Guinness Atkinson

Global Innovators Fund

Managers Update – January 2020

GUINNESS ATKINSON FUNDS

Fund Summary

In 2019 the Guinness Atkinson Global Innovators Fund's investor class produced a total return of 37.0% (TR in USD), compared to the MSCI World Net TR Index return of 27.7%, therefore outperforming by 9.3%.

- 2019 saw consistently strong equity markets with an easing of many fears which surrounded the equity market sell-off in the Q4 2018, including trade rhetoric, central banks' policies and, of course, Brexit.
  - Over the year, the fund saw 3 stocks return over 100% (New Oriental Education up 121%, Lam Research up 119% and KLA Corp up 104% in USD), 18 of the 30 stocks outperformed the MSCI World and 3 stocks feature in the S&P 500's top 10 performing stocks for the year (Lam Research up 119%, KLA Corp up 104% and Applied Materials up 90% in USD).
  - Growth stocks outperformed value which led to a significant outperformance from the fund's largest sector and industry overweight exposures in Information Technology and Semiconductor stocks.
  - Despite the US-China trade war, two of our domestically focused Chinese holdings were among the fund's top 5 performing stocks (New Oriental Education up 121% in USD and Anta Sports up 89% in USD).
  - In September we also saw the 'value rotation' whereby global value stocks significantly outperformed growth stocks in the month – a sharp reversal of the prevailing trend. During the month, the fund was up 2.9% vs the MSCI World 2.2% (in USD) showing the positive effects of our value discipline.
- The philosophy and process behind the Guinness Atkinson Global Innovators remains the same today:
  - The fund aims to invest in innovative businesses with exposure to high intellectual property, high R&D areas including Artificial Intelligence, Industrial Automation and Financial Technology. We believe these areas may exhibit faster profit growth, larger profit margins and may be less susceptible to cyclical pressures.
  - Not every innovative company is a great investment, so we focus on quality companies with strong balance sheets, that are highly cash generative, and that are trading at attractive valuations with respect to their potential future growth. We believe these types of businesses are best placed to build and maintain a sustainable innovation advantage.
  - The fund takes a long-term view, holding companies for 3-5 years on average, and is a concentrated portfolio (30 stocks) of equally weighted positions, with an active share of >90% versus the MSCI World benchmark.
- We believe the focus on innovative companies with long-term structural demand drivers, alongside our quality and value discipline, means the fund has the potential to capitalize on an evolving landscape, while not taking on excessive risk associated with paying up too much for future growth. The fund currently trades at a 13% premium to the benchmark on a PE basis but is cheaper on FCF yield with consensus estimates currently expecting earnings to grow at 17% year-on-year.

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.

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Looking at Innovation through Research & Development

As we reflect on what has been a tremendous bull market, it is useful to consider the fund philosophy and the drivers of this growth market. The fund's strategy has always been to invest in innovative companies, whose competitive advantages can be maintained over the long-term. One approach in which these companies can do so is by investing in research & development (R&D). Here, we consider the drivers of growth through the lens of R&D expenditure, how this translates to our Global Innovators Universe construction and possible implications going forward into the new decade.

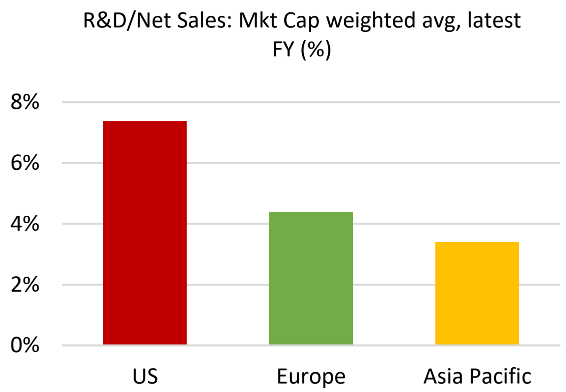


Figure 1, Source: Bloomberg, as of December 31st 2019

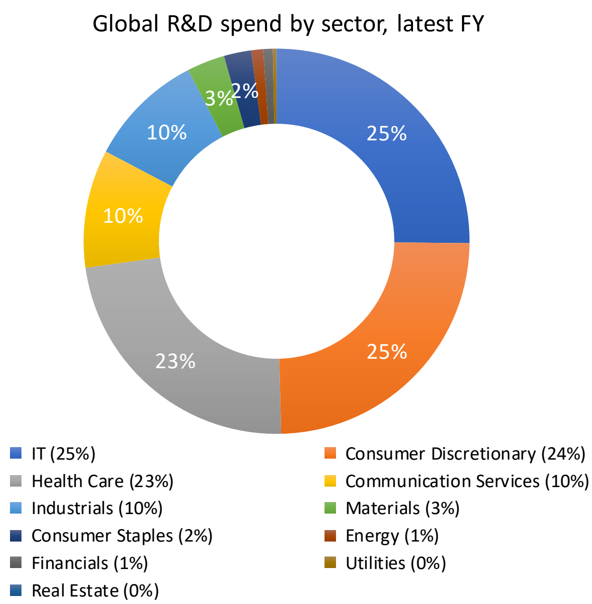


Figure 2, Source: Bloomberg, as of December 31st 2019

While R&D alone is certainly not sufficient to define a company as innovative, when we look at R&D expense around the world and start to break it down by region and sector, we see an interesting picture.

When we look at R&D as a proportion of net revenues in different regions, we see that the average US company spends twice as much as in Asia Pacific and substantially more than in Europe. This can be partly explained by the large technology sector in the US market.

When we break down the total R&D spend, we see that five sectors make up 92% of total R&D spend. These are IT, Consumer Discretionary, Health Care, Communication Services, and Industrials. Indeed, this tallies with where we see some of the most exciting innovation themes today. Within IT, we see many opportunities including Artificial Intelligence & Big Data, Cloud Computing, Augmented and Virtual Reality, Internet of Things. While in Consumer Discretionary, we see Next-Generation Consumer, Payments and Mobile Technology, overlapping with 5G and Internet Media & Entertainment in the Communications Services sector. In Health Care we see Genomics, MedTech, Biotech and Speciality Pharmaceuticals, while Industrials is dominated by Robotics and Automation, Logistics, and efficiency. However, we see far less exciting Innovation themes in the Consumer Staples, Energy, Financials, Utilities and Real Estate sectors.

Research and Development costs for companies are different from capital expenditures. Research and Development expense for a company consists of money spent on developing new knowledge and applying the findings from this research to designing and inventing creating new products, prototyping and testing, etc. While capital expenditure is normally associated with assets that you can see such as a new factory or the equipment within it, costs associated with Research and Development are normally less visible as it tends to be an investment to develop intellectual property. It also gets expensed in the year that the cost was incurred which means we can get a fairly accurate picture of whether companies have been increasing or decreasing their spend on R&D over time. Crucially management will only want to be continuing to spend or increasing their R&D budgets if they can see that their R&D spend has been delivering a return on investment through the growth in earnings and have conviction that it will continue to deliver earnings growth into the future.

Below we contrast total R&D expenditure by sector from 2010 to 2018. In the five sectors where we identify the most exciting Innovation themes, we have seen R&D expense grow on average by 73% over this period, while in the other 6 sectors it has only grown by 10%. This suggests that management teams continue to see R&D as an important growth engine in the future.

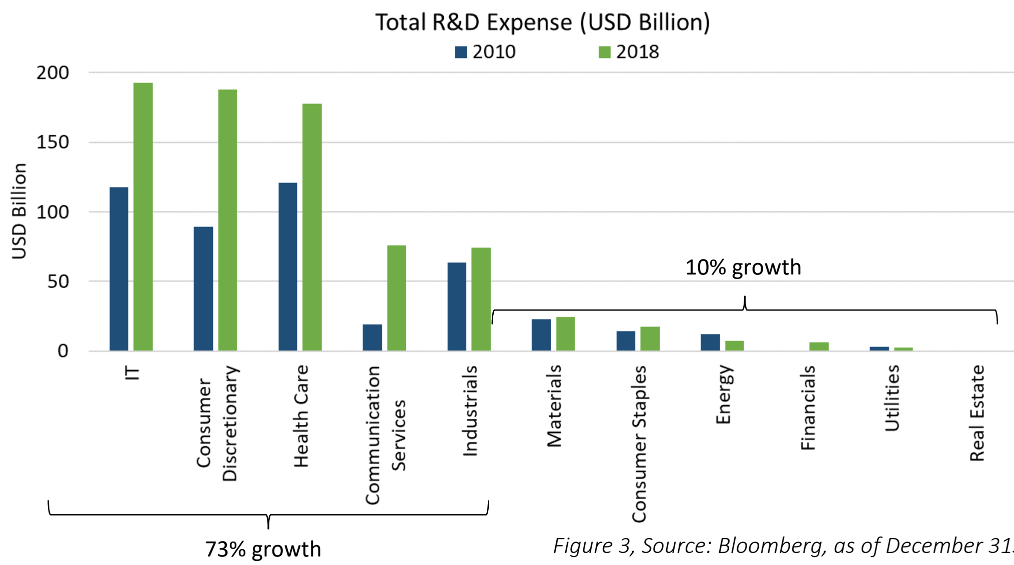


Figure 3, Source: Bloomberg, as of December 31st 2019

If we then look at how the different global sectors have performed over the same time horizon, we see a strong correlation between the R&D spend and performance. 4 of the 5 top R&D spenders (IT, Consumer Discretionary, Healthcare, Industrials) are in the top 5 sector performers. Further decomposing these returns into the return from multiple expansion, earnings growth and the return from dividends, we see that it has been earnings growth that has been the main contributor to these sectors excellent returns.

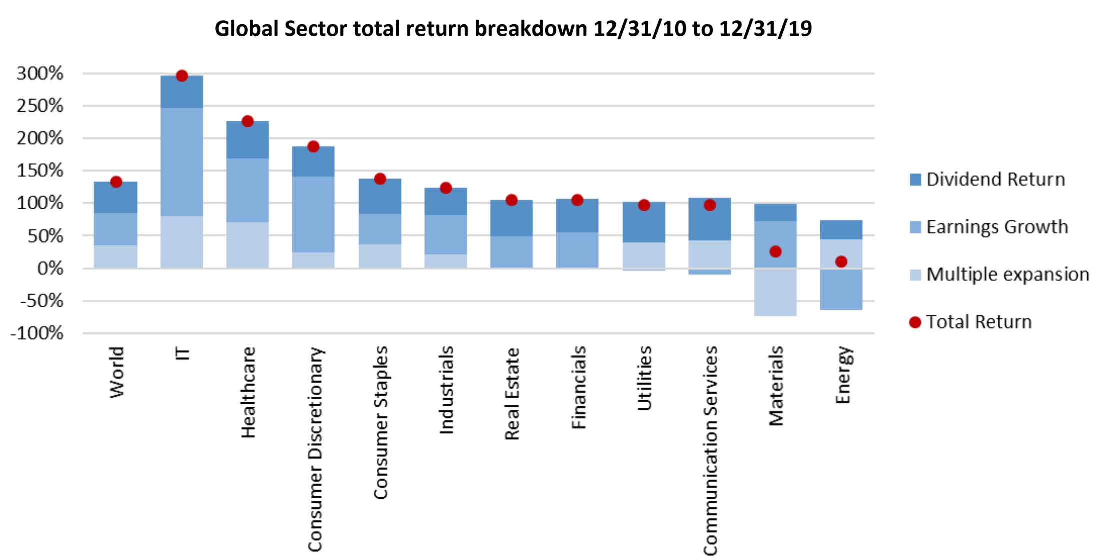


Figure 4, Source: Bloomberg, as of December 31st 2019

So while it would be erroneous to conclude that all companies need to do is invest in R&D to generate superior earnings growth and thus deliver superior share price performance, we can conclude that management teams continue to see a good return on their R&D investments and therefore are continuing to grow their R&D spending. Furthermore, this analysis aligns with the historic exposures of the fund; the largest regional exposure is to the US, while the largest sector exposures are to IT, Industrials, Consumer Discretionary and the Communication Services sector. This gives us confidence that the types of companies we seek have a strong probability of outperforming in the future as they continue to invest in R&D, subsequently building and maintaining their competitive advantages and being an engine for earnings growth for the next decade.

While looking for innovation through the lens of R&D is interesting, we find it beneficial to search for innovation by theme in order to begin constructing our investible universe. In doing so, we can adapt our search for themes in response to an evolving landscape which an R&D lens may not capture. The subsequent set of themes also enables us to view the fund exposures in a way that by sector or by geography may not be able to reflect.

Innovative Themes

Themes	Sub-Themes
Advanced Health Care	Biotech, Genomics, Speciality Pharmaceuticals, MedTech
Artificial Intelligence & Big Data	Machine Learning, Analytics, Autonomous Vehicles
Augmented & Virtual Reality	Gaming, Design, Simulation
Clean Energy & Sustainability	Electric Vehicles, Circular Economy, Resource Efficiency
Cloud Computing	Cyber Security, Networking, Software-as-a-Service
Internet, Media & Entertainment	Social Networks, Streaming, Gaming, eLearning
Mobile Technology & Internet of Things	Smartphones, Wearables, Smart Devices, 5G
Next Gen Consumer	Ecommerce, Products-as-a-Service, Healthy Living
Payments & FinTech	Digital Wallet, Blockchain, Payments Infrastructure
Robotics & Automation	Robots, Sensors, Logistics, 3D Printing

Figure 5: Themes of the Guinness Atkinson Global Innovators fund

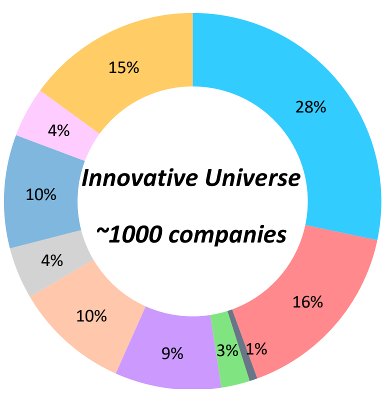


Figure 6: Innovative Universe breakdown by theme

By using these themes as building blocks, we can begin to construct our 'Innovative Universe', seeking companies with exposures to the themes identified, across sectors and regions. As can be viewed in figure 6, our Innovative Universe is diverse across themes with the most significant exposures towards Advanced Health Care, Artificial Intelligence & Big Data and Robotics & Automation.

However, just because a company is innovative does not necessarily make it a good investment. Subsequently, we apply filters looking for quality financial characteristics to reduce our list to a higher quality manageable list we call our 'Investible Universe'. Here we see the exposure breakdown is not dissimilar to our Innovative Universe, however, it does decrease our Advanced Health Care

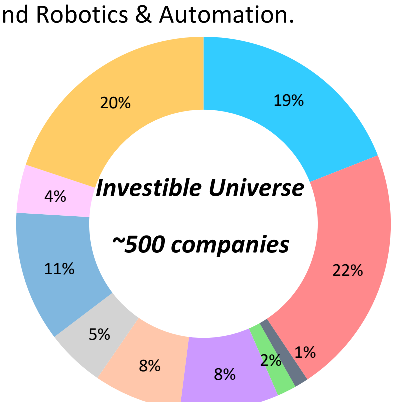
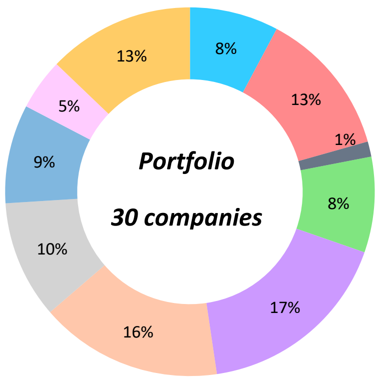


Figure 7: Investible Universe breakdown by

exposure by ~10%, due to a large number of biopharmaceutical companies filtered out on a lack of profitability.



Finally, by applying our systematic and repeatable investment process to these companies we can prioritize companies for further due diligence before applying fundamental analysis, evaluating a company's competitive advantage and risk and return assessment, with significant weights on a company's valuation – we strongly believe a key risk of investing in innovation is paying up too much for expected future growth.

Figure 8: Portfolio breakdown by theme

The resultant portfolio is diverse across themes with no more than 20% in any one theme today. Giving transparency to these exposures, we find the majority of our invested companies have exposures to multiple themes, from Amazon that continues to extend its reach from e-commerce, the cloud, and media and entertainment, to our semiconductor holdings that enable many of the innovative technologies across various themes.

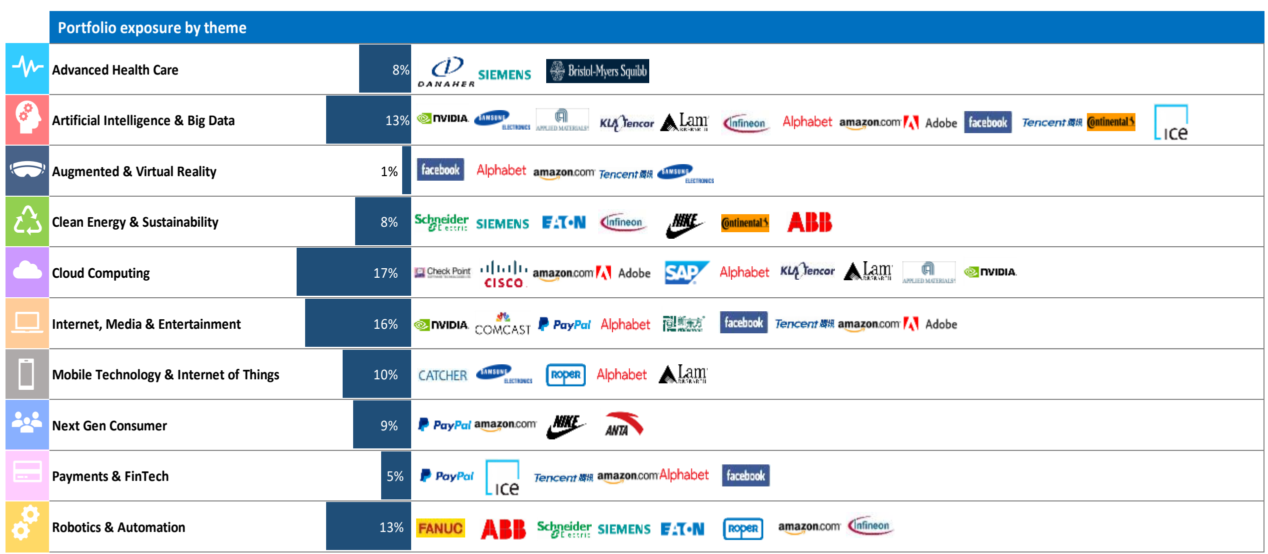


Figure 9, Source: Guinness Asset Management, Bloomberg, as of December 31st 2019

So, while it would be easy to identify the fund's risk exposures based on the major sectors invested within - IT, Consumer Discretionary, Industrial sector and Communication Services – we would argue this may be too simplistic and that the fund exposures based on the identified themes give a much more holistic way of viewing the risk and return opportunities. Consequently, we find that the fund is exposed to a well-diverse set of themes and hence end-markets, many of which transcend simple sectoral bucketing.

2019 in Review:

Equity markets rose on an of easing of economic and geopolitical fears that had led to the sharp sell-off at the end of 2018. The year's rally was driven by a reversal of equity valuations that were compressed during 2018, despite the generally weak economic data out of many regions.

Easing monetary policies

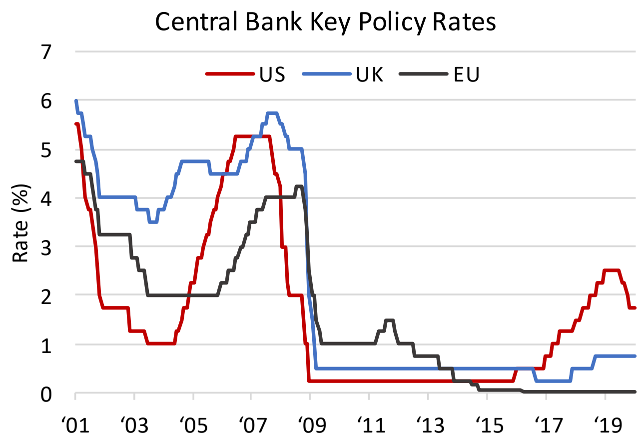


Figure 10, Source: Bloomberg, as of December 31st 2019

In the not-so-distant past, investors were faced with major central banks who were looking to tighten their monetary policies by reducing their balance sheets and increasing interest rates. It was only in December 2018 when Jerome Powell, the Chairmen of the US Fed, claimed that the US interest rate was effectively set to 'autopilot' as the central bank looked to periodically increase the benchmark rate over the coming year. However, come January and investors welcomed a more dovish tone with Powell signaling that slowing growth from global regions including China and Europe, as well as the US government shutdown, was enough to warrant the possibility of no further interest hikes in the year. Since then, the US Fed has gone on to cut the interest rate by 25bps on 3 occasions, while restarting a bond purchasing program. It was a sign that the global economy was not as rosy as hoped for. The European Central Bank (ECB) also enacted a new ambitious monetary policy which sees the ECB cut rates further into negative territory, coupled with an open-ended bond-purchase program as Europe tussles with its own deteriorating economic data, particularly in the manufacturing sector. Elsewhere, China continued in its attempt to stimulate its economy with China's GDP dropping to 6% growth. Indeed, China has cut the Required Reserve Ratio (RRR), the percentage of deposits banks must hold back, 8 times since early 2018, releasing billions of yuan into the economy.

Trade trade trade

Figure 11, Source: Bloomberg, as of December 31st 2019

Trade talk continued to feature in 2019. With the US and China continuing to enact tit-for-tat tariff responses to one another over 2018 and into 2019, the effects of the on-going trade war became more evident. China's GDP growth rate dropped to 6% year-on-year (YoY) and US imports from China slowed. 2019 began with somewhat subdued trade headlines with Trump pushing back further tariff increases previously set for March. However, come May, with President Trump growing increasingly discontent with the lack of progression on key trade issues, the US increased tariffs on $200bn of Chinese imports from 10% to 25% in addition to placing Chinese smartphone and telecoms business Huawei, on a blacklist preventing US companies from selling to the company without a license. The news sent many global stocks down with Huawei relying heavily on US semiconductors companies such as Xilinx's for its 5G telecoms. However, by year-end, there was some reprieve for investors as a 'Phase One' deal, which had been thrown around over the subsequent months, was finally agreed between the two sides.

The agreement details:

- China has promised to ease pressure on US companies in terms of technology transfer, which should be positive for the US technology sector if it comes to fruition
- The withdrawal of tariffs that were threatened to be imposed by the US on December 15th 2019 which will also benefit US tech companies (laptops and cell phones would have been subject to those tariffs) as well as some US retailers (who would have had price increases on imported goods from China that they sell, from personal care products to clothing to household goods)
- China's promise to purchase additional amounts of agricultural goods from the US, with a commitment to a total $40 to 50bn of purchases in each of the next two years
- The partial rollback of the September tariffs from 15% to 7.5%

Elsewhere, Trump held off on adding tariffs to European auto exports, giving auto manufacturers some relief, helping the European Manufacturing PMI from deteriorating further. However, the US is still considering 100% tariffs on French goods over a dispute regarding a new digital tax that Trump believes unfairly discriminates against US companies. Further, President Trump also threatened to impose a 5% tariff on all Mexican goods from June in an effort to control immigration coming from Central America, through Mexico and into the US. The move threatened to undermine the efforts made in 2018 to revamp the NAFTA agreement signed by the US, Mexico and Canada. However, Mexico quickly made concessions leading to Trump's withdrawal of impending tariffs.

With the US Presidential Election due in 2020, we should expect trade headlines to continue to feature heavily in the coming months as candidates tussle for public approval.

Brexit

Boris Johnson won a decisive victory over Jeremy Corbyn's Labour Party in the general election on December 12th, clearing the way for the Tory leader to take Britain out of the EU at the end of January 2020. What shape, exactly, Brexit will take is still to be defined, with December 2020 set as a preliminary deadline for negotiations. At this point, it looks possible that the UK may exit the EU's single market (which allows for the free movement of goods and services among the different countries in the EU), but remain in or align with the customs union (which establishes a common system of tariffs and import quotas for trading with non-members).

Growth returns to favor

Looking at figure 12, at the start of 2019, global equity markets surged higher leading to a strong outperformance by the fund in the first 4 months. Markets kicked off the year surprisingly strong and favored the Technology stocks that had sold-off heavily in Q4 2018. The bounce-back came after the FED pivoted at the start of the year, reversing course on interest rate rises. This set the tone for Growth stocks to continue their ascent and the trend persisted for most of the year.

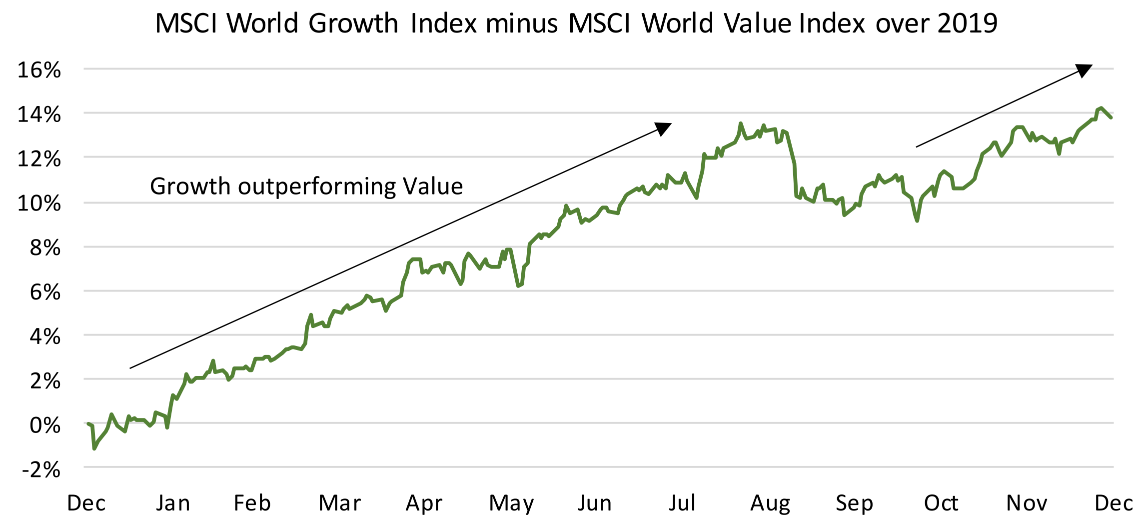


Figure 12, Source: Bloomberg, as of December 31st 2019

Review of 2019 fund performance

The fund performed well in 2019, up 37.0% in USD, benefiting from the return to a 'risk-on' attitude arising from easing economic and geopolitical fears as well as good stock selection in our semiconductor equipment manufacturers and domestically focused Chinese holdings. Indeed, the only significant underperformance came in May when an unexpected escalation in US-China trade tensions sent stocks down globally, in particular, semiconductors stocks. Over the year, the fund saw 3 stocks return over 100% (New Oriental Education up 121%, Lam Research up 119% and KLA Corp up 104% in USD), 18 of the 30 stocks outperformed the MSCI World and 3 stocks feature in the S&P 500's top 10 performing stocks for the year (Lam Research up 119%, KLA Corp up 104% and Applied Materials up 90% in USD).

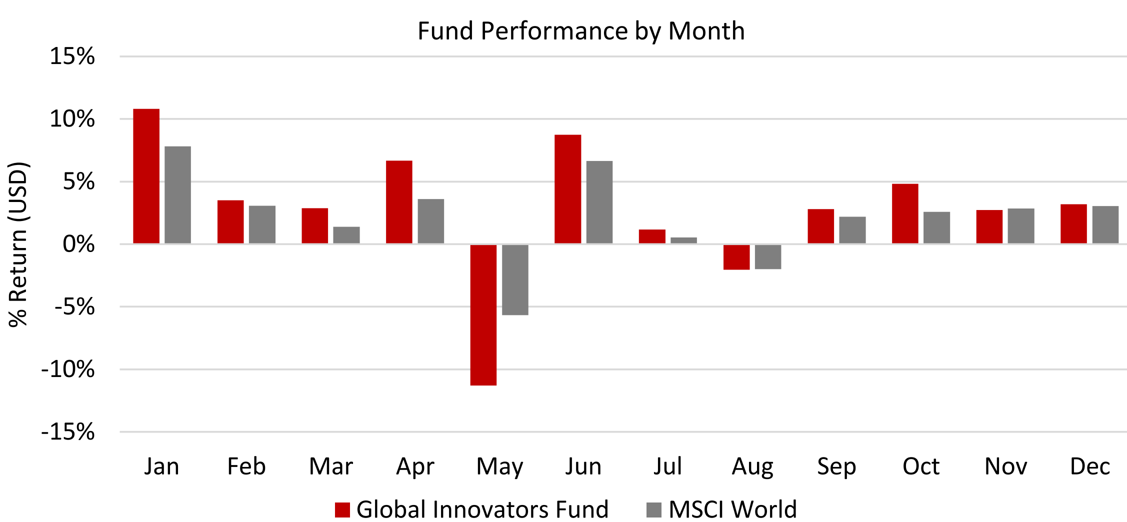


Figure 13, Source: Bloomberg, as of 31st December 2019

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Over the **1st quarter**, dovish tones from the US Fed on interest rates and positive noise out of US-China trade talks helped boost the fund's Chinese-exposed stocks such as New Oriental Education and Anta Sports, and also the fund's semiconductor holdings which were boosted by bullish comments by management teams for the medium-term outlook for the sector. In the 1st quarter, the fund was up 17.9% in USD vs MSCI World 12.5% in USD. Over the quarter, the fund's overweight exposure to Asia Pacific ex-Japan, and in particular China, was the largest regional contributor to the fund's outperformance with the most significant returns coming from New Oriental Education (up 64.4% in USD) and Anta Sports (up 41.8% in USD). Additionally, the fund's largest regional exposure, North America produced significant stock selection attribution as our overweight positions in semiconductor companies and global conglomerates, Danaher and Roper Technologies, produced strong returns. On a sector level, our overweight position to IT, the highest performing sector over the quarter, produced the largest contributions to the fund's outperformance from a sector attribution point of view. In particular, the portfolio's exposure to semiconductor holdings such as Nvidia (up 34.6% in USD) and KLA Tencor (up 34.3% in USD), provided the most significant contribution to the performance, having previously been on a drag on the portfolio over Q4 2018.

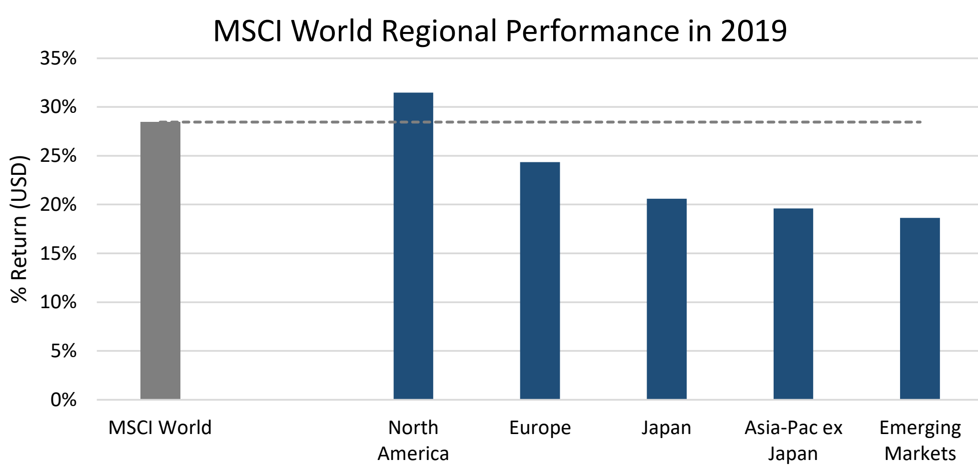

Figure 14, Source: Bloomberg, as of December 31st 2019

Into the **2nd quarter** and outperformance of the fund during April and June was not enough to offset the underperformance during May after the reignition in the US-China trade dispute which negatively impacted our semiconductor exposure in particular (fund up 2.8% in USD vs MSCI World 4.0%). However, the increasing likelihood of US interest rate cuts and the re-start of trade talks at the G20 summit enabled equity markets to continue their rally into June with the S&P 500 hitting record highs. Over the quarter as a whole, the fund's overweight exposure to Asia Pacific ex-Japan was the largest regional drag on the portfolio having been one of the largest contributors to fund outperformance over Q1. Our exposure to European equities was the largest regional contributor to fund performance over the quarter with strong stock performance from SAP (up 20% in USD) and Schneider Electric (up 19% in USD) the primary reason. On a sector level, our overweight position to IT contributed positively to asset allocation, however, stock selection from holdings such as Cognizant and Checkpoint Software was a drag on the portfolio. The fund's exposure to the Industrials sector made up the largest proportion of positive attribution with stock selection from Schneider Electric (up 19% in USD) and ABB (up 11% in USD) the largest contributors.

Over the **3rd quarter**, despite the underperformance during August after the escalation in the US-China trade, the fund outperformed over the entire quarter, returning 1.8% (in USD) vs the MSCI World 0.5% (in USD). Overall, strong IT returns, particularly from our semiconductor names, drove a large part of the outperformance over Q3 with KLA Tencor, Lam Research and Applied Materials returning 35.6%, 23.7% and 11.7% (in USD) respectively. In addition, the fund benefited from strong stock selection from our US holdings again – mainly the semiconductor holdings - and Asia Pacific stocks such as Anta Sports (up 21.0% USD) and New Oriental Education (up 14.7% USD) which continued to add to their significant gains year-to-date. Over the entire quarter, the fund's exposure to the US was the largest regional contributor on strong selection. Stock selection was also behind Asia Pacific's positive contribution to fund performance over the quarter. On a sector level, our overweight positions to IT and consumer discretionary were strong contributors, however, our exposure to Industrials was a drag on portfolio performance as continued weakness in European manufacturing data led to the relative underperformance by companies such as Siemens and Schneider Electric. In September we also saw the 'value rotation' whereby global value stocks significantly outperformed growth stocks in the month – a sharp reversal of the prevailing trend. During the month, the fund was up 2.9% vs the MSCI World 2.2% (in USD), showing the positive effects of our value discipline.

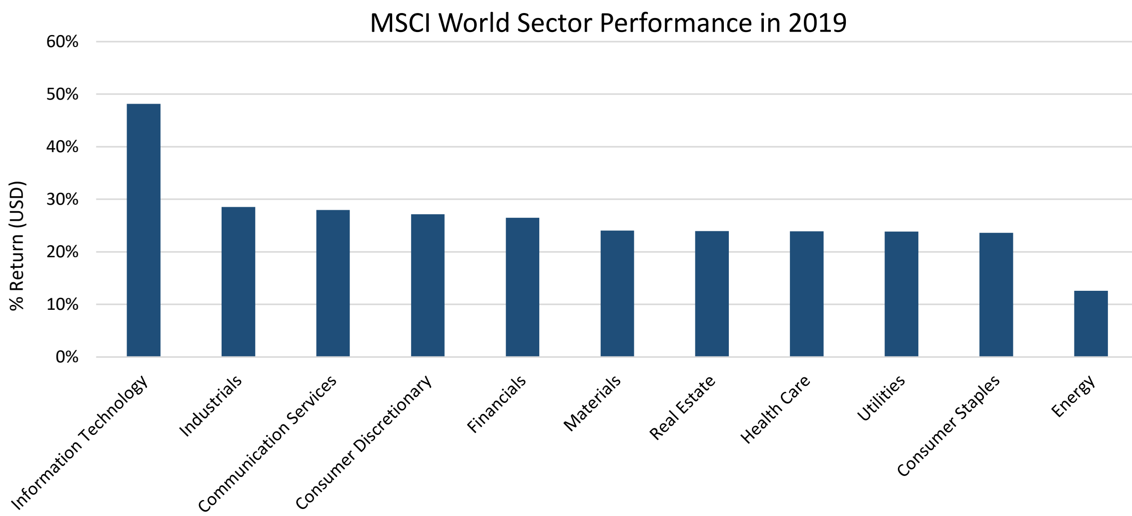

Figure 15, Source: Bloomberg, as of December 31st 2019

The year ended in a similar fashion to how it began, with the fund strongly outperforming - up 11.0% (in USD) versus the MSCI World up 8.6% (in USD) over the **4th quarter**. A general 'risk-on' attitude came with the 'Phase One' agreement between the US and China which was a positive step for relations and the first step to a possible full deal, central banks continuing to add stimulus to their respective economies with the US Fed cutting the benchmark interest rate for the 3rd time in the year and China once again cutting the RRR, and a resounding win for the Conservatives in the UK general election. Indeed, our overweight exposures to cyclical sectors, Industrials, Communication Services, IT and Consumer Discretionary, all provided positive contributions to fund performance versus the benchmark. IT once again provided the largest contribution with our semiconductor holdings rallying mainly on the 'Phase One' deal struck between the US and China. Additionally, our exposure to European Industrials was positive for the portfolio with the European and German Manufacturing PMIs not as weak as expected – albeit still in contraction. This enabled holdings, ABB, Siemens and Schneider Electric to rally into year-end.

Individual stock performances in 2019

The chart below shows the fund constituents' performances over 2019 in USD.

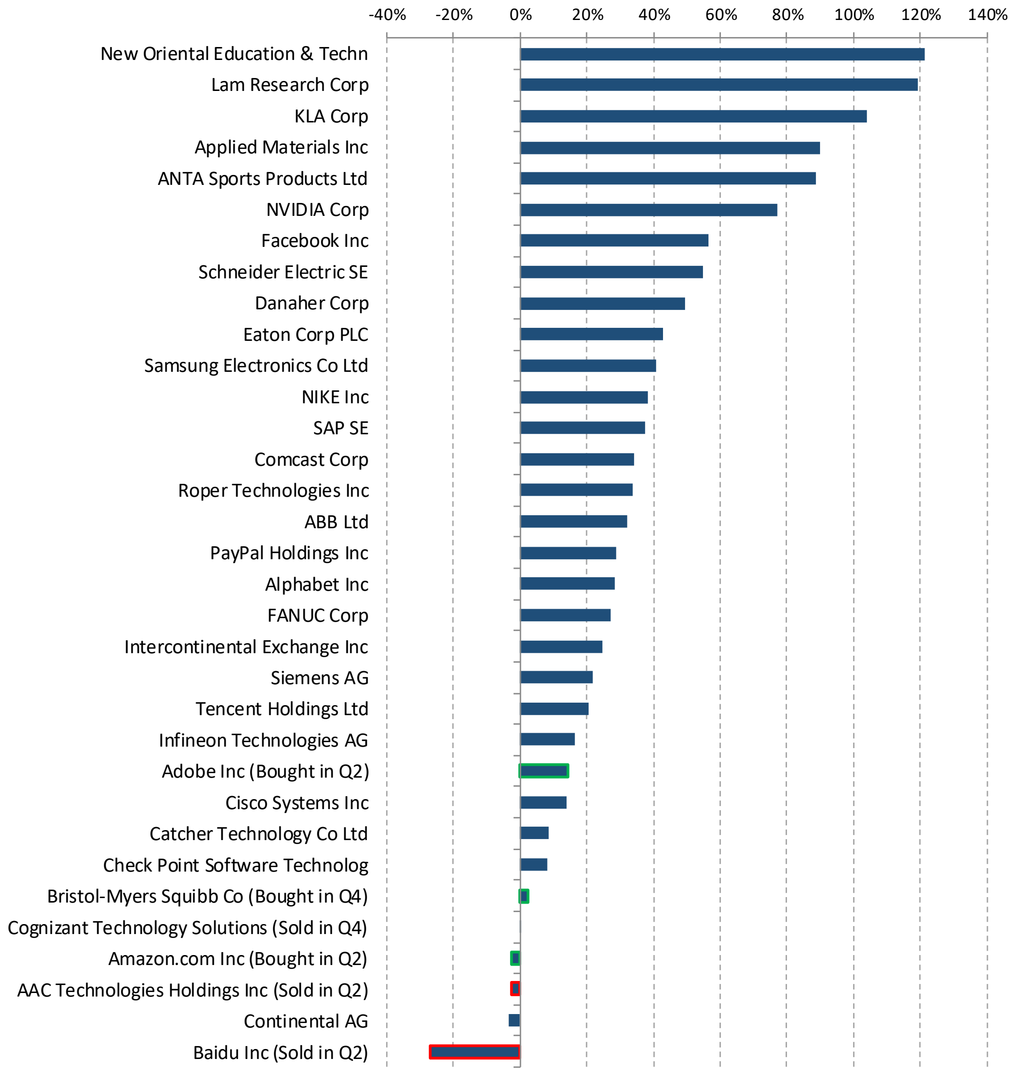

Figure 16, Source: Bloomberg, as of December 31st 2019

The best performing stock in 2019 was New Oriental Education (up 121% in USD)

New Oriental Education, the provider of private tutoring services in China, began the year positively, reporting top and bottom-line figures that beat analysts' forecasts for the first quarter. The stock had been one of the fund's largest underperformers of 2018, mainly on increased regulation in private tutoring services within China – a move we felt was overdone, given increased regulation and standardization of the industry should stand to benefit the larger players in the long-term as smaller players are pushed out. New Oriental Education last year announced an expansion effort to gain a greater share of the largely fragmented private tutoring market. During the year, the company reported expansions efforts were on-track with total schools and learning centers up ~20% YoY, while announcing a new initiative named “3S” – Standardization, Streamlining and Systematization – dedicated to improving the efficiency of the company. The fund’s equal-weighting strategy, which ensures we periodically trim the overperforming stocks and top-up the underperformers, resulted in the gradual increase of our exposure as the stock underperformed in 2018 and subsequently, the trimming of our exposure as the stock rallied through 2019.

Our 3 semiconductor equipment manufacturers were also the fund’s top performers: Lam Research (up 119% in USD), KLA Tencor (up 104% in USD), and Applied Materials (up 90% in USD)

Strong performances from these holdings was a result of good quarterly results alongside positive guidance for the proceeding periods**.** Indeed, throughout the year, up-beat comments from management teams gave good indications that the decline in earnings that had hit the semiconductor industry in 2018 could be poised to recover.

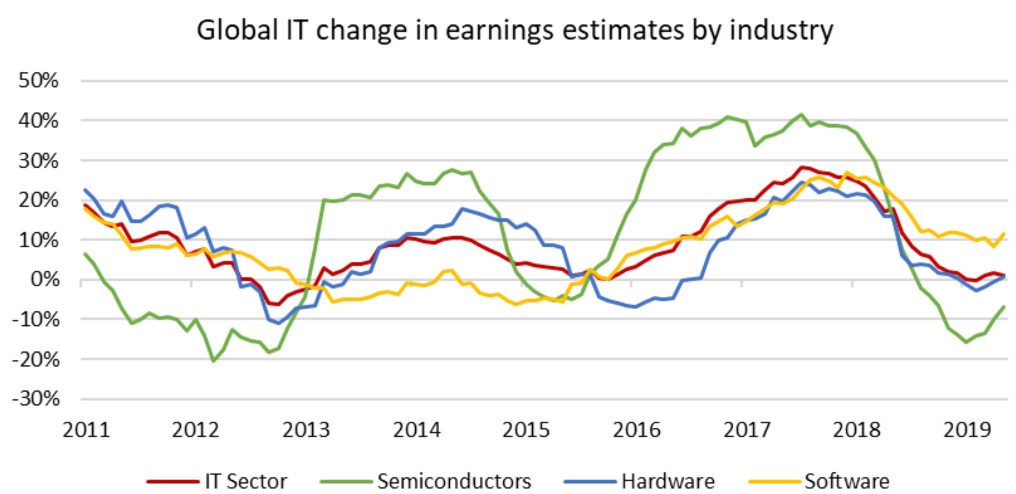

Figure 17, Source: Bloomberg, as of December 31st 2019

Samsung: “*in the second half of this year, we are expecting there to be server DRAM demand recovery together with the introduction of the new CPU. Also, we're seeing that there will be a strong server memory demand because there are companies that are preparing to adopt Edge servers in advance to prepare for the 5G network rollout after year 2020.”*

Intel: *“consistent with kind of historical patterns, we do expect the purchasing to start picking up again in the second half of the year.”*

“While the first half in the cloud will be a little bit tougher, we do expect that cloud continues to grow as they start to move and to build out again in the second half.”

LAM Research: “*we expect the first half of the year is going to be weighted towards foundry and logic. It will be stronger in the first half than the second half. And memory is may be a little bit stronger in the second half than the first half” –* for context, LAM’s revenue is 80% weighted towards memory.

KLA-Tencor: *"Though visibility in the industry today is challenging and customer plans remain fluid, particularly in memory, our current view is for the second half 2019 shipments to be greater than the first half."*

ASML: *"We reiterate that we see market demand that supports yet another year of growth for ASML in 2019 with significantly stronger demand in the second half of the year."*

Within the Global Innovators fund, we currently hold a diverse set of semiconductor holdings including semiconductor equipment manufacturers such as Lam Research, providing the equipment used in the fabrication of chips, fabless processor chip designers in Nvidia and Infineon, and Samsung who are one the largest foundries in the world behind TSMC (Taiwan Semiconductor Manufacturing Company) and who also primarily produce memory chips as opposed to processing chips. Subsequently, our fund's exposure to the semiconductor industry may be significant relative to other industries, but we see good diversification across the varying types and stages of the semiconductor process. Furthermore, with a view that the semiconductor earnings may be at a trough, coupled with the attractive valuations the semiconductor industry currently trades at versus alternative technology industries, we feel comfortable in our holdings, especially given the long-term demand from innovative applications demanding more complex and powerful chips.

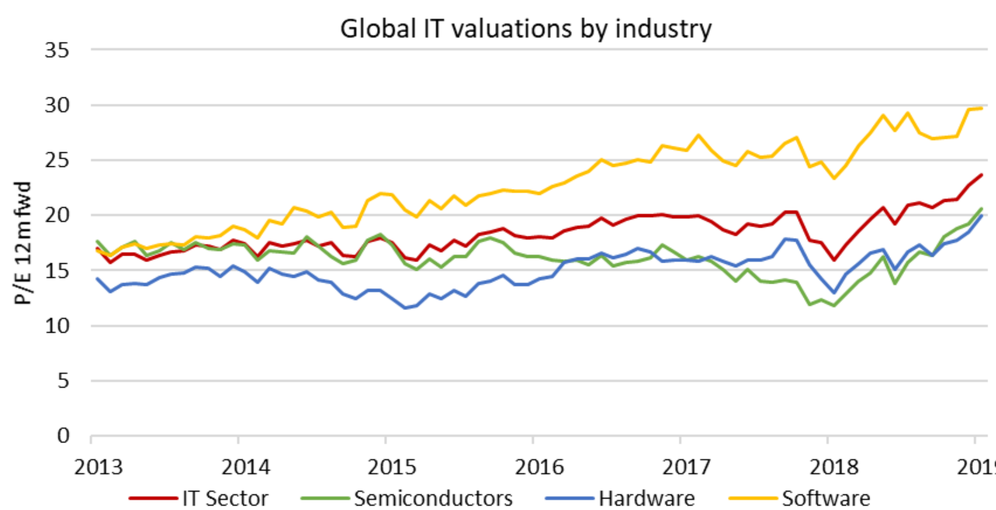

Figure 18, Source: Bloomberg, as of December 31st 2019

The weakest performer over 2019 was Baidu (down 27% in USD before position sold)

Baidu, commonly referred to as China's version of Google, operates the largest search engine in China, along with additional segments including iQiyi, the largest entertainment streaming platform in China and Apollo, one of the leading autonomous vehicle operating systems. During Q1, Baidu reported its first loss since going public in 2005 on higher traffic acquisition costs to drive traffic back to its search engine and away from super-apps such as WeChat (owned by the Tencent), along with rising content costs for iQiyi as they seek to create new and exciting content for viewers. Revenue growth had also slowed and as we discuss later in the update, we sold our position in Baidu at the end of the Q2.

Changes to the portfolio

We sold three positions and initiated three new positions over the course of 2019.

Number of changes to the portfolio

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

We made no changes over Q1

Changes to the portfolio over Q2:

Over the quarter we made two changes, selling our positions in AAC Technologies and Baidu, while initiating new positions in Amazon and Adobe.

AAC Technologies, the manufacturer of miniaturized components for smartphones including acoustics, haptics and antenna, has faced increasing pressures from the slowing global demand for smartphones and increasing competition. We bought AAC Technologies in 2016 based on its market-leading position in smartphone components and the ever-increasing need for quality components in more premium smartphones. AAC technologies constantly yielded 30% operating margins which reflected this leadership (well above competitors) however, as they have diversified into new areas, such as haptics, and have faced new competition in their specialist area of acoustics, AAC's operating margins and returns on capital have come under increasing pressure. As a consequence, with AAC losing some of its competitive edge, while also facing slowing global demand, we felt the company could struggle to grow in the future and lower returns would justify a lower multiple and, as such, it no longer met our criteria for the portfolio.

Baidu, the operator of China's largest search engine and various other leading products and services, has faced the increasing propensity for users to enter their queries into alternative platforms such as the super-app, WeChat, owned by Tencent. Although Baidu has been experiencing the secular tailwind in the movement to online advertising, the increasing competition and rising costs to acquire traffic in search (which makes up the majority of its revenue) has had a detrimental effect on Baidu's margins, with operating margins falling from~50% in 2012 to ~18% in 2018. Subsequently, we felt although Baidu has leading positions in entertainment streaming, autonomous vehicles and other innovative areas, the increasing competition within Baidu's main segment, Search, had reduced our conviction in Baidu's ability to stem further margin erosion, while continuing to reinvest to drive growth going forward.

Amazon is the operator of the e-commerce platform in addition to leading positions in cloud computing, digital streaming and artificial intelligence. Amazon is known for its industry disruption and, although trades on higher multiples than industry peers, Amazon's ability to increase their profitability over the recent years as it scales up operations in segments including Amazon Web Services (AWS), their cloud computing platform, has enabled Amazon to expand their margins and grow cash flows, while continuing to reinvest in new disruptive technologies such as drone delivery.

Adobe, the undisputed leader in creative and document software including Photoshop and Acrobat Reader, which has been making headway into the marketing and analytics, has benefited from the transition to cloud-based products and an increasing mix of non-professional subscribers. The shift to higher-margin, higher recurring revenue from cloud-based software has resulted in year-on-year increases in operating margins and returns-on-capital. Trading at ~30x 2020 earnings, while exhibiting ~32% operating margins (greater than competitors) and forecasting year-on-year earnings growth of 20%, we see Adobe as a highly reputable business with strong long-term growth potential while not trading at a substantial premium.

We made no changes over Q3

Changes to the portfolio over Q4:

Over the quarter we made one change, selling our position in Cognizant, while initiating a new position in Bristol Myers Squibb.

Cognizant is an outsourced IT consultant, enabling companies to remain competitive and efficient in their ability to harness the most effective technologies. We bought Cognizant in 2015 as a company exhibiting high-quality characteristics (asset-light business with high return-on-capital and margins) much of which is still true today. However, the loss of clients in key areas such as healthcare and financial services, coupled with the sluggish sales growth, gave us pause. We subsequently felt the restructuring plan put in place would be difficult to execute and that there were better opportunities with clearer long-term structural growth drivers.

Healthcare is an area the fund is currently underweight, as innovative companies in the sector generally have traded on elevated multiples, but with the recent consolidation spree and with the US election cycle coming up, multiples have decreased, especially in the pharmaceutical industry. There has been a period of consolidation in the space also with many 'mega-mergers' as large drugs go off patent. **Bristol Myers Squibb (BMY)** has underperformed as Merck's competitor drug, Keytruda, has been doing well versus BMY's Opdivo in oncology. However, the recent merger with Celgene (completed Nov 2019) has been seen as a positive by market, creating the world's largest oncology business. Historically, BMY relied heavily on Opdivo (29% revenues) and Eliquis (31% revenues), whilst Celgene relied heavily on Revlimid (63% revenues) and as such the new entity is better diversified. Trading on 14x forward PE (significantly below 10yr average) and earnings expected to grow 34% in 2020, and 23% in 2021, BMY presented a good balance of risk/reward in the innovative area of oncology which typically can hedge against the tide of lowering drug costs.

Portfolio characteristics

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

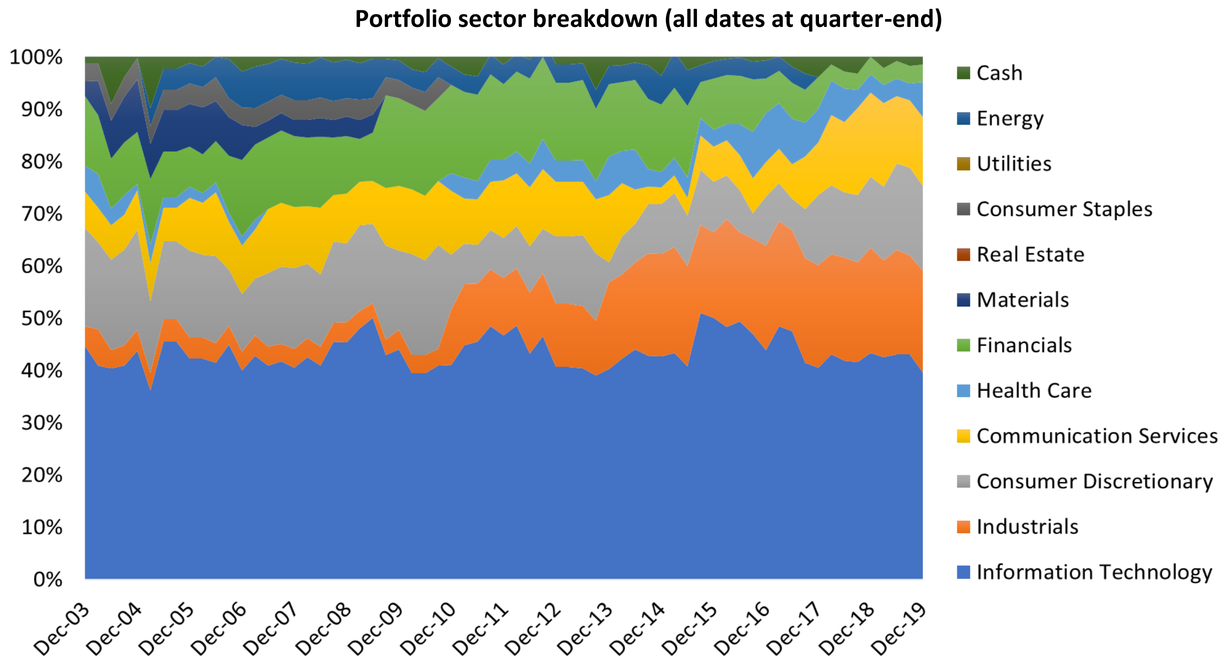

Figure 19, Source: Bloomberg, as of December 31st 2019

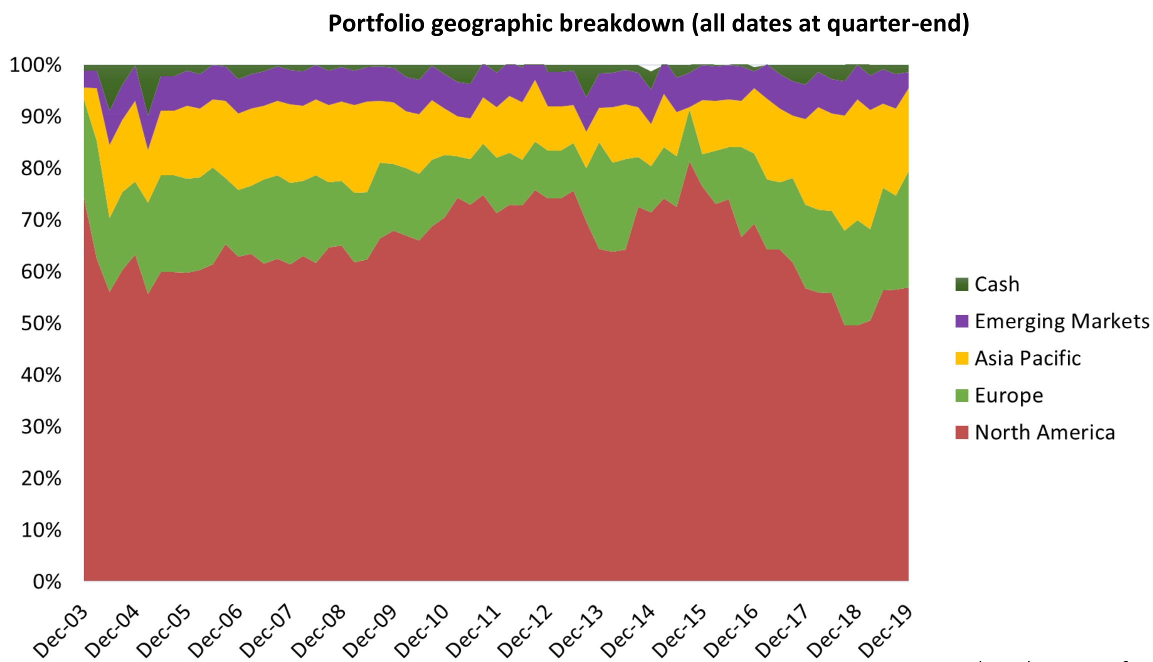

Figure 20, Source: Bloomberg, as of December 31st 2019

Over 2019, the net effect of purchasing Bristol Myers Squibb, Adobe and Amazon while selling Baidu, AAC Technologies and Cognizant, was an increase in the exposure to Health Care and Consumer Discretionary in addition to a decrease in the exposure to IT and Communication Services.

Change in portfolio sector allocation (12.31.2019 vs 12.31.2018)

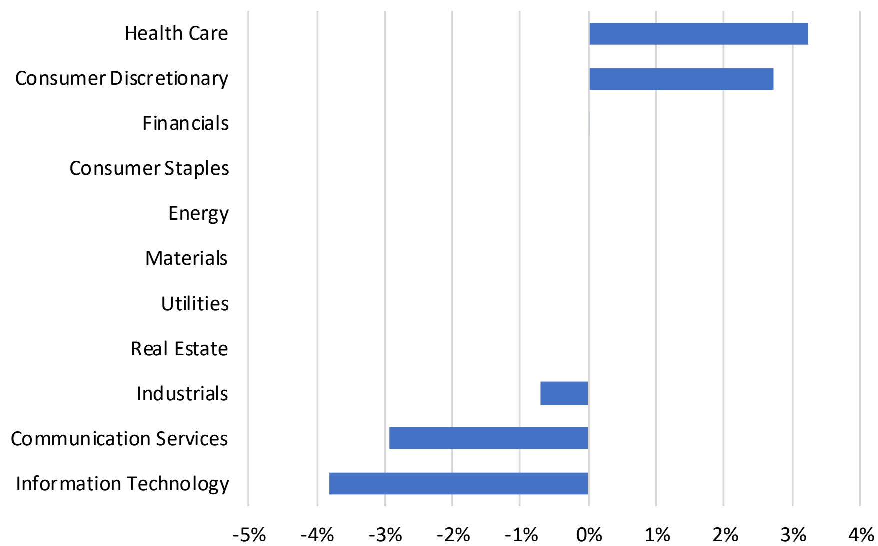

Figure 21, Source: Guinness Atkinson Asset Management, Bloomberg, as of December 31st 2019

In terms of the portfolio's geographic breakdown, the portfolio continues to have a bias to the U.S and we increased this during 2019 by 7%. We reduced our exposure to Asia and EM as we see higher quality, albeit potentially more expensive, opportunities in the US, which is currently exhibiting more robust macroeconomic metrics.

Change in portfolio geographic allocation (12.31.2019 vs 12.31.2018)

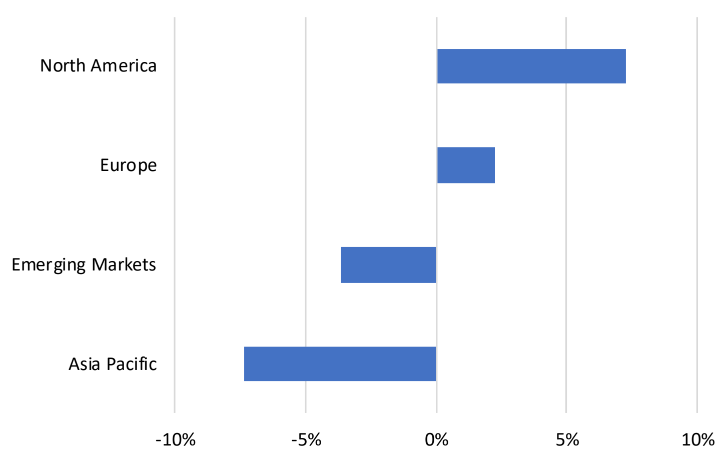

Figure 22, Source: Guinness Atkinson Asset Management, Bloomberg, as of December 31st 2019

Figure 23 shows the over and underweight positioning of the fund by sector. Our overweight position relative to the benchmark in Information Technology, and specifically semiconductors, was positive for the portfolio over the year after a tilt towards 'risk-on' sectors. Similarly, our overweight position to Asia Pacific ex-Japan contributed positively to the portfolio due to positive stock selection from holdings including New Oriental Education and Anta Sports.

Sector breakdown of the fund versus MSCI World Index

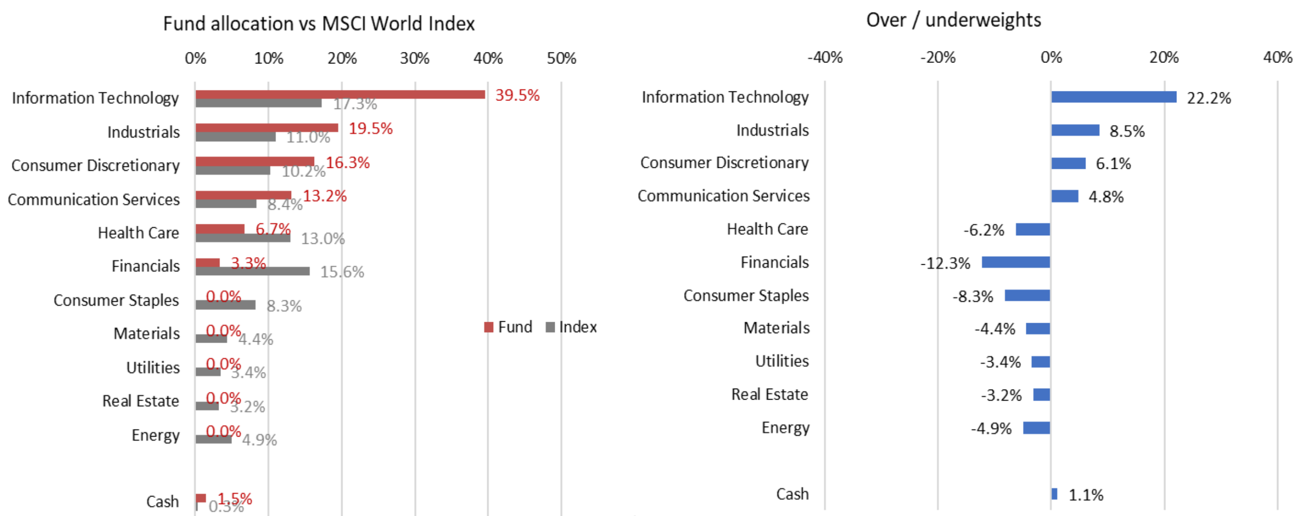

Figure 23, Source: Bloomberg, as of December 31st 2019

Geographic breakdown versus MSCI World Index

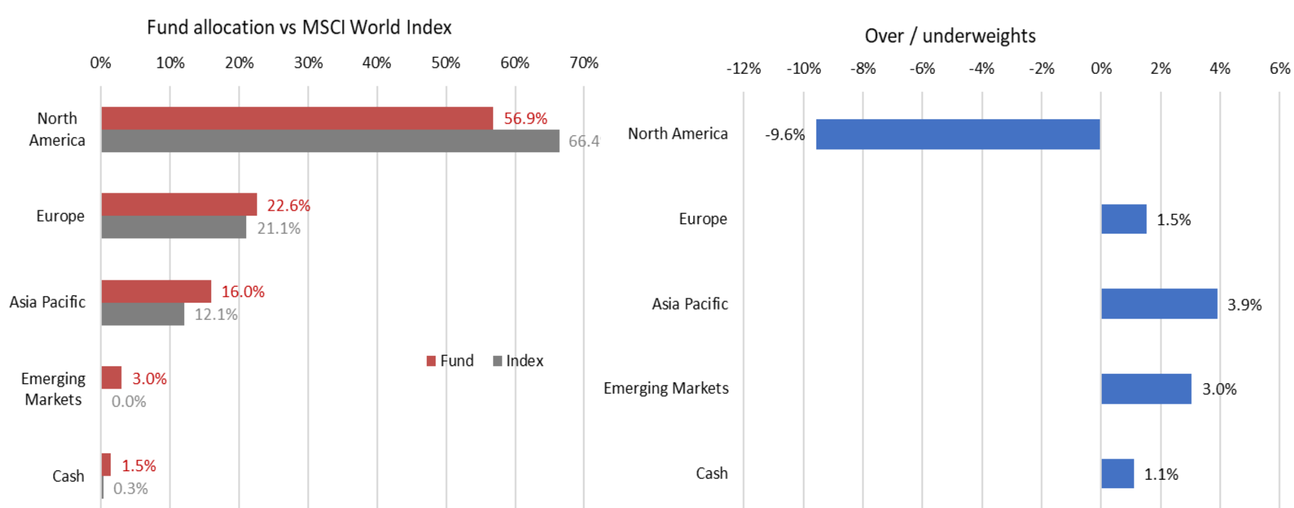

Figure 24, Source: Bloomberg, as of 31st December 2019

Outlook

The Guinness Atkinson Global Innovators fund aims to invest in quality innovative companies trading at reasonable valuations. By doing so, we seek to invest in companies that are experiencing faster profit growth, larger margins and are less susceptible to cyclical pressures. Whilst we are pleased with the performance seen over 2019, we continue to believe that the fund remains well positioned.

Portfolio metrics versus MSCI World Index

		Fund	MSCI World Index
Innovation	R&D / Sales	9%	7%
	CAPEX / Sales	5%	9%
Quality	CFROI (median 2019)	16%	8%
	Weighted average net debt / equity	-3%	80%
Growth (& valuation)	Trailing 3-year sales growth (annualised)	14%	9%
	Estimated earnings growth (2020 vs 2019)	17%	10%
	FCF yield	4.7%	4.1%
	PE (2020e)	19.4	17.2
Conviction	Number of stocks	30	1652
	Active share	92%	-

Figure 25, Source: Guinness Atkinson Asset Management, Credit Suisse HOLT, Bloomberg, as of December 31st 2019

Indeed, taking the four key tenets of our approach - innovation, quality, growth, and conviction – we can see this philosophy is reflected in the metrics of the fund. The fund has superior characteristics to the broad market; higher spend on intellectual property, less capital intensiveness, higher cash flow returns on investment, with higher growth prospects. The fund trades at a 13% premium to the benchmark on a PE basis but is cheaper on FCF yield with consensus estimates currently expecting position earnings to grow at 17% year-on-year.

As we look ahead to 2020, it is clear that central banks are still shouldering the burden for stimulating the economy via monetary policy, as has been the case since the Global Financial Crisis. After a nascent attempt at normalizing, some major central banks have become more accommodative as 2019 progressed. That should bode well for 2020, as the rate cuts enacted by the US Federal Reserve in 2019 have already resulted in an acceleration in money and credit growth. Monetary easing proved to be more fruitful for equity markets than the overall economy in 2019, and there does not seem any reason at the outset as to why that may change going into 2020.

Countering the positive effects of monetary stimulus is geopolitical disruption — and the economic policy uncertainty that comes with it. Though markets have tended to shrug these off the longer term, current sources of policy uncertainty include:

- US-China trade war and Brexit, which have been the most prominent creators of uncertainty in 2019
- The 2020 US Presidential Election, which will kick into higher gear in the second half of 2020
- The conflict between China and Hong Kong
- Tensions in the Middle East

Guinness Atkinson
Global Innovators Fund
Managers Update – January 2020

While economic and political uncertainty is perhaps likely to continue through 2020, taking a longer-term view, we maintain that our systematic approach to investing in quality innovative companies has the potential to deliver strong returns based on the competitive advantages these companies have exhibited and their continual commitment to re-investing in intellectual property in order to maintain and grow their moats.

May we wish you a happy and prosperous New Year, and we look forward to updating you on the progress of the fund over the course of 2020.

Portfolio Managers

Matthew Page, CFA

Dr Ian Mortimer, CFA

January 2020

Guinness Atkinson
Global Innovators Fund
Managers Update – January 2020

Performance

The end of 2019 the end of a decade which brought about an unprecedented growth rally – the longest bull market in US history – off the back off the Great recession. And indeed, 2019 signed off the decade in good fashion, with the S&P 500 registering its highest total return since 2013. 2019 brought about an easing of many fears which surrounded the equity market sell-off in the second half of 2018, including the US-China trade war, central banks' policies and, of course, Brexit. The year's equity rally was marked with generally weak economic data out of many regions but driven by a reversal of equity valuations that were compressed during 2018, and in particular during the sharp market sell-off experienced in Q4 2018. The US Fed's pivot at the start of the year, from a period of rising rates to potential rate cuts, led to a reversal of the market compression at the end of 2018. As other central banks took their cue from the Fed and began once again a period of monetary easing, markets continued to rally. Despite bouts of uncertainty over the remainder of the year (particularly in May and August), the market finished 2019 very strongly as fears of the trade war subsided on the potential for a 'Phase One' trade deal and a resounding victory for the Conservative party in the UK, finally gave some certainty to Brexit.

The Global Innovators fund (investor class) performed strongly over the year, returning 37.0% (in USD) versus the MSCI World Index 27.7% (in USD), therefore outperforming by 9.3%. The fund's performance can be attributed to strong stock selection from our semiconductor equipment manufacturers, Lam Research (up 121% in USD), KLA Corp (up 104% in USD) and Applied Materials (up 90% in USD), as well as our domestically focused Chinese holdings New Oriental Education (up 121% in USD) and Anta Sports (up 89% in USD) Additionally, the fund benefited from a broader rally in the IT sector – the fund's largest sector overweight relative to the benchmark.

as of 12.31.2019 (in USD)	**1 year**	**3 years annualized**	**5 years annualized**	**10 years annualized**
Global Innovators, Investor Class[1]	37.00%	15.38%	10.28%	13.34%
Global Innovators, Institutional Class[2]	37.35%	15.66%	10.50%	13.45%
MSCI World Index NR	27.67%	12.56%	8.73%	9.46%

All returns after 1 year annualized.

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.

[1] Investor class (IWIRX) Inception 12.15.1998 Expense ratio* 1.25% (net); 1.30% (gross)

[2] Institutional class (GINNX) Inception 12.31.2015 Expense ratio* 1.00% (net); 1.13% (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, 2020. 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 12/31/19:

1. NVIDIA Corp	3.74%
2. Lam Research Corp	3.73%
3. Adobe Inc	3.67%
4. KLA-Tencor Corp	3.57%
5. Danaher Corp	3.55%
6. NIKE Inc	3.54%
7. Samsung Electronics Co Ltd	3.51%
8. Cisco Systems Inc	3.45%
9. Applied Materials Inc	3.43%
10. Comcast Corp - A Shares	3.39%

For a complete list of holdings for the Global Innovators Fund, please visit: https://www.gafunds.com/ourfunds/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.

Price-to-earnings ratio (P/E) is an equity valuation multiple. It is defined as market price per share divided by annual earnings per share.

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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