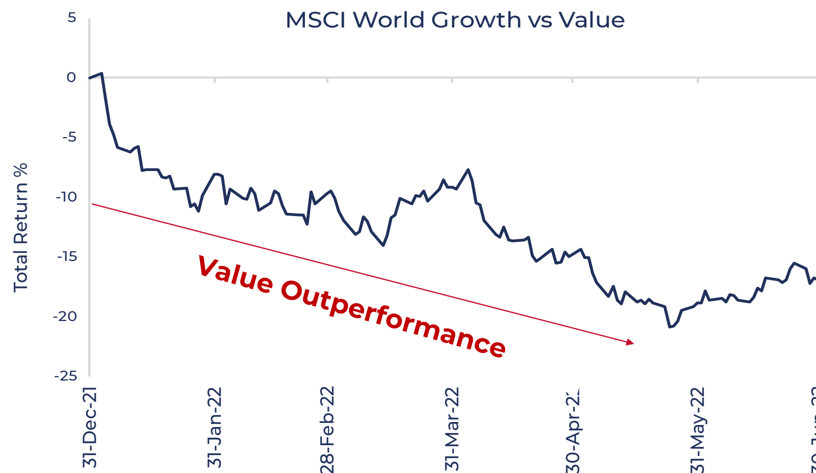
Guinness Atkinson

Global Innovators Fund

Managers Update – Q2 2022

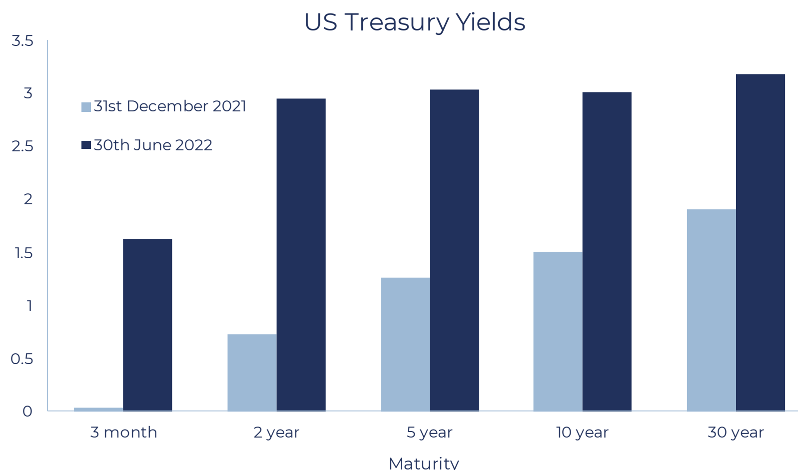
GUINNESS ATKINSON FUNDS

Quarter in Review: Over the first half of 2022, there has been a significant divergence in performance between growth and value, a trend which was particularly pronounced over the first 5 months of the year. General themes of inflationary pressures and hawkish monetary policy have created an environment that is not conducive for strong equity performance on the whole. This is particularly the case for growth tilted names, as shown by the MSCI World Growth Index, which underperformed the MSCI World Value Index by 16.92% (in USD) over the first half of 2022 (MSCI World Value -11.79% (in USD) vs MSCI World Growth -28.71%), and by 8.43% vs the broad MSCI World Index, which was down -20.28%.



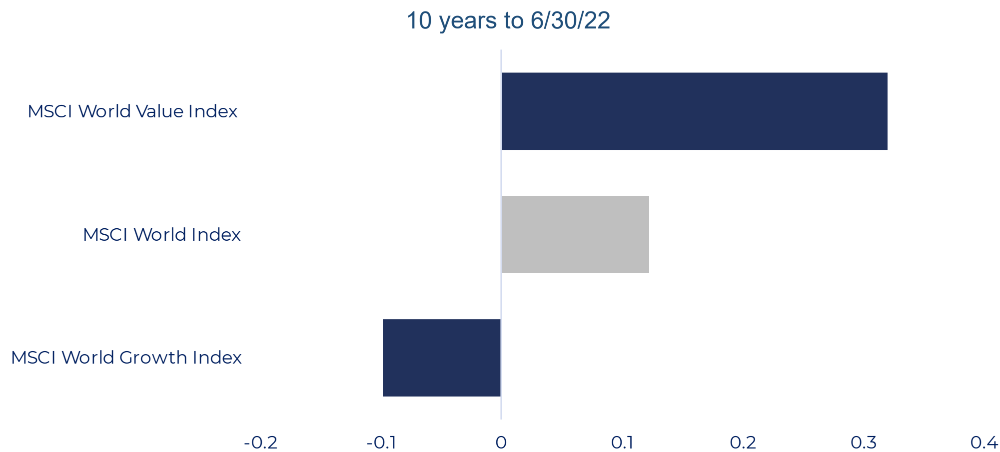
Source: Bloomberg, Guinness Atkinson Asset Management

As inflation has continued to accelerate across economies globally, central banks have scrambled to decrease the money supply in order to counteract its impact. This has included the fastest rate hiking cycles in 30 years, concurrent with large balance sheet reductions. As a result, we have seen yields rising across maturities, particularly at the shorter end of the spectrum, leaving a higher and flatter yield curve.



Source: Bloomberg, Guinness Atkinson Asset Management

Yields are an important element when determining the discount rate for which many use to assess the valuation of a given stock's future cash flows. Growth stocks are typically 'higher duration' in nature (as compared to value stocks), meaning cash flows are weighted further out into the future. Since distant cash flows are more sensitive to changes in discount rates, growth companies are therefore also more sensitive to these changes. This has been a key driver of growth underperformance during 2022. Furthermore, in the past 10 years, there has been a positive correlation between yields and value orientated stocks. When yields increase, value tends to outperform – as has been seen over the first half of 2022.

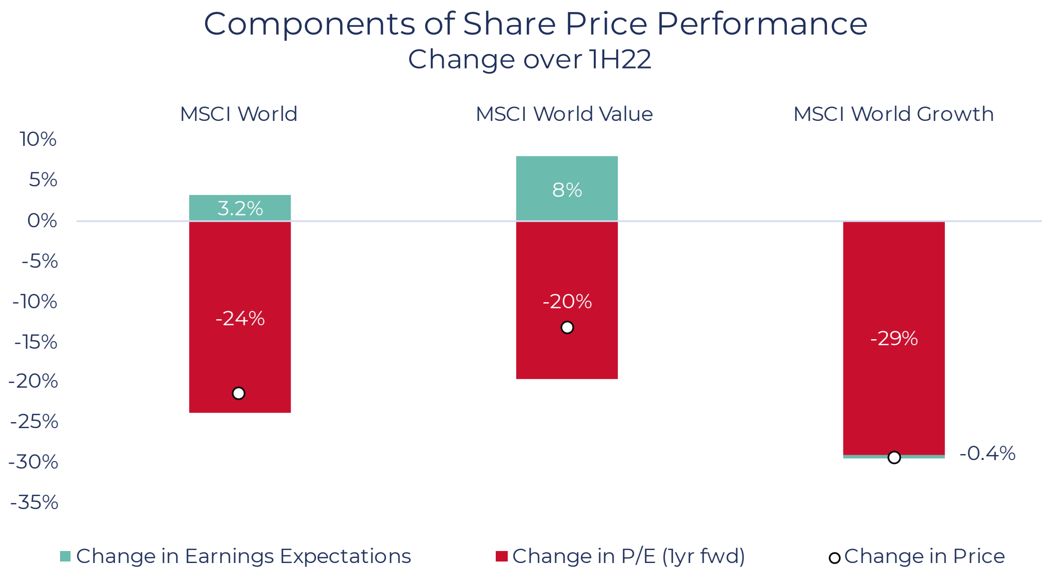


Source: Bloomberg, Guinness Atkinson Asset Management

Within the context of the value/growth performance, we have also seen typically defensive sectors perform strongly – suggesting investors are cautious about future economic growth. Sectors such as consumer staples and healthcare have performed strongly in 2022.

However, value outperformance does not necessarily equate to value performing well. In the second quarter, the MSCI World Value Index outperformed the MSCI World by +4.7% (in USD), but the Value Index still fell -11.4% overall.

Despite the macroeconomic headwinds outlined above, it has been notable that analyst earnings expectations at the index level have barely budged – and are still approximately 10% above earnings levels seen in 2021 and have continued to be modestly upgraded over the first half of the year. With little change in the expectations of the 'E' in the Price to Earnings ratio, the poor equity performance seen in 2022 to date has therefore been caused almost all by multiple contraction. This is demonstrated in the chart below which shows the overall negative returns are almost entirely driven by the contraction in forward P/E multiples. It is interesting to note that this is the case regardless of 'style', although growth has had a slight negative impact (-0.4%) from forward earnings downgrades.

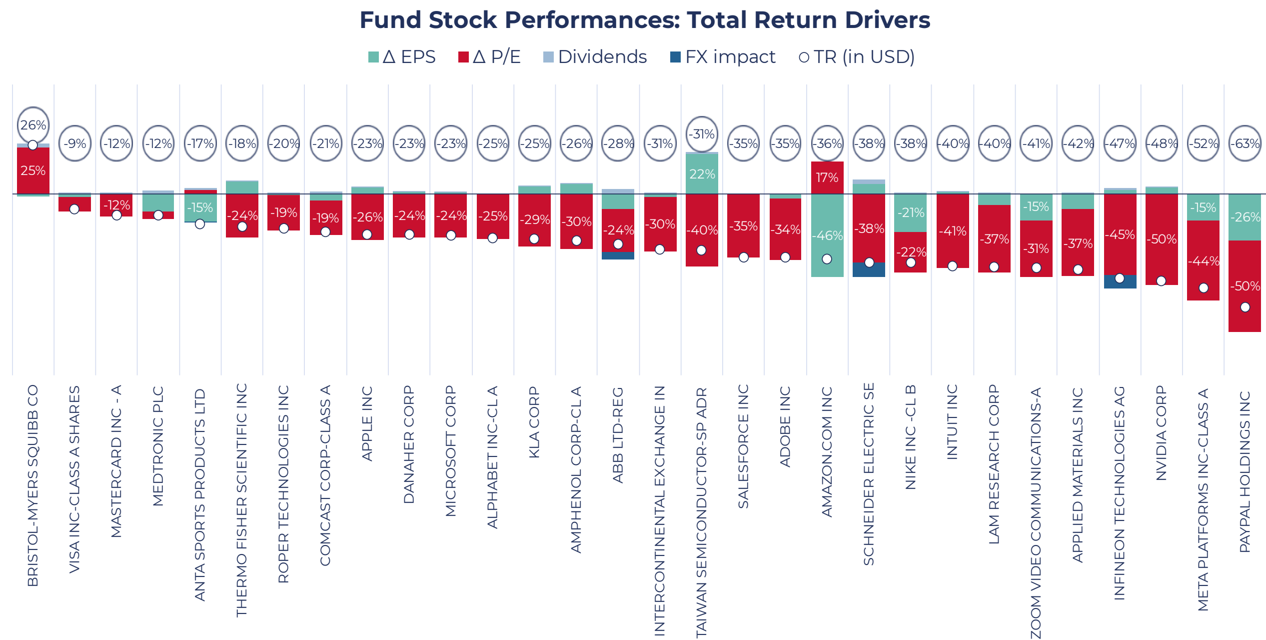


Source: Bloomberg, Guinness Atkinson Asset Management

Multiple contraction has also been the core driver of negative returns at the portfolio level. We have seen three stocks where 2022 earnings estimates have been downgraded by greater than 20% versus expectations at the start of the year (Amazon -46%, PayPal -26% and Nike -21%). Of these, Nike earnings are expected to decline 4% vs 2021, which would be 79% ahead of 2020 earnings; PayPal is expected to see earnings for the calendar year 2022 drop by 13% compared to 2021 (which is approximately flat vs 2020 earnings, and 25% higher than 2019), and Amazon is expected to see 2022 earnings decline by 53% versus 2021 levels, which is still significantly below 2020, but well up on 2019 levels – indicating the strong growth Amazon has seen through the pandemic and the increased spending to grow the business.

Of the Fund's 30 stocks, 16 have seen analyst earnings downgrades for 2022 expected earnings compared to the start of the year expectations, 4 are roughly flat, and 10 have seen material upgrades. The average (median) earnings adjustment year-to-date across the whole portfolio is -1.3%, versus an average (median) multiple contraction of -27.1%.

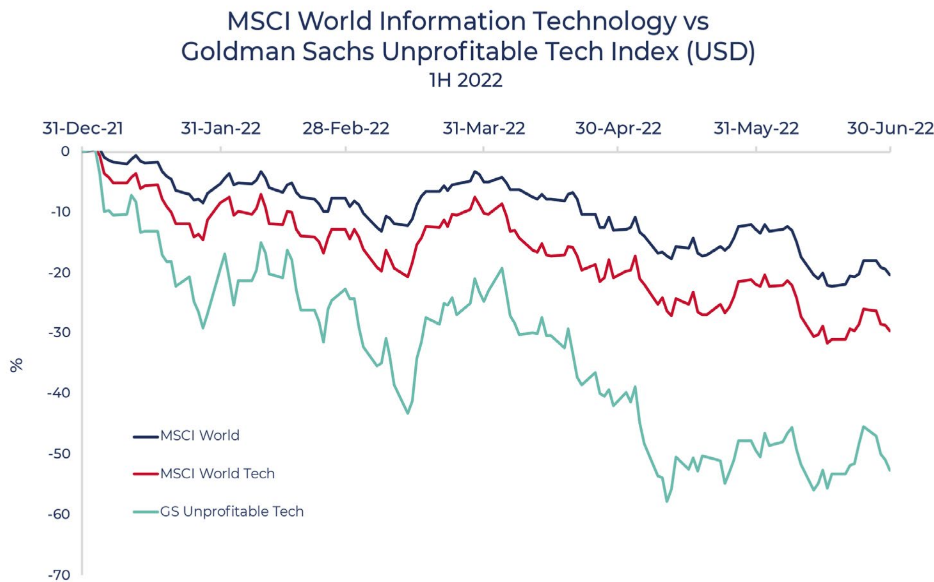
GUINNESS ATKINSON FUNDS



Source: Bloomberg, Guinness Atkinson Asset Management

In addition, many growth names, particularly at the speculative end of the spectrum, are now also dealing with the negative effects of the 'pull forward' in demand that occurred during the pandemic. Over the last couple of years, the market often failed to accurately distinguish between stocks in which a permanent change in customer behavior (stemming from the pandemic) and those for which the tailwinds were just temporary. A number of stocks with perceived permanent behavioral change tailwinds, such as the "stay-at-home" trends, were bid up to high valuations as demand accelerated for their products. However, in some cases, this demand was just brought forward, rather than a catalyst for long term growth. As the 'pull forward in demand' is given back, we have seen many significant shares price de-ratings, alongside changing future rate expectations.

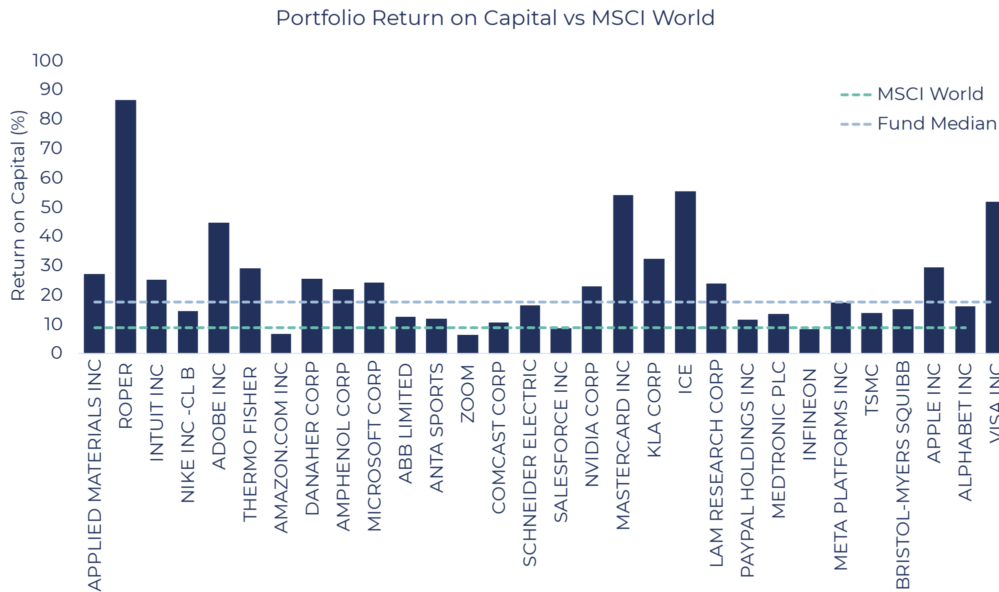
'Speculative' growth is often characterized by a low (if not negative) bottom-line, paired with a significant valuation premium relative to the market. The Goldman Sachs Unprofitable Tech Index (a basket of tech stocks with negative earnings), offers a good proxy for stocks at the speculative end of the spectrum. As observed in the chart below, 2022 has seen a significant underperformance of stocks in this category.



Source: Bloomberg, Guinness Atkinson Asset Management

Within the Fund, holdings are exposed to long-term secular growth themes. This is often in contrast to many speculative stocks where 'hype' can drive valuations to unsustainable levels. While the pandemic may have been a catalyst for demand in products and services within the themes identified by the Fund (Cloud Computing, Artificial Intelligence, and Big Data, for example), these revenues are typically 'stickier' and hence longer-term in nature. To illustrate this, the shift to the cloud for many companies was simply accelerated rather than a one-off event, and business models in this space tend to rely on recurring subscriptions rather than one-time payments. As a result, the Fund has largely been isolated from the temporary behavioral changes that many speculative stocks at first benefited from and are now suffering.

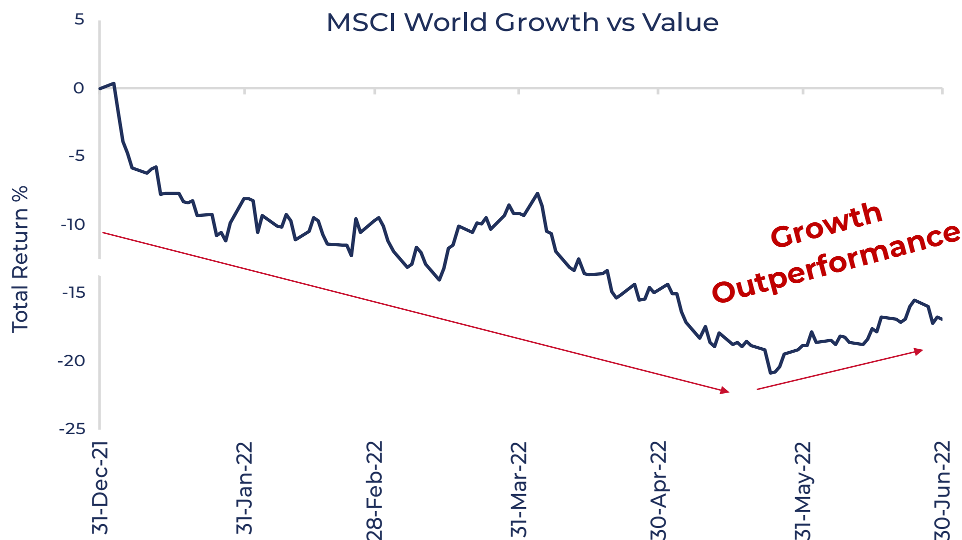
Alongside exposure to long-term secular trends, the Fund's quality tilt is particularly important in periods of volatility and weak equity performance. One commonly used indicator of 'quality' is return on capital. As seen in the chart below, 90% of Fund holdings have a Return on Capital above that of the MSCI World, with a portfolio median of 19.9% vs the MSCI World of 8.7%.



Source: CS Holt, Guinness Atkinson Asset Management

Whilst the rotation away from many speculative stocks in this kind of market environment may be justified, in many instances we perceive that growth companies with strong, quality characteristics and bright long-term outlooks have been caught up in the broader growth sell-off, and which therefore may not necessarily reflect their fundamental business strength.

In the last month of the quarter, although a short period in which to get a meaningful read, there were indications that growth could be returning to favor.



Source: Bloomberg, Guinness Atkinson Asset Management

As mentioned previously, markets went from primarily worrying about inflation and slower growth, to worrying about a greater risk of recession. As central banks move aggressively in order to bring inflation under control, the market has become increasingly nervous that they will be unable to navigate the narrow path required to provide a 'soft landing'. Value stocks, which are typically more economically sensitive have historically performed poorly when heading into recession but performed well in any recovery. Therefore, with limited economic growth expected in the near term, markets may have rotated towards stocks with stronger prospects for sustainable earnings, such as those with more secular growth exposure. We also saw in June a falling oil price (which is a key component of inflation), market expectations of lower future inflation (as measured by breakeven rates), and expectations that the Fed to would need to begin cutting rates around the second half of 2023 (and may reach a lower 'terminal rate' in the current hiking cycle). However, we would note again that this was a short period, and the market is focused on upcoming inflation readings over the next few months in order to be able to establish a clear trend, and again note that outperformance does not necessarily equate to good performance. Despite outperforming value, MSCI World Growth still posted negative returns.

Source: Bloomberg, Guinness Atkinson Asset Management

Stock performances over Q2 2022 (all total return in USD):

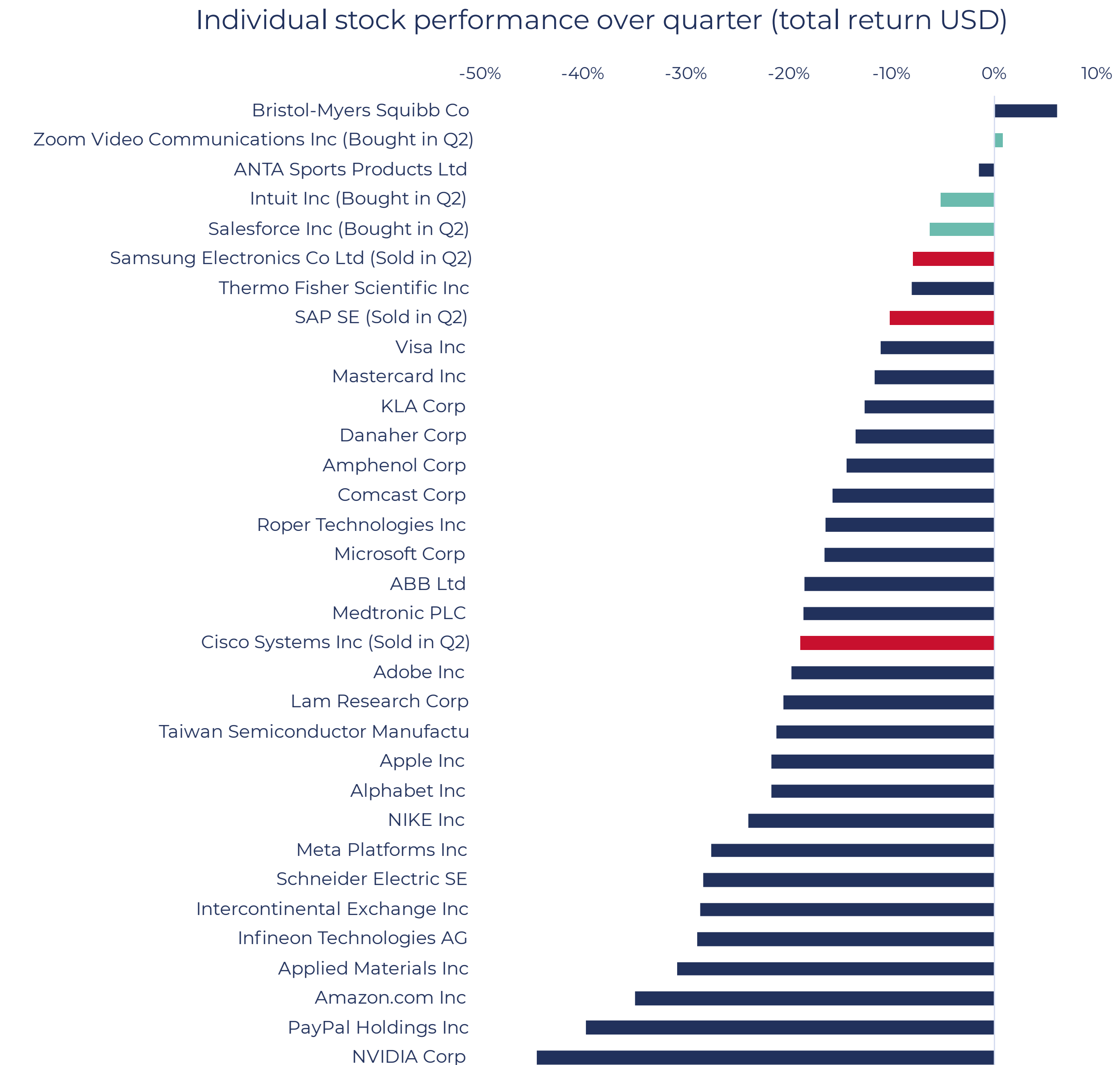


Figure 1: Performances of fund constituents. Guinness Atkinson Asset Management, Bloomberg, (total return USD)

Bristol-Myers Squibb (+6.18% USD)

Bristol-Myers Squibb was the fund's top performer for the second quarter in a row, with a total return of (+6.18% in USD) significantly outperforming the MSCI World Healthcare Index (-7.09%).

Whilst Bristol-Myers Squibb's top selling cancer drug, Revlimid, came off patent this quarter and was therefore faced with generic market alternatives, the firm continued its positive momentum in growing out the future drug pipeline. This included recent approvals of two new drugs, Camzyos and Opdualag, which target cardiomyopathy and cancer treatment respectively. The strength of the pipeline has allayed investor fears over sales declines, and the firm has continued to make strong progression in the cancer treatment space, following promising sales growth in the previous quarter from core cancer treatments. The tailwind for cancer focused drugs seems likely to continue, with the majority of their late-stage pipeline split between immunology and cancer treatments. Both these areas have historically recieved rapid FDA approval and typically hold stronger pricing power. This progress has been compounded by the announcements of two notable deals, firstly the planned $4.1 billion acquisition of precision cancer medicine company Turning Point Therapeutics (TPTX), as well as a deal with Immatics (IMTX) to develop next-generation cell therapies.

During the period, the firm declared a quarterly dividend of $0.54 cents a share, which represented a 3% yield at the time of the announcement. Given strong drug development, a promising acquisition pipeline, and the continued strength of the share buy back program, we maintain our positive outlook for the stock, on top of a good relative valuation (FY1 PE 9.87x) vs the industry average (FY1 PE 12.83).

ANTA Sports (-1.45% USD)

ANTA Sports has outperformed the benchmark on a relative basis (-1.45% in USD), ending the quarter as one of the fund's better relative performers.

Management initially indicated a fairly cautious outlook for Q2, given the continuation of China's stringent covid policy disproportionately hitting the more affluent consumers in first-tier cities as well as the prospect of further lockdowns impacting in-store demand. Additionally, a high fixed cost base (currently more than 50% of operating expenses), is likely to lead to margin compression over the short term. However, their supply chain has remained resilient, given the reliance on a strong domestic manufacturing base (predominantly located in Fujian and Guangdong) which have avoided the worst of the latest omicron wave. This has enabled ANTA Sports to maintain a tight control over their manufacturing & distribution, avoiding some of the more severe supply chain disruptions in doing so.

Additionally, the 618 Shopping Festival kicked-off in June, which offered a short-term tailwind for online sales. The popular annual Chinese eccomerce event is held over three weeks and promotes large scale discounts on an array of online products, with the Sports and Outdoor Clothing segment notably growing 9.1% YoY. This positive news was compounded towards the end of the quarter, after management indicated that fewer than 1% of all stores

were currently affected by COVID restrictions. They also outlined a more optimistic short-term growth outlook and confirmed that June retail sales had indeed seen an improvement from earlier in the quarter, subsequnetly causing the stock to rise 14.5% over the last week of the quarter. We remain optimistic about the company and see the potential easing of China's lockdown as a continued tailwind, which should drive further retail consumption through the reopening of malls and in-person shopping.

Nvidia (-44.4% USD)

With the rotation away from growth and into value, it was a difficult period for many of the Fund's Semiconductor companies, leaving Nvidia as the fund's bottom performer over Q2. The industry was the MSCI's worst-performing, with the MSCI World Semiconductor Index trailing the MSCI World by 12.73% over the quarter. However, it was pleasing to see that out of the six semiconductor stocks within the Fund, only Nvidia underperformed the MSCI World Semiconductor Index (which was down -15.6% in USD). The industry as a whole grew significantly over the pandemic, as the global surge in demand from consumer electronics and the auto industry, paired with pandemic-related supply chain disruptions and capacity constraints, led to a supply-demand imbalance of chips causing prices to rise. Global semiconductor revenues grew by 26% over 2021 (S&P Global). Nvidia performed particularly well over that period, delivering total shareholder returns of +122% (in USD) in 2020, and +126% in 2021.

Despite this sell-off, we believe the investment thesis remains strong and intact – not just for Nvida, but all of our semiconductor holdings. While supply chain constraints will persist into the mid-term, the outlook for the industry remains strong. For chip equipment manufacturers LAM Research, Applied Materials and KLA, large-scale capacity expansion across the US, Europe and Asia offers significant visibility to future revenues. TSMC provided a prime example during February, announcing a year on year increase for expected capex spend of $44bn during 2022 in order to expand capacity, up from $30bn last year and over triple the spend from 2019. Intel also announced a $28bn package (up from $25bn) for two new fabs in the US. The "Innovation Race" between the US and China is expected to bring large fiscal packages (about $54bn in the US) for domestic chip production, helping to alleviate the reliance each country has on the other. A multi $100-billion capex per year spend across the industry are clear tailwinds for capital equipment vendors such as Lam Research, Applied Materials and KLA. Designers such as Nvidia will be key in servicing this strong demand outlook into the long-term, as themes such as autonomous driving, automation and digital transformation continue to generate growth in the industry.

Paypal (-39.6%USD)

PayPal also featured in the fund's bottom performers, falling -39.6% (in USD) over the second quarter. Following the outbreak of the global pandemic in 2020, the share price surged as an accelerated shift from cash to digital payments took place, supported by a significant upswing in ecommerce. Year-on-year revenue growth topped out at +30.6% in Q1 2021. However, ever since a weak 2Q21 earnings release in July last year, the firm's share price

has struggled. A failed $45bn bid for Pinterest was met with significant investor pushback, and a second miss to consensus in a row during their 3Q21 earnings (November 2021) catalysed further downgrades. In the subsequent quarter (4Q21, February 2022), it was management guidance that concerned the market the most; the firm abandoned its target set just last year of reaching 750m users, after finding that many of the 120m new customers added over the two years of the pandemic were no longer 'active'.

Over April, the stock slid a further -24%, battling a mix of both negative stock momentum from the previous quarter, and being caught up in the general technology sell-off. Other than a solid set of results during the month, which saw the stock bounce +11% on the day, there was very little news-flow elsewhere, perhaps suggesting an over-reaction from the market. Revenue, which was expected to come in at +6% for 1Q22, grew by +7.5% year-on-year. The quarter, which was up against a difficult comparable, is largely expected by the markets to be the 'bottom' of revenue growth, before accelerating in subsequent quarters to reach +11% for the full year. Analyst estimates expect revenue growth of +16% in FY23, in line with pre-pandemic levels. While management cut guidance for the full-year, citing a few increasing headwinds (Russia, supply chain and inflation), these problems are expected to be transitory, and this was likely a necessary reset of expectations required in order to stem the negative stock momentum.

The firm's recent shift in strategy towards higher quality users (rather than simply driving new user numbers) makes the metric "transactions per active account" a key indicator. In the most recent quarter, it was up +11% year-on-year. This strategy is likely to improve the quality of the firm's revenues, helping to reduce volatility in turbulent markets. The headwind from the eBay disposal (about 2% of revenues) is diminishing, and growth avenues such as Buy Now Pay Later and Venmo are carrying strong momentum. Expansion into new product areas such as credit-cards and cryptocurrency offer further visibility to growth catalysts down the road. With results triggering negative momentum over the first couple of weeks, Paypal largely tracked the index over the remainder of the quarter. With a strong outlook and solid fundamentals, paired with a 1-yr forward P/E ratio at all time lows (19x), a 48% discount to its all time average (since 2015), we continue to view Paypal as an attractive opportunity.

Changes to the portfolio:

During the quarter, we made six changes to the portfolio. With the market de-rating significantly this year, a number of attractive buying opportunities emerged, allowing us to make room for additions of companies that had been on our watchlist but not offered an attractive entry point. In keeping with our one-in one-out strategy, this meant the removal of three companies.

Buys

Intuit Technologies

Intuit Technologies is a global technology platform which provides its target market of small businesses and self-employed customers with key financial management and compliance products and services. Key products include

QuickBooks, an accounting software platform for small and medium-sized enterprises, and US income tax return management software TurboTax. At the end of 2021, the firm bought MailChimp for $12bn, adding an email marketing platform to its product portfolio.

QuickBooks' market-leading position (about 80% market share) has a wide economic moat, with significant switching costs stemming from product integration within business processes. Customer retention rates of 79% highlight a defensible market position. In addition, having such a commanding share of the market offers a platform in which to launch additional products to upsell such as TurboTax and MailChimp, or any other new innovations the firm may bring to the market. Intuit grew customer numbers from 57m in 2020 to 102m in 2021, and we expect a combination of both organic and inorganic top-line growth to continue into the long term. In addition, its relatively high operating leverage offers ample runway for improved profitability, through closing the gap between operating margins (currently 24%) and gross margins (82%) as the top line grows. While offering a higher-growth outlook than peers, Intuit is trading at roughly similar P/E levels – an attractive entry point considering it traditionally trades at a significant premium. All in all, the track record of innovation, quality attributes and growth potential that Intuit offers make it a natural fit for the Fund.

Salesforce.com

Salesforce is regarded as one of the most innovative companies within the cloud computing application space, having built up a formidable brand among enterprise software providers. Through a number of products of substantial scale and growth, Salesforce aims to increase the productivity and efficiency of sales representatives. The firm's cloud-hosted customer relationship management technology is the outright market leader, with a market share over four times the size of its nearest competitor, Oracle, but with just about 24% (up from about 20% 2020) of the total market, there is still a large growth opportunity. Furthermore, the end-market of each of the firm's five operating segments is expected to grow with a compound annual growth rate (CAGR) of at least 11% until 2025. Diversification is such that each product segment offers at least 17% of revenues (FY22 Q2).

Through building on the idea of Customer 360, a holistic product catalogue for companies in managing their business processes, the firm achieved a 26% eight-year CAGR by year-end 2022 while also expanding operating margins from below 0% to 19% over the same period. Through an integrated offering, the firm is building upon customer relationships and improving the quality of its revenues through customer switching costs and stickiness. The firm has demonstrated exemplary success in growing the top line through a combination of both organic and inorganic opportunities, with highly successful acquisitions such as ExactTarget, Demandware, MuleSoft and Tableau all delivering growth of at least about 29% (based on 1H22). Through the ability to cross-sell across adjacent products, margin expansion, inherent end-market growth, market share growth and both innovation and inorganic opportunities, Salesforce has many levers to pull in order to continue on its strong growth trajectory.

Zoom Video Communications

Zoom was one of the primary beneficiaries of the 'stay-at-home' period of the Covid pandemic, with the firm's Zoom Meetings product offering a low-cost platform for friends, family and colleagues to keep in touch during lockdowns. Market hype surrounding the new age of working from home and video conferencing caused the market to bid up the stock to extremely high levels. Concerns over whether the stock could maintain both market share and growth have caused a sharp decline since market highs in October 2020, with the stock now trading at near pre-pandemic levels despite a much greater client base.

Although Zoom was certainly a 'speculative' stock in the early days of the pandemic, the company has executed an excellent strategy that built on the extreme growth it underwent and now holds a commanding position in a $43bn market (latest fiscal year revenues of $4.1bn), that is expected to reach in excess of $90bn by 2025. With a low-touch, 'freemium' model that lends itself to viral adoption, paired with a market-leading product, the firm has quickly become one of the best-known brands within video communications. By focusing on enterprise customers (now 50% of sales), Zoom is increasing the stickiness and therefore the quality of its revenues. Still in the early growth stage, it continues to invest heavily, but with a strong cash position, it has the capacity to do so. A previous concern was that Zoom would be displaced by in-person meetings after the pandemic. Clearly, this has not happened. Net customer adds continue to grow, albeit at a slower pace, as video calling is now normalized in offices and businesses appear likely to continue with a hybrid approach. The technology is now a necessity, rather than a luxury. The company's portfolio stemming from Zoom Meetings is expanding, in particular with Zoom Phone (the product went from a test two years ago to over two million 'seats' today), giving a long potential runway for revenue growth. While it remains to be seen whether Zoom will be one of the 'winners' in the space, in which it competes with strong brand names such as Microsoft, we believe the firm has given itself every chance of doing so, with a superior product, strength in the brand name, and a strong, sensible strategy.

<u>Sells</u>

SAP

Bought August 2015 and sold late May 2022. Underperformed benchmark over the period (+64% vs +94%, total return in USD).

SAP is a global software vendor which provides enterprise resource planning and database management software, among other products. The business has been transitioning away from licensing towards offering software as a service and has disappointed the market by pushing back guidance (some of which was pandemic-related) and seeing a somewhat slower and less profitable shift to cloud than potentially expected. This is likely to lead to higher margins and better profitability if successfully executed in the medium term, and the stock's discount to the wider software sector (SAP trades on 17.5X 2022 expected earnings) reflects some of this uncertainty. Nevertheless, we

felt there were better opportunities with clearer earnings growth potential elsewhere, considering the significant market sell-off in 2022. We also noted some concern that the shift to cloud could in fact open the company up to higher levels of competition from cloud-only vendors if switching costs for customers became less onerous.

Cisco

Bought in strategy in June 2014 and sold late May 2022. Outperformed the MSCI World benchmark over the period (+132% vs +91%, total return in USD).

Cisco, a leading supplier of network IT hardware and in particular switches and routers, has been increasing its software capabilities over recent years and moving to capture a greater recurring revenue stream, even within its hardware offerings. The business is very well run and has been improving returns on capital over the past few years. Earnings had been growing at a high-teens rate leading up to the pandemic but fell as hardware orders declined. We have seen a recovery since, and management were bullish on the latest earnings call that demand remained strong – despite difficulties with supply chains in China causing issues in the near term. Although we rate the company highly, we are somewhat cautious on the potential for macro headwinds in a lower-growth (or potentially recessionary) environment, and although the valuation has de-rated to reflect this (along with the broader market) to a PE of 12.5X, we felt there were better opportunities for high-quality companies offering potentially higher growth.

Samsung Electronics

Bought in strategy mid-2004 and sold in late May. Strong outperformance versus the MSCI World benchmark (+748% vs +306%, total return in USD) over this period.

Although we are broadly constructive on the semiconductor market due to the expanding demand drivers versus history, we are conscious of the overall exposure of the Fund to this industry. Samsung Electronics generates a significant proportion of both revenues and earnings from memory within its semiconductor business, alongside consumer electronics such as displays and smartphones. The latter category does not command such high barriers to entry and may suffer from any consumer spending downturn, which may also affect the memory market alongside. We also note concerns regarding corporate governance and the potential exposure to (and lack of clarity and action on) significant carbon emissions via the power used in a large part of its manufacturing processes. Because of the strong run of the stock price through the pandemic period (some of which has been given back alongside the broader market sell-off this year), its exposure to lower-margin consumer electronics, and our significant exposure to the semiconductor industry, we felt it was an opportune time to take profits and invest in other companies that may offer greater secular growth opportunities that may be less susceptible to cyclical pressures – and which have potentially de-rated in similar magnitude to lower-quality businesses in the tech sell-off since the Fed pivot in late 2021.

Portfolio characteristics

The two charts below show how the exposure of the fund has evolved since we launched the 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 (76%), followed by Europe (12%) and Asia Pacific (9%).

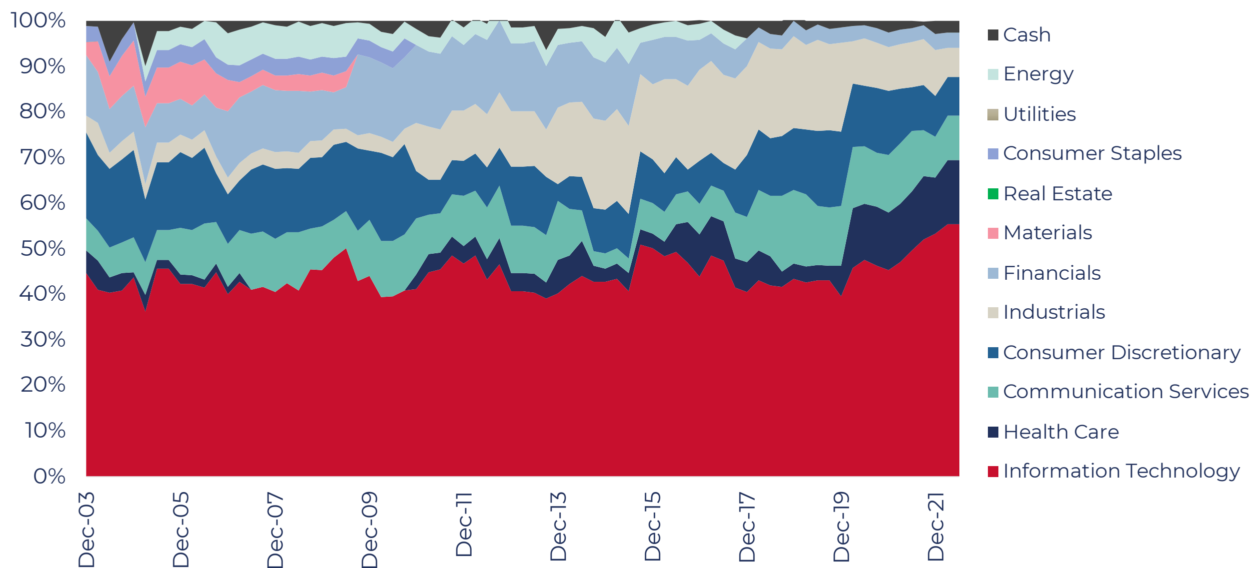


Figure 3: Portfolio sector breakdown. Guinness Atkinson Asset Management, Bloomberg (06. 30.2022)

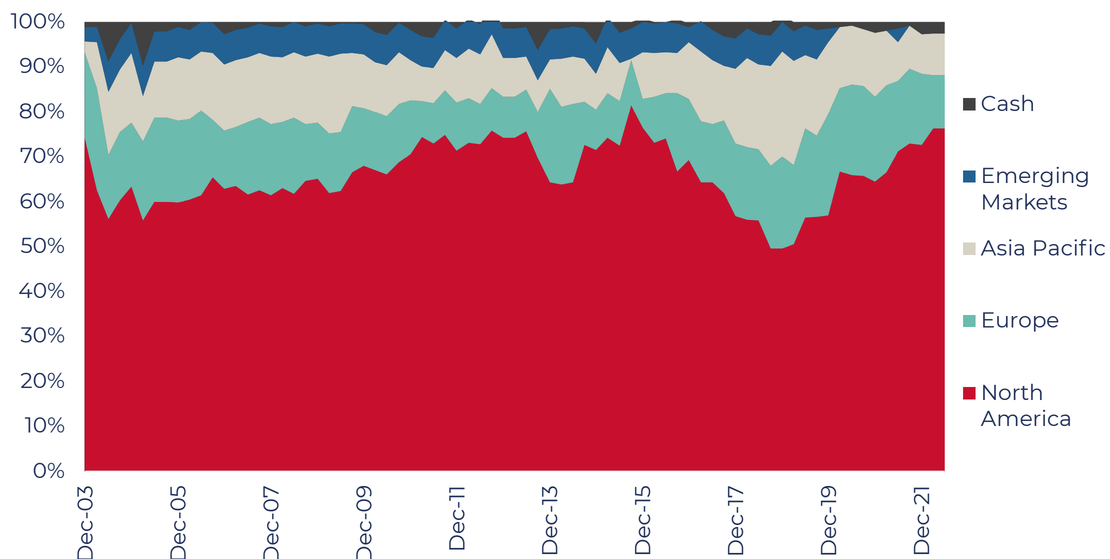


Figure 4: Portfolio geographic breakdown. Guinness Atkinson Asset Management, Bloomberg (06.30.2022)

On a regional level, at the end of the quarter the fund held a relatively small overweight position position to North America, a slight underweight position to Europe and a neutral position to Asia Pacific, relative to the benchmark.

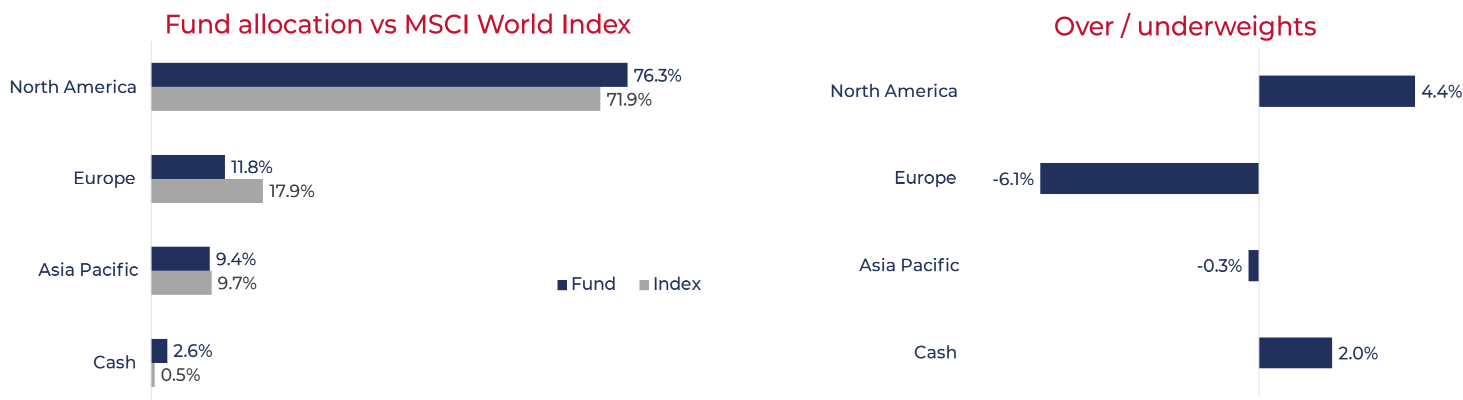


Figure 5: Guinness Atkinson Asset Management, Bloomberg (data as at 06.30.22)

On a sector level, the fund continues to have a large overweight to IT (34.4%), while the fund's 0% exposure to Real Estate, Energy, Materials, Consumer Staples, and Utilities leaves these areas underweight relative to the benchmark.

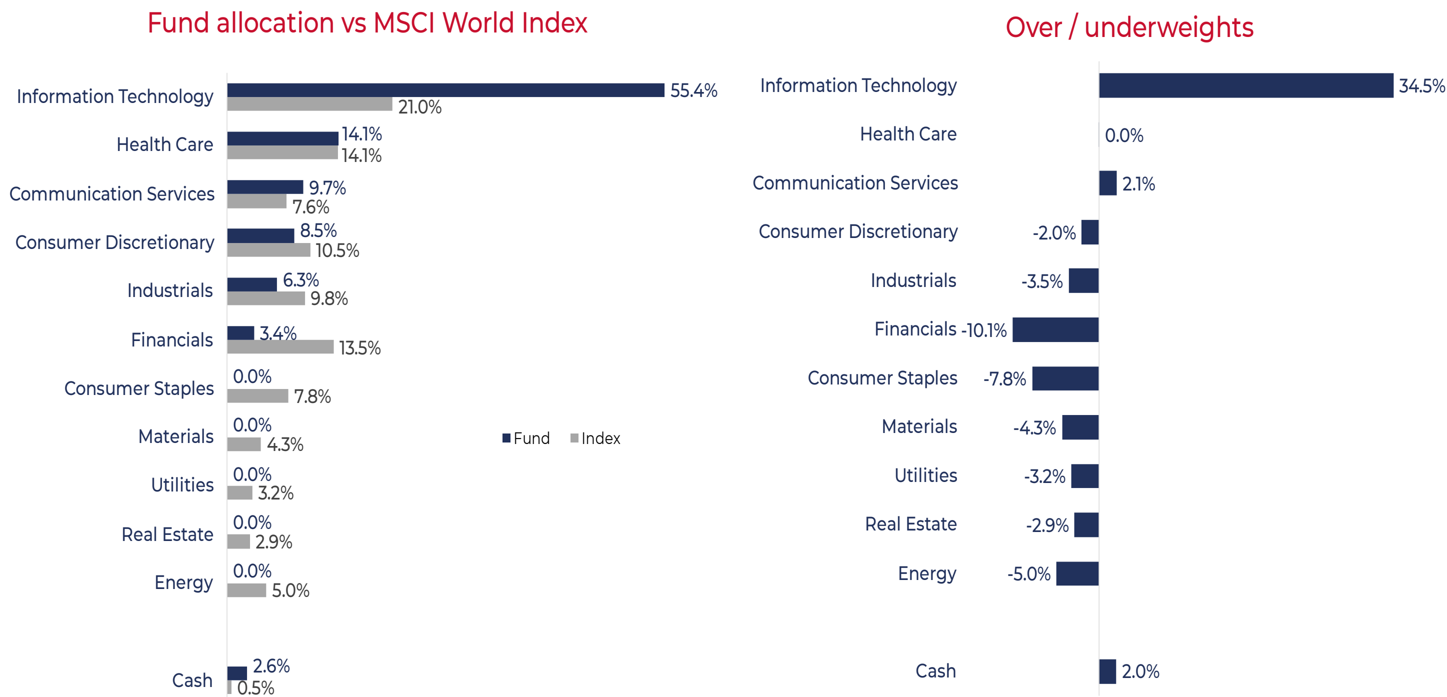


Figure 6: Guinness Atkinson Asset Management, Bloomberg (data as at 06.30.22)

Key fund metrics today

Innovation: We seek companies that are exposed to secular growth themes, which should therefore be more insulated to cyclical cycles.

Quality: We only invest in companies with good (and ideally growing) returns on capital and strong balance sheets.

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.

Conviction: We run a concentrated portfolio of 30 stocks, equally weighted.

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

		Fund	MSCI World Index
Innovation	R&D / Sales	8.8%	6.3%
	CAPEX / Sales	6.1%	8.4%
Quality	Return-on-Capital	19.4%	7.2%
	Weighted average net debt / equity	12.7%	66.8%
Growth (& valuation)	Trailing 5-year sales growth (annualized)	14.1%	3.7%
	Estimated earnings growth (2022 vs 2021)	13.8%	9.6%
	PE (2022e)	19.3	14.9
Conviction	Number of stocks	30	1630
	Active share	83%	-

Figure 7: Guinness Atkinson Asset Management, Bloomberg (data as at 06.30.2022)

We thank you for your continued support.

Portfolio Managers

Matthew Page, CFA

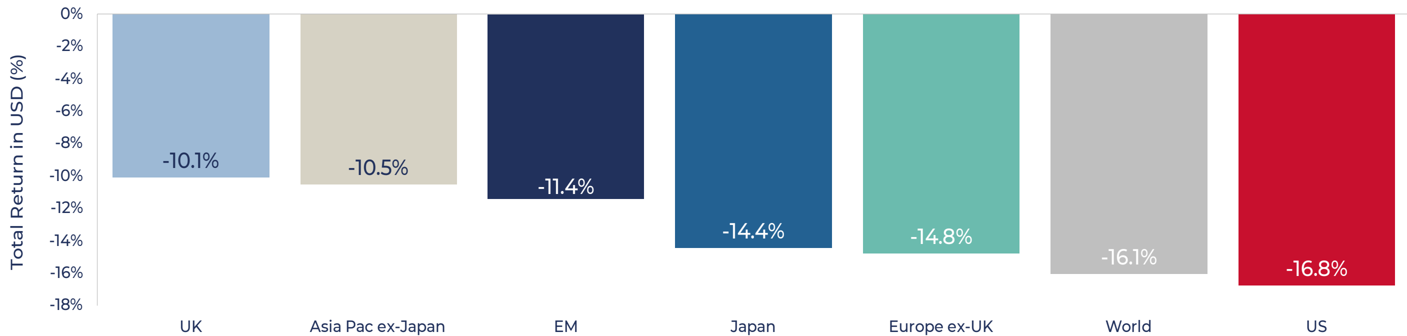
Dr Ian Mortimer, CFA

Summary performance

In the second quarter of 2022, the Fund returned -19.73% (in USD) and the MSCI World Index returned -16.19%. The Fund therefore underperformed the Index by 3.54% over Q2.

Over the year-to-date, the Fund returned -29.22% (in USD) and the MSCI World Index returned -20.51%. The Fund therefore underperformed the Index by 8.71% over period.

Global equity markets continued their downward trend in Q2, leading to the worst first-half performance for developed equity markets in more than 50 years. Some key markets, such as the S&P 500 and Stoxx 600, entered bear market territory, following declines in excess of 20%. In the context of rapidly accelerating inflation, the first quarter saw global Central Banks pivot sharply towards more hawkish monetary policy, with the outbreak of war in Europe also heavily denting sentiment and adding further stress to global supply chains. Similar themes echoed across markets into the second quarter, with inflation continuing to run at 40-year highs in the US, and 30-year highs in Europe. As markets priced in higher and more rapid rate increases, equities continued on their downward trajectory. Around the beginning of June, the possibility of recession became 'front of mind', driving further poor performance across equity markets, and a 'flight to safety' towards more defensive areas of the market. All major markets suffered declines in excess of 10% (in USD terms).



Source: Guinness Atkinson Asset Management, Bloomberg

Inflation continued to accelerate across regions throughout the second quarter, due to a range of contributing factors. With global economies unlocking themselves from Covid-19 induced 'lockdowns' at varying rates, global supply chains continue to suffer numerous pressure points, driving disruption in manufacturing and delivery in particular. Further coronavirus outbreaks in China (Shenzhen and Shanghai), led to subsequent lockdowns and shutdowns of manufacturing, a gentle reminder that the world is still very much subject to Covid related struggles. This impact was often noted in corporate earnings as upstream manufacturers struggled to get products into

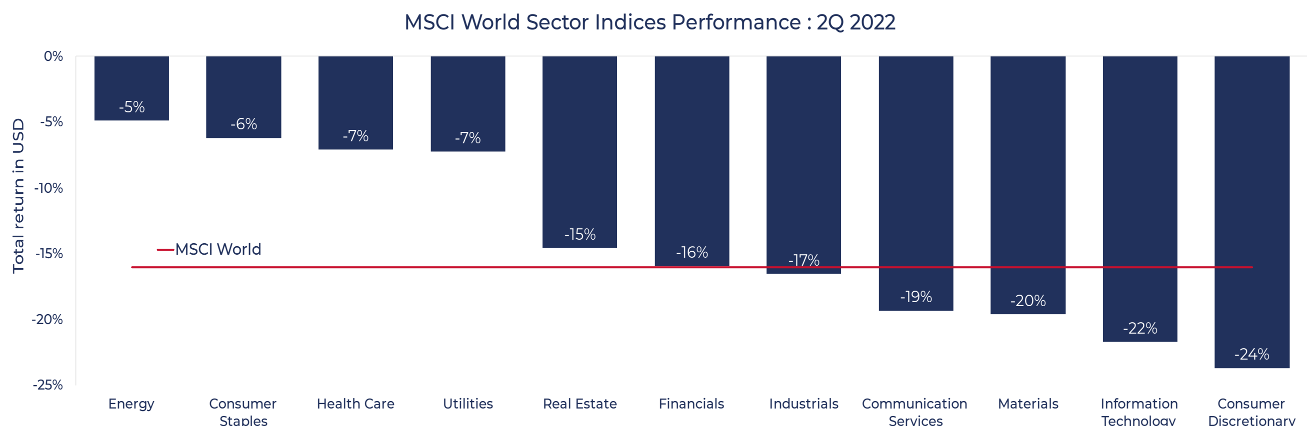
Performance data quoted represents past performance and does not guarantee future results. The investment return and principal value of an investment will fluctuate so that an investor's shares, when redeemed, may be worth more or less than their original cost. Current performance of the Fund may be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

Chinese factories, and downstream retailers dealt with disruption to inventories. The Russia-Ukraine war complicated the situation further, particularly in areas of close proximity and those with close economic ties. Political tensions between Europe and Russia exacerbated the energy crisis, a core component of the acceleration in inflation, as concerns over the security of supply have caused spikes in oil and gas prices.

These inflationary pressures have led to a high level of volatility in market interest rates expectations over 2022, with the speed and magnitude of rate hikes by global central banks brought to the forefront of investor attention. It was not until the end of November last year that the Fed "retired" the word transitory from describing inflation. Since then, the Fed has delivered rate hikes of 25bps, 50bps (the first 50bps hike since 2000) and 75bps (the first 75bps hike since 1994) in three successive Federal Open Market Committee (FOMC) meetings. 'Higher duration' growth stocks – firms whose expected future cash flows are weighted further into the future - were hit particularly hard, causing a relative rotation into 'value' names. Bond markets have also offered little sanctuary from falling equity prices, as rising rate expectations drove yields higher.

The Fed's difficult balancing act – taming inflation without significantly crimping growth – was brought firmly into focus towards the end of May, with Jay Powell, the chair of the Federal Reserve, stating that the Fed couldn't guarantee a soft landing. Solidifying these concerns were signs of downward pressure on the economic growth outlook and investors went from primarily worrying about inflation, to also worrying about a recession. Markets even began to anticipate a hiking program that would finish by 2023, followed by a number of cuts in the second half of 2023 – the implication being that the Fed would need to cut rates to revive economic growth by that point. This saw yields fall, and in contrast to the rest of 2022, led to a relative outperformance of growth stocks.

In the context of inflation and a perceived risk of recession increasing over the quarter, investors moved into defensive areas of the market. While energy was the top performing sector, this was due to exogenous factors and the continued high oil price, traditional defensive sectors such as consumer staples, health care, and utilities all significantly outperformed over the period. More cyclical sectors, such as technology, consumer discretionary, and materials, significantly underperformed. While value outperformed overall, growth outperformed in the final month of the quarter. This late quarter move was not necessarily a reflection of 'risk-on' sentiment, but a result of falling yields seemingly driving growth stock valuations higher, a fall in the oil price (which, if sustained, would help lower inflationary pressures), and market expectations of future inflation levels (as measured by breakeven rates) also falling alongside.



Source: Guinness Atkinson Asset Management, Bloomberg

During the second quarter, relative portfolio performance can be attributed to the following:

- The relative outperformance of value was a headwind. Rising interest rates and the transition to defensive sectors, which do not typically feature in the Fund, resulted in a sell-off for stocks with growth-tilted attributes, which are typically found in the Fund.
- The Fund's high exposure to Information Technology, and in particular semiconductor companies, was a core driver behind relative underperformance. However, good stock selection within the sector somewhat offset this negative allocation effect, with companies such as Visa (-11.05% in USD), Mastercard (-11.60%), KLA (-12.56%) and Amphenol (-14.29%) all outperforming the technology sector, which fell -21.73%.
- The Fund has no exposure to energy, consumer staples and utilities, all of which outperformed relatively over the quarter and as such provided a negative allocation affect.
- Good relative performance from names such as Bristol-Myers Squibb (+6.18% in USD) and Anta Sports (-1.45%) were positive from a stock-selection perspective.

Despite the notable headwinds to growth investing we outline above, we are pleased our focus on quality growth-at-a-reasonable-price has shown its strength in avoiding the highly valued, non-profitable tech businesses that have seen the most significant share price falls over the past 12-18 months - as the lofty expectations predicted post-pandemic have not materialized and the 'get big quick' model of growth has come under severe pressure in a changing rate environment. We believe our more measured approach to investing in growth will continue to perform well over the longer term. Indeed, it is pleasing to see that the Fund's performance remains resilient over longer time frames.

as of 06.30.2022 (in USD)	1 year	3 years annualized	5 years annualized	10 years annualized
Global Innovators, Investor Class[1]	-24.82%	9.80%	9.06%	13.02%
Global Innovators, Institutional Class[2]	-24.61%	10.08%	9.33%	13.21%
MSCI World Index NR	-14.34%	6.98%	7.66%	9.50%

as of 03.31.2022 (in USD)	1 year	3 years annualized	5 years annualized	10 years annualized
Global Innovators, Investor Class[1]	2.84%	19.23%	15.44%	14.74%
Global Innovators, Institutional Class[2]	3.10%	19.53%	15.73%	14.92%
MSCI World Index NR	10.12%	14.93%	12.42%	10.87%

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All returns after 1 year annualized.

[1] Investor class (IWIRX) Inception 12.15.1998 Expense ratio* 1.24% (net); 1.17% (gross)

[2] Institutional class (GINNX) Inception 12.31.2015 Expense ratio* 0.99%

[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 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 06/30/2022:

1. Thermo Fisher Scientific Inc	4.06%
2. KLA-Tencor Corp	3.95%
3. Microsoft Corp	3.90%
4. Mastercard Inc	3.86%
5. Roper Technologies Inc	3.75%
6.Visa Inc.	3.75%
7. Bristol-Myers Squibb Co	3.69%
8. Amphenol Corp	3.67%
9. Zoom Video Communications - A Shares	3.59%
10. Danaher Corp	3.59%

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.

Basis points (BPS) refers to a common unit of measure for interest rates and other percentages in finance. One basis point is equal to 1/100th of 1%, or 0.01%, or 0.0001, and is used to denote the percentage change in a financial instrument.

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 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.

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 **MSCI World Information Technology Index** is designed to capture the large and mid-cap segments across 23 Developed Markets (DM) countries. All securities in the index are classified in the Information Technology sector as per the Global Industry Classification Standard (GICS®).

The **MSCI World Health Care Index** is designed to capture the large and mid-cap segments across 23 Developed Markets (DM) countries. All securities in the index are classified in the Health Care as per the Global Industry Classification Standard (GICS®).

The **MSCI World Semiconductors and Semiconductor Equipment Index** is composed of large and mid-cap stocks across 23 Developed Markets (DM) countries. All securities in the index are classified in the Semiconductors and Semiconductor Equipment Industry Group (within the Information Technology sector) according to the Global Industry Classification Standard (GICS®).

Return on capital (ROC) is a ratio that measures how well a company turns capital (e.g., debt, equity) into profits. In other words, ROC is an indication of whether a company is using its investments effectively to maintain and protect their long-term profits and market share against competitors. Return on capital is also known as return on invested capital (ROIC).

The **Goldman Sachs Non-Profitable Technology Index** consists of non-profitable US listed companies in innovative industries. Tech is defined quite broadly to include new economy companies across Global Industry Classification Standard (GICS) industry groupings. The basket of tech stocks is optimized for liquidity with no name initially weighted greater than 4.65%

The **STOXX Europe 600 (STOXX 600)** is a stock index of European stocks designed by STOXX Ltd. This index has a fixed number of 600 components representing large, mid and small capitalization companies among 17 European

countries, covering approximately 90% of the free-float market capitalization of the European stock market (not limited to the Eurozone). The countries that make up the index are the United Kingdom (composing around 22.3% of the index), France (composing around 16.6% of the index), Switzerland (composing around 14.9% of the index) and Germany (composing around 14.1% of the index),[1] as well as Austria, Belgium, Denmark, Finland, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Spain, and Sweden.

Cash Flow is the total amount of money and cash equivalents being transferred into and out of a business.

The **price-to-earnings ratio (P/E ratio)** is the ratio for valuing a company that measures its current share price relative to its earnings per share (EPS).

Forward price-to-earnings (forward P/E) is a version of the ratio of price-to-earning (P/E) that uses forecasted earnings for the P/E calculation. While the earnings used in this formula are just an estimate and not as reliable as current or historical earnings data, there are still benefits to estimated P/E analysis.

S&P Global is the world's foremost provider of transparent and independent ratings, benchmarks, analytics, data, research, and commentary

Capital Expenditure (CAPEX) Funds used by a company to acquire or upgrade physical assets such as property, industrial buildings, or equipment.

The **S&P 500 Index** features 500 leading U.S. publicly traded companies, with a primary emphasis on market capitalization. It is a float-weighted index, meaning the market capitalizations of the companies in the index are adjusted by the number of shares available for public trading.

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.

One cannot invest directly in an index.

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