

Quantifying the Impact of AI on Emerging Markets

Our specialist investment partner Northcape Capital, shares their thoughts on how artificial intelligence (AI) may impact the emerging markets (EM) equity asset class. The team provides their perspective on what AI is and considers the revenue potential of the technology before examining the most impacted stocks and sectors currently in the portfolio.

This information has been prepared by Northcape Capital, the underlying investment manager for the Warakirri Global Emerging Markets Fund.

Focus on AI – EM Implications

The following is our deliberately selective and initial thoughts on how artificial intelligence (AI) may impact the strategy. In doing so, we first briefly outline what AI is, then look at the revenue potential of this technology, before we finish with our views on the most impacted stocks and sectors currently in the portfolio.

We preface our findings with the statement that **it is extremely early days in terms of quantifying the impact of AI on EM**, and clearly at this stage there is a fair amount of confusion and speculation, driven in part by media hype (on the upside potential) and hysteria (on the downside risks). But nonetheless, there seem to be some real practical benefits which are fast gaining traction and being recognised by capital markets.

What is AI?

Put simply, artificial intelligence is the simulation of human intelligence processes by machines, especially computer systems.

At a personal level, Apple's Siri, Google Now, Amazon's Alexa, and Microsoft's Cortana are some of the main examples of AI being used in everyday life over the past decade. These digital assistants help users perform various tasks, from checking their schedules and searching for something on the web, to sending commands to another application. More recent adaptations have come through AI chatbots, such as *ChatGPT*, the new *Bing Chat*, and Google's *Bard*. These applications deliver tasks at a higher level, which include composing essays and letters, researching topics with a summary composition, all by attaining data. Chatbots can create basic lists for jobs, for example, items to consider in a bathroom renovation, or packing and moving house, grocery shopping and everyday to-do lists to make life at work, home or on holiday more productive and less stressful.

Over time AI has become much more sophisticated and is increasingly being applied as a tool to enhance business and government sector productivity. Today this is mainly around automating manual clerical tasks, responding to

emails, analysis of data for research, enhancing customer service and managing cyber security risks.

There is also an emerging view that **AI will have a greater impact on potentially making the cognitive working class redundant in some areas.**

In the past, the professional services working population has largely been unimpacted by new technologies. This cohort has benefited from the diffusion of the mobile phone, the internet, robotics. Conversely, it's the largely manual, repetitive tasks that have been displaced by big new technological breakthroughs historically. A good example are telephone exchanges, which 70 years ago employed millions of people around the world manually connecting telephone calls. All these jobs were lost by the 1980s by the rapid adoption of Public Automated Branch Exchange technologies (PABXs) housed in telecoms exchanges.

But today think about a gardener/landscaper - it seems this job will largely be unimpacted by AI, whereas some 'white collar' roles could be threatened. The so-called cognitive working population in many areas could be partially or totally usurped by AI technologies that can process information faster and importantly more accurately. **Bluntly, it's set to have a much bigger impact on white collar employment than blue collar.**

There are increasing concerns that AI could dangerously evolve at the extreme into an application that threatens the whole existence of the human race if it is abused in military applications and triggers a global nuclear holocaust! To some extent this is sensationalist in our view. However, we **do expect to see regulation around AI enabling technology**, especially the semi-conductor chips to constrain this risk.

The most advanced AI technologies, such as computer vision and generative language models, rely on very powerful AI chips. As such, the US is prohibiting exports to China of either advanced AI chips or the tools to manufacture them as part of a policy to limit China's long-term military capability. This policy may also negatively impact the long-term productivity and economic growth potential of China.

For now, **we are adopting the view that AI is here to stay**, notwithstanding the risks, which will be managed and regulated, and it will likely become a reasonably widespread technology application.

The question one might ask is to what extent will AI be a revolutionary technology? Will it be as revolutionary as the printing press, electricity, automobiles, mobile phones and the internet?

Potentially yes.

What is the revenue potential of AI?

From our perspective it is hard to build forecasts for growth in AI related semiconductor chips, infrastructure (hardware and software) and applications, especially when most of the latter have yet to be created. There has been a range of forecasts released over the past year, and all are very bullish. We would warn that it is still very early in the technology’s development and commercial application, so actual outcomes could vary widely from current projections. **Nonetheless the pace of growth off a low base is starting to increase rapidly in 2023.**

This is best illustrated by the quarterly revenue data of Nvidia (*see Exhibit 1*), which shows YoY growth, negative in 2022, bursting to an expected 103% YoY growth rate in the July quarter 2023 – all due to the AI boom. Nvidia, according to the company’s website, is set to benefit heavily from the wider adoption of AI systems, as it positions itself as a complete solution from staff training to mass deployment of AI capabilities for an organisation.

Looking at the total AI system, GlobalData’s latest report forecasts the sector’s revenue for specialist AI applications to grow at a CAGR of 20% from \$40bn in 2022 to reach \$140bn in 2030.

The explosion in the volume of sensor data, coupled with the increased sophistication of advanced deep learning models, the emergence of generative AI, and the availability of chips created specifically for AI processes, will all drive growth in AI over the coming years, noted GlobalData.

“Despite the hype, artificial general intelligence (AGI), or the ability of machines to do anything that a human can do and possess consciousness, is still decades away. However, good enough AI is already here, capable of interacting with humans, motion, and making decisions,” said Joseph Bori, Research Director – GlobalData Thematic Intelligence.

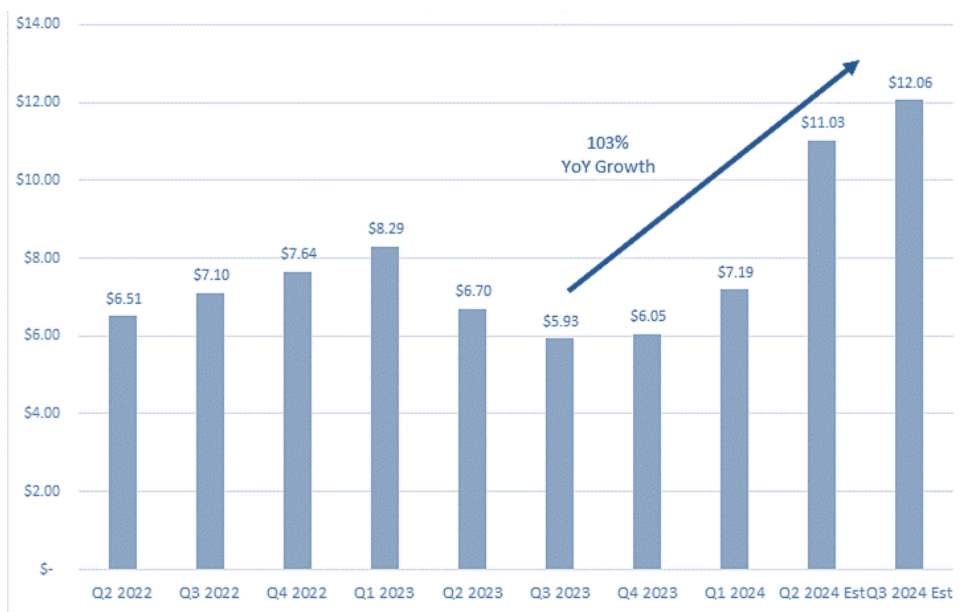
How does AI impact the Warakirri Global Emerging Markets Fund’s portfolio?

Again, we would stress that it is very early days in trying to size up and value this opportunity for the EM equity asset class and our portfolio of companies.

That said, to attempt this exercise, we have broken the project into tiers of beneficiaries that we presently identify.

Top of the list are the direct suppliers to AI platforms (semiconductor manufacturers). This is followed by IT services companies, and then telecoms (connectivity and data centres). Finally, leading indirect beneficiaries which we assess to be banks and financial companies.

Exhibit 1: Nvidia Quarterly Revenue US\$bn (31 Jan FY end)



Source: Bloomberg

Semiconductors – TSMC (Taiwan), Samsung Electronics and SK Hynix (South Korea)

A key exposure the strategy has to the developing trend of AI is through some of the leading global semiconductor manufacturing companies, namely **TSMC** (Taiwan), **Samsung Electronics** and **SK Hynix** (Korea).

TSMC is the sole producer of the most advanced semiconductor processor chips and continues to be the industry leader in the development of increasingly powerful and energy efficient chips. The very high processing requirements of AI makes TSMC’s most advanced chips a necessity for AI applications. TSMC is therefore the sole supplier to companies such as Nvidia, AMD and Amazon for their AI server chips.

The impact on TSMC will be material. Server AI chips currently account for 6% of TSMC’s total revenue, but TSMC management expects this segment to grow at almost 50% CAGR over the next several years. **AI will therefore be one of the main engines of growth over the next five years for TSMC.**

SK Hynix and Samsung are two of the three major global memory chip producers (the other being Micron in the US). In particular, Samsung and SK Hynix produce DRAM memory chips which are a critical component in any computing device. The high processing requirements of AI means that each AI capable server will require up to 8 times as much DRAM memory as a standard computer server.

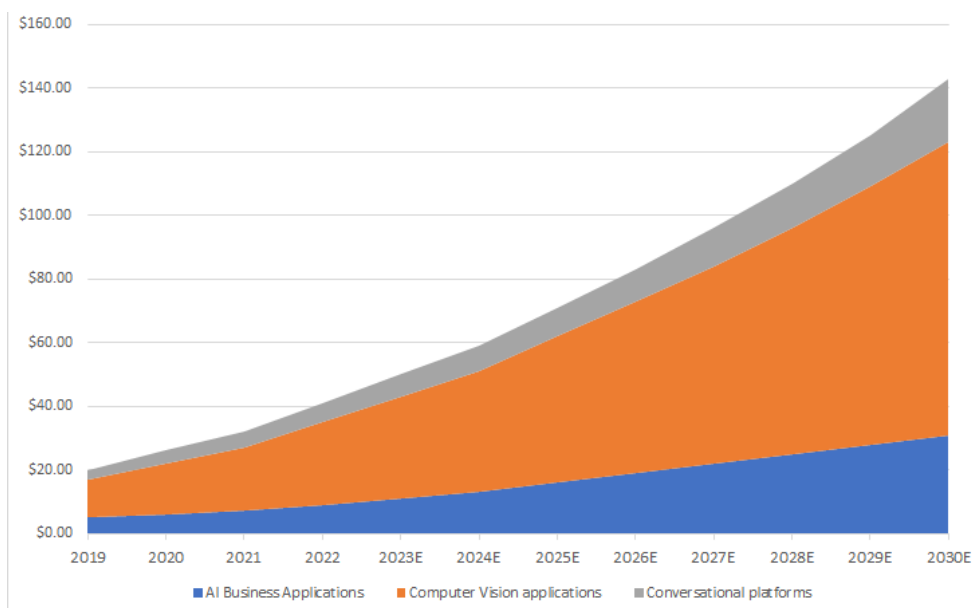
Samsung and SK Hynix are therefore expecting to see an acceleration in demand for the highest specification DRAM chips. Both companies have stated that they expect demand growth for AI applications for DRAM memory at 30% pa over the next 5 years. And this is off a reasonably high base, for example for SK Hynix, **AI is currently at 20% of total revenues in 2023.**

IT services – TCS (India)

AI represents a significant growth opportunity for Tata Consultancy Services (TCS), the leading Indian IT services company. As we have observed with the emergence of new technologies in the past, corporations often lack the internal expertise to implement them into their organisations and rely on expert vendors like TCS for assistance. With its substantial scale of 615,000 highly skilled employees and strong customer relationships, TCS is well-positioned to be the preferred partner for companies exploring the potential of AI. We also believe that establishing a foothold with customers in the AI domain will enhance TCS’s client retention, similar to what we have seen in cloud spending.

Corporate capital expenditure cycles on new technologies can be extended and significant, as seen with the adoption of cloud technology that started around 2006. Remarkably, TCS reports that cloud remains its largest and fastest-growing area of client activity. According to Gartner, only about 40% of corporate workloads that can be moved to the cloud have been migrated.

Exhibit 2: Specialist AI Applications Global Market US\$bn 2019 to 2030E



Source: GlobalData Thematic Intelligence

TCS has currently trained 50,000 associates in AI and machine learning, with plans to train an additional 100,000. Notably, in the last quarter, TCS successfully secured 50 generative AI pilots with its clients, while experiencing an increase in demand for data analytics and cybersecurity services related to AI.

Telecoms – America Movil (Mexico), Bharti Airtel (India), and PT Telkom (Indonesia)

AI allows manipulation of large data sets such as market characteristics and user behaviour, along with advanced functionality including understanding language content, which opens an array of commercial applications for business. **Telecommunications activity with its advanced wireless and online applications is a notable technology beneficiary**, facilitating a significant volume of data transactions, and regularly interfacing with customer transactions and enquiries.

Telecommunication companies are among the major operators of data centres, essential for the execution of data storage and processing and meeting the forecast exponential demand growth. AI facilitates increased labour automation, reducing repetitive manual work, providing a meaningful boost to company productivity and profitability. Personalised product development and enhanced customer service represent additional opportunities. The promotion of targeted marketing for customer acquisition, and client service offer improved client retention through better customer experience.

In addition to financial benefits, potential risks need addressing. Efficiencies may be diluted by competitive pressure, and capital expenditure in data centres and network infrastructure, to process rising data transactions is expected to be significant. **Cybersecurity represents a key risk for management, as AI has implications concerning threats to identity and data security.** In a similar vein, data privacy is a rising regulatory compliance cost, with potential financial risk should privacy laws be breached.

Banks and Financial Services – HDFC Bank (India), Bank Central Asia (Indonesia), Banorte (Mexico), Itaú Unibanco and MercadoLibre (Latam)

In the banking and financial sector, AI offers two near term opportunities for improved efficiency and profitability. The first is credit risk: the ability of AI models to find patterns and trends in large data sets has an obvious application in finding vulnerabilities in loan books, helping banks to lower bad debt risk. In addition to boosting banking sector profitability, the resulting greater efficiency in capital allocation across the economy should also boost overall GDP growth. Secondly, improvements in AI personal assistants and automated voice technology will allow banks to replace costly call centres with computerised helplines, further boosting profits.

Two obvious beneficiaries are HDFC and Bank Central Asia, the leading privately-run banks in their respective home markets of India and Indonesia, and **both are top ten positions in the Warakirri Global Emerging Markets Fund.**

For more information, please contact us on 1300 927 254 or visit warakirri.com.au

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