Guinness Atkinson
Global Innovators Fund
Managers Update – April 2021

Quarter in review:

As we entered 2021, governments began rolling out their mass vaccination plans amidst rising cases amongst many regions. Indeed, come mid-January, the UK and the US experienced their third wave, and highest peak of infections. However, as regions continued to restrict movement by the end of the quarter, 46% of the UK population had received at least one dose of vaccine while 29% of the US had also received a vaccine.

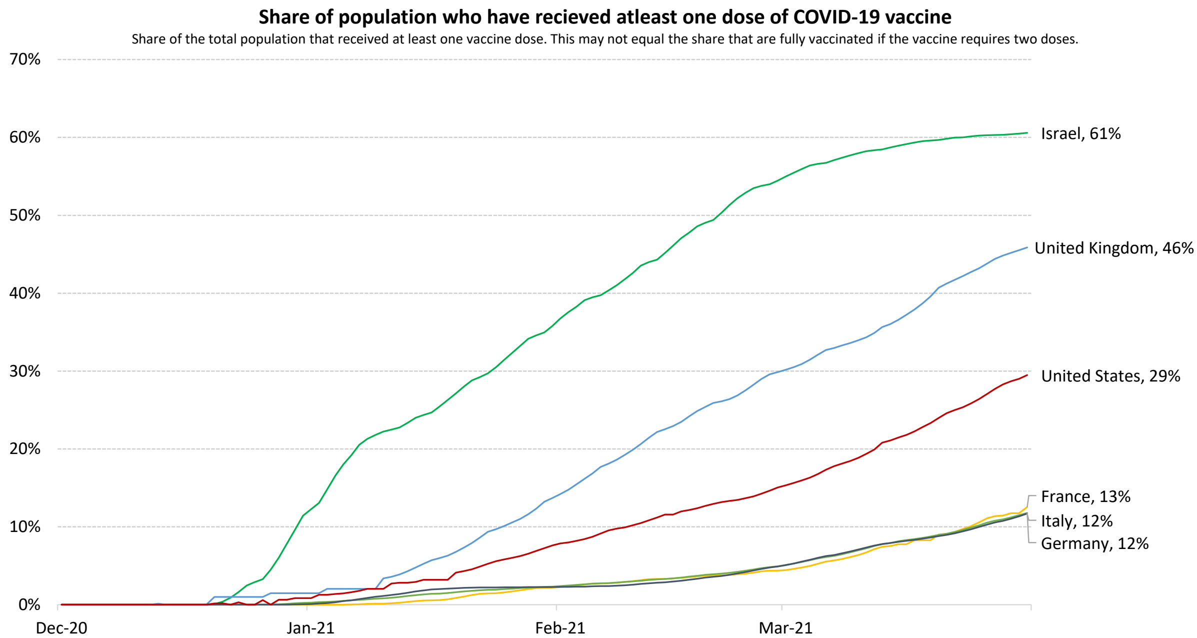


Figure 1: Share of population who have received at least one vaccine dose. Source: Our World in Data, as of 31st March 2021

US continues its unprecedented fiscal stimulus….

One of the cornerstones of President Biden's presidential campaigns was a huge stimulus package primarily aimed at infrastructure and renewable energy to reinvigorate the US economy post COVID-19. During the quarter, the plan was unveiled which would cost more than $2tn and would in-part be funded by plans to increase corporate tax from 21% to 28% - a partial reversal of then-President Donald Trump's tax reduction from 35% to 21% - while also increasing the GILTI tax (intangible low-tax income) which would primarily affect low-capital intensive, high intangible sectors including IT. This came no-sooner after President Biden had formally passed a $1.9tn stimulus package and continues to add to the government's unprecedented fiscal policy in the wake of the pandemic. Although the fund has high exposure to these asset-light areas, the majority of fund holdings are multinational corporations which should help dampen any negative effects. Besides, any tax proposal would need to pass through the Senate where the Democrats hold a slim majority, and as such may be subsequently watered-down.

…while the US Fed continues to provide monetary support

Elsewhere in the US, the US Fed agreed to keep interest rates steady at ultralow levels whilst maintaining it won't start scaling back its asset purchases until it sees "substantial further progress". Further, minutes from the US Fed meeting show an increasing optimism for a brighter economy in the near-term as economic indicators become more favourable and as the vaccine program continues.

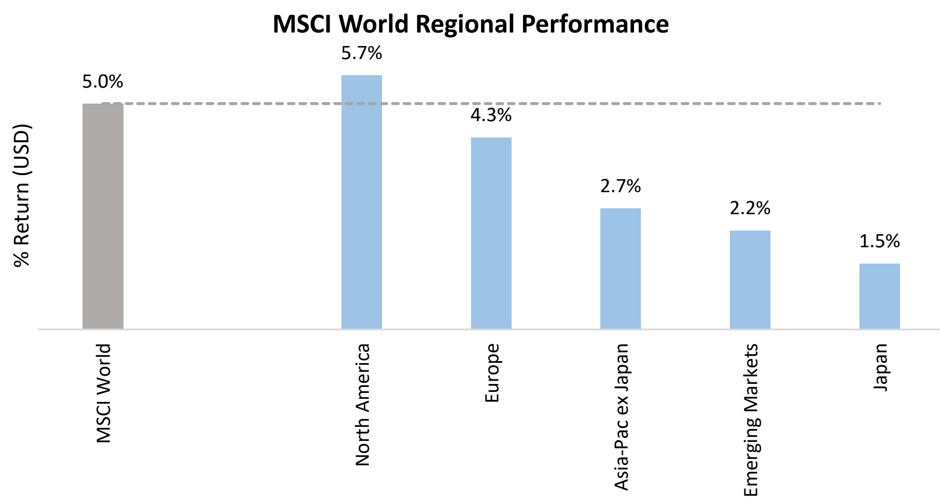


Figure 2: MSCI World regional performance (USD). Source: Bloomberg, as of March 31st 2021

In all, continued monetary and fiscal support left the US as the best performing region over the quarter. From the fund's perspective, the exposure to the US was the largest regional contributor to relative performance primarily through stock selection in US semiconductor businesses.

But does inflation loom on the horizon?

With vaccine rollouts underway, COVID-19 case numbers falling in many regions, and further government stimulus packages in the pipeline, investors turned their attention to the possibility of higher inflation (as implied by the 10y breakeven rate below) and thus higher interest rates in the nearer term.

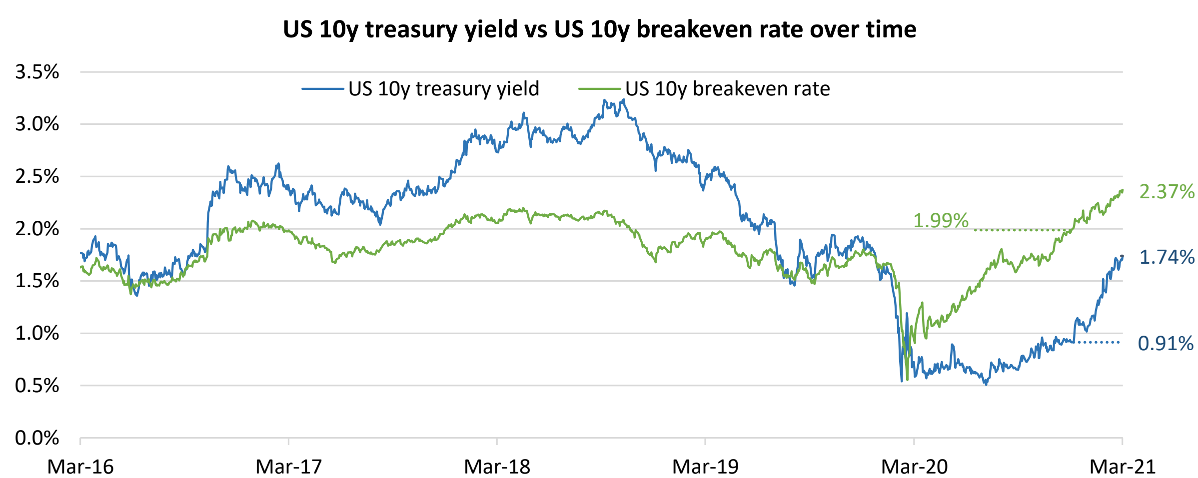


Figure 3:US 10y treasury vs US 10y breakeven rate. Source: Bloomberg, as of March 31st 2021

This particularly dragged on the outlook for growth stocks which are expected to potentially see earnings growth further out into the future and so are more vulnerable to higher discount rates. In contrast, value stocks performed relatively better as the "stay-at-home" trade gave way to the "re-opening" trade. Higher commodity prices also helped value stocks, with oil up 22% and copper up 13% over the quarter.

Not surprisingly, the sectors that are most sensitive to the economic cycle – such as Energy, Financials – performed best over the quarter and created a drag on the portfolio. In the Fund, we have no exposure to the Energy sector or Banks as we see little innovation occurring here.

While the rotation was a drag on fund perfomance over the quarter, the market's focus on higher inflation should not necessarily be viewed as a negative. Inflation in the US has continued to trend below the US Fed's 2% target even with quantitative easing post the financial crash unable to stimulate substantial increases in inflation. However, with unprecidented monetary and fiscal packages in response to the COVID-19 pandemic – far greater than that of the financial crisis – investors are now likely pricing in higher inflation for the next 5 years.

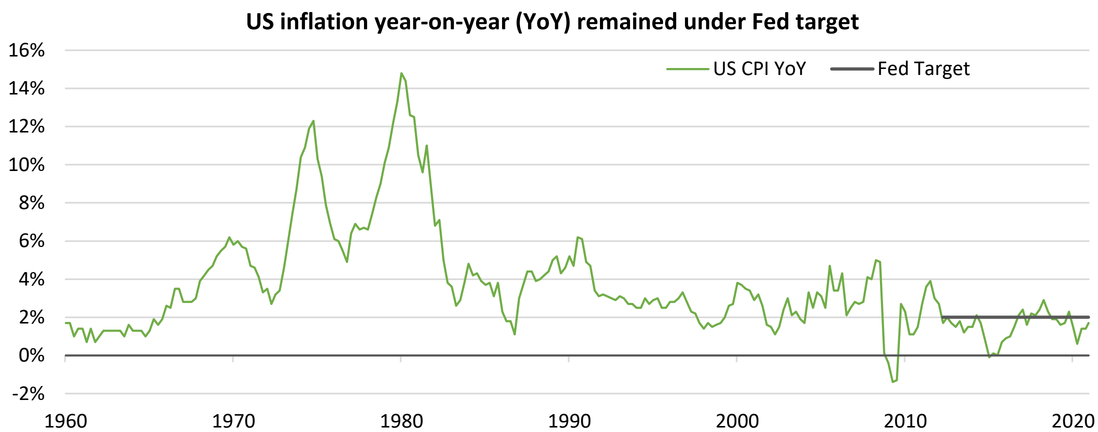


Figure 4: US CPI over time. Source: Bloomberg, as of March 31st 2021

However, rising inflation expectations and interest rates can be taken as a positive sign with economies returning to growth. What is more, history shows us there is reason to be optimistic from an equity perspective, with increases in inflation expectations from a moderate base, correlated with strong equity markets.

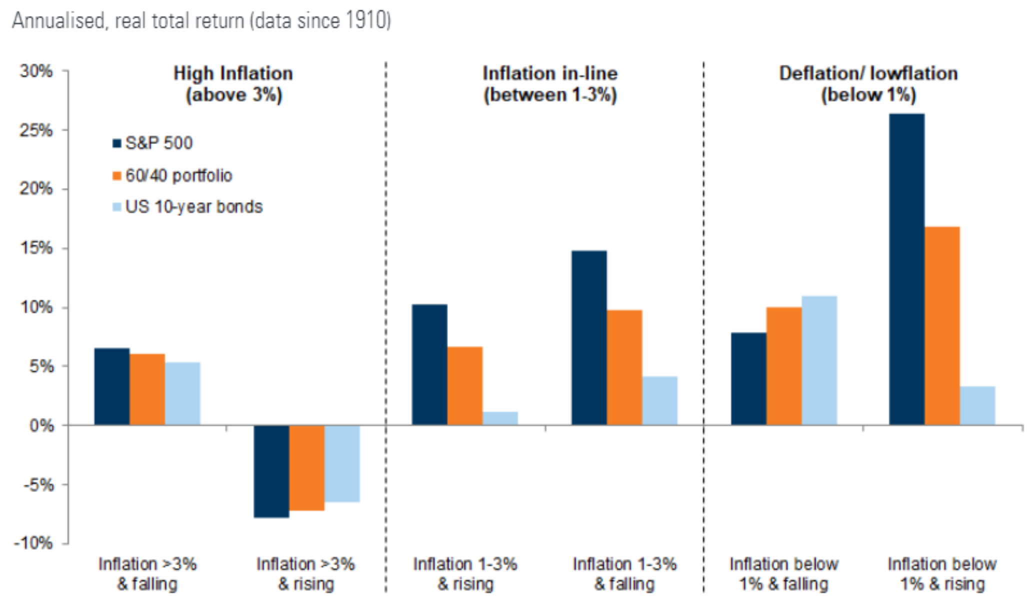


Figure 5: Basket performances based on economic environment. Source: Robert Shiller, Goldman Sachs Investment Research

Semiconductor stocks continued to benefit from shift to new norm:

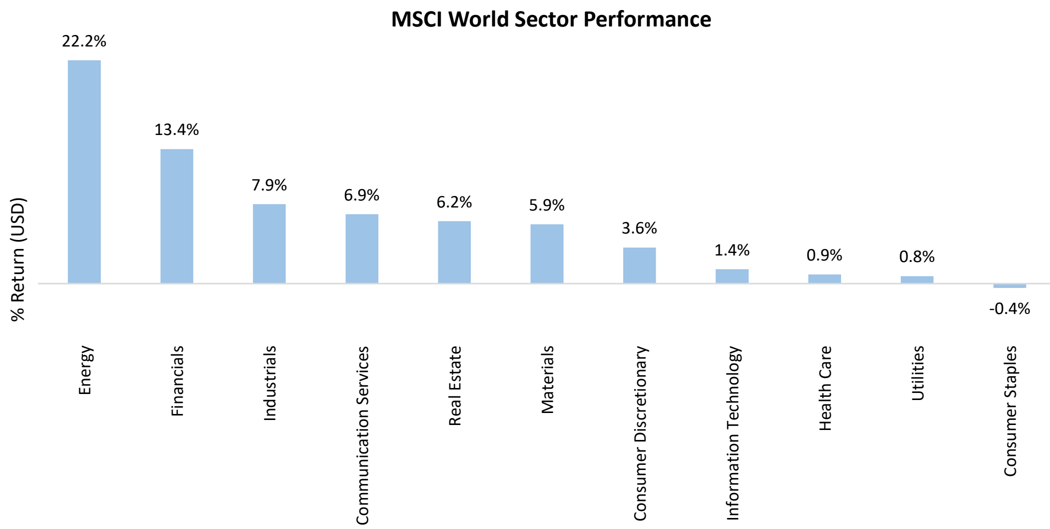


Figure 6: MSCI World industry performance (USD). Source: Bloomberg, as of March 31st 2021

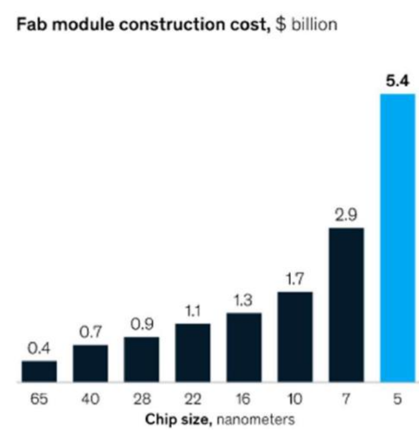
While IT stocks lagged over the quarter as yields and inflation expectations rose, it was not a uniform underperformance across IT industries. Semiconductors ended the quarter as the 3rd best performing industry (up 11.5% USD behind Energy and Banks) with continued bullish commentary from management on accelerations in technologies driving a new norm for economies, while near-term supply constraints only emphasised the increasing need for these technologies.

Indeed, there is currently a short-term supply issue related to COVID-19, particularly within the auto industry, as a consequence of a number of factors:

1. The automotive industry cut their orders for semiconductors as they saw demand for new cars fall in q2 2020. Now their suppliers have allocated capacity to other industries.
2. Work from home has led to the highest growth rate for PCs in a decade, as well as TVs and monitors.
3. Demand for 5G smartphones has doubled.
4. Increased demand for cloud applications means more demand from datacenters.
5. Cryptocurrency mining has rebounded as cryptocurrencies have rallied.
6. COVID-19 caused supply chain disruption

Looking closer at why semiconductor fabs, such as TSMC, are unwilling or unable to allocate capacity back to the automotive industry, we find that the automotive industry does not have substantial bargaining power. For example, Apple's iPhone silicon needs are more than the entire automotive industry, and the iPhone is only 25% of the smartphone market. So, any individual auto manufacturer does not have much bargaining power. Semiconductor fabs also want to be running at full capacity and as such cannot redistribute capacity based on short-term supply imbalances in favor of more secure long-term contracts.

Further still, as we have discussed before, almost all of our Innovation themes point towards increasing demand for semiconductors. There is a growing realization in the US and Europe of how strategically critically important it is to have leading edge semiconductor manufacturing capacity closer to home. The world is extremely reliant on TSMC's Taiwan-based plants which, given what China has done in Hong Kong, is worrying certain policymakers. However, the cost and expertise to build new leading edge fabs is a huge barrier with the estimated cost to construct a leading-edge 5nm fab module almost double the cost for 7nm. Over the quarter this point was emphasised as Intel announced a return to the custom foundry business with $20bn in capital expenditure across the year to build out 2 new fabs. Further still, TSMC, the leading foundry by some stretch, announced new plans to spend $100bn over the next 3 years to expand capacity – more than double what it spent in the previous 3 years. Over the quarter, fund exposure to semiconductor businesses was the largest contributor to fund performance with the semiconductor equipment manufacturers, Applied Materials (up 55.1%), KLA Corp (28.0%) and Lam Research (26.3%), all set to benefit from the increase spending from foundry customers, leaving them as the 3 top performing holdings over the quarter.



Source: McKinsey estimates

Stock performances over Q1 2021 (all total return in USD):

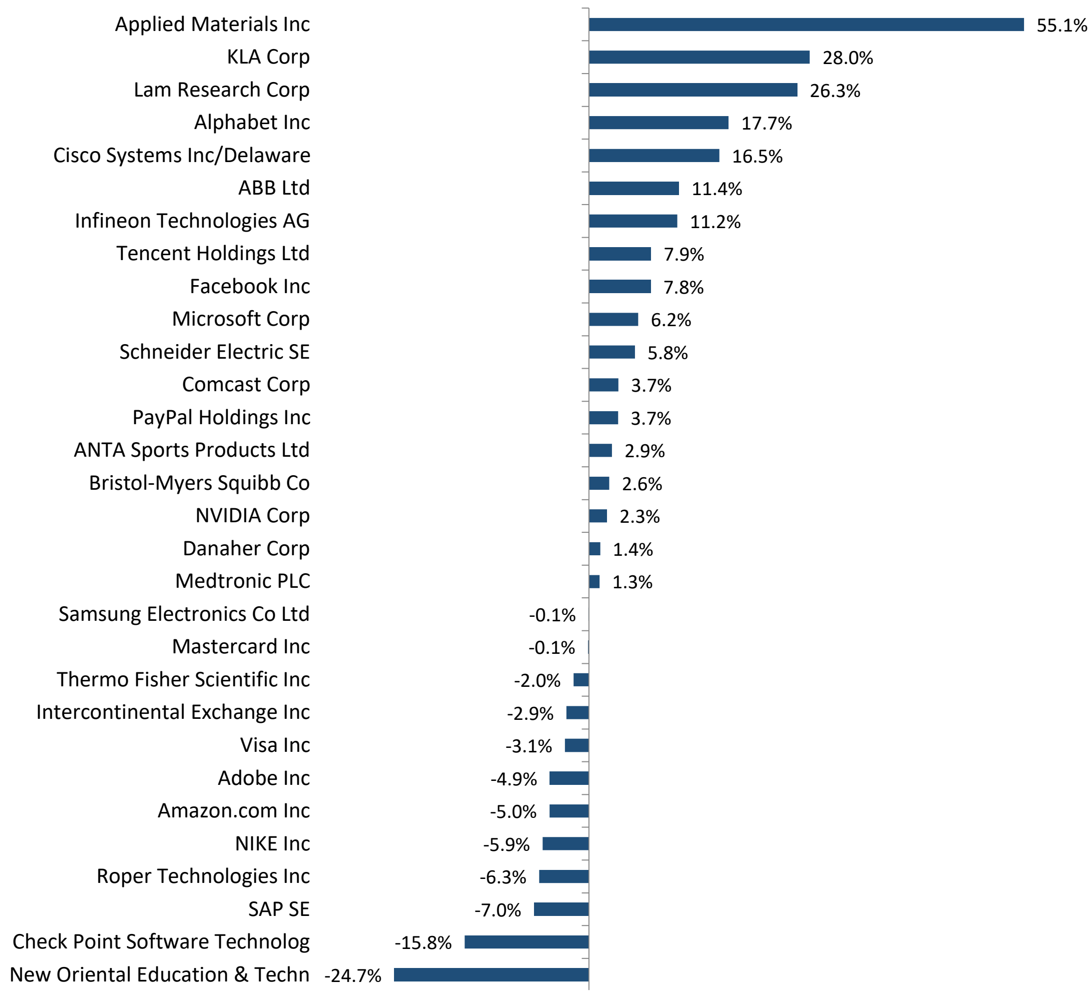


Figure 7: Performances of fund constituents. Guinness Atkinson Asset Management, Bloomberg, (total return in USD)

Applied Materials (up 55.1%), KLA Corp (28.0%) and Lam Research (26.3%):

As outlined previously, the fund's semiconductor equipment manufacturers, Applied Materials, KLA Corp and Lam Research, were the fund's top 3 performers over the quarter as foundries (and customers), TSMC and Intel, announced record spending plans for the coming years to expand capacity and continue driving leading-edge fabrication. We continue to see good value from the semiconductor space and it has shown a rise in long-term growth. The return-on-capital of these businesses has been increasing over prior years, and valuations, particularly amongst the equipment manufacturers, remain attractive, especially when compared to other IT industries.

Checkpoint (-15.8%):

The cyber security software business was the 2nd worst performing stock over the quarter, primarily as a result of a 10% drop in price after the company reported its full 2020 results. While the business stated solid results with revenue and earnings ahead of analyst expectations, guidance was below expectations which was particularly compounded by investor expectations that the cyber security breach that occurred at SolarWinds earlier in the quarter, would provide a tailwind for future cyber security spending. While the business attributes less revenue to the faster-growing cloud segment relative to its more expensive peers, the company is still set to potentially benefit from the general trend towards increased cyber security spend, while the company generates significant cash flow owing to its asset-light business model.

New Oriental Education (-24.7%):

While New Oriental, the Chinese education services business, started the quarter reasonably well, reporting results broadly in-line with estimates as offline (in-person) classes began to re-open, the stock ended the quarter as the fund's worst performer after two news events caused the stock to fall more than 10% (USD) on two separate days. The first was news that Chinese regulators were increasing their scrutiny of teacher qualifications which may lead to increased costs to train and retain teachers across the industry. Regulatory pressure is not new to New Oriental as regulators have been pressing for change in China for several years. However, as China's second-largest tuition-services provider, we see increased regulations as a net-positive over the long-term as it drives out smaller competitors of a highly fragmented market. The second event was the sell-off after hedge fund, Archegos Capital Management, was forced to sell large positions to cover margin calls. While New Oriental was not a holding of the hedge fund, its closest competitor was, and the drop in share price had a knock-on effect for New Oriental. However, in-line with our equal-weighted philosophy and as we did not see any fundamental changes in the business, we took the opportunity to top up the position during trading hours as the share price fell. Subsequently, we captured a price 20% down from its previous close, before the stock recovered some 12% to close the day 11% down. This went some way to limit the downside and reiterates our position on broader rebalancing of relative losers in the fund should our investment thesis still hold.

Changes to the portfolio:

We made no changes to the portfolio over Q1.

Portfolio characteristics

The two charts below show how the exposure of the fund has evolved since we launched the active strategy back in 2003. We continue to hold no exposure to Real Estate, Energy, Materials, Consumer Staples, and Utilities. Information Technology remains our largest exposure, split between the three sub-sectors of semiconductors; software and services; and technology hardware. On a regional basis, North America continues to be the largest exposure (67%), followed by Europe (19%) and Asia Pacific (12%).

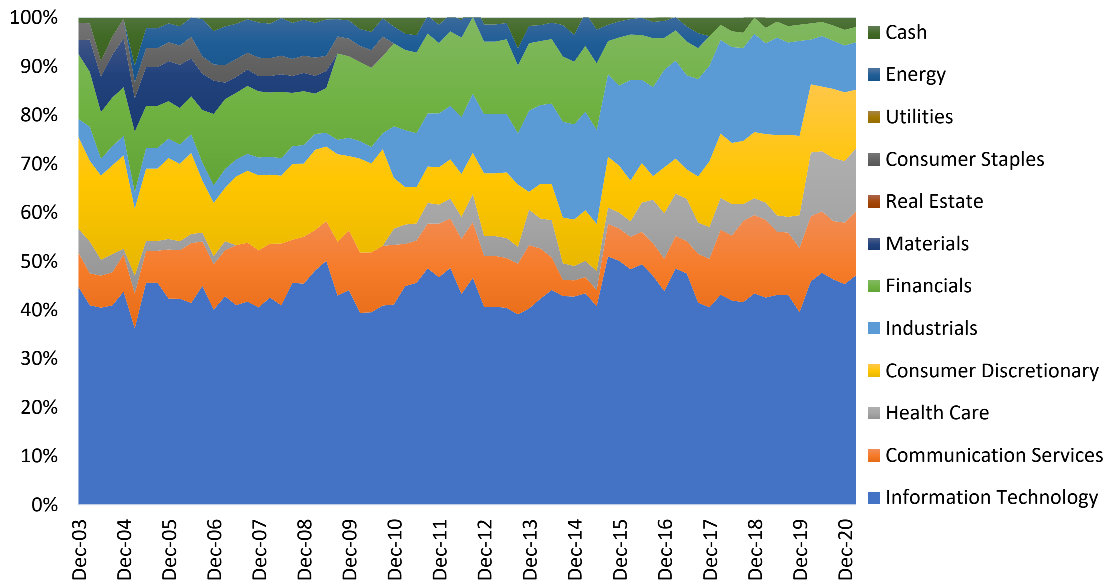


Figure 8: Portfolio sector breakdown. Guinness Atkinson Asset Management, Bloomberg (03.31.2021)

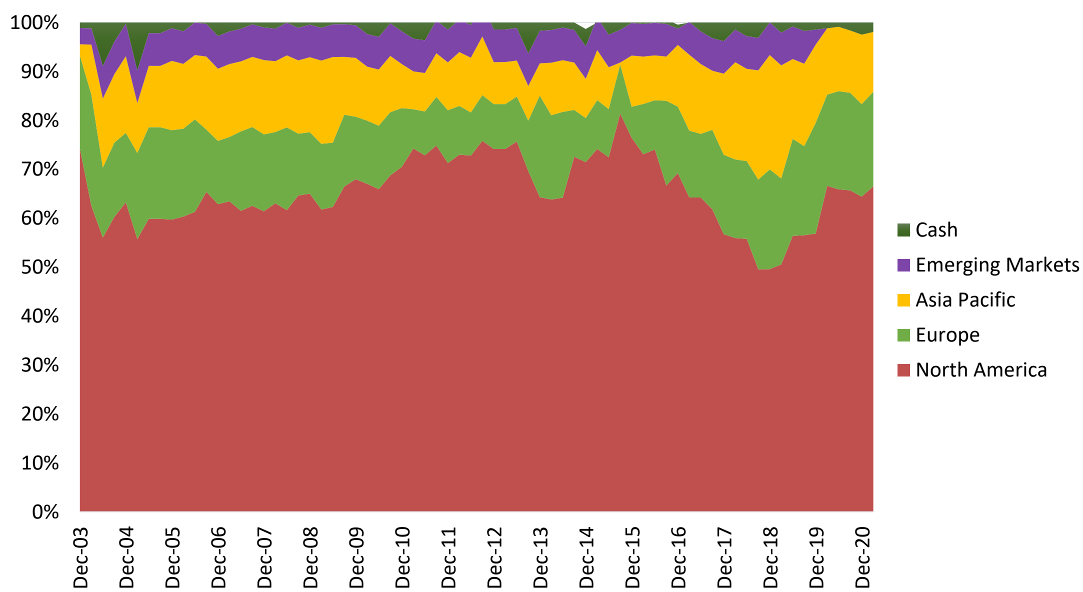


Figure 9: Portfolio geographic breakdown. Guinness Atkinson Asset Management, Bloomberg (03.31.2021)

As we made no changes over the quarter, the regional and sector exposures are broadly in line with that of Q4 2020.

The fund's allocation to regions are similar to that of the MSCI World Index. However, this was a result of bottom-up stock picking and not a 'top down' decision.

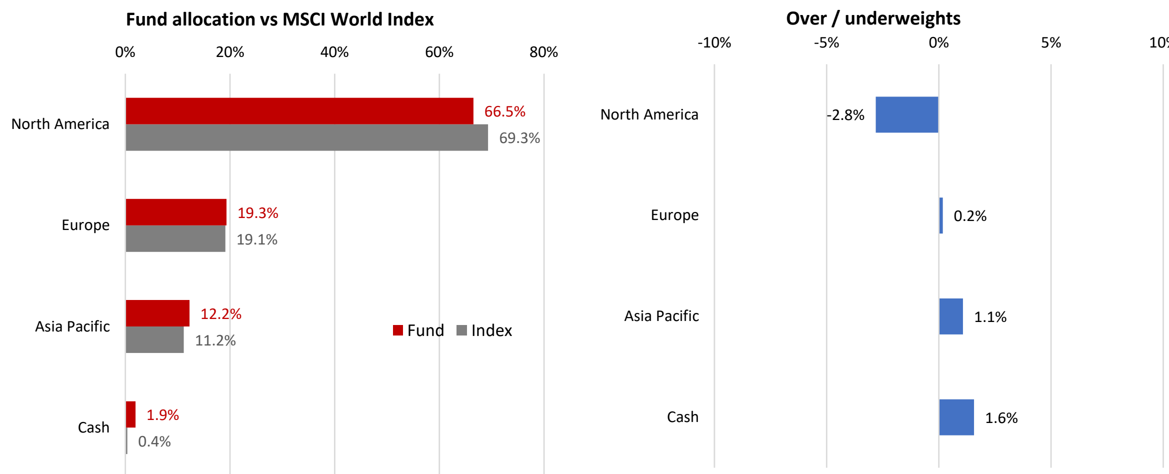


Figure 10: Guinness Atkinson Asset Management, Bloomberg (data as at 03.31.2021)

On a sector level, the fund continues to have a large overweight to IT (25.6%), while the fund's 0% exposure to Real Estate, Energy, Materials, Consumer Staples, and Utilities leaves these areas underweight relative to the benchmark.

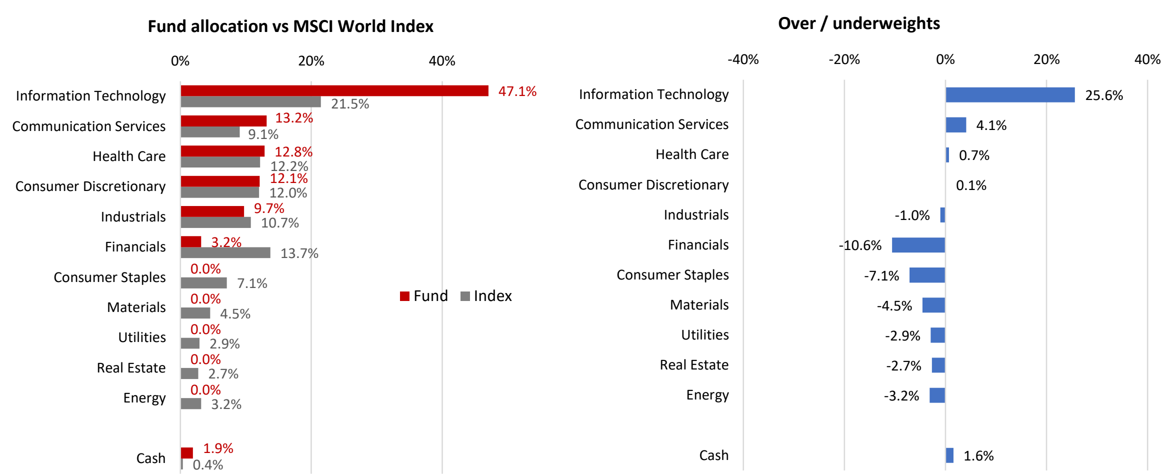


Figure 11: Guinness Atkinson Asset Management, Bloomberg (data as at 03.31.2021)

Key fund metrics today *

Innovation: We seek companies that are exposed to secular growth themes, which should therefore be more insulated to cyclical growth cycles. We have thus far seen good evidence of this, such as for semiconductor companies as demand for chips enabling technologies from cloud computing to video streaming continue to increase in response to more consumers working from home.

Quality: We only invest in companies with good (and ideally growing) returns on capital and strong balance sheets. In the recent sell off a clear distinction was seen between businesses with strong vs weak balance sheets – companies which have taken on too much debt have been 'propped up' by low interest rates but a shock to revenues has the potential to alter this balance and the market quickly discounted this scenario.

Growth and valuation: We look to buy good growth companies at reasonable valuations and specifically we try to avoid paying too high a premium for expected future growth – as this is inherently less predictable. While valuations have optically become stretched, we believe companies that are able to continue growing, such as those exposed to our innovation themes, will justify a greater premium.

Conviction: Although we run a concentrated portfolio of 30 stocks, we equally weight each position. This caps stock specific risk to approximately 3.3% thereby limiting the impact to the overall portfolio of a single company performing particularly poorly.

The table below illustrates these four key tenets of our approach in the portfolio today.

		Fund	MSCI World Index
Innovation	R&D / Sales	9%	7%
	CAPEX / Sales	5%	8%
Quality	CFROI (median 2021)	18%	8%
	Return-on-Equity	26%	8%
	Weighted average net debt / equity	10%	51%
Growth (& valuation)	Trailing 5-year sales growth (annualised)	14%	2%
	Estimated earnings growth (2022 vs 2021)	15%	14%
	FCF yield	3.0%	5.7%
	PE (2021e)	25.0	21.2
Conviction	Number of stocks	30	1630
	Active share	85%	-

Figure 12: Guinness Atkinson Asset Management, Credit Suisse HOLT, Bloomberg (data as at 03.31.2021)

***Past performance does not guarantee future results.** There can be no guarantee that any strategy (risk management or otherwise) will be successful. All investing involves risk, including potential loss of principal.

We thank you for your continued support.

Portfolio Managers

Matthew Page, CFA   Dr Ian Mortimer, CFA

Summary performance

For the first quarter of 2021, the Guinness Atkinson Global Innovators Fund provided a total return of 4.18% (USD) against the MSCI World Index net total return of 4.92% (USD). Hence, the fund underperformed the benchmark by 0.74% (USD).

Going into the new year there was optimism as two of 2020's main uncertainties became a little clearer. Three COVID-19 vaccines showed high efficacy rates and began to roll out across nations, while Joe Biden and the Democrats were able to win both chambers of Congress after taking two key Senate seats in Georgia. Both of which made for enthusiasm of a recovery in the global economy in 2021 backed by further fiscal stimulus and the vaccination roll out. However, while equity markets generally rose across Q1, it was not smooth sailing. US Treasuries sold off sending yields higher on rising optimism and greater inflation expectations, negatively affecting the more interest-sensitive sectors including IT. Value came back into vogue as Banks benefited from the steepening yield curve and Energy benefited from a rising oil price. Overall, the markets were buoyed by increasingly optimistic growth expectations, both by companies and bodies including the International Monetary Fund (IMF), governments continued their unprecedented fiscal policies including newly elected President Biden's proposed $2tn package, while central banks continued to hold rates low while assuring they will likely remain low for some time.

While there may continue to be bumps on the road, there is good reason to be optimistic as we continue into 2021 - a build-up of cash for both the average consumer and corporation, and governments continuing to push through large stimulus packages should translate into robust near-term GDP growth. In particular, we continue to see an acceleration in innovative transformations across industries post-COVID that will have a lasting effect on how consumers and businesses operate. As such, we believe this fund and its holdings are well positioned to potentially benefit from long-term demand drivers, while the focus on quality businesses reduces some of the risk inherit in growth-for-the-sake-of-growth stocks ensuring businesses are putting capital to effective use.

During the quarter, the fund's main performance drivers were as follows:

- Not owning any Energy or Bank stocks was a drag on performance from an asset allocation perspective.
- Stock selection from the fund's consumer discretionary exposure was a drag, primarily from exposure to New Oriental Education (-24.7% USD) which dropped significantly on two days during the quarter – once on reports of new regulations on Chinese education services and another after the fallout from the Archegos Capital Management hedge fund. We did, however, take the opportunity to top up our position as the stock dropped, capturing a price 20% down from its previous close, before the stock recovered some 12% to close the day 11% down. This went some way to limit the downside and reiterates our position on broader rebalancing of relative losers in the fund should our investment thesis still hold.

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.

- Conversely, although the IT sector was a laggard over the quarter, the semiconductor industry vastly outperformed its hardware and software counterparts, up 11.5% (MSCI World Semiconductor Index, USD) over the quarter. With generally bullish management commentary, industry supply constraints, and continued growth in capital expenditure from leading foundries, the fund's semiconductor exposure was the fund's largest contributor to performance primarily from the semiconductor equipment manufacturers, Applied Materials (55.1%), KLA Corp (28.0%), and LAM Research (26.3%), which ended the quarter as the fund's 3 best performers.

as of 03.31.2021 (in USD)	1 year	3 years annualized	5 years annualized	10 years annualized
Global Innovators, Investor Class[1]	69.25%	16.96%	19.11%	14.91%
Global Innovators, Institutional Class[2]	69.69%	17.24%	19.41%	15.06%
MSCI World Index NR	54.03%	12.79%	13.35%	9.87%

All returns after 1 year annualized.

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[1] Investor class (IWIRX) Inception 12.15.1998 Expense ratio* 1.24% (net); 1.35% (gross)

[2] Institutional class (GINNX) Inception 12.31.2015 Expense ratio* 0.99% (net); 1.21% (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).

*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 0.99% for the Institutional class and 1.24% for the Investor class through June 30, 2021. 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 03/31/2021:

1.	Applied Materials Inc	3.84%
2.	KLA-Tencor Corp	3.81%
3.	Cisco Systems Inc	3.71%
4.	Facebook Inc	3.67%
5.	NVIDIA Corp	3.52%
6.	Mastercard Inc	3.50%
7.	Comcast Corp - A Shares	3.43%
8.	Lam Research Corp	3.42%
9.	Roper Technologies Inc	3.41%
10.	Medtronic PLC	3.41%

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.

A cash flow return on investment (CFROI) is a valuation metric that acts as a proxy for a company's economic return.

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.

Return on equity (ROE) is a measure of financial performance calculated by dividing net income by shareholders' equity. Because shareholders' equity is equal to a company's assets minus its debt, ROE is considered the return on net assets.

Active Share is the percentage of portfolio holdings in a Fund that differs from the benchmark index.

Price-Earnings (P/E) ratio is a valuation ratio of a company's current share price compared to its per-share earnings. Forward earnings differ from trailing earnings, which is the figure quoted more often, as they are a projection and not a fact.

The net debt-to-equity (D/E) ratio is used to evaluate a company's financial leverage and is calculated by dividing a company's total liabilities minus cash by its shareholder equity.

Trailing 5-year sales growth (annualised) is the average annual growth in revenue over the last 5 years

Free cash flow (FCF) yield represents the cash a company generates after cash outflows to support operations and maintain its capital assets.

One cannot invest directly in an index.

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