A futuristic digital landscape with a central AI chip and glowing data lines. The chip is a dark square with the letters 'AI' in white. It is surrounded by a complex network of glowing blue and orange lines, suggesting a data network or circuitry. The background is a dark, textured surface with more glowing lines and a grid pattern.

Is generative AI overhyped?

Image source: iStock/Mesh cube

Ever since the launch of ChatGPT, the words “Generative AI” have taken over headlines, earnings releases, and everyday conversations. While the birth of AI can be traced back to the 50’s, it is the recent momentous advancements in this space that have opened the layman’s eyes to the potential AI has of transforming different aspects of life and industry.

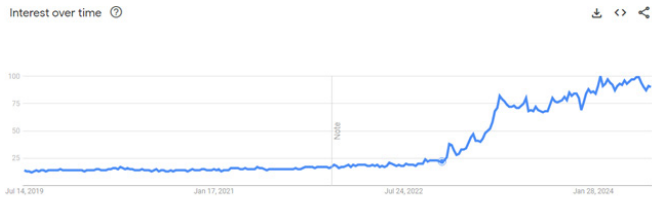
Charles-Henry Monchau

Chief Investment Officer

Media coverage and public interest

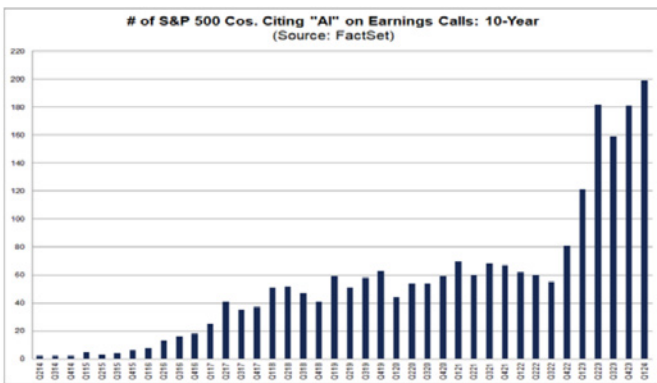
Given the access to information that the average person has today, it is no surprise that the media has played a pivotal role in creating this hype around AI. Many headlines and prominent figures in the tech and finance industries have been touting AI as the next big frontier in technology that promises to revolutionise everything from entertainment to healthcare. This narrative has been fuelled by the launch of consumer applications such as ChatGPT, and high-profile deals like the \$13 billion investment by Microsoft into OpenAI (creators of ChatGPT). More than anything, these events have sparked widespread curiosity, excitement, fear, and speculation about its future applications.

Figure 1: Worldwide Google Search for the term AI



Investment Trends

The hype surrounding Generative AI (Gen AI) may perhaps be most evident in the investment landscape, where VC's and tech giants have been pouring billions of dollars into AI research and development, with hopes on capitalising on what many perceive as a groundbreaking technology. A trend also appears to have emerged ever since the launch of ChatGPT, in which companies reference "AI" repeatedly during earnings conference calls. This has sparked speculation over how many actually plan to leverage AI, and how many are just trying to board the AI hype-train. Research from FactSet shows out of the S&P500 companies, 199 of them cited the term "AI" during their earnings calls, from March 15 – May 23. This figure is well above the 5-year average of 80 and the 10-year average of 50, with the term being mentioned at least 50 times on the earnings calls of 12 different S&P500 companies. Furthermore, a Goldman Sachs report shows global AI capital expenditure is projected to exceed \$1 trillion in the coming years, which includes significant investments in data centres, chips, and the power grid, highlighting the immense financial commitment toward this technology. Despite the large investments, experts hold varied opinions on AI's future economic benefits. While some are sceptical about immediate returns on this investment, others remain optimistic about its long-term potential to boost productivity and economic growth, as seen with past technological breakthroughs like the internet and mobile technology.



Source: FactSet

Concerns of AI Overhype

Close lender-borrower relationships

Sceptics of this current wave of AI investments point to several economic, technical, and market-based concerns that suggest the technology might indeed be overhyped. The first of these being economic concerns revolving around the limited short-term benefits of investments into AI. While the picture seems clearer in the long-term, immediate returns have been underwhelming for many companies and it is still unclear exactly how a lot of companies plan on monetising their tools. This is in part because the integration of AI into business processes is often more complicated, time-consuming, and capital intensive than initially anticipated. While most experts are open to the possibility of AI tools revolutionising scientific processes, many place those revolutions 20-30 years down the road, with humans still in the driver's seat. One factor that is cause for worry is the fact that any company seriously investing into AI infrastructure, such as data centres and chips, will face significant upfront costs, with a delayed realisation of benefits.

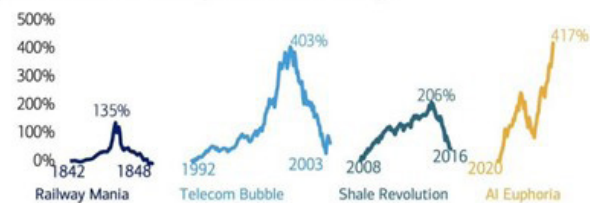
Furthermore, one of the most pressing concerns is the impact AI could have on employment. AI driven automation is set to replace a wide variety of jobs, particularly dangerous jobs, and those involving routine, repetitive tasks. One company that seems to be making swift progress in this area is Tesla, with its Optimus Robot. A bi-pedal humanoid robot, designed for dangerous or tedious tasks, which Elon Musk believes could be performing tasks in their factory by the end of this year. Given Musk's "pathological optimism", the actual rollout and scale production of these robots is likely still some years away but there is no doubt that they are on their way. Evidently, AI will also create new job categories and opportunities, although these will likely involve highly specialised jobs, and even then, the transition period is likely to be disruptive. A study carried out by McKinsey reported that by as early as 2030, at least a 14% of employees globally might need to change their careers due to digitalisation, robotics, and AI advancements. These forecasts echo the anxieties of past technological disruptions, such as the industrial revolution and the rise of the internet, which, although undeniably beneficial, caused significant short-term economic upheaval and displacement.

Another cause for concern is the rapid proliferation of AI startups. Current forecasts place the CAGR for the AI market at close to 40% for the next 6 years. The AI landscape is becoming increasingly more crowded with a large number of startups, many of which are unproven and operate with business models that have yet to demonstrate profitability. Research shows a 25% of all investment into US startups going towards AI in 2023 (source: Crunchbase). This saturation makes it difficult to discern which companies offer truly valuable and innovative solutions versus those that are riding the wave of AI hype. The abundance of AI ventures increases the risk of investment into unviable businesses, reminiscent of the dot-com bubble where many internet companies with unsustainable business models ultimately failed. The media and marketing hype further exacerbate the issue of market saturation. There is often a significant gap between the perceived capabilities of AI, as portrayed by enthusiastic media reports and marketing campaigns, and the actual progress and limitations of the technology. This discrepancy often leads to unrealistic expectations among investors and the public, potentially resulting in disillusionment when AI systems fail to meet these lofty promises. Such a situation can erode trust in AI technologies and hinder their adoption, even if they hold genuine potential.

It is also hard for people not to draw comparisons to the tech bubble of the late 1990's and early 2000's. This recent and not too dissimilar example of a tech bubble is certainly a driving force behind the scepticism of many. During the tech bubble, massive investments were funnelled into internet startups with the expectation of rapid and transformative returns. As many of these companies failed to deliver, the bubble eventually burst, leading to approx. \$5 trillion in loss and economic disruption. Figures place the number of dot-com companies that survived to see 2004 at just 48%. Sceptics have good reason to worry that AI might follow a similar trajectory if the exceedingly high expectations are not met, potentially leading to an economic downturn if a significant portion of AI ventures fail to achieve profitability.

Exhibit 1: New tech, big investments, booming productivity...and bursting stock bubbles

First movers are often not the big winners from new technology



Source: BofA Research Investment Committee, Global Financial Data, Bloomberg, Odyzko (2010). Note: Railways = UK top 100 transports and British Railway Share Prices, Telecom = Nasdaq Shale Revolution = AMZ Index, AI = Mag 7

Source: BofA Global Research

Generative AI also faces its fair share of criticisms and limitations and understanding these challenges is crucial to developing a balanced perspective on the technology's potential and the prudence required to make these significant investments. Despite its advancements, Gen AI faces several technological hurdles that impede its reliability and effectiveness, such as data quality and availability. These models require vast amounts of high-quality data to function effectively but sourcing this data can be challenging, particularly in fields where data privacy and security are crucial. Additionally, poor quality or biased data can lead to inaccurate outputs, such as Google's Gemini model creating images of racially diverse Nazis or the Founding Father's.

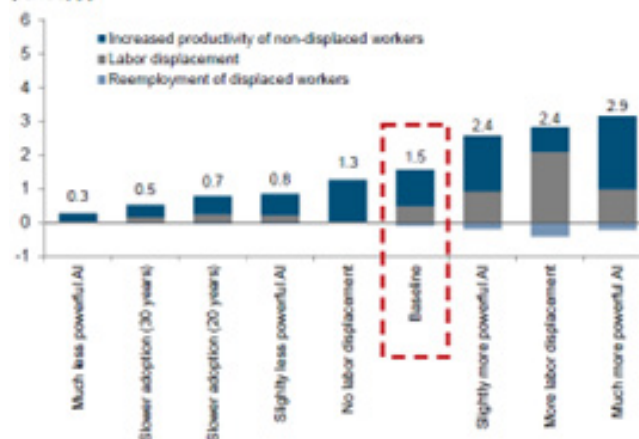
Furthermore, training these ever more advanced AI models demands significant computational resources, which are costly and also require massive energy consumption, which raises questions about the sustainability of continued AI development. Current estimates show ChatGPT consumes up to 25 times more energy than a Google search would. This energy hungry technology is predicted to consume twice as much energy as the whole of France by just 2030. There are also several ethical concerns regarding the deployment of Gen AI, with privacy being at the forefront of these. Generative AI systems often require access to vast amounts of personal data and with that, comes the risk of misuse or unauthorised access to sensitive information, which can lead to breaches of privacy and trust. Additionally, AI systems can be opaque, making it difficult to understand how they arrive at specific decisions. This lack of transparency, often referred to as the "black box" problem, complicates efforts to hold AI accountable for its actions. Ensuring that AI systems are explainable, and their decision-making processes are transparent is a significant challenge.

Benefits of Generative AI and reasons for optimism

It is always important to avoid confirmation biases and analyse situations through a contrarian lens. However, it is also important not to get caught up in the scepticism and doomsday mentality, as there are just as many voices with an optimistic perspective on the current wave of AI, arguing that it is indeed not overhyped.

A significant boost to US labor productivity from generative AI

Effect of AI adoption on annual US labor productivity growth, 10y adoption period, pp



Source: Goldman Sachs GIR

First and foremost, one of the most compelling arguments for the optimistic view on AI comes from its potential for long-term productivity and economic growth. Gen AI has the capacity to revolutionise industries by automating complex tasks, optimising operations, and significantly increasing efficiency. This transformative potential is expected to yield substantial productivity gains, leading to economic growth. For instance, Goldman Sachs analyst expect a full automation of 25% of all work tasks following the technology's adoption, with their baseline estimate implying as much as 15% cumulative gross upside to US labour productivity and GDP growth.

Additionally, AI is expected to release humans from mundane and repetitive tasks, which will in turn free up time to focus on more complex and creative endeavours. A great example is the use of AI-powered chatbots to handle customer service inquiries. Furthermore, and to the surprise of many, AI is not limited to analytical tasks. Gen AI tools can assist in creating art, music, literature, offering new ways for creators to express themselves. One such application, that is already very much available, is to use AI to generate novel ideas and provide suggestions, making the model a "collaborator" of some sort. The productivity gains also stretch into innovation in product development, in which companies are using Gen AI to analyse consumer preferences, market trends, and competitive products to generate ideas for new products and features.

As impressive as some of the language models, like ChatGPT and the image generating models, like Midjourney, are, these technologies are still very much in their infancy and expected by some experts to improve at an exponential rate. The billions being invested into AI research and development are also sure to accelerate the rate of improvement, allowing AI to tackle increasingly complex tasks, as it also augments human creativity.

For further information

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