assets
Vanguard Value Index (VIVIX)	0.04	12,246,742	4,899	0.04 % of Assets
Vanguard Mid-Cap 400 Index Fund I (VSPMX)	0.08	24,354,501	19,484	0.08 % of Assets
Vanguard Small-Cap 600 Index I (VSM SX)	0.08	11,590,977	9,273	0.08 % of Assets
Vanguard Intl Value (VTRIX)	0.35	4,634,226	16,220	0.35 % of Assets
Vanguard Intl Growth (VWILX)	0.33	3,291,555	10,862	0.33 % of Assets
Vanguard FTSE AW ex-US SC Index (VFSNX)	0.11	5,866,533	6,453	0.11 % of Assets
Vanguard Developed Markets Index (VTMNX)	0.05	9,723,845	4,862	0.05 % of Assets
Vanguard Emerging Markets Index (VEMIX)	0.10	10,973,987	10,974	0.10 % of Assets
Vanguard Short Term Bond Index (VBIRX)	0.07	3,850,099	2,695	0.07 % of Assets
Vanguard Total Bond Index (VBTIX)	0.03	41,602,697	12,481	0.03 % of Assets
Vanguard High Yield Bond Fund (VWEAX)	0.13	24,065,653	31,285	0.13 % of Assets
Vanguard International Bond (VTIFX)	0.07	7,973,602	5,582	0.07 % of Assets
Vanguard EM Bond (VEGBX)	0.45	8,113,864	36,512	0.45 % of Assets
Vanguard Real Estate Index Fund (VGSNX)	0.10	11,760,647	11,761	0.10 % of Assets
<b>Total Fund Performance</b>	<b>0.09</b>	<b>232,465,632</b>	<b>200,105</b>	

Does not include Non-Measured Assets (NMA).  
Fee information on this page is an illustrative estimate of management fees based on current reported portfolio values. Fee estimates do not reflect actual calculation methodologies or applicable carried interest.



Quarter To Date	Market Value 07/01/2023	Management Fees	Net Flows	Return On Investment	Market Value 09/30/2023
<b>Domestic Equity</b>					
Vanguard Inst'l Index Fund (VINIX)	40,517,640	-	-	-1,328,397	39,189,243
Vanguard Value Index (VIVIX)	12,538,475	-	-	-291,733	12,246,742
Vanguard Small-Cap 600 Index I (VSM SX)	12,193,183	-	-	-602,206	11,590,977
Vanguard Mid-Cap 400 Index Fund I (VSPMX)	25,427,425	-	-	-1,072,924	24,354,501
Vanguard Growth Index (VIGIX)	12,994,020	-	-	-479,056	12,514,964
<b>International Equity</b>					
Vanguard Intl Value (VTRIX)	4,897,714	-	-	-263,488	4,634,226
Vanguard Intl Growth (VWILX)	3,623,925	-	-	-332,370	3,291,555
Vanguard FTSE AW ex-US SC Index (VFSNX)	6,071,553	-	-	-205,020	5,866,533
Vanguard Developed Markets Index (VTMNX)	10,200,527	-	-	-476,682	9,723,845
Vanguard Emerging Markets Index (VEMIX)	11,213,753	-	-	-239,765	10,973,987
<b>Fixed Income</b>					
Vanguard Short Term Bond Index (VBIRX)	3,844,172	-	-	5,927	3,850,099
Vanguard Total Bond Index (VBTIX)	42,925,946	-	-	-1,323,249	41,602,697
Vanguard High Yield Bond Fund (VWEAX)	24,114,726	-	-	-49,073	24,065,653
Vanguard International Bond (VTIFX)	8,091,904	-	-	-118,301	7,973,602
Vanguard EM Bond (VEGBX)	8,187,120	-	-	-73,257	8,113,864
<b>REIT</b>					
Vanguard Real Estate Index Fund (VGSNX)	12,853,432	-	-	-1,092,785	11,760,647
Disbursement & MF Cash	4,601,371	-	-3,931,330	42,456	712,497
<b>Total Fund Performance</b>	<b>244,296,886</b>	<b>-</b>	<b>-3,931,330</b>	<b>-7,899,924</b>	<b>232,465,632</b>
NMA	2,451,262	-	975,863	-	3,427,125
<b>Total Fund</b>	<b>246,748,149</b>	<b>-</b>	<b>-2,955,467</b>	<b>-7,899,924</b>	<b>235,892,757</b>

Year To Date	Market Value 01/01/2023	Management Fees	Net Flows	Return On Investment	Market Value 09/30/2023
<b>Domestic Equity</b>					
Vanguard Inst'l Index Fund (VINIX)	34,668,004	-	-	4,521,239	39,189,243
Vanguard Value Index (VIVIX)	14,189,986	-	-2,000,000	56,756	12,246,742
Vanguard Small-Cap 600 Index I (VSM SX)	11,501,932	-	-	89,045	11,590,977
Vanguard Mid-Cap 400 Index Fund I (VSPMX)	25,186,430	-	-2,000,000	1,168,072	24,354,501
Vanguard Growth Index (VIGIX)	9,754,505	-	-	2,760,459	12,514,964
<b>International Equity</b>					
Vanguard Intl Value (VTRIX)	4,359,758	-	-	274,467	4,634,226
Vanguard Intl Growth (VWILX)	3,193,010	-	-	98,545	3,291,555
Vanguard FTSE AW ex-US SC Index (VFSNX)	5,623,130	-	-	243,403	5,866,533
Vanguard Developed Markets Index (VTMNX)	9,174,392	-	-	549,453	9,723,845
Vanguard Emerging Markets Index (VEMIX)	10,707,303	-	-	266,684	10,973,987
<b>Fixed Income</b>					
Vanguard Short Term Bond Index (VBIRX)	3,795,614	-	-	54,484	3,850,099
Vanguard Total Bond Index (VBTIX)	41,986,723	-	-	-384,026	41,602,697
Vanguard High Yield Bond Fund (VWEAX)	23,109,650	-	-	956,004	24,065,653
Vanguard International Bond (VTIFX)	7,801,035	-	-	172,567	7,973,602
Vanguard EM Bond (VEGBX)	7,786,237	-	-	327,627	8,113,864
<b>REIT</b>					
Vanguard Real Estate Index Fund (VGSNX)	12,424,512	-	-	-663,866	11,760,647
Disbursement & MF Cash	39,388	-	579,097	94,012	712,497
<b>Total Fund Performance</b>	<b>225,301,609</b>	<b>-</b>	<b>-3,420,903</b>	<b>10,584,926</b>	<b>232,465,632</b>
NMA	1,198,200	-	2,228,925	-	3,427,125
<b>Total Fund</b>	<b>226,499,809</b>	<b>-</b>	<b>-1,191,978</b>	<b>10,584,926</b>	<b>235,892,757</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.





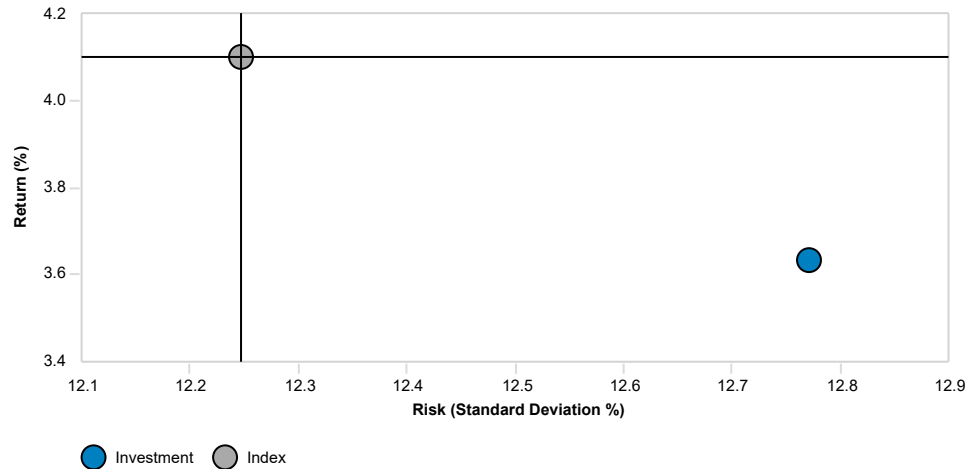
### Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	3.63	12.77	0.21	103.26	7	106.89	5
Index	4.10	12.25	0.25	100.00	7	100.00	5

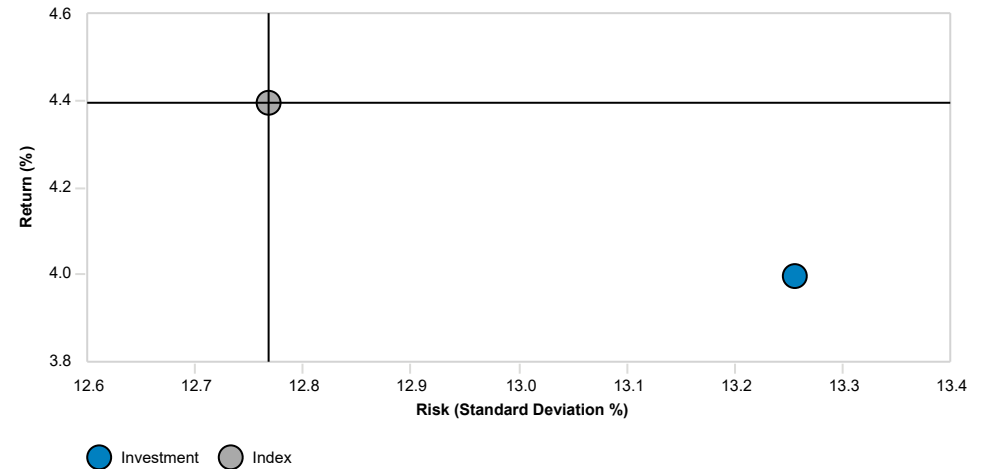
### Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	4.00	13.26	0.23	102.60	13	105.57	7
Index	4.40	12.77	0.27	100.00	13	100.00	7

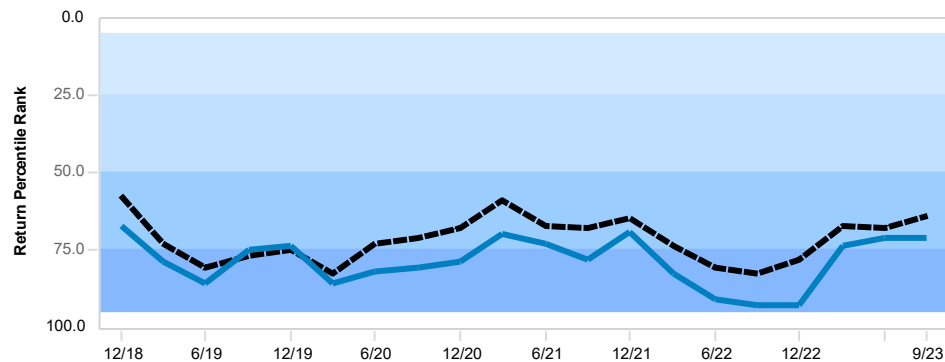
### Risk and Return 3 Years



### Risk and Return 5 Years

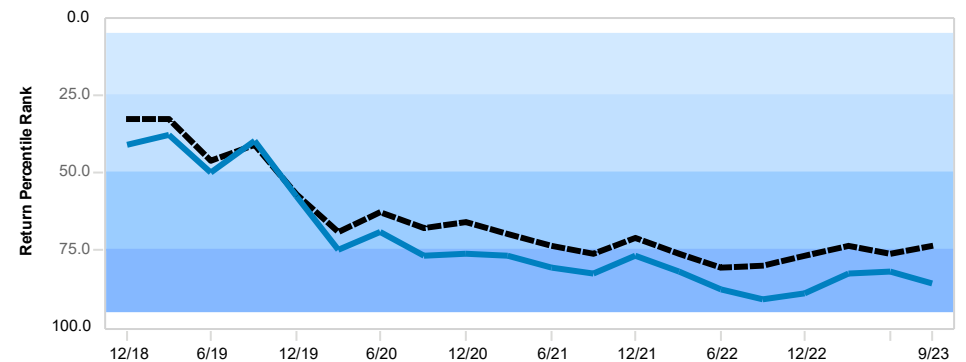


### 3 Year Rolling Percentile Rank All Public Plans-Total Fund



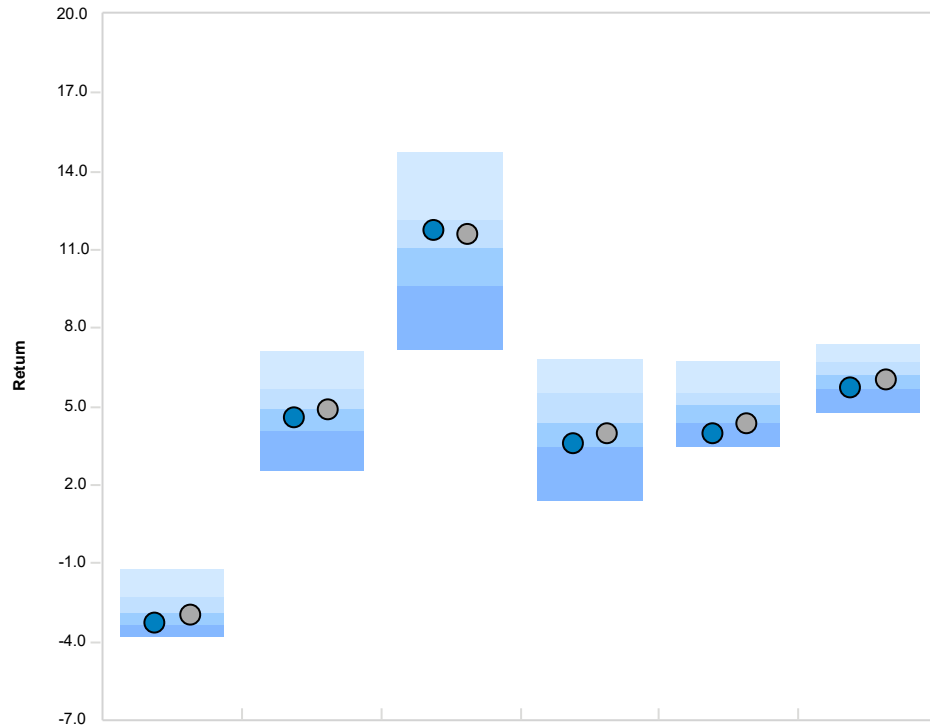
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	0 (0%)	0 (0%)	9 (45%)	11 (55%)
Index	20	0 (0%)	0 (0%)	14 (70%)	6 (30%)

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

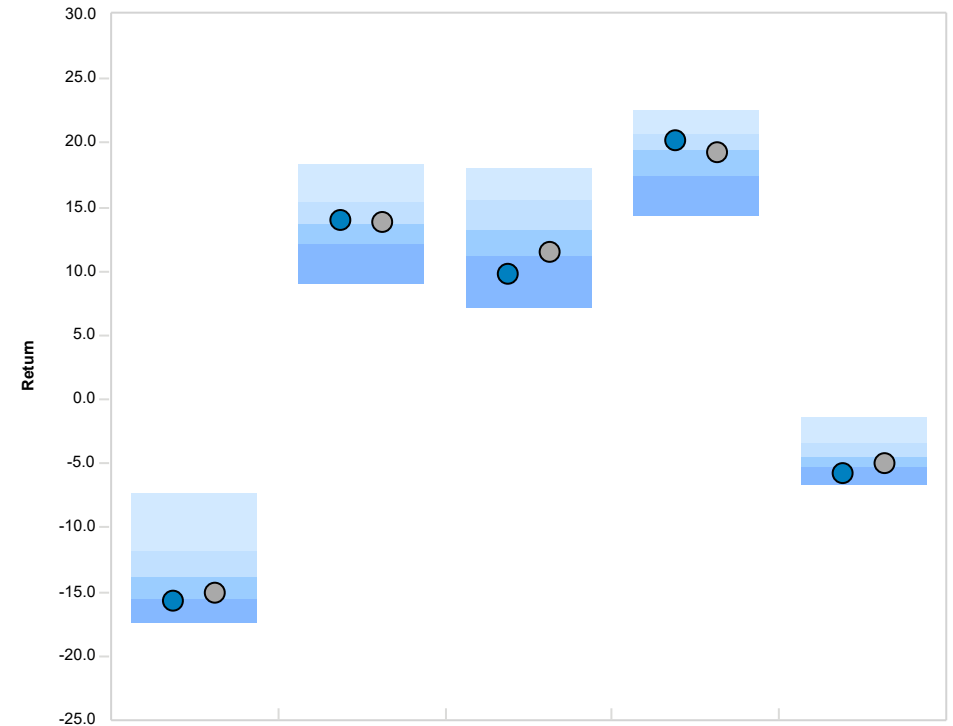


	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	0 (0%)	4 (20%)	3 (15%)	13 (65%)
Index	20	0 (0%)	4 (20%)	10 (50%)	6 (30%)

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 September 30, 2023

	Market Value 04/01/2001	Net Flows	Return On Investment	Market Value 09/30/2023
Investment	59,528,253	-27,821,066	200,758,445	232,465,632

Comparative Performance

	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022
Investment	3.29	4.72	6.81	-5.15	-11.85	-5.51
Index	3.29	4.60	6.41	-4.91	-11.37	-5.06

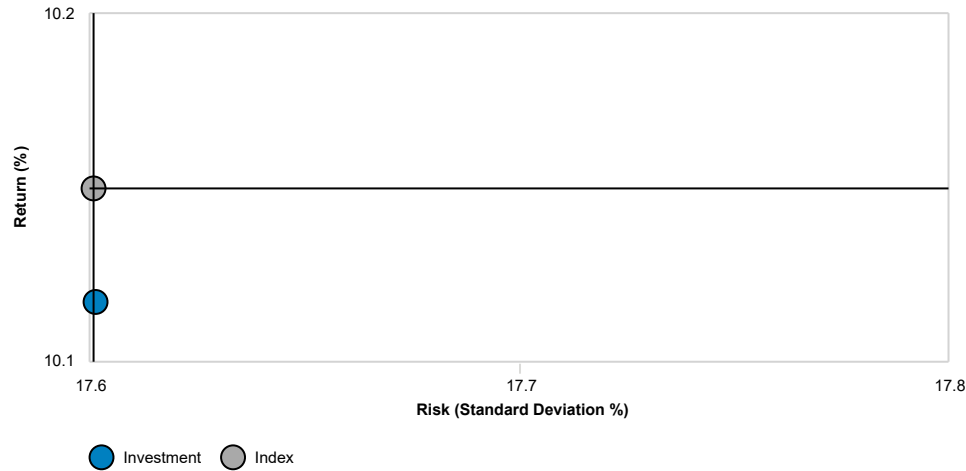
### Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	10.12	17.60	0.54	99.95	8	100.06	4
Index	10.15	17.60	0.54	100.00	8	100.00	4

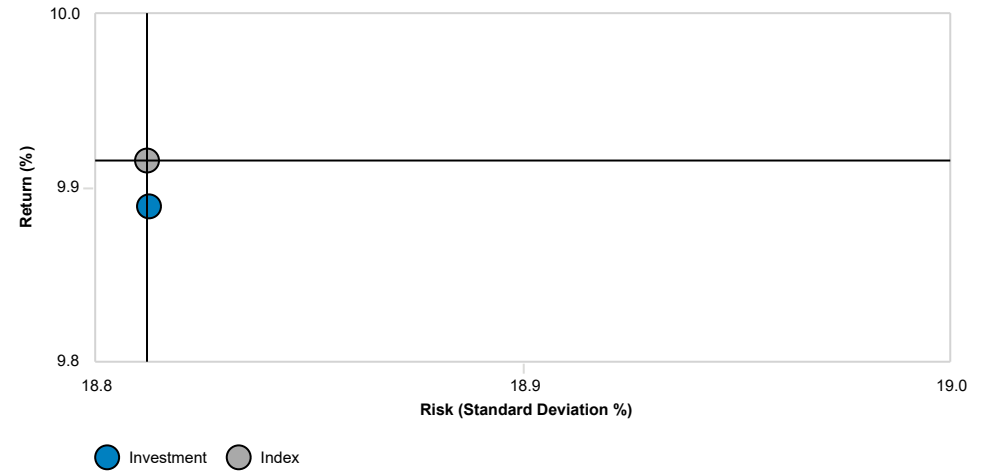
### Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	9.89	18.81	0.51	99.96	14	100.05	6
Index	9.92	18.81	0.51	100.00	14	100.00	6

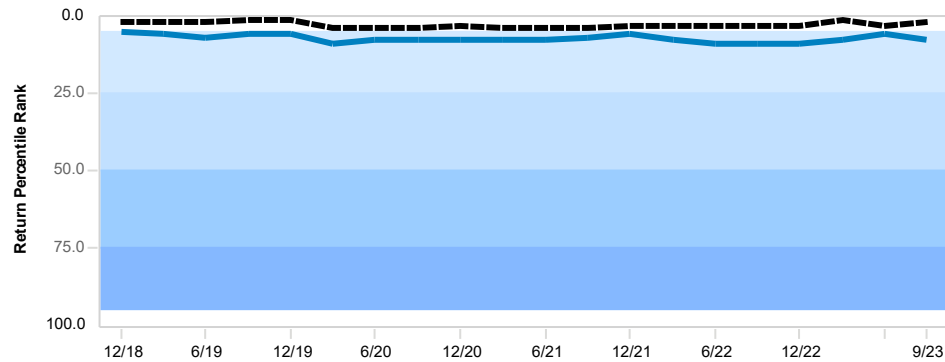
### Risk and Return 3 Years



### Risk and Return 5 Years

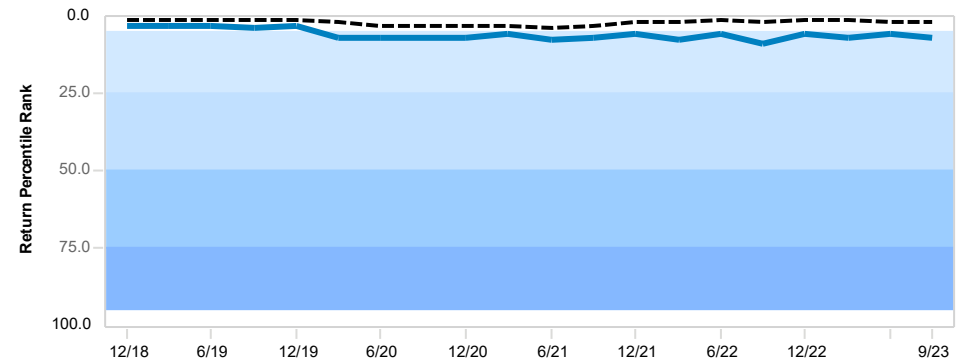


### 3 Year Rolling Percentile Rank IM S&P 500 Index (MF)



	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)

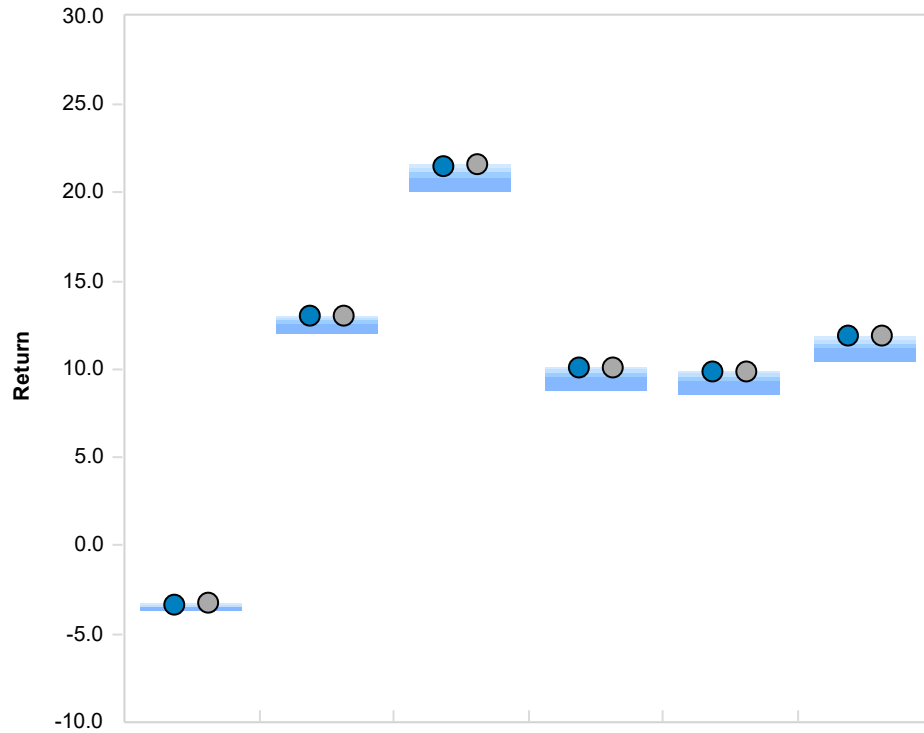


	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	20 (100%)	0 (0%)	0 (0%)	0 (0%)
Index	20	20 (100%)	0 (0%)	0 (0%)	0 (0%)

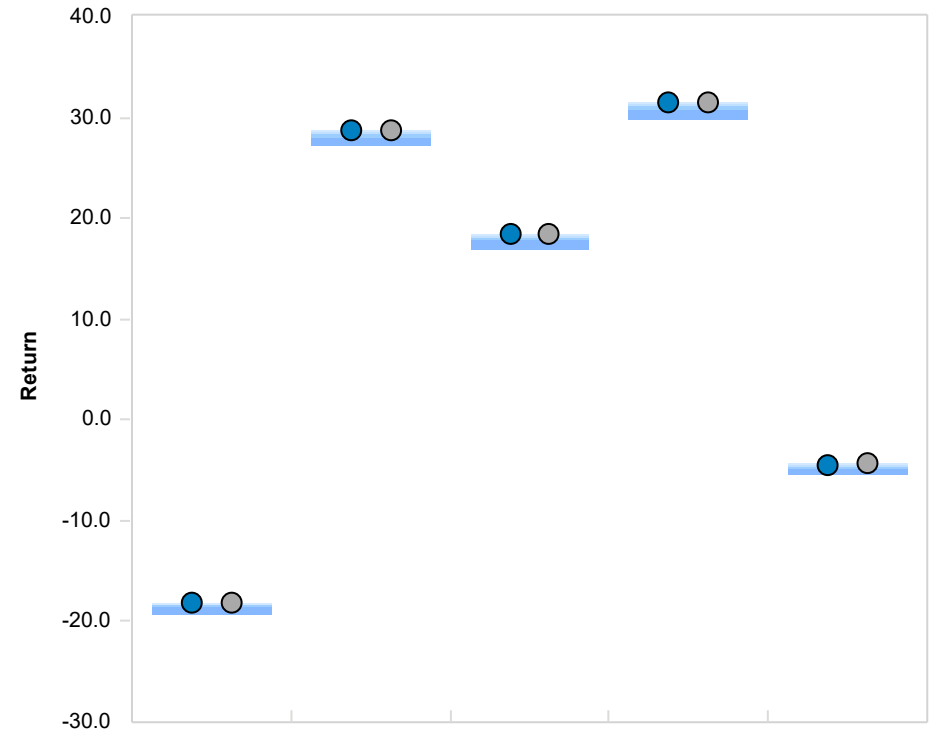
Inception date for VINIX is 12/2020. Manager returns for VINIX have been used for this report.



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



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



**Financial Reconciliation Since Inception Ending September 30, 2023**

No data found.

**Comparative Performance**

	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022
Investment	8.73 (15)	7.49 (13)	7.55 (15)	-4.89 (16)	-16.11 (14)	-4.60 (9)
Index	8.74 (8)	7.50 (5)	7.56 (8)	-4.88 (5)	-16.10 (8)	-4.60 (6)
Median	8.65	7.43	7.46	-4.94	-16.17	-4.68

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 :	\$255,403 Million
Fund Family :	Vanguard	Portfolio Manager :	Butler/Louie/Birkett
Ticker :	VINIX	PM Tenure :	2000--2017--2023
Inception Date :	07/31/1990	Fund Style :	IM S&P 500 Index (MF)
Fund Assets :	\$107,848 Million	Style Benchmark :	S&P 500 Index
Portfolio Turnover :	3%		

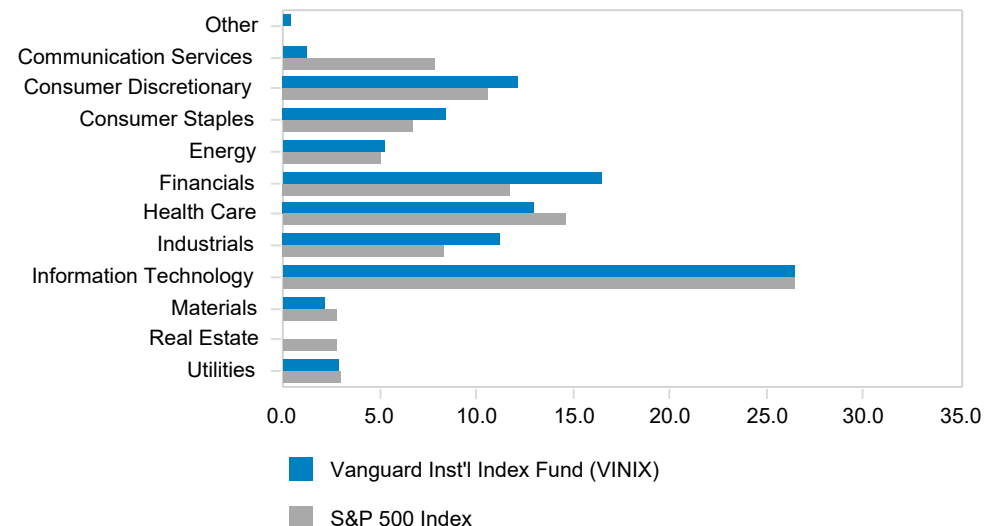
### Portfolio Characteristics As of 01/31/2023

	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

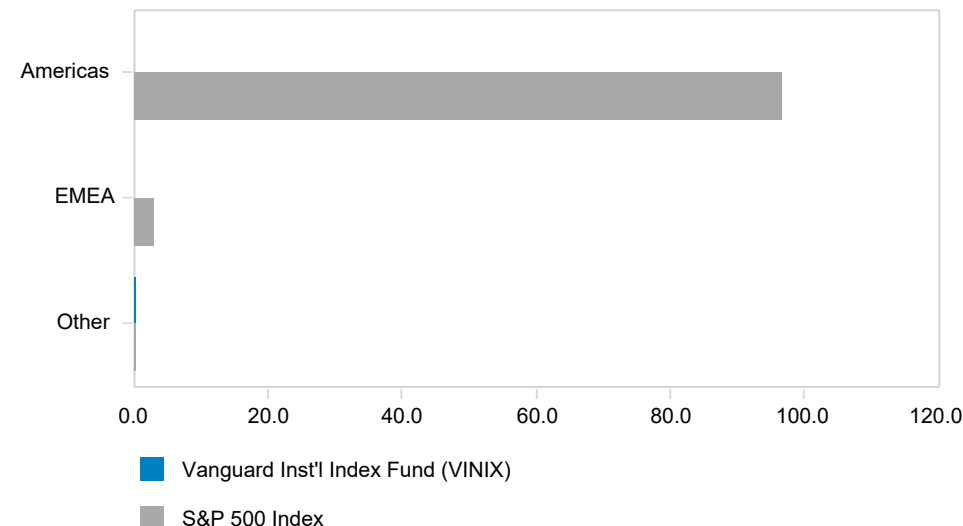
### Top Ten Securities As of 01/31/2023

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.



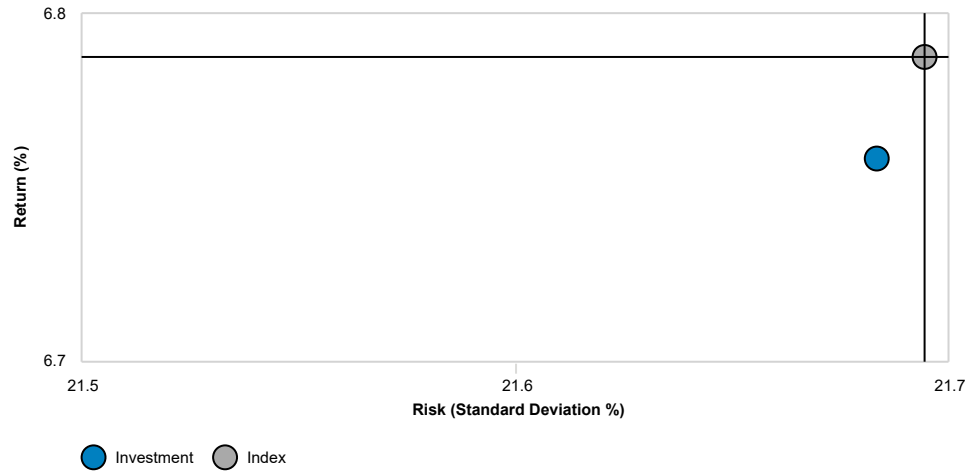
### Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	6.76	21.68	0.33	99.91	7	100.00	5
Index	6.79	21.69	0.34	100.00	7	100.00	5

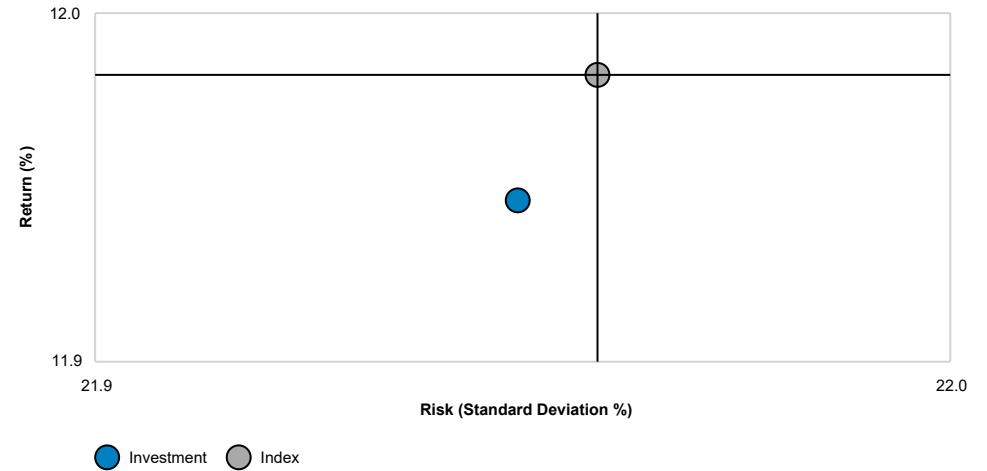
### Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	11.95	21.95	0.55	99.92	13	100.01	7
Index	11.98	21.96	0.55	100.00	13	100.00	7

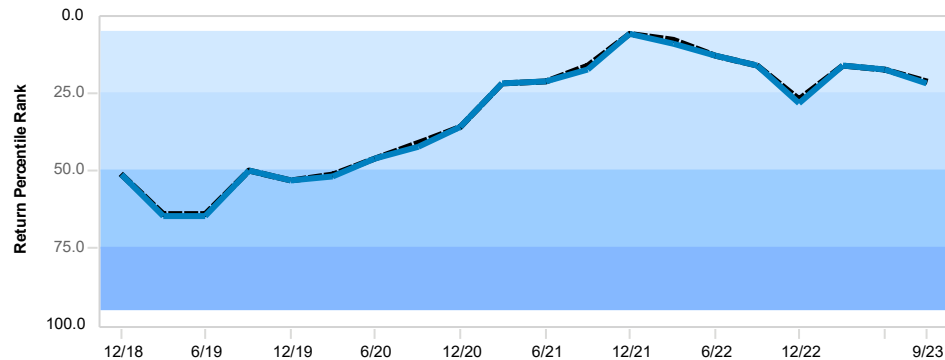
### Risk and Return 3 Years



### Risk and Return 5 Years

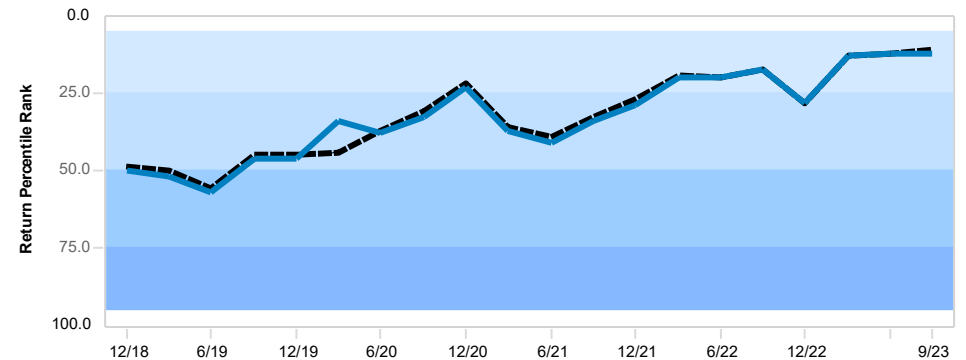


### 3 Year Rolling Percentile Rank IM U.S. Large Cap Growth Equity (MF)



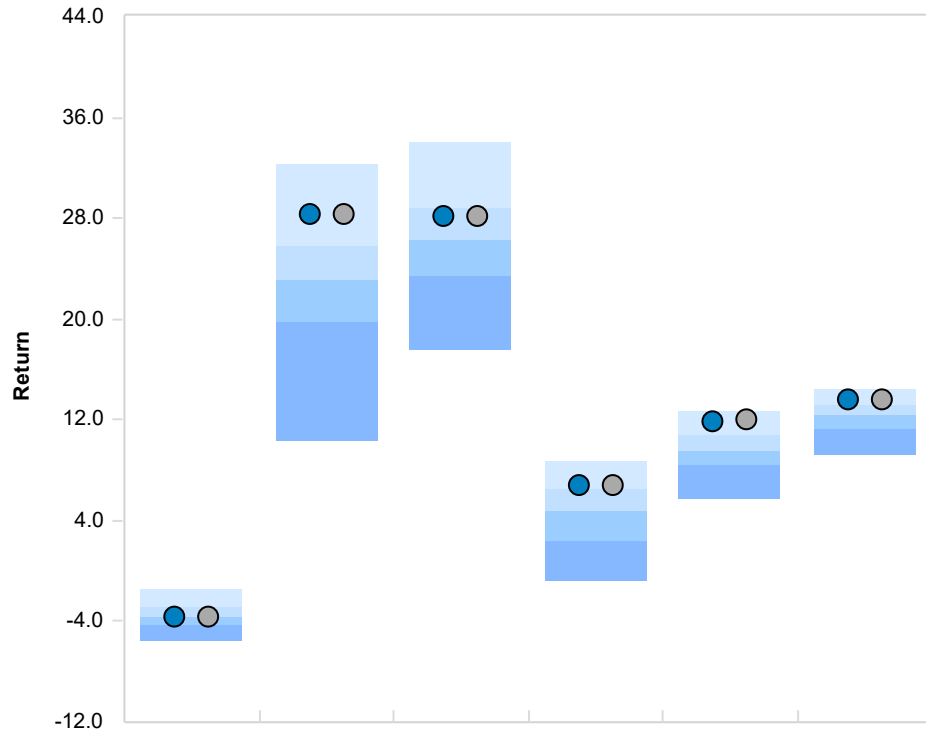
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	10 (50%)	5 (25%)	5 (25%)	0 (0%)
Index	20	10 (50%)	5 (25%)	5 (25%)	0 (0%)

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

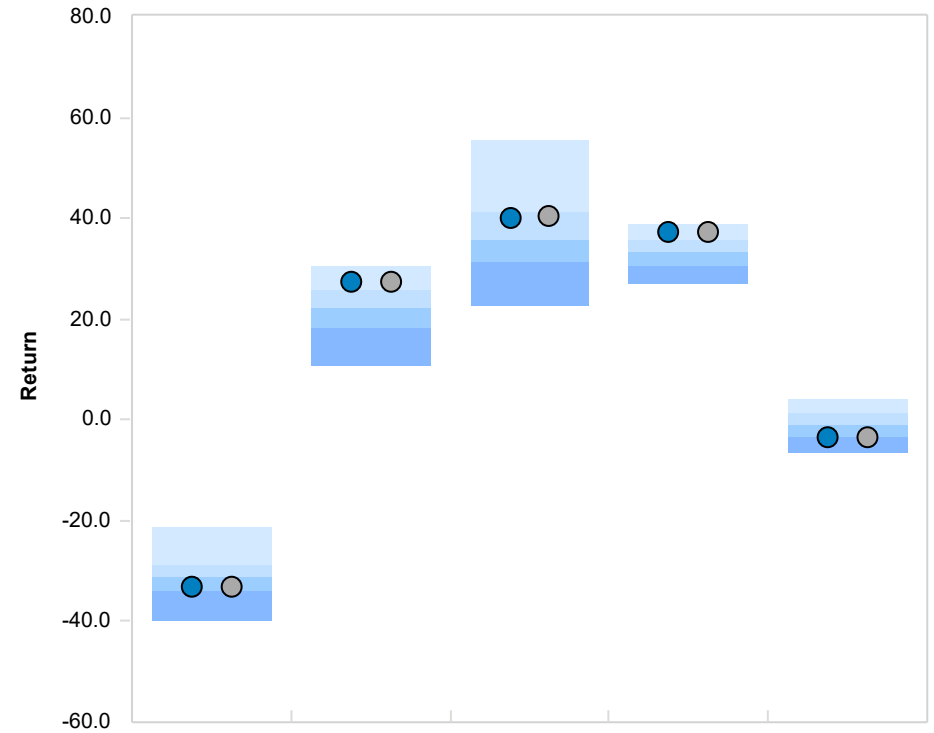


	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	7 (35%)	11 (55%)	2 (10%)	0 (0%)
Index	20	7 (35%)	12 (60%)	1 (5%)	0 (0%)

**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 September 30, 2023**

	Market Value 05/01/2010	Net Flows	Return On Investment	Market Value 09/30/2023
Investment	16,642,537	-27,644,975	23,517,402	12,514,964

**Comparative Performance**

	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022
Investment	13.61	17.25	-0.15	-3.79	-22.41	-10.29
Index	13.63	17.27	-0.15	-3.78	-22.42	-10.28



# 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 : \$25,482 Million  
 Portfolio Turnover : 5%

Portfolio Assets : \$179,843 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

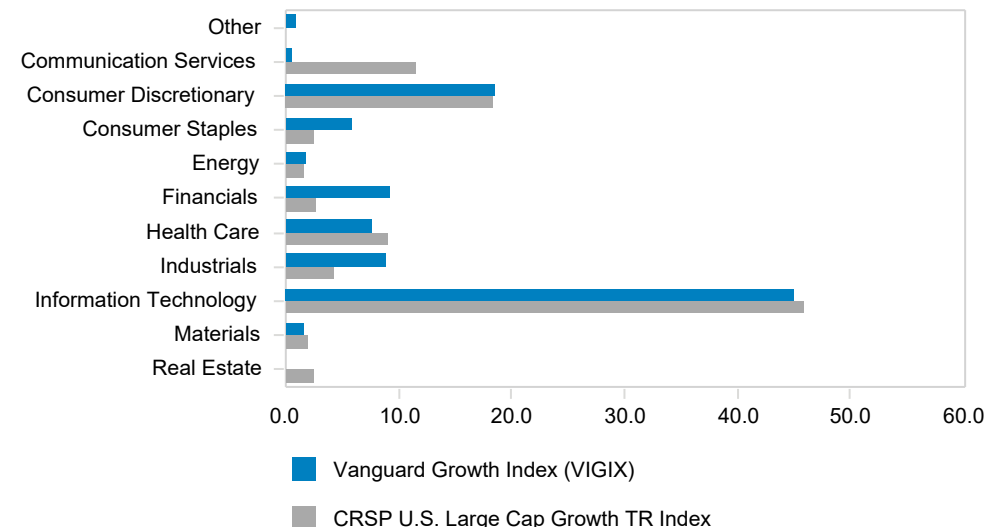
## Portfolio Characteristics As of 01/31/2023

	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

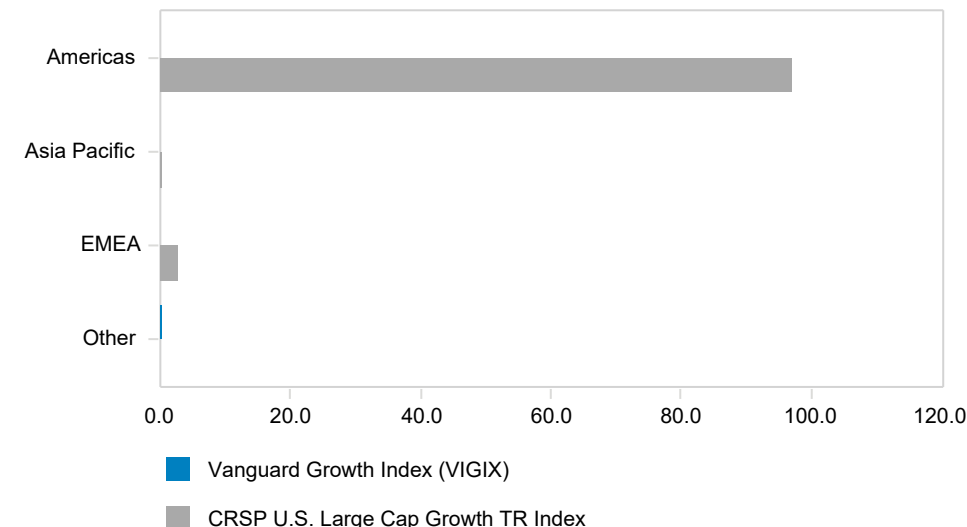
## Top Ten Securities As of 01/31/2023

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





### Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	12.42	16.66	0.68	99.93	7	100.01	5
Index	12.45	16.66	0.68	100.00	7	100.00	5

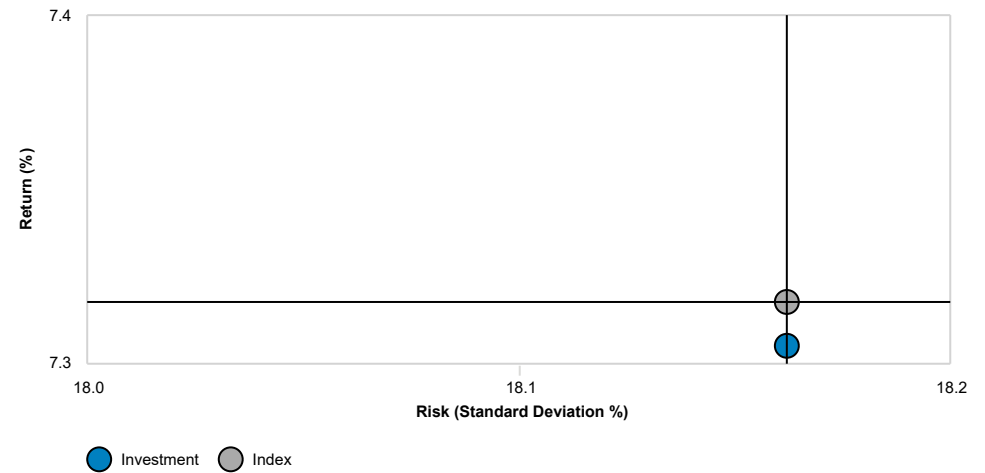
### Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	7.31	18.16	0.38	99.98	13	100.03	7
Index	7.32	18.16	0.39	100.00	13	100.00	7

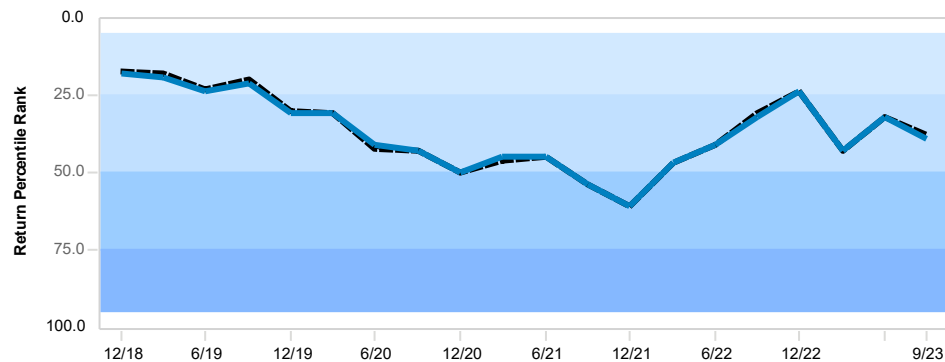
### Risk and Return 3 Years



### Risk and Return 5 Years

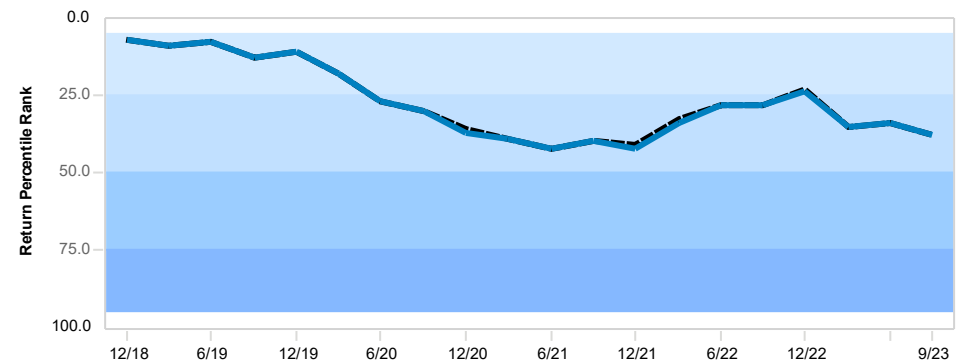


### 3 Year Rolling Percentile Rank IM U.S. Large Cap Value Equity (MF)



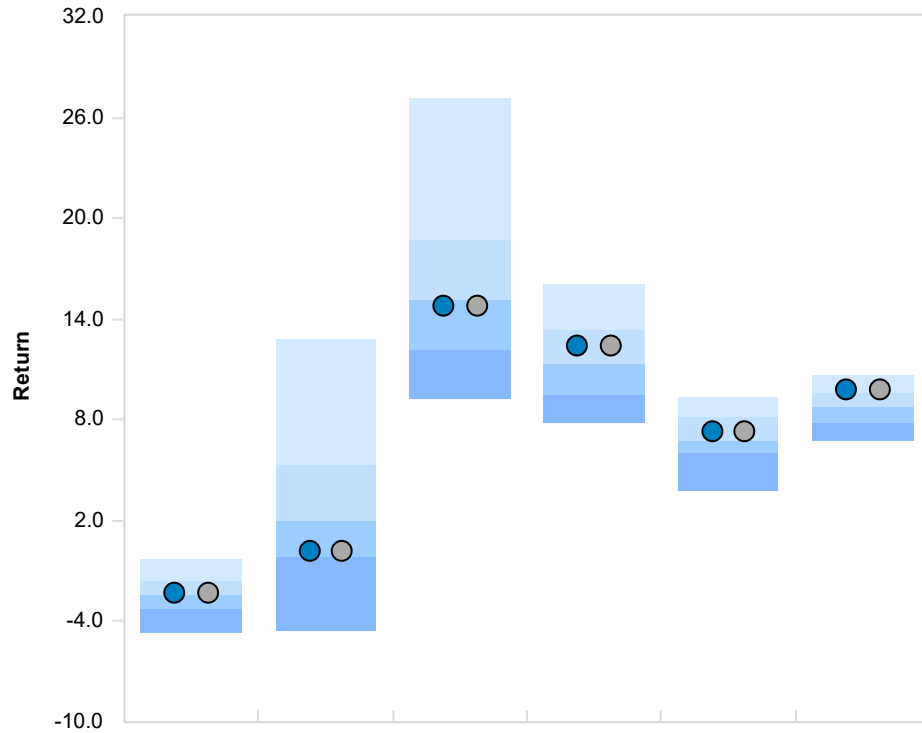
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	5 (25%)	13 (65%)	2 (10%)	0 (0%)
Index	20	5 (25%)	13 (65%)	2 (10%)	0 (0%)

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

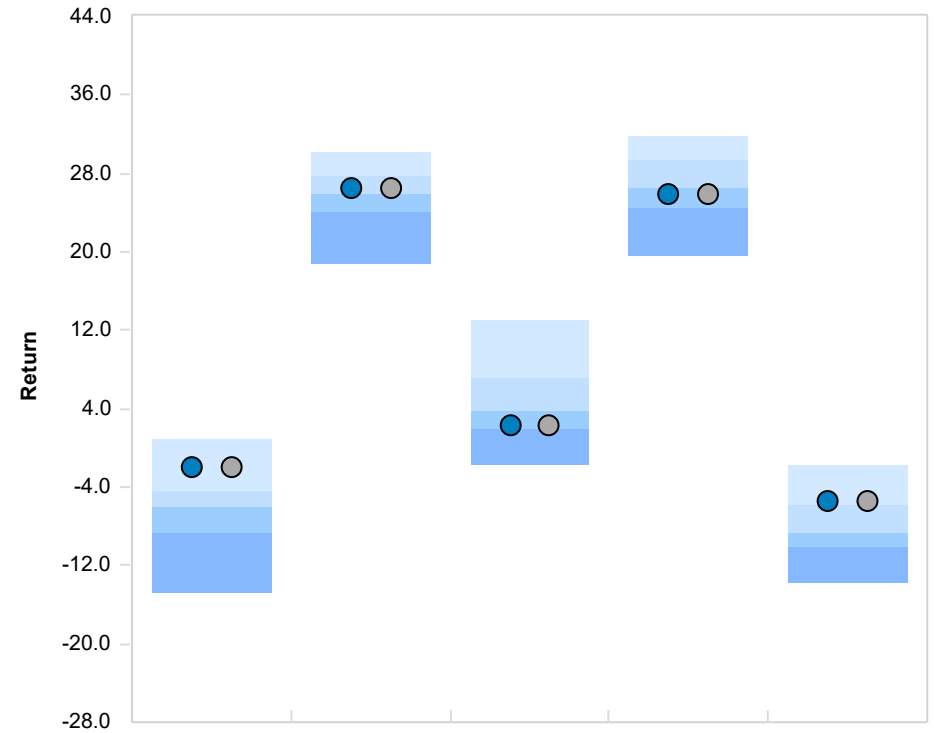


	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	7 (35%)	13 (65%)	0 (0%)	0 (0%)
Index	20	7 (35%)	13 (65%)	0 (0%)	0 (0%)

**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 September 30, 2023**

	Market Value 07/01/2009	Net Flows	Return On Investment	Market Value 09/30/2023
Investment	1,021,656	-2,963,564	14,188,650	12,246,742

**Comparative Performance**

	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022
Investment	3.57	-1.00	14.67	-5.74	-10.27	0.99
Index	3.57	-1.00	14.68	-5.72	-10.27	1.00



### Fund Information

Fund Name : Vanguard Index Funds: Vanguard Value Index Fund; Institutional Shares  
Fund Family : Vanguard  
Ticker : VIVIX  
Inception Date : 07/02/1998  
Fund Assets : \$15,355 Million  
Portfolio Turnover : 5%

Portfolio Assets : \$147,357 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

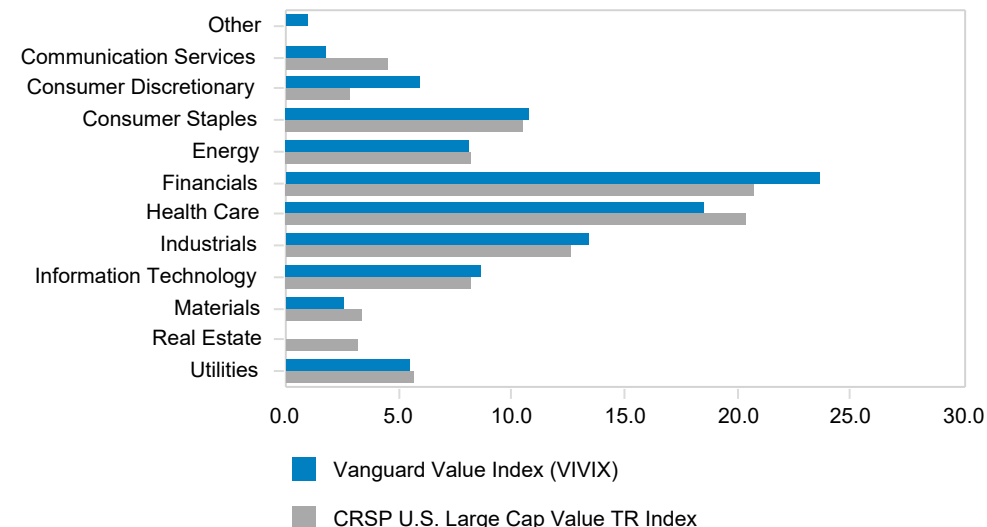
### Portfolio Characteristics As of 01/31/2023

	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

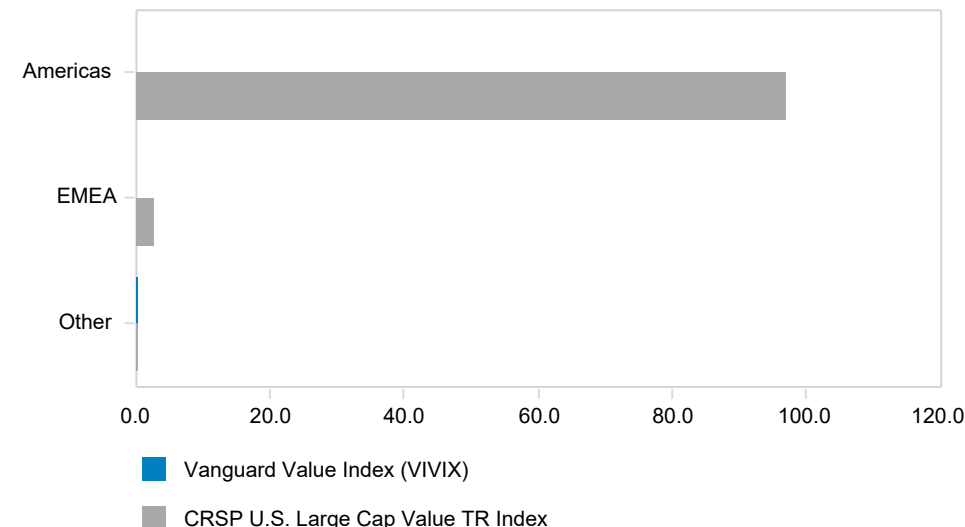
### Top Ten Securities As of 01/31/2023

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



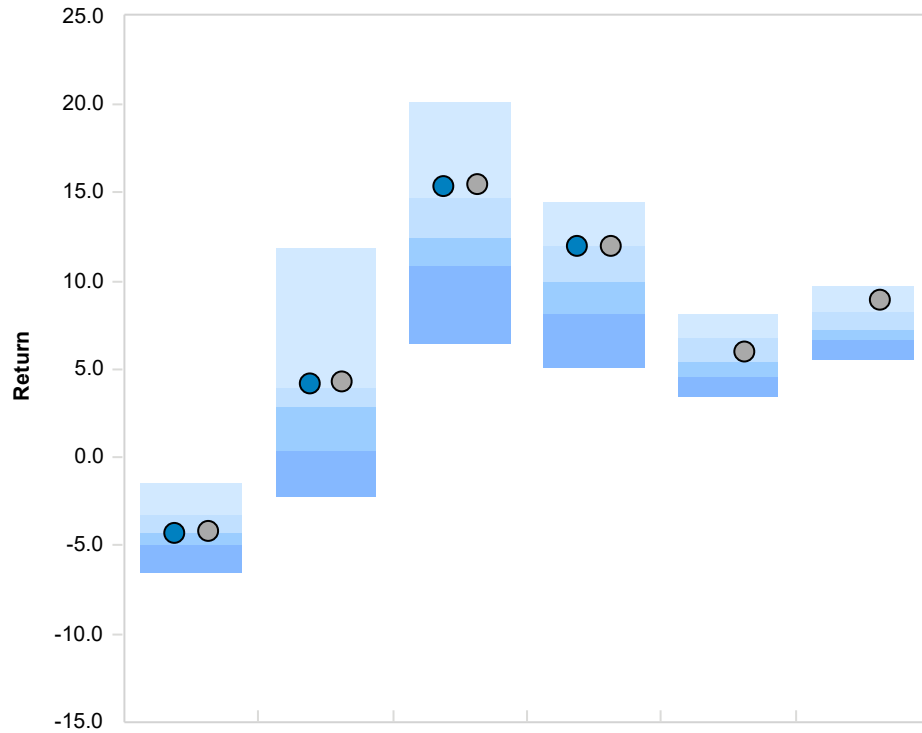
### Region Weights As of 01/31/2023



Statistics provided by Lipper. Most recent available data shown.

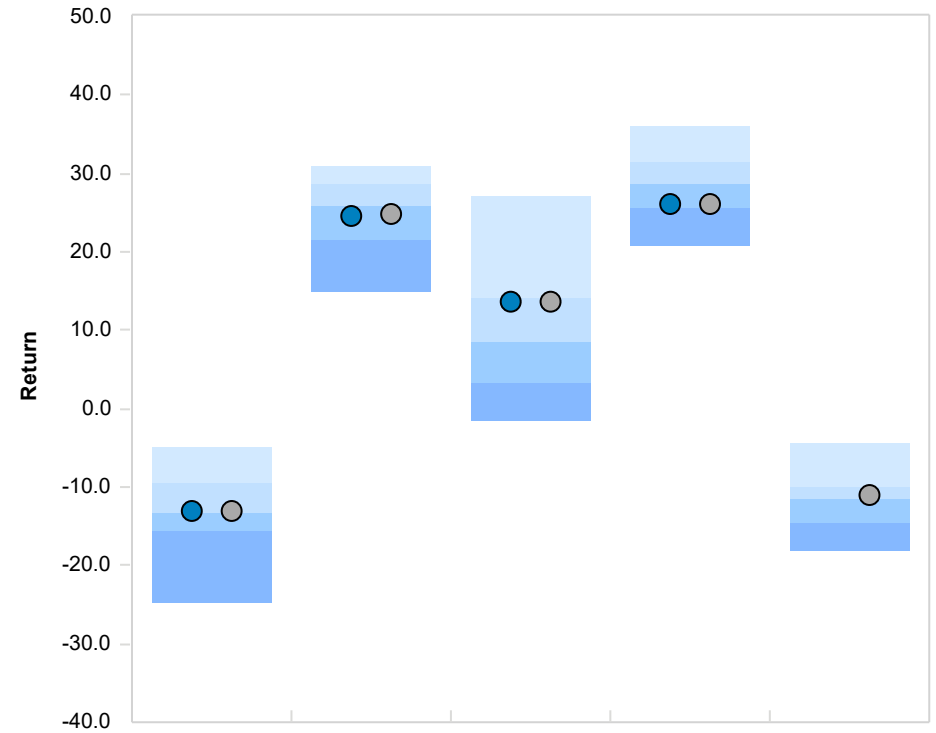


**Peer Group Analysis - IM U.S. Mid Cap Core Equity (MF)**



	QTR	YTD	1 YR	3 YR	5 YR	10 YR
Investment	-4.22 (51)	4.22 (24)	15.44 (22)	11.98 (27)	N/A	N/A
Index	-4.20 (49)	4.27 (24)	15.51 (22)	12.05 (25)	6.06 (39)	8.94 (15)
Median	-4.22	2.84	12.45	9.99	5.42	7.31

**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 September 30, 2023**

	Market Value 12/01/2018	Net Flows	Return On Investment	Market Value 09/30/2023
Investment	21,384,601	-6,500,000	9,469,900	24,354,501

**Comparative Performance**

	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022
Investment	4.83 (39)	3.79 (30)	10.77 (35)	-2.46 (14)	-15.43 (77)	-4.89 (59)
Index	4.85 (38)	3.81 (30)	10.78 (35)	-2.46 (14)	-15.42 (77)	-4.88 (58)
Median	4.65	2.31	9.63	-4.32	-13.63	-4.08



### 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 : \$1,491 Million  
Portfolio Turnover : 11%

Portfolio Assets : \$3,043 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

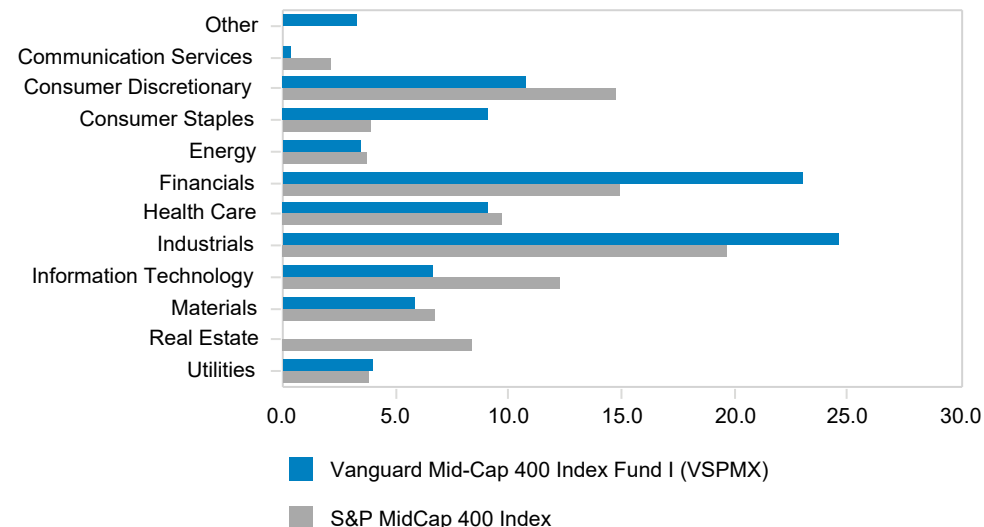
### Portfolio Characteristics As of 01/31/2023

	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

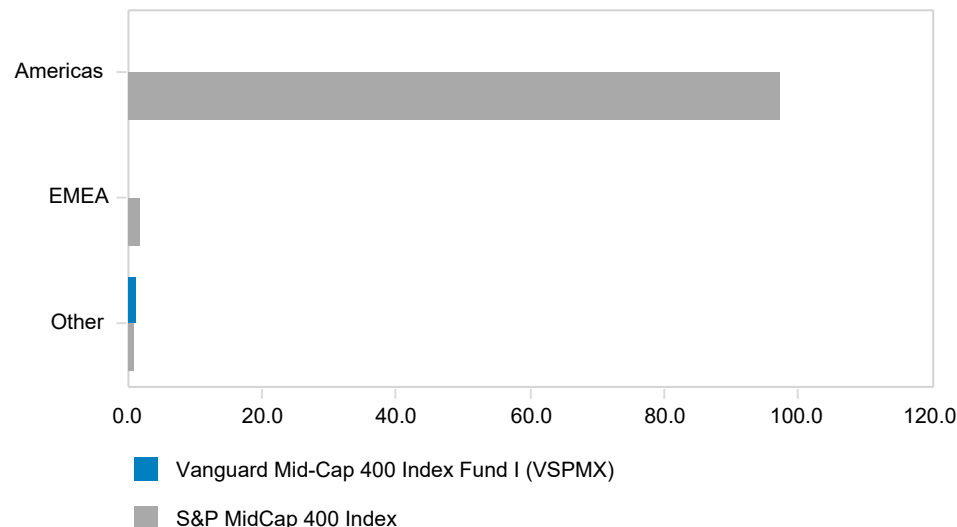
### Top Ten Securities As of 01/31/2023

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



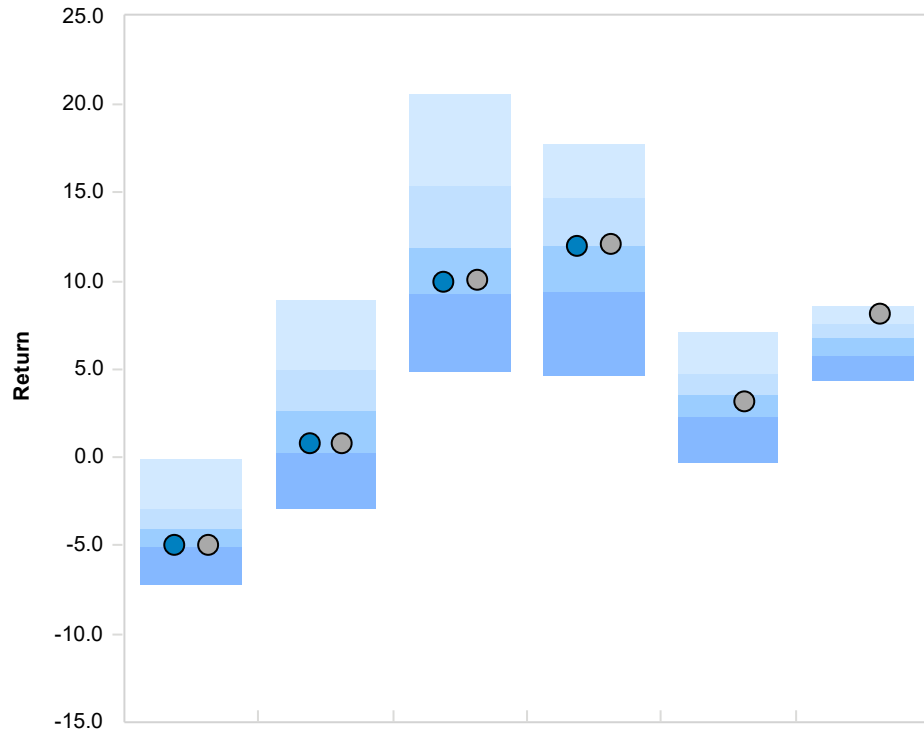
### Region Weights As of 01/31/2023



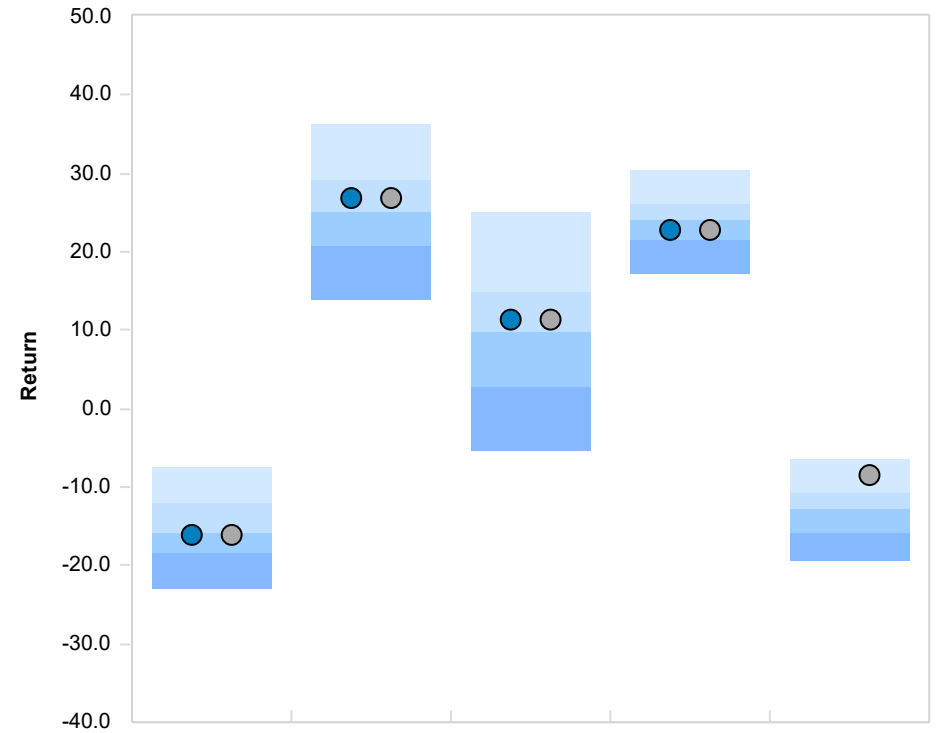
Statistics provided by Lipper. Most recent available data shown.



**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 September 30, 2023**

	Market Value 12/01/2018	Net Flows	Return On Investment	Market Value 09/30/2023
Investment	10,695,104	-2,500,000	3,395,872	11,590,977

**Comparative Performance**

	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022
Investment	3.37 (67)	2.55 (54)	9.17 (58)	-5.22 (69)	-14.14 (42)	-5.65 (51)
Index	3.38 (66)	2.57 (53)	9.19 (57)	-5.20 (68)	-14.11 (41)	-5.62 (50)
Median	3.95	2.71	9.65	-4.48	-14.56	-5.65



### Fund Information

Fund Name :	Vanguard Admiral Funds: Vanguard S&P Small-Cap 600 Index Fund; Institutional Shares	Portfolio Assets :	\$4,074 Million
Fund Family :	Vanguard	Portfolio Manager :	Butler/Narzikul/Birkett
Ticker :	VSMSX	PM Tenure :	2015--2023--2023
Inception Date :	12/15/2010	Fund Style :	IM U.S. Small Cap Core Equity (MF)
Fund Assets :	\$1,929 Million	Style Benchmark :	S&P SmallCap 600 Index
Portfolio Turnover :	12%		

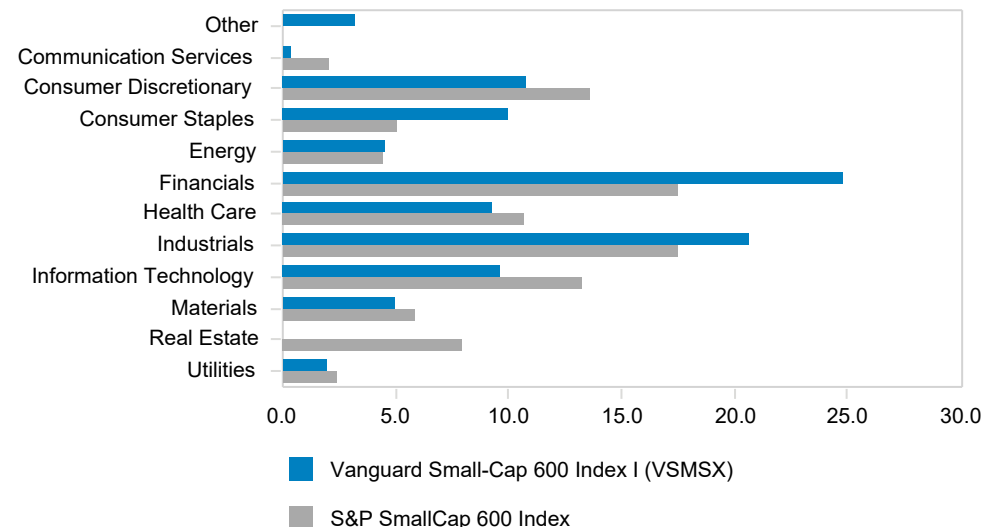
### Portfolio Characteristics As of 01/31/2023

	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

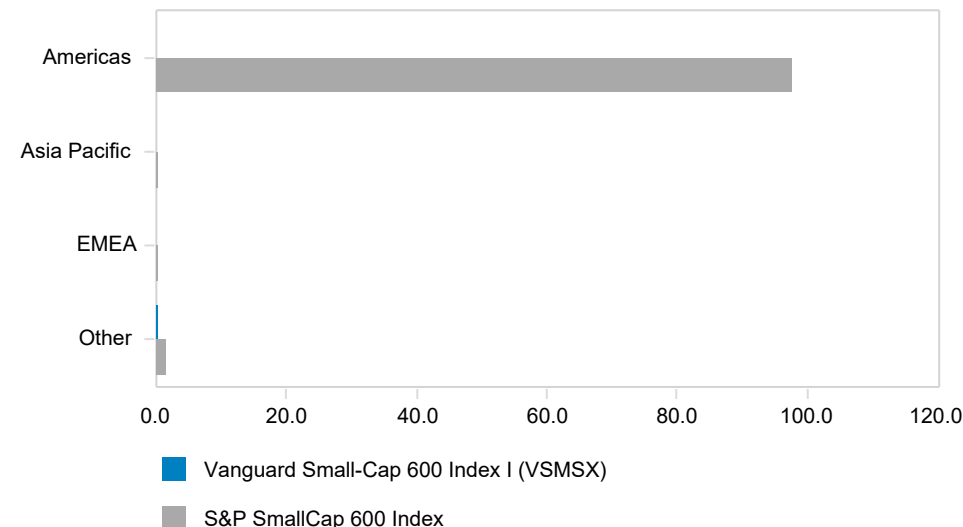
### Top Ten Securities As of 01/31/2023

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.



**Strategy Review**  
**Vanguard Developed Markets Index (VTMNX) | Vanguard Spliced Developed ex U.S. Index (Net)**  
As of September 30, 2023

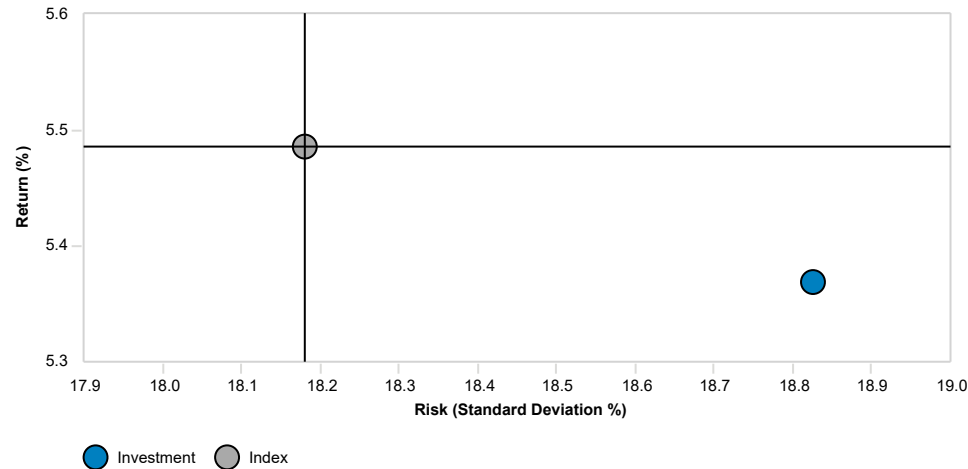
### Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	5.37	18.83	0.28	104.98	7	106.59	5
Index	5.49	18.18	0.29	100.00	7	100.00	5

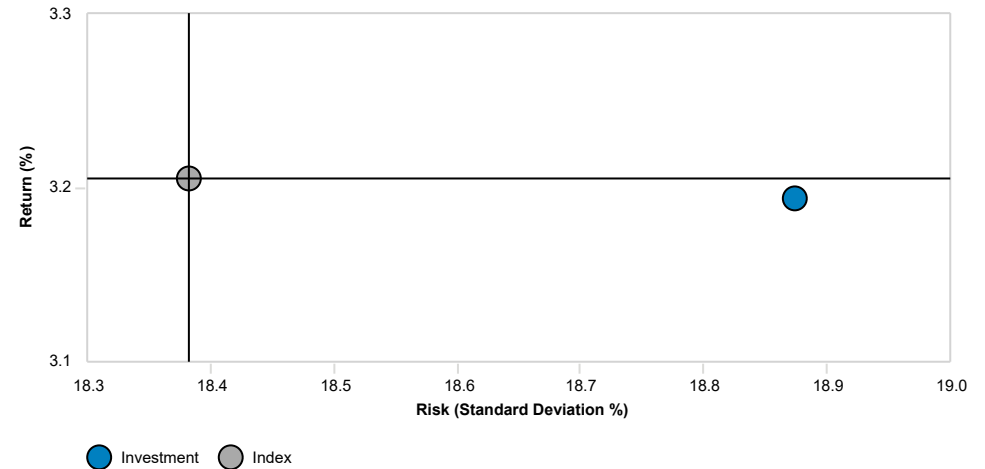
### Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	3.19	18.87	0.17	103.67	12	104.10	8
Index	3.21	18.38	0.17	100.00	12	100.00	8

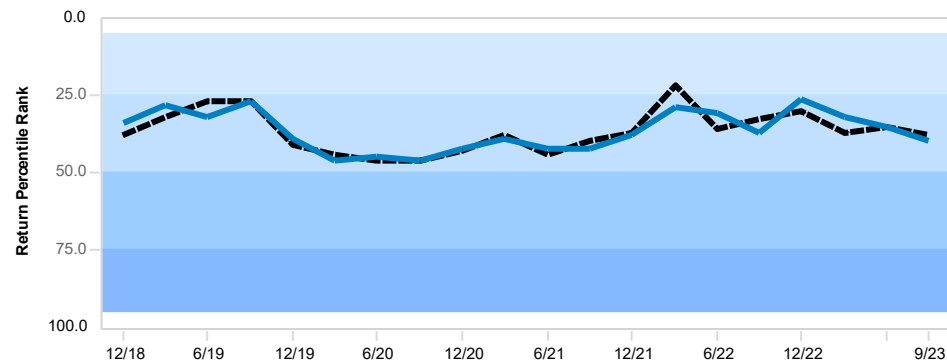
### Risk and Return 3 Years



### Risk and Return 5 Years

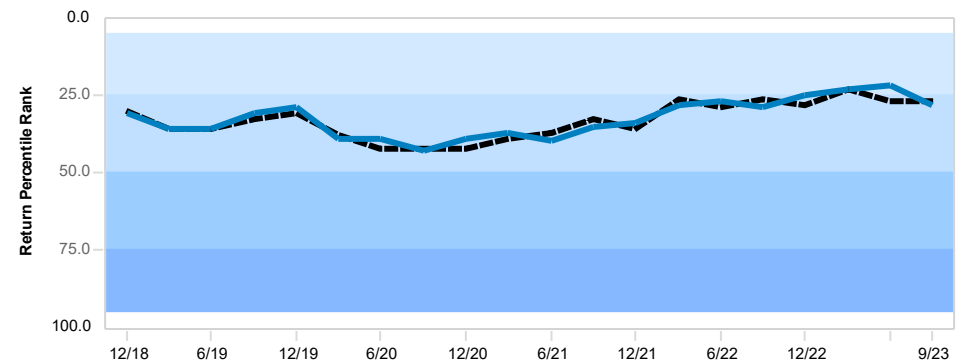


### 3 Year Rolling Percentile Rank IM International Multi-Cap Equity (MF)



	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)

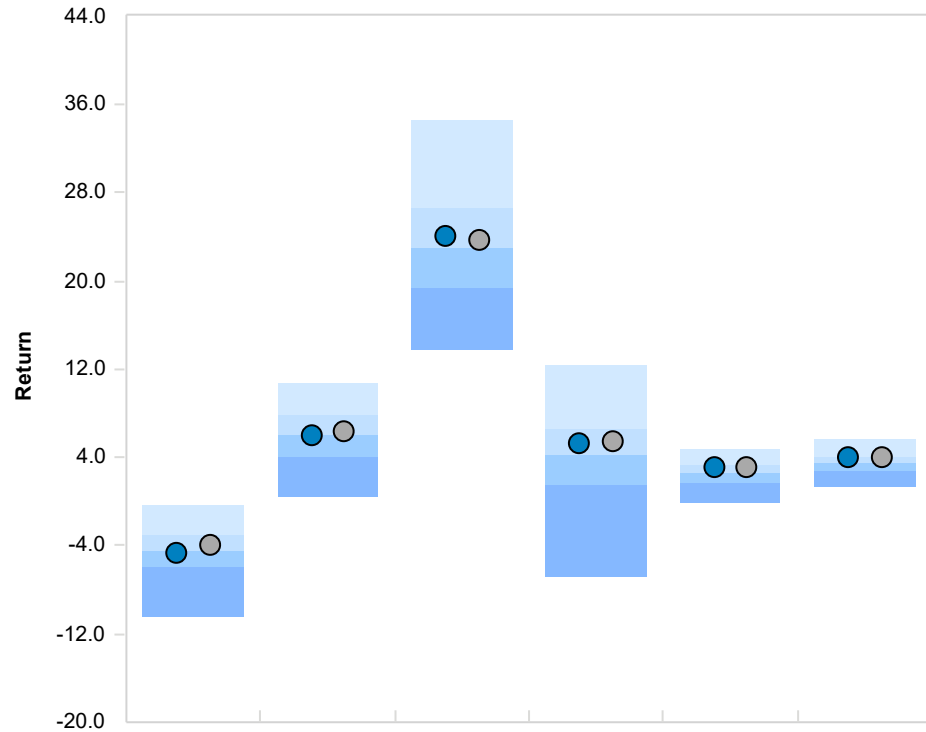


	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	3 (15%)	17 (85%)	0 (0%)	0 (0%)
Index	20	1 (5%)	19 (95%)	0 (0%)	0 (0%)

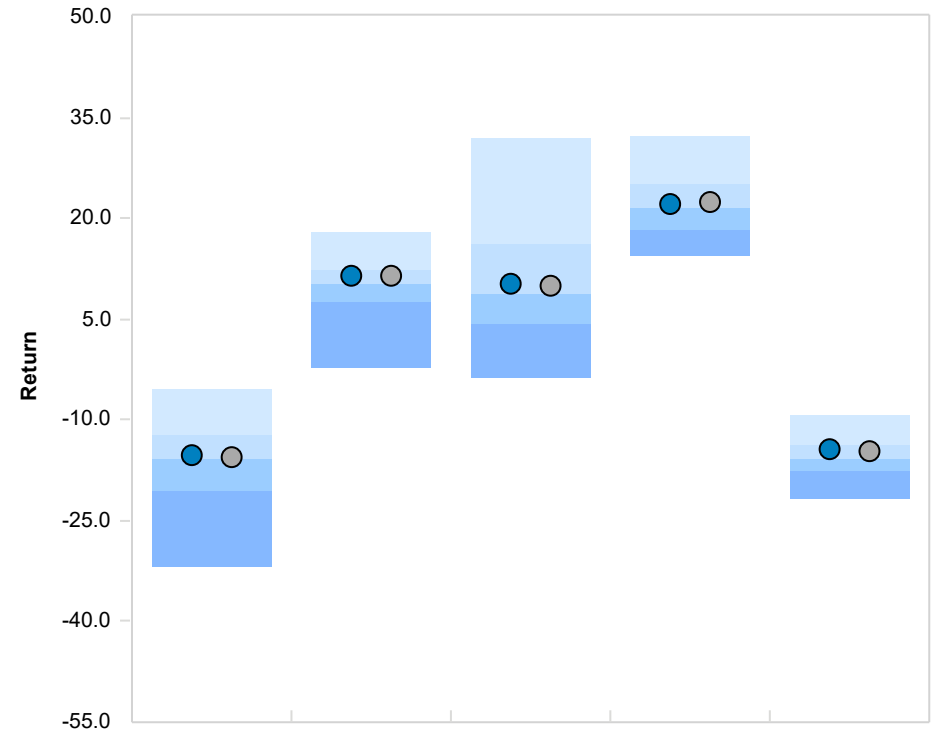




**Peer Group Analysis - IM International Multi-Cap Equity (MF)**



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



**Financial Reconciliation Since Inception Ending September 30, 2023**

	Market Value 07/01/2009	Net Flows	Return On Investment	Market Value 09/30/2023
Investment	253,831	45,927	9,424,087	9,723,845

**Comparative Performance**

	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022
Investment	3.15	7.79	17.10	-10.49	-14.04	-6.04
Index	3.00	7.62	16.28	-9.59	-15.23	-5.27



### 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 : \$13,914 Million  
Portfolio Turnover : 4%

Portfolio Assets : \$162,868 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)

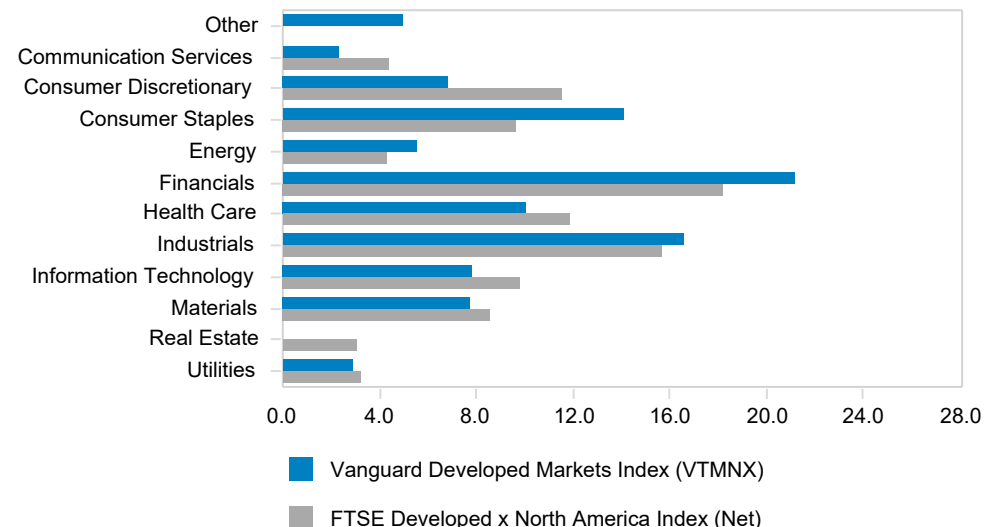
### Portfolio Characteristics As of 01/31/2023

	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)	1.04	1.00

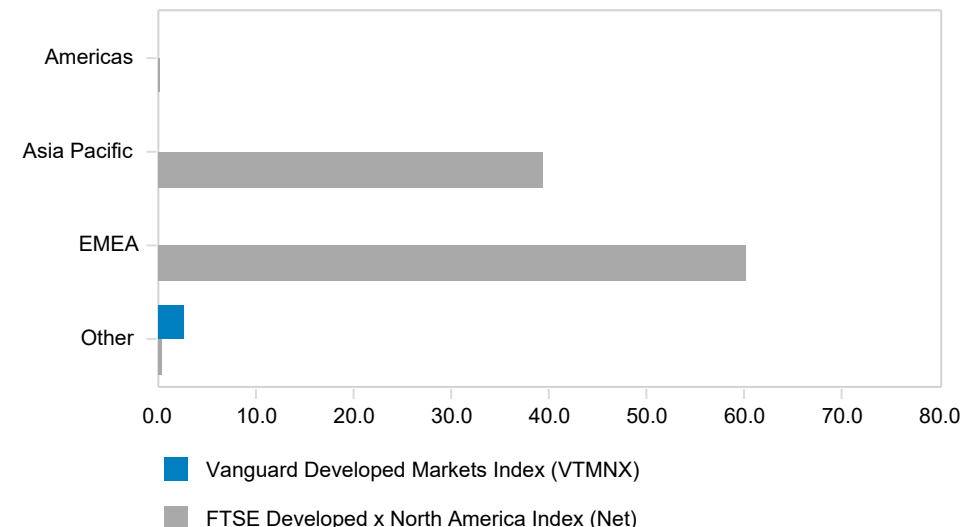
### Top Ten Securities As of 01/31/2023

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 September 30, 2023

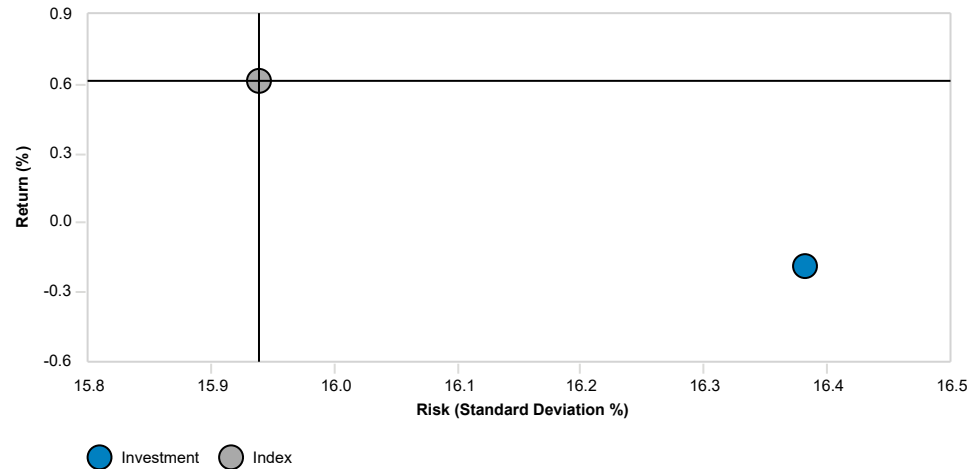
### Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	-0.19	16.38	-0.03	100.07	6	103.67	6
Index	0.62	15.94	0.01	100.00	6	100.00	6

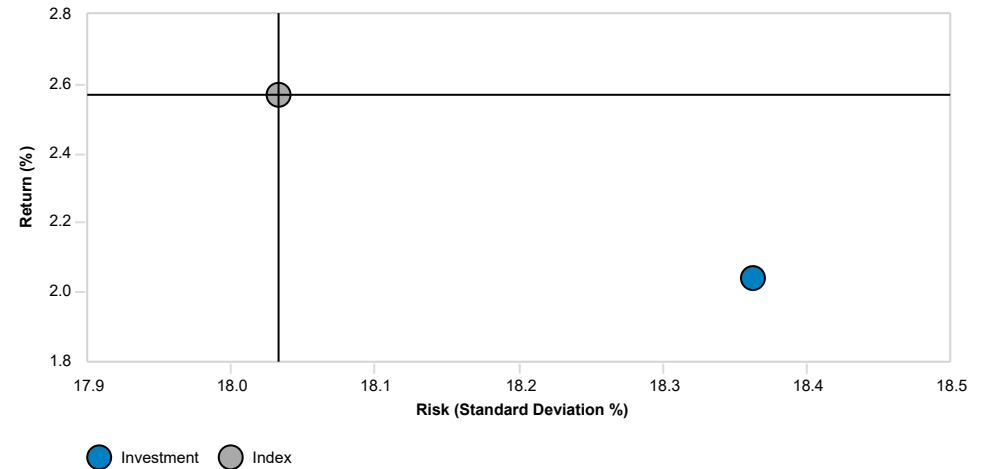
### Historical Statistics 5 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	2.04	18.36	0.11	100.35	11	102.49	9
Index	2.57	18.03	0.14	100.00	11	100.00	9

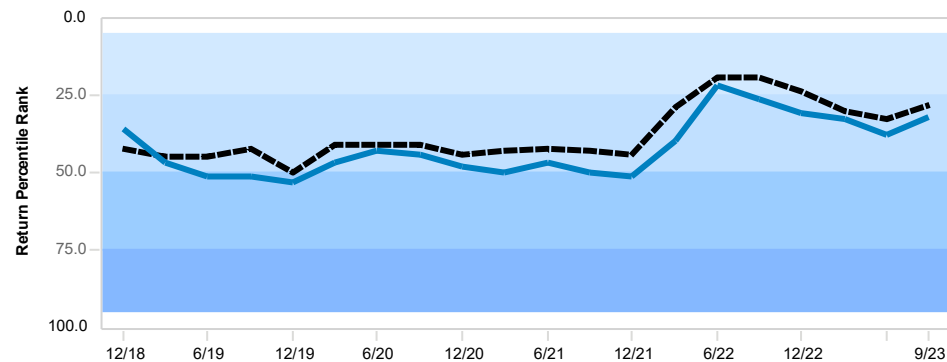
### Risk and Return 3 Years



### Risk and Return 5 Years

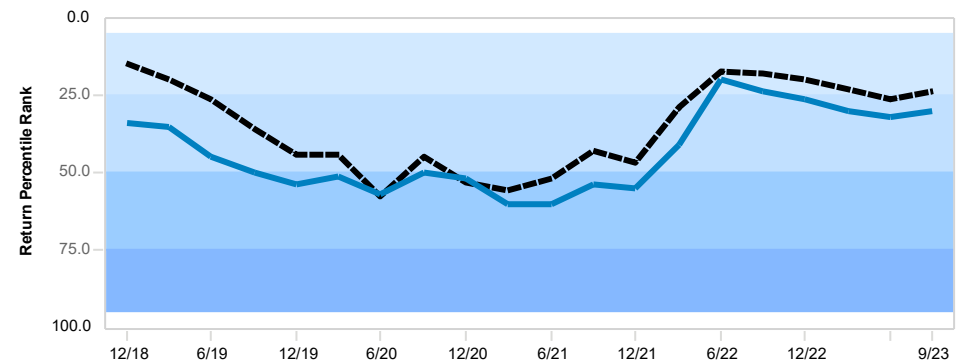


### 3 Year Rolling Percentile Rank IM Emerging Markets Equity (MF)



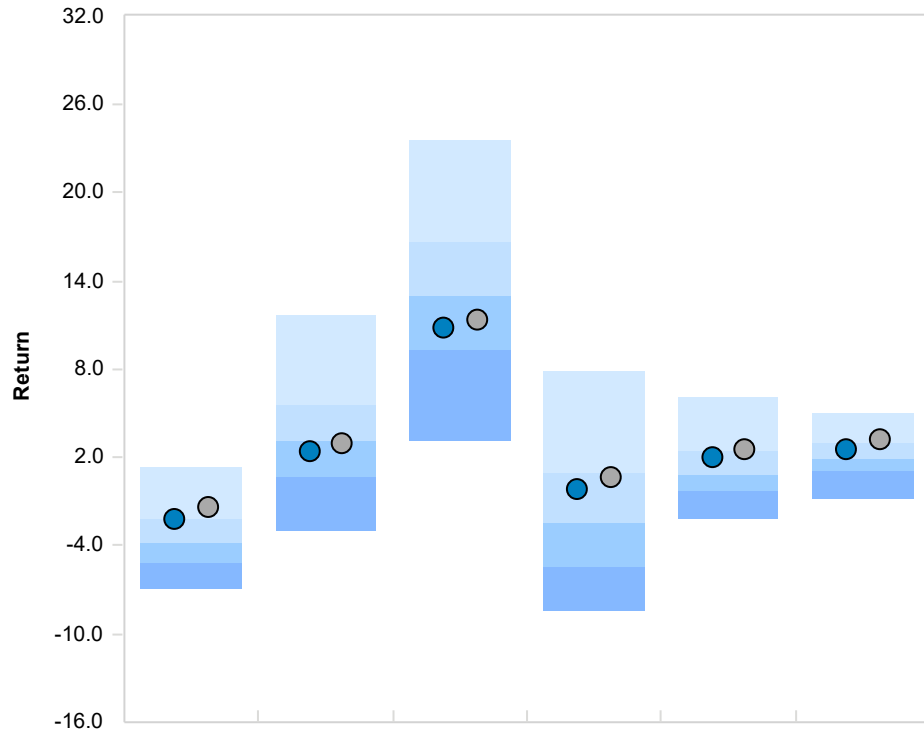
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	1 (5%)	15 (75%)	4 (20%)	0 (0%)
Index	20	3 (15%)	17 (85%)	0 (0%)	0 (0%)

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

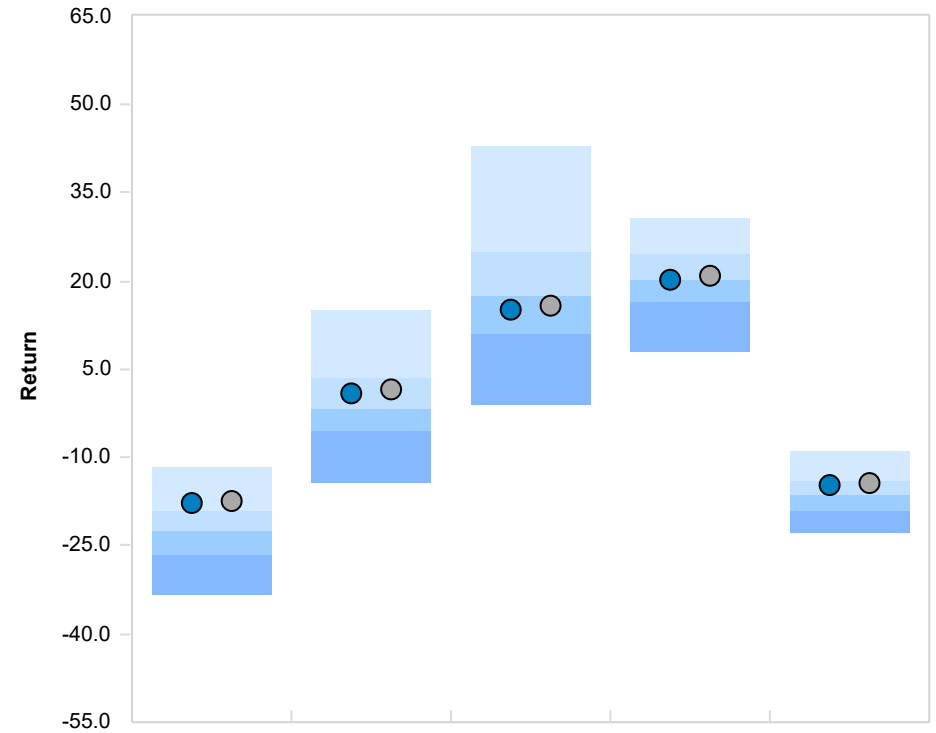


	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	2 (10%)	10 (50%)	8 (40%)	0 (0%)
Index	20	7 (35%)	9 (45%)	4 (20%)	0 (0%)

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



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



**Financial Reconciliation Since Inception Ending September 30, 2023**

	Market Value 10/01/2010	Net Flows	Return On Investment	Market Value 09/30/2023
Investment	5,147,163	3,164,289	2,662,535	10,973,987

**Comparative Performance**

	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022
Investment	1.09	3.60	8.22	-10.73	-9.18	-6.24
Index	1.19	3.11	8.23	-9.78	-10.40	-5.42

### 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 : \$7,158 Million  
Portfolio Turnover : 7%

Portfolio Assets : \$97,428 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

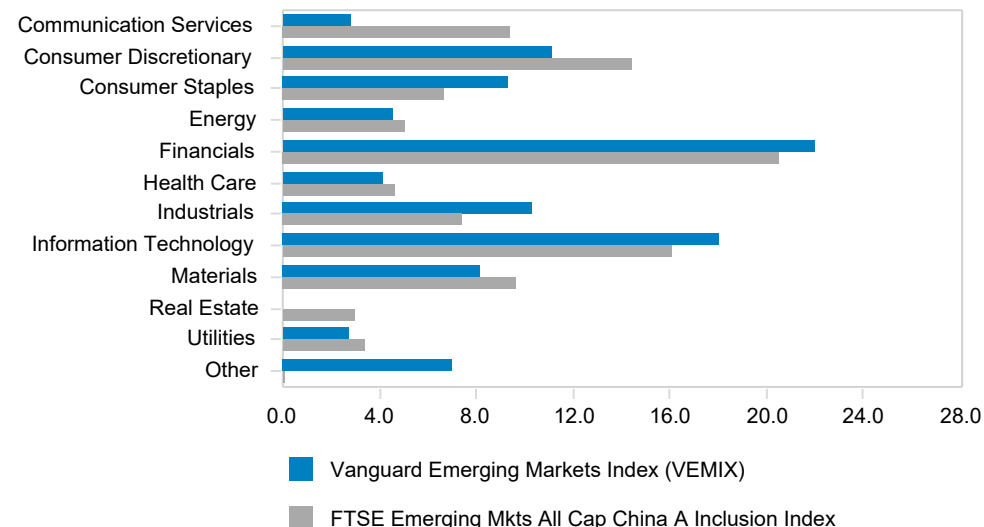
### Portfolio Characteristics As of 01/31/2023

	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

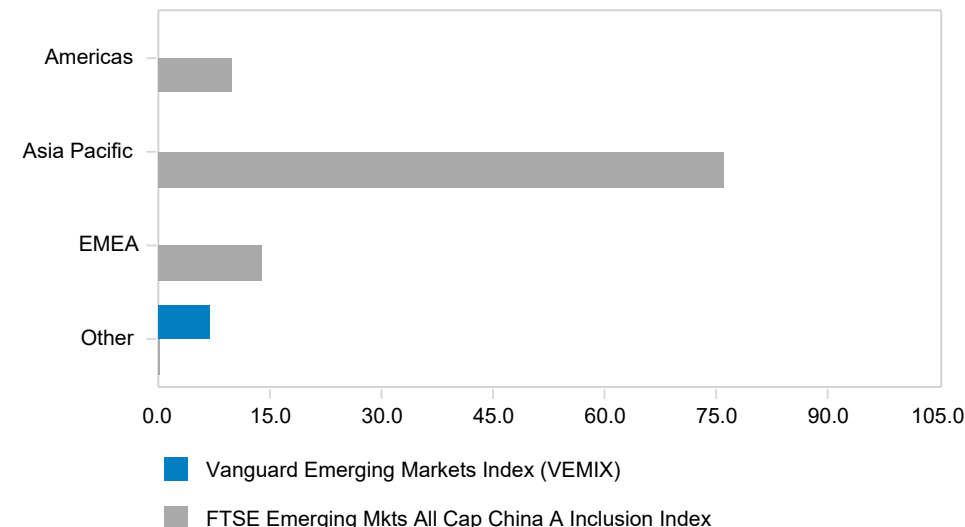
### Top Ten Securities As of 01/31/2023

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



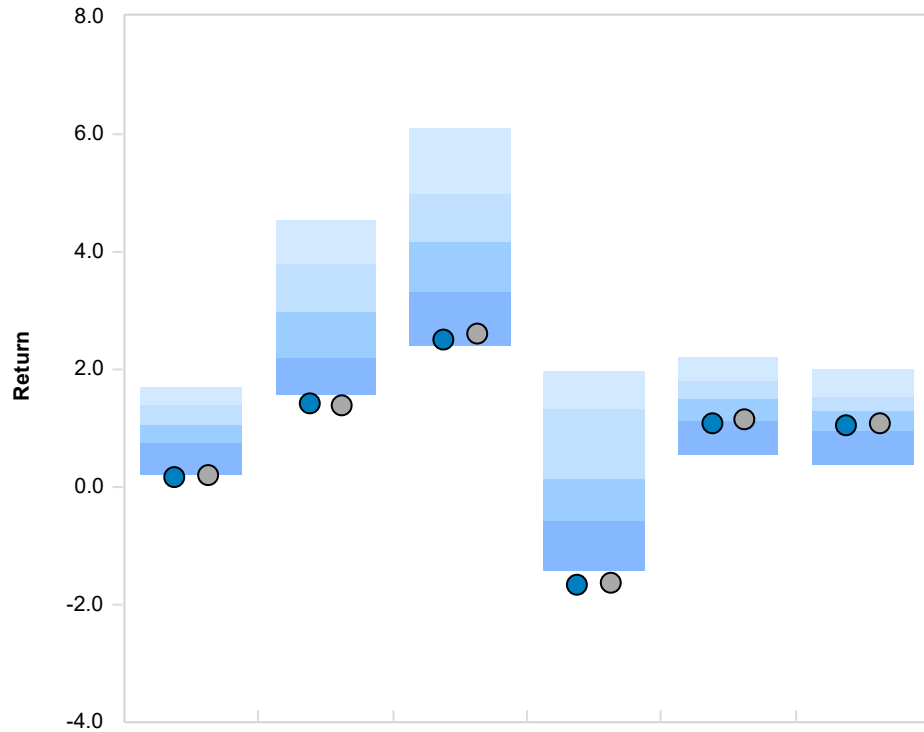
### Region Weights As of 01/31/2023



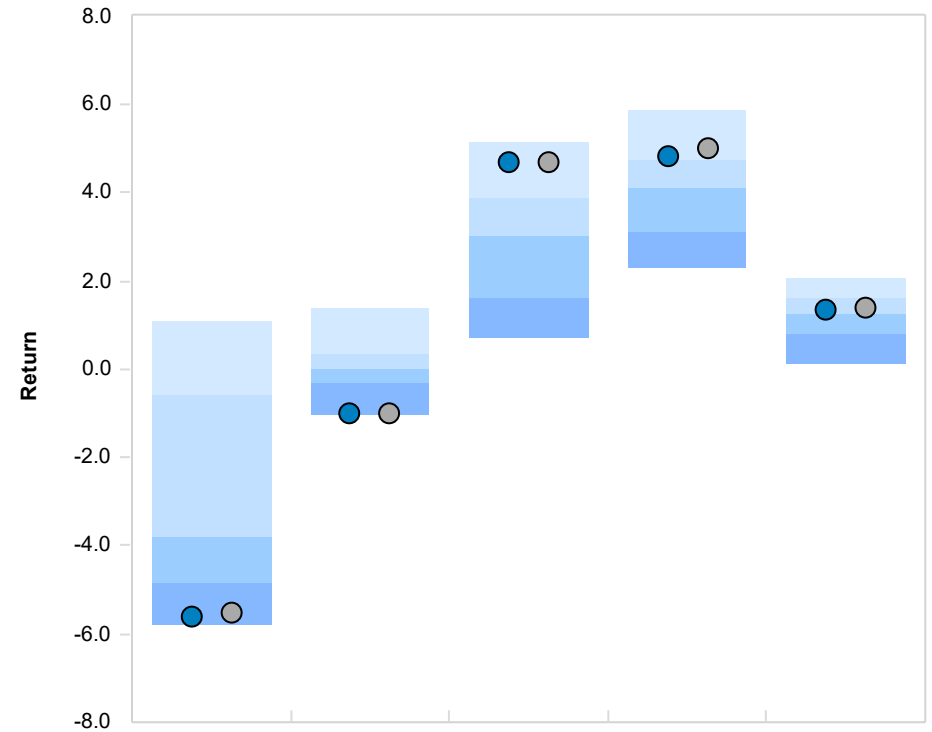
Statistics provided by Lipper. Most recent available data shown.



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



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



**Financial Reconciliation Since Inception Ending September 30, 2023**

	Market Value 04/01/2013	Net Flows	Return On Investment	Market Value 09/30/2023
Investment	10,001,804	-7,569,350	1,417,645	3,850,099

**Comparative Performance**

	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022
Investment	-0.64	1.93	1.07	-2.11	-1.15	-3.48
Index	-0.62	1.82	1.20	-2.16	-1.14	-3.45



### Fund Information

Fund Name :	Vanguard Bond Index Funds: Vanguard Short-Term Bond Index Fund; Admiral Shares	Portfolio Assets :	\$63,811 Million
Fund Family :	Vanguard	Portfolio Manager :	Joshua C. Barrickman
Ticker :	VBIRX	PM Tenure :	2013
Inception Date :	11/12/2001	Fund Style :	IM U.S. Short Term Investment Grade (MF)
Fund Assets :	\$13,663 Million	Style Benchmark :	Bloomberg U.S. Aggregate 1-3 Yrs
Portfolio Turnover :	41%		

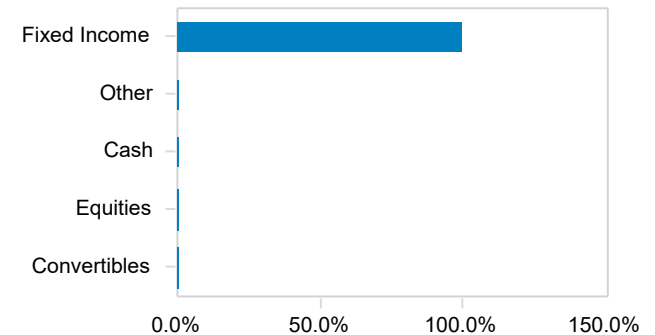
### Fund Characteristics As of 06/30/2023

Avg. Coupon	2.50 %
Nominal Maturity	N/A
Effective Maturity	2.80 Years
Duration	2.60 Years
SEC 30 Day Yield	1.0
Avg. Credit Quality	AA

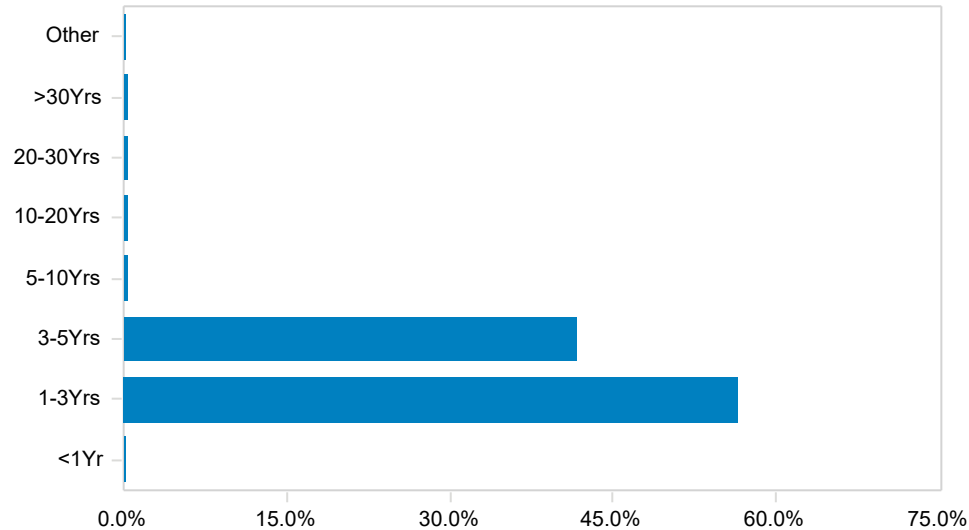
### Top Ten Securities As of 12/31/2022

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

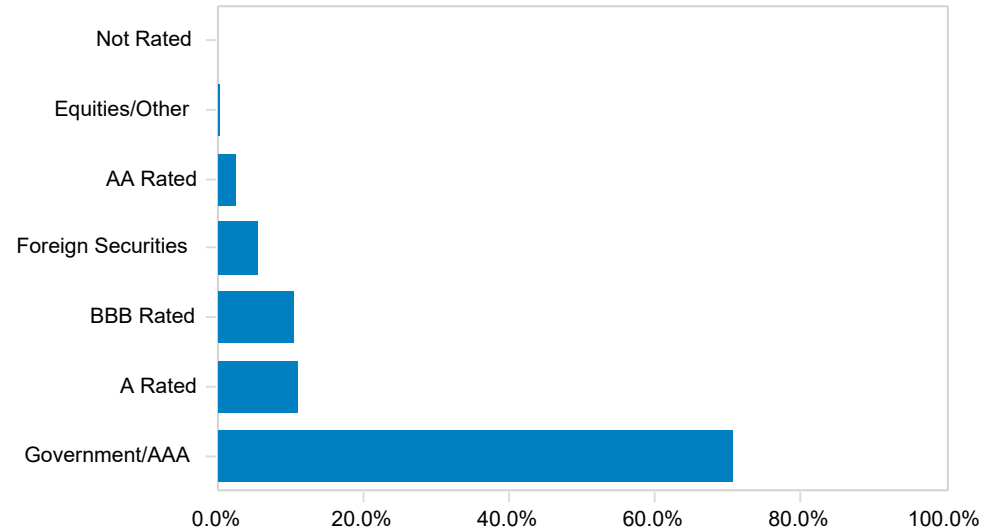
### Asset Allocation As of 12/31/2022



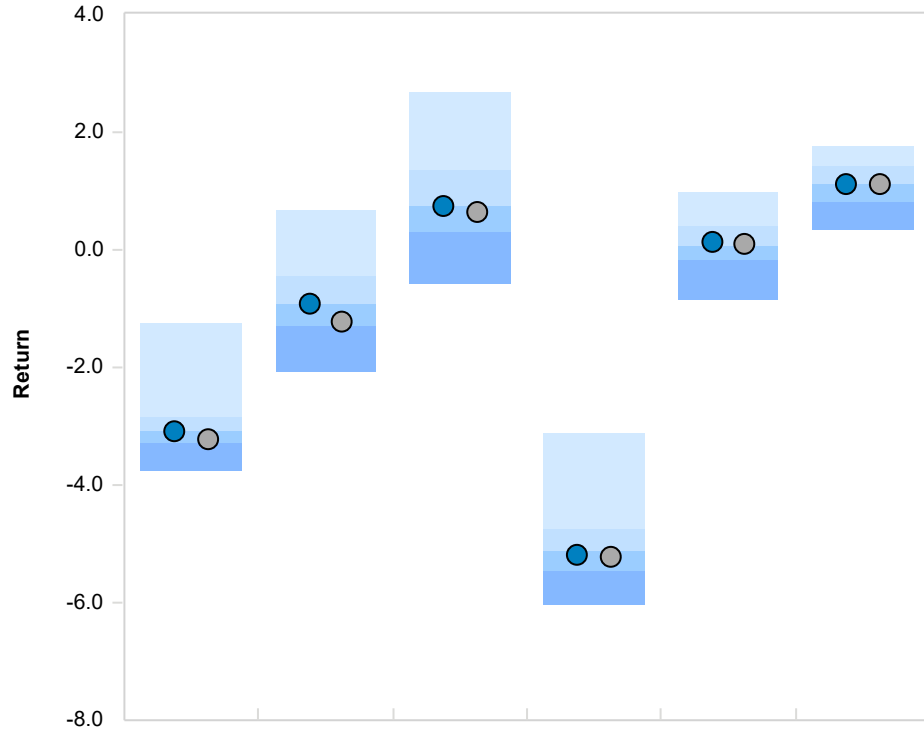
### Maturity Distribution As of 06/30/2023



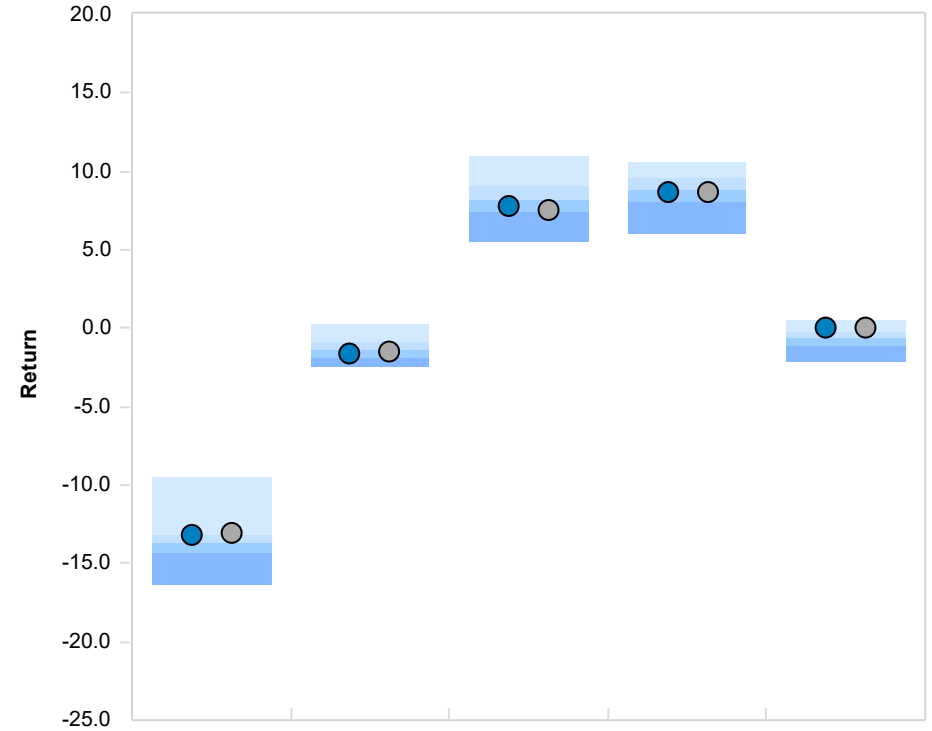
### Sector/Quality Allocation As of 12/31/2022



**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 September 30, 2023**

No data found.

**Comparative Performance**

	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022
Investment	-0.90 (62)	3.16 (46)	1.67 (56)	-4.65 (47)	-4.71 (17)	-5.98 (51)
Index	-0.84 (54)	2.96 (69)	1.87 (35)	-4.75 (61)	-4.69 (15)	-5.93 (47)
Median	-0.82	3.14	1.71	-4.67	-5.35	-5.98

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 :	\$301,124 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 :	\$42,099 Million	Style Benchmark :	Bloomberg U.S. Aggregate
Portfolio Turnover :	40%		

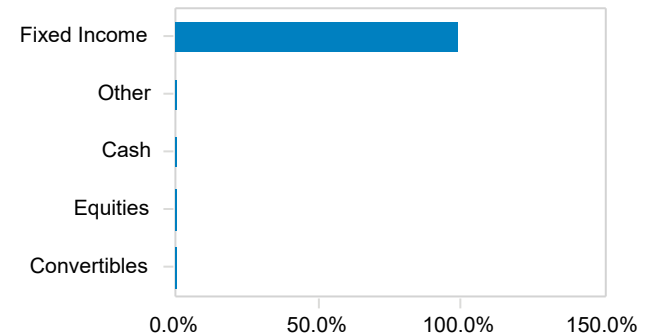
### Fund Characteristics As of 06/30/2023

Avg. Coupon	3.00 %
Nominal Maturity	N/A
Effective Maturity	9.00 Years
Duration	6.50 Years
SEC 30 Day Yield	2.7
Avg. Credit Quality	AA

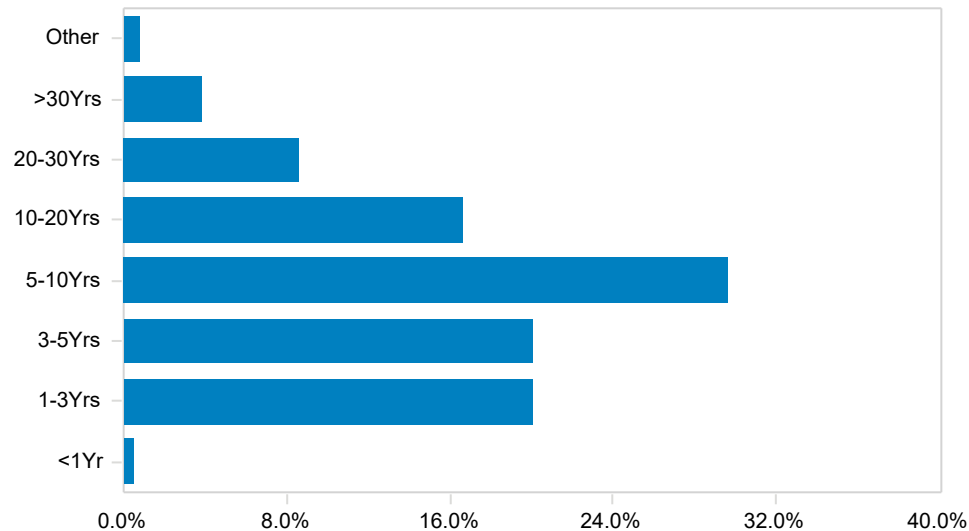
### Top Ten Securities As of 12/31/2022

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 %

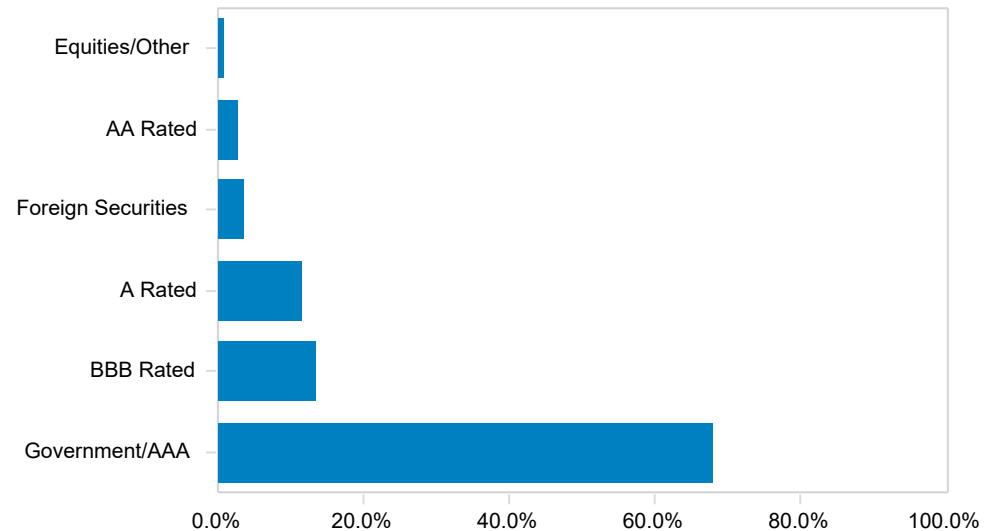
### Asset Allocation As of 12/31/2022



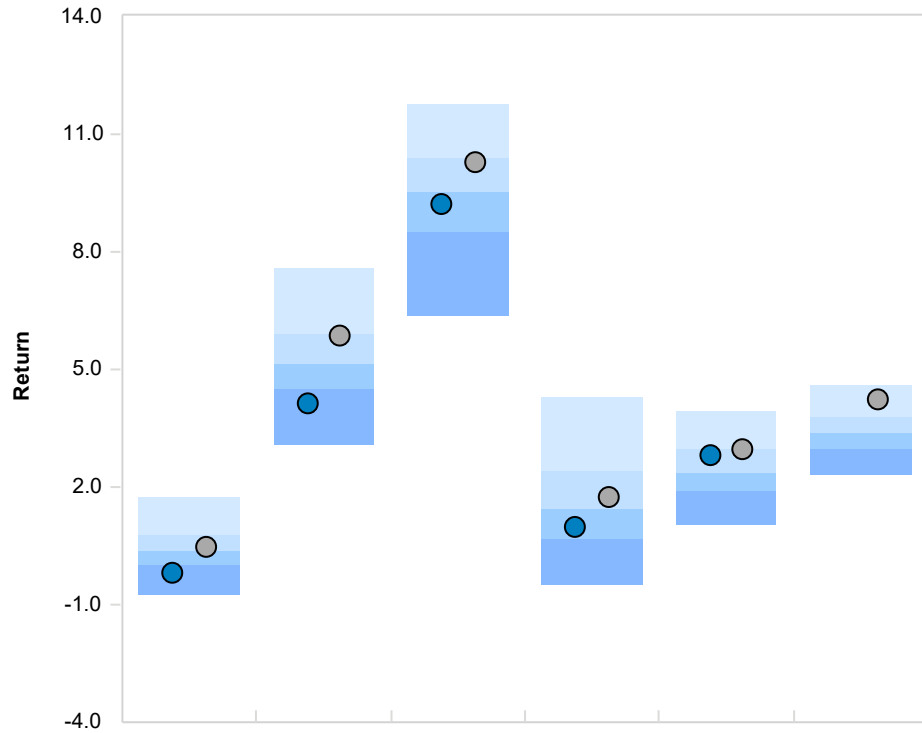
### Maturity Distribution As of 06/30/2023



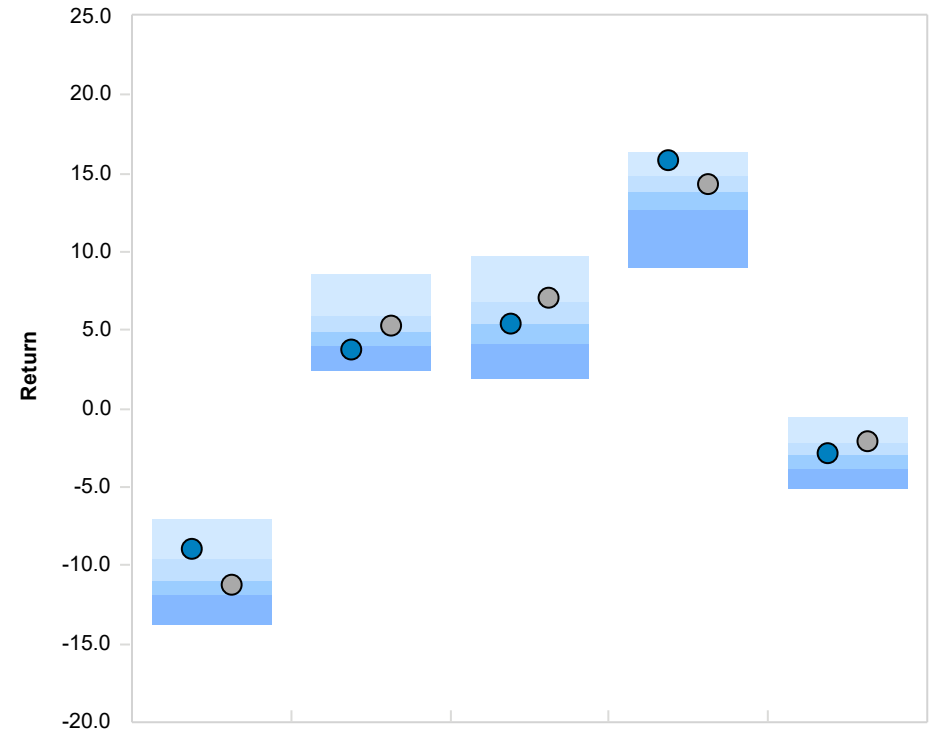
### Sector/Quality Allocation As of 12/31/2022



**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 September 30, 2023**

	Market Value 12/01/2014	Net Flows	Return On Investment	Market Value 09/30/2023
Investment	12,642,764	5,350,000	6,072,890	24,065,653

**Comparative Performance**

	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022
Investment	1.12	3.19	4.88	-0.85	-8.62	-4.20
Index	1.75	3.57	4.17	-0.65	-9.83	-4.84



### Fund Information

Fund Name :	Vanguard Fixed Income Securities Funds: Vanguard High-Yield Corporate Fund; Admiral Shares	Portfolio Assets :	\$23,043 Million
Fund Family :	Vanguard	Portfolio Manager :	Shortsleeve/Chang
Ticker :	VWEAX	PM Tenure :	2022--2022
Inception Date :	11/12/2001	Fund Style :	IM U.S. High Yield Bonds (MF)
Fund Assets :	\$20,127 Million	Style Benchmark :	FTSE High Yield Market Index
Portfolio Turnover :	36%		

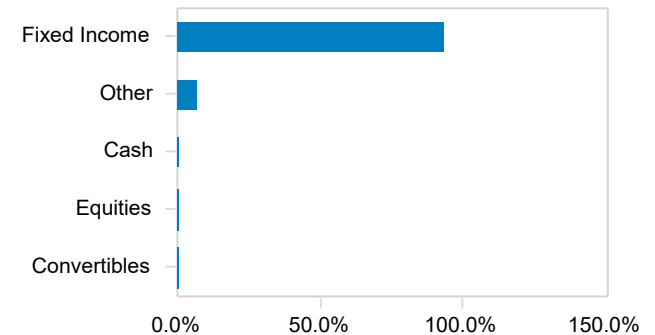
### Fund Characteristics As of 06/30/2023

Avg. Coupon	5.10 %
Nominal Maturity	N/A
Effective Maturity	4.90 Years
Duration	3.70 Years
SEC 30 Day Yield	6.5
Avg. Credit Quality	BB

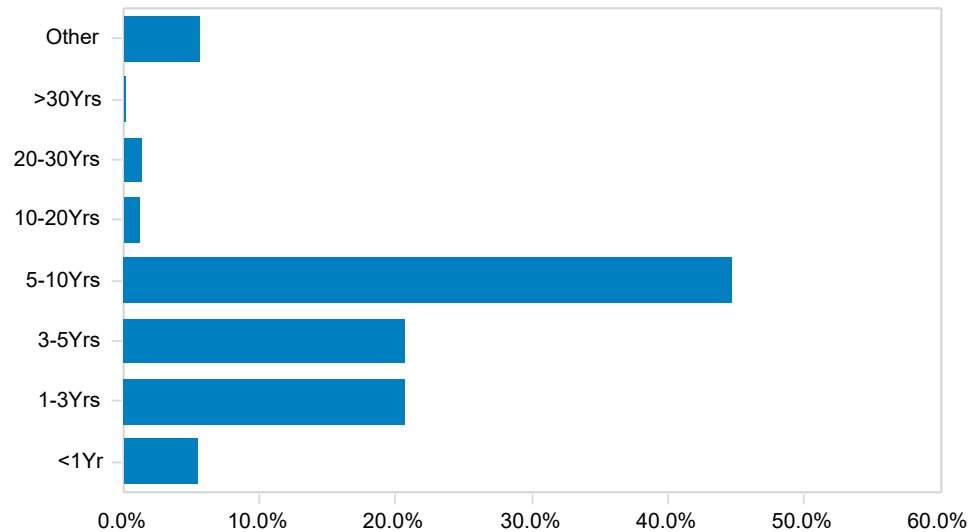
### Top Ten Securities As of 12/31/2022

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

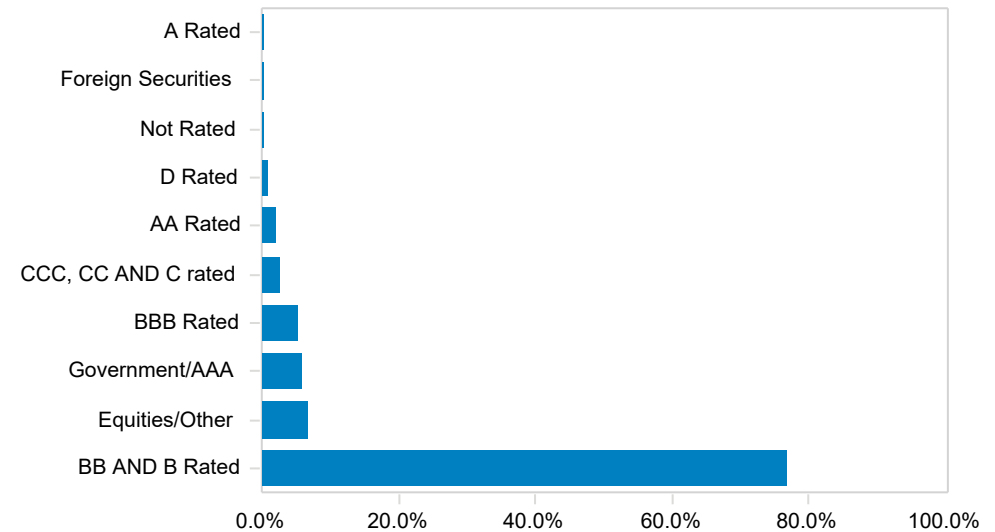
### Asset Allocation As of 12/31/2022



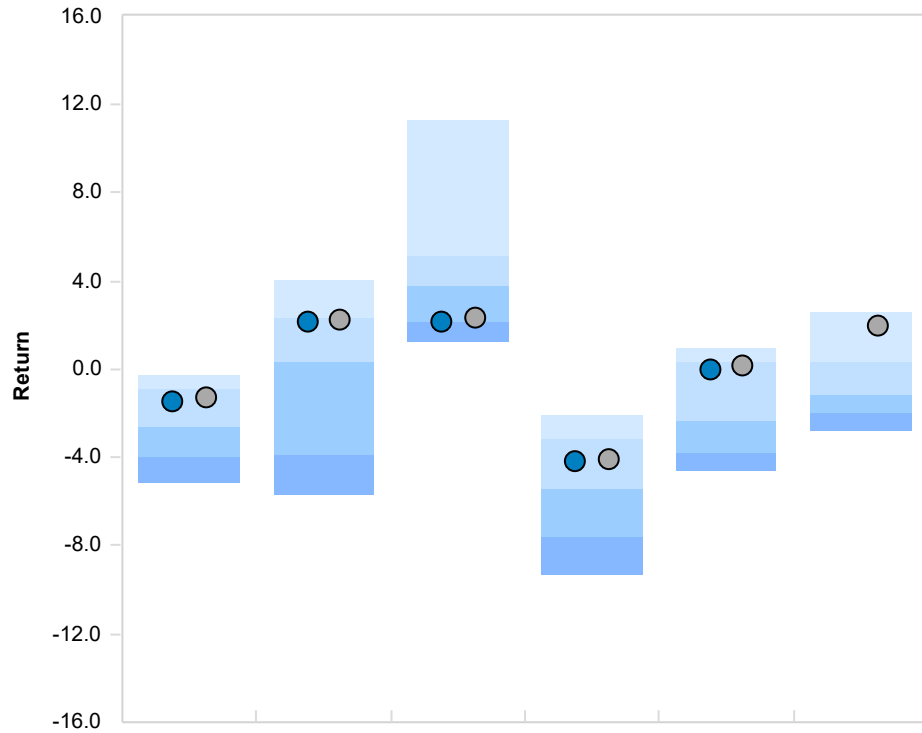
### Maturity Distribution As of 06/30/2023



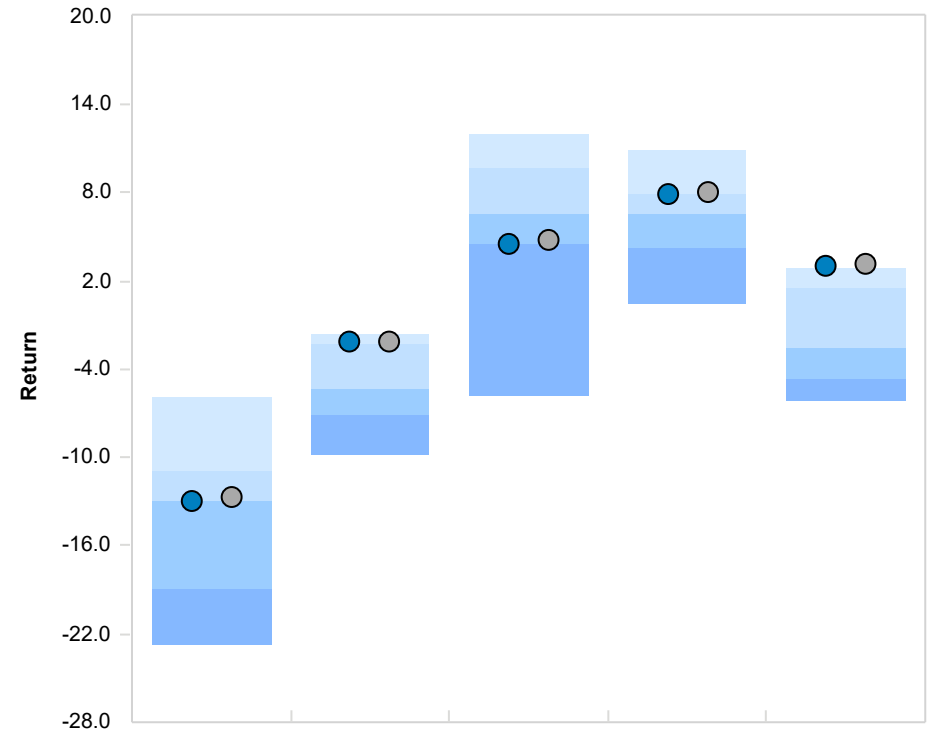
### Sector/Quality Allocation As of 12/31/2022



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



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



**Financial Reconciliation Since Inception Ending September 30, 2023**

	Market Value 06/01/2015	Net Flows	Return On Investment	Market Value 09/30/2023
Investment	9,329,282	-2,425,000	1,069,320	7,973,602

**Comparative Performance**

	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022
Investment	0.14	3.58	-0.05	-3.25	-5.19	-4.98
Index	0.37	3.18	0.08	-3.09	-5.23	-5.04
Median	0.37	3.18	0.08	-3.09	-5.23	-5.04



### Fund Information

Fund Name : Vanguard Charlotte Funds: Vanguard Total International Bond Index Fund; Institutional Class Shares	Portfolio Assets : \$86,287 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 : \$11,758 Million	Style Benchmark : FTSE Non-U.S. World Government Bond
Portfolio Turnover : 27%	

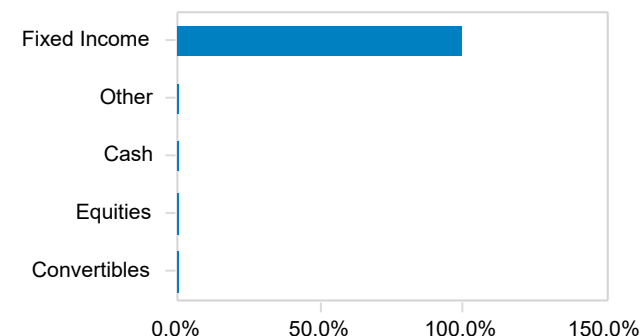
### Fund Characteristics As of 06/30/2023

Avg. Coupon	2.20 %
Nominal Maturity	N/A
Effective Maturity	9.00 Years
Duration	7.50 Years
SEC 30 Day Yield	N/A
Avg. Credit Quality	N/A

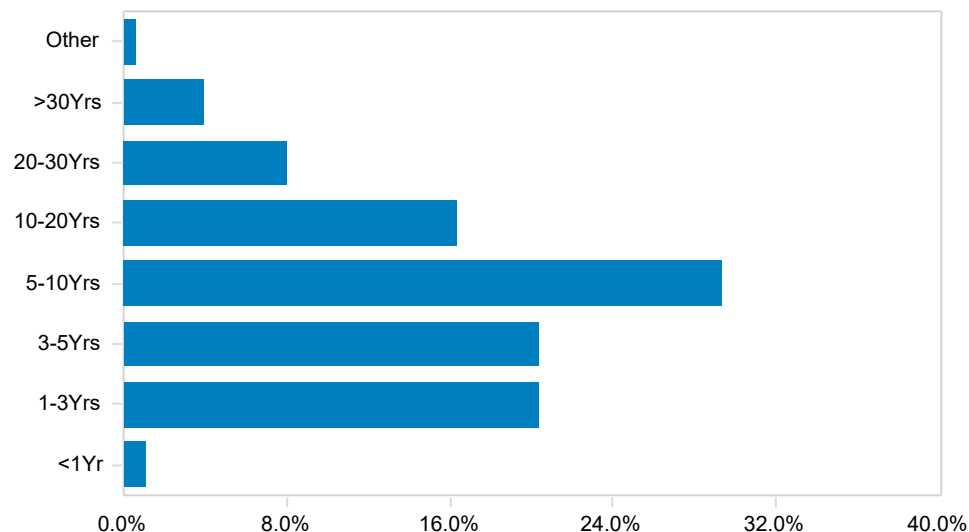
### Top Ten Securities As of 12/31/2022

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

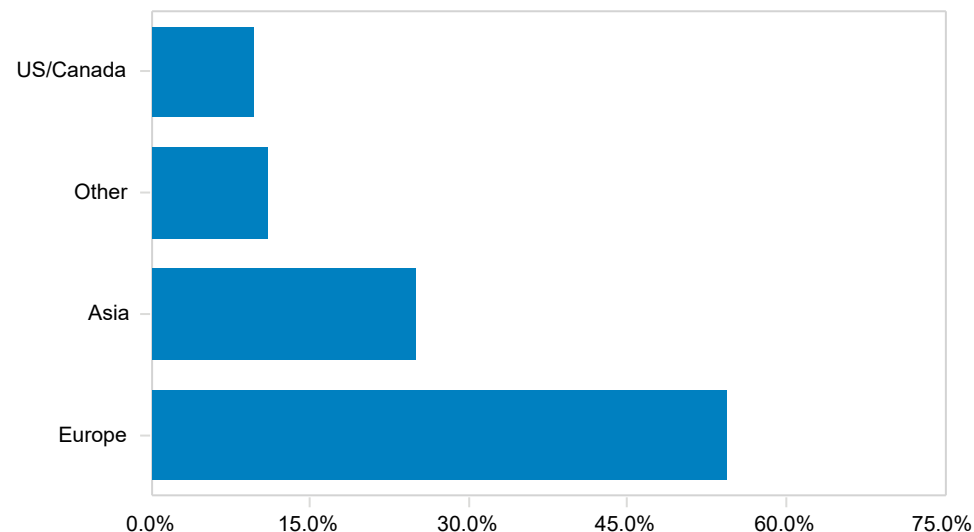
### Asset Allocation As of 12/31/2022



### Maturity Distribution As of 06/30/2023



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



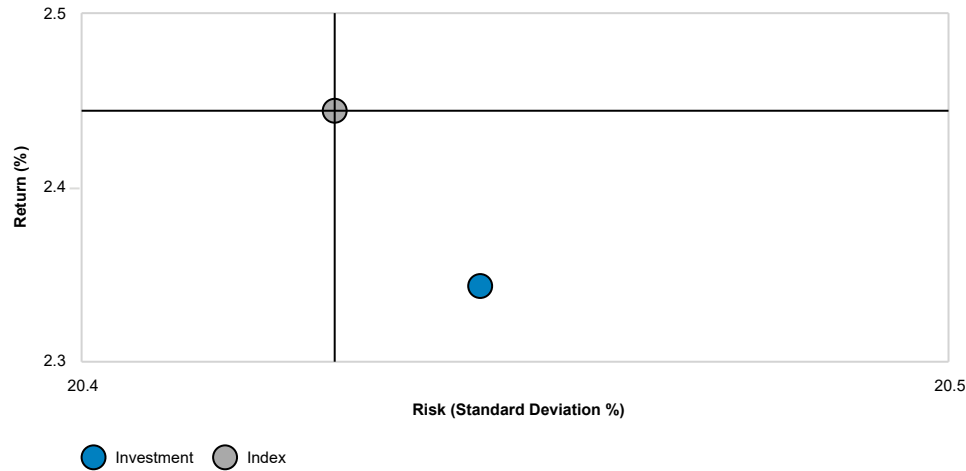
### Historical Statistics 3 Years

	Return	Standard Deviation	Sharpe Ratio	Up Market Capture	Up Quarters	Down Market Capture	Down Quarters
Investment	2.34	20.45	0.13	99.89	8	100.21	4
Index	2.45	20.43	0.14	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	2.46	20.29	0.14	99.85	14	100.13	6
Index	2.54	20.28	0.14	100.00	14	100.00	6

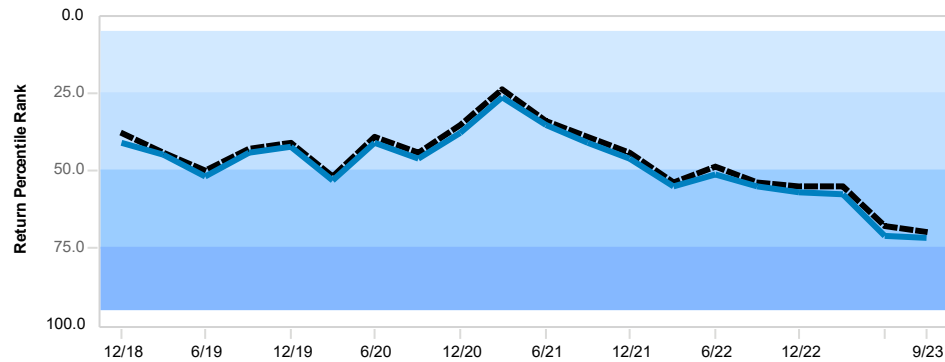
### Risk and Return 3 Years



### Risk and Return 5 Years

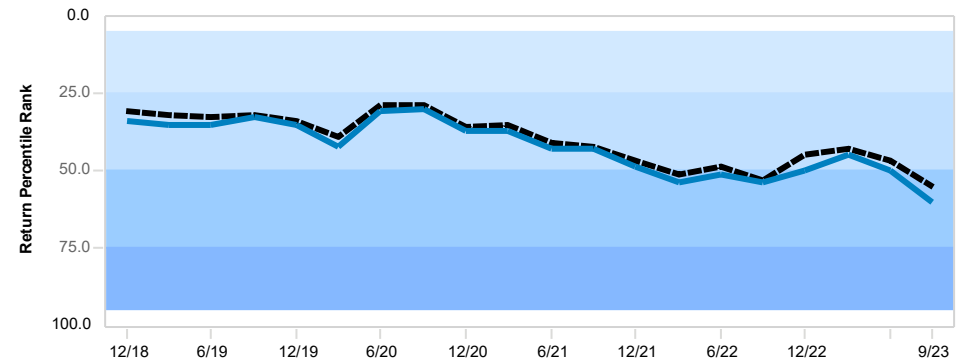


### 3 Year Rolling Percentile Rank IM Real Estate Sector (MF)



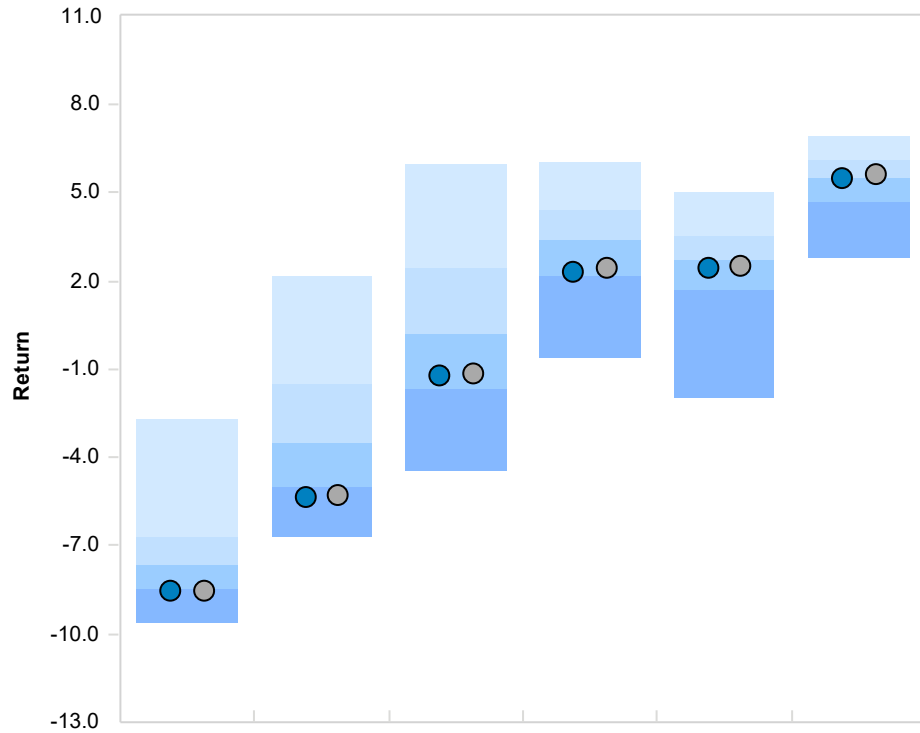
	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	0 (0%)	11 (55%)	9 (45%)	0 (0%)
Index	20	1 (5%)	12 (60%)	7 (35%)	0 (0%)

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

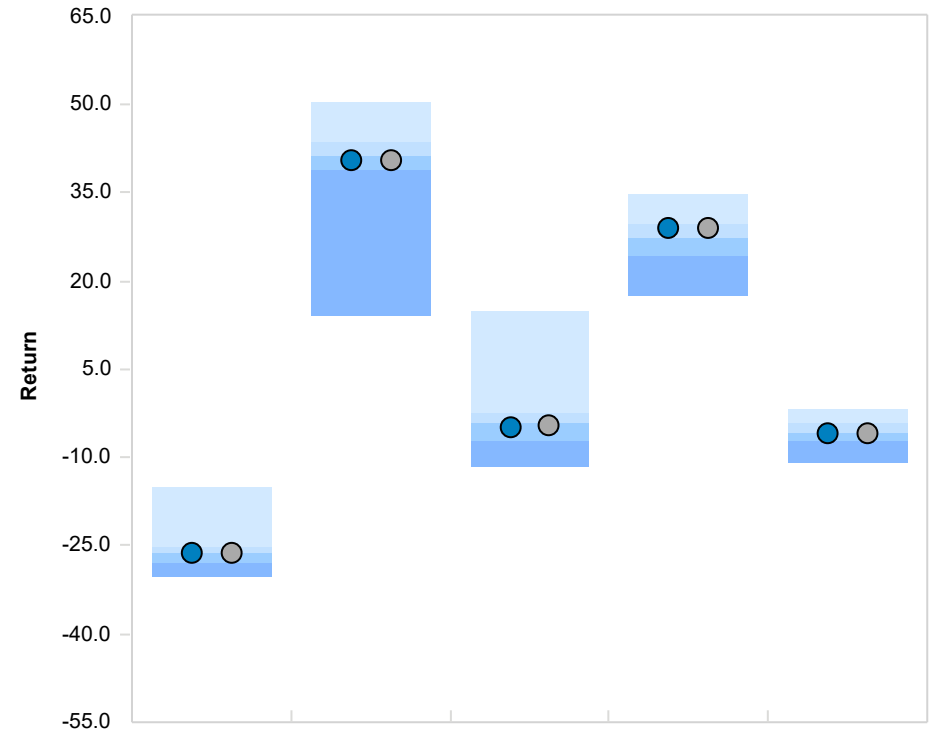


	Total Period	5-25 Count	25-Median Count	Median-75 Count	75-95 Count
Investment	20	0 (0%)	16 (80%)	4 (20%)	0 (0%)
Index	20	0 (0%)	17 (85%)	3 (15%)	0 (0%)

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



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



**Financial Reconciliation Since Inception Ending September 30, 2023**

	Market Value 10/01/2010	Net Flows	Return On Investment	Market Value 09/30/2023
Investment	4,801,552	-1,776,630	8,735,724	11,760,647

**Comparative Performance**

	1 Qtr Ending Jun-2023	1 Qtr Ending Mar-2023	1 Qtr Ending Dec-2022	1 Qtr Ending Sep-2022	1 Qtr Ending Jun-2022	1 Qtr Ending Mar-2022
Investment	1.63 (54)	1.79 (82)	4.36 (25)	-11.01 (69)	-15.48 (42)	-5.97 (64)
Index	1.68 (51)	1.83 (81)	4.35 (27)	-10.98 (66)	-15.43 (38)	-5.95 (61)
Median	1.68	2.56	3.86	-10.73	-15.81	-5.29



### Fund Information

Fund Name :	Vanguard Specialized Funds: Vanguard Real Estate Index Fund; Institutional Class Shares	Portfolio Assets :	\$60,448 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 :	\$9,570 Million	Style Benchmark :	Vanguard Spliced REIT Index
Portfolio Turnover :	7%		

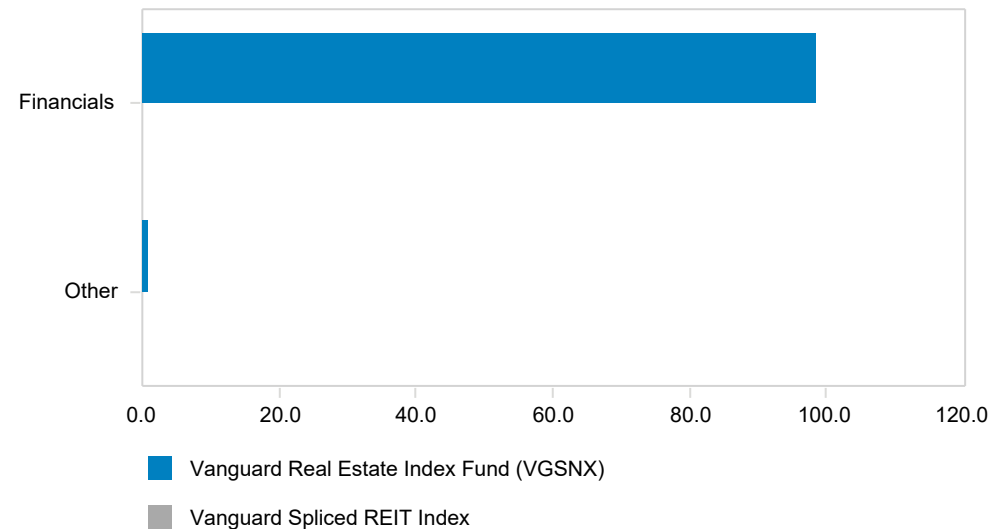
### Portfolio Characteristics As of 01/31/2023

	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

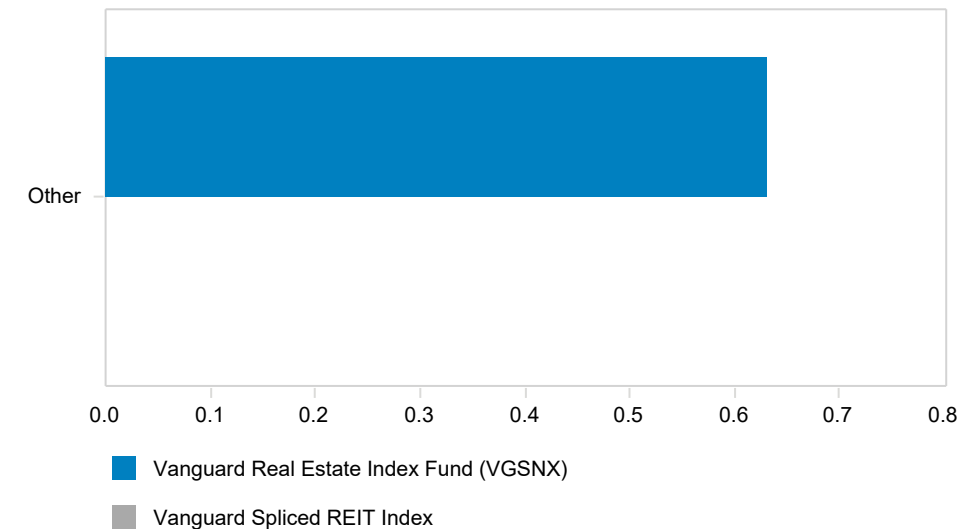
### Top Ten Securities As of 01/31/2023

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.





**Total Fund Policy**

Allocation Mandate	Weight (%)	Allocation Mandate	Weight (%)
<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 September 30, 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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