

# focus



## DeepSeek: A Threat to AI Optimism?

How many people had heard of DeepSeek a month or so ago? We hadn't. But in the past few days this Chinese artificial intelligence (AI) company has grabbed global headlines and shaken the share prices of some of the world's largest companies. While investing in new and exciting industries like AI can deliver outstanding returns, the sudden emergence of DeepSeek serves as a reminder that unpredictability and volatility are also part of the ride.

## ...The AI wave has been a major driver of markets over the past two years...



### The AI gold rush

In November 2022 OpenAI (whose largest shareholder is Microsoft) launched ChatGPT, the first publicly released large language model (LLM). Its ability to generate human-like text, assist with coding, and generate creative stories sparked huge public interest. Within five days ChatGPT surpassed one million users making it one of the fastest-adopted applications in history.

ChatGPT sparked an AI gold rush. Building LLMs is complex and expensive. They are trained on vast amounts of data which requires immense computing power and energy. Large technology companies have spent tens of billions of dollars developing more powerful and efficient models. In addition to ChatGPT other leading LLMs include Google's Gemini, Meta's Llama, and Claude from Anthropic (whose largest shareholders are Amazon and Alphabet, Google's parent company). This huge investment has led to rapid improvements in LLMs' reasoning, factual accuracy, and multimodal capability (the use of text, images, audio, and video).

The AI wave has been a major driver of markets over the past two years. Nvidia, the dominant supplier of graphics processing units (GPUs) used to train and run LLMs, has become one of the most valuable companies in the world. Global tech leaders such as Microsoft, Google,

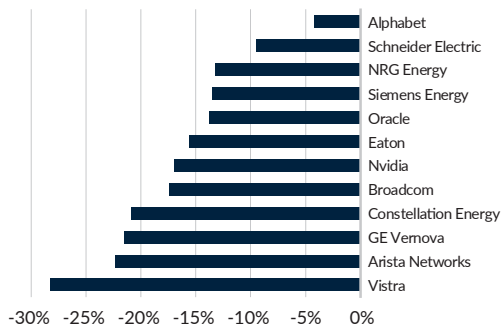
and Amazon are investing in LLMs while also providing AI computing capacity in their data centres. Network and infrastructure companies have benefited from increased traffic from data centres, while energy companies and electrical equipment manufacturers have gained from the growth in electricity demand.

### The emergence of a competitive threat?

Until now AI has largely been dominated by US tech giants. But now a potential Chinese competitor has emerged. DeepSeek, founded in May 2023, has developed an AI model that rivals leading US models – but reportedly at a fraction of the cost. While some are questioning the exact cost estimates, DeepSeek's model is notable for its efficiency despite being built using older technology (due to US export restrictions on the latest technology chips to China). DeepSeek has made its LLM freely available (open source) and published a research report outlining how it achieved some of its efficiency gains.

The release of DeepSeek's model sent a shock across the AI industry. Nvidia dominated the headlines. Its share price dropped -17%, wiping out US\$589 billion in market value – the largest single-day loss in history by an individual company – before rebounding 9% the next day. The share prices of companies that build power systems or provide energy to data centres also got smacked.

## SHARE PRICE FALLS ON 27 JANUARY



Source: Refinitiv, Forsyth Barr analysis

Whether DeepSeek has significant long-term implications for the AI industry we will only know in time, however, the jolt it provided to markets is a healthy reminder of the inherent risks and uncertainties when investing in new technologies.

### 1. Technology landscapes can change rapidly

When billions of dollars are being thrown at a new technology or industry, the landscape – and investors' views and expectations – can change rapidly (both positively and negatively).

Until now most believed it required huge sums of money, computing power, and electricity to power data centres to build an LLM. Under these assumptions the winners from AI looked to be those in the semiconductor supply chain, tech companies with vast financial resources to build data centres and develop models, and utility and power technology companies providing the power and infrastructure. Investors are now questioning these assumptions. How will the AI industry evolve? Will progress mean continuing to throw hundreds of billions of dollars at buying computer chips, building data centres, and developing power infrastructure? Or could we see dramatic efficiency gains and low-cost models?

### 2. Higher valuations mean higher risk

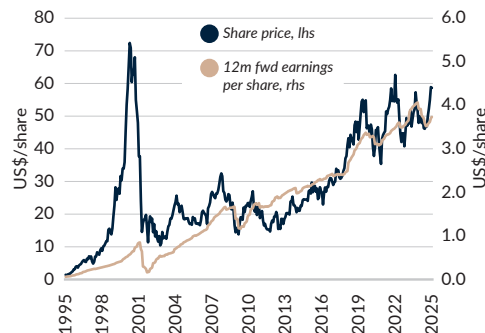
When a new exciting technology emerges the market typically bids up the stock prices of the expected beneficiaries. Essentially investors are willing to pay more for those companies today in anticipation of strong profit growth in the future.

The more a company's stock price reflects optimism around future earnings (rather than actual earnings today), the more that company needs to deliver to justify its valuation. Any dampening of optimism around the future or failure by the company to meet heightened expectations can lead to significant share price corrections.

An extreme case is Cisco Systems. During the 1990s Cisco was a leading supplier of networking equipment that powered the internet boom – its profits soared. The market viewed Cisco as a picks-and-shovels provider of the internet meaning that as long as the internet kept growing, Cisco's earnings would too. In March 2000, at the peak of the dot-com bubble, Cisco became the most valuable company in the world.

The market's expectation that Cisco would benefit from the long-term growth in the internet proved correct. Its profits today are six times what they were in 2000. Unfortunately, its share price had factored in an even more optimistic outcome. Cisco's share price has never recovered to its 2000 peak.

### CISCO: FAILED TO LIVE UP TO ITS 2000 SHARE PRICE



Source: Refinitiv, Forsyth Barr analysis

### 3. It's not clear who the winners in a new industry will be

Even when it's clear an industry is going to change the world it's hard early on to identify who the winners will be.

The internet was undoubtedly revolutionary. Today the companies that dominate the internet are among the largest in the world, the likes of Alphabet (owner of Google and YouTube), Meta (formally Facebook), and Amazon. But in the early days of the internet, it wasn't clear these companies would win. At the peak of the initial internet boom in 2000 the largest internet companies by market cap were AOL and Yahoo!. AOL has faded into obscurity, while Yahoo! was eventually sold off for parts at a fraction of its former value. Today's leaders Google and Facebook only arrived later. Google was founded in late 1998 and listed on the market in 2004. Facebook wasn't founded until 2004 and listed in 2012.



## ...The markets' expectations of who the winners and losers will be can change rapidly...



Amazon was around during the internet boom, listing in 1997. But it was hardly clear it would go on to become one of the industry leaders. In 1999 its market value peaked at around US\$30 billion, only to fall around 95% to US\$1.5 billion two years later. For investors who held on it took sixteen years to recover their losses.

#### 4. Will there be one winner or many?

Today's market's technology leaders dominate their industries. Microsoft in business software, Alphabet in search and video content, Meta in social media, and Amazon in online retail are examples. These companies benefit from network effects (when a product or service becomes more valuable the more people that use it) and huge economies of scale.

It's not a given, however, that one (or even a few) companies will dominate an industry. Technologies such as automobiles, aeroplanes, and personal computers did revolutionise the world and lead to the creation of large, profitable industries, but with lots of competition. Competition means much of the value created by the new industry goes to consumers rather than shareholders.

#### A useful reminder

We shouldn't overstate the market's reaction to DeepSeek. While it caused a bad day for AI-related stocks, many of these companies have still delivered outstanding returns over the past couple of years.

The correction, however, does provide a valuable reminder for investors. While exciting technologies like AI can create huge winners, not every company riding the wave will deliver long-term returns. There will be winners and losers. The market's expectations of who those winners and losers will be can change rapidly. And even if you accurately identify the long-term winner, it won't be a great investment if you overpay today.

Investors need to remain disciplined, maintain a long-term perspective, focus on fundamentals such as a company's real competitive advantage and ability to execute, and be wary of chasing overhyped companies with unsustainable valuations. This is always important, but particularly so when investing in new and exciting, but also inherently uncertain and fast-moving technology industries such as AI.

If at any time you want to discuss investment options and opportunities, your Forsyth Barr Investment Adviser is available to provide you advice and assistance.

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