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Market Commentary

A.I. Beyond the “Magnificent Seven” ...

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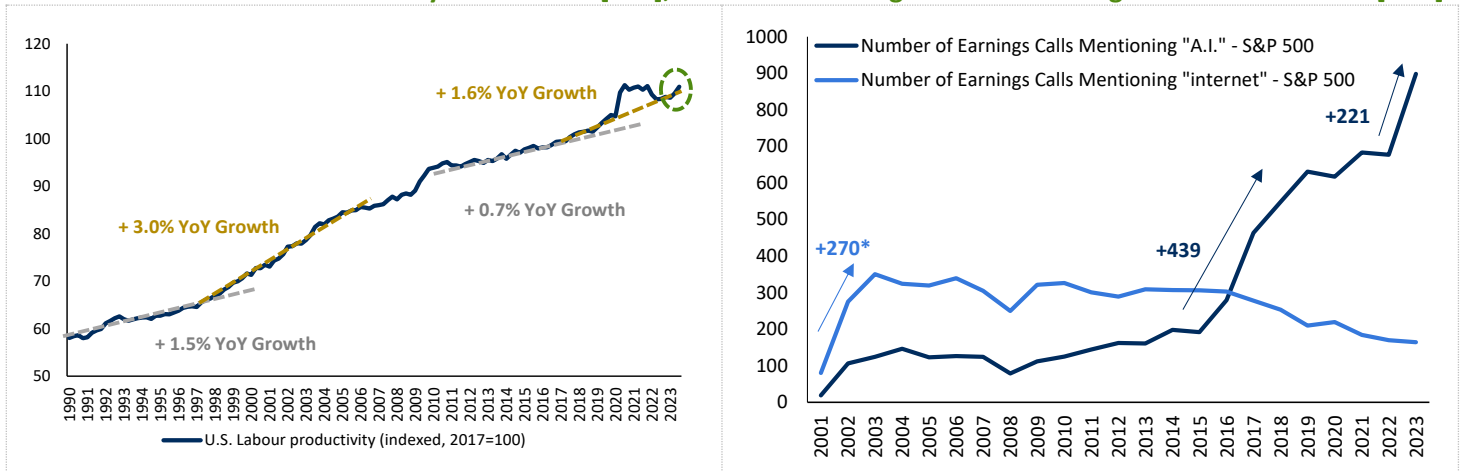
A.I. Beyond the “Magnificent Seven” ...

Finding a market commentary in 2023 that didn't mention the “Magnificent Seven” was quite a challenge. Artificial Intelligence (A.I.) was a significant catalyst driving the remarkable outperformance of these stocks last year. After such an impressive reaction, we must question if the exuberance is overdone in the short term, or if we see this as just the beginning of an A.I. wave, comparable to the Internet boom in the late 1990s, with an impact that could be profound and far-reaching, extending across sectors over decades. We believe the latter is more likely and anticipate numerous investment opportunities emerging across various sectors as A.I. enhances productivity and profitability, extending beyond the Magnificent Seven in the coming years. We find ourselves in an exciting era, over 70 years after Alan Turing published "Computer Machinery and Intelligence", as A.I. has more recently gained broader attention and adoption by companies outside the information technology sector, and we expect this to only accelerate.

A noteworthy parallel can be drawn when comparing A.I. to the Internet in terms of positive impact on productivity. Reflecting on the Internet's history, it was officially invented in 1983, with the adoption of Transfer Control Protocol/Internet Protocol (TCP/IP) enabling computer networks to speak to each other in a common language. However, it took over a decade to attract attention and heavy investment in new information and communication technologies. This eventually resulted in rapid productivity growth starting around 1996. As an example, as a global leader in technology innovation, U.S. productivity growth from 1996 to 2005 was substantial, with average year-over-year growth of 3.0%, even with the tech bubble bursting. Interestingly, total growth of 34% during this 10-year period matches the growth of the greater than 20-year period prior (1976 to 1995)!

A.I. became a buzz phrase in the early 2000s, as computers challenged grandmasters in games such as chess and Go. By 2017 we saw a similar growth spurt in productivity as more public companies mentioned A.I. in their quarterly conference calls. We acknowledge that not all the acceleration in productivity can be solely attributed to technological improvement and associated capital investment, as contributions can stem from the enhancement of skills training or educational attainment as well. However, in this scenario, technology undoubtedly plays a primary role. It might be too early to definitively state there is a further boost in productivity from A.I., but the recent uptick does appear encouraging.

Will A.I. Be the Internet Productivity Miracle 2.0? [LHS]; Number of Earnings Calls Mentioning “A.I.” and “Internet”[RHS]



Source: Bloomberg; Raymond James Ltd.; Data as of December 31, 2023. *The number could be understated as not all earnings call transcripts were documented in early 2000s.

Similar to the early 2000s when the Internet garnered significant attention, A.I. is currently receiving considerable market focus. Among S&P 500 companies, the number of earnings calls mentioning "Internet" increased from 80 to 350 from 2002 to 2003, although these figures might understate the actual count, considering that not all earnings call transcripts were documented more than 20 years ago. In the case of A.I., it saw a substantial rise, increasing by 439 from 2016 to 2019, and a second significant wave of growth, with an impressive one-year increase of 221 taking place in 2023. The strong trend indicates a growing number of companies, beyond the information technology sector, recognizing the potential of A.I. for improving business or even transforming entire industries, particularly using generative A.I.

Generative A.I.: The New Frontier

On November 30, 2022, the world changed. OpenAI revealed ChatGPT to the general public and news anchors across the globe ominously likened it to the creation of Skynet from the Terminator movie franchise and (jokingly) speculated that the future of the human race was at risk. (Fun fact: the fictional Skynet went online at 5:18 pm Eastern Time on July 25, 2004, but it wasn't until August 29 that Skynet became self-aware and rose up against humans.)

Generative A.I. platforms, like ChatGPT and Google's Bard, operate based on Large Language Models (LLMs). This is a form of deep learning algorithm used to recognize, summarize, translate, predict, and generate images, text, and other audio-visual content. They recognize patterns in large datasets and use these to create content for a user. Interestingly, A.I. systems can suffer from "hallucinations", feeding back nonsensical or inaccurate information¹. However, as the A.I. models become more well-trained and accurate, generative A.I. may unleash the next wave of productivity and is poised to transform roles and boost performance across functions².

In a broader perspective, the hope of various types of A.I. is that they could better assist in sales and marketing, customer operations, software development, medical diagnoses, and more. We also see industrial and production efficiency opportunities, and of course autonomous vehicles would likely depend highly on A.I.

How to Invest in A.I.: Opportunities Beyond the M7

The first thing that might come to mind when thinking about how to invest in A.I. is likely Magnificent 7 member NVIDIA (NVDA-US). From the 1990's NVIDIA was generally known for making graphics chips, but in 2012 started building systems for A.I. applications, and entered the general consciousness after

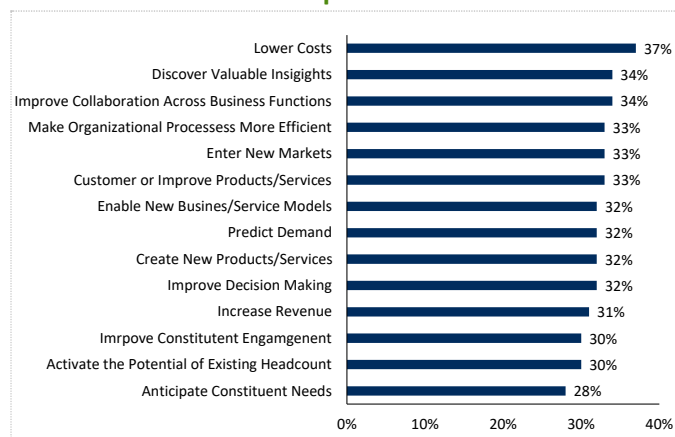
the launch of ChatGPT as the company that makes the hardware that large data centres and high-speed processing relies on.

Like the sellers of tools, equipment, and food to the miners in the gold rush in the mid-1800's, equipment manufacturers have the potential to gain significantly from the A.I. infrastructure build-up, regardless of the end use of the technology. Additionally, beyond the benefits to the gold rush's mining equipment businesses, the influx of gold also led to the rapid expansion of manufacturing and service industries in California. Numerous entrepreneurial newcomers, some of whom are now well-known brands, capitalized on the surging demand for retail services, transportation, and agriculture.

In today's A.I. landscape, we observe similar second-order effects. According to a Deloitte survey³, global business leaders across various sectors recognize the widespread value of A.I. and plan to find the best way to leverage it, seeing it as essential to driving outcomes, from cost reduction to entering new markets. The primary outcomes of A.I. implementation benefit companies across the board, ultimately contributing to increased profitability.

In a recent PwC survey⁴ of over 4,700 CEOs worldwide, nearly three-quarters indicated that A.I. will "significantly change the way their company creates, delivers and captures value in the next three years".

Main Outcomes of A.I. implementation



Source: Deloitte Survey, 2022, State of A.I. in the Enterprise. N=2620 respondents

As we are still in the initial phase of A.I. technology diffusion, quantifying its impact across different sectors remains somewhat challenging. However, insights into companies' awareness of A.I. can be gleaned from looking again at references to earnings calls mentioning A.I. Looking at the S&P 500 as a whole, half of the companies mentioned A.I. in at least

¹ IBM (2024), What are AI hallucinations, IBM, <https://www.ibm.com/topics/ai-hallucinations>

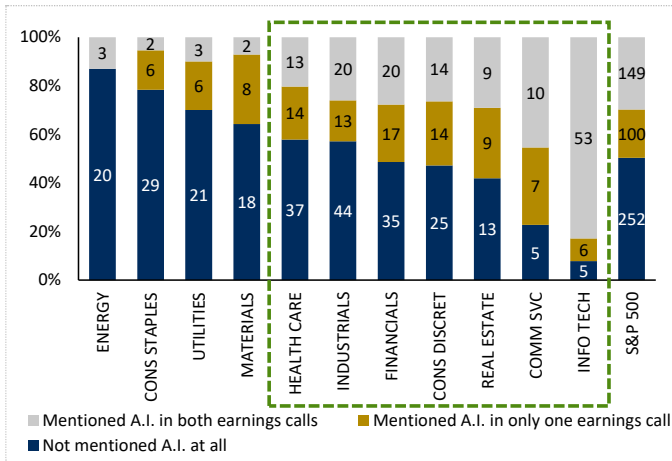
² McKinsey Digital (2023), The economic potential of generative AI: The next productivity frontier, McKinsey & Company, <https://www.mckinsey.com/capabilities/mckinsey-digital/our-insights/the-economic-potential-of-generative-ai-the-next-productivity-frontier#business-and-society>

³ Deloitte (2022), State of AI in the Enterprise 2022, Deloitte, <https://www2.deloitte.com/us/en/pages/consulting/articles/state-of-ai-2022.html>

⁴ PwC (2024), Thriving in an age of continuous reinvention, PwC, <https://www.pwc.com/gx/en/issues/c-suite-insights/ceo-survey.html>

one of their 2Q23 and 3Q23 earnings calls. At the sector level, while it's expected that the majority of info tech companies discussed A.I. in both calls, it's exciting to observe that over 40% of the companies within the following six sectors express awareness around A.I.: communication services, real estate, consumer discretionary, financials, industrials, and health care. Going over the transcripts, some of them have even begun adopting it. The most discussed topics around A.I. in these earnings calls are automation, revenue, generative A.I., new products, and cloud computing.

Number of Earnings Calls Mentioning A.I. - S&P 500



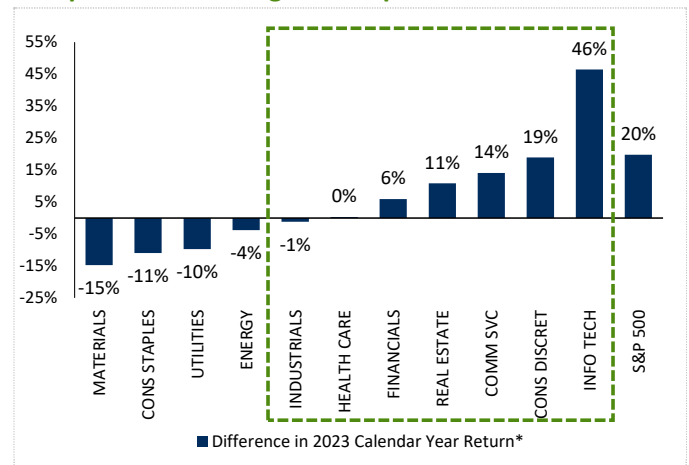
Source: FactSet; Raymond James Ltd.; Data as of December 31, 2023. Two earnings calls: 2Q23, 3Q23. Key words considered as A.I. mentions: "A.I.", "Artificial Intelligence" and "Machine Learning".

As A.I. technology advances, its applications across diverse sectors are evolving. Communication services companies use generative A.I. to help companies create ads, specifically by generating assets that customers can directly place into their advertisements. Real estate companies are integrating generative A.I. to assess real estate properties for feasibility, such as pricing, terms of lease and conditions. Many real estate companies have stated that A.I. will help drive capital allocation decisions and assess risks ahead of the curve. Consumer discretionary companies use generative A.I. to provide product recommendations, analyze customer shopping trends and to determine the fastest and cheapest fulfillment for shipping. With A.I. technologies, Financials companies can better detect fraud, deliver more personalized

recommendations, and automate tasks in both middle- and back-office. Additionally, the robust problem-solving ability of A.I. can provide significant benefits to the Industrials sector for tasks such as scheduling and product system design. Not to mention its potential in medical diagnoses and the biotech field as it becomes more sophisticated.

We expect that these sectors will experience the most significant growth potential through the second-order effects of A.I. Interestingly, within these sectors, companies that embrace A.I. strongly outperformed or at least delivered similar returns to those that didn't in 2023. In contrast, we haven't yet observed a noticeable positive impact made by A.I. in the energy, utilities, consumer staples, and materials sectors.

Companies Embracing A.I. Outperformed in 2023



Source: FactSet; Raymond James Ltd.; Data as of December 31, 2023. *The average return of companies mentioned A.I. in both earnings calls minus those that did not mention A.I. at all.

Just as it took about a decade for the Internet to have a widespread impact on various aspects of our lives, the current phase of A.I. expansion is just the beginning. We anticipate that the performance differences attributed to A.I. will become increasingly significant over time as it rapidly develops. The sectors we have discussed here may serve as a great starting point to explore opportunities beyond the "Magnificent Seven" and the information technology sector.

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