Guinness Atkinson
Global Innovators Fund
Managers Update – May 2023

GUINNESS ATKINSON FUNDS

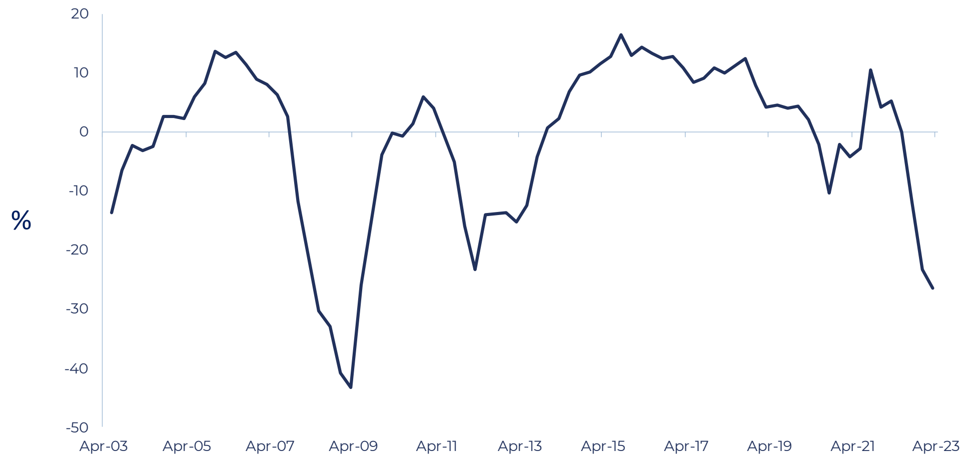
April in review:

What are the effects of the banking crises?

Following the Silicon Valley Bank saga that briefly rocked equities in March, markets appeared to have regained confidence that a banking crisis had been averted. Silicon Valley Bank's troubles were driven by the fact that management had been betting on falling interest rates, resulting in the majority of their deposits being invested into long-dated securities. As interest rates continued to rise, the value of investments fell significantly, which would have been fine if the bank were able to hold these investments to maturity. However, tightening lending conditions meant many of the firm's core customer base, tech start-ups, were unable to raise cash through the traditional routes and were having to dip into deposits, while other customers withdrew deposits in search of higher returns elsewhere. The run on deposits left the bank being forced into crystallizing losses on these long-dated securities to cover withdrawals. After announcing an equity raise to cover deposits, this highlighted the bank's vulnerability through creating a lack of confidence in the security of customers' deposits, sparking withdrawals en-masse.

A strong policy response from regulators restored a level of confidence back into the banking system and calm in equity markets. Banking shares even returned to where they were at the beginning of the year. However, more second order effects became clear during earnings season, as US regional bank First Republic announced a plunge in deposits – almost $100bn in total (not including the $30bn deposits made by larger lenders to shore up confidence). Shares fell 65% over the following two days, with the eventual outcome being the seizure of the company by regulators, and the remains of the bank being sold to JP Morgan Chase.

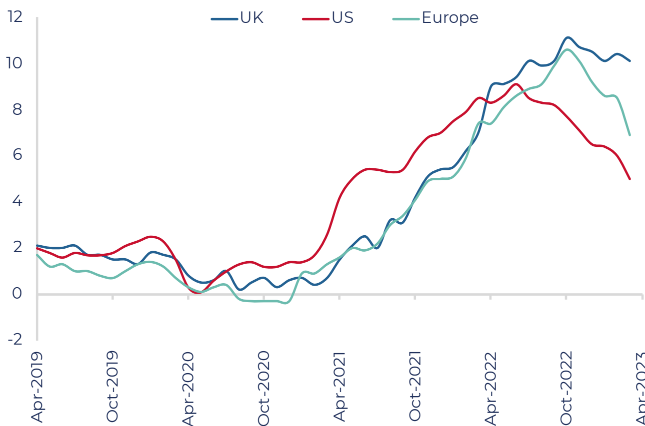
What seems to have resulted from the Silicon Valley Bank (SVB) crises is a shift of deposits away from regional banks and towards larger US banks, who retain the confidence of their customers. Tighter regulation, particularly for smaller regional banks, now appears to be on the horizon. Whether the banking crisis has been fully averted is yet to be seen, but a broader outcome for the economy as a whole has started to emerge: the tightening of credit conditions. The American Bankers Association Credit Conditions Index highlights an expectation of economists of significantly weaker credit market conditions over the next 6 months. It is important to note that this tightening is not just limited to the US. The composite index below shows a combination of 12 European Central Bank (ECB) bank lending surveys and acts as a proxy for European credit conditions, which are currently at decade lows (a negative percentage indicates tightening conditions). While the fall of First Republic Bank did not have the same impact on the market as that of SVB, it clearly put into the focus the risk of continued volatility not just in the banking sector, but in the broader market.

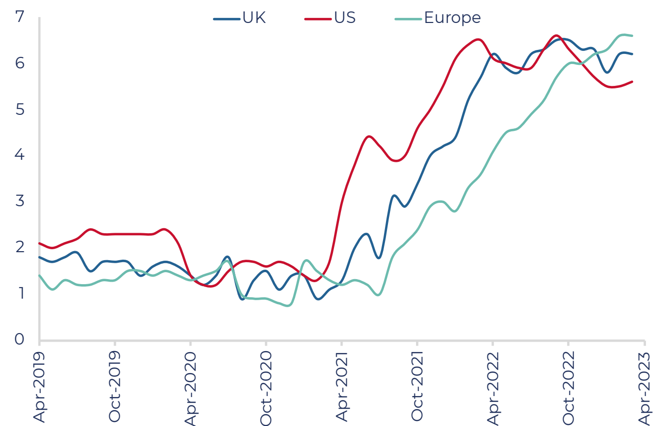


Source: European Central Bank, Bloomberg, Guinness Atkinson Asset Management, April 30th, 2023

What does this mean for inflation?

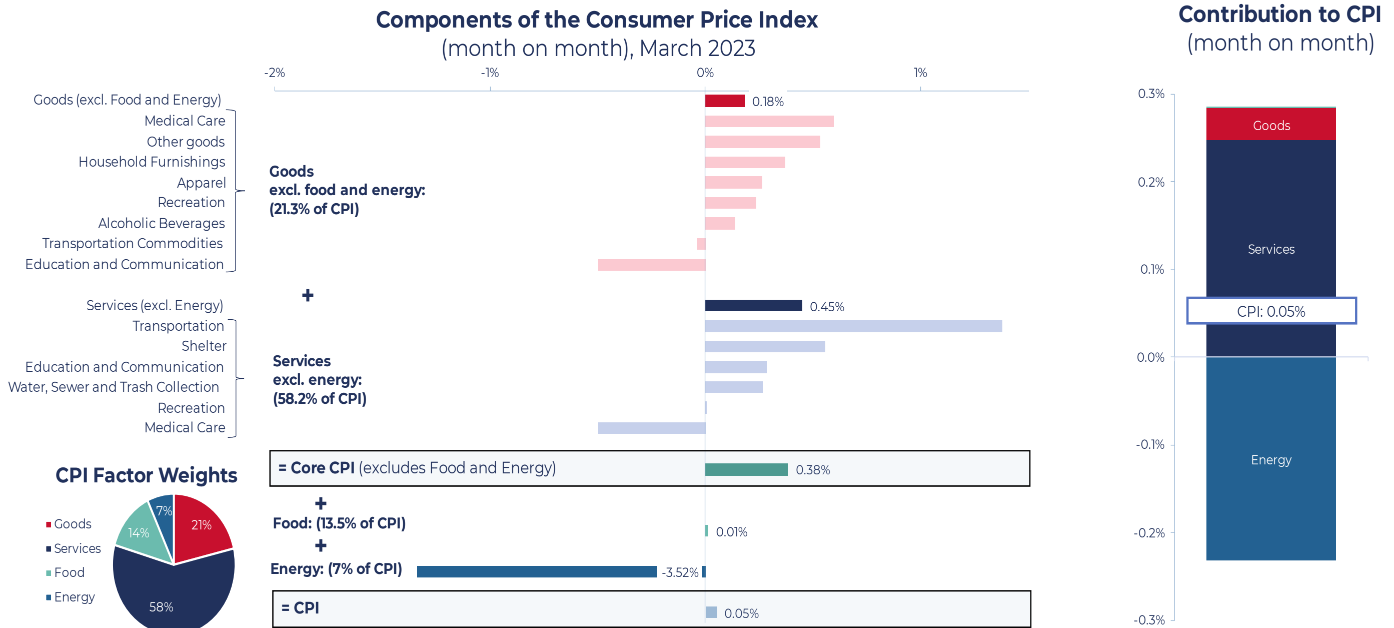
The tightening of credit is likely to create a headwind towards economic growth. The positive spin on this is that it may play a part in reducing inflation, something the Federal Reserve has been hoping to see since it first raised rates over a year ago (March 16th, 2022), and continues to be persistent within the economy. While headline US inflation fell 50bps to 5.0% (year-on-year), core inflation actually accelerated by 10bps to 5.6%.





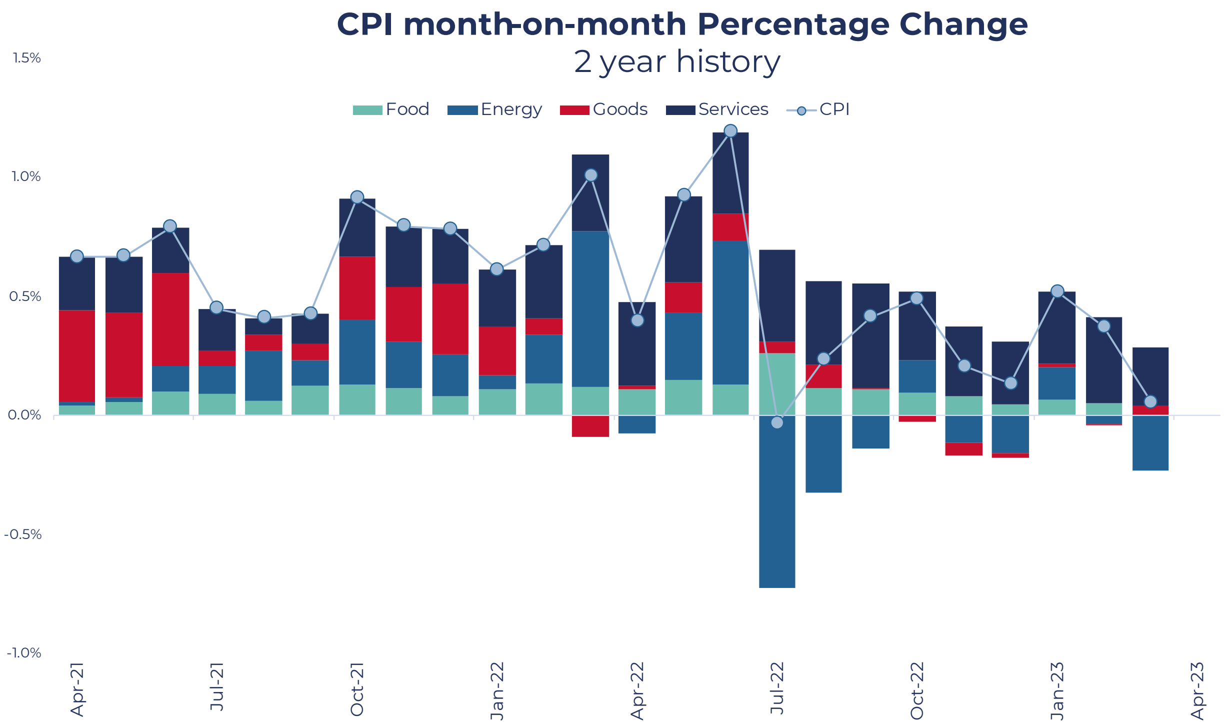
Source: Bureau of Labor Statistics, UK Office for National Statistics, Eurostat, Bloomberg, Guinness Atkinson Asset Management, April 30th, 2023

On a month-on-month basis, US Consumer Price Index (CPI) growth of just 0.05% appeared to be a very positive result, particularly after the prior month's 0.4% print. However, breaking out the constituents of CPI into core and non-core components, we can see that the low month-on-month increase was due to a large offset from Energy, a small component of CPI. In the firm's core components, Goods and Services, inflationary pressures remain broad.



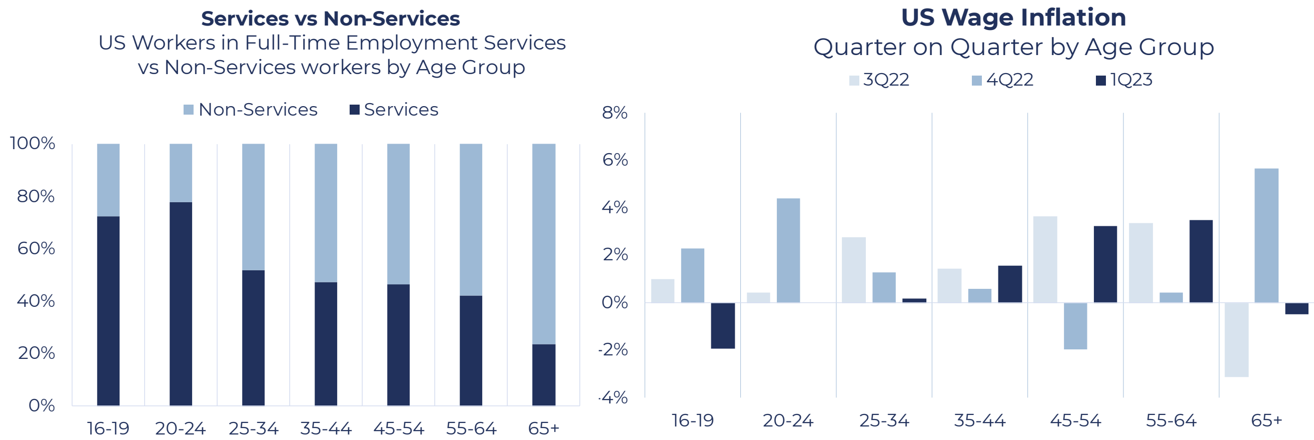
Source: Bureau of Labor Statistics, Bloomberg, Guinness Atkinson Asset Management, April 30th 2023

This trend is similar to what has been seen over the past 12 months. The fall in energy prices has led to lower Headline CPI prints (month-on-month), yet Core CPI has made little progress in the US, despite goods inflation subsiding early in 2022. The vast majority of inflationary pressures, on a month-on-month basis, have been driven by services, a stickier inflation input.



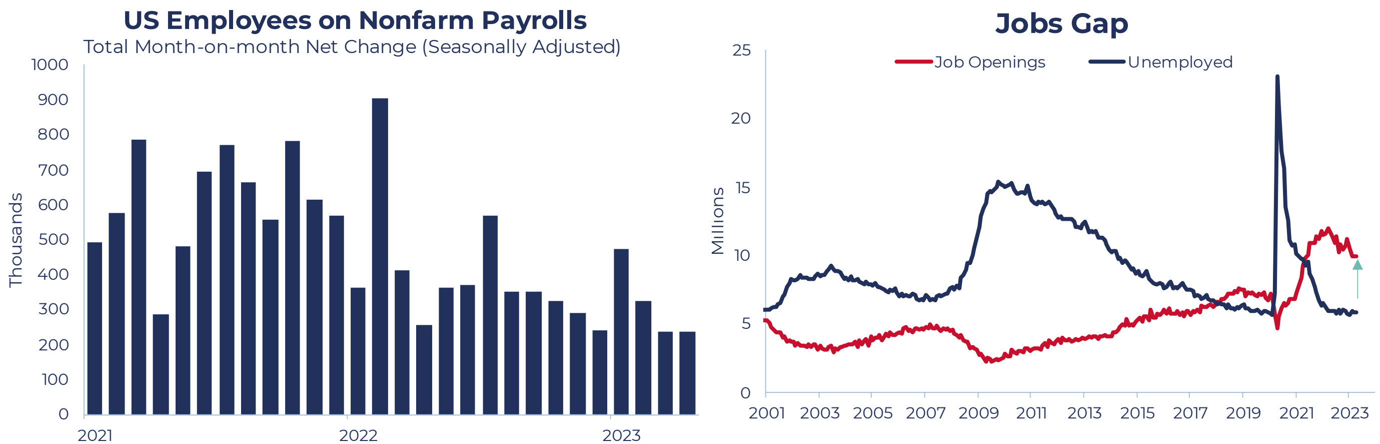
Source: Bureau of Labor Statistics, Bloomberg, Guinness Atkinson Asset Management, April 30th 2023

This stickiness stems from the cost composition of the services segment, which according to the Bureau of Labor Statistics (BLS), have over 70% of input costs stemming from labor (i.e. wages). The labor force within the US Services segment is largely distributed towards younger age groups (relative to non-Services). For progress to be made in core inflation, it follows that a moderation in wage increases is required, particularly in younger age groups. As seen in the chart below, the most recent data points suggest some progress in younger age groups.



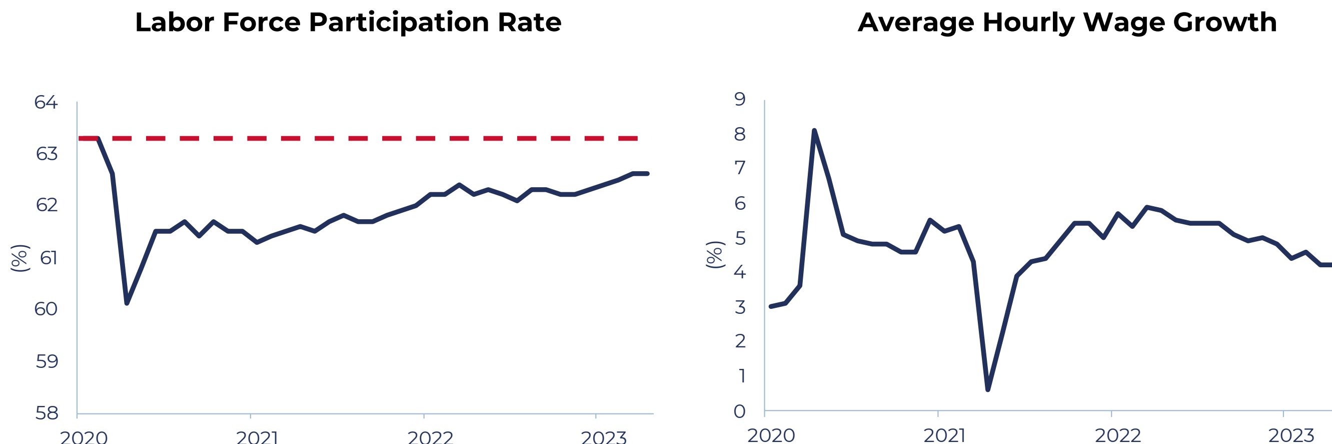
Source: Bureau of Labor Statistics, Bloomberg, Guinness Atkinson Asset Management, April 30th 2023

While the job market remains hot, there appears to be some progress elsewhere too, as the net change in US Employees on Nonfarm payrolls continues to trend downward, and the jobs gap has somewhat fallen over the past few months.



Source: Bureau of Labor Statistics, Bloomberg, Guinness Atkinson Asset Management, April 30th 2023

In addition, the labor force participation rate is approaching pre-pandemic levels. This all could result in a cooling impact on wage growth, which softened to 4.2% year-on-year during March – the lowest level since June 2021.



Source: Bureau of Labor Statistics, Bloomberg, Guinness Atkinson Asset Management, April 30th 2023

What are the broader economic implications?

The Federal Reserve is dual mandated to achieve both maximum employment and price stability. Yet with unemployment hovering around multi-decade lows, bringing elevated inflation under control has become the priority. With Goods, Energy and Food inflation all appearing to be under control – or at least not contributing significantly any more – all eyes are on Services. Progress in slowing wage growth is certainly a positive, particularly in younger age groups. It also appears that the US economy is cooling, with GDP figures for Q1 showing a sharp deceleration to 1.1%, significantly below the 2.6% in Q4 of 2022 and the 3.2% the quarter prior, suggesting the lagged impact of monetary policy could be taking effect. The banking crises may also play into the Fed's hands due to the resulting tightening of credit.

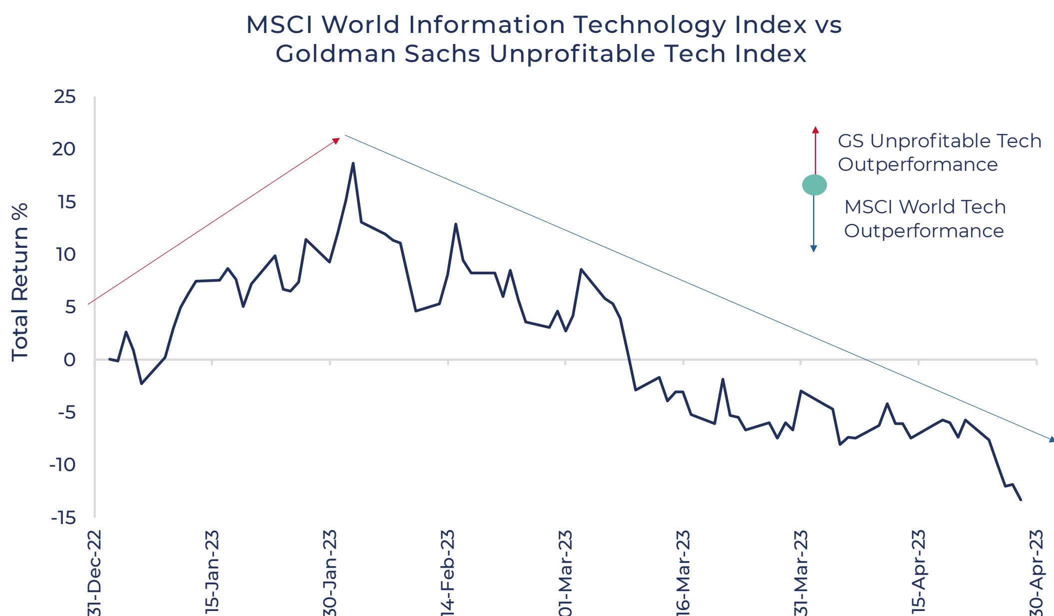
On the other hand, this is yet to filter through to a meaningful reduction in core inflation, which remains at elevated levels. The Fed's preferred measure, Personal Consumption Expenditure, has shown little moderation in recent periods. Since March last year, the Fed has hiked rates in nine consecutive meetings, and are expected to do the same in early May, before cutting at the back end of 2023. With the relative resilience of services inflation, it may be some time until a pivot is seen towards looser monetary policy. Fed officials have been non-committal about how much more will need to be done in order to quell inflation, but they have been clear on one-thing at least – that achieving the 2% target is likely to require "below trend growth and softening in labor market conditions". Many market analysts agreed, as Goldman Sachs downgraded their 2023 US GDP forecast by 25bps-50bps as the impacts of tighter monetary weigh heavy on the mid-term growth outlook.

Can technology stocks offer defensive attributes?

The implication of a lower growth environment often tends to result in the outperformance of more defensively orientated stocks. The Fund's largest overweight position is Information

Technology (+20% to the benchmark), which has not traditionally been thought of as 'defensive' sector. However, we perceive that certain areas of the tech industry are a more defensive investment than others and certainly more than they once were, although it is important to differentiate between the three key industries. Both the Technology Hardware and Semiconductor industries have historically had greater exposure to business spending cycles and are hence more cyclical in nature. However, in the case of semiconductors, areas of the industry are now having these spending cycles being dampened, as businesses make long term investments into capacity and technological advancement, particularly in the context of secular growth themes such as the cloud transition and development of AI.

Perhaps a more important factor than these long-term secular growth themes is the shift towards 'as-a-Service' businesses, particularly within the Software Industry. Businesses offering these services are now more exposed to stickier recurring revenues than one time capital expenditures (CapEx), reducing the cyclicality of their revenues – Adobe is a good example, where recurring revenues now account for over 70% of sales, up from 19% in 2011. These revenues are less likely to be cut since they are a.) under longer term contracts, b.) have a much lower upfront cost than a one-time fee. New customer wins in a difficult macro-environment may still be difficult, but the defensiveness of existing revenues is far stronger. In many cases, the business model for companies in software and services are also less capital intensive, which typically results in stronger balance-sheets, again making them more defensive in extreme cases. Over the last few months, the decline in the outlook for the macro-backdrop has driven the outperformance of higher quality technology stocks, as seen in the MSCI World Information Technology index vs the GS Unprofitable Tech index.



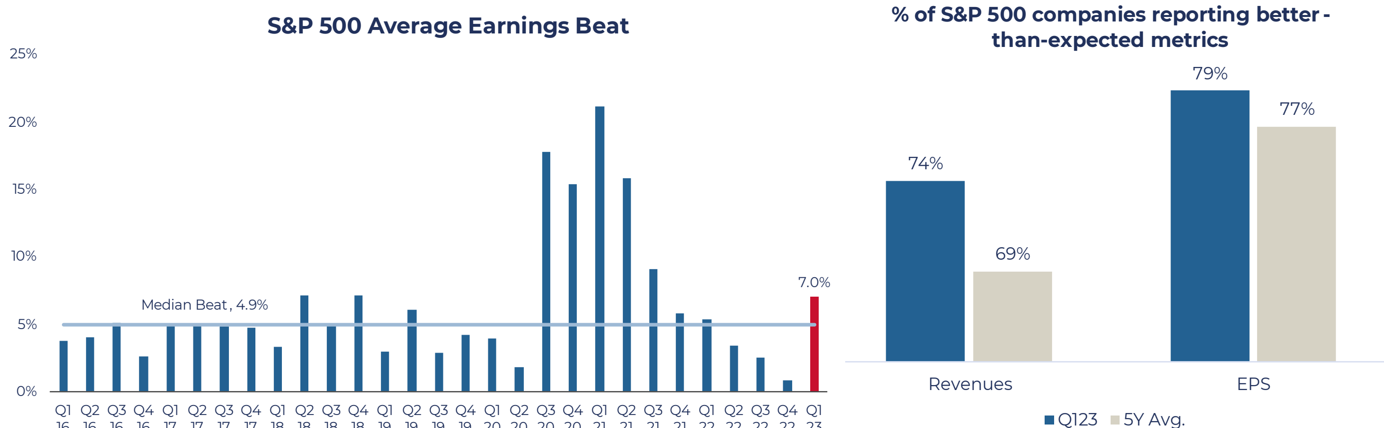
Source: MSCI, Bloomberg, Guinness Atkinson Asset Management, April 30th 2023

With all this being said, this is clearly not a blanket statement for all technology companies. Taking 2022 as a prime example, we saw many big tech groups suffering from a slowdown in

advertising revenues, which are clearly more linked to the business cycle. And while software companies may have more defensive fundamentals in general, from a technical angle, their premium valuations create higher downside risk from a valuation perspective. On a technical basis, these companies' betas often remain above one. Taking a longer term view, identifying companies that are a.) subject to long term secular growth themes and b.) high exposure to recurring revenues through subscriptions and 'as-a-service' business models, can certainly have benefits in terms of the 'defensiveness' of a portfolio, and within the Global Innovators fund, we see a number of good opportunities in quality compounder tech business, with a favorable return profile over the longer term.

Indeed, with global growth expected to slow, the prospects of a recession remain high (particularly in Europe and Asia), potentially creating a meaningful dent into company earnings. In many respects, we believe these concerns have largely been 'priced-in' to earnings estimates, but this does not necessarily preclude further earnings downgrades to come. Indeed, we believe there is a good argument for high quality, secular growth stocks in this current market environment, especially in a recessionary and/or slower growth environment, as these companies should continue to be able to grow despite the market headwinds and have better fundamental characteristics in terms of margins and balance sheets. We continue to focus on these key tenets in the fund and remain confident of this process over the long term.

A short note on company earnings



Source: Bloomberg, Factset, Guinness Atkinson Asset Management as of April 30th 2023

Amidst the market backdrop outlined above, earnings season kicked off in earnest halfway through the month. While it is too early to draw full conclusions from the past two weeks of results (265 of the S&P 500 have reported), companies certainly seem to be surprising to the upside. Of the S&P 500 companies that have reported, the average revenue beat is a modest 2% yet, more strikingly, the average earnings beat is 7%, a level not reached since the pandemic related earning-surge in 2021. Such beats on the bottom line show a real resilience in margin strength and suggest that companies are, by and large, successfully passing through higher costs to the end consumer. Positive earnings have been led so far by

Consumer Discretionary (average earnings surprise of +28.3%), Industrials (+9.3%), and Consumer Staples (+7.2%). The number of companies 'beating' is also significantly ahead of 5 year averages – although this is largely a function of downgrades over recent months rather than 'above average' company performance. This suggests that things may not be 'as bad' as markets have anticipated.

Stock Specific Performance

Meta (+13.4% USD)

After suffering a tumultuous 2022, Meta's stellar 2023 (+98.8% USD year to date) continued into April, finishing as the Fund's top performer (+13.4% USD). Earlier in the year, Meta shifted their focus towards their cost structure which had been a core drag on the share price over 2022, particularly with respect to their Metaverse investments. While the headline news in February was certainly the cost focus, the underlying strength of the core platform was also apparent. The firm's Q1 results were no different. After three consecutive quarters of negative top-line growth, revenues grew 2.6% YoY, ahead of consensus (-1% expected). This was led by strong ad revenues (+7% year-on-year) stemming from better engagement and more effective monetization – highlighting Meta's ability to grow even during a difficult spending environment in advertisements. The firm also saw a number of improvements to customer metrics, including above expected growth in Daily Active Users. The firm's 'reels' product has proven itself to be highly effective at driving greater engagement, with AI recommendations driving a +24% increase in time spent on Instagram since the launch of the product. Meta also issued an improved cost guidance forecast for FY2023 as their efforts to realize efficiency gains across the business continue to gather steam. This was a great quarter for Meta, who's renewed focus away from growth at any cost is proving to be the right strategy.

Medtronic (+12.8% USD)

Medtronic performed strongly over April, outperforming its sector index (MSCI World Healthcare) by 9%. The stock was buoyed by news that Medtronic had received FDA approval for their long awaited MiniMed 780G insulin pump system. This device encompasses the insulin therapy pump and the Guardian 4 constant glucose monitor — or CGM. Combined, the device acts similar to a pancreas, issuing automatic dosing corrections to blood sugar levels every 5 minutes without the need for patient action, but also includes support for iPhone and Apple Watch monitoring. The long awaited approval is a significant win for the firm, and underscores the firm's ability in converting intangible assets (in the form of intellectual property for pump data) to pioneering innovations. Prior to the release, management also noted that they will be engaging in work force reductions in order to cut costs and focus on efficiency gains within the business, which should be accretive to the bottom line.

Anta Sports (-12.8%)

Anta Sports 'top-up' placement of $1.5bn weighed on the firms share price over April. The placement price was at an 8.8% discount to the firm's closing price at the time, and accounted for 4% of issued share capital. The proceeds are to be used for paying down some outstanding debt, investment in the South-East Asia business, while also adding to the firms general working capital. The placement is a decision based on capital structure, bolstering an already strong balance sheet that had, prior to the raise, net cash of $1bn. While creating an overhang for the stock, we view the decision on the whole as a positive, giving management the flexibility to continue investing in the business and allowing the firm to take advantage of long-term opportunities. During the placement briefing, management noted encouraging quarter-to-date trends, with full-year guidance maintained at double digit growth for the core business. From a fundamental perspective, we note that the post lockdown re-opening could lead to a consumption driven recovery – a result of excess savings accumulated over the prior three years. From a stock perspective, we remain confident in the outlook of Anta Sports, which benefits from long term structural tailwinds. Beijing continues to promote exercise and sports, pouring billions into initiatives such as the "Healthy China 2030" Plan, which should serve to lift the sports industry's contribution to GDP. China's per capita spending on sportswear remains comparatively low at $31, but as the middle class emerges, analysts expect this to rise to a similar level as Japan ($110) by 2030 (US $307). The firm has a number of meaningful growth opportunities including geographical expansions as well as forays into the premium segments of the market. All in all, we believe the fundamentals behind the company remain strong, and underlying secular trends should serve to boost Anta's revenue profile into the long term.

We thank you for your continued support.

Portfolio Managers

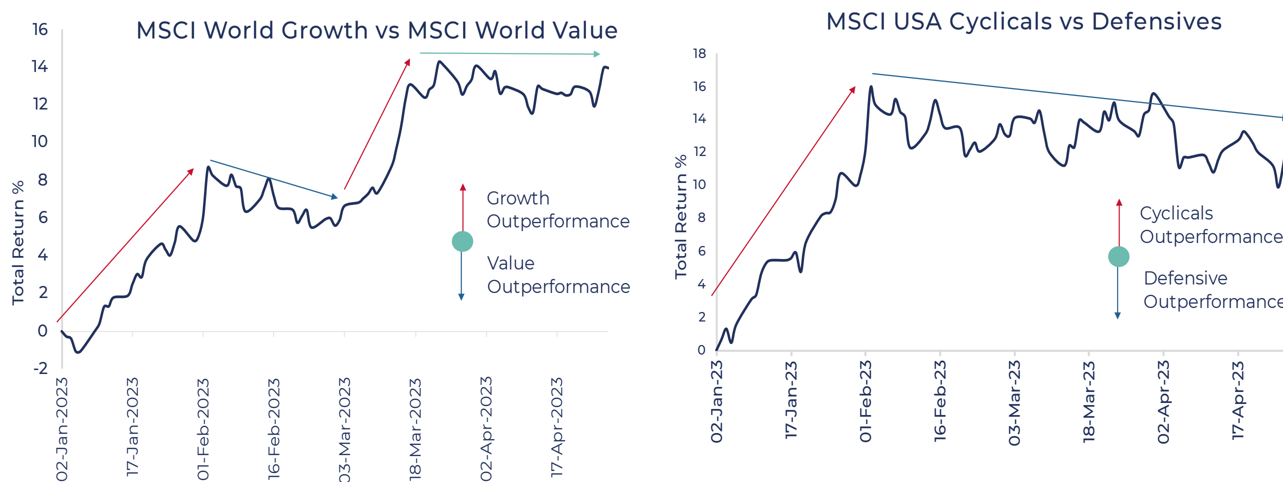
Matthew Page, CFA

Dr Ian Mortimer, CFA

Summary performance

Global equity markets posted modest gains during April. Concerns over the banking fallout initially seemed to have been quelled as markets travelled sideways for the early period of the month. Stocks bounced on news that the Producers Price Index fell -0.5% in March (typically a leading indicator for CPI), alongside data suggesting a cooling jobs market. The collapse of a second US bank at the end of the month caused a short, sharp drop in equities, an indication that second order effects from both the banking crises and monetary tightening in general may yet be fully appreciated. From an economic standpoint, data was relatively mixed, with flash PMI's in the US suggesting improving economic activity in both manufacturing and services, yet an economic slowdown was seen in US GDP numbers for Q1 (1% vs 2.1% Q4 2022), significantly below expectations. News of the slowdown provided a tailwind to equities on the expectation that this may lead to an earlier pivot away from tight monetary policy by the Fed.

Global equity markets therefore ended April modestly above where they started. The market's slight preference for defensively orientated stocks over cyclically-inclined stocks continued, as investors weighed up a potentially weaker economic outlook. Growth and value, on the other hand, performed relatively in-line (slight outperformance from value), as rate expectations remained relatively stable over the month, despite multiple data points implying progress in cooling inflation.



Source: MSCI, Bloomberg, Guinness Atkinson Asset Management, as of April 30th 2023

Fund performance over April can be attributed to the following:

- The Fund's high relative exposure to the Information Technology sector, the MSCI's second worst performing over the month of April (-0.1% USD), acted as a core source of Fund underperformance. This was driven in particular by weakness in the Semiconductor industry, where the Fund has an overweight position.
- While our Information Technology names included a number of good performers relative to the sector, Microsoft (+6.6% USD) and Roper (+3.4% USD) for example, this was more than offset by weakness in names such as Zoom (-16.8% USD) and Infineon (-11.3% USD).

- Stock selection within Communication Services acted to offset some of this underperformance, as names such as Meta (+13.4% USD) and Comcast (+10.0% USD) outperformed both their sector and the broader MSCI World Index. This was also true within our Capital Goods names, driven by strength from Schneider (+4.2% USD) and ABB (+4.9% USD).
- Stock selection was impacted by weakness in a couple of off-benchmark names. This includes the Fund's sole Chinese stock, Anta Sports (-15.1% USD), as well as semiconductor holding TSMC (-9.4%).
- The Fund's zero weighting to Energy and Consumer staples acted as a headwind for the Fund, as the MSCI World's two best performing sectors over the month.

as of 04.30.2023 (in USD)	1 year	3 years annualized	5 years annualized	10 years annualized
Global Innovators, Investor Class[1]	3.21%	12.52%	8.93%	12.07%
Global Innovators, Institutional Class[2]	3.44%	12.80%	9.19%	12.28%
MSCI World Index NR	3.18%	13.12%	8.13%	8.71%

as of 03.31.2023 (in USD)	1 year	3 years annualized	5 years annualized	10 years annualized
Global Innovators, Investor Class[1]	-7.72%	17.11%	8.71%	12.36%
Global Innovators, Institutional Class[2]	-7.49%	17.41%	8.98%	12.56%
MSCI World Index NR	-7.02%	16.40%	8.00%	8.84%

All returns after 1 year annualized.

[1] Investor class (IWIRX) Inception 12.15.1998 Expense ratio 1.24% (net); 1.27% (gross)
[2] Institutional class (GINNX) Inception 12.31.2015 Expense ratio 0.99% (net); 1.10% (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, 2026. 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 4/30/2023:

	Holding	Weight
1.	Meta Platforms Inc. - Class A	4.20%
2.	Microsoft Corp	4.12%
3.	Mastercard Inc	4.11%
4.	ABB Ltd	4.09%
5.	Schneider Electric SE	3.94%
6.	Visa Inc	3.91%
7.	Roper Technologies Inc	3.82%
8.	Amphenol Corp	3.79%
9.	NVIDIA Corp	3.77%
10.	Thermo Fisher Scientific Inc	3.66%

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 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.

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.

The American Bankers Association (ABA) Credit Conditions Index is a suite of proprietary diffusion indices derived by the American Bankers Association from surveys of bank chief economists from major North American banking institutions.

The Consumer Price Index (CPI) is a measure of the average change over time in the prices paid by urban consumers for a market basket of consumer goods and services. Indexes are available for the U.S. and various geographic areas.

The Purchasing Managers' Index (PMI) is an index of the prevailing direction of economic trends in the manufacturing and service sectors.

Personal consumption expenditures (PCE), also known as consumer spending, is a measure of the spending on goods and services by people of the United States. According to the Bureau of Economic Analysis (BEA), a U.S. government agency, PCE accounts for about two-thirds of domestic spending and is a significant driver of gross domestic product.

The producer price index (PPI) measures the average change over time in the prices domestic producers receive for their output. It is a measure of inflation at the wholesale level that is compiled from thousands of indexes measuring producer prices by industry and product category.

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. The relationship between percentage changes and basis points can be summarized as follows: 1% change = 100 basis points and 0.01% = 1 basis point.

The Federal Open Market Committee (FOMC) consists of twelve members--the seven members of the Board of Governors of the Federal Reserve System; the president of the Federal Reserve Bank of New York; and four of the remaining eleven Reserve Bank presidents, who serve one-year terms on a rotating basis.

The Nasdaq-100 (NDX) is a large-cap growth index. It includes 100 of the largest domestic and international non-financial companies listed on the Nasdaq Stock Market based on market capitalization.

Beta is a measure of a stock's volatility in relation to the overall market.

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.

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.

Forward price-to-earnings (forward P/E) is a version of the ratio of price-to-earnings (P/E) that use 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

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

The multiples approach is a valuation theory based on the idea that similar assets sell at similar prices. It assumes that the type of ratio used in comparing firms, such as operating margins or cash flows, is the same across similar firms.

Correlation is the interdependence of variable quantities. It is a statistical measure that expresses the extent to which two variables are related i.e. how much one variable changes when another variable changes. The relationship does not need to indicate causation.

The MSCI World Information Technology Index is a free float-adjusted market capitalization weighted index that is designed to measure the equity market performance of large and mid-cap equities across 23 developed markets, all classified within the Information Technology sector.

The S&P 500 Index features 500 leading U.S. publicly traded companies, with a primary emphasis on market capitalization.

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.

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)

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 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 MSCI USA Index is designed to measure the performance of the large and mid cap segments of the US market. With 625 constituents, the index covers approximately 85% of the free float-adjusted market capitalization in the US.

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).

One cannot invest directly in an index.

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