Note: The following is a redacted version of the original report published March 9, 2026 [31 pgs]. All company mentions by GS analysts are illustrative and should not be interpreted as investment recommendations.

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TOP of MIND

WILL AI EAT SOFTWARE?

For over a decade, software has come to "eat" the world. But the emergence of new agentic AI tools for software development in recent months has fueled concerns that AI could in turn "eat" software, triggering a sharp re-rating of the software sector as well as other sectors vulnerable to AI disruption. So are these fears about the future of software (and other industries) warranted, or overdone? GS' Gabriela Borges, Sherlund Partners' Rick Sherlund, and Cohesity's Sanjay Poonen generally agree that AI won't eat software but diverge on how radical a transformation legacy software firms must undergo to remain competitive and how durable incumbent moats are. With all this uncertainty, we then explore what it will take to stabilize share prices (earnings stability), whether stress in software-exposed credit can catalyze a turn in the credit default cycle (unlikely), and how investors should be positioned, with Sherlund and GS analysts and strategists agreeing: investors should be selective, in software and beyond.

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Legacy software companies aren't standing still. They are innovating as fast followers… That, combined with their moats, could ultimately leave incumbents in a better place from a soup-to-nuts platform perspective.

- Gabriela Borges

Moats buy incumbents time to adapt, as seen in prior software disruption cycles… But these moats aren't insurmountable—AI will very likely erode them over time.

- Rick Sherlund

Agentic AI has already proven to be an incredibly powerful tool with the potential to be enormously disruptive... However, just like any technology wave, you must surf this tsunami, or it will demolish you.

- Sanjay Poonen

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WHAT'S INSIDE

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The Goldman Sachs Group, Inc.

Macro news and views

We provide a brief snapshot on the most important economies for the global markets

US

Latest GS proprietary datapoints/major changes in views

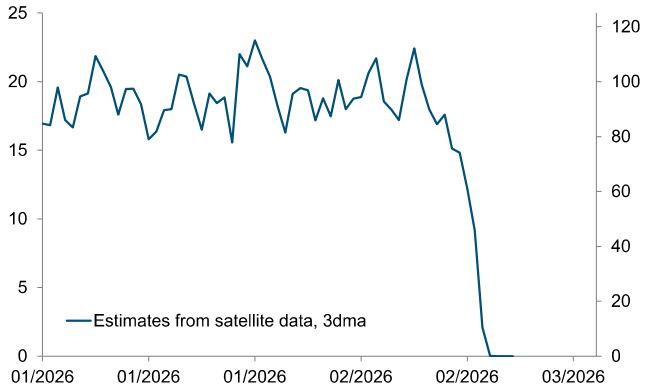
- No major changes in views.

Datapoints/trends we're focused on

- Oil disruptions related to the US-Iran conflict, which pose downside risks to growth and upside risks to inflation, depending on the longevity and severity of the conflict.
- Tariffs; we expect the global tariff that has replaced the IEEPA tariffs to lower the increase in the effective tariff rate since the start of 2025 to 9pp from 10pp.
- Labor market; the Feb jobs report suggests a higher risk that labor demand remains too weak to support the labor market stabilization we had seen in previous months.
- Concerns about nonbank lending, which have risen.

Strait of Hormuz oil transport grinds to a near halt

Oil exports via the Strait of Hormuz, mb/d (lhs), % of normal (rhs)



Source: Kpler, Goldman Sachs GIR.

Japan

Latest GS proprietary datapoints/major changes in views

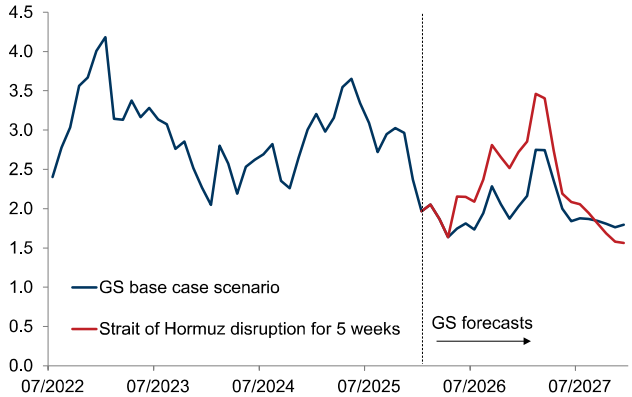
- We recently raised our FY26 average core CPI inflation forecast to 2.1% (from 1.6%) to reflect our higher energy price and USD/JPY forecasts.

Datapoints/trends we're focused on

- LDP's landslide victory in Japan's Lower House elections, which we think will make it easier for the Takaichi Administration to implement its proactive fiscal agenda, posing increased risk to Japan's fiscal position.
- BoJ policy; we continue to expect the next BoJ rate hike in July, and think two recent board member nominations have lowered the probability of an earlier rate hike.
- *Shunto* negotiations; we expect a base pay rise of 3.2-3.5%.

Rising Japanese inflation

Core CPI inflation rate by scenario, % chg., yoy



Source: Goldman Sachs GIR.

Europe

Latest GS proprietary datapoints/major changes in views

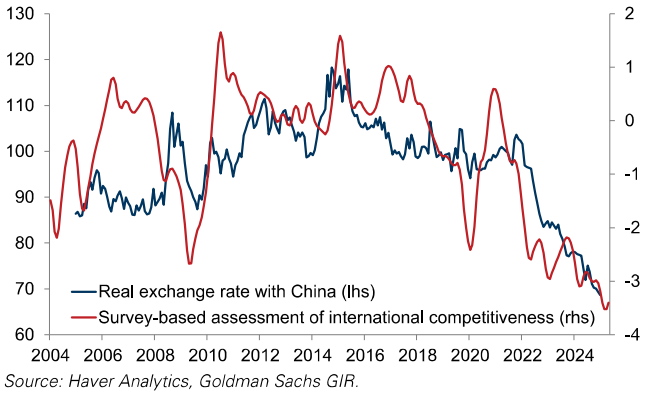
- We lowered our 2026 EA growth forecast and raised our 2026 EA headline inflation forecast to reflect higher energy prices amid the US-Iran conflict, with growth risks skewed further to the downside and inflation risks to the upside.
- We lowered our 2026 UK growth forecast to 1.0% yoy (from 1.1%) and raised our headline inflation forecast to 2.4% yoy (from 2.3%) to reflect higher energy prices; as such, we now expect the next BoE cut in April (vs. March before).

Datapoints/trends we're focused on

- European structural reforms; recent political momentum behind further reform steps to counter Europe's waning international competitiveness is promising, in our view.

Europe: still losing competitiveness

Real exchange rate with China (lhs, index, 2019=100) vs. survey-based assessment of int'l competitiveness (rhs, z-score)



Source: Haver Analytics, Goldman Sachs GIR.

Emerging Markets (EM)

Latest GS proprietary datapoints/major changes in views

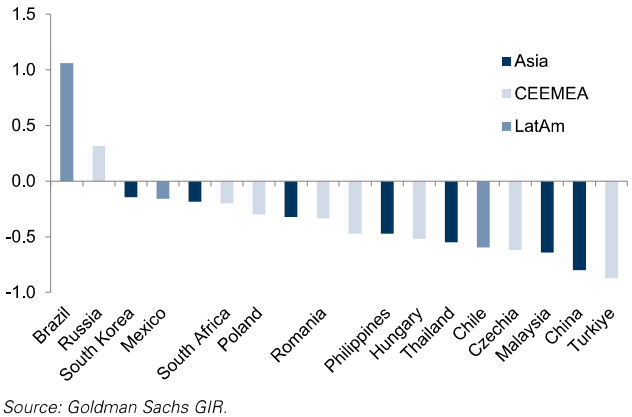
- We lowered our 2026 GDP growth forecasts for Saudi Arabia, Oman, Qatar, Bahrain, Kuwait, and UAE to reflect Strait of Hormuz disruptions and a fall in non-oil economic activity amid the US-Iran conflict, with risks skewed to the downside.

Datapoints/trends we're focused on

- US-Iran conflict impacts beyond the ME; we find that a 10% rise in oil prices would be especially negative for Türkiye and oil importers across Asia, while oil exporters Brazil and Russia are likely to be the biggest beneficiaries.
- China growth; we expect real GDP growth to fall to 4.8% yoy this year (from 5% in 2025), in line with the recently-announced official growth target of 4.5-5% this year.

Higher oil prices: negative for most EMs

Real GDP sensitivity to a 10% rise in oil prices, pp



Source: Goldman Sachs GIR.

Will AI eat software?

For over a decade, software has come to "eat" the world, dominating an ever-wider range of industries. But the emergence of new agentic AI tools for software development in recent months (see pg. 11) has fueled concerns that AI could in turn "eat" software, triggering a sharp re-rating of the software sector (see pg. 9) as well as other sectors vulnerable to disruption from these increasingly powerful and accessible AI tools. So are these fears about the future of software (and other industries) warranted, or overdone?

We ask three long-time software industry watchers: Gabriela Borges, GS US Software analyst, Rick Sherlund, Founder and CEO of Sherlund Partners, and Sanjay Poonen, CEO and President of data security and management firm Cohesity.

Borges explains that "AI *is* software" because it is code designed to perform tasks. So, rather than eat software, she expects AI to *expand* the software market. But she also expects competition to intensify as AI lowers the cost of code. The main risk for legacy software firms, she says, is that AI-native entrants capture the new AI opportunity while the incumbents are left with the old opportunity—namely, being the "system of record"—that shrinks as a share of the software stack. But Borges notes that legacy firms aren't standing still but rather "innovating as fast followers." This, together with moats such as domain experience that new entrants can't quickly replicate, could ultimately lead incumbents to deliver better outcomes for customers, in her view. But she stresses that they must prove they can leverage their moats to do so, which hasn't happened yet.

Sherlund shares Borges' conviction that AI won't eat software, viewing the current moment akin to past transformational technology shifts that were highly disruptive but ultimately propelled the software industry onto a new growth curve. In his view, software "is being reborn around AI", necessitating a fundamental re-architecture of legacy systems around large language models (LLMs) and AI agents. While Sherlund acknowledges that incumbent moats can slow disruption, he is skeptical of their long-term durability, arguing that they will buy legacy software firms time rather than guarantee their survival.

And Poonen, for his part, agrees that new AI tools for software development mark a transformative moment for the industry, warning that "just like any technology wave, you must surf this tsunami, or it will demolish you." In his view, how legacy software firms fare in the AI era will depend crucially on whether they can sustain their current price per user. Firms unable to defend pricing in their core offerings will need to expand and improve their products. But, like Sherlund, Poonen is explicit that just bolting AI agents onto legacy systems may not be sufficient—incumbents must ultimately be willing to rebuild, in some cases from scratch, to remain competitive.

So, with this uncertainty, what will it take to stabilize the sector and the firms most exposed to it? Ben Snider, GS Chief US Equity Strategist, argues that stabilization is unlikely to occur anytime soon, with history suggesting that share prices in industries facing structural disruption (e.g. newspapers) and an associated deep rethink of firms' terminal value tend to stabilize only when earnings stabilize, underscoring Borges' point that "the numbers need to contradict the narrative."

Shamshad Ali, GS senior credit strategist, also expects pressure to persist in the broadly syndicated loan (BSL) market—which software comprises a meaningful share of—as impairment in software-exposed loans will likely be difficult to avoid. But he doesn't see this as sufficient to catalyze a turn in the credit default cycle, assuming the benign macro backdrop and lower funding cost environment continue.

GS US Financials analysts Alexander Blostein and Michael Vinci are somewhat more positive on alternative asset managers, who have been hit hard given the meaningful software exposure in their private equity and direct lending portfolios. Blostein and Vinci argue that despite this exposure, firmwide risk remains manageable as software lending represents a relatively small share of management fees, software loans are largely senior secured and short duration, and managers have been highly selective in their software investments. But they caution that sentiment and headline risk will likely persist, with slower retail fundraising and accelerating redemption requests potentially weighing on growth despite the durability of underlying earnings streams.

So, how should investors be positioned? Sherlund and Borges agree: this is not an environment for binary bets on software's survival or collapse, but one that demands selectivity. Sherlund argues that "investors must carefully assess which companies are most exposed to disruption and which possess complex workflows that are more difficult to encroach upon" and views the most promising companies as "those doing the heavy lifting to re-architect to put LLMs at their core and build robust agentic frameworks." Borges, for her part, is focused on fast followers and firms with defensible moats, seeing select opportunities in applications, infrastructure, and cybersecurity. And GS US Software analysts Adam Hotchkiss and Matthew Martino see value in Vertical Software, Data Infrastructure, and Physical-to-Digital firms.

GS Head of Asset Allocation Research Christian Mueller-Glissmann then digs into how to manage AI risk in portfolios more broadly given the outsized role the technology sector plays in driving US equity valuations and returns. To achieve more balance between innovation and inflation risks, he believes investors may need to continue rotating from capital-light sectors, like technology, to capital-heavy sectors that AI is less likely to disrupt (think telecoms, industrials, and utilities), though he favors being more selective given the aggressive rotations that have already occurred.

Finally, with the "AI scare trade" having moved beyond just software to many other sectors—from consumer internet and information services to insurance, CRE services, financials, and transportation—GS equity analysts assess how new AI tools could impact these industries (see pgs. 21-23). Their key message: while AI could disrupt some firms, many may also benefit, reinforcing the idea that investors should be selective as AI technology continues to evolve.

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Interview with Gabriela Borges

Gabriela Borges is Senior Equity Research Analyst at Goldman Sachs covering US Software. Below, she argues that AI won't eat software and some of the recent price action has gone too far, but legacy software firms will need to prove themselves through better fundamentals.

Jenny Grimberg: How does the current software correction compare to past corrections?

Gabriela Borges: The YTD correction is squarely anchored to terminal value debates: instead of analyzing a change in the near-term demand trendline or the mathematical impact of higher interest rates—as was the case in the 2022 correction—the market is questioning software moats and business models. While this debate is centered primarily on the application software firms, investors are also questioning whether the infrastructure /security stack could be impacted, and the ROI tied to hyperscaler capex. This is sparking a return to first principles questions about the value the industry provides and the nature of competition. And this is all happening against a backdrop of elevated uncertainty given the rapidly changing technology. So, the end state is difficult, if not impossible, to predict.

Jenny Grimberg: Generative AI technology has been around for several years. So, what's changed recently?

Gabriela Borges: The technology is now beginning to impact enterprises. Most AI chatbot applications that have emerged since ChatGPT's debut have primarily impacted the consumer-facing world. Concerns about how data is maintained, cleaned, and validated have been a huge limiting factor for enterprise AI adoption, and regulatory, compliance, and security frameworks are in the process of adapting to make enterprises comfortable adopting these mission-critical yet invasive technologies. At the same time that progress has been made on these fronts, tools more relevant for enterprise use cases have emerged.

For example, Anthropic's recently-released Claude Cowork product makes its Claude Code product accessible to all knowledge workers, not just coders. And its new large language model (LLM) Claude Opus 4.6 has several domain-specific applications, including in cybersecurity, legal, and financial services. OpenAI debuted Frontier, an enterprise platform for building, deploying, and managing AI agents and is strategically leaning into enterprise monetization. And personal AI assistant OpenClaw launched with capabilities much more powerful than a typical AI chatbot's; usage today is primarily limited to technically-savvy consumers, but this may expand as security and usability challenges are solved. So, AI use cases and the power to execute them has progressed, leading the technology to intersect more with the traditional software world and creating a competitive bake-off dynamic between new entrants and today's software leaders at enterprises now better equipped to utilize the technology.

Jenny Grimberg: So, what's your response to those who argue that AI will "eat" software?

Gabriela Borges: The key question is, what do you have to believe to be bullish on software? You have to believe that the total addressable market (TAM) will grow more than enough to offset the rise in competition. We feel comfortable that the TAM will grow because, despite the current nomenclature, AI *is* software—it is code designed to perform a set of tasks, which is in many ways simply an extension of the software category. But the competition part of the question is currently the bigger unknown as the rapid pace of technological change is attracting new entrants and a wave of VC money. At the same time, the cost of code is falling, which also catalyzes more competition. In our view, the biggest risk for today's software leaders is that the new opportunity AI creates accrues to these new competitors, and the incumbents are left with outsized exposure to the old opportunity that compresses as a percentage of the total software stack.

One way to illustrate this is with the concept of a "system of record." Many of today's application software leaders are systems of record. These systems, such as Enterprise Resource Planning, Customer Relationship Management, and Human Resources, are the digital backbone of the business, storing the foundational data upon which it operates. AI may find it hard to disrupt these for two reasons. First, the data and historical context sitting in the system of record cannot be extracted holistically and in a way that captures ongoing data updates owing to nuances with meta context and data labeling as well as with stream processing that are proprietary to the system of record and break when extracted, even when using sophisticated APIs. Second, using generative AI technology to replace deterministic logic is expensive and ineffective. Put simply, it makes more strategic and economic sense for new AI entrants to leverage existing systems of record for high quality data and context than to replace them. The question then becomes whether the incumbents can also capture the new opportunity because of this domain experience and context.

Jenny Grimberg: So, is it possible to be bullish on agentic AI and *not* bearish on legacy software?

Gabriela Borges: Yes, because some legacy software firms will likely capture the upside opportunity of AI. We expect some incumbents will be able to prove to customers that their domain experience drives better AI outcomes. It's worth highlighting that incumbents are not static—many have world-class engineering teams that benefit from the same AI productivity gains as start-ups, founder involvement, and strong cash balances to respond to new competitive threats.

But the playbook to capture AI upside is three-fold, and companies must succeed on all three fronts, which won't be easy but is possible. First, companies must minimize any technical debt in their tech stack. That means ensuring all acquisitions integrate nicely into the company's core technology backbone and data flows across different modules and is centralized and uniformly cleaned. Second, companies must understand the holes in their roadmaps. One misconception is that a software leader must be a leader in technology. It can instead be a fast follower, letting the VC

ecosystem fund next-gen technologies, seeing which have durability and the best product market fit, and then acquiring them or using internal R&D to capture that product market fit, which is arguably a better use of capital than spending heavily to develop every new technology in-house.

Third, companies must figure out how to monetize AI, which may require a change in pricing model. For example, instead of charging per customer service representative, a software company could instead charge per successfully completed customer service call. Another type of pricing model is enterprise license agreements (ELAs), which allow customers to access many different products for one price. ELAs have existed in software for some time. Salesforce recently shifted to agentic ELAs (AELAs), giving customers access to their AI and other products. This is important because it shifts the software pricing model more holistically to include agentic value and allows customers to have fluidity between seats and outcomes. Importantly, we don't think customers can reduce seat count and maintain/enhance productivity unless software tools are picking up the slack and delivering more value.

Jenny Grimberg: What will allow the sector to stabilize?

Gabriela Borges: The numbers need to contradict the narrative. The software sector has been in a four-year-long depression; for 14 consecutive quarters, revenue growth has decelerated and the cost of acquiring new customers has risen. So, the numbers need to stabilize. It would be hard to argue that software companies are being disintermediated if they put up better fundamentals, because the only way they can do so in the AI era is by having exposure to the new opportunities and budgets that AI creates. Evidence of this would be clean beat-and-raised quarters and improved unit economics, either on an industry or, more likely, company-specific basis.

Jenny Grimberg: But couldn't that just push out the bear case for software disruption rather than prove it wrong?

Gabriela Borges: This is where moats become important. A company must prove its fundamentals are holding up because it has a defensible moat. One example is data architecture and collection moats, which are a feature of some security software companies and are outside the realm of AI's current and likely future capabilities. Cloudflare, for example, has a physical edge compute network co-located in telecom data centers, meaning that it owns physical computing infrastructure deployed close to end-users. Palo Alto Networks and CrowdStrike directly collect data, either through physical hardware deployed at the network edge or, in CrowdStrike's case, through an agent installed on an end-user device. These are classic examples of network effects that have compounded over 10+ years.

Another defensible moat is domain experience. Software firms with domain experience understand how knowledge workers like salespeople, accountants, and financial analysts work and use their tools owing to years of being embedded in an enterprise. That usage also allows these firms to collect proprietary data, some of which is very nuanced and difficult to abstract. Beneath the surface of Microsoft Copilot, for example, is a highly nuanced graph showing how knowledge workers in a specific enterprise collaborate, which Microsoft has the intelligence to create because it has observed how these workers interact with its software for many years. That is a powerful type of domain experience. Microsoft is also vertically integrated, operating across all three layers of software—the platform, infrastructure, and application layers—which allows it to observe and optimize how enterprise work gets done.

Jenny Grimberg: But couldn't AI native companies replicate those moats over time?

Gabriela Borges: Yes, but time matters, as does whether it makes strategic sense to do so. If everything were frozen in place right now and AI-native firms were given two years to figure out how to replicate domain experience, for example, they probably would. But, again, legacy software companies aren't standing still. They are innovating as fast followers. The incumbents have access to the same AI technology as the AI firms themselves—the LLMs, the coding productivity tools, etc.—and so are benefitting from the same productivity improvements. That, combined with their moats, could ultimately leave incumbents in a better place from a soup-to-nuts platform perspective. They already have the system of record, domain experience, and user interface. Layering AI on top of that gives incumbents everything they need to build a successful agentic solution more powerful than any one new competitor can offer. But ultimately, incumbents will have to demonstrate they can leverage their moats to deliver such an outcome, and so far, that hasn't happened in a broad enough way. So, the pressure is on for these companies.

Jenny Grimberg: Given everything we've discussed, has the recent sharp selloff in software gone too far?

Gabriela Borges: The pace of competition and the level of uncertainty is undoubtedly high. However, two areas of discovery value allow us to be bullish on many software assets. First is the dynamic we've discussed on incumbents being able to leverage domain experience to drive better AI outcomes. Second is the potential for more companies to manage to GAAP earnings, which provide a level of valuation support for the stocks. The level of competitive noise is likely near a local maximum, and the perception vs. reality gap should narrow ahead for the majority of software firms. Looking at it from that lens, some of the recent price action has likely gone too far.

Interview with Rick Sherlund

Rick Sherlund is Founder and CEO of Sherlund Partners LLC, an investment advisory firm focused on the rapidly evolving AI software sector and traditional enterprise SaaS space and is a Senior Advisor at Wedbush Securities. Below, he argues that the software industry is being reborn around AI, necessitating a complete re-architecture of existing software systems.

The views stated herein are those of the interviewee and do not necessarily reflect those of Goldman Sachs.

Allison Nathan: Does the emergence of new agentic AI tools for software development mark a transformative moment for the traditional software industry?

Rick Sherlund: Very much so. The software industry undergoes a major platform shift roughly every 10-20 years as new technologies emerge. While these shifts can be highly disruptive, they also serve as powerful catalysts for growth, propelling the entire software industry onto new growth curves. We are at such a juncture today, with over 10,000 venture-backed AI-native companies poised to encroach on and disrupt the ~$400bn global Software as a Service (SaaS) market.

Allison Nathan: How does this compare to past periods of transformation?

Rick Sherlund: Some technology shifts, such as the move to mobile, allowed companies to adapt their existing architecture without fundamentally altering business processes. However, other shifts created true discontinuities that forced companies to completely rebuild their systems from the ground up. The move to relational databases in the 1980s/1990s is a prime example. Companies could not simply tweak their existing frameworks. Instead, they had to reconstruct their architectures entirely—a task akin to demolishing and rebuilding a skyscraper from its foundation. Once-dominant players that were unable to reinvent their platforms to compete with Oracle, which was a leader in promoting relational database architecture, were ultimately left behind. Similar upheavals occurred during the transitions to client-server models and later to cloud computing.

The rise of AI marks a similarly transformative shift, enabling processes that legacy system architectures cannot readily accommodate. Faced with falling valuations, incumbent SaaS providers must overhaul their systems. Remaining competitive in the AI era requires software companies to do much more than add incremental AI capabilities to automate narrow legacy human tasks. While such bolt-on functions may be quicker and look good in the marketing literature, they are superficial and risk missing the more critical and transformative opportunity to rearchitect systems around large language model (LLM) intelligence with reasoning at the core to orchestrate evolving autonomous agents, which can power a new generation of business processes. This shift is not only disruptive for the software industry, but for businesses and sectors globally, representing a fundamental change in technology platforms.

Allison Nathan: What new processes will such AI-enabled platforms be able to achieve?

Rick Sherlund: Traditional SaaS platforms rely on hard-coded workflows and human-centric, menu-driven interfaces. By contrast, AI-based systems feature more conversational interfaces, embedding LLM intelligence at their core to orchestrate agents capable of reasoning, decision-making, and executing tasks previously handled by humans. This enables the integration of entirely new processes. For example, legacy customer support consists of menu-based interactive voice responses (IVR) and irritating cascading menus. Users may frequently scream "representative" in frustration to exit the menu system to connect with a human to address their issue, but even that representative may not be able to do so. And customer support remains costly.

So, companies are turning to AI-powered virtual agents that are available 24/7, multilingual, and trained on comprehensive support materials. These agents run on hyperscaler systems that avoid problems of availability and scalability in periods of peak demand. Agents may also identify that a customer has, say, an older version of a product that may no longer be supported. The agent can then pivot from a cost center support function to a revenue function by recommending a new product. So, AI agents can seamlessly shift from support to sales and billing, orchestrating complex, multistep workflows across disparate systems with minimal human intervention.

As infrastructure improves to provide governance and guardrails, AI agents will increasingly handle autonomous, agent-to-agent processes, with humans overseeing compliance and exceptions. This shift will unlock even more processes and expand automation as systems become more intelligent and capable of advanced reasoning.

Allison Nathan: So, are concerns that AI could "eat" software, which have sparked a major selloff in legacy software companies, warranted, or overblown?

Rick Sherlund: At the end of the day, AI is expressed in software, so declaring software "dead" is misguided. Software will endure, even if the industry looks different than it does today. Certain segments of the software market—particularly applications—will experience considerable disruption, but the broader industry will be reincarnated, adapting to new processes and reaping substantial benefits from the widespread integration of AI capabilities across all business functions. This will lead to a step function increase in productivity that was not possible with traditional SaaS architectures.

Allison Nathan: Won't the rise of "vibe coding" eventually make software replaceable, as some argue?

Rick Sherlund: Concerns that "vibe coding" will make it so simple to write software that software itself becomes trivial are largely unfounded. Coding accounts for only around 15–20% of writing enterprise systems. So, while automating code generation is a major efficiency gain, it is just one aspect of a far more complex process. Designing effective workflows, defining data structures, and establishing secure access controls are all critical and complex tasks. Developers must decide how databases are organized, what data is stored, and how sensitive information, like payroll data, is protected. These challenges extend well beyond basic coding. So, easier coding won't sound the industry's death knell. On the contrary, the industry will likely become more vibrant than ever as firms leverage the new technology to remain competitive. So, the software market is not dead; it is being reborn around AI.

Allison Nathan: How defensible are legacy software moats amid the AI transition?

Rick Sherlund: Complex workflows are a powerful moat, demanding deep domain expertise to design effective interactions with vendors and suppliers in the supply chain. This expertise extends not only to vertical markets but also across horizontal complexities. Data access is another powerful moat, as software companies fiercely protect their customers' data and resist third-party access, recognizing its tremendous value. Scale and distribution moats are powerful as well—building and maintaining an enterprise sales force is extremely costly, so established distribution networks further protect incumbents.

Together, these moats buy incumbents time to adapt, as seen in prior software disruption cycles. For example, larger companies with complex workflows like SAP and Oracle were slower to adopt cloud architecture but eventually did so, leveraging their moats to buy time. So, firms with these protective moats, like the large SaaS incumbents, have more time to adjust amid the AI transition. But these moats aren't insurmountable—AI will very likely erode them over time.

Allison Nathan: How are incumbent software companies responding?

Rick Sherlund: Incumbent software companies are working hard to fundamentally re-architect their systems. Large firms like Salesforce, Workday, and ServiceNow—who were disruptors in the shift from client-server to the cloud—are now integrating LLMs into the core of their systems and developing agentic frameworks to support intelligent, autonomous workflows. Having been disruptors themselves, these vendors recognize that major technological shifts require comprehensive transformation, not just superficial bolt-ons.

These companies are also making significant efforts to address broader issues such as governance, security, and the need for advanced data structures like knowledge and context graphs. Such measures are vital for understanding data and workflow intent, ensuring that systems can operate autonomously while maintaining compliance and security. While these efforts do not guarantee that the incumbent SaaS companies will "win" against emerging AI-native competitors, they represent significant steps toward adapting and maintaining relevance in an evolving market. Whether they can move fast enough and reposition to leverage their market presence, distribution, and scale advantages to be net beneficiaries of the AI era remains to be seen.

Allison Nathan: By contrast, how can AI-native firms compete and win in the space?

Rick Sherlund: Disruptors have historically succeeded by entering at the lower end of the market, where there is less invested in incumbent systems and companies are more open to adopting innovative solutions. This was the case with Salesforce and Workday, who began by serving small- and medium-sized businesses rather than directly competing with SAP.

Over time, as new entrants enhance their offerings and scale their distribution, they can move gradually upmarket, competing with larger incumbents—adopting a "land and expand" strategy. Salesforce, for example, began with sales automation before expanding into marketing and customer service, while Workday started in Human Resources before adding financial capabilities. Ultimately, the path to market disruption starts at the bottom where the protective moats are fewer and fresh ideas can gain traction, and scales upward.

Allison Nathan: Given all that, how do you foresee the competitive landscape for software evolving?

Rick Sherlund: As more AI-native companies enter the lower end of the market, the software industry will likely become increasingly fragmented. We saw this with the move from client-server systems to the cloud/SaaS model, where specialized "best-of-breed" software solutions were embraced over traditional monolithic suites from providers like SAP and Oracle. Now, with the rise of agentic AI systems, we will likely see a further disaggregation as agents enable a fragmentation of functions and an unbundling of existing SaaS functions. This is already evident in the customer support segment, with AI agents transforming Contact Center as a Service (CCaaS) and IVR systems, as well as in the emergence of dedicated sales and marketing agents.

Allison Nathan: How can investors distinguish between software companies that will likely remain resilient in the face of AI-driven disruption, and those that may be at risk of becoming obsolete?

Rick Sherlund: Investing in software has now become riskier, making it important to distinguish between layers of the software stack—applications are probably more at risk than infrastructure software, while areas such as governance, security, and data management stand to benefit most from AI advances. Investors must carefully assess which companies are most exposed to disruption and which possess complex workflows that are more difficult to encroach upon, even if these firms will eventually need to undergo significant transformation to remain competitive.

Ultimately, the most promising companies are those doing the heavy lifting to re-architect to put LLMs at their core and build robust agentic frameworks. At the end of the day, only those with the right architecture will be able to adapt and capitalize as AI capabilities rapidly advance.

The software ecosystem, at a glance

The software industry can be thought of in three layers: Applications, Platforms, and Infrastructure. Companies operating within each layer are considered software companies because their core offering is the creation, deployment, or sale of software. A company can appear in multiple layers of the software stack depending on its product offerings, in a strategy known as "vertical integration".

Applications

The application layer represents the software products that end-users directly interact with to perform specific tasks. Applications include an array of software such as enterprise resource planning (ERP) systems, customer relationship management (CRM) tools, productivity suites, and industry-specific applications.

Adobe
(365 applications and Copilot)
salesforce
SAP
intuit
workday.
servicenow. (SaaS products)

Platforms

The platform layer provides the software environment, tools, and services that enable developers to build, deploy, and manage applications. Platforms include operating systems, databases, development frameworks, cloud Platform-as-a-Service (PaaS) offerings, and API platforms.

(Foundry platform)
snowflake
servicenow. (the Now Platform)
dynatrace
rubrik

Infrastructure

The infrastructure layer comprises the core computing resources, networking capabilities, and security and storage solutions that underpin all software. Infrastructure includes physical and virtual servers, data centers, cloud Infrastructure-as-a-Service (IaaS) offerings, databases, and cybersecurity essentials.

ORACLE
paloalto
Google (Cloud)
NEBIUS
(Azure)
amazon (AWS)
CROWDSTRIKE

Note: List of companies in each layer is not exhaustive.
Source: Goldman Sachs GIR.

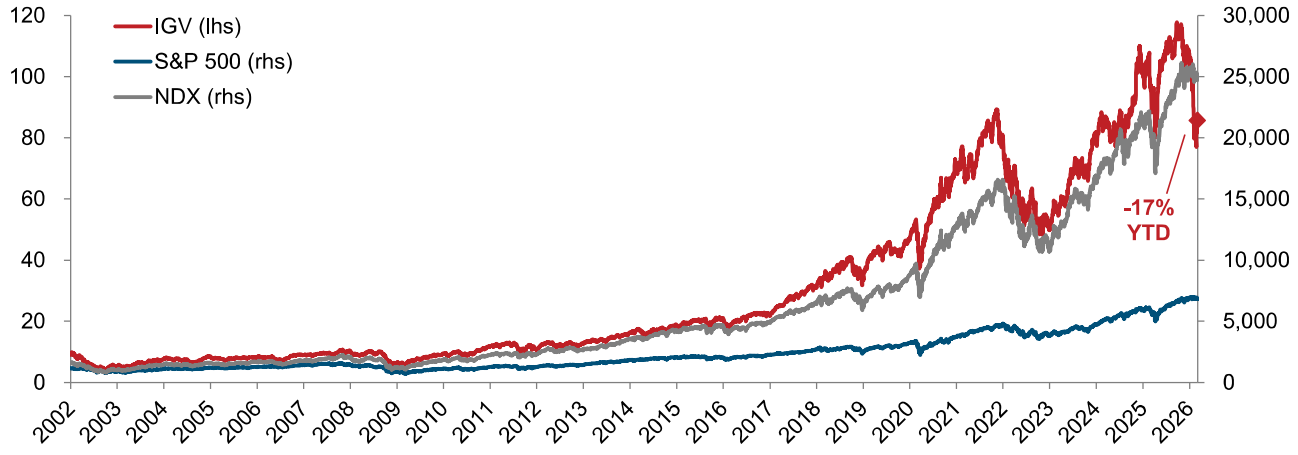
Special thanks to GS US Software Analyst Matthew Martino for data and guidance.

Illustration created using random AI generated code.

The software selloff, visualized

The iShares Expanded Tech-Software Sector ETF (IGV), which tracks the performance of around 120 North American stocks in the software industry, has declined by around 17% since the beginning of the year and 26% from its fall 2025 highs

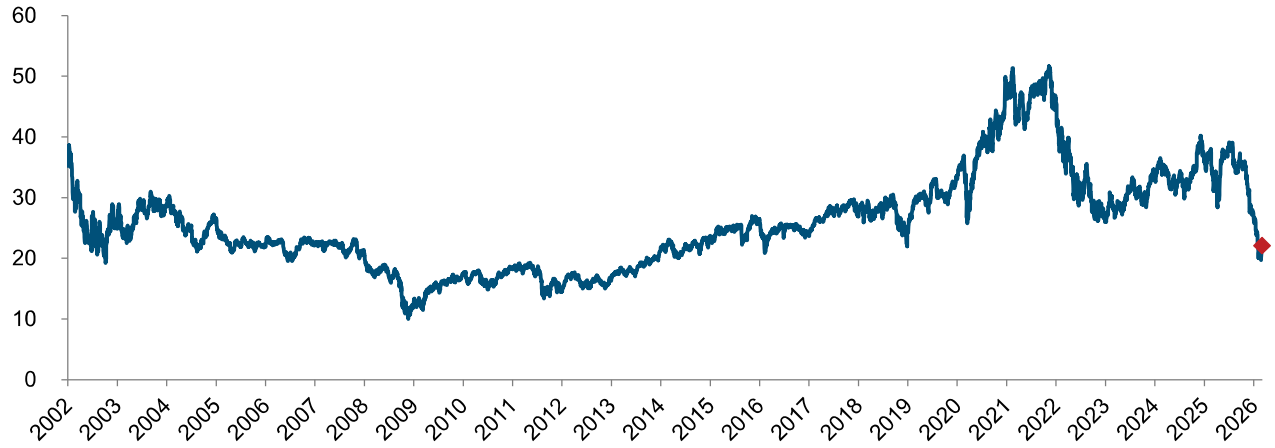
Price



See here for more details about the IGV ETF.
Source: FactSet, Goldman Sachs GIR.

Valuations have also fallen sharply, with the companies in the ETF trading at roughly 22x, well below their Covid-era peak of 51x

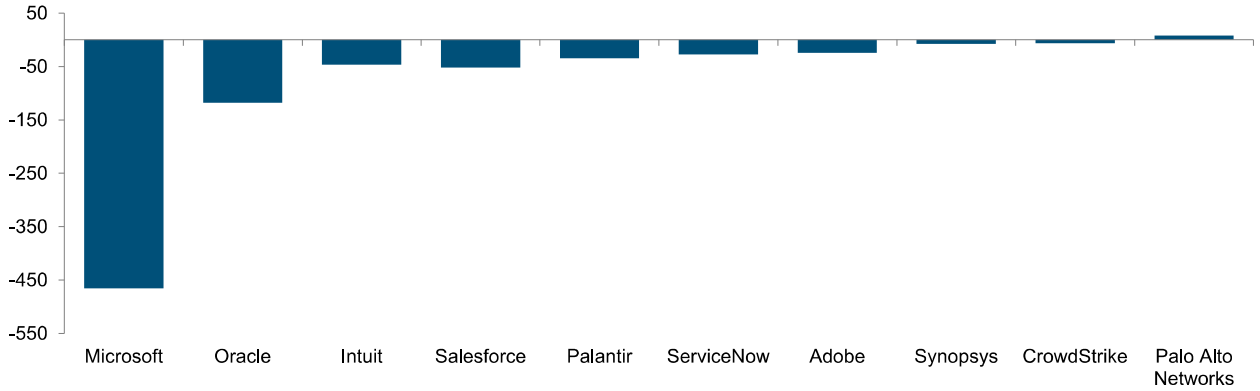
IGV NTM P/E



Source: FactSet, Goldman Sachs GIR.

The 10 largest stocks in the IGV ETF have in total lost nearly $800 billion in market capitalization since the beginning of the year

Market cap change for each of the 10 largest stocks in IGV since January 2, 2026, $bn



Source: Bloomberg, Goldman Sachs GIR.

Special thanks to GS US Portfolio Strategist Christophe Sung for data.

AI disruption: software subsector impacts

Q: Vertical Software, Data Infrastructure, and Physical-to-Digital are key subsectors of the software space. To what extent are legacy firms in these subsectors vulnerable to AI disruption?

Vertical Software

Adam Hotchkiss, US Emerging Software Analyst

A: Vertical software refers to products built for specific industries rather than general-purpose systems like email or accounting tools.These systems store critical data, reflect industry-specific workflows, and are deeply embedded in companies' daily operations. Vertical vendors include firms like Guidewire Software (insurance), Tyler Technologies (public sector), and Veeva Systems (life sciences). As AI technology continues to rapidly evolve, the key question is whether new agentic technologies will make vertical systems less valuable or even replace them. Our view is nuanced but ultimately constructive. First, we believe vertical software systems will remain the core "systems of record" (see pg. 4-5) for their industries. The data and context embedded in these platforms are both unique to complex, industry-specific networks and essential for AI to generate meaningful, reliable outputs. Second, AI gives vertical software vendors an opportunity to enhance connectivity between complicated industry workflows and get customers more value out of their data. Over time, this will likely drive synergies between products and result in higher revenue, even if competition grows.

The important nuance here is execution. Management teams that are fast followers—those that actively integrate new AI capabilities and maximize the value of available LLM technology—are better positioned to limit value abstraction. Conversely, less innovative vendors, rather than be valued as an immersive software ecosystem, could see their value erode to that of a database, which would likely weigh on pricing power and growth.

Competition in this layer will likely intensify. We are already seeing early signs of this with businesses that deploy engineers directly within a customer's environment to implement AI (often called forward deployed engineering), as well as early-stage tools launched by LLM companies themselves (i.e., Claude plugins). That said, incumbents that already own the underlying data and industry context layer start from a position of strength. Customers are also likely to be relatively patient with these vendors given the strength of their relationships and deep embeddedness of the software.

These dynamics could ultimately drive more M&A. Incumbents seeking to remain competitive may increasingly turn to M&A to keep pace with AI-native innovation, while private equity firms may find vertical businesses with clear data and context moats increasingly attractive given the compression of public market valuations.

Data Infrastructure and Physical-to-Digital

Matthew Martino, US Software Analyst

A: Data infrastructure refers to platforms that store, govern, and secure data so it can be accessed and used across an organization, such as Snowflake, MongoDB, and Rubrik. We view AI as a force multiplier in this space. As organizations deploy AI copilots and agents, they will create and query more data, demand faster response times, and tolerate less downtime. This raises the value of this foundational layer, because it determines whether AI can run reliably and securely in production.

The primary risk this subsector faces is that, over time, workloads could shift to newer or cheaper platforms—a familiar pattern in technology transitions—and more integrated AI stacks could reshape enterprises' spending priorities. However, we see these as competitive dynamics to monitor rather than immediate existential threats.

The disruption debate is more pointed for physical-to-digital companies. These are software firms that sell digital products to physical asset-intensive industries like construction and transportation. On the surface, these products can look like everyday applications. In reality, they sit inside mission-critical workflows with governance and compliance baked in, which raises the bar for AI-native challengers.

The long-term risk is not that AI replaces these platforms outright, but that a general-purpose agent layer could sit above them and reduce their standalone importance. But our view is that AI adoption will gravitate toward systems that control proprietary data and link directly to real-world outcomes. For such systems, AI will likely become a source of reinforcement rather than disruption.

AI tools for enterprise

Tool	Summary
Core enterprise AI platforms	
Anthropic Claude Cowork	An AI productivity tool that operates as an AI agent that can perform tasks directly on a user's computer, including automating repetitive tasks such as organizing files, extracting data from PDFs into spreadsheets, and generating presentations.
OpenAI Frontier	An enterprise-grade platform designed to build, deploy, and manage autonomous AI agents that act as "digital co-workers." AI agents can perform complex, multi-step tasks across business systems like CRM and data warehouses.
Microsoft Copilot	An AI digital assistant integrated across Microsoft 365 apps (Word, Excel, Teams), Windows, and web browsers, designed to boost productivity and streamline workflows.
Google Gemini for Workspace	An AI digital assistant integrated directly into Gmail, Docs, Drive, Slides, Sheets, and Meet that helps users boost productivity through drafting, organizing, summarizing, and brainstorming.
OpenClaw	An open-source autonomous AI agent that acts as a personal digital assistant capable of managing files, running terminal commands, and automating tasks across platforms like Discord, Slack, and WhatsApp.
Adept AI	Uses autonomous AI agents that can execute manual, repetitive, end-to-end workflow tasks across existing software applications.
AI for customer service and sales	
Sierra AI	An AI-powered customer service agent that can handle complex conversations across digital channels including around tracking orders or resolving issues.
Ada CX	An AI customer service platform designed for enterprises to automate support across chat, email, and voice channels.
Gong AI	A revenue intelligence platform using AI to analyze customer interactions to improve sales performance and identify risks.
Clari AI	Provides AI-driven revenue forecasting and deal intelligence.
AI for HR	
HR Plugin for Claude Cowork	Allows HR professionals to deploy specialized agents that operate across local files and enterprise apps. It can draft offer letters, build onboarding plans, and run compensation analyses by pulling data from multiple spreadsheets.
Paradox	A tool for high-volume recruitment that handles candidate screening, answers FAQs, and automatically schedules interviews based on recruiter availability.
AI for financial services	
AlphaSense	An AI-powered market intelligence platform that aggregates millions of data points from equity research, filings, and news to provide real-time insights for analysts.
Alteryx	Automates repetitive data workflows and analytical modeling, allowing finance teams to run various risk scenarios and consolidate disparate data sources without manual effort.
Prophix One	A finance-native platform embedding AI agents directly into budgeting, forecasting, and "continuous close" workflows to reduce human error in reporting.
Trullion AI	An AI accounting platform that automates lease accounting and revenue recognition.
Anaplan (PlanIQ)	An AI platform that detects anomalies and generates predictive forecasts across finance, sales, and supply chain operations.
AI for manufacturing and supply chains	
Siemens & NVIDIA (Industrial AI OS)	A joint operating system that transforms "passive" digital twins into active intelligence, allowing real-time simulation and optimization of factory floors.
Blue Yonder	An AI-driven supply chain platform that provides cognitive analytics to predict disruptions and automatically adjust production and logistics schedules accordingly.
Cognex Vision AI	Leverages deep learning for high-speed machine vision quality control, detecting subtle defects that traditional rule-based systems miss.
Interos	An AI risk management platform that monitors global supply chains for geopolitical, financial, and ESG-related disruptions.
Phaidra	Provides autonomous AI control systems for industrial manufacturing and mission-critical facilities, such as data centers.
AI for legal and professional services	
Harvey AI	A domain-specific AI platform used by major law firms for regulatory research, document analysis, and drafting documents.
Luminance	An AI platform specialized in M&A due diligence and autonomous NDA negotiation, capable of identifying anomalies across large document sets.
Ironclad	A contract lifecycle management tool that uses AI to automate the drafting, negotiation, and tracking of legal obligations at scale.
Casetext (CoCounsel)	An AI legal assistant that performs case law research, summarizes depositions, and reviews documents for relevance using advanced reasoning.
AI for retail and e-commerce	
Salesforce Einstein	An integrated AI layer for CRM that generates personalized product descriptions, predicts customer churn, and provides merchandising insights.
Shopify Magic	Suite of AI tools that automates inventory management, generates marketing copy, and personalizes product recommendations.
ConversionBox	An AI shopping assistant that uses conversational AI to guide customers through product discovery, acting as a digital salesperson on e-commerce sites.

Note: Table does not constitute an exhaustive list of all AI tools for enterprise.
Source: Company data, various news sources, compiled by Goldman Sachs GIR.

Interview with Sanjay Poonen

Sanjay Poonen is CEO and President of Cohesity, an AI-powered data security and management firm, and serves on the boards of Philips and Snyk. Previously, Poonen was COO at VMware and President of SAP. Below, he argues that agentic AI has the potential to be enormously disruptive for the software industry, and legacy firms must adapt by leveraging the technology to improve their product offerings or risk being demolished by it.

The views stated herein are those of the interviewee and do not necessarily reflect those of Goldman Sachs.

Allison Nathan: Based on your vast experience in the software industry, does the emergence of new agentic AI tools for software development mark a transformative moment for the industry?

Sanjay Poonen: Agentic AI has already proven to be an incredibly powerful tool with the potential to be enormously disruptive. As an engineer who began my career writing code, this is a truly exciting and transformative moment—back in the 1990s, I often stayed up late trying to debug code, hoping to find another engineer also working late whom I could consult. Today, that "person" is an AI assistant.

However, just like any technology wave, you must surf this tsunami, or it will demolish you. If software engineers aren't leveraging AI technology to write code and improve productivity today, it's a crime. The best software engineers I know, both at Cohesity and beyond, say that the technology is revolutionizing the way they code. So, we've thoroughly embraced it at Cohesity. But every business should be thinking about how these tools can support and improve not only their software engineers, sales reps, and human resources personnel, but also their products and services. I see limitless potential to leverage generative AI in almost every industry, from medtech to aeronautics and even space.

> "Agentic AI has already proven to be an incredibly powerful tool with the potential to be enormously disruptive... However, just like any technology wave, you must surf this tsunami, or it will demolish you."

Allison Nathan: You paint a very positive picture of the benefits of AI for software and productivity. But the whole software sector has re-rated substantially lower because of concerns that legacy software companies won't be able to compete even if they are embracing AI technology themselves. So, are these concerns warranted?

Sanjay Poonen: With such transformative technology, every software company must assess whether they can sustain their current price per user or will instead be threatened by AI-native or other competitors leveraging the technology. At the core of every Software as a Service (SaaS) application is a CRUD—Create, Read, Update, Delete—database that maintains data, application logic, and workflows, which AI tools have the potential to radically disrupt. If a company can sustain its price per user amid this disruption, it will likely be fine. But some companies may need to lower their price per user to remain competitive. That doesn't necessarily mean the company will go bankrupt or disappear, but it does have important implications for revenue growth and terminal value. So, every CEO, analyst, and investor is rightly assessing this risk.

> "With such transformative technology, every software company must assess whether they can sustain their current price per user or will instead be threatened by AI native or other competitors leveraging the technology."

Allison Nathan: Is it realistic to think that these companies will be able to effectively respond to this pricing pressure and stay competitive?

Sanjay Poonen: Yes, but it requires innovation. Firms whose core products are under pressure may need to add a second or third module with enhanced capabilities that garners a higher price per user to compensate for the lost revenue. For example, a company could offer a small, medium, and large packaging of its product, with the price per user of the small, base product coming down, but the price per user of the larger product offerings higher.

Alternatively, firms can expand into new areas to grow their total addressable market (TAM) and sustain revenue growth even as price per user declines. When I was at SAP, we recognized that a price per user ceiling existed for our ERP software and responded by adding a system of engagement on top of the system of record by acquiring analytics companies and building new business objects. This allowed us to raise the effective price per user for the combined product offering. Every company facing disruption of their core product will need to make these types of adjustments.

SaaS companies can also attempt to shift from a price per user to a price per outcome model, where fees are based on the measurable value they provide to the customer. That pricing model is harder to sustain because tracking outcomes can be challenging and an IT buyer typically has a fixed budget and is often unable or unwilling to enter into a vendor contract with fees that depend on the broader company's performance. Because of that, most companies price per user. The only company I am aware of that uses a price per outcome model is Palantir, which often sells its product at the CEO level, where the power to make these decisions resides.

Allison Nathan: So, is the indiscriminate selloff across the software space overdone?

Sanjay Poonen: The answer to that will ultimately be determined by the revenue growth of these companies. As both a student of software and the CEO of a software company, I will be closely watching whether growth is holding up or slowing down. That said, in the security world Cohesity lives in, the large market reaction to Anthropic's announcement that it had built a code scanning tool for security was akin to Anthropic sneezing and everyone coming down with pneumonia. But the market seemed to quickly realize that this was an overreaction and that this tool won't enable users to build a firewall or a data or endpoint security product overnight.

Allison Nathan: Even if that's true today, are you concerned that it won't be in the future given the rapid rate at which generative/agentic AI technology is advancing?

Sanjay Poonen: Former Intel CEO Andy Grove said it best: "only the paranoid survive." Nobody in this space can afford to be cavalier about the potential for disruption. As a CEO, I have to assume that someone could use AI tools to build a competitor. In fact, I recently asked an AI assistant to build a Cohesity competitor to see what it would do. Unsurprisingly, its first response was that this was a "tall order." But it was able to think about the challenge in logical steps, which revealed an understanding of how to build a competitor. So, it's only safe to assume that, given time, these tools will eventually be able to do just that. For that reason, it is incumbent upon myself and every other CEO in a similar position to take advantage of these same tools to expand and improve our own product offerings. Again, we must ride the tsunami to our benefit rather than let it demolish us.

"Former Intel CEO Andy Grove said it best: "only the paranoid survive." Nobody in this space can afford to be cavalier about the potential for disruption."

Allison Nathan: But is just bolting AI agents onto legacy layers ever going to be as successful and powerful as native AI product offerings, or will legacy companies eventually have to start from scratch?

Sanjay Poonen: Software is typically built in architectural layers, with the top layers easiest to refresh and the core, bottom layers much harder to. But even timeless software evolves every decade or two, so engineers must be comfortable with the idea of completely rewriting part of or even the whole architectural stack. The good news is that using new tools and approaches to rewrite code from scratch will probably take a small fraction of the time it took to write the original code. Even then, disrupting the whole stack is undoubtedly hard, even if necessary. In such instances, companies might decide to shelter in place and keep the business and cashflow running while simultaneously building or buying the next generation of the company. I see this as akin to living in your old house while building a new one next door and only tearing down the old house once the new one is ready.

We dealt with this at every organization I've worked at. At SAP, as new companies that were building a SaaS version of ERP in the cloud threatened to disrupt our on-prem product, we had to consider whether we could build a cloud-native product fast enough without disrupting our core platform. The best companies find a way to constantly evolve their stack to remain competitive.

Allison Nathan: While large players like a Microsoft or Salesforce may be able rebuild, is there an inherent disadvantage for the smaller companies that have less resources to do so?

Sanjay Poonen: It's wrong to assume that reinvention is easier at a Microsoft or Salesforce, and in fact the opposite may be true. It took new leadership for Microsoft to transform from a Windows company to a cloud company and now an AI company. In my experience, the bigger the company, the greater the molasses, dinosaur mindsets, and resistance to change. Smaller companies may not have as many resources, but they have the advantage of speed. It's a bit like a speedboat vs. an aircraft carrier—small firms can usually make decisions faster and are less likely to have a large legacy install base that they must worry about transforming. Microsoft pivoting away from Windows to Azure was a big and highly risky shift. A company starting completely from scratch has no legacy to deal with. I'm reminded of the joke that God created the world in seven days because he didn't have an install base. The bigger the install base, the tougher it is to pivot and change.

All that said, whether small, medium, or large, as long as a company maintains a mindset and culture that is open to innovation, none of these challenges are too daunting to achieve. Companies with such a mindset can start things from scratch and build on them without destroying the house they live in, which allows them to create S-curve upon S-curve of continued innovation.

Allison Nathan: So, what could the software industry look like in five or 10 years?

Sanjay Poonen: I expect more vertical industry software capabilities in industries like space, healthcare, material sciences, and robotics. Consider SpaceX's vision of data centers in space, where cooling isn't a problem. That endeavor will undoubtedly require software. The same could be said for biotech, medtech, and robotics, which will almost certainly increasingly attract top software talent that previously went to the Googles and Salesforces of the world, driving innovation that could help people live healthier and longer lives. So, my hope is that the software industry spreads its skillset into other vertical industries with positive implications for society and the world. And AI will undoubtedly be a part of every one of those industries.

Software stocks: earnings stability needed

Ben Snider argues that a rebound in the stocks most exposed to AI disruption risk likely won't come until earnings stabilize

The AI narrative has shifted. After three years of equity investor enthusiasm regarding the tailwinds from AI, recent equity market rotations reflect a growing focus on the risk of AI disruption. Software stocks have been at the center of this shift, falling by 18% from their YTD highs and now sitting roughly 26% below late 2025 levels. Stocks in a range of data-intensive industries beyond software, including insurance, media, and business services, have also declined sharply in recent weeks. While the moves have been swift and severe, we think a rebound in the stocks most exposed to AI disruption risk will take time, as disproving the disruption narrative won't be easy or quick.

Re-rating: a decomposition

After entering 2026 at extremely elevated valuations, growth expectations, and weights in investor portfolios, the software industry has sharply re-rated to reflect declining expectations for future earnings growth as AI disruption risk grows.

The industry's forward P/E multiple has fallen from roughly 35x in late 2025—consistent with 2028 consensus revenue growth in the 15-20% range, over twice the roughly 6% growth expected for the median S&P 500 stock and the highest expected growth in at least two decades—to around 22x currently, the low end of the multiple's recent range and the lowest absolute level since 2014, consistent with 5-10% earnings growth.

Given the high starting point of valuations, software continues to trade at a valuation premium to the equal-weight S&P 500 despite the recent selloff, and its 9% S&P 500 weight is roughly double its weight a decade ago.

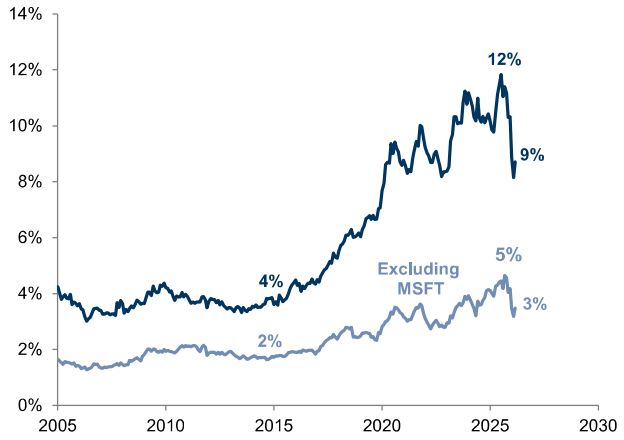
Software continues to trade at a valuation premium to the equal-weight S&P 500 despite the recent selloff...

Software forward P/E, X (lhs), % (rhs)

Source: FactSet, Goldman Sachs GIR.

...with its weight in the S&P 500 roughly double that of a decade ago

Software weight in the S&P 500, %



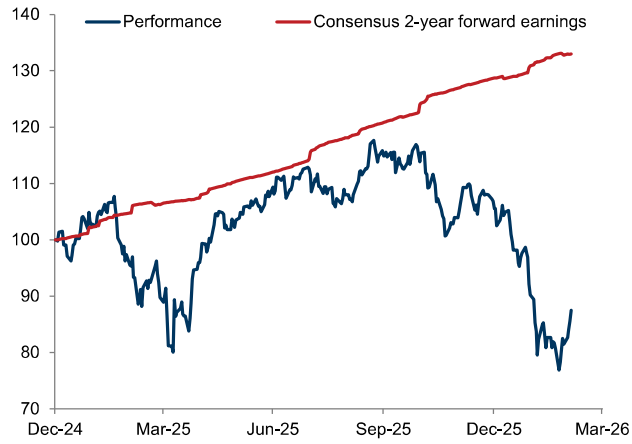
Source: FactSet, Goldman Sachs GIR.

In addition to lower growth expectations, the recent re-rating reflects rising uncertainty around the long-term trajectory of the industry and the "terminal value" of stocks previously viewed as long-duration growth assets. In other words, share prices now reflect not just slower expected growth, but also doubts about the durability of business models as AI disruption raises questions about pricing power and competitive barriers.

The impact of this long-term uncertainty can be seen in the juxtaposition of recent share price volatility and 4Q25 earnings results. In contrast with falling share prices, recent earnings results have reflected strong profitability—including double-digit earnings growth last quarter, with profit margins for the industry sitting at record highs and roughly twice those of the rest of the market—and have driven upward revisions to near-term analyst earnings estimates.

The performance and earnings of software stocks have diverged

Indexed performance and earnings of software stocks



Source: FactSet, Goldman Sachs GIR.

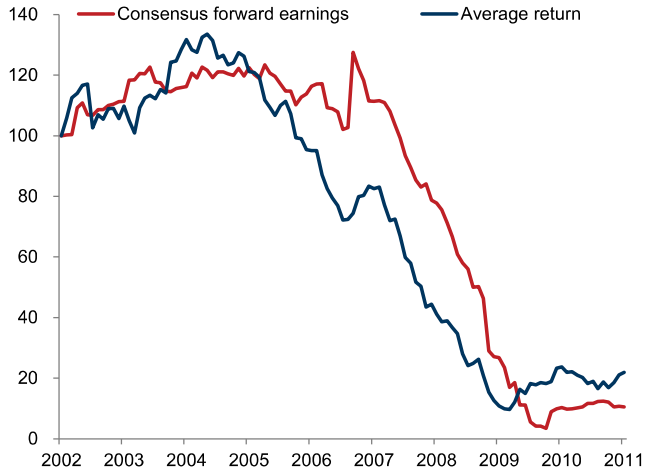
Lessons from history: don't expect a V-shaped rebound

Historical episodes of disruption risk suggest that share prices in affected industries will likely stabilize only when earnings stabilize, and that these periods of uncertainty can last for years. In the early 2000s, US newspaper stocks fell by an average of around 95% over the course of five years, and the group bottomed out only slightly ahead of the stabilization in

forward earnings estimates. Tobacco stocks in the late 1990s experienced disruption risk driven by litigation, rather than technology, but the pattern was similar. In that episode, share prices declined by over 50% in 1997-1998 and troughed only as the litigation settlement reduced uncertainty and the near-term earnings outlook stabilized. Given the rapid pace of AI advancement today, disproving the narrative of disruption risk is difficult when near-term earnings outlooks in the vulnerable industry have barely begun to weaken, much less stabilized.

US newspaper stock prices stabilized only when earnings stabilized

Indexed avg return and consensus forward earnings of US newspaper stocks



Source: FactSet, Goldman Sachs GIR.

For investors, the lesson is not to expect a V-shaped rebound in the parts of the equity market most affected by recent disruption fears. For these industries, near-term earnings can be an important signal of business resilience, but in many cases will be insufficient to disprove long-term downside risk. For the group to re-rate higher, investors will likely require more clarity on AI's eventual business impact, which will take time, or a substantially lower starting point for valuations and ownership. This may be an easier lift for the parts of the software and business services industries with particularly resilient business moats, but those moats, too, will need to be proven.

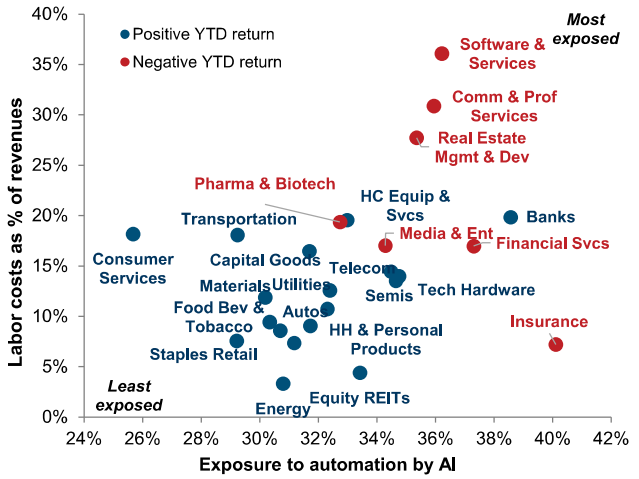
Of course, in any broad-based selloff there will liely be some proverbial "babies thrown out with the bathwater" that represent value opportunities for stock pickers. In the current episode, the key is the speed with which companies can disprove disruption risk.

Avoiding AI disruption risk: look to "real world" assets

Another consequence of the recent focus on disruption risk is a rotation of investor portfolios toward "real world" assets with perceived insulation from AI disruption risk. Recent outperformers in this vein include a handful of cyclical industries like industrials and materials that have also enjoyed tailwinds from an improving economic growth backdrop. GS forecasts for above-trend economic growth have lent fundamental support to cyclicals' recent strength, and we entered 2026 recommending investors own many of these stocks. However, the tailwind from cyclical economic acceleration also highlights the broader equity market vulnerability if the growth backdrop proves less robust than expected or industry-specific AI disruption fears spread to broader concerns about labor market disruption. This risk helps explain the recent outperformance of more defensive "AI-insulated" sectors, including consumer staples and biopharma, and we think the appropriate strategy is to balance cyclical exposures with some relatively defensive equity positions.

The recent focus on AI disruption risk has triggered a rotation toward "real world" assets

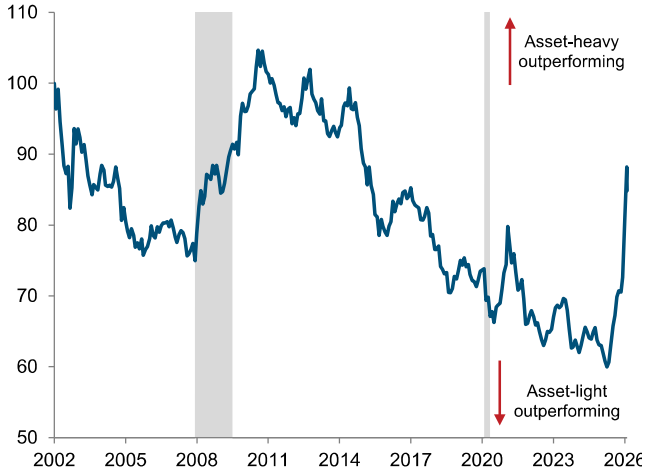
Russell 1000 industry median



Source: Revelio, company filings, Goldman Sachs GIR.

Increased investor desire for "AI insulation" has led asset-heavy stocks to sharply outperform

Asset-heavy vs. asset-light indexed performance



Note: Grey bars indicate recessions.
Source: Goldman Sachs GIR.

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Goldman Sachs & Co. LLC

Managing AI risk in portfolios

Christian Mueller-Glissmann discusses the why and how of managing AI risk in portfolios amid growing AI disruption fears

Investor concerns about AI risks for the global technology sector have grown amid ongoing worries about hyperscalers' massive AI capex spend and, most recently, rising fears that new AI tools will disrupt tech incumbents, especially legacy software firms. Such concerns matter because global portfolios are highly exposed to the technology sector, especially within US equities, where software stocks have a relatively large weight, with substantial exposures to technology and software specifically also a feature of private markets.

But the fate of the tech sector also matters more broadly given how closely tied structural cycles in US equity valuations and outperformance have been to the performance of tech stocks. To achieve more balance between innovation and inflation risks within portfolios, we think investors may need to continue rotating from capital-light to capital-heavy businesses that AI won't easily disrupt, though the aggressive rotations we've already seen warrant being more selective.

A tech-dependent equity market...

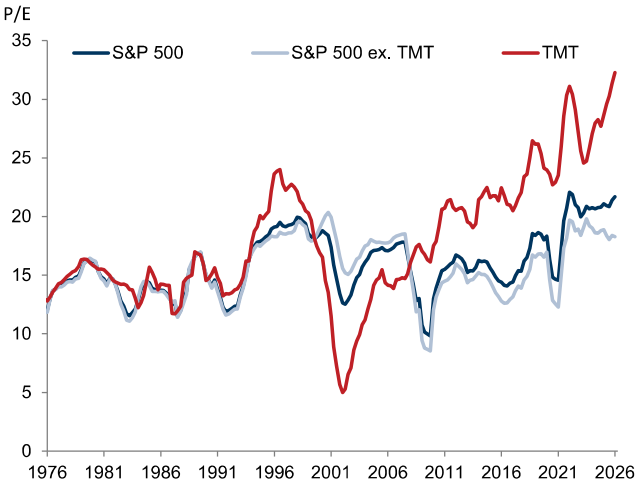
What happens to the tech sector has broader implications for the equity market for several reasons. The sector has historically been a key driver of structural cycles for US equities, with major waves of technological innovation often significantly impacting the broader market. During the 1960s PC boom, 1990s Internet boom, and the post-Global Financial Crisis (GFC) ascent of the Magnificent 7, tech's share of total market cap rose sharply, and significant market corrections often followed these periods. Today, the TMT sector once again commands the largest weight within US equities, comparable to Tech Bubble levels, but the sector's contribution to earnings is now substantially greater compared to then.

Tech's weight in the US equity market has risen sharply during major waves of technological innovation

Source: Datastream, Goldman Sachs GIR.

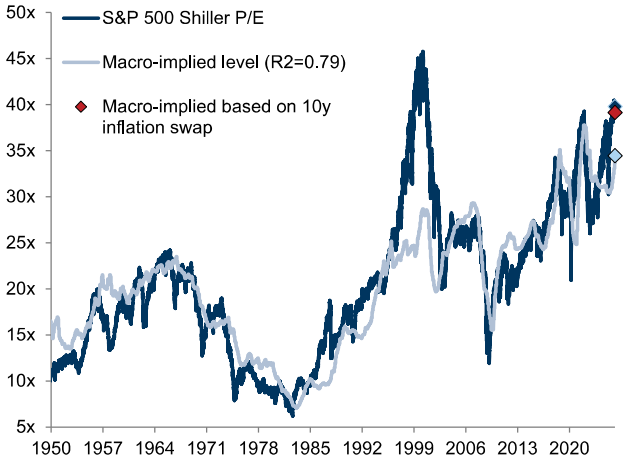
Tech has also played a key role in driving structurally higher S&P 500 profitability and valuations. Since the GFC, the return on equity (ROE) across the TMT sector has nearly doubled, significantly lifting the S&P 500's overall profitability. This trend accelerated during the pandemic as technology adoption surged. Higher profitability has, in turn, supported higher equity valuations. Indeed, the rise in the S&P 500's Shiller P/E over the past two decades reflects two interconnected elements: improved corporate profitability—driven by the growing weight of the highly profitable, capital-light US tech sector—and persistently low and stable inflation. And the strong performance of large cap tech stocks has driven a large amount of the US equity outperformance since the GFC.

The ROE for the TMT sector has nearly doubled since the GFC, significantly boosting S&P 500 profitability



Source: Compustat, Goldman Sachs GIR.

High profitability, coupled with low inflation expectations, have fueled a rise in US equity valuations



Source: Haver Analytics, Kenneth French, Robert Shiller, Goldman Sachs GIR.

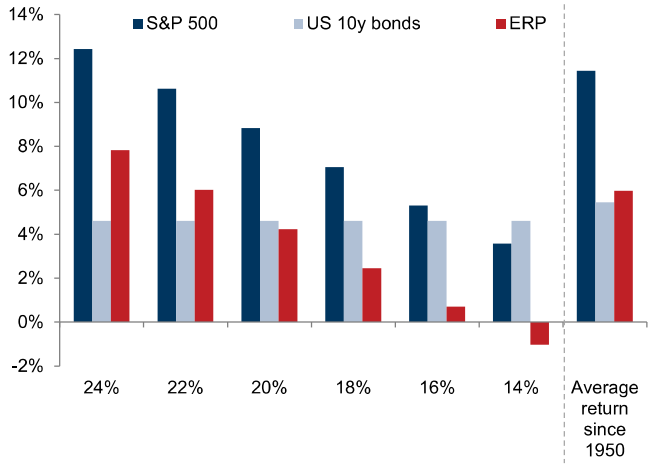
...meets AI disruption fears

Investors have extrapolated the TMT sector's high ROE, even as these firms pay out relatively little to shareholders, essentially betting that major tech conglomerates will maintain their profitability as they make substantial reinvestments. However, last year anxieties around AI capex began to impact some of the largest spenders in the sector, particularly the hyperscalers. Beyond concerns around potential future AI revenues, the big spenders are also becoming more capital-heavy, which might weigh on ROE in the medium term.

More recently, rising concerns about AI disruption have weighed on parts of the TMT sector, especially software stocks, with investors increasingly worried that the tech sector may end up disrupting itself. Advances in AI-powered task automation, for example, could undermine the pricing power of some of the most profitable large-cap software firms. While AI adoption may also boost other businesses' ROEs, a decline in the profitability of the market's largest and most lucrative segment could adversely affect the S&P 500's overall ROE and dampen long-term return expectations, which currently rely on the compounding of those ROEs. And markets have been pricing negative AI disruption faster than potential tailwinds from AI adoption.

Lower corporate profitability could portend lower long-term equity returns and less attractive equity risk premia

S&P 500 ROE in 10 years scenarios, % (x-axis) vs. annualized nominal returns for stocks and bonds and equity risk premium (ERP), % (y-axis)*



*See this note for more detail about the long-term return calculations.
Source: Haver Analytics, Goldman Sachs GIR.

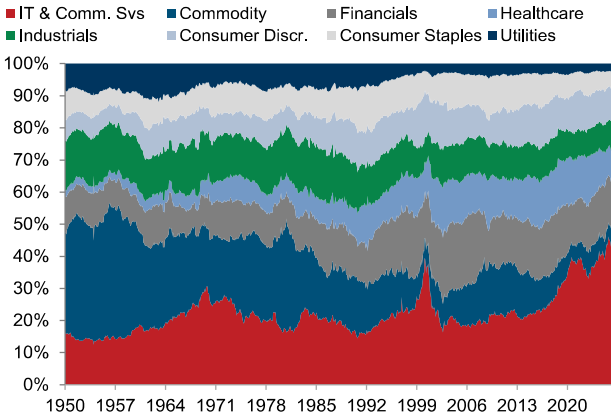
Balancing innovation and inflation risks

We expect an AI-driven rise in productivity to eventually support corporate profitability. But concerns about AI disruption may continue to be priced faster than the benefits of AI adoption. On top of that, the AI application firms driving disruption are mostly private companies and, as such, not easily investable, which makes it difficult to diversify AI disruption risk. Investors may therefore demand more risk premium for at-risk businesses, which has already driven a rotation and value convergence between capital-light growth sectors like TMT and capital-heavy value sectors like telecoms, industrials, and utilities that AI is unlikely to disrupt.

Owing to a boost from innovation, the TMT sector has become a much larger part of the S&P 500 since the GFC, while capital-heavy sectors have underperformed, partly owing to a lack of inflation. As investors continue to worry about AI disruption, this may lead them to demand a higher equity risk premium, which could result in some de-rating of equities vs. bonds, with bonds potentially also benefitting from disinflation due to AI disruption.

The TMT sector holds a dominant position within the US equity market, with capital-heavy sectors holding a relatively small one

Share of S&P 500 by sector, %



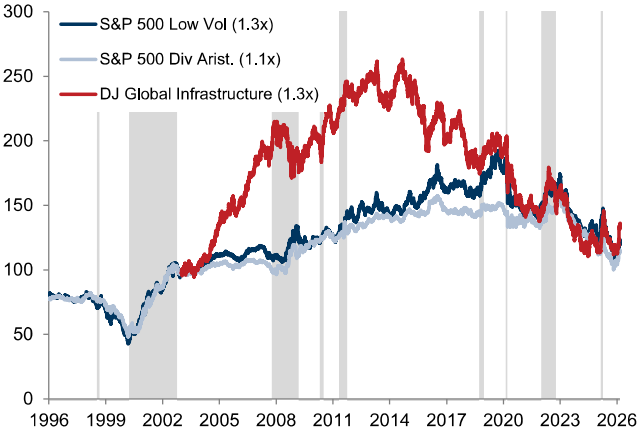
Source: Bloomberg, Datastream, Goldman Sachs GIR.

To manage innovation and inflation risks within portfolios, investors may need to continue rotating further from growth to value and capital-light to capital-heavy businesses, both in equity and credit. However, after the aggressive rotations since the beginning of the year, we favor being more selective. Within equities, we continue to see diversification benefits from defensive styles such as low volatility stocks, dividend aristocrats, and infrastructure, which materially outperformed on a risk-adjusted basis during the Tech bubble burst.

We also expect more dispersion as AI will likely continue to produce more winners and losers. This should support strategies that buy individual stock and sell index options and long/short hedge funds in both equity and credit. And we continue to view geographical diversification as an attractive strategy. TMT exposure is typically lower in non-US equity markets and tends to be more hardware-focused, with such markets also offering more capital-heavy sector opportunities.

Defensive styles have lagged in recent years but outperformed over the long run

Total return relative performance vs. S&P 500 (grey bars indicate periods of 15%+ market selloffs)*



Source: Datastream, Bloomberg, Goldman Sachs GIR.

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Software disruption & credit: no hard fall

Shamshad Ali argues that software loan losses owing to AI disruption fears are unlikely to catalyze a turn in the credit default cycle

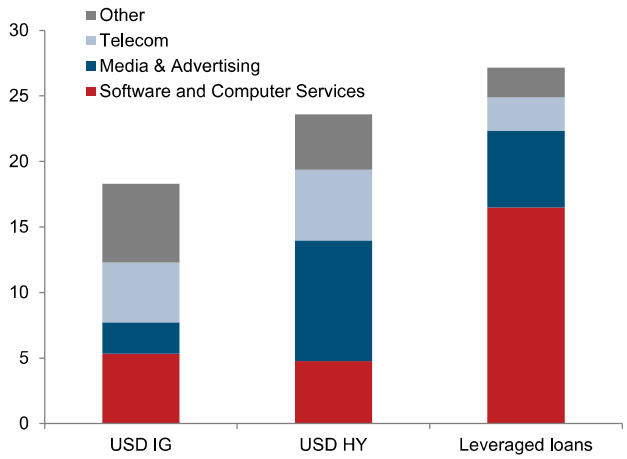
Recent headlines around AI-driven disruption—and the associated sharp drawdown in software stocks—have weighed on software-exposed credit, most notably in the broadly syndicated loan (BSL) market. As sectors like insurance, brokers, and other services exposed to AI disintermediation have also come under pressure as more new AI tools have emerged and investors worry about downstream implications, we believe the BSL market faces the greatest risk should disruption concerns translate into weaker earnings trajectories for traditional software companies, which would erode interest coverage ratios for these already levered borrowers. Given that software accounts for a meaningful share of the BSL market, some degree of index-level stress would be difficult to avoid if fundamentals continue to deteriorate. That said, the benign macro backdrop and lower funding costs should help limit the risk of a turn in the credit default cycle.

A more exposed BSL market

Software accounts for only a small slice of the USD IG and HY bond indices (roughly 5%) but a meaningfully larger share of the BSL market (16%). While many IG software issuers are large incumbents (including the AI hyperscalers), software-exposed issuers in the HY bond and leveraged loan markets have underperformed broader benchmarks as investors have repriced disruption risk. HY software has shifted from trading tighter than the average spread level of the overall HY index to roughly double index spreads, while secondary prices for software loans have fallen to the lowest levels since April 2025.

Software accounts for only a small slice of IG and HY but a meaningfully larger share of the BSL market

TMT subindex exposure in USD credit, %

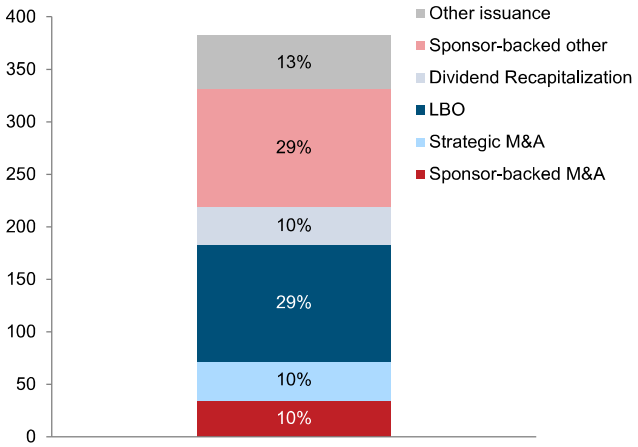


Source: Bloomberg, Pitchbook LCD, Goldman Sachs GIR.

A defining feature of software-related loans is the linkage to sponsor-backed (typically private equity) activity. Since 2021, nearly 40% of technology leveraged loan supply has been tied to sponsor-driven M&A and LBO financing. Another 10% of issuance stemmed from dividend recapitalization—firms taking on new debt to pay dividends—as sponsors sought liquidity amid a less favorable exit environment. The upshot is that underwriting is no longer just about borrower fundamentals; investors also need to carefully consider sponsor incentives, time horizon, and sponsors' willingness to support a firm's capital structure through difficult periods as the industry navigates a changing paradigm.

80% of tech loan issuance since 2021 has been sponsor-backed

Share of total gross Computer and Electronics loan issuance since 2021 by category, $bn



Source: Pitchbook LCD, Goldman Sachs GIR.

Some impairment likely, but not a turn in the default cycle

The potential persistence of AI disruption pressures would likely most clearly manifest via downgrades and lower secondary prices in the software-heavy portion of the loan index. Particularly important to watch would be the implications of such shifts for the CLO community, the main buyer of leveraged loans. CLOs have built-in rules or covenants designed to ensure that the overall diversification and quality of the underlying loans in their portfolios remain within acceptable limits (concentration, over-collateralization and collateral-quality tests). The downgrading of too many loans to a CCC rating (BSL CLOs typically have a limit of 7.5% for CCC exposure) could trigger various penalties. As a result, prices for these loans could move beyond fundamentals as the investor base potentially shifts from CCC-averse CLO buyers.

That said, bifurcation in loans isn't new. Even in periods when lower-quality loans cheapen, the broader index can remain resilient when higher-quality borrowers repeatedly reprice their loans at lower spreads and new loan supply is muted, as has been the case this year. Overall, while some impairment in software-exposed loans is hard to avoid, we don't think this impairment is sufficient to catalyze a credit default cycle, for two reasons. First, the macro backdrop remains benign, and history suggests that defaults typically coincide with rather than predict the broader cycle. Second, lower interest rates and improved funding conditions should continue to provide incremental relief to floating-rate borrowers.

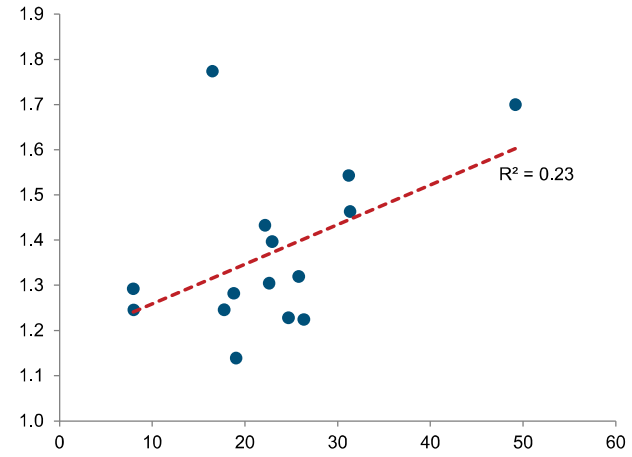
Pain in direct lending, but de-leveraging risk looks contained

Beyond the BSL market, direct lending—and by extension business development companies (BDCs) that invest in small and mid-sized, often private, firms—has been in the crosshairs given meaningful allocations to software. Indeed, our equity analysts estimate that software portfolio companies account for

22% of BDC loans (see pg. 20). Consistent with this, BDC equities have tended to trade at wider discounts to net asset value (NAV) while BDC credit spreads generally have widened in accordance with software exposure.

BDC credit spread widening correlates with software exposure

Software exposure as of 3Q25, % (x-axis) vs. on-the-run BDC senior unsecured bond spread change, ratio relative to Jan. 23 level (y-axis)



Source: Bloomberg, Goldman Sachs GIR.

We are closely monitoring signs of stress in BDC portfolios and have long argued that some writedown in asset valuations is likely. Recent liquidations of assets in BDC portfolios have also fueled speculation about asset health despite the loans selling at high, near-par, dollar prices. While full transparency isn't available on the sales, our equity analysts continue to think that credit trends in BDC portfolio data seem benign for now, but near-term portfolio data will remain under scrutiny.

While the rising rate of redemptions in BDCs is worth monitoring, we continue to think that the probability of a liquidity event or forced de-leveraging in direct lending is low owing to generally moderate leverage and substantial dry powder that can re-enter the complex and provide support, especially at more attractive valuations.

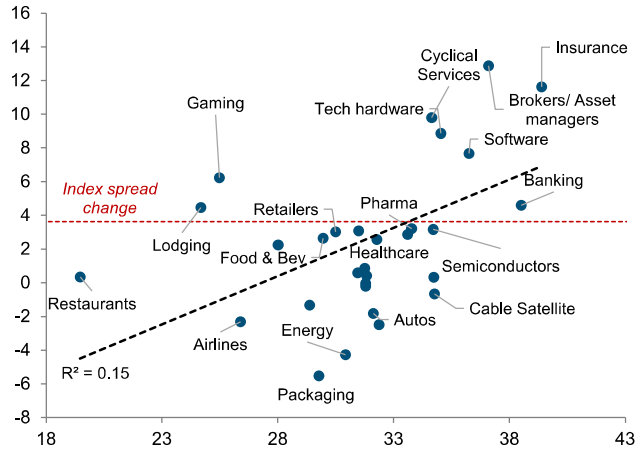
More dispersion from the next leg of the AI trade

While AI disruption fears remain centered on software, they have now spread to several other sectors, including insurance, brokers, and broader financial services (see pgs. 21-23), as the foundational model providers continue to roll out new domain-specific products. Amid this, IG and HY sector performance has become correlated with exposure to AI automation, mirroring the broader risk asset rotation toward "real economy" sectors that are less exposed at the expense of white-collar services that could face more disruption risk.

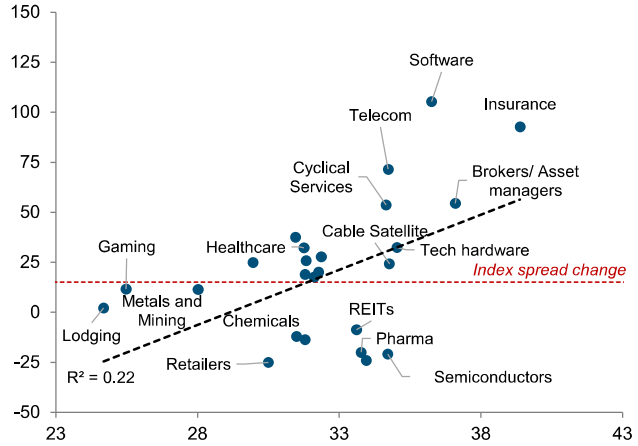
Looking ahead, we think this higher dispersion dynamic will persist, for two reasons. First, continued improvements in AI capabilities will likely impact more industries. Second, dispersion within industries should rise as company outcomes diverge based on the execution of AI adoption strategies. This dispersion will make it more difficult for investors to calibrate fair value for affected sectors, and issuer selection will become increasingly important. But we still see limited scope for serious impairment, especially for higher quality firms. Beyond their incumbent status and low starting points for leverage, we would note that the concerns around terminal values that have fueled much of the equity volatility are less salient for fixed duration credit assets, which are concerned with repayment of interest and principal.

Credit sector performance has become correlated with AI exposure

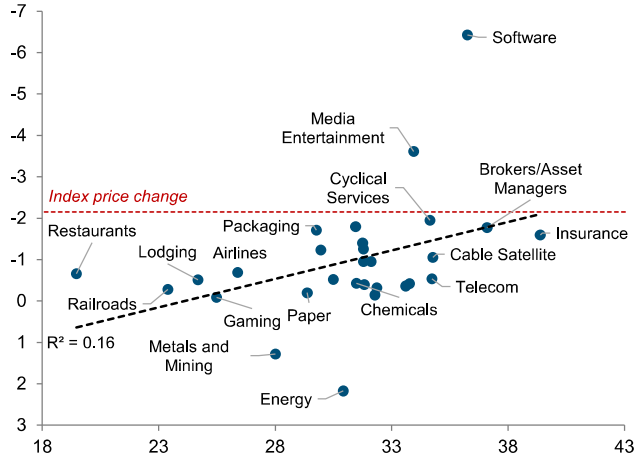
AI automation exposure, % (x-axis) vs. IG spread change YTD, bp (y-axis)



AI automation exposure, % (x-axis) vs. HY spread change YTD, bp (y-axis)



AI automation exposure, % (x-axis) vs. leveraged loan price change YTD, $ (y-axis, inverted)



Source: Revelio, Bloomberg, Goldman GIR.

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Alts managers: limited AI risk so far

Alexander Blostein and Michael Vinci argue that Alternative Asset Managers have limited exposure to AI-related software disruptions

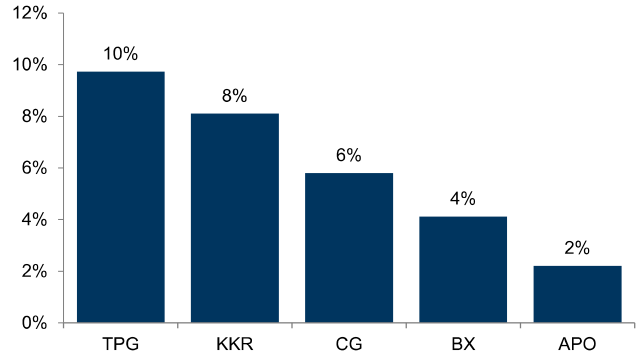
Concerns about AI-driven disruption risk have once again weighed on Alternative Asset Managers' stocks, which have declined ~27% YTD, bringing share prices and valuations below post-Liberation Day lows (NTM P/E net of stock-based compensation (SBC) at ~15X currently). This decline largely reflects concerns about software exposure across both private equity and private credit as well as fears that weaker investment performance could hamper growth. However, firmwide software exposure remains limited—averaging ~7% of total AUM—with software lending only modestly contributing to management fees, and managers have also been highly selective in their software investments, choosing those with more robust moats. While we think the recent selloff is overdone and continue to see significant upside across the sector, we remain cautious around names with outsized Retail Credit exposure given accelerating redemption requests.

Modest software exposure

Overall, we view Alternative Asset Managers' exposure to software investments as manageable. On the private equity (PE) front, while software has accounted for ~25% of industry-wide deployment volumes in recent years, exposure at Public Alternative Managers is more modest, with software activity among PE firms averaging only ~6% of total management fees. These estimates may even prove conservative as actual net exposure could be lower after managers monetized many investments in prior years.

PE software investments average ~6% of total management fees

2025 estimated firmwide management fees from Info Tech investments, %



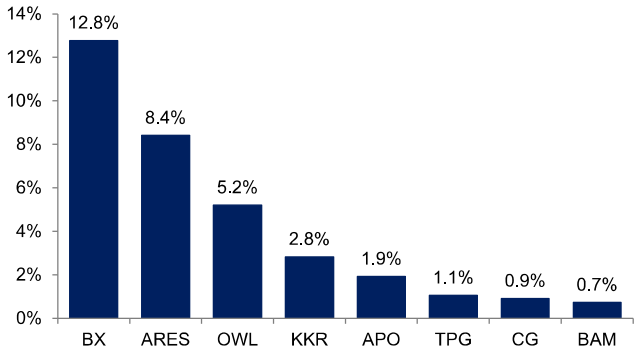
Source: Preqin, Goldman Sachs GIR.

On the credit front, across BDCs (where public data is available), we estimate that software loans represent ~22% of gross loans at an industry level, with a similar share among Public Alternative Managers—~20% of Direct Lending FPAUM on average. This translates to around 25% of Direct Lending base management fees.

But software lending is a relatively small portion of firmwide management fees when accounting for the broader spectrum of Alt asset classes that GPs manage. We estimate that Direct Lending to software-oriented portfolio companies accounts for 4% of firmwide base management fees on average. Even in the most adverse scenario of a significant markdown in software loans, our stress analysis (5%-15% mark-to-market) suggests the effect on firmwide base fees would remain in the low single-digits. And, importantly, these software loans are mostly senior secured and short duration, with the underlying companies generally showing strong EBITDA and cash flow.

Direct Lending to software-oriented portfolio companies accounts for 4% of firmwide base management fees on average

Estimated software direct lending firmwide base fees, %



Source: Company data, Goldman Sachs GIR.

Selective software investments

We also note that not all AI-related risk is created equal. Software holdings of most managers skew toward vertical, mission-critical businesses with proprietary data and platforms. These businesses are more likely to benefit from AI as opposed to the more disruption-prone horizontal software applications. AI-related risk has also become a central focus of investment processes, with one senior leader recently noting that AI is now among the first and most critical topics examined when bringing an investment before the investment committee. Evaluating AI-related risk has become a deeply embedded practice within GP investment committee deliberations and portfolio management frameworks, not just a reaction to recent market concerns.

We remain selective looking forward

While heightened market volatility and greater uncertainty related to AI disruption risks could dampen near-term PE exit activity, our conversations with management teams have given us more confidence around drawdown fund portfolio construction. That said, we continue to believe that sentiment/headlines will weigh on retail/wealth flows. While the group's earnings streams remain highly durable, we see a slower pace of retail fundraising/accelerating Credit redemption trends potentially weighing on growth. Despite the disruption, deployment outlooks are constructive, and for Opportunistic Credit managers, most see opportunity in the current backdrop. We continue to think the group's earnings base and management fee growth are considerably more durable than current valuations suggest and see significant upside across the space.

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AI disruption: equity sector impacts

What types of companies in your coverage universe could be disrupted by and, conversely, benefit from new AI tools, and how much of this is already priced into stocks?

Consumer Internet

Eric Sheridan and team, GS Equity Research

- AI tools are currently having a democratizing effect on product development and innovation within the consumer internet sector, presenting disintermediation risk while also driving efficiency gains. Within our TMT coverage universe, digital advertising and gaming are the most exposed subsectors to AI disintermediation risk and have also seen the most advanced adoption of AI tools—a trend that the recent declines in several gaming and advertising stocks reflects.
- Digital advertising, in particular, has advanced the furthest in AI-driven product development and end-user adoption (outside of cloud computing). Companies within the subsector are currently integrating AI into four key workflows: campaign planning and strategy, creative development, media buying and optimization, and CRM and personalization. GOOGL's Performance Max and META's Advantage+ have been exceptionally successful in integrating multiple AI use cases into a single product. These AI-powered tools have the potential to both "abstract away"/automate many advertising services as well as improve the overall performance and efficiency of ad spend. This should result in shifting profit dynamics including: 1) accelerating the shift of ad spend from traditional to digital channels (an estimated $170bn addressable opportunity), 2) automating ad creative generation (~$114bn), 3) consolidating ad tech "intermediaries" (~$25bn), and 4) disrupting the traditional role of ad agencies (~$161bn).
- Beyond online advertising, the specter of AI disruption has caused outsized volatility across many other subsectors—including media & advertising, online marketplaces, online dating, travel, online education, and online gaming & gambling—which we expect to persist. Incumbent consumer internet platforms are playing a mix of "offense" (launching AI-driven consumer applications that enhance their existing offerings and revenue) and "defense" (developing AI capabilities to counter competitive applications that could be disruptive to existing legacy applications) to counter AI disruption risk. Several companies are also partnering directly with leading AI platforms to drive direct traffic and monetization. Examples include ChatGPT in-app integrations, agentic commerce, in-app chatbot placement, and data/content licensing for model training.

US Business and Information Services

George Tong, GS Equity Research

- Concerns over AI-driven disintermediation have sparked a sharp de-rating of the Information Services sector since mid-2025, with the sector experiencing a particularly notable valuation step-down in early Feb 2026. The median NTM P/E multiple in our Info Services coverage has fallen from 32x in June 2025 to 20x currently as investors worry that free or cheaper AI tools could diminish or eliminate demand for existing Info Services offerings. However, we believe some companies in the sector are better positioned to withstand AI disruption than others.
- Companies with a sustainable moat against AI are those with proprietary data, entrenched workflows with customers, scale and brand advantages, and/or a regulatory moat, and have made meaningful AI investments. These firms are not only insulated from AI risks but also are positioned to benefit from AI integration via product upgrades, accelerated pricing increases, increased cross-selling, higher retention rates, and new business growth. From a stock perspective, the multiples of many of these firms have recently contracted, making them attractive buying opportunities. The market may be overestimating the AI-related hit to these firms' organic revenue growth (with some estimates in the mid-to-high single digits) and we believe earnings at these firms remain stable and are not in a negative revision cycle. Upcoming earnings results that demonstrate beat-and-raise patterns and sustained momentum in organic revenue growth should act as a catalyst for valuation upside, in our view.
- By contrast, firms most vulnerable to AI disruption are those that have limited proprietary content, weak integration with client workflows, limited scale or brand advantages, no regulatory moat, and/or haven't invested enough in AI themselves. They also face potential headwinds from lower demand for white collar staffing roles due to AI automation.

North American Insurance

Robert Cox and team, GS Equity Research

- Recent reports that OpenAI has incorporated insurance services directly into ChatGPT sparked a significant selloff in insurance providers. We believe Private and Commercial (P&C) insurance companies will need to adapt to keep pace with these emerging AI tools. Certain personal lines & micro business insurance brokers are the most vulnerable to disruption as competitors increasingly leverage AI to simplify the purchase of lower complexity products like auto/home insurance and disrupt various consulting services. Shifts in distribution could also impact auto/home insurers' customer acquisition models, with auto insurers also facing long-term TAM concerns from increasing autonomous vehicle (AV) penetration. Commercial (re)insurers are well positioned as trusted, efficient, regulated capital allocators, especially if they quickly move to embrace AI efficiencies. Larger insurance brokers are also well positioned due to the data and structural moats associated with complex consulting and brokerage, however certain small account broking and less complex consulting could be exposed to AI disruption.
- We think both insurers and brokers can achieve significant efficiency gains through AI automation. Larger market cap firms with big technology budgets will likely benefit first. Insurers are using AI to automate claims processing and speed up policy handling, while brokers aim to automate routine processes/services. First movers are likely to see near- to medium- term margin/growth benefits, although whether these benefits will ultimately lead to lower premiums for customers remains an open question.
- The market has primarily focused on the risk of revenue disruptions from AI rather than on potential efficiency gains. While valuations for P&C insurers are under pressure from concerns about a softer pricing cycle, making it more difficult to isolate AI impacts, the market is clearly penalizing insurance brokers for potential revenue risks—a move which we think is overdone. Auto insurers have faced multiple contraction from AVs and could see revenue disruption from AI-based distribution platforms, but we think these headwinds will ultimately be manageable for underwriters with historically strong direct underwriting platforms. By contrast, commercial (re)insurers are in some cases benefiting from reported AI efficiency gains—CB has reported a ~20% headcount reduction over 3-4 years—and are seen as relatively safe from revenue disruption.

CRE Services

Julien Blouin, GS Equity Research

- We believe AI disruption concerns across CRE services businesses are significantly overstated. The physical nature of the CRE ecosystem provides meaningful insulation versus digitally-native industries. Historical precedents—listings platforms, online property management, virtual tours, automated valuation models—show that CRE technology adoption unfolds over years and decades, not quarters, and most importantly these innovations improved transparency, efficiency, and productivity but did not structurally disintermediate CRE brokerage and service providers.
- Transactional brokerage businesses face the most theoretical AI exposure, particularly for standardized mid-market mandates where AI can drive underwriting automation, OM generation, lease abstraction, and buyer matching. Yet wholesale disintermediation remains unlikely given the relationship-driven, localized, negotiated, and liability-bearing nature of CRE transactions (particularly for larger deals). Facilities, property, project, and investment management businesses are even more insulated as they are operationally complex, and often require on-premises workers/technicians. We believe AI will enhance functions like scheduling, cost control, and predictive maintenance rather than eliminate demand.
- The valuation opportunity is compelling. CRE services companies are benefiting from a transaction recovery that remains mid-cycle, with volumes still 44% below 2021–2022 peaks and 20% below 2017–2019 levels. Yet sector multiples have contracted sharply on AI fears, reverting to 2023 discounts versus the S&P Equal Weight—levels last seen when transactions were under extreme pressure. We view this selloff as an attractive entry point into a sector with powerful structural and cyclical tailwinds, supporting double-digit earnings CAGRs through 2028.

European Financials

Oliver Carruthers and team, GS Equity Research

- Within our European Financials coverage universe, AI disruption concerns have centered on market structure firms such as LSEG and DB1, though their AI exposure varies. LSEG's stock has declined since mid-2025 amid concerns that AI-powered analysis could disrupt its data business.
- More recently, focus has also turned to private markets and their exposure to software-based service business models. A de-rating of public software comparables off the back of AI-disruption concerns could lead to negative mark-to-market adjustments for portfolio companies and limit near-term monetization. That said, many private equity firms are benefitting from rising AI demand, including through digital infrastructure investments. And traditional asset managers have largely been shielded from AI disruptions with managers actively leveraging AI to boost efficiency and alleviate margin pressure as well as enhance efficiency across client servicing, risk management, and investment intelligence.
- AI disruption poses greater risk for private credit managers as fund performance is more sensitive to dispersion and, unlike buyout funds, private credit managers cannot offset losses with investments into "winners". We've seen significant underperformance among Alternative Asset Managers, with private credit-focused firms most impacted. Wealth managers and investment platforms also experienced an AI-related selloff after Altruist launched an AI-powered tax planning tool, which raised concerns that automated advice tools could increase competition and compress fees. However, we note that these tools also have the potential to enhance adviser productivity and increase efficiency for firms able to strategically integrate AI into their offerings.

European transport, infrastructure, and construction

Patrick Creuset and team, GS Equity Research

- When it comes to AI risk, the main debates in the European transport, infrastructure, and construction sector center around 1) whether the incumbents will be disrupted by AI technological progress, and 2) the extent to which AI productivity gains will be deflated away.
- We view the AI disruption risk as relatively low for the sector as incumbents benefit from large physical networks (e.g., sizable blue-collar workforces as well as numerous physical gateways and warehouses), have higher value-add proposition (e.g., end-to-end supply chain management), and benefit from network effects—all of which will be difficult for new AI-native entrants to match. Incumbents also stand to unlock significant advantages from integrating AI technology into their existing operations, further supporting their resilience.
- We are also less concerned about the prospect of AI-related productivity gains being deflated away. While some productivity gains will likely be passed on to customers—as has historically been the case within the industry—we expect the magnitude of productivity gains to be meaningfully larger than the potential yield erosion.
- Asset-light logistics companies are particularly well-positioned to benefit from integrating AI tools into their ongoing digitization push. The sector's SG&A operations have historically involved many repetitive, documentation-intensive tasks, including quoting, booking, carrier payment tracking, and customs clearance. We believe that further digitization and AI deployment will eventually enable industry players to automate some of these workflows and improve efficiency.

Glossary of GS proprietary indices

Current Activity Indicator (CAI)

GS CAIs measure the growth signal in a broad range of weekly and monthly indicators, offering an alternative to Gross Domestic Product (GDP). GDP is an imperfect guide to current activity: In most countries, it is only available quarterly and is released with a substantial delay, and its initial estimates are often heavily revised. GDP also ignores important measures of real activity, such as employment and the purchasing managers' indexes (PMIs). All of these problems reduce the effectiveness of GDP for investment and policy decisions. Our CAIs aim to address GDP's shortcomings and provide a timelier read on the pace of growth.

For more, see our CAI page and Global Economics Comment: Technical Updates to Our Global CAIs.

Dynamic Equilibrium Exchange Rates (DEER)

The GSDEER framework establishes an equilibrium (or "fair") value of the real exchange rate based on relative productivity and terms-of-trade differentials.

For more, see our GSDEER page, Global Economics Paper No. 227: Finding Fair Value in EM FX, 26 January 2016, and Global Markets Analyst: A Look at Valuation Across G10 FX, 29 June 2017.

Financial Conditions Index (FCI)

GS FCIs gauge the "looseness" or "tightness" of financial conditions across the world's major economies, incorporating variables that directly affect spending on domestically produced goods and services. FCIs can provide valuable information about the economic growth outlook and the direct and indirect effects of monetary policy on real economic activity.

FCIs for the G10 economies are calculated as a weighted average of a policy rate, a long-term risk-free bond yield, a corporate credit spread, an equity price variable, and a trade-weighted exchange rate; the Euro area FCI also includes a sovereign credit spread. The weights mirror the effects of the financial variables on real GDP growth in our models over a one-year horizon. FCIs for emerging markets are calculated as a weighted average of a short-term interest rate, a long-term swap rate, a CDS spread, an equity price variable, a trade-weighted exchange rate, and—in economies with large foreign-currency-denominated debt stocks—a debt-weighted exchange rate index.

For more, see our FCI page, Global Economics Analyst: Our New G10 Financial Conditions Indices, 20 April 2017, and Global Economics Analyst: Tracking EM Financial Conditions – Our New FCIs, 6 October 2017.

Goldman Sachs Analyst Index (GSAI)

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