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INVESTMENT MANAGEMENT

AI's Silicon Backbone

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Every major innovation has its cheerleaders insisting that "this time is different." In the case of artificial intelligence (AI), that could well be true as its development represents a break from past technological cycles. AI does not fit neatly into the familiar arcs of personal computers (PCs), smartphones or even the dotcom era. Some technologies genuinely do break the mold, and AI appears to be one of them. Treating it as just another garden-variety tech boom risks misreading both the durability of demand and where the true risks lie. Increasingly, AI is behaving more like foundational infrastructure, a distinction that fundamentally alters how this cycle evolves.

Past technology cycles were demand-led and largely consumer-driven. PCs, mobile phones and consumer electronics all followed a familiar rhythm: rapid adoption, falling prices, margin compression, overcapacity and capital rotation. Emerging market's (EM) role was primarily to manufacture more units at lower costs.

AI breaks that template. It is not a discretionary upgrade or a consumer gadget cycle. It is infrastructure, embedding itself directly into the productive capacity of the economy in a manner closer to electricity than consumer hardware.

Growth in AI is driven not by unit shipments, but by expanding processing power, memory, energy and system-level integration needed to support increasingly complex workloads.

This shift is already visible in semiconductors (Display 1). Historically, the average selling prices of chips declined steadily, while revenue growth depended solely on unit volume. Since 2022, that relationship has flipped. Despite sub-trend unit growth, revenues have surged, as chips have become more complex, more powerful and more valuable. The engine of value creation has changed dramatically.

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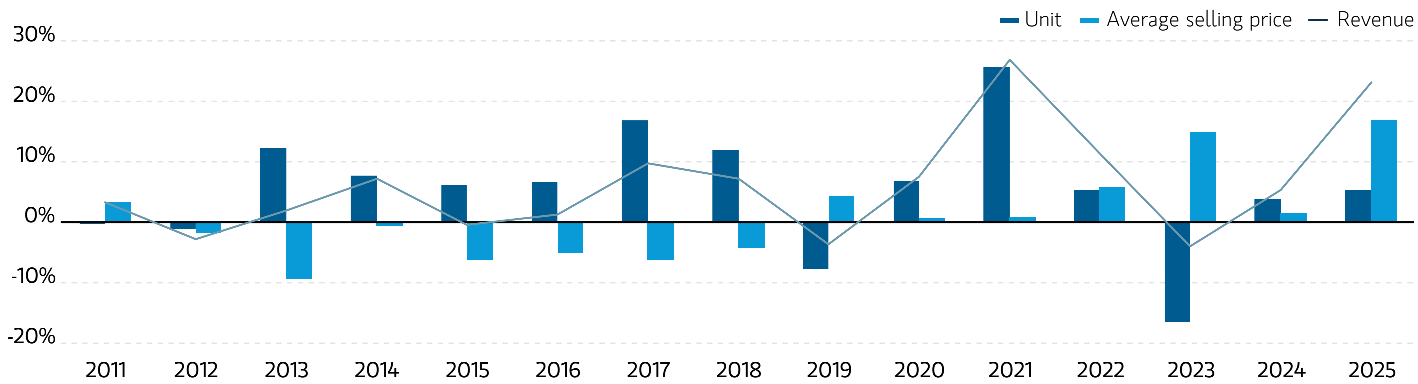
DISPLAY 1

As Chips Have Evolved, Revenue Has Significantly Increased

Global semiconductors (ex. memory) year-over-year % change



Source: Semiconductor Industry Association, MSIM. As of Dec. 31, 2025.

Bubble Anxiety

Much of the focus in AI has been on U.S. dominance, creating a widening disconnect between the unfolding AI cycle and how EM tech exposure is perceived.

No discussion of AI is complete without the inevitable bubble question. Hyperscalers are committing unprecedented capital to data centers, semiconductors and power infrastructure, while revenue remains relatively modest modest. Last year, U.S. tech firms poured more than $400 billion into data centers, while AI revenues are a paltry $50 billion to date (Display 2).

The imbalance is not new. Technologies like railways, electricity grids, enterprise computing and the internet all followed a similar pattern: infrastructure came well before productivity and profits. Firms needed time to reorganize workflows, redesign processes and retrain workers to use the technology effectively. Early returns were often disappointing. Long-term returns were not.

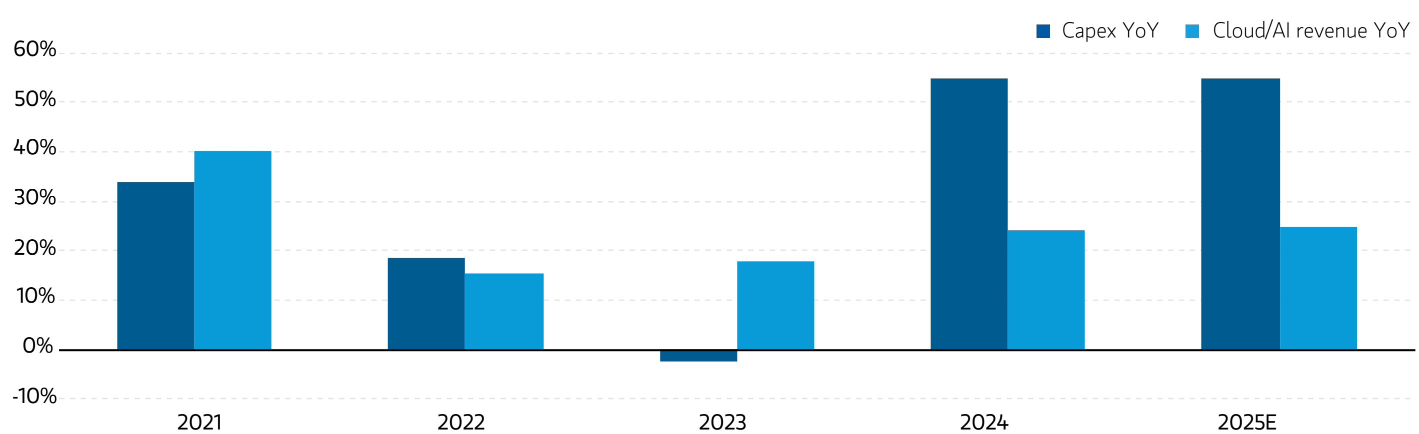
AI adoption has in fact proceeded at an unusually rapid pace. A large share of the working population in advanced economies is already using AI tools. Microsoft estimates AI reached 1.2 billion users in under three years, a rate unmatched by previous technologies. Enterprise usage has expanded beyond experimentation into recurring tasks: software development, customer support, logistics, design and research.

The gap between investment and revenue reflects timing rather than saturation. Infrastructure is built first and monetization will follow once firms restructure around AI-native workflows.

DISPLAY 2

Signs of a Bubble?

AI capital expenditure is outpacing revenue (year-over-year %)

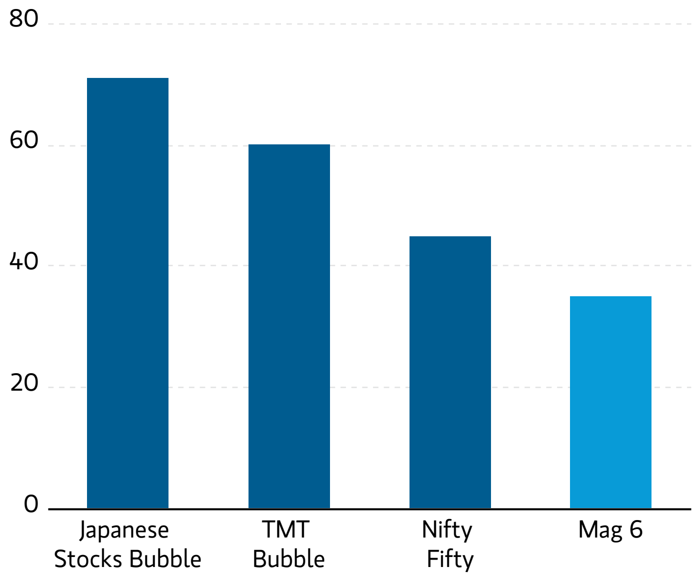


Source: Company data, MSIM. As of Jan. 2026.

DISPLAY 3

The Multiples of AI Leaders Are Not Extreme

P/E ratios of past bubbles



Source: Morgan Stanley, Haver, Bloomberg. As of Jan 20, 2026. The Mag 6 are Amazon, Apple, Google, Meta, Microsoft and Nvidia

Dotcom Comparisons

Comparisons with the dotcom bubble are seductive, but misleading. Today's AI leaders trade at elevated price-to-earnings (PE) multiples, but far below the extremes of 2000. More importantly, they generate substantial cash flow, maintain strong balance sheets and fund investment largely through operating income (Display 3).

The progress in AI is constrained by hardware in a way that prior digital cycles were not. Meaningful leaps in capability depend on deploying new generations of chips, high bandwidth memory (HBM), advanced servers, networking and power systems. Software alone does not move the frontier. Physical bottlenecks matter.

Advanced semiconductors, HBM, system integration capacity and electricity availability are all binding constraints across the value chain. In parts of the market, demand still exceeds supply. These are not the hallmarks of a speculative bubble, but the characteristics of an industry still scaling.

In the dotcom era, Cisco operated in a world of abundant capacity and collapsing prices. Today, Nvidia operates in a world of constrained supply and increasingly specialized hardware.

Nvidia trades at roughly 25-30x forward earnings, compared with Cisco's near 140x at the peak of the internet bubble. Treating the two as equivalents misses the point.

Higher Productivity

Large capex is often seen as a peak cycle signal. History suggests otherwise. Electricity, computing and the internet all followed a productivity J-curve, where early investment preceded visible economy-wide benefits by years.

AI appears to be following a similar path.

The shift toward agentic tasks, solutions and eventually into physical world applications, such as autonomous driving and robotics, should support higher productivity growth. This helps explain why AI infrastructure investment remains aggressive even as near-term benefits appear modest.

Importantly, AI workloads are also shifting from training toward inference and deployment. Real world usage increasingly involves multistep, agentic workflows where models orchestrate tasks, reason across steps and interact with external tools. These are processing intensive workloads that reinforce demand for physical infrastructure.

This does not eliminate risk. Vulnerabilities remain, particularly in private credit markets and leveraged or circular financing structures. A disruption in funding flows could still trigger volatility, even if the broader industry remains fundamentally sound.

Builders of AI Backbone

AI may be written in code, but it runs on metal, silicon and electricity. Much of that infrastructure is produced in emerging markets. Investors still see EM companies through a cost-cutting lens and believe cyclicality is the key driver for their stocks. We think otherwise, a view that AI brought a structural shift, where EM companies are now the irreplaceable builders of AI infrastructure. Without these EM companies, there might not be an AI revolution.

For example, Taiwan dominates advanced semiconductor fabrication and AI server integration. Korea is a major supplier of HBM and critical power-related equipment. China remains central to optical components and the printed circuit boards that are indispensable to keeping the AI cycle rolling. Meanwhile, EMs are also providing a solid talent pool.

As AI systems scale, their physical requirements become more specialized. Efficiency gains in software do not eliminate the need for hardware, but expand the range of economically viable applications. EM technology exposure should be viewed less as a cyclical trade and more as participation in a long-term infrastructure investment.

China's AI ecosystem illustrates this point. Despite restrictions on access to the most advanced semiconductors, Beijing has focused on system-level optimization and application deployment across its vast domestic market. Rapid progress has been made in areas where scale and iteration matter most, such as autonomous driving, robotics and consumer platforms. The result is not technological parity with the U.S., but a resilient landscape that rewards selectivity and deep understanding of the local ecosystem.

AI's Middle Innings

The AI cycle appears to be in its middle innings. Rapid adoption, expansionary capital expenditure supply constraints and defensible valuations all point to a cycle that is ongoing rather than exhausted.

Shifts in sentiment, reassessment of returns or macroeconomic shocks could slow capital spending and negatively ripple through the supply chains.

But exiting the cycle prematurely carries its own risk. Many emerging market AI enablers are already priced with skepticism, despite their growing strategic importance. With discipline and selectivity, investors can look through near-term volatility and participate in the structural growth ahead.

In summary, the physical backbone of AI is still being built, and emerging markets are supplying much of it.

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