Guinness Atkinson

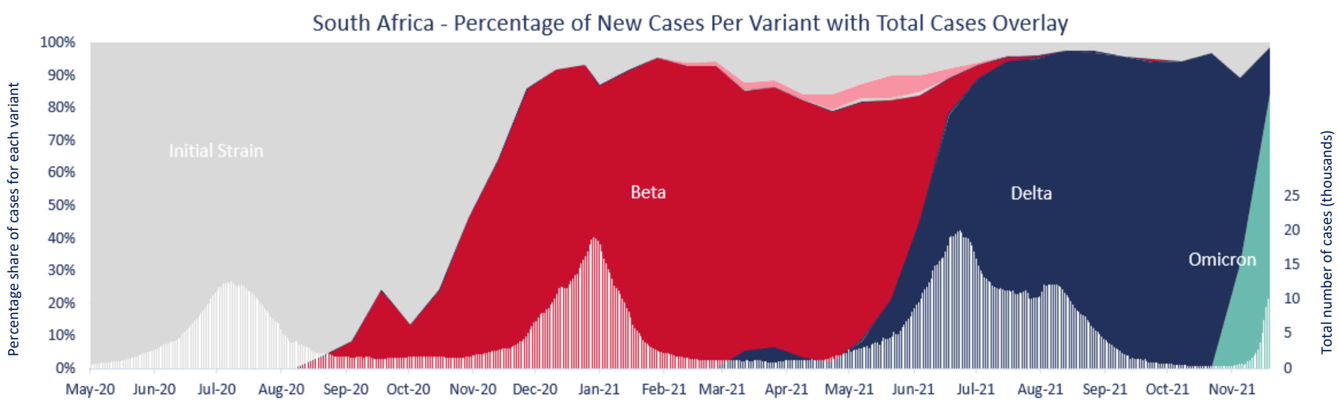
Global Innovators Fund

Managers Update – December 2021

November in review:

Concerns over a resurgence in the Covid-19 pandemic fuelled the largest sell-off in over a year during late November. The emergence of Omicron, first found in Botswana before spreading rapidly in South Africa, led to the World Health Organisation designating the new strain a "variant of concern". Many countries banned flights from countries across southern Africa, including the EU, US and UK. The EU and the UK also stepped up their booster-vaccine rollouts, with the UK reintroducing strict mask-wearing mandates and travel testing.

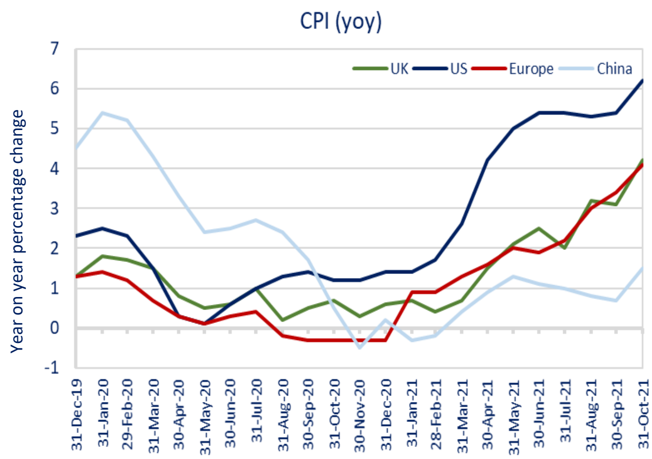
The MSCI World sold off 3.1% (in USD) between Omicron's emergence and the end of the month. Primary concerns across markets focused on transmissibility, with initial data suggesting the variant is more infectious than the Delta variant, with some scientists also suggesting a level of vaccine-resistance. Whereas it took the Beta and Delta variants approximately 50 days and 100 days respectively to account for 50% of cases in South Africa, Omicron had achieved this level within two-weeks *(Financial Times)*, albeit starting from a lower level of initial cases. While other countries continue to combat the delta variant, many of which (including the US and UK) have yet to bring case numbers down significantly from peak levels, Omicron offers a potential further hurdle to overcoming pandemic related headwinds.

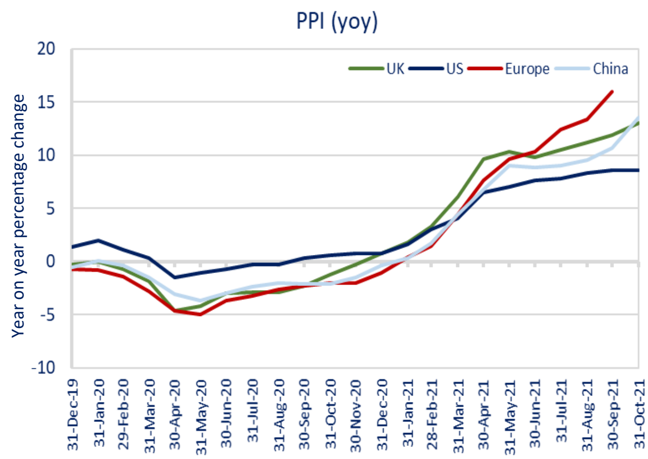


Source: Our World in Data, Guinness Atkinson Asset Management

The emergence of the Omicron coronavirus variant presents both upside risk to inflation alongside stunted economic growth. Combined, these two risks present Central Banks with a dilemma. As has been broadly the case across regions since the beginning of the pandemic, Central Banks have tended to prioritize the latter, offering dovish policies to encourage investment and stimulate economic growth. And while economic growth has bounced back better than expected, disrupted global supply chains have led to shortages of goods across countries, driving inflation well ahead of target levels.

In the US, Jay Powell told congress in his first testimony since re-appointment as Chair of the Federal Reserve that the Central Bank was now "*retiring*" the word "*transitory*". Powell's change of tact represents a significant turning point in Central bank thinking – that inflation now takes top priority, acknowledging that price pressures are more broad based than the Fed had originally anticipated and the need to stimulate the economy had "*clearly diminished*". During the month, the announcement that the Consumer Price Index (CPI) had ticked up to 6.2% yoy (year-on-year), 0.9% ahead of September, gave further evidence that inflation may not be as transient as first suspected. Rising energy prices were a core driver, despite prices at the pump falling over the month. The US was not alone, with the CPI ticking up to 4.2% and 4.4% yoy in the UK and Europe respectively. The Producers Price Index, often viewed as a leading indicator for CPI, also rose across regions during the month.



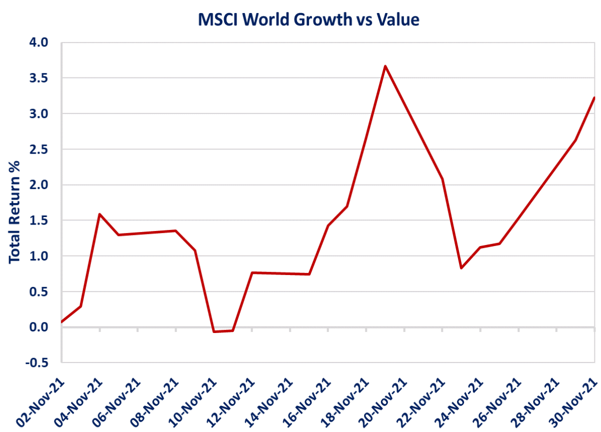


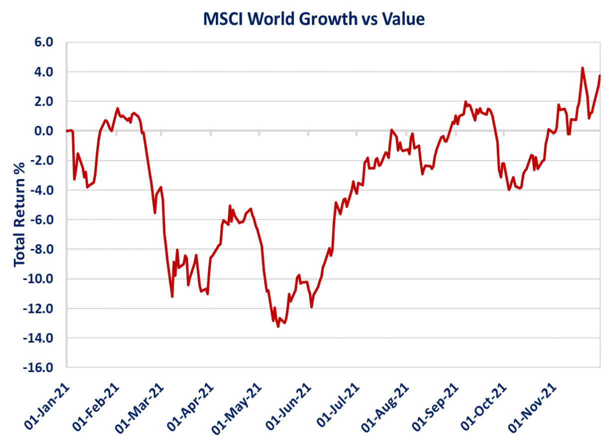
Source: Bloomberg, Guinness Atkinson Asset Management

Paired with a greater focus on inflation, Powell also outlined intentions to accelerate the Fed's tapering program, and is likely to bring the reduction in asset purchases forward by "*a few months*", while also opening the door for the Fed to implement earlier rate hikes. The last couple of months have seen the market pricing in more and earlier rate hikes, and the market continues to expect more aggressive rate hikes than projections made by the Fed. As a result, shorter dated bond yields rose over the month from 0.50% to 0.57%. Yet despite more hawkish rhetoric, the US 10 year treasury yield fell from 1.56% to 1.46% over the month, indicating that while the market expects more rate hikes in the near future, by hiking rates aggressively now, the Fed will not need to hike too far in the long term, implying a lower terminal fed funds rate (the highest rate in a given rate-increase cycle). This combination caused the yield curve to flatten to a similar level last seen in January 2021.

Low bond rates have been a boon for growth companies. Growth companies not only rely on lower borrowing costs to fund said growth, but also enjoy a lower discount rate in which to measure the present values of their future cash flows. 'High duration' stocks are typically more sensitive to movements in bond yields, as most of their cash flows are generated far into the future meaning a low-rate environment is therefore a tailwind for valuations. In November we saw a stark difference in performance between the 'higher duration' hyper-growth stocks - which had seen very strong price rises through 2020 - and 'quality growth' stocks where current valuations have a lower weight on future growth prospects. The potential for higher interest rates clearly can have an impact on these two broad groups, but we also saw in November a re-rating of expectations for earnings in many more speculative companies where continued high levels of growth (as seen in the early part of pandemic, for example) had been 'baked in' to valuations which the reality of reported results did not match. We therefore saw 'hyper-growth' underperform the broader benchmark. In the Fund we continue to apply a 'valuation discipline' to stock selection and monitor carefully the valuation we are ascribing to future growth vs that of the current business. We believe the secular growth trends and innovation themes that our companies are exposed to are unlikely to be slowed down significantly by higher levels of inflation and we believe the fundamental outlook for our companies remain robust.

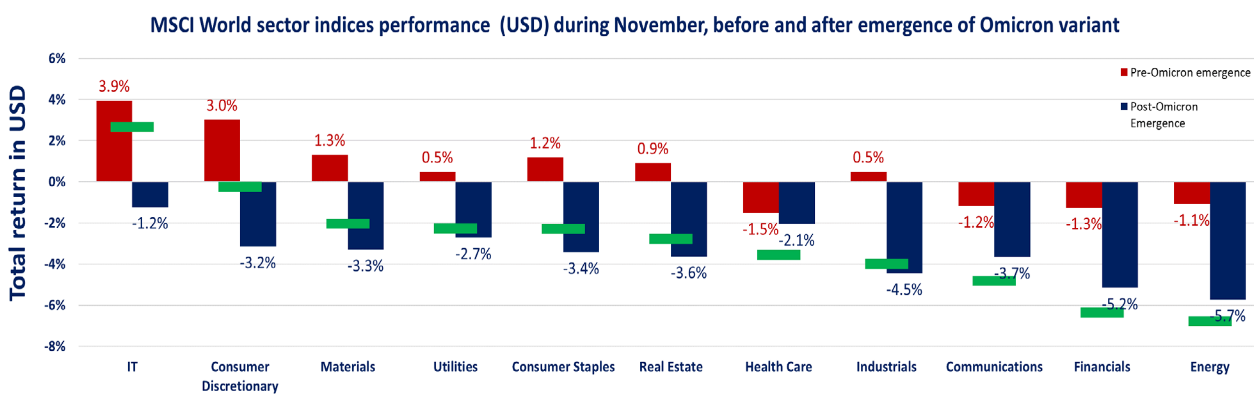
The below graphs measure the difference in performance between the MSCI World Growth Index and MSCI World Value Index over one month and year to date. Over the month, growth significantly outperformed value, continuing the trend seen since October.





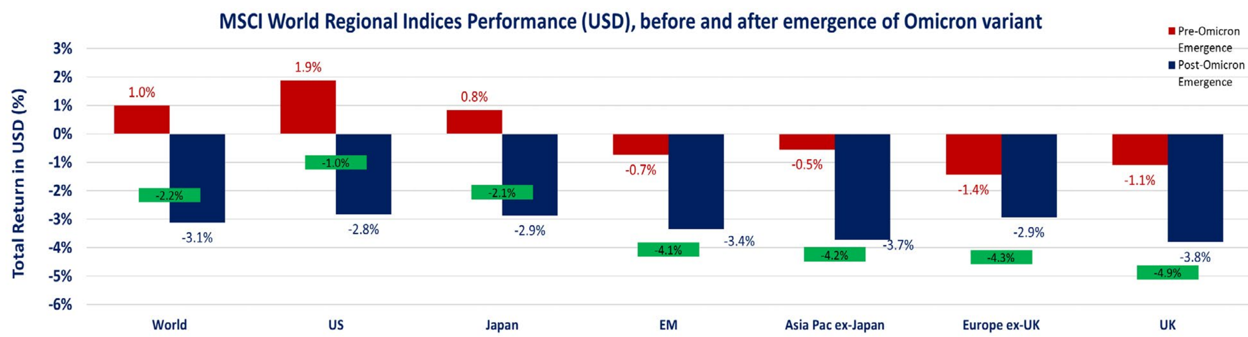
Source: Bloomberg, Guinness Atkinson Asset Management

Strength in growth was led by the Information Technology and Consumer Discretionary segments, with value being driven downwards by Energy and Financials. Again, this proved to be a source of relative outperformance for the fund, with an overweight position to Information Technology, and an underweight position to Financials and Energy. Sector performance pre (red) and post (blue) omicron emergence can be seen below, alongside overall performance during November (green). Many sectors performed well prior to the Omicron discovery, before all falling significantly over the final week of the month, with more economically sensitive areas underperforming the most. As was the case in the earlier stages of the pandemic, Information Technology outperformed, with Semiconductor names performing particularly well, fueled by a robust demand outlook alongside pricing tailwinds. Areas reliant on re-opening, such as travel and leisure performed particularly poorly, weighing heavily on the Consumer Discretionary sector, offsetting outperformance from Retail and Consumer Durables & Apparel, which benefited from a strong Black Friday. In the US, consumer spending increased for the third consecutive month.



Source: Bloomberg, Guinness Atkinson Asset Management

The funds high exposure to the US also benefited the fund, with the region benefiting from a larger exposure to Information Technology, therefore outperforming both before and after the emergence of Omicron.



Source: Bloomberg, Guinness Atkinson Asset Management

Stock Specific News:

Nvidia (+27.8% over the month):

For the second month running, Nvidia was the funds top performer, taking the share price to all time highs. Following October's +23.42%, Nvidia delivered +27.8% over November, taking year-to-date performance past +150%. Strength in growth stocks and a stellar Q3 earnings release drove performance, despite regulators in the US, UK and EU all raising concerns during the month over Nvidia's proposed acquisition of ARM. The UK entered into a phase 2 investigation into the transaction on public interest grounds, putting further strain on the initial proposed deadline of March 2022. This did not dampen investor appetite however, as even on the day the US announced concerns over the deal, the stock rose +4.1%. The company kicked off the month with a one-day increase of +12% following analyst upgrades, with optimism over opportunities in the Metaverse driving excitement. The firm itself spoke about the Metaverse opportunity, their own software platform Omniverse (used to create 3D spaces) giving the firm a headstart. The stock jumped further following a set of earnings results that saw a surprise to the upside across revenue (+4.3%, +50.3% year-on-year growth), gross profit (+1.7%, +56.5% YoY) and basic earnings per share (+8.9%, +83.3% YoY). Performance was driven by gaming and expansion into data-center semi-conductors, helped bolster the firms Q4 sales forecast to $7.4 bn (+7.9% above analyst estimates). Nvidia remains poised for years of potential growth, with strong demand stemming from key innovation themes such as Artificial Intelligence and Internet of Things, alongside gaming and the Metaverse.

LAM Research (+20.6%), KLA Corp (+9.8%), Applied Materials (+7.9%)

The fund's Semiconductor Equipment manufacturing names all performed strongly during the month, with LAM Research, KLA Corp and Applied Materials all featuring in the funds top four holdings. The global chip shortage had prompted chip manufacturers, such as TSMC and Samsung, to spend more than ever on capacity expansion, with the industry as a whole forecast to spend a total of $146 billion in capital expenditures this year – 50% higher than pre-pandemic levels. Upstream of this are Semiconductor Equipment Manufacturer's – natural beneficiary's of this trend. Billions of dollars of subsidies and tax breaks are being offered in Asian countries such as South Korea and Japan, whith China pouring billions into bolstering its local semiconductor industry, providing strong visibility for future growth in equipment manufacturer revenue's. LAM, KLA and Applied Materials all carried strong momentum from October into November, fueled by solid earnings results (strong and broad based demand but supply constrained), analyst upgrades to expectations and the general strong out-performance of growth. Applied Materials missed consensus and gave disappointing guidance (from hits to supply) at the end of the month, but this was not enough to put off investor enthusiasm, as all three stocks continued to climb late into November. Demand for chipmaking tools continues to outweigh supply, giving all three firms strong pricing power. While the chip shortage provides a short-term tailwind, we continue to like the long term outlook for chip equipment manufacturuers, with complex chip designs (e.g. 3D NAND Structures), 5G chips going mainstream, data-centers, IoT and autnomous driving all require higher chip performance and complexity.

Paypal (-20.5% USD):

Paypal was the funds bottom performer during November, falling -11% in a single day off the back of Q3 earnings. While remaining strong on an absolute basis, growth in the third quarter slowed, leading the firm to lower earnings and revenue guidance for the full year, prompting a wave of analyst downgrades. The firm had initially benefited from a surge in online spending during the pandemic, however, as consumers returned to the high-streets, a slow-down in growth was inevitable. eBay transitions to their own proprietary payments system offered an additional headwind. Despite reducing guidance, the firm was up against a difficult comparative year and the new guidance still implies +19% year-on-year growth. Total payment volume for the year increased +24%, helping to drive revenue growth of +13% year on year for Q3. eBay now accounts for just 3% of Paypal transaction volume (down from 7% last year), therefore the largest impact of this headwind has already passed. Paypal retains a strong runway for growth, particularly in electronic payments, as the firm continues to add net new active accounts significantly ahead of pre-pandemic levels (+13.3 million Q3). Their Venmo platform continued to grow rapidly and their acquisition of Curv, a cloud based infrastrucuture for digital assets, allows greater exposure to the growing crypto-currency space. Global cash payments are continuing to fall vs electronic payments and in our view, Paypal retains strong strategic positioning in the payments space.

We thank you for your continued support.

Portfolio Managers

Matthew Page, CFA

Dr Ian Mortimer, CFA

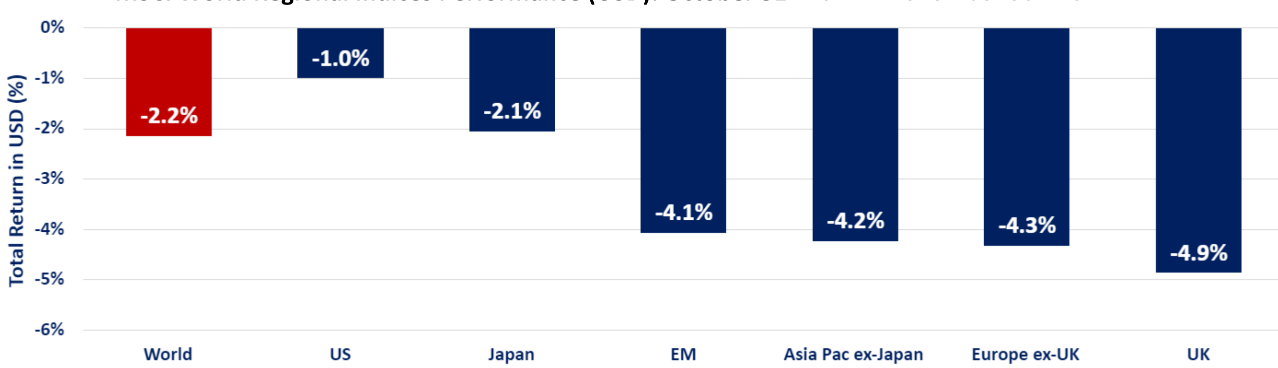
Summary performance

For the month of November, the Guinness Atkinson Global Innovators Fund provided a total return of 0.74% (USD) against the MSCI World Index net total return of -2.19% (USD). Hence the fund outperformed the benchmark by 2.93% (USD). Year to date, the fund has produced a total return of 17.07% (USD) against the MSCI World 16.82% (USD).

In USD terms, global equity performance was broadly negative over the month of November, with declines across all key regions. The month started strongly, continuing the positive performance trends of October where sentiment from a strong earnings season outweighed concerns over disrupted supply chains, inflation, and a hawkish federal reserve. Indeed, intra-month the S&P 500 and Stoxx 600 once again reached record highs. However, this positive momentum reversed in the last week of November and the sharp falls left indices in negative territory for the month as a whole.

The World Health Organization labeled the new "Omicron" strain as a "variant of concern" in the final week of the month, spooking the market and leading to one of the largest sell-offs of the year. Governments rushed to respond, with the UK accelerating their booster vaccine program and tightening rules around mask wearing. EU member states and the US, amongst others, responded through banning travel from high-risk countries in southern Africa. Respite from Biden's announcement that no new lockdowns would be imposed was short lived, as vaccine maker Moderna announced on the last day of the month an expected "material drop" in vaccine efficacy for fighting the Omicron variant.

MSCI World Regional Indices Performance (USD): October 31st 2021 – November 30th 2021



Source: Bloomberg, Guinness Atkinson Asset Management

From a factor perspective, growth and quality stocks outperformed their value counterpart in November, helping to drive fund outperformance. Technology, one of the biggest winners during the earlier phases of the pandemic, led the rotation and was the only sector to deliver positive performance over the month. However, it was a somewhat narrower group of tech stocks that led gains, with the more 'speculative' or 'hyper growth' tech companies actually

Performance data quoted represents past performance and does not guarantee future results. The investment return and principal value of an investment will fluctuate so that an investor's shares, when redeemed, may be worth more or less than their original cost. Current performance of the Fund may be lower or higher than the performance quoted.

For most recent month-end and quarter-end performance, https://www.gafunds.com/our-funds/global-innovators-fund/#fund_performance or call (800) 915-6566

underperforming over the period. Consumer Discretionary also outperformed, buoyed by strong Black Friday sales. Quality stocks continued to outperform both growth and value, showing investors ongoing appetite for companies with robust balance sheets and potentially steadier earnings in periods of uncertainty.

Over the month of November, fund performance can be attributed to the following:

- Stock selection was strong across a broad base of sectors, particularly names within Industrials, Communication Services, Consumer Discretionary and Information Technology. Most notably, ABB and Schneider significantly outperformed their Industrials peers, and helped the Industrials sector offer the largest source of outperformance within the fund.
- From an allocation perspective, having a significant overweight position to the only positively performing sector during November, Information Technology, helped drive performance. In particular, a significant overweight position to Semiconductor names was a positive for the fund, as names such as Nvidia (+28% USD) and LAM Research (+21% USD) delivered strong gains.
- Broadly speaking, the relative outperformance of growth stocks to value contributed positively to performance. Having limited exposure to value-orientated sectors, in particular Financials (1 holding) and Energy (0 holdings) aided relative performance, with each sector underperforming the broader benchmark.

as of 11.30.2021 (in USD)	1 year	3 years annualized	5 years annualized	10 years annualized
Global Innovators, Investor Class[1]	23.09%	26.16%	20.01%	17.36%
Global Innovators, Institutional Class[2]	23.40%	26.48%	20.31%	17.54%
MSCI World Index NR	21.78%	16.88%	14.61%	12.21%

as of 09.30.2021 (in USD)	1 year	3 years annualized	5 years annualized	10 years annualized
Global Innovators, Investor Class1	28.46%	20.22%	19.04%	18.12%
Global Innovators, Institutional Class2	28.79%	20.53%	19.33%	18.29%
MSCI World Index NR	28.82%	13.13%	13.73%	12.67%

All returns after 1 year annualized.

[1] Investor class (IWIRX) Inception 12.15.1998 Expense ratio* 1.24%
[2] Institutional class (GINNX) Inception 12.31.2015 Expense ratio* 0.99% (net); 1.07% (gross)

[2] Performance data shown for Global Innovators, Institutional Class (GINNX), prior to its launch date on 12/31/15, uses performance data from the Global Innovators, Investor Class (IWIRX).

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*The Advisor has contractually agreed to reimburse expenses (excluding Acquired Fund Fees and Expenses, interest, taxes, dividends on short positions and extraordinary expenses) in order to limit the Fund's Total Annual Operating Expenses to 1.24% for the Investor class and 0.99% for the Institutional class through June 30, 2025. To the extent that the Advisor absorbs expenses to satisfy this cap, it may recoup a portion or all of such amounts absorbed at any time within three fiscal years after the fiscal year in which such amounts were absorbed, subject to the expense cap in place at the time recoupment is sought, which cannot exceed the expense cap at the time of waiver. The expense limitation agreement may be terminated by the Board of the Fund at any time without penalty upon 60 days' notice.

Mutual fund investing involves risk and loss of principal is possible. Investments in foreign securities involve greater volatility, political, economic and currency risks and differences in accounting methods. These risks are greater for emerging markets countries. The Fund also invests in medium and smaller companies, which will involve additional risks such as limited liquidity and greater volatility. The Fund's focus on the technology, internet and communications sectors are extremely competitive and subject to rapid rates of change.

Securities mentioned are not recommendations to buy or sell any security.

Current and future portfolio holdings are subject to risk.

Top 10 holdings for Global Innovators Fund, as of 11/30/2021:

1.	NVIDIA Corp	5.03%
2.	KLA-Tencor Corp	3.75%
3.	Microsoft Corp	3.72%
4.	Apple Inc	3.71%
5.	NIKE Inc	3.71%
6.	Lam Research Corp	3.70%
7.	Adobe Inc	3.69%
8.	Intercontinental Exchange Inc	3.58%
9.	Applied Materials Inc	3.53%
10.	Thermo Fisher Scientific Inc	3.50%

For a complete list of holdings for the Global Innovators Fund, please visit: https://www.gafunds.com/our-funds/global-innovators-fund/

The Fund's investment objectives, risks, charges and expenses must be considered carefully before investing. The statutory and summary prospectuses contain this and other important information and can be obtained by calling 800- 915-6565 or visiting www.gafunds.com. Read and consider it carefully before investing.

Earnings growth is not representative of the Fund's future performance.

MSCI World Index is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of developed markets.

The Consumer Price Index (CPI) is a measure of the average change over time in the prices paid by urban consumers for a market basket of consumer goods and services. Indexes are available for the U.S. and various geographic areas.
The Producer Price Index (PPI) program measures the average change over time in the selling prices received by domestic producers for their output.

MSCI World Growth Index is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of large and mid cap securities exhibiting overall growth style characteristics across developed markets.

MSCI World Value Index is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of large and mid cap securities exhibiting overall value style characteristics across developed markets.

Capital expenditures (CapEx) are funds used by a company to acquire, upgrade, and maintain physical assets such as property, technology, or equipment. CapEx is often used to undertake new projects or investments by a company.

Gross domestic product (GDP) is the total monetary or market value of all the finished goods and services produced within a country's borders in a specific time period.

Earnings per share (EPS) is calculated as a company's profit divided by the outstanding shares of its common stock.

The MSCI World Quality Index is based on MSCI World, its parent index, which includes large and mid cap stocks across 23 Developed Market (DM) countries. The index aims to capture the performance of quality growth stocks by identifying stocks with high quality scores based on three main fundamental variables: high return on equity (ROE), stable year-over-year earnings growth and low financial leverage.

The S&P 500 Index, or Standard & Poor's 500 Index, is a market-capitalization-weighted index of 500 leading publicly traded companies in the U.S.

SXXP, the STOXX Europe 600 Index is derived from the STOXX Europe Total Market Index (TMI) and is a subset of the STOXX Global 1800 Index

One cannot invest directly in an index.

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