

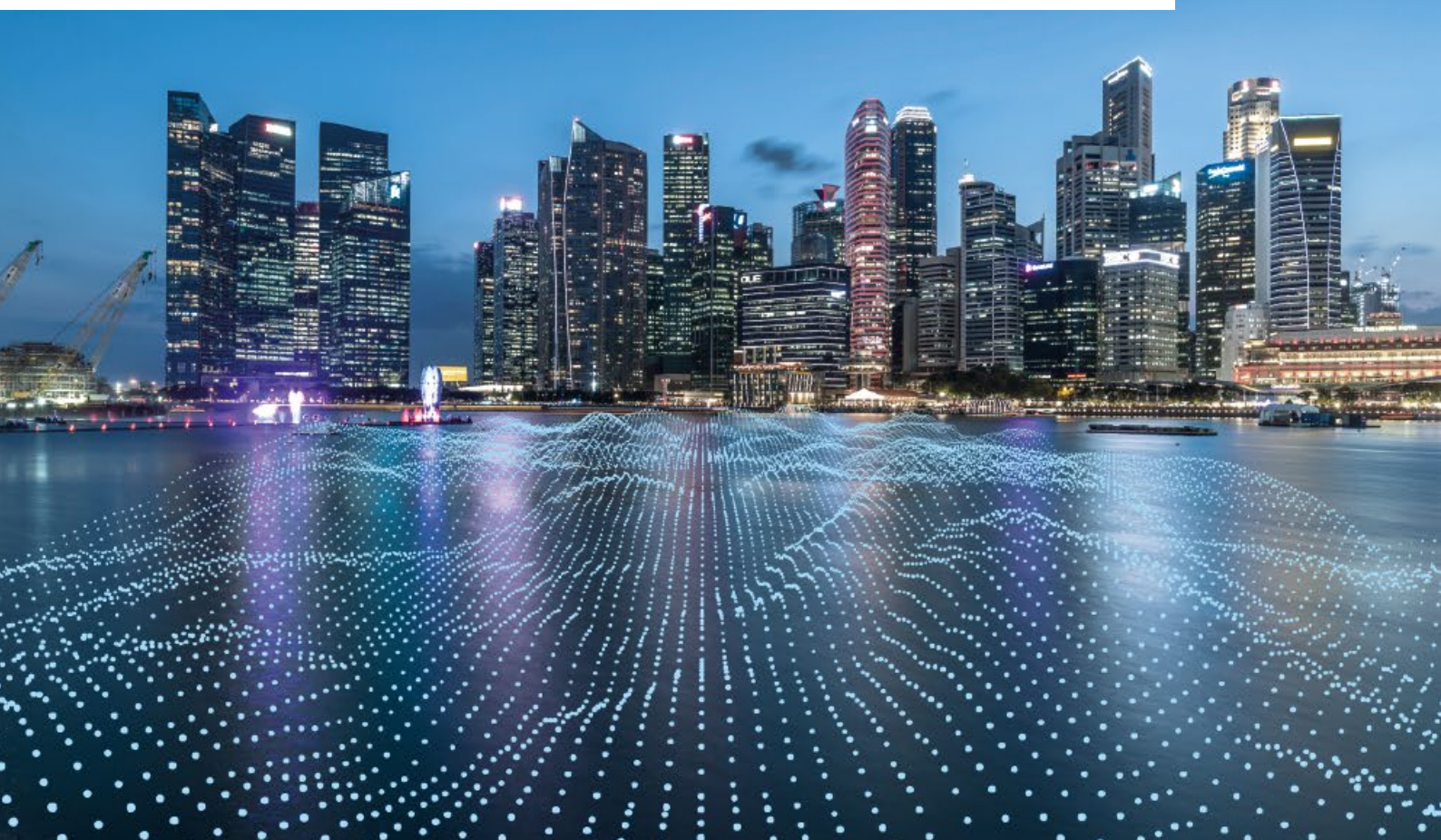
Quarterly Equities and Multi Asset Outlook Beyond Nvidia



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Beyond Nvidia

- We believe that AI and its applications have the potential to become a disruptive force in our personal and professional lives.
- ‘Beyond Nvidia’, we have identified additional companies for which the market has yet to realise the potential impact and benefits of AI.
- These companies extend across industries and geographies; from healthcare to infrastructure, from Japan to Latin America.
- In exploring the areas where we see AI making a difference, we are not aiming to make stock recommendations based solely on AI. Rather, we are keen to provide our clients with examples of the possibilities that lie ahead.

Markets remain data driven and subject to shifts in sentiment. Central banks’ decisions are the main drivers of market moves. In our opinion, the timing and likely depth of a recession should be the focus in assessing risk assets’ performance ahead. We are starting to see some stress at the edges in the form of rising bankruptcies in the US and earnings warnings in Europe. While there is still no sign of an imminent and pervasive collapse in global demand, with the rapid rise in interest rates, it is logical to expect further demand contraction from here. Given the lack of visibility on the demand outlook in the near term, with a wide range of possible positive-to-negative outcomes, we believe it is too early to throw in the towel on risk assets – as long as we stay high on the quality scale and remain selective. We still don’t believe that this is a time for taking directional macroeconomic bets (what we have previously referred to as ‘broad-strokes investing’). In our view, this continues to be a market in which it pays to be selective; and to differentiate between investing in broad market indices and active stock picking. In the wake of the outperformance of Nasdaq and S&P 500 indices, not many investors seem to have realised that only one US-listed stock has made it to the list of top 10 outperformers in the MSCI AC World Index (ACWI).

In our active selection, we continue to favour long-term structural themes: infrastructure, the low-carbon ecosystem, and innovation. When it comes to innovation, we believe that AI and its applications have the potential to become a disruptive force in our personal and professional lives. As we witnessed the skyrocketing performance of Nvidia and of a handful of other stocks in the first half of 2023, the M&G Equities and Multi Asset teams have identified additional companies for which the market has yet to realise the potential impact and benefits of AI, across industries and across geographies. As we were going through this exercise, and exploring all the areas where we see AI making a difference, now and in the future, we thought our clients would find it interesting to become part of the discussion. Hence the decision to dedicate our Q3 2023 Outlook to this topic.



Fabiana Fedeli
Chief Investment Officer,
Equities, Multi Asset
and Sustainability

Would you pass the outperformance quiz?

Markets remain data driven and subject to shifts in sentiment. Central banks' decisions and any data that supports either hikes or cuts ahead remain the key drivers of market moves. However, in our opinion, given the extent of hikes and the odds of a 'higher for longer' environment, the timing and likely depth of a recession should be the focus in assessing risk assets' performance ahead.

While we have seen some weak macroeconomic readings across the globe, and some datapoints further weakening, others have remained resilient and there is still no sign of an imminent and pervasive collapse in global demand. However, with interest rates having risen so rapidly, it appears logical to expect a further contraction in demand. Some countries such as Germany have already experienced a mild technical recession.

For now, both the timing and extent of a global recession remain difficult to predict. Markets are pricing in a mild outcome for the most part, with intermittent bouts of optimism and pessimism across both equity and fixed income markets.

That said, we are starting to see some stress at the edges. Firstly, we are witnessing an increase in US bankruptcy filings. Secondly, especially in Europe, we have seen a number of earnings warnings – particularly in the materials and industrials sectors. While the number of negative versus positive warnings does not yet feel worse than usual, the reasons given by company managements for the earnings misses are concentrated in two areas: destocking and slowing corporate spending cycles.

Given the lack of visibility on the demand outlook in the near term, with a wide range of possible positive-to-negative outcomes, we believe it is too early to throw in the towel on risk assets – as long as we stay high on the quality scale (whether in equities or credit) and remain selective. We still don't believe that this is a time for taking directional macroeconomic bets (what we have previously referred to as 'broad-strokes investing'). We continue to believe that this is a market for active investors, where selection is key.



In the past, we have discussed finding attractive investment opportunities in markets that have been out of favour as a whole. For example, in our most recent **2023 Mid-Year Investment Perspectives** we highlighted China as being one of those markets that, despite broader macroeconomic and geopolitical challenges, has offered some compelling idiosyncratic stock opportunities.


This brings me to a fundamental distinction between the performance of equities and the perception thereof. We believe investors need to differentiate between investing in broad market indices and active stock picking.

Many investors appear to believe that a small group of US stocks have outperformed global indices in the first half of 2023. Actually, they have not. It is true that the size of a few stocks, coupled with good performance, has moved the Nasdaq and the S&P 500 indices, allowing them to outperform other global equity indices. However, US stocks were NOT the best performers year to date. Of the best performing stocks in the MSCI AC World Index (ACWI) year to date, only one US-listed stock, Nvidia, is in the top 10 (Figure 1).

Figure 1: The best performing stocks in the MSCI ACWI year to date

	Security	% Return	Country	Sector	Market Cap. (USD BLN)
1	Zhongji Innolight Co Ltd	421.1	China	Information technology	15.7
2	CosmoAM&T Co Ltd	254.6	South Korea	Information technology	4.4
3	Cambricon Technologies Corp Ltd	244.3	China	Information technology	11.7
4	Nvidia Corp	186.6	US	Information technology	1,034.3
5	Kunlun Tech Co Ltd	185.7	China	Communication services	6.7
6	Ecopro BM Co Ltd	169.0	South Korea	Industrials	18.2
7	Wistron Corp	168.2	Taiwan	Information technology	7.3
8	Inspur Electronic Information Industry Co Ltd	150.8	China	Information technology	10.3
9	Global Unichip Corp	143.4	Taiwan	Information technology	6.7
10	Foxconn Industrial Internet Co Ltd	139.4	China	Information technology	63.0

Source: Bloomberg, 27 June 2023. Currency: USD. The picture is similar in local currency, although the order varies.



At a broader level, over the same period, 69 out of 100 of the top MSCI ACWI performers were outside of the US. In US dollar terms, the US takes the lead, while in local currency China has 31 of the top 100 performing stocks.

Anecdotally, we have asked a number of audiences over the past few weeks if they could guess the composition of the top 10 list of MSCI ACWI outperformers year to date. Most believed that the majority of names were US listed.

AI sleuthing

We have long maintained that for the long term we favour structural themes, those that would continue to see higher capital flows compared to the rest of the market even with a weaker macroeconomic backdrop. These are: infrastructure, the low-carbon ecosystem, and innovation.

We clearly are not the only investors focused on innovation, judging from the strong recent performance of companies that are – rightly or wrongly – perceived to be benefiting from Artificial Intelligence (AI).

The notoriety of ChatGPT and the rally experienced by Nvidia year to date (nearly tripling to breach the US\$1 trillion in market cap mark) has greatly raised the profile of generative AI in the eyes of investors and the general public.

We believe that AI and its applications have the potential to become a disruptive force in our personal and professional lives. AI is not new. The first AI wave began roughly 10 years ago, with image recognition and predictive analytics as primary use cases. However, AI is now entering the next phase of its evolution driven by generative AI and large language models (LLMs). The new applications, as well as the improved user interface, are bound to catalyse the spread of AI technology.

As we witnessed the skyrocketing performance of Nvidia and a handful of other stocks in the first half of 2023, the M&G Equities and Multi Asset teams have been identifying additional companies for which the market has yet to realise the potential impact and benefits of AI. In this, we are helped by having experienced colleagues with extensive expertise in investing in AI over the last decade.

Beyond Nvidia, across industries and markets

Our aim has been to look at AI across the board. Not only enablers – those companies that provide the technological building-blocks that make AI possible – but also service providers who can leverage AI to improve customer outcomes, as well as beneficiaries within and outside of the technology sector. Importantly, we looked beyond the US market.

As we were going through this exercise, and exploring all areas where we see AI making a difference, now and in the future, we thought our clients would find it interesting to become part of the discussion. Hence the decision to dedicate our 3Q 2023 Outlook to this topic.

As an important disclaimer, we are not aiming to make stock recommendations based solely on AI. Not all of the stocks we mention are either owned in our investment strategies or considered timely investments. Rather, we wanted to provide our clients with examples of the possibilities that lie ahead.

For many companies, the potential gains in terms of efficiencies, productivity, and cost savings will likely take time to be realised, as we experience an ongoing reshaping of jobs and industries, and overcome multiple social, regulatory, safety and security obstacles. Some companies may find themselves not being able to keep up with more AI-savvy competitors, or may end up seeing the markets they operate in fall victim to AI's many applications.

While Nvidia has seen an inflection in revenue related to generative AI, given the large amount of computational power that is required to run LLMs, there are a number of other companies and industries that will benefit from this AI movement – from software to semiconductor companies, to firms providing high-speed networking infrastructure (particularly for data centres and large cloud companies). We also believe IT services companies will help their clients deploy generative AI.

Over time, we expect an increasing number of non-IT companies to benefit from applying AI to their operations. From healthcare to financial services to infrastructure, the number of use cases are increasing at a rapid pace.

“ For many companies, the potential gains in terms of efficiencies, productivity, and cost savings will likely take time to be realised ”

Importantly, businesses that have collected and own proprietary datasets stand a better chance of benefiting from AI, as they can employ technology to more effectively mine and utilise such data.

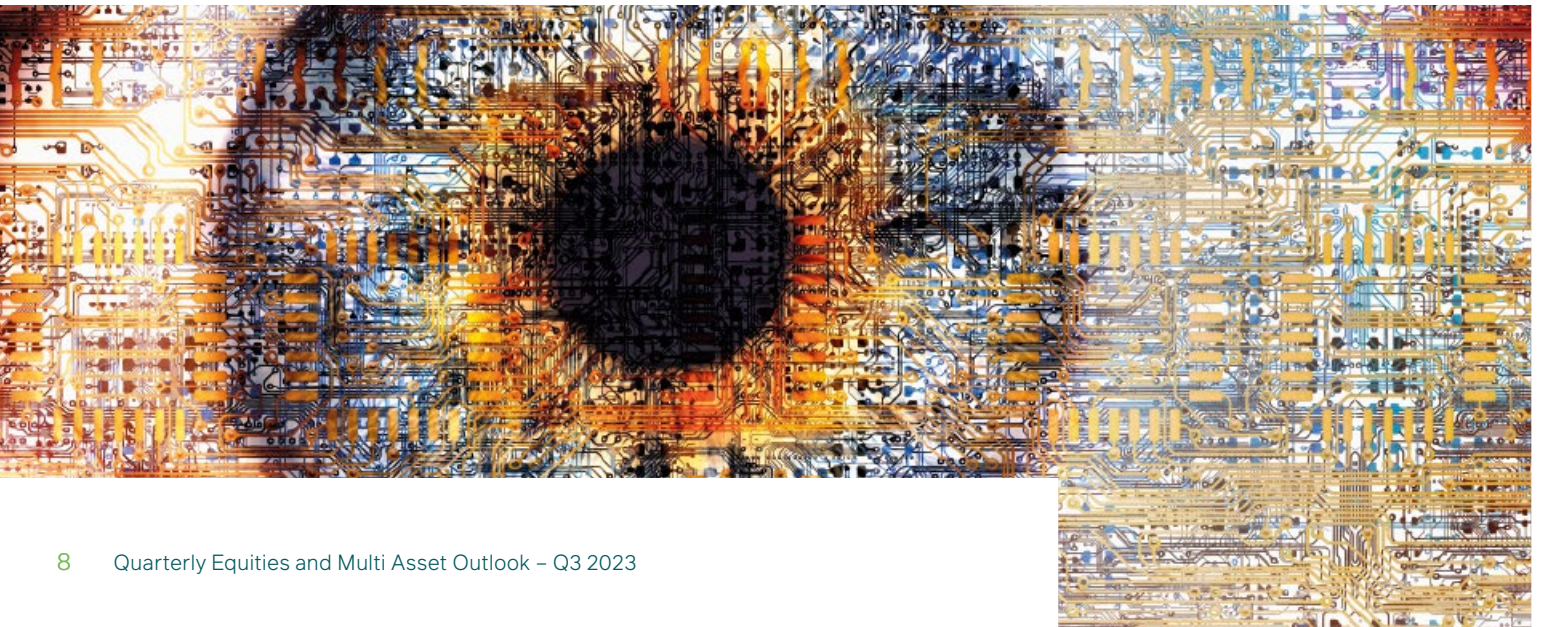
As mentioned, the opportunities for AI use lie well beyond the borders of the US. For example, our discussions with Japanese companies thus far in 2023 have revealed a high level of awareness of, as well as investment in, AI – and generative AI in particular.

Importantly, AI has the potential to change the geopolitical balance of power, with a number of more tech-savvy emerging market (EM) countries potentially adapting to new technologies quicker than some developed countries. For example, AI developments and adoption are progressing rapidly in emerging Asia, with companies across Korea, India and China well positioned given their advanced technological know-how. The younger demographic profiles of India and Indonesia make them among the top countries globally contributing to traffic on the ChatGPT platform¹.

Elsewhere, in Latin America, financial firms have moved quickly to adopt ChatGPT and AI into their tech arsenal, often deploying on an experimental basis. Such firms are in a strong position to do so, given the vibrant fintech scene. Last but not least, the Middle East is leveraging its rich capital pool and is moving quickly to take advantage of AI opportunities.

As ever, the start of a new disruptive market force will create winners and losers. On a multi-year basis, we believe that the implementation of AI, and generative AI in particular, will be but one determinant of those winners and losers.

¹ Source: ChatGPT Enjoyed 28% Organic Search Traffic and 11.7 Million Social Visits in Past 28 Days – Similarweb.



While we regularly test the robustness of our investment theses for companies held in our portfolios, in time, AI will likely require us to revisit the fundamental investment case for any given holding. In doing so, our priority will be to anticipate and move ahead of perceived risks, while at the same time identifying potential opportunities.

In the following pages, you will find views from our Equities and Multi Asset Investment desks, looking beyond Nvidia, at what their respective markets offer or could offer when it comes to AI – whether it is from the point of view of the technology enablers, the service providers, or the early beneficiaries across a variety of sectors.

We wish you an enjoyable and – hopefully – interesting read.

Fabiana Fedeli

Chief Investment Officer, Equities, Multi Asset and Sustainability

“ As ever, the start of a new disruptive market force will create winners and losers ”



Technology trends



Jeffrey Lin
Fund Manager,
Thematic
Technology



Jasmeet Chadha
Global Technology
Analyst

Riding the AI wave

2023 has been the best start to the year for technology stocks in 25 years². To say that Artificial Intelligence (AI) has played a part in that euphoric rise in stock valuations would be an understatement. ChatGPT has become the fastest-growing application ever, reaching 100 million users in just two months³.

It has been used by students to help with their homework. It has been used by Coke to dream up its recent advertisement⁴. It has been used to create digital art that won first place at the Colorado State Fair⁵. It has been used by a lawyer conducting case research⁶ (unaware that its content could be false).

The one constant underlying all of the above was the use of Nvidia's GPUs (Graphics Processing Units). The company has won (almost all) the available opportunity for good reason: a GPU's suitability to process parallel instructions and Nvidia's early foray into developing and supporting CUDA (Compute Unified Device Architecture) libraries, have made it easy for developers to leverage its GPU. This early lead has compounded over time.

Generative AI's benefits will reach a broad range of industries

We believe AI is entering the next phase of its evolution driven by generative AI and large language models (LLMs). The first AI wave began roughly 10 years ago, with image recognition and predictive analytics as primary use cases.

For the past few years, Nvidia has consistently said that natural language processing (NLP) would be the next major application of AI. With generative AI inflecting in 2023, Nvidia's prediction of NLP being the next major AI application is now reality.

Generative AI enables computers to think more like humans and has creative capabilities to generate original ideas (text, image, audio, video, code and more) all based on simple human text queries. ChatGPT, which launched in late November 2022, has demonstrated generative AI's capabilities, enabling communication between humans and computers to be more like human-to-human conversations.

While Nvidia has seen an inflection in revenue related to generative AI, given the large amount of computational power that is required to run these LLMs, there are a number of other companies and industries that will benefit from this AI movement – from software to semiconductor companies, to firms providing high-speed networking infrastructure (particularly data centres and large cloud-computing companies). We also believe IT services companies will help their clients deploy generative AI.

² Source: Bloomberg, 11 July 2023, Year to date price returns for the S&P 500 Information Technology Index.

³ <https://www.reuters.com/technology/chatgpt-sets-record-fastest-growing-user-base-analyst-note-2023-02-01>

⁴ <https://www.coca-colacompany.com/media-center/coca-cola-launches-masterpiece-campaign>

⁵ <https://www.nytimes.com/2022/09/02/technology/ai-artificial-intelligence-artists.html>

⁶ <https://www.bbc.co.uk/news/world-us-canada-65735769>

Over time, we expect an increasing number of non-IT companies to benefit from applying AI to their operations.



Healthcare services

In healthcare services, US firm Nuance provides a conversational AI virtual assistant platform to collect patient data. With better data analytics, NLP and deep learning models can be applied to improve patient outcomes by predicting conditions and decreasing the cost of care. New York-based medical centre NYU Langone Health is using LLMs to predict the risk of 30-day re-admission after patients are discharged from the hospital.



Drug discovery

LLMs are also being developed for drug discovery. While still in its nascent stage, we believe as generative AI becomes more widespread and mature, we will see greater adoption by healthcare companies as it pertains to drug discovery. Pharmaceutical firm AstraZeneca is an early adopter of Nvidia's GPUs, building LLMs for molecular biology to explore datasets of small molecules, proteins and soon, DNA.



Financial services

Traditional enterprises make up 30% of Nvidia's customer base for its GPUs. More recently, the company has noted particular interest from asset managers who are exploring further use of ChatGPT in their day-to-day business. The provision of services such as client reporting, customer service, and back-office operations can become significantly more efficient by utilising generative AI.



Utility companies

Increasingly, utility companies are embracing AI to help improve the electrical grid – both for 'smart grid' optimisation and also to help reduce outages from unforeseen incidents, such as lightning strikes. Our global equities colleagues, who run a listed infrastructure strategy, offer more colour below on the applications of, and opportunities from, AI in the utilities sector.

Goliath vs. goliath: evolving competitive landscape as generative AI goes ‘mainstream’

Nvidia’s rise opens the door for rivals to take a share of the pie. As a technology gets more broadly adopted, levers of competition often shift from ease of use to cost and economics. This is where Nvidia’s 80% gross margin on GPUs leaves a very wide pricing umbrella for competition to come in. Hyperscalers, such as Microsoft, Meta Platforms (formerly Facebook) and Amazon, are already working together with fabless chip design houses to make custom chips (ASICs – Application-Specific Integrated Circuits) for accelerating workloads. Google already uses its own custom processors, TPUs (Tensor Processing Units), in many workloads.

As the size of these AI models keeps growing at an exponential pace, there are more problems to be solved.

- While computer chips have kept pace, the memory bandwidth hasn’t. This means incremental performance gains can also be made by solving this bandwidth problem through software (instruction sets) and hardware (interconnects, CXL – Compute Express Links).
- Furthermore, larger models require multiple pods of GPUs connected through high bandwidth networking gear.
- Finally, generative AI reduces the barriers and costs of content creation. For instance, Adobe Stock is a library of circa 200 million images. Over the last couple of months, while Adobe Firefly (Adobe’s generative AI) has been in beta, users have created 200 million images using AI. This has implications for storage demand.

Democratising the use of generative AI

Data has already been hailed as the new oil. Generative AI might as well be the internal combustion engine of our age that helps unleash its value. Businesses that own proprietary datasets will become valuable, especially since those datasets are required to create the generative models. Earlier this year, Getty Images sued Stability AI for copyright infringement⁷, alleging the latter copied 12 million images to train its AI model. The results of this case will have serious implications in the world of content generation and copyright protection – whether it is images, music, videos or advertisements.

Most software businesses will be turbocharged with the use of generative AI. At its core, generative AI is a piece of software that needs specialised chips to run. The value of this technology will be realised in real world software applications that help improve productivity across the board for its users.

⁷ <https://www.theverge.com/2023/2/6/23587393/ai-art-copyright-lawsuit-getty-images-stable-diffusion>.



“Data has already been hailed as the new oil. Generative AI might as well be the internal combustion engine of our age that helps unleash its value”

Microsoft and Adobe have already teased us with what's coming next. We will have meeting notes transcribed and summaries made, with any follow-ups or action items highlighted. Institutional knowledge that sits in unknown corners of an organisation could be aggregated and codified. The chatbots on the phone or on a website will become exponentially more helpful. Each one of us could become a graphic designer, making art using language with little to no knowledge of how to operate a Photoshop tool.

When language becomes the 'API'⁸ to access and benefit from most software tools, their usage gets democratised. Applying generative AI to existing software will be a significant and durable pricing growth opportunity for incumbents.

A review of generative AI would be incomplete if we didn't note the ongoing Cambrian explosion in open-source domain around smaller models and applications of generative AI.

In February 2023, after Meta publicly released their 65B parameter LLM to help researchers in the field of AI, multiple fine-tuned derivatives showed up. This fine tuning sometimes cost as little as US\$300⁹. The availability of an open-source foundation model lowered the capital barrier, and broad interest has fuelled open-source innovation as well as disruptive market entrants. Stability AI, a company we referred to earlier, is an open-source company with 200,000 members in its community. Midjourney, another generative imaging tool (used to create the cover image and the image above), has only 11 full-time staff and has chosen to remain private and self-funded¹⁰.

Thriving and surviving

It's a very interesting time for innovation and competition. The adoption of generative AI in various industries will lead to significant productivity benefits and consumer surplus. Of course, as with any new technology, many businesses will jump on the generative AI bandwagon. So, while it's a very exciting time to be investing, it will be important to separate the wheat from the chaff.

⁸ An application programming interface (API) is a way for two or more computer programs to communicate with each other. It is a type of software interface, offering a service to other pieces of software.

⁹ <https://lmsys.org/blog/2023-03-30-vicuna/>

¹⁰ It is cash flow positive, unlike many start-ups of the last decade.



Global



Son Tung Nguyen
Senior Analyst, Global Equities

AI has the potential to revolutionise the way companies can build and operate critical infrastructure

There are various opportunities to invest in infrastructure industries with exposure to AI.

Electricity

Artificial Intelligence (AI) can revolutionise electricity infrastructure by enabling the development of smart grids, which will help optimise electricity distribution and consumption. AI can analyse large amounts of data, including weather, consumption patterns, and status of the network to help utility companies predict energy demand and manage energy resources efficiently. Investment in smart grid technology will allow electricity utility companies to grow their asset base more quickly, which will directly translate into higher regulated earnings growth. In 2021, Enel – the largest electric utility in Italy – established a subsidiary dedicated to providing smart grid solutions to distribution system operators.

Water

AI can play a crucial role in optimising water resource management. By utilising machine learning algorithms and real-time data analysis, smart water systems can detect leaks, predict water demand, and optimise water distribution. American Water Works – the largest US water utility – has been using machine learning to monitor its ageing network of water pipes, detect deteriorating tank coating, and predict water leakage. This allows for more efficient use of water resources and ensures the availability of clean water for customers.

Water utility companies that are adept at leveraging these systems will earn higher regulated returns through existing incentive mechanisms that encourage water resource efficiency and reliability.

“ AI can play a crucial role in optimising water resource management ”



Transportation

Transportation infrastructure companies can leverage AI to improve mobility efficiency and safety. Traffic management systems using AI for predictive analytics can optimise traffic flow, reduce congestion, and enhance road safety. Toll road operators can utilise data analytics to predict demand patterns and dynamically adjust tolls to maximise revenue. Ferrovial – the largest Spanish toll road operator – is developing the Aivia orchestrated connected corridors, a project that uses AI to integrate connected autonomous vehicles safely into our future roads.



Waste Management

AI can help waste management and recycling companies improve waste collection, sorting, and recycling processes. AI can also automate waste collection routes, which will generate cost savings for waste collection companies. AI-powered sensors and robotics can significantly improve sorting accuracy for recycling, so companies adopting these systems can generate new revenue streams from higher recycling efficiency. These advances also help accelerate the move towards a circular economy.

Waste Management and Republic Services – two of the largest waste management companies in the US – have invested in modern systems that use AI and robotics to automate waste sorting. These advanced systems can separate recyclable materials from the waste stream with extremely high accuracy.

Demand for data centres

The explosion of AI applications can directly translate to data centre demand. Companies are queuing to get access to more computational resources. Increasing demand for AI computational resources can lead to both higher revenue growth and better pricing power for data centre operators such as Equinix and Digital Realty. In addition, AI workloads can be computationally intensive, resulting in increased energy consumption. Data centres will need to invest more to ensure sufficient power and cooling infrastructure that can support AI operations.

Risk management

Finally, for infrastructure construction projects, AI can analyse historical project data such as usage patterns and maximum load to assess the risks associated with each project. It can also help identify potential risks during the project lifecycle, such as predicting delays, cost overruns, and environmental impact. By providing accurate risk assessments, AI helps infrastructure companies and infrastructure investors develop effective risk mitigation strategies and make more informed decisions.

Undoubtedly there will be risks and challenges associated with the rapid uptick in AI usage but, as highlighted above, by incorporating AI technologies into transportation, energy, water, and waste management systems, companies have the opportunity to unlock higher levels of infrastructure efficiency and resilience, supporting future growth and revenue gains across multiple business units.

UK



Michael Stiasny
Head of UK Equities

UK companies can embrace AI opportunities across the board

The UK's FTSE All Share Index may not have shared in the US's AI-led stock market upturn during the quarter, but we believe some potential long-term success stories began to emerge, as investors started to understand how AI could impact UK companies across industries and market capitalisations.

As our Technology team highlighted earlier in this Outlook, healthcare companies appear to be among the best placed to immediately capitalise on AI due to the technology's likely future role in drug discovery, precision medicine and diagnostics. Britain is home to global leaders, notably AstraZeneca and GlaxoSmithKline, as well as smaller specialists, including biotech companies such as e-therapeutics and Oxford Nanopore.

In recent months, we have spoken to management teams who are already witnessing significant increases in the speed and efficiency of drug development, thanks to large language models' (LLMs) ability to analyse enormous datasets. It seems AI could potentially enable these companies to create new medical discoveries and healthcare advancements that were previously unimaginable.

The UK's large finance sector may also begin to undergo an AI transformation. In banking, the technology could potentially revolutionise risk assessment and fraud detection. Financial institutions are also likely to leverage AI to analyse vast datasets, drive efficiencies and offer clients better solutions. HSBC, for instance, recently launched its AI Markets analytics service for institutional clients, which it claims uses a proprietary natural language processing (NLP) engine¹¹.

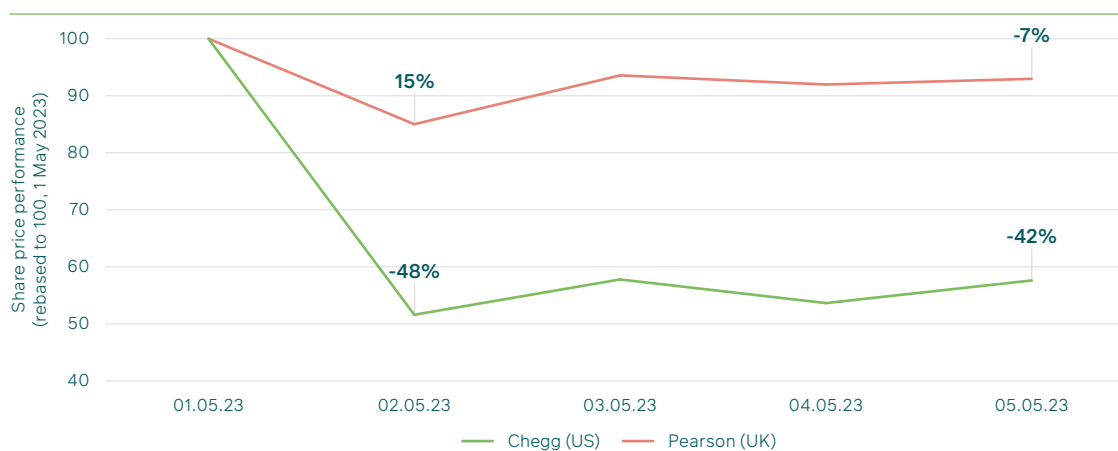
¹¹ Source: HSBC launches AI Markets | Insights | HSBC, May 2023.



Elsewhere, we would note developments in retail, with companies like Ocado and ASOS using AI to enhance their customer engagement strategies. Meanwhile, manufacturers such as Renishaw and Rolls-Royce are leading efforts to boost productivity and operational efficiency using AI-powered automation and predictive maintenance. And across companies of all sectors and sizes, AI could help to address the UK's particularly poor productivity levels and labour market shortages.

Of course, technological change creates uncertainty, and UK investors are also likely to navigate some significant challenges in the period ahead. AI's threats could take years to materialise, but the market tends to act first and ask questions later. In May, US-listed education provider Chegg's share price fell almost 50% when the company cited AI as a potentially systemic threat. On the same day, UK-listed Pearson's share price fell 15%, despite no compelling evidence that its business model faced the same risks. Pearson's share price has subsequently recovered around half of its decline, while Chegg still trades at close to its lows¹².

Figure 2: Investors lack clarity around AI's impact on business fundamentals, which can also create volatility and contagion risks¹³



Source: Refinitiv Datastream, 22 June 2023.

At this stage, it is difficult to fully comprehend the ramifications of emerging AI technologies. However, it has quickly become a key area of focus for investors across all markets, and the UK is no exception.

In time, we may be required to revisit the fundamental investment case for any given company in our portfolios. Our priority will, therefore, be to anticipate and move ahead of perceived risks, while at the same time identifying potential opportunities, which seem likely to present themselves in a UK market whose potential is currently overlooked, in our opinion.

¹² Source: Datastream; PSON, CHGG, local currency share price returns; as at 22 June 2023.

¹³ Source: Datastream; PSON, CHGG, local currency share price returns; as at 5 May 2023.

Japan



Carl Vine
Co-Head of Asia Pacific Equities

Perhaps unexpectedly, Japanese companies are rapidly embracing AI-enabled technology

The Japanese equity market delivered one of its best quarterly returns in recent history during the second quarter. Much of this was linked to a growing appreciation of corporate reform efforts and the policy regime that is enforcing it. The market did also experience some Artificial Intelligence (AI)-linked enthusiasm, but the contribution to the market's return was not overwhelming.

Similar to global trends, the AI impact on the Japanese market has so far been most notable in semiconductor stocks. Large cap semiconductor names like Tokyo Electron, Renesas, Advantest were all very strong in the quarter, rising between 30% and 60%, but even outside of this thematic, the broader market was also strong.

Discussions with Japanese companies thus far in 2023 have revealed a high level of both awareness of, as well as investment in, AI – and generative AI in particular. This was not what one might expect. In general terms, Japanese corporates have been behind in digital transformation (DX) implementation. However, within DX investments, AI in recent years has received particular attention. Telecommunications company NTT, for example, is already training its own large language model (LLM) which it will launch later in 2023, bespoke for the Japanese market.

Companies like Panasonic already use LLMs widely within their businesses. Elsewhere in industrial companies, we are seeing investments in Machine Learning (ML) and LLM technology having an impact on business prospects.

On a multi-year view, we believe the implementation of this technology will be a critical differentiator between the winners and losers across all industry types. As stock pickers, this is not just all about semiconductors. The level of AI preparedness and implementation in the companies we research is a key line of enquiry for us as we think about medium-term earnings prospects.

“ The implementation of [AI-driven] technology will be a critical differentiator between the winners and losers ”



Asia Pacific ex Japan



Dave Perrett

Co-Head of Asia Pacific Equities

There's a real opportunity for companies to harness AI to offer tailored customer solutions

Similar to the rest of the world, Asia ex Japan markets were also caught up in some of the excitement surrounding AI. The region's technology hardware heavyweights have led the rally since mid-May in terms of market cap moves. TSMC rallied 15% (modest compared to some of its US counterparts' moves), or the equivalent of a little over US\$60 billion in market cap. Korean DRAM makers Samsung Electronics and SK Hynix also benefited, with the latter rallying more than 30%¹⁴ as it was seen to be leading in manufacturing higher-end chips, specifically suited to powering AI. The fact that SK Hynix, prior to the Nvidia results, was struggling with investor concerns about near-term heavy losses and relatively high debt levels, meant that their perceived turn in fortunes proved to be especially powerful.

Many of the region's software companies from Naver in Korea to the likes of Alibaba and Baidu in China, highlighted how they would be in a position to offer AI tools that improved consumer experience and would lead to greater and longer customer engagement. Understandably, the impact of these announcements on share prices has been relatively muted as the market tries to determine who will be able to use AI to improve their business and profitability, rather than just maintain their current position.

The key is for a company to have access to unique pools of data tied to the **customer experience**



While not especially 'sexy', there would appear to be a real opportunity for large financial institutions and logistics companies to deploy AI in a way that helps them serve their customers in a much more tailored and bespoke fashion, at a much lower cost as the requirement for human engagement is reduced. The key is for a company to have access to unique pools of data tied to the customer experience and being able to 'machine learn' from that data to understand and anticipate customer needs. These trends were already firmly in place at these companies, but improvements in AI should accelerate them.

One industry we are doing more work on is Indian software services. These are very sophisticated IT companies that have been using and experimenting with AI for some time. As a result, there is a real opportunity for them to offer effective AI solutions to help drive efficiencies in their customers' operations. However, there is a real risk that disruptors enter the 'lower value added' end of their market, offering cut-price solutions, and the negative impact of this disruption on fees offsets much of the benefit from any AI business-related gains.

¹⁴ Source: Bloomberg, 30 June 2023.

Emerging Markets



Michael Bourke
Head of Emerging Market Equities

Generative AI fever: not just a developed market story

Emerging Markets (EM) investors have experienced a sharp divergence year to date between the performance of banks compared to IT stocks (Figure 3). Banks and insurers have been hit by the sentiment fallout from the US banks debacle in March and general risk-off sentiment, as investors question the strength of the recovery in the Chinese economy, in particular. Meanwhile, the IT sector which was hit hard last year (down 33% in US dollar terms)¹⁵, has bounced despite the still sluggish nature of IT product demand, particularly within consumer products such as laptops and smartphones.

Figure 3: Divergence between EM banks and information technology stocks this year



Source: Refinitiv Datastream, 27 June 2023. Rebased to 100 on 1 Jan 2023. Performance in US dollars.

So, why the optimism?

In a word(s), Artificial Intelligence (AI). As generative AI fever has swept the investment world, IT stocks have been lifted in the wave of excitement regarding sectoral opportunities. The IT sector in EM is Asia-centric, dominated by semiconductor heavyweights, such as TSMC and Samsung Electronics, in Taiwan and Korea respectively. Investors have rushed to price in the more obvious AI benefits for the giant semiconductor players in the region.

Demographics as a catalyst

If we look down the list of countries contributing the most to global traffic on the ChatGPT platform in the first quarter of this year, the usage in Asia is dominated by India and Indonesia. What unites those two countries? Their age demographic, with c.50% of their populations below the age of 30 – driving an acceleration of tech adoption and innovation.

¹⁵ Source: Bloomberg, data as at 31 December 2022.

Africa

That same demographic characteristic is shared by Africa, with 70% of the continent's population below the age of 30. AI offers the continent huge opportunities to accelerate development and drive an improvement in productivity. We are already seeing the vast agricultural sector embracing technology (including AI) in order to drive greater crop reliability and yields, from Ghana to Kenya¹⁶. There will surely be considerable investment opportunity to come, spurred by such development, with tech adoption driving better data collection and transparency over time. We would look to the operators in the traditional telecoms sector such as Safaricom (Kenya) or MTN (South Africa) as natural conduits for AI investment.

Middle East

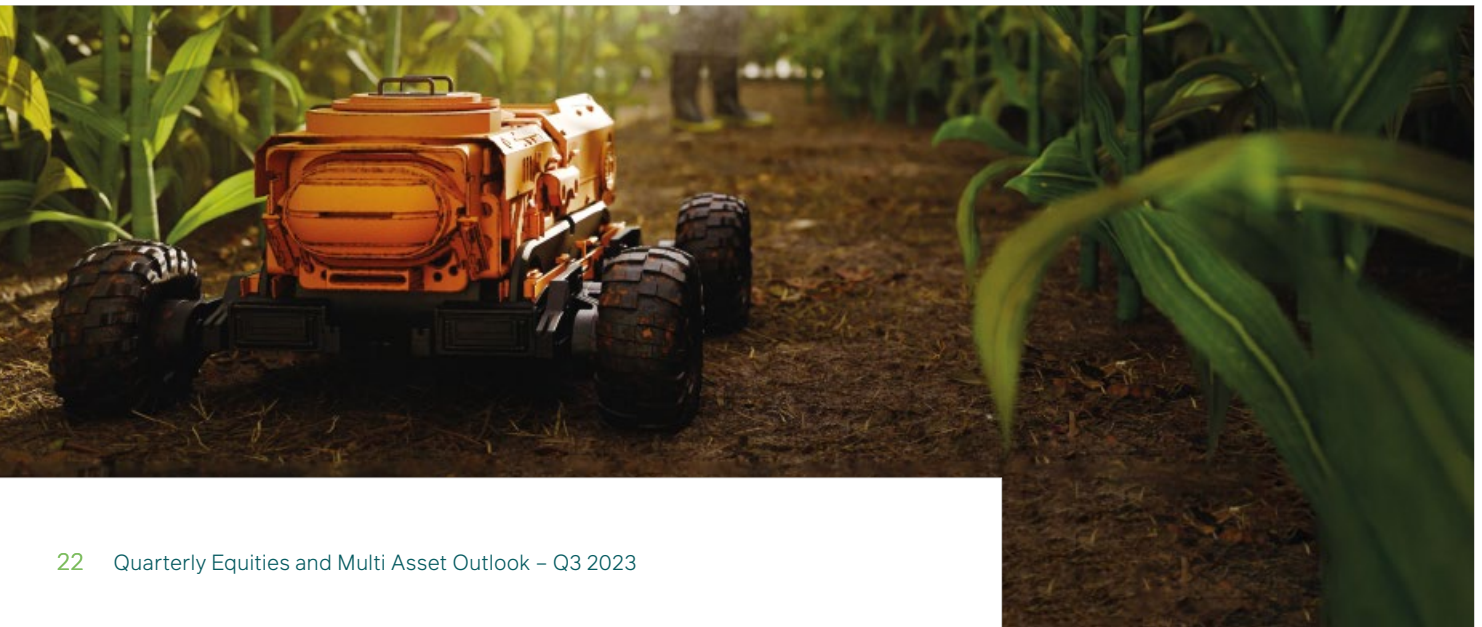
The Middle East has the capital to match its ambition and is moving quickly to take advantage of AI opportunities. With the United Arab Emirates (UAE) the transport, capital, cultural and linguistic bridge between the Middle East and the rest of the world, its sovereign wealth funds (SWFs) have already taken a prominent role looking to shape and invest in AI locally and globally.

Mubadala-backed Emirati AI firm G42 set up a \$10 billion tech fund last year to operate as a private equity (PE) firm, looking to invest in emerging technologies globally, including AI. G42-backed Astra Tech¹⁷ has already unveiled the first 'Arabic ChatGPT' in the Middle East and North Africa (MENA) region to integrate into its BOTIM app, as the language is not well-served by the global tech players.

In Saudi Arabia, the government has made clear their ambition with its Vision 2030 to diversify away from economic reliance on hydrocarbons by investing heavily in information and communication technology (ICT) infrastructure and services. Global players like Microsoft, Google, Oracle, Meta and Apple are all investing in the Kingdom, attracted by its deep pockets, high internet usage and plans for the future.

¹⁶ Source: Africa will be transformed by the potential of AI and data – if we can get investment, Mahamudu Bawumia, The Guardian.

¹⁷ BOTIM launches region's first Arabic ChatGPT with MBZUAI (gulfbusiness.com).



Again, the local drive is led by the local telecommunications incumbents, Saudi Telecom Company (STC) and Etisalat (e&). But non-telcos are also fast adopting tech, with companies as diversified as Dubai Electricity & Water Authority (DEWA), online travel company Almosafer, edtech start-up Abwaab and concierge service provider Yanzo integrating ChatGPT into their respective systems.

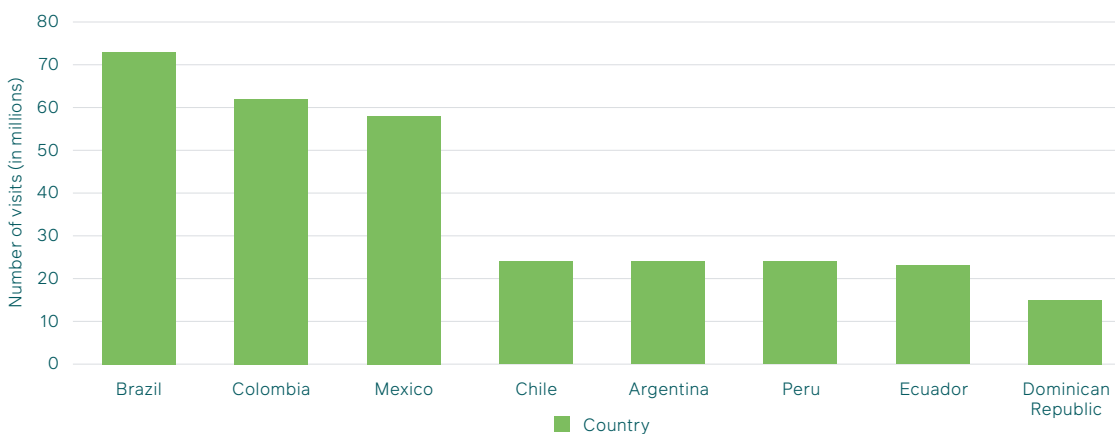
Latin America

Across Latin America, financial firms have moved quickly to adopt ChatGPT and AI into their tech arsenal, often deploying on an experimental basis. Such firms are in a strong position to do so, given the vibrant fintech scene, along with the sophistication and years of experience incumbents already possess in responding to technology threats and opportunities for their businesses.

Banorte, a leading bank in Mexico is a good example, trialling ChatGPT in their corporate communications. The potential for contextual AI use in financial services is enormous, but the search goes on for appropriate real-world application, especially on the customer-facing side. The industry is naturally moving cautiously, given the very real regulatory sensitivities around operational risks.

The more obvious enterprise use cases for ChatGPT and AI in general are within automated customer care, conversational e-commerce, AI-powered virtual assistants and work efficiencies. By example, Latin America's largest e-commerce ecosystem MercadoLibre has adopted Vue.ai (a leading AI provider for retailers) in their vendor onboarding processes to process and assess text and images faster and more accurately¹⁸. This has cut human intervention by 50% and reduces the prospect of human error, with a commensurate 56% collapse in false positives detected in text assessed.

Figure 4: Latin America has been quick to adopt ChatGPT



Source: Similarweb, data from January to March 2023.

¹⁸ Source: MercadoLibre automates image moderation with AI - Vue.ai

Advantages of AI unevenly accrued

Alongside feverish corporate activity to better understand how companies can integrate AI and ChatGPT into their businesses, comes natural anxiety regarding the risks of hasty adoption in terms of exacerbating further economic inequality in vulnerable communities across EM.

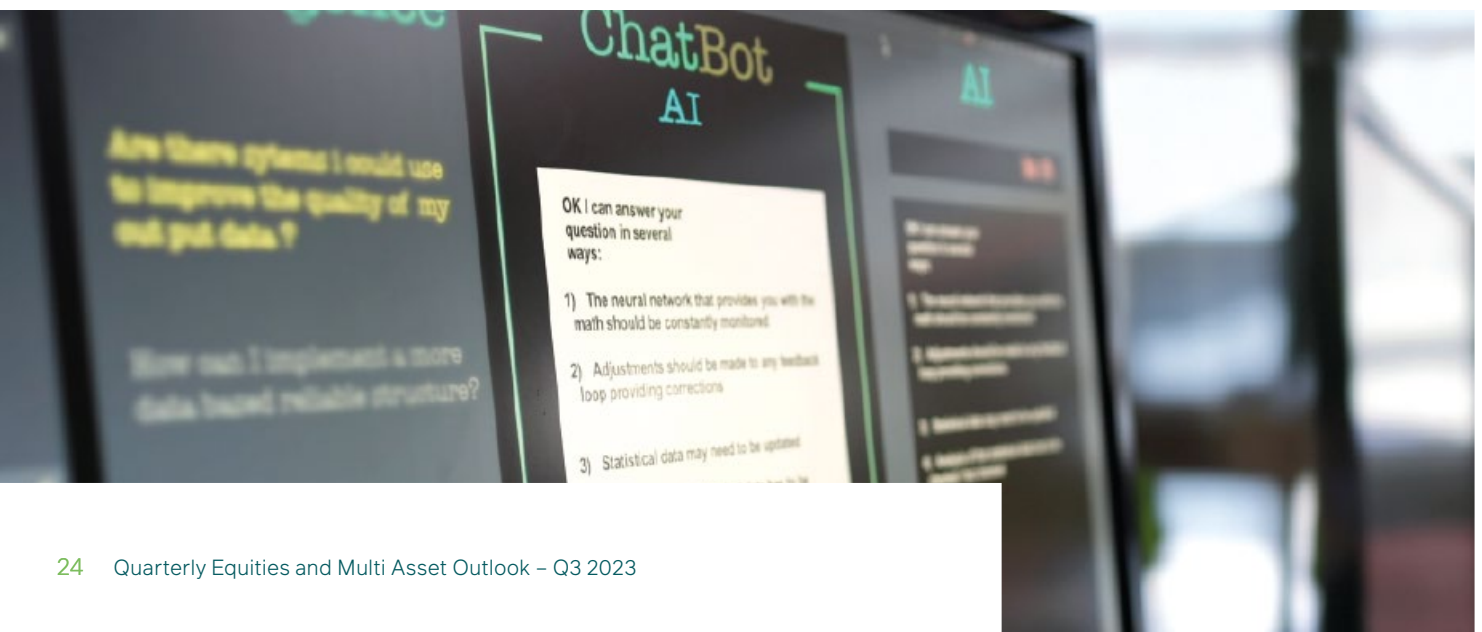
The emergence of ChatGPT and other AI applications has catalysed a debate regarding the implications of these technologies for the future of work. There is real concern that the benefits of AI may accrue narrowly to those at the top of the economic pyramid, while the downsides in terms of jobs displacement will be felt mainly by the poor and working class.

In a recent report, McKinsey & Company¹⁹ concludes that adoption of AI is likely to be faster in developed countries with the associated implication that productivity benefits will accrue in greater share to those already technologically savvy. High wages in rich countries create a greater rush for automation to cut costs. By comparison, lower wages in countries like Mexico put less pressure on companies to adopt AI.

It is incumbent on policymakers and politicians across the emerging world to prepare for the AI revolution and equip their populations with the ability to reap its rewards.

PS: This comment was prepared without the use of ChatGPT so all mistakes are my own. This may change in the near future...

¹⁹ Source: McKinsey & Company, June 2023, [the-economic-potential-of-generative-ai-the-next-productivity-frontier-vf.pdf \(mckinsey.com\)](#)





Impact



Jasveet Brar
Fund Manager, Better Health Solutions

AI is helping healthcare meet growing global demand

“I think the biggest innovations of the twenty-first century will be the intersection of biology and technology” (Steve Jobs)

We agree.

Technology will be key in helping to address healthcare demand being driven by an ageing population, increasing prevalence of lifestyle diseases and increasing global prosperity.

In particular, Artificial Intelligence (AI) has the potential to play a transformative role in healthcare. By integrating large data sets and combining clinical experiences across specialities, AI has the potential to develop valuable and actionable knowledge. Some of the ways companies are leveraging AI today include:

Drug discovery

- Only about five in 5,000 of the drugs that begin preclinical testing ever make it to human testing. Only one of these five is ever approved for human usage²⁰.
- Thermo Fisher Scientific, the global leader in R&D tools, incorporates AI tools within its analytic equipment. For example, its near atomic resolution images use AI to enable researchers to better understand druggable targets and potentially accelerate drug discovery.

Earlier diagnosis

- The human genome is 3,000,000,000 base pairs long²¹ and AI is a crucial tool to help make sense of all that data.
- On average, a rare disease diagnosis takes 5-7 years and disproportionately impacts children²². Leaders in genomic sequencing are using AI software to identify rare genetic variants in newborn babies quicker, enabling earlier treatment.

Supported decision making

- The World Health Organisation (WHO) estimate there will be a global shortage of 10 million healthcare workers by 2030²³. AI will play a key role in supporting healthcare professionals with decision making.
- Masimo, a leading medical technology company, launched a remote patient monitoring system. Capturing over 60 parameters, the system uses machine learning to establish a personalised baseline for a patient to more accurately escalate patient distress with fewer false alarms, enabling greater healthcare worker productivity.

²⁰ <https://ca-biomed.org/wp-content/uploads/2020/08/FS-DrugDevelop.pdf>

²¹ <https://www.genome.gov/genetics-glossary/Base-Pair#:~:text=One%20copy%20of%20the%20human,to%20300%20million%20base%20pairs>

²² [https://www.thelancet.com/pdfs/journals/landia/PIIS2213-8587\(19\)30006-3.pdf](https://www.thelancet.com/pdfs/journals/landia/PIIS2213-8587(19)30006-3.pdf)

²³ https://www.who.int/health-topics/health-workforce#tab=tab_1

Personalised medicines

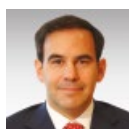
- Precision medicine is an approach to tailoring disease treatment based on a patient's own genetics. AI will be key in facilitating the shift from a one-size-fits-all approach to personalised treatment plans.
- AstraZeneca's targeted cancer treatment Lynparza is an example of personalised treatment for cancer patients. Genetic sequencing leverages AI to identify patients with the BRCA-gene mutation, who are potentially suitable candidates for the treatment.

Naturally, ethical guidelines and regulation lag advances in technology. An open conversation around both the positives and negatives are important. With this in mind, we must not lose sight of the transformative potential of AI in bettering healthcare outcomes.

“ [With] a global shortage of 10 million healthcare workers expected by 2030, AI will play a key role in supporting healthcare professionals ”



Convertibles



Leonard Vinville
Head of Convertibles

Expect a wave of AI-related issuance, but beware the lagging productivity boost

To misquote Isaac Newton²⁴, “we can anticipate the waves of convertible issuance, but not the fondness for AI”.

To pick winning firms in Artificial Intelligence (AI), many observers advocate investing in the picks and shovels and the providers of AI tools and infrastructure. Nvidia, through its AI-customised chips, is seen as the great beneficiary of the insatiable demand for generative AI. The large hyperscalers such as Microsoft, Amazon and Google are also seen as key players, providing the infrastructure and computing power to perform AI calculations and enable other software tools.

Unfortunately, such mega-cap infrastructure firms are absent from the convertibles universe (Nvidia’s latest convertible matured five years ago, while there is only a small synthetic convertible for Microsoft). Some convertible issuers in the semiconductor and hardware space may enjoy some exposure to the theme by providing the equipment needed for AI workloads (for example, memory or some wafer fab equipment makers).

“ A potentially rich vein of opportunities could be found in technology, media and software names ”

A potentially richer vein of opportunities could be found in other technology, media and software names, which account for roughly 27% of the convertibles universe. With ferocious demand for AI-driven automation, firms that already provide a variety of solutions and have already incorporated some AI capabilities – in a previous incarnation, more likely to be machine learning rather than the newest large language models (LLMs) – are likely to benefit; both in terms of greater sales volumes and higher price points, leading to higher margins.

Moreover, we could see cost reductions and greater innovation if fewer software engineers are needed as generative AI disrupts the industry. Indeed, to date, the scarcity of programmers has been a big negative for many tech companies, and convertible bond (CB) issuers, that could not control R&D-related expenses to generate appropriate earnings and cashflow. However, some legacy software providers such as on-premise solutions, education and marketing/CRM, and contact centre solutions, that can be replaced by AI-driven automation, could be at risk.

²⁴ Original Isaac Newton quote, “I can calculate the motion of heavenly bodies but not the madness of people”.

Another area in convertibles that may deliver interesting investment opportunities is biopharmaceutical and medical technology/diagnostics companies, along with technology-enabled healthcare services. These roughly account for 12% of convertibles outstanding. Here, generative AI could hold the key to boosting productivity significantly, speeding up clinical research, reducing drug approval time, limiting unnecessary healthcare expenditure and improving clinical outcomes.

We expect a wave of AI issuers

Regardless of which companies turn out to be the winners and losers, we expect we will soon see a wave of AI-related convertible issuers hitting the market – possibly as soon as the second half of this year. Based on historical precedent and the market appetite for all things AI, we anticipate a flurry of fledgling AI firms looking to raise capital via CBs. If enthusiasm for AI remains elevated, these could come at less favourable terms for investors (and correspondingly, sweet deals for issuers).

We have seen many similar bursts of issuance over the years, for example SaaS²⁵, social media, eCommerce/online marketplaces, payments, diagnostics/genetics, digital health, renewables, crypto and EVs and batteries, to name a few. Such an AI-wave could help meet, and even surpass, our beginning-of-the-year expectations of US\$70-80 billion in new issuance in 2023, as we are currently annualising at about US\$79 billion as of the end of June 2023.

So where does all of this leave investors?

Currently, we are witnessing a high level of excitement and elevated valuations in the market, and the potential for increased volatility as the market digests the implications of generative AI.

While we expect a large wave of AI-related new issuance, we potentially face long lead times to achieve the highly-anticipated productivity boost of generative AI, while maturity windows for convertibles remain comparatively short.

Given this backdrop, we remain vigilant and maintain our selective approach; assessing the business prospects of potential investments in a clear-headed manner; mindful of the price we pay, the credit quality of bond issuers and the risk-reward in our capital allocation decisions.

Regardless of what happens with AI, outside of technology we see increasing sectoral diversification in new issues (with more utilities and new REITs and financials coming to market), and attractive valuations in Asia where credit spreads are wider and equities have given back some of their China post-COVID re-opening gains.

We think this is the way to generate attractive risk-adjusted returns when faced with the enticing prospects of generative AI, but also the many potential pitfalls that it could bring.



²⁵ Software as a Service.

Multi Asset



Maria Municchi
Fund Manager, Multi Asset

AI-related tech stock rally driving market sentiment

For once, equity markets have been unaffected by higher interest rate expectations...or so it seems. Investors' excitement around AI developments and the potential impact on productivity and growth in the years ahead helped steer equity prices higher in the second quarter. While AI-related stocks (Nvidia being the poster child) led the rally, a look at the broader equity market paints a different picture, with the S&P 500 ex Technology Index²⁶ roughly flat over the quarter.

As AI-related tech stocks now represent such a large part of the broad S&P 500 Index by market cap, and as passive investors automatically increase their exposure as share prices improve, these names are likely to remain a key determinant of US equity market trends. While valuations might not be a good guide to future returns in this space, a change in investment sentiment might drive these stocks lower for no apparent reason. In some of our portfolios that have more significant US tech exposure, we have now switched out of names that have rallied more aggressively and added to names that we believe still offer upside value.

US banking crisis in the rear-view mirror

Investors seem to have put the US banking crisis firmly behind them. With mixed economic data, inflation coming down at a stubbornly slow pace and central banks reiterating their willingness to rein in inflation, market expectations evolved over the second quarter from pricing in significant rate cuts in the US to a more central bank-aligned view of 'higher for longer' rates.

Figure 5: Implied US interest rates



Source: Bloomberg, June 2023.

²⁶ Source: UBS S&P 500 Ex-Tech basket tracking the performance of the S&P 500 ex Information Technology, Communication Services, TSLA and AMZN.



“ AI-related tech stocks [will] likely remain a key determinant of US equity market trends ”

This mainly affected yields at the short end of the US curve, while longer-term yields have continued to flirt with the 4% level. In this phase, yields in the gilt market have also continued to push higher on the back of high inflation, a resilient labour market and strong wage growth. The expectation is that the Bank of England (BoE) has more work to do than the US, and even Europe. However, as higher mortgage costs start to put a significant dent in UK household disposable income between now and the end of the year, the market could easily shift its focus to the need to cut rates, rather than hike. Overall, we have increased duration across many of our portfolios, with a preference for US and UK exposure.

Impact of tighter monetary policy

Time will tell when and how the lagged effects of tighter monetary policy will work their way through the economic system. Emerging market sovereigns may offer us a glimmer of hope, with many (having started their inflation fight early) now seeing inflation decelerating more convincingly than developed markets, driving attractive returns across a range of emerging market debt and currencies. South Africa has been an outlier: macroeconomic concerns on the back of extended power outages were exacerbated by the news of Russian ties, potentially impacting the country's relationship with the US.

While we have taken some profit across emerging markets over the quarter, the resultant increase in South Africa's risk premium provided us with an opportunity to add exposure to the country's government bond and/or currency across several of our portfolios, as the legitimate worries of the market were more than compensated by the observed price moves, in our view.

Elsewhere, Japan has provided exciting returns for investors that have been willing to stay the course. Earnings delivery has been strong but valuations at an index level are now significantly higher than they were at the start of the year, and potentially less attractive than major European equity indices. Although we continue to find Japanese equities attractive on a longer-term basis, we have scaled back on broader market positions in some of our portfolios, as we recognise that much of the alpha going ahead is likely to be derived via stock selection.

Potential for sentiment to pivot in data-driven environment

As we move through the second half of the year, most assets appear fairly priced, with some selected opportunities within equities and fixed income, as described above. We maintain a cautious stance overall as the current flow of mixed economic data continues to provide investors with fertile ground for an abrupt change in narrative and swing in market sentiment (and prices!).



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