



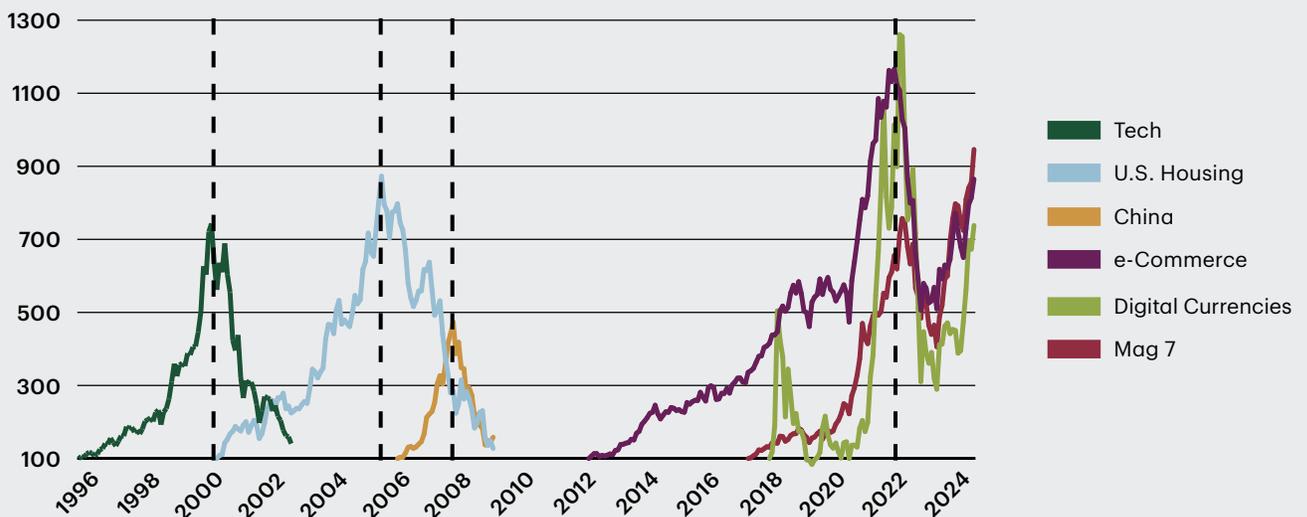
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# Is AI Already a Bubble?

Our investment careers started in 1996 and 1966 respectively and since then there have been many periods of “irrational exuberance”. Here are six since 1966 (Figure 1). Although we do not believe AI is just another overhyped fad, a lot of rapturous commentary is reminiscent of previous episodes of speculative frenzy. Further, an awful lot of earnings growth has already been priced into several big tech names, particularly among the Magnificent Seven (Mag 7) and it is not at all clear the prevalent rife optimism will be proven justified.<sup>1</sup>

**Figure 1: The hype-cycle — Is the Mag 7 just another bubble waiting to burst?**



Source: Bloomberg Finance L.P.  
Note: Each asset class is indexed to 100. China: Shanghai stock exchange index.

<sup>1</sup> To illustrate, one of the Mag 7 names needs to growth earnings by 20% annually for the next eighteen years to justify its euphoric multiple. This is unprecedented for a firm of its size, so we are highly skeptical.



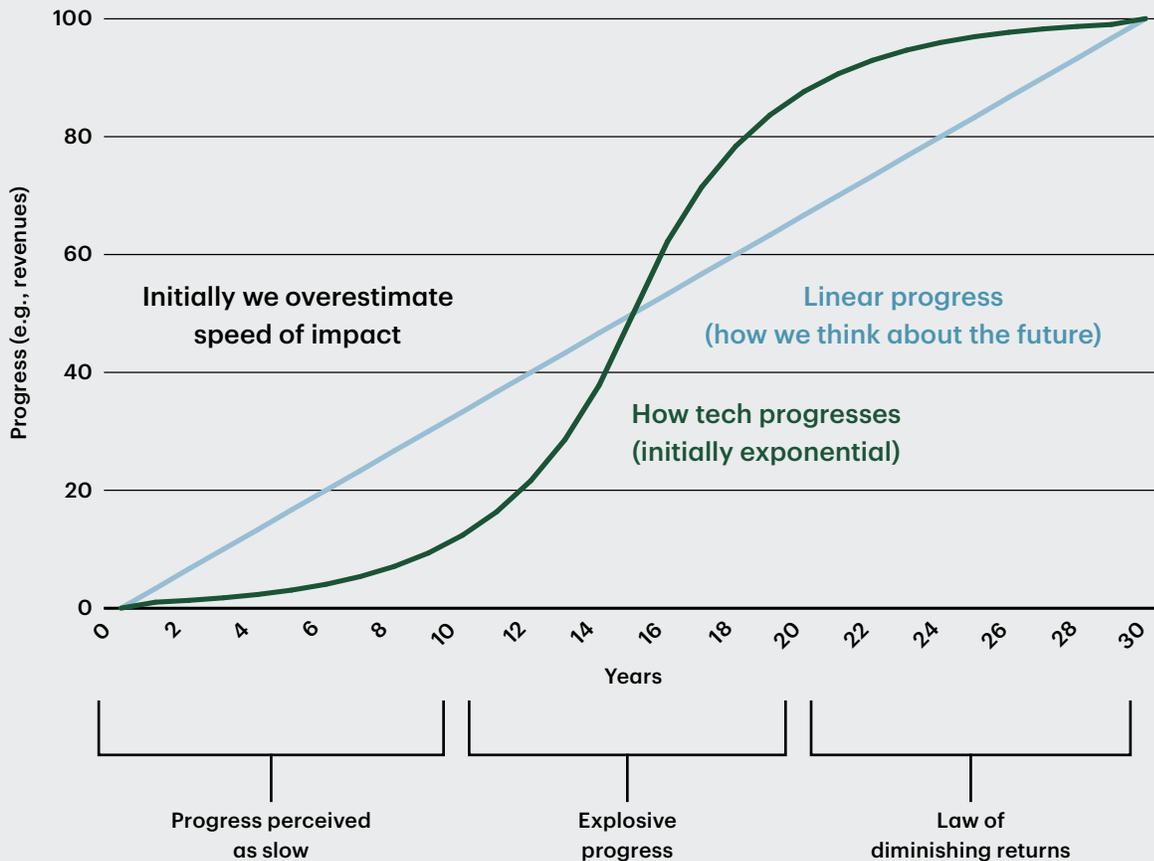
I am all-in on a fundamental bet that AI will drive substantial value creation, but this is a decade+ transition ... investors will need to be patient.

– Sarah Guo, founder of Conviction, an AI-focused VC firm, 2023

In most of the cases illustrated above, the underlying asset classes were essentially sound (the jury is still out regarding Chinese equities and digital currencies), but market momentum and price action raced ahead of fundamentals. This is especially common with new technologies, such as the internet from the mid-1990s, and even further back to railways in the 1840s. Conceptually, we expect progress to be linear whereas digital tech typically proceeds exponentially (Figure 2). This can lead investors to swiftly pivot from euphoria to disillusionment when progress is perceived as occurring too slowly.

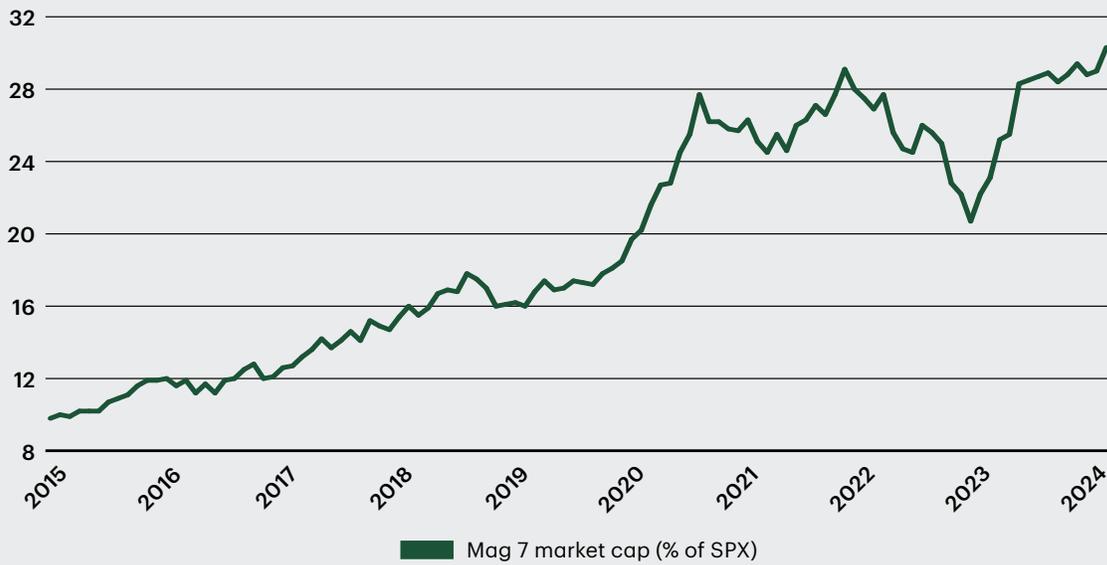
Does AI represent just another bubble? The next three charts demonstrate why a vocal minority of commentators argue that is the case. For a start, the enormous appreciation of the Mag 7 has represented 45% of the S&P 500's market cap gain since 1/2015 and 66% since 1/2023 (Figure 3).

Figure 2: We always overestimate the speed of new technologies, especially in the digital economy



Source: TD Epoch.

**Figure 3: Extreme concentration — The Mag 7 now represents over 30% of SPX market capitalization**



Source: Bloomberg Finance L.P.

A second sign of potentially bubblish behaviour can be seen by looking at the weight of the top ten stocks in MSCI U.S. Index over the last thirty years (**Figure 4**). They currently represent 29% of total market cap, which is the highest attained since 2001. Further, they only represent 22% of forward earnings per share (EPS), which is just slightly above the 30-year mean of 20%. Moreover, the gap between the market cap and EPS shares, as illustrated by the gray shaded area, is the largest since the tech bubble and four times the historical norm.

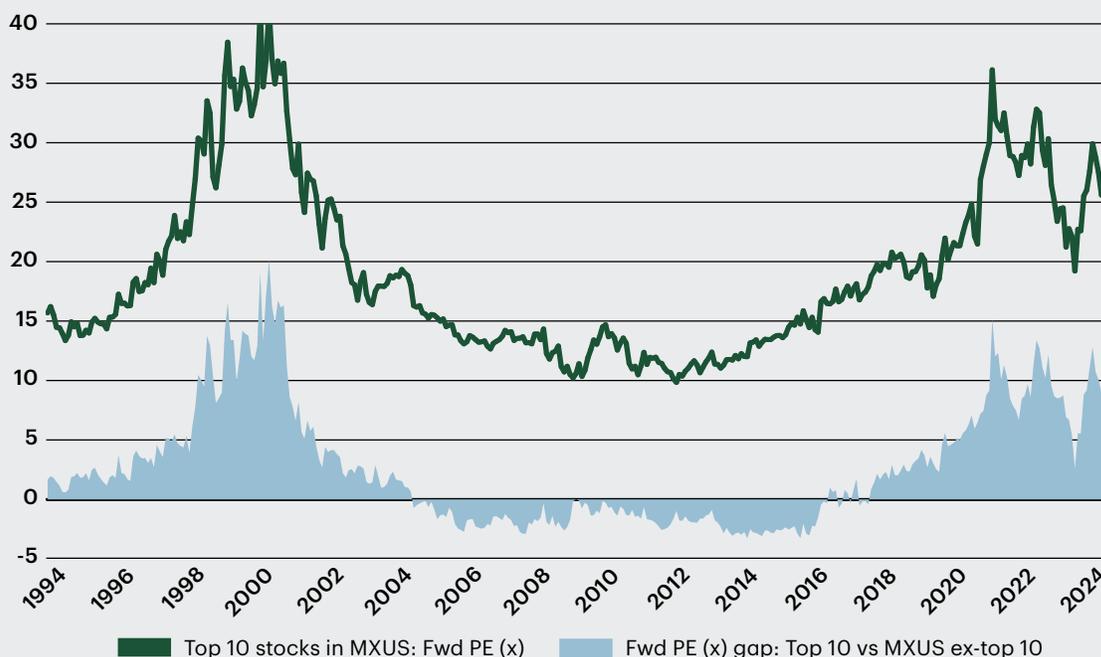
**Figure 4: The top 10 stocks in MXUS represent 29% of total market cap. That is the highest since the tech bubble collapsed in 2000–2001 and leagues above the historical average of 21%**



Source: JP Morgan.

Regarding valuations, the top 10 stocks in MXUS have a vertiginous forward price to earnings (PE) of 27x, while the remaining 599 names possess a multiple of 18x, which is only slightly above 30-year mean of 16x (**Figure 5**). Further, the gap between the PEs of the top 10 and the bottom 599 (gray shaded area) is stretched at four times the historical norm (or the 92nd percentile).

**Figure 5: Top 10 stocks in MXUS have a forward PE of 27x, which is far above the historical median of 17x**



Source: JP Morgan.

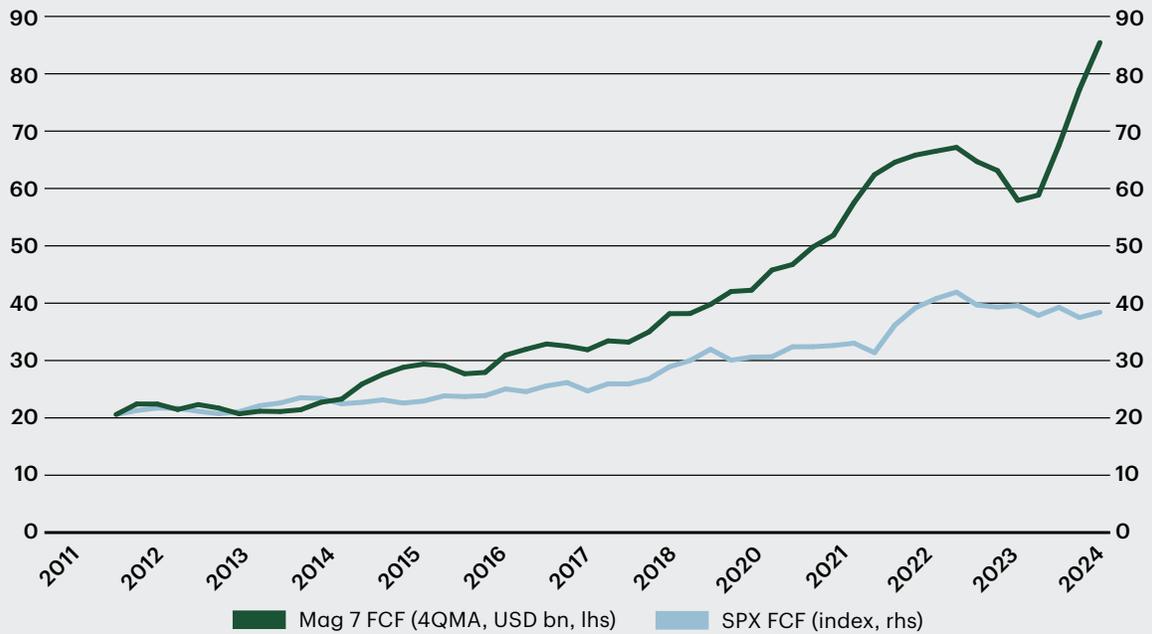
### Winner-Takes-Most: Superstar Firms Generate 15% Free Cash Flow (FCF) Growth, 26% Operating Margins (OPM) and 22% Return on Invested Capital (ROIC)

The case for a bubble, as depicted in the above three charts, implicitly assumes AI does not represent a structural change in the distribution of FCF, margins and returns. However, as we have written about extensively over the last eight years, digital tech and the substitution of “bits” for “atoms” invokes powerful, capital-light business models that exploit formidable economies of scale and network effects.<sup>2</sup> One key feature is that the pursuit of market dominance leads tech firms to invest massively in intangible rather than tangible capital, which involves huge fixed costs but drastically lowers marginal costs. This is what drives winner-takes-most dynamics and produces a small number of superstar firms.

The next three charts demonstrate this powerful impulse which we believe is still in early innings. For a start, the Mag 7 has produced average annual FCF growth of 15% over the last decade and 17.5% over the past five years (**Figure 6**). By contrast, the S&P 500 has delivered only 5% growth, roughly in line with nominal gross domestic product (GDP). Moreover, the S&P 493 (that is, excluding the Mag 7) has generated only 3% FCF growth over the last decade, well below that of the overall economy. This dichotomy can also be seen in consensus expectations for 2024 EPS growth, which is 12% for the overall S&P 500. However, underneath lies an extreme bifurcation, with the Mag 7 at a staggering 55% and the S&P 493 a paltry 5%.

<sup>2</sup> See “Tech is the New Macro: Impacting All Three Components of RoE,” 2017 and “When “Bits” Meet “Atoms”: Implications of the Second Machine Age for Corporate Profitability and Traditional Business Models,” 2018.

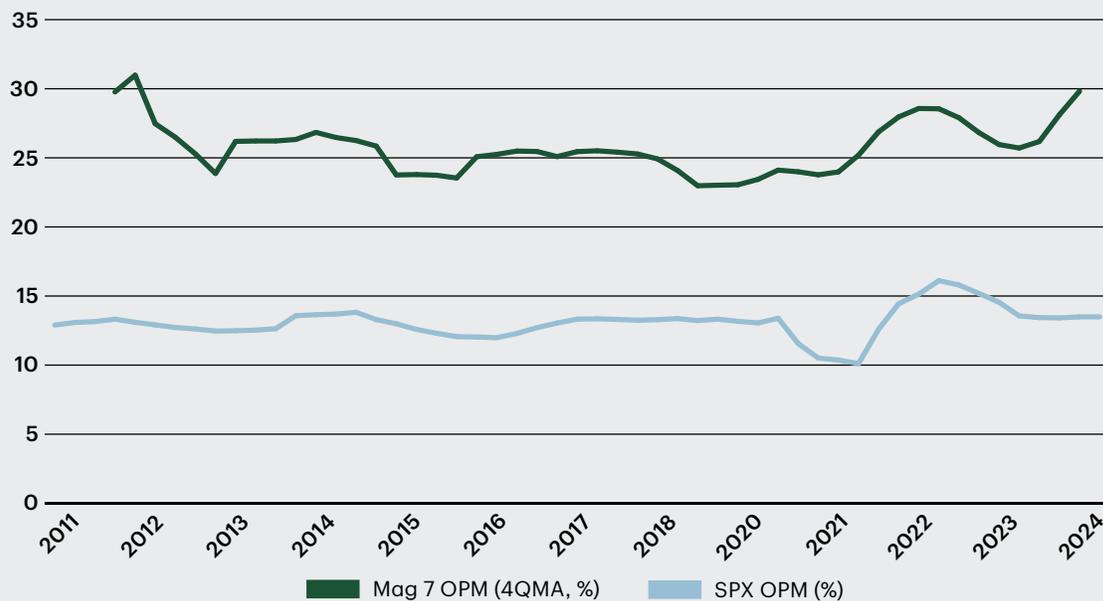
**Figure 6: The Mag 7 has delivered exceptional FCF growth, vastly outperforming the SPX**



Source: Bloomberg Finance L.P., TD Epoch.

Next, we take a look at operating margins (**Figure 7**). Most importantly, the Mag 7's impressive margin shows no sign of normalizing toward that of the S&P 493, which has averaged only 9.9% over the last decade.

**Figure 7: The Mag 7's OPM has averaged 26% over the last decade, double that of the SPX as a whole**



Source: Bloomberg Finance L.P., TD Epoch.

Third, the Mag 7's ROIC is not only leagues above its estimated weighted average cost of capital (WACC) but has actually accelerated during the last five years (**Figure 8**).<sup>3</sup> By contrast, the S&P 500 has averaged a ROIC of 7-9%. Moreover, the S&P 493 has generated a meager 5-7%, which means the vast majority of companies require a low WACC, similar to that experienced last decade, to create value.

**Figure 8: The Mag 7 has produced an average ROIC of 22%, well above the estimated WACC**



Source: Bloomberg Finance L.P., TD Epoch.

### Echoes of the Late-1990s Tech Boom?

The above analysis has three takeaways. First, an awful lot of earnings growth is currently priced into the tech sector. Second, investors can swiftly pivot from euphoria to disillusionment when progress, especially in FCF growth, is perceived as too slow relative to what is priced in. Third, AI is not just another overhyped fad, as demonstrated by an impressive track record in generating FCF, OPM and ROIC. The first two takeaways would have been equally applicable to the internet boom of the late-1990s (or even the railway boom of the 1840s). However, the third is different. Investors in the internet boom were not sufficiently skeptical of hype stocks that promised future earnings somewhere far down the road but remained negative FCF at the time.

This time, in sharp contrast, the Mag 7 is generating impressive FCF, and consensus expects the group to grow earnings by an eye-popping 55% in 2024. Much

of this represents revenue from infrastructure build, including blitz-scaling AI platforms. Additionally, other companies are reaping early returns from the use of AI to replace coders, marketing copy writers, call center workers, and so on. These are examples of what economists call “process innovations”; that is, making existing business processes more efficient by lowering operating costs.

However, the vast majority of the value-added from general purpose technologies (GPTs) like AI (as well as the internet, electricity, and steam engine) always come from “product innovation.” That is, entirely novel goods and services that were not foreseen when the GPT was first commercialized.<sup>4</sup> The good news is this really moves the needle on earnings, creating enormous value.<sup>5</sup> The bad news is no one ever knows how it will play out and, in sharp contrast to process innovations, it can take years and even decades to be realized.

<sup>3</sup> The impressive ROIC is possibly the most critical single indicator for investors to focus on. It is important for a number of reasons including that a higher ROIC drives a higher P/E ratio, as explained in “The P/E ratio: A user’s manual,” by S. Bleiberg, et al, 2019. For many tech companies, their seemingly expensive P/E can be entirely attributed to their elevated ROIC.

<sup>4</sup> For example, the steam engine was designed to drain water out of coal mines and electricity’s first commercial product was the light bulb, invented to replace gas lamps which were terrible fire hazards. No one had any idea this would lead to the modern factory, global telecommunications, semiconductors, and so on.

<sup>5</sup> The risk here is that AI is not in fact a GPT. However, essentially all commentators believe AI will: (a) affect many different sectors, (b) create numerous spillover effects and (c) improve over time as it comes to be used widely across the economy. These three characteristics are actually the definition of a GPT.

For these reasons we believe AI enthusiasm will likely be rewarded for the next year or two, despite lofty valuations, as earnings growth proves robust and meets expectations for some period of time. However, as the Sarah Guo quote emphasizes, this is a decade+ transition, so investors need to be patient.

## Show Me the Money

Beyond the next year or two there lies enormous uncertainty regarding how AI evolves. As a result, we believe investors need to be cautious regarding speculative growth or hope stocks, which offer an enticing narrative and promises of future earnings that may or may not be realized. Instead, we favour companies with a demonstrated track record of FCF generation, as well as high and sustainable OPMs and ROIC. We believe such companies are most likely to create value and reward investors during this period of extraordinary innovation and disruption.

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