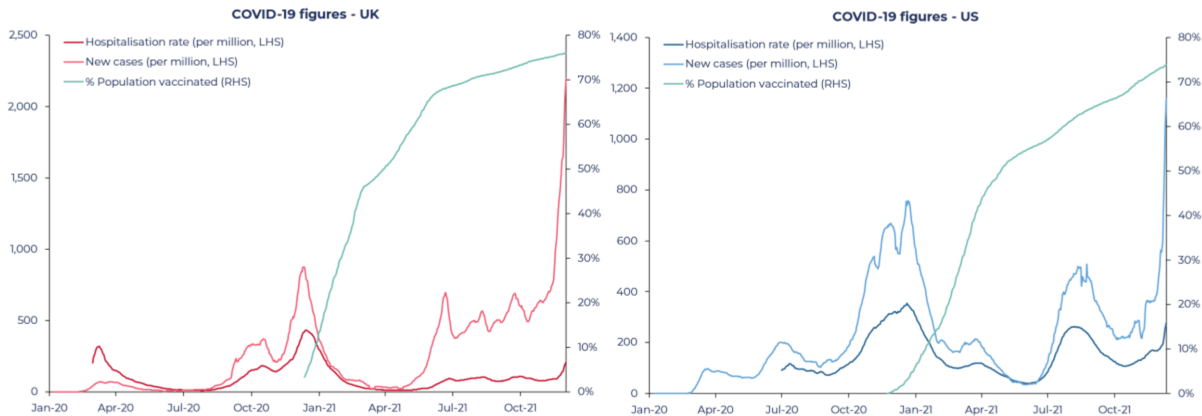
Guinness Atkinson
Global Innovators Fund
Managers Update – January 2022

GUINNESS ATKINSON FUNDS

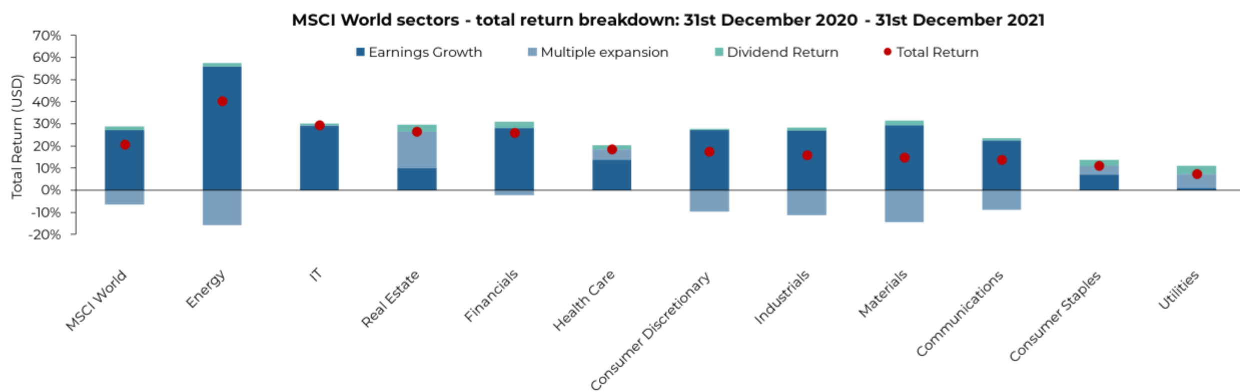
2021 in Review:

As we exit the 2nd full year of COVID-19, great strides have been made in combating this virus across the world. While variants remain a key threat, large scale vaccine rollouts globally, combined with mobility restrictions, have gone a long way in enabling many nations to return, cautiously, towards whatever can now be dubbed a normality. Indeed, while the latest variant, Omicron, continues to threaten new lockdown measures, the vaccination rollouts – with subsequent boosters– have shown strong signs of breaking the link between infections and hospitalizations. In the UK, for example, 76% of the population has had at least 1 vaccination, and as can be seen on the left-hand chart below, despite the new wave of infections arising from Omicron, hospitalization rates have continued to hold relatively low.



Source: Our World in Data, as of 12.31.2021

Despite COVID-19 remaining ever present, developed equity markets marked another strong year – the MSCI World Index returned its 3rd successive double-digit year. With equity valuations broadly above their historic averages at the end of 2020, it has been the recovery in earnings that has generally more than offset the contraction in equity market valuations that has driven positive returns in 2021.



Source: Bloomberg, as of 12.31.2021

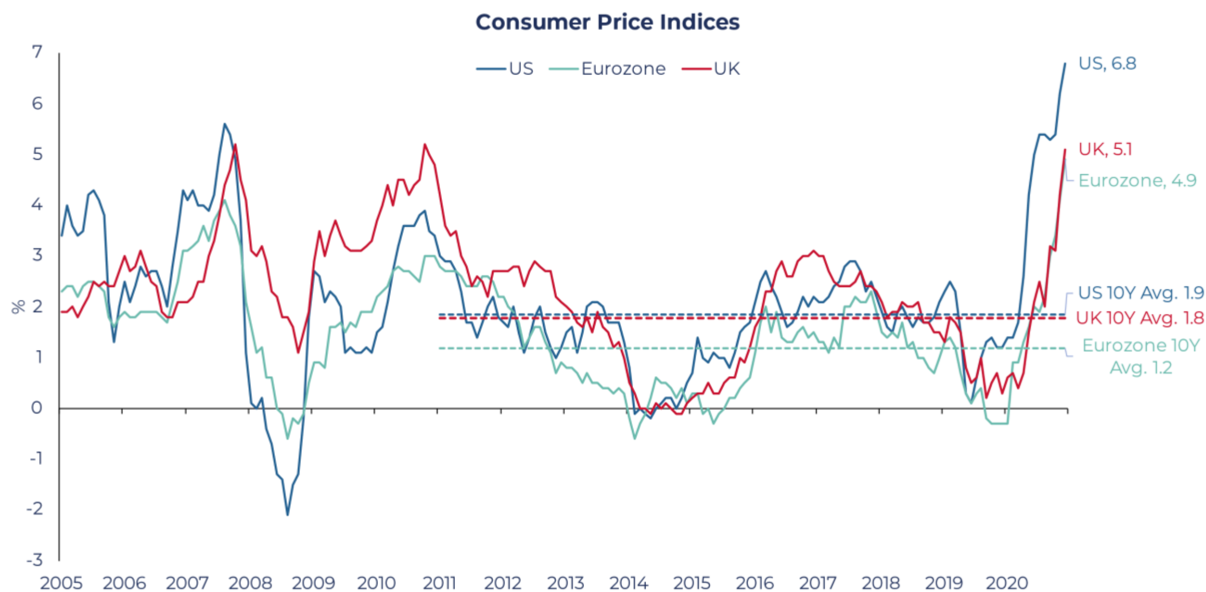
However, despite strong equity returns in 2021, the year was marked by new pandemic related risks: supply chain disruptions, persistently high inflation, and rising energy and commodity prices to name a few.

Supply vs Demand

While economic demand has rebounded relatively well, spearheaded by low interest rates, monetary easing, large fiscal stimulus packages, and pent-up consumer savings, the varying degrees to which nations have experienced new waves of infection as well as their vaccination rollouts, has led to supply constraints and bottlenecks for businesses. Possibly none more so than within the semiconductor industry where the combination of an influx in demand for new chips and supply constraints has led, most notably, to the automotive industry suffering. However, constraints have not been confined to the semiconductor industry – shipping container shortages and local lockdowns in Vietnam and Indonesia, led to supply chain issues for apparel businesses including fund holding Nike. While the holdings within the fund are not immune to these disruptions, we had relatively little exposure and we believe they are broadly managing them well – as outlined in the fund's November update.

Inflation and interest rate rises

Further, a rebound in economic activity, alongside localized energy constraints have led to a large rise in oil and energy prices. This rebound in the oil price in 2021 from the new lows of 2020 and the changing inflation outlook meant Energy was the best performing sector over the year, which was a drag on fund performance with its lack of exposure. These rising energy prices alongside other price increases for select goods and services from the economic rebound has led to decade-high inflation figures in many regions.



Source: Bloomberg, as of 12.31.2021

The immediate question for investors and central banks at the beginning of 2021 was whether higher levels of inflation would be transitory or persistent. It became clearer by the second half of 2021 that companies were raising their prices in response to higher input costs and that higher levels of inflation were going to persist for longer than many had anticipated. Indeed, by year-end, Jerome Powell, the US Fed Chairman, told congress that the Central Bank was now "retiring" the word "transitory". Major central banks are now beginning, or at least planning, to reduce their monetary easing programs and increase the possibility of higher interest rates in the near term – the UK's central bank deviated from its US and European counterparts in Q4 by increasing its target interest rate by 25 basis points (bps) whereas the US and EU remained steady, for now.

The possibility of higher interest rates has led investors to become cautious on higher-duration stocks, such as faster growing IT stocks where much of their value is based on expectations of future growth. This was most keenly felt towards the end of the

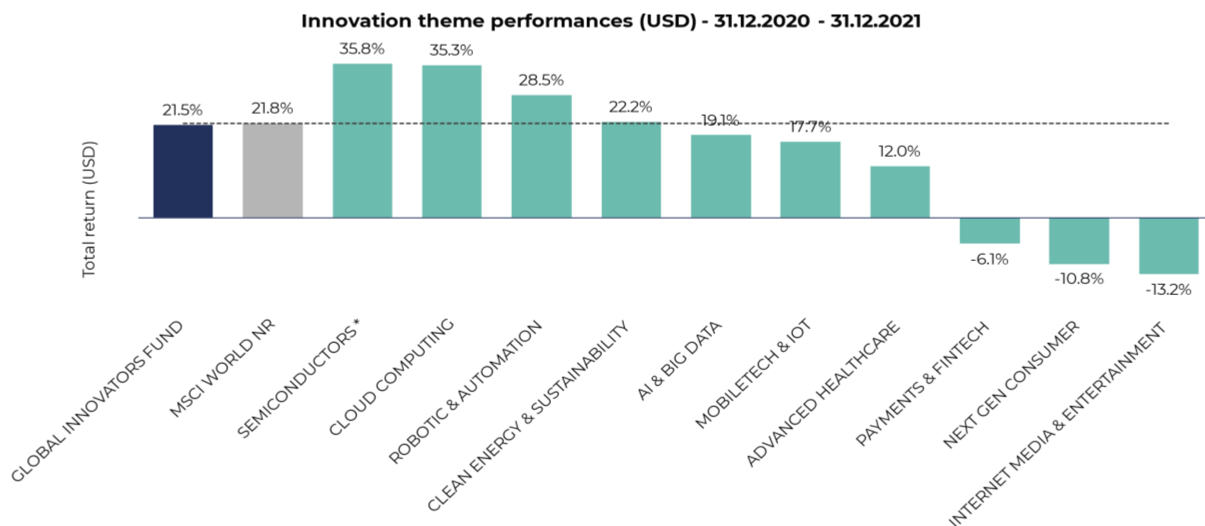
year in non-profitable technology companies and with central bank policies shifting towards more hawkish stances this will be something to watch in 2022. While our high exposure to the IT sector means we are not immune from the potential impact of rising rates on valuations, our investment philosophy has always been to seek out companies that have historically delivered profitable growth which steers us away from companies that are the most sensitive to changes in interest rate expectations.

Chinese clampdown

Contrary to most Western markets, Chinese equities were down 21.7% (TR in USD) over the year as GDP slowed more than anticipated, regulators continued their crackdown on multiple fronts, and fear over the solvency of Evergrande, China's largest property developer, highlighted a highly indebted sector. Indeed, over the latest 3 quarters, China's GDP disappointed investors, with new COVID waves and subsequent localized lockdowns hampering the recovery. Most prominently from the fund's perspective was the ongoing regulatory tightening of select sectors. Going into year, the fund owned 3 Chinese equities: Anta Sports, Tencent, and New Oriental Education. However, as highlighted later in the "Changes to the portfolio" section, we felt that the tightening regulations and scrutiny over New Oriental Education and Tencent led to potential downside in the near-term and as such we exited those two positions. As a result, Anta Sports is the fund's only Chinese equity. However, we feel confident Anta Sports, and the broader apparel industry, is unlikely to be placed under regulatory scrutiny in the near-term – particularly with the 2022 Winter Olympics to be held in China for which Anta Sports is the official sportswear partner.

Innovation Themes

Finally, we look at how our innovation themes performed over the year. In contrast to 2020 where 9 out of our 10 themes outperformed the benchmark, 2021 was a much more mixed picture. In 2021, 6 out of 10 themes underperformed the benchmark as a number of companies within these themes saw valuations contract and growth expectations become more realistic. Despite the relatively weaker performance among several of our themes in 2021, the fund still managed to keep up with the broad benchmark thanks to our stock selection.



Source: Guinness Atkinson Asset Management, Bloomberg, as of 12.31.2021

*Semiconductors is not one of our innovation themes, however, these companies fit into multiple themes and as such we find it beneficial to include in this analysis

Clean Energy & Sustainability:

Building upon a very strong 2020, clean energy continued its strength into 2021 (albeit relatively weaker). Throughout the period, nations have prioritized clean energy projects in the recovery from the pandemic. This was further emphasized by 2021's Conference of Parties 26 UN Climate Talks held in Glasgow in which nations agreed a new "Glasgow Climate Pact" to reduce coal usage. The talks also saw pledges from Brazil to reverse deforestation by 2030 (although later clarified to only illegal deforestation), and for India to draw half its energy requirement from renewable sources by 2030. With 140 countries now pledging to reach net-zero emissions – around 90% of current global greenhouse gas emissions – the emphasis now is on how these nations will reach these ambitious goals. US President Biden recently signed the historic $1tn Infrastructure bill which, among other things, includes $50bn for climate resilience and weatherization, $65bn for clean energy and grid-related investments, and $55bn to expand access to clean drinking water. The bill also clears the way for Biden's more ambitious climate bill dubbed the "Build Back Better Act", which aims to invest $555bn to combat climate change and cut greenhouse emissions. Notable fund beneficiaries should include **Schneider Electric**, **ABB**, and **Infineon**.

Semiconductors:

2021 ended as another good year for the semiconductor industry with 4 of the fund's top 5 performing stocks coming from the industry. Albeit punctured by supply chain constraints, this did little to subdue stock performance amidst ever increasing demand from current and new use cases. Indeed, the world's foundries have vastly expanded their capital expenditure plans to accommodate the need for extra capacity. These include:

	Proposed Outlay	Period
TSMC	$100bn	3 years
Intel	$20bn	2 new fabs in Arizona
Samsung	$116bn	Over a decade

Source: Company data

This ramp up in capital expenditure has been particularly beneficial to the fund's semiconductor equipment manufacturers, **Applied Materials** (+83.6% USD in 2021), **KLA Corp** (+68.0%), and **Lam Research** (+53.7%), which supply foundries with the equipment required to fabricate semiconductor chips. While the semiconductor industry has historically been highly cyclical, the on-going acceleration in demand from expanding user cases has at the very least lengthened the expansion phase of this cycle and potentially reduced the degree of cyclicality in the industry.

Advanced Healthcare

The worst performing theme over the last 2 years was Advanced Healthcare (weakest over 2020, and 7th weakest in 2021). While prominent in the fight against COVID-19, the sector has suffered with elective surgeries and drug trials postponed. While select diagnostics and pharmaceutical companies have been able to service consumers through COVID-19 testing and vaccinations, the majority have not. However, these postponements should be temporary with the easing of national mobility restrictions and COVID-19 hospitalizations, enabling patients and companies to begin their normal routines once more.

Review of 2021 fund performance

Over the course of 2021, we have seen 3 broad trends in terms of style/rotation as outlined below:

Source: Guinness Atkinson Asset Management, Bloomberg, as of 12.31.2021

(1) the start of year to mid-May when value outperformed growth on the back of the "reflation/reopening trade" that started in November 2020 when the vaccine news was released and both economic growth-sensitive value stocks (such as Industrials) and rate-sensitive value stocks (like Banks) did well. Overall, the Fund underperformed the benchmark by 3.13% (TR in USD) over this period given that those lower growth, lower quality stocks – that had previously been hit hardest from COVID lockdowns – were the ones driving benchmark gains.

(2) mid-May (14th) to mid-September (21st) when this "reflation" trend reversed and growth outperformed value as the Delta variant came to prominence, and we started to see a slowdown in the economy and a coincident fall in rates with US 10yr treasury yields dropping from 1.7% back to 1.2%. Quality companies also performed well as investors focused on a slower growth outlook and increased market uncertainty. The Fund outperformed the benchmark by 4.11% (TR in USD) in this period, as we might expect in a growth-led rally.

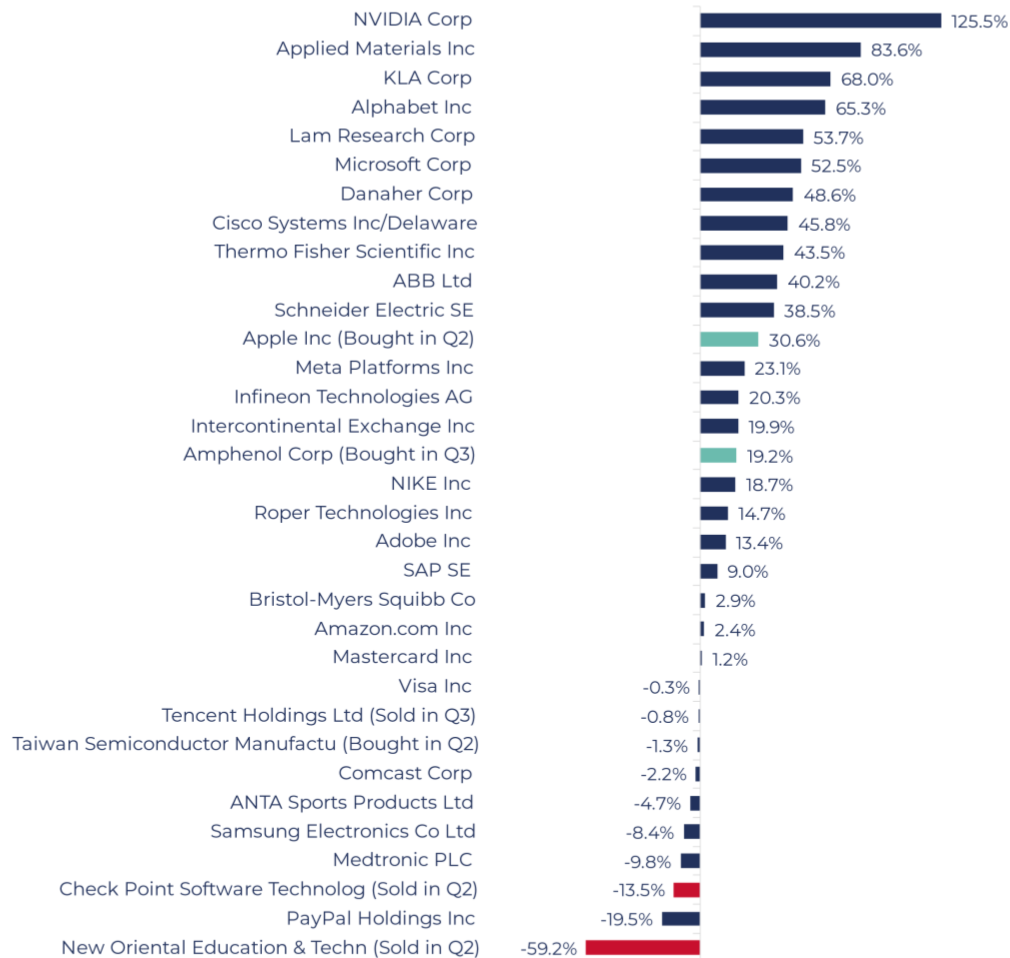
(3) mid-September (21st) to year end when value and growth switched in-and-out of vogue as markets dealt with another Covid-19 variant, supply-chain shortages, higher inflation, a more hawkish Fed, and increased worries around China and global growth in general. In this period the Fund's high-quality companies – with secular growth themes – weathered the various uncertainties well. The fund underperformed the MSCI World Index by 1.18% (TR in USD), however, was in-line with the MSCI World Growth Index and 21.8% ahead of the Goldman Sachs Non-Profitable Tech basket which sold off sharply over this period.

More broadly, over the entire 2021, fund performance can be attributed to:

- IT, the fund's largest sector exposure, was the largest positive contributor to the fund's relative performance particularly through the exposure to semiconductors – 4 of the top 5 performers were semiconductor stocks (Nvidia +125.5%, Applied Materials +83.6%, KLA Corp +68.0%, Lam Research +53.7%, all TR in USD).
- Fund exposure to Industrials was the second largest contributor through positive stock selection to clean energy & sustainability related stocks including ABB (+40.2% TR in USD) and Schneider Electric (+38.5%).
- Consumer Discretionary was the largest drag primarily through the fund's holding of Chinese stocks New Oriental Education (-59.2% TR in USD, until sold in Q2) and Anta Sports (-4.7%).
- Additionally, not owning any Energy stocks – the best performing sector over 2021 - was also a drag on performance.

Individual stock performance in 2021

The chart below shows the fund constituents' performances over 2021 in USD.



Source: Guinness Atkinson Asset Management, Bloomberg, as of 12.31.2021

Individual companies that performed well over the year included Nvidia (125.5% TR in USD) and Semiconductor Equipment Manufacturers - Applied Materials (+83.6%), KLA Corp (+69.0%) and Lam Research (+53.7%)

Following a stellar 2020 in which Nvidia was up 122.3%, the company was again the fund's top performing stock rising another 125.5%. Strength in semiconductor stocks and a series of strong earnings releases drove performance over the year, despite regulators in the US, UK, and EU all raising concerns over Nvidia's proposed acquisition of ARM. The UK entered 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%. There was also optimism over opportunities in the Metaverse primarily through Meta Platforms where Nvidia's chips would be a key enabler of the required technology. The firm itself spoke about the Metaverse opportunity, their own software platform

Omniverse (used to create 3D spaces) giving the firm a head start. Nvidia remains poised for years of growth, with strong demand stemming from key innovation themes such as Artificial Intelligence and Internet of Things, alongside gaming and the Metaverse.

The fund's semiconductor equipment manufacturing names all performed very strongly during the year, with **Applied Materials**, **KLA Corp** and **Lam Research** all featuring in the top five fund holdings. TSMC, the largest chip foundry in the world, announced in January their plans to increase capex spending from $17bn in 2020 to $28bn in 2021, helping to lift semiconductor equipment manufacturers in general. Applied Materials performed particularly well during Q1, gaining 54.81%. 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 expected to have spent a total of $146 billion in capital expenditures in 2021 – 50% higher than pre-pandemic levels. Upstream of this trend, and its natural beneficiaries, are the semiconductor equipment manufacturers.

Governments around the world are realizing how critical semiconductor supply is to their economic growth and consequently billions of dollars of subsidies and tax breaks are being offered in the US, Europe and Asia providing strong visibility for future growth in equipment manufacturer revenues. 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) and upgrades to analyst expectations. 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 manufacturers, with complex chip designs (e.g. 3D NAND Structures), 5G chips going mainstream, data centers, Internet of Things and autonomous driving all requiring higher chip performance and complexity.

Individual companies that were weak over the year included PayPal (-19.5% in USD) and Medtronic (-9.8% in USD).

PayPal was undoubtedly a beneficiary from the pandemic, which not only accelerated the shift from cash to digital payments but fomented a surge in online shopping. This was reflected in rapid stock gains of c. 180% during the first 16 months of the pandemic (March 2020 – July 2021), reaching record highs up until days before the firms Q2 earnings release. Over the remainder of the year, the stock declined 38%, taking overall 2021 performance into negative territory (-19.5% TR in USD). A weak Q2 earnings release, which included a miss to consensus for revenue alongside weak Q3 guidance markedly below expectations, caused the stocks long run of gains to end. In October, multiple sources suggested PayPal was pursuing a $45bn acquisition of Pinterest, with an unenthusiastic market response causing the stock to fall sharply. While PayPal's statement days later stated they would not pursue a deal "at this time", this was not enough to stem the negative momentum in the stock. PayPal has retained a strong runway for growth, particularly in electronic payments, as it continues to add net new active accounts. Further, global cash payments are continuing to fall versus electronic payments, and, in our view, PayPal retains strong strategic positioning in the payments space.

Medtronic

As noted previously, stocks exposed to our Advanced Healthcare theme have underperformed over the last 2 years as the pandemic put a halt to elective procedures. As the world's largest pureplay medical equipment producer, **Medtronic** saw sales slow as a result – in the company's Q2 2022 results management stated that the impact of COVID-19 was greater than earlier anticipated. However, with the effects of COVID-19 on medical equipment names expected to be temporary as elective procedures accelerate, and with

the stock exhibiting attractive characteristics - 1-year forward price-earnings ratio of 17.7x, whilst guiding to revenue growth of 7-8% in 2022 – we believe the company may return to strength in the near-term.

Changes to the portfolio

We sold three positions and initiated three new positions over the course of 2021.

Number of changes to the portfolio

	2015	2016	2017	2018	2019	2020	2021
Buys	6	7	4	5	3	5	3
Sales	6	7	4	5	3	5	3
Total Holdings	30	30	30	30	30	30	30

We made no changes over Q1.

During **Q2,** we sold two positions, Check Point Software and New Oriental Education, and initiated two positions in TSMC and Apple.

Check Point Software:

A long-term holding of the fund, held since launch, Check Point Software is one of the world's largest pure-play cyber security vendors. With an increasing number of global cyber-attacks due to data proliferation, Check Point is well placed to capitalize on the growing need for more sophisticated cyber security software. However, although the company is highly cash generative (free cash flow margins >50%) with 75% of sales recurring, we felt that Check Point's growth profile was not as strong as other investment opportunities given its relatively smaller exposure to the high growth area of cloud cyber security and given its position in the highly fragmented cyber security market.

New Oriental Education:

Having seen its share price peak in February, New Oriental Education, China's second largest after-school tutoring (AST) provider, had seen sustained weak share price performance as investors grapple with continued news surrounding the potential tightening of AST regulation. While increased regulation is not new to the Chinese education industry, the more recent speculation had sent broad education share prices down. During the quarter, the State Council and Ministry of Education held a press conference to discuss the 14th Five-Year Plan on education in which they commented on "outstanding problems" within the industry including false or inaccurate advertising, teacher certificates, and teaching contents. While we believed tighter regulations could solidifying New Oriental Education's market leadership over the long-term as smaller competitors are driven out, we felt the near-term impact on New Oriental's growth meant it no longer had sufficient growth for us to justify continuing to hold it. After selling our position, the Chinese government announced the extraordinary step to ban for-profit after-school tutoring which sent the share price tumbling, with the year-end price down c.90% from the beginning of the year.

TSMC:

TSMC is the world's largest semiconductor foundry, pioneering the pure-play foundry business, working solely as an independent contractor to chip designers such as Nvidia. While we have been watching TSMC for some time, having previously owned the

business in the fund between 2010 and 2016, we now felt, given the lasting acceleration in demand for chips and clear leadership over competitors including Intel (who have suffered continued setbacks in their leading-edge foundry business), TSMC could provide ample growth going forward and enjoy a best-in-class competitive position. While we acknowledge the need for TSMC to constantly reinvest in capital expenditure (the company recently announced the intention to spend $100bn over the next 3 years to expand capacity), we also note their very robust pricing power, which allowed them to announce increases to their prices of 10%. We believe, given their track record in converting investment into market share, TSMC is positioned to continue to be the all-out leader in chip fabrication and capitalize on the growing need for semiconductors across end-markets.

Apple:

A stock that needs little introduction, Apple has been on our watchlist for some time. Having underperformed the wider market (alongside other large IT/quality growth stocks) during the first quarter, we felt this offered as good an entry point as Apple might present. While not a new story, with Apple's continued shift to service revenues alongside products, including iPhones, Apple Watch, and Mac, that create the key platform upon which to upsell services, we felt the market was underappreciating the opportunity for sustained growth from a company that has continually pushed the boundaries of innovation. Furthermore, as we enter a new stage in the economy's recovery, a company such as Apple that exhibits daunting competitive advantages (centered around the switching costs associated with the ecosystem of devices and software Apple users tend to have) further increased our conviction on the stock. Lastly, while we acknowledge the risks around "big tech" regulation, particularly in the US, we view this risk as having a lower likelihood than perhaps the markets estimate - not least with Facebook winning the first round of their antitrust case, showing the worst case of company forced break up remains low.

During **Q3**, we entered into one new position, Amphenol, following the removal of Tencent at the beginning of Q3.

Tencent:

We sold Tencent on July 6th. Increased scrutiny from the Chinese regulator on monopolistic behavior, data security and financial stability adds an inherent level of risk to investments within the region – particularly in large, mega-cap tech stocks. Following the imposition of a £2.8bn penalty on Alibaba, regulators warned Tencent (alongside 33 other online companies) that they had just a month to "completely rectify" anti-competitive practices and publicly pledge to abide by anti-competition rules. The company was summoned a second time in April, alongside 13 other fintechs, to "rectify prominent problems" in their platforms. A profit jump of +65% in Q1 (ahead of consensus) was not enough to appease investor concerns, which remain focused on whether Chinese regulation will tighten over Tencent and their payments business, as they did with Alibaba back in April. At the beginning of July, Tencent was blocked from combining gaming platforming Douyu and Huya on anti-competitive grounds. Two-weeks later, regulators ordered Tencent to end exclusive music contracts with copyright holders. Following their 2016 acquisition of China Music Group, Tencent was left controlling more than 80% of "exclusive music library resources", preventing rivals from entering the market. The firm was given 30 days to end exclusive music copyright contracts. Such is the density of the interactions the regulator is having with Tencent, the drastic measures felt across a range of industries (such as those felt by the $100bn Chinese private education industry) and hefty fines (Alibaba fined a record $2.8bn in April for abusing market dominance), the recent swing in the balance of risks is dominating the conversation around Chinese tech stocks and is likely to continue weighing heavily on the stock price.

Amphenol:

Amphenol sits in the IT sector and hardware industry group, but it could arguably sit in the Industrial sector. They are a market leader in the design, manufacture and marketing of interconnects and related components and systems – essentially equipment that allow power or data to be transferred from one device to another. These components are in demand from a broad group of

industries including data communications, automotive, aerospace, etc., and therefore the company has exposure to a number of our innovation themes and sub-themes: Clean Electric Vehicles, Robotics and Automation, Cloud Computing, AI & Big Data, 5G.

The company is managed in a very decentralized manner with 120 general managers given the freedom and responsibility to generate the target P&L in the manner they see fit. Partly this is a consequence of the fact they have grown by making small acquisitions - they have made around 50 acquisitions since 2010.

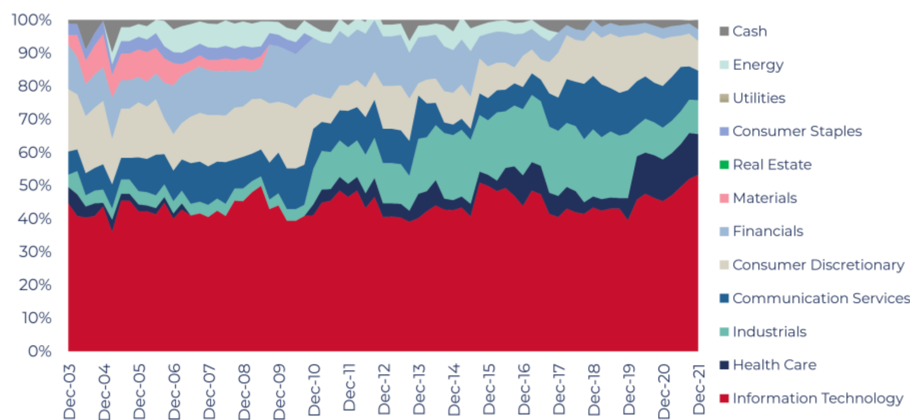
We believe they continue to grow in this manner for the foreseeable future as the industry is highly fragmented, with Amphenol being a market leader with only c5% market share. Further still, the interconnects and systems the company manufactures are often customized for individual clients and are often critically important components which increases switching costs for customers, creating an economic moat for the company.

We made no changes over Q4.

Portfolio characteristics

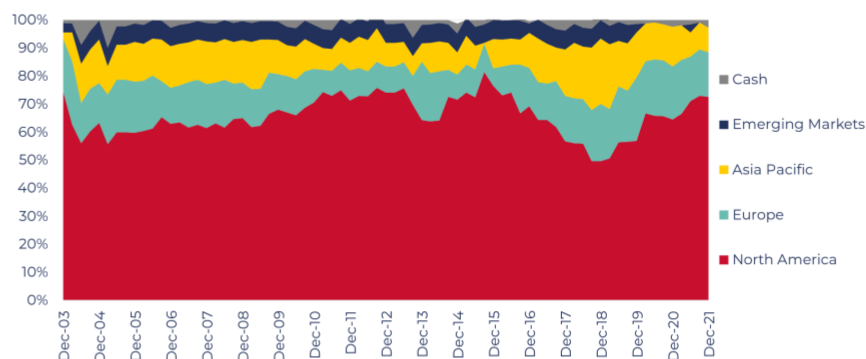
The charts below show the sector and geographic breakdown of the portfolio at the end of each quarter since the fund's inception.

Portfolio sector breakdown (all dates at quarter-end)



Source: Guinness Atkinson Asset Management, Bloomberg, as of 12.31.2021

Portfolio geographic breakdown (all dates at quarter-end)

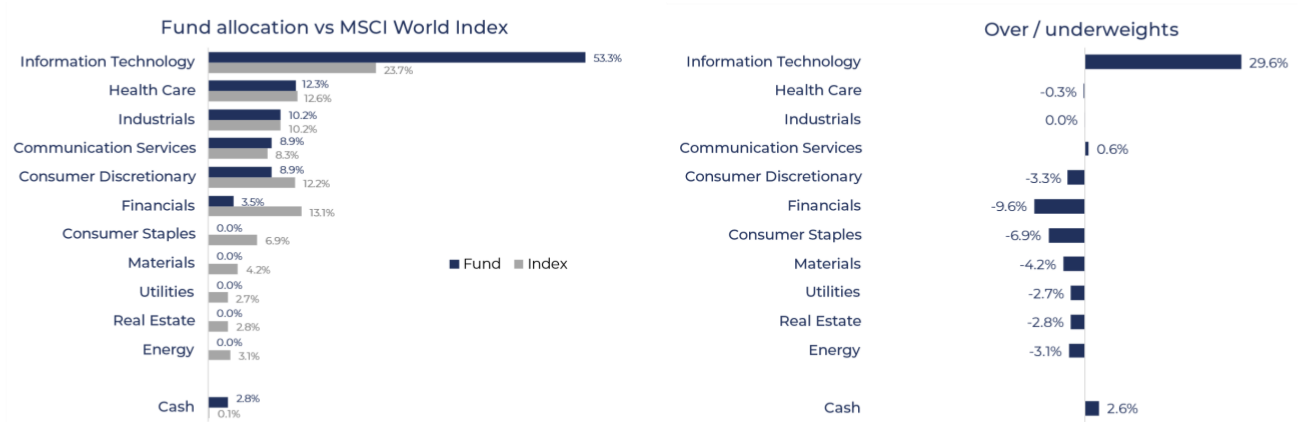


Source: Guinness Atkinson Asset Management, Bloomberg, as of 12.31.2021

Over 2021, the net effect of purchasing TSMC, Apple, and Amphenol while selling Check Point Software, New Oriental Education, and Tencent was an increase in the exposure to IT while decreasing exposure to Consumer Discretionary.

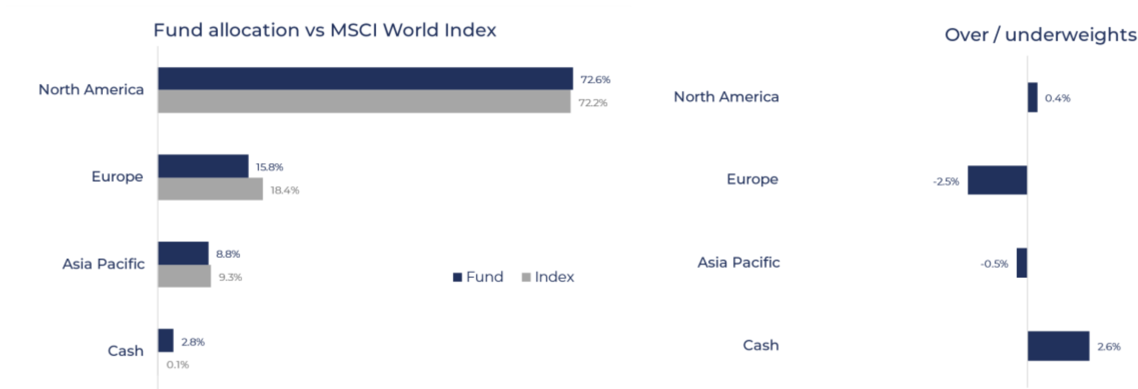
In terms of the portfolio's geographic breakdown, the portfolio continues to have a bias to the U.S and we increased this during 2021 whilst reducing our exposure to China.

Sector breakdown of the fund versus MSCI World Index



Source: Guinness Atkinson Asset Management, Bloomberg, as of 12.31.2021

Geographic breakdown versus MSCI World Index



Source: Guinness Atkinson Asset Management, Bloomberg, as of 12.31.2021

Outlook

The Guinness Atkinson Global Innovators fund seeks to invest in quality innovative growth companies trading at reasonable valuations. By doing so, we seek to invest in companies that are experiencing faster profit growth, larger margins and are less susceptible to cyclical pressures. We are pleased with how well the fund has performed despite the varying market conditions over the last 2 years. In particular, our focus on quality growth-at-a-reasonable-price has shown it strength in avoiding the highly valued non-profitable tech businesses that have swung between large rises and falls.

Portfolio metrics versus MSCI World Index

The table below illustrates how the portfolio at year-end reflects the four key tenets of our approach. The four key tenets of our approach are innovation, quality, growth, and conviction. The fund has attractive characteristics to the broad market; higher spend on intellectual property through research and development (R&D), had less capital intensiveness, had higher cash flow returns on investment, with higher historic growth. The fund currently trades at a 18.2% premium to the benchmark on a PE basis which we believe is a small price to pay for this attractive set of characteristics.

		Fund	MSCI World Index
Innovation	R&D / Sales	9.0%	7.6%
	CAPEX / Sales	6.3%	8.4%
Quality	Return-on-Capital	18.8%	6.4%
	Weighted average net debt / equity	10.1%	53.7%
Growth (& valuation)	Trailing 5-year sales growth (annualized)	12.8%	3.2%
	Estimated earnings growth	12.1%	6.7%
	PE (2021e)	24.0	20.4
Conviction	Number of stocks	30	1555
	Active share	80.7%	-

Source: Guinness Atkinson Asset Management, Bloomberg, as of 12.31.2021

In the current market environment where inflation concerns and slower growth remain top of mind, we are optimistic that the Fund's focus on high quality growth stocks, underpinned by structural changes stands us in good stead going forward. As we look into 2022 the prospects for further multiple expansion at the index level do not look particularly likely given that central banks are talking about tightening monetary policy. On the other hand, demand in the economy remains very strong, US capital expenditure is at an all-time high, and most companies are raising prices which suggests the prospects for earnings growth potential in 2022 look more positive than multiple expansion.

May we wish you a happy and prosperous New Year, and we look forward to updating you on the progress of the fund over the course of 2022.

Portfolio Managers

Matthew Page, CFA

Dr Ian Mortimer, CFA

Guinness Atkinson

Global Innovators Fund

Managers Update – January 2022

Fund Summary

as of 12.31.2021 (in USD)	**1 year**	**3 years annualized**	**5 years annualized**	**10 years annualized**
Global Innovators, Investor Class[1]	21.52%	31.36%	20.51%	18.13%
Global Innovators, Institutional Class[2]	21.86%	31.69%	20.81%	18.31%
MSCI World Index NR	21.82%	21.90%	15.01%	12.68%

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).

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.

*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.

- In 2021, the Guinness Atkinson Global Innovators Fund produced a total return of +21.5% (TR in USD), compared to the MSCI World Net TR Index return of +21.8%, therefore underperforming by 0.3%.

- On the back of a strong 2020, with the fund outperforming the MSCI World by 20.3%, it is pleasing that the fund continues to perform well through these uncertain times. Over the last 2 years, the fund has returned +65.5% compared to the MSCI World Net TR Index return of +41.2%, therefore outperforming by 24.3%.

  - While 2020 saw growth significantly outperform value stocks, 2021 was much more mixed: over the course of 2021, value and growth stocks rotated in and out of favor driven by changes in the outlook for the COVID-19 pandemic, rising inflation, supply-chain shortages, and central bank policy. However, quality stocks outperformed both styles, and with less volatility. While this led to periods of underperformance when value was particularly strong, the fund's emphasis on quality stocks supported the fund throughout.

  - Further, while many non-profitable tech stocks had a very strong 2020, 2021 brought a sharp reversal – the Goldman Sachs Non-Profitable Tech basket returned -20.7% over 2021. While the fund did underperform this basket in 2020, it did outperform considerably over 2021. This highlights the volatility that these non-profitable and somewhat speculative businesses can exhibit.

- Over 2021, fund performance versus the MSCI World Net TR Index can be attributed to:

  - IT, the fund's largest sector exposure, was the largest positive contributor to the fund's relative performance particularly through the exposure to semiconductors - 4 of the top 5 performers in the fund were semiconductor stocks (Nvidia +125.5%, Applied Materials +83.6%, KLA Corp +68.0%, Lam Research +53.7%, all TR in USD).

  - Fund exposure to Industrials was the second largest contributor through positive stock selection to clean energy and sustainability related stocks including ABB (+40.2% TR in USD) and Schneider Electric (+38.5%).

  - Consumer Discretionary was the largest drag primarily through the fund's holding of Chinese stocks New Oriental Education (-59.2% TR in USD, until sold in Q2) and Anta Sports (-4.7%).

  - Additionally, not owning any Energy stocks – the best performing sector over 2021 - was a drag on performance.

Current and future portfolio holdings are subject to risk.

Top 10 holdings for Global Innovators Fund, as of 12/31/2021:

1.	NVIDIA Corp	4.36%
2.	Apple Inc	3.84%
3.	KLA-Tencor Corp	3.81%
4.	Lam Research Corp	3.77%
5.	Microsoft Corp	3.64%
6.	Applied Materials Inc	3.64%
7.	Intercontinental Exchange Inc	3.60%
8.	Schneider Electric SE	3.58%
9.	Thermo Fisher Scientific Inc	3.55%
10.	Amphenol Corp	3.55%

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.

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.

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.

Monetary Easing is the policy in which a central bank lowers interest rates and deposit ratios to made credit more easily available.

Transitory, in the context of inflation, means that inflation will not lead to permanent economic damage.

Reflation / Reopening Trade is an act of stimulating the economy by increasing the money supply or reducing taxes, seeking to bring the economy back up to the long-term trend, following a dip in the business cycle.

Goldman Sachs Non-Profitable Tech consists of non-profitable U.S. listed companies in innovative industries. Tech is defined quite broadly to include new economy companies across GICS industry groupings. The basket is optimized for liquidity with no name initially weighted greater than 4.65%.

Return on Capital is a ratio used as a measure of the profitability and value-creating potential of companies relative to the amount of capital invested by shareholders and other debtholders.

Net Debt / Equity is a measure of a company's financial leverage. It is calculated by dividing its net liabilities by stockholders' equity. This is measure using the most recent balance sheet available.

Earnings Growth is the annual compound annual growth rate of earnings from investments.

Active Share measures how much an equity portfolio's holdings differ from the benchmark index constituents.

MSCI World Value Index captures large and mid cap securities exhibiting overall value style characteristics across 23 Developed Markets countries. The value investment style characteristics for index construction are defined using three variables: book value to price, 12-month forward earnings to price and dividend yield.

One cannot invest directly in an index.

Distributed by Foreside Fund Services, LLC