



MORNING BRIEFING

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AI, China & Energy Storage

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Executive Summary: Microsoft's recent quarterly earnings call was a testament to the power of AI—its power to boost productivity dramatically in a host of business functions and its power to boost Microsoft's revenues. ... Also: China's property market crisis continues to drag on. Jackie reports on how Chinese authorities are responding and the fallout on China's housing and equities markets. ... And in our Disruptive Technologies segment, a look at innovative energy storage solutions to overcome the intermittency problem of solar and wind sources.

Technology: Microsoft's AI Lovefest. Microsoft's earnings conference call on Tuesday was an ode to artificial intelligence (AI). The technology has boosted Microsoft's results and has enormous potential to change how work gets done, increasing productivity, the company contends. Despite the earnings beat and the optimistic words, Microsoft shares fell slightly, 2.7%, on Wednesday after reaching a 52-week high, but the stock is still up 60.4% over the past year. Let's take a look at what Microsoft CEO Satya Nadella had to say:

(1) *AI throughout Microsoft.* AI is being deployed throughout the Microsoft ecosystem. It's in the cloud, in Windows, and even in LinkedIn. "We've moved from talking about AI to applying AI at scale by infusing AI across every layer of our tech stack; we are winning new customers and helping drive new benefits and productivity gains," Nadella said on the fiscal Q2 (ended December 31) [conference call](#).

Later in the call, he noted that Microsoft's "own research as well as external studies show as much as 70% improvement in productivity, using generative AI for specific work tasks. And overall early Copilot for Microsoft 365 users were 29% faster in a series of tasks like searching, writing, and summarizing." If accurate, those numbers give IT managers an easy rationale for spending on the technology.

(2) *AI in Azure.* Azure and other cloud services revenue grew 30% y/y in the quarter, with six percentage points of that growth attributable to AI services, the company reported. Customers are training and running their AI offerings on Microsoft's Azure cloud, which hosts large language models, small language models, and OpenAI services.

Microsoft has 53,000 Azure AI customers, and over a third of them are new to Azure over the past 12 months, Nadella said. More than half of the Fortune 500 use Azure OpenAI, including Ally Financial, Coca-Cola, and Rockwell Automation, according to the transcript. And Walmart is using Azure OpenAI Service along with its own proprietary models to streamline how more than 50,000 associates work and to transform how customers shop.

(3) *AI manages data.* Customers can consolidate their data “estates” on Microsoft’s Intelligent Data Platform, which offers database services, analytics, governance, and AI in one spot. Microsoft’s Azure Cosmos DB is a database service used by companies including AXA, Kohl’s, Mitsubishi, and TomTom. Cosmos DB data transactions increased 42% y/y.

“KPMG, for example, has used Cosmos DB—including its built-in native vector search capabilities—along with Azure OpenAI service to power an AI assistant, which it credits with driving an up to 50% increase in productivity for its consultants,” Nadella said.

(4) *AI writes code.* Microsoft GitHub is used by developers to store and manage their code in the cloud. Its revenue jumped 40% y/y as GitHub Copilot was adopted. GitHub Copilot offers developers autocomplete-type suggestions as they code. Developers can also write in English what they want the code to do, and Copilot will produce that code.

Microsoft has 1.3 million paid GitHub Copilot subscribers, up 30% q/q, and more than 50,000 organizations—including Etsy, HelloFresh, Autodesk, Dell Technologies, and Goldman Sachs—use Copilot business to improve the productivity of their developers. Those figures don’t include Accenture’s plans to roll out GitHub Copilot to 50,000 of its developers this year.

Microsoft Power Apps is a cloud-based platform that lets users create custom business applications without needing to write code. More than 230,000 organizations have used the AI capabilities in Power Platform to tailor or create their own custom copilots. It took PayPal and Tata Digital just weeks to build copilots that could answer common employee questions, increasing productivity and reducing support costs. Copilot is also helping employees resolve customer inquiries faster.

AI will be on Windows PCs, allowing users to search for information faster, summarize emails, and optimize PC performance and battery efficiency. Get ready for a Copilot button to appear on your next PC’s keypad.

(5) *Lots of AI enthusiasm.* Microsoft is, by far, the largest member of the S&P 500 Systems

Software industry. The industry's stock price index has risen 66.1% y/y to a new high, and its forward revenue and forward earnings are at record highs ([Fig. 1](#), [Fig. 2](#), and [Fig. 3](#)). The industry's growth is expected to continue: The consensus estimates of analysts following the industry's companies suggest revenue growth of 14.3% this year and 13.8% in 2025 and earnings gains of 14.8% and 15.2% ([Fig. 4](#) and [Fig. 5](#)).

The S&P 500 Systems Software industry's forward P/E has climbed to 32.9, returning close to 34.7, the high it hit in 2021 before the market and the industry sold off ([Fig. 6](#)).

China: Property Headaches Continue. Saddled with more than \$300 billion of debt, China Evergrande Group's liquidation was ordered by a Hong Kong judge on Monday. It's the latest twist in the downturn of China's property market, which has dragged on for more than two years. The industry's decline has sent home prices tumbling, pushed more than 50 property developers into default, damaged consumer confidence, and slowed China's economy.

Evergrande, once the country's largest property developer, has always stood out in this slow-moving train wreck. Its liquidation will be watched closely by global investors anxious to see if Chinese authorities respect the rule of law. It's unclear whether the Chinese government will allow investors in Evergrande's \$23 billion of offshore debt to seize the company's assets, 90% of which are located in China.

The Chinese Communist Party has prioritized the completion and delivery of unfinished homes over investors' interests. Doing so is good for the homeowners, but it could undermine investors' already shaky willingness to put new money to work in China. "[A]n unfavorable outcome for foreign investors risks exacerbating already acute pessimism toward China as well as undermining Hong Kong's role as a vital fundraising center for the nation's companies," a January 29 Bloomberg [article](#) reported.

It's the latest headache Chinese authorities are dealing with as they attempt to boost economic growth via monetary and fiscal policy. But their efforts may fall flat until they finally encourage an industry-wide debt restructuring.

Here's a look at some of the latest developments:

(1) *What's being done.* Chinese authorities have taken some monetary and fiscal steps to breathe life into their economy. Most recently, China's central bank announced on January 24 that it will lower banks' required reserve ratio by 0.5ppt to 7.0% starting February 5,

Melissa explained in Tuesday's [Morning Briefing](#). The move—its third in less than a year—essentially will inject about \$140 billion into the economy.

Last week's move follows Chinese authorities' plan to sell about \$137 billion of government bonds to fund the reconstruction of areas hit by natural disasters and to fund catastrophe prevention. They've also cut interest rates linked to loans for rural and small businesses and allowed some developers to use loans for commercial properties to repay other loans or bonds.

Chinese officials are also jawboning industry players. The deputy director of China's National Financial Regulatory Administration instructed banks not to immediately cut off loans to troubled projects, but to support them by extending time to repay the loans or lending additional funds, a January 30 *NYT* [article](#) reported. And in an effort to stop the decline in stock prices, Chinese officials reportedly have been pushing state-linked financial firms to buy stock, a January 25 *WSJ* [article](#) reported.

(2) *Housing market still a mess.* Despite the new policies, the Chinese real estate market remains distressed. There are still 20 million presold homes that require \$450 million of funding in order to be finished, according to a Nomura Securities estimate cited in the *NYT* [article](#). The article also noted that Chinese housing sales fell 17.1% y/y in December, bringing last year's decline to 6.5%. And mortgage loans—which were growing by more than 10% annually until 2021—fell by 1.6% y/y in 2023.

The Shenzhen Real Estate stock price index has fallen 8.9% this year and is down 65.9% from its peak in 2018 ([Fig. 7](#)).

(3) *China's markets give stimulus a Bronx cheer.* After a brief rally, Chinese stocks have continued their descent, suggesting that investors remain skeptical about the adequacy of the government's real-estate crisis response.

China's CSI 300 Index has fallen 41.6% since its peak on October 16, 2007 and is down 6.3% just since the start of the year through Tuesday's close. The China MSCI index has followed a similar pattern, falling 60.3% and 9.2% since its February 17, 2021 peak and ytd through Tuesday's close ([Fig. 8](#)).

China's 10-year bond yield also reflects pessimism about the economy, falling to 2.58% recently from 3.94% in January 2018 ([Fig. 9](#)). Investors have sought out safe-haven assets, concerned that the economy will remain under pressure from the property downturn and

weak consumption, a January 30 Bloomberg [article](#) reported.

The World Bank expects Chinese real GDP growth to slow to 4.5% this year and 4.3% during 2025, down from the 5.2% y/y growth China reported for Q4 ([Fig. 10](#)). The country's leaders have targeted 5% annual growth, a number that looks exceedingly optimistic.

Disruptive Technologies: Searching for Storage. Utilities have a problem. They've long promised Americans that anytime, anywhere we plug something in, we'll be able to charge it up. And they've largely kept that promise, except during power outages from the occasional storm. Utilities' plants work 24 hours a day, seven days a week, and they have built "peaker plants" that could be turned on during times of greatest demand.

But utilities' use of solar and wind power to generate electricity has opened a can of worms. These renewable power sources can produce too much electricity at some times and not enough electricity at others. This so-called intermittency problem has scientists dreaming up the most efficient ways to store electricity. Some believe batteries will be the solution. Others are betting on hydrogen or heat transfer systems.

Let's take a look at some of the storage solutions being considered:

(1) *Using hydrogen.* Constellation Energy, one of the nation's largest producers of renewable energy, would like to use the excess electricity it produces in the spring and fall to create hydrogen, according to CEO Joe Dominguez's August 7 [interview](#) with *The Washington Post*. Like oil or natural gas, hydrogen can be stored for later use. When electricity is needed, it can be blended with natural gas or used in all-hydrogen machines to generate electricity. Dominguez also believes that someday hydrogen will be used in energy-intensive industries, like steelmaking and cement manufacturing, and it will power heavy vehicles, like big trucks, trains, ships, and airplanes.

Constellation plans to build a \$900 million clean hydrogen facility at its LaSalle plant in Illinois with a portion of the \$1 billion hydrogen hub award it received for the Midwest, a December 6 Reuters [article](#) reported. But there's a catch: The project's economics require an Inflation Reduction Act tax credit to work. And the tax credit—as currently proposed—wouldn't apply to Constellation's project, as it would require the hydrogen to be made using green energy, like wind or solar, or energy from a nuclear plant that entered service within the last three years.

The tax credit aims to encourage the construction of new nuclear plants and to ensure that

existing plants don't divert their power production to making green hydrogen just to reap the tax credit. If they did, the diverted nuclear power might need to be replaced by power produced using natural gas, which generates greenhouse gases. If that happened, the tax credit could result in the production of more greenhouse emissions than existed previously. Stay tuned.

(2) *Using concrete blocks.* Alaska plans to retire a unit of a coal-fired power plant at the end of next year, and it's in the market for a way to store the renewable power on which it will depend. Westinghouse Electric and Echogen have proposed a Pumped Thermal Energy Storage (PTES) system.

"In the system, a heat pump draws electricity from the power grid and converts [it] into heat stored in inexpensive concrete blocks. This stored energy is then converted back into electricity using a heat engine," a Department of Energy [press release](#) states. It will store enough energy to power about 2,000 homes for a month.

(3) *Using batteries.* The Alaska project is one of many long-duration energy storage projects selected by the DOE for further development. A number of them use various types of batteries. Two projects will use old electric vehicle batteries, which may still have 70% or more of their initial capacity. Another project uses readily available materials in a zinc manganese dioxide battery, which can work for more than 12 hours.

Vanadium redox flow batteries, which can operate for 20 hours, are also being developed. In general, the flow batteries have two tanks of electrolyte solution, one for the cathode and the other for the anode. The system is non-flammable, doesn't degrade, and requires little maintenance; but it historically has been expensive to produce.

A zinc bromide flow battery system is being deployed at the Valley Children's Hospital in Madera, California. And NextEra Energy Resources is developing ten-hour battery storage that uses aqueous zinc technology to store renewable energy.

Xcel Energy and Form Energy are partnering to deploy two battery systems that each can store 10 megawatts of electricity for 100 hours. Form Energy produces iron-air batteries, which charge and discharge when iron in the battery oxidizes (a.k.a. rusts) and then de-oxidizes. The company [website](#) says the system's cost is "competitive with legacy power plants." The projects will be located at two retired coal-fired plants in Minnesota and Colorado and could come online as soon as next year.

(4) *Using CO2*. Energy Dome has developed a system that stores electricity by using it to convert CO2 gas into a liquid. When energy is needed, the liquid CO2 is heated, and the resulting gas turns a turbine to generate electricity and CO2.

Calendars

US: Thurs: ISM M-PMI & Price Index 47.4/45.6; Nonfarm Productivity & Unit Labor Costs 2.5%/1.7%; Construction Spending 0.5%; Initial Unemployment Claims 210k; Natural Gas Storage; OPEC Meeting. **Fri:** Nonfarm Payrolls Total, Private, and Manufacturing 173k/145k/2k; Average Hourly Earnings 0.3%_{m/m}/4.1%_{y/y}; Average Weekly Hours 34.3; Unemployment 3.8%; University of Michigan Consumer Sentiment Index, Current Conditions, and Expectations 78.8/83.3/75.9; University of Michigan One-Year & Five-Year Inflation Expectations 2.9%/2.8%; Factory Orders 0.2%; Total Motor Vehicle Sales; Baker-Hughes Rig Count. (FXStreet estimates)

Global: Thurs: Eurozone, Germany, France, Italy, France, and Spain M-PMIs 46.6/45.4/43.2/47.3/48.0; Eurozone Headline & Core CPI 2.8% & 3.2% _{y/y}; Eurozone Unemployment Rate 6.4%; BoE Interest Rate Decision 5.25%; UK M-PMI 47.3; UK Labor Productivity -0.2%; EU Leaders Summit; Lagarde; Lane; Bailey. **Fri:** France Industrial Production 0.2%; Pill. (FXStreet estimates)

Strategy Indicators

Stock Market Sentiment Indicators ([link](#)): The Bull-Bear Ratio rose for the second week in a row, to 3.41—the highest since August 2021, after slipping the prior two weeks to 2.54 from 3.32. Bullish sentiment climbed 4.8ppts this week and 9.2ppts the past two weeks to 57.7%—the most bulls since summer 2021, when they exceeded 60.0%—after sinking 8.6ppts (to 48.5% from 57.1%) over the prior two-week period to its lowest percentage since the week of October 31. Meanwhile, bearish sentiment fell for the second week by 2.2ppts (to 16.9% from 19.1%), the fewest bears since summer 2021. The correction count declined for the second week by 7.0ppts to 25.4%, after a three-week climb of 7.4ppts (to 32.4% from 25.0%), which was the highest since early October. Turning to the AAll Sentiment Survey (as of January 25), the short-term outlook for stocks fell in the latest survey, while neutral sentiment increased and pessimism decreased. The percentage expecting stock prices to rise over the next six months fell 1.1ppts to 39.3%—remaining above its historical

average of 37.5% for the 12th successive week. The percentage expecting stocks to fall over the next six months slipped 0.7ppt to 26.1%, below its historical average of 31.0% for the 12th straight week. The percentage expecting stock prices will stay essentially unchanged over the next six months increased 1.8ppts to 34.6%, the highest since September 14, 2023's 36.4%. It's above its historical average of 31.5% for the second time in eight weeks.

S&P 500 Q4 Earnings Season Monitor: With 176 companies having reported Q4 results through mid-day Wednesday, the Q4-2023 earnings season is now over 35% complete, and the early indications suggest a weaker earnings surprise than in Q3-2023, but revenues are outperforming. Among the companies that have reported so far, aggregate y/y earnings growth is trailing revenues growth. Revenues are ahead of the consensus forecast by 1.5%, and earnings have outpaced estimates by 5.8%. At the same point during the Q3 season, revenues were 0.9% above forecast, and earnings had beaten estimates by 7.9%. Among the 176 reporters so far, the aggregate y/y growth rates have improved since Q3-2023 for revenues and weakened for earnings: to 3.4% from 2.0% for revenues growth and to 2.3% from 6.8% for earnings growth. The y/y earnings growth results to date are heavily impacted by declines for GM, JPMorgan, Pfizer, Tesla, and Valero Energy. Without these five companies, y/y earnings growth improves to 9.1% from 2.3%. Just 65% of the 176 companies has reported a positive revenues surprise, while 81% has reported an earnings beat. While we expect y/y revenues growth rates to remain positive yet again in Q4 and for a 13th straight quarter, earnings growth should be slightly positive on a y/y basis for only the second time in five quarters. Fewer companies have been reporting positive y/y earnings growth in Q4 (60%) than positive y/y revenues growth (65%). These figures will continue to change as more Q4-2023 results are reported in the coming weeks.

S&P 500 Earnings, Revenues, Valuation & Margins ([link](#)): The S&P 500's forward profit margin was unchanged w/w at 12.7% during the January 25 week, and is now just 0.1pt below its 11-month high of 12.8% during the September 21, 2023 week. That's up from a 24-month low of 12.3% during the March 30, 2023 week, but is down 0.7pt from its record high of 13.4% achieved intermittently in 2022 from March to June. It's now 2.4pts above its seven-year low of 10.3% during April 2020. Forward revenues ticked down 0.1% w/w and is now 0.2% below its record high during the January 4 week. Forward earnings dropped 0.3% w/w and is now 0.6% below its record high during the January 4 week. It had hit that mark during the September 21 week for the first time since the June 16, 2022 week. Revenues and earnings had been steadily making new highs from the beginning of March 2021 to June 2022; prior to that, they peaked just before Covid-19 in February 2020. The consensus expectations for forward revenues growth dropped 0.1pt to 4.9%. It's now 0.2pt below its

15-month high of 5.1% in early January and is now up 2.6pts from its 33-month low of 2.3% during the February 23, 2023 week. That's down from a record high of 9.6% growth at the end of May 2021 and compares to 0.2% forward revenues growth during April 2020, which was the lowest reading since June 2009. The forward earnings growth forecast dropped 0.5pt w/w to 10.8%. That's down from a 26-month high of 11.5% in early January and is now 7.5pts above its 31-month low of 3.5% in mid-February. That's down from its 23.9% reading at the end of April 2021, which was its highest since June 2010, and up substantially from its record low of -5.6% at the end of April 2020. Analysts expect revenues to rise 2.1% in 2023 (up 0.1pt w/w) and 4.7% in 2024 (down 0.1pt w/w) compared to a revenues gain of 12.5% in 2022. They expect an earnings gain of 1.5% in 2023 (up 0.2pt w/w) and a 10.1% rise in 2024 (down 0.5pt w/w) compared to an earnings gain of 6.8% in 2022. Analysts expect the profit margin to fall 0.1ppt y/y to 11.9% in 2023 (unchanged w/w), compared to 12.0% in 2022, and to rise 0.7ppt y/y to 12.6% in 2024 (unchanged w/w). The S&P 500's weekly reading of its forward P/E rose 0.6pt w/w to a 23-month high of 20.1. That up from a 30-month low of 15.3 in October of 2022. It also compares to 23.1 in early September 2020, which was the highest level since July 2000, and to a 77-month low of 14.0 in March 2020. The S&P 500 weekly price-to-sales ratio rose 0.08pt w/w to a 21-month high of 2.55. That's up from a six-month low of 2.22 during the October 26 week and compares to a 31-month low of 1.98 in October 2022. That also compares to a record high of 2.88 at the end of 2021 and a 49-month low of 1.65 in March 2020.

S&P 500 Sectors Earnings, Revenues, Valuation & Margins ([link](#)): Looking at the S&P 500 sectors during the January 25 week, Information Technology was the only sector to have consensus forward earnings rise. These three sectors posted a w/w gain in their consensus forward revenues: Communication Services, Financials, and Industrials. The forward profit margin moved higher for these three sectors: Information Technology, Real Estate, and Utilities. Communication Services is the only sector with its forward revenues at post-pandemic or record high this week. That's down from these three sectors in that club several weeks earlier: Communication Services, Health Care, and Information Technology. Among the remaining eight sectors, just three have forward revenues more than 5.0% below their post-pandemic highs: Energy, Financials, and Materials. Information Technology is the only sector with forward earnings at a record high this week. Several weeks earlier, Communication Services, Consumer Staples, and Utilities were also in that club. Among the remaining 10 sectors, only Energy and Materials have forward earnings down more than 10.0% from their post-pandemic highs, while Financials exited that club in early October. Among the 11 sectors, only Industrials has weathered a broad margin retreat from post-pandemic or record highs. Now nearly all of the sectors are showing signs of recovering from their early 2023 lows, but they are stalling again. Consumer Discretionary is the only

sector with their forward profit margin at a record high this week. That compares to three sectors in that club during the past three months, which also included Industrials and Information Technology at that time. The forward profit margin of Communication Services also remains close to its post-pandemic high. Energy's has fallen to a 21-month low while those of Consumer Staples and Health Care remain at or close to their record lows. Energy and Industrials were the only two sectors to have their profit margins improve y/y for full-year 2022. The annual profit margin is expected to fall y/y in 2024 for Energy and Real Estate, and improve for the other nine sectors. Here's how the S&P 500 and its 11 sectors rank based on their current forward profit margin forecasts along with their record highs: Information Technology (25.8%, down from its 26.0 record high in December 2023), Financials (18.3, down from its 19.8 record high in August 2021), Real Estate (16.6, down from its 19.2 record high in 2016), Communication Services (16.5, down from its 17.0 record high in October 2021), Utilities (13.5, down from its 14.8 record high in April 2021), S&P 500 (12.7, down from its record high of 13.4 achieved intermittently in 2022 from March to June), Energy (10.5, a 21-month low and down from its 12.8 record high in November 2022), Materials (10.8, down from its 13.6 record high in June 2022), Industrials (10.6, down from its record high 10.8 in September 2023), Health Care (8.9, a record low and down from its 11.5 record high in February 2022), Consumer Discretionary (8.4, a record high this week), and Consumer Staples (6.8, down from its 7.7 record high in June 2020).

US Economic Indicators

ADP Employment ([link](#)): "Progress on inflation has brightened the economic picture despite a slowdown in hiring and pay," noted Nela Richardson, chief economist, ADP. "Wages adjusted for inflation have improved over the past six months, and the economy looks like it's headed toward a soft landing in the US and globally." *Private payrolls* increased a smaller-than-expected 107,000 (vs 145,000 expected) in January, following a downwardly revised 158,000 increase in December (from 164,000). Service-providing jobs rose 77,000 in January, while goods-producing industries rose 30,000. Within *servicing-providing* industries, leisure & hospitality (28,000) posted the biggest monthly gain, followed by trade, transportation, and utilities (23,000), education & health services (17,000), other services (9,000), and financial activities (7,000), while professional & business services (2,000) payrolls were little changed, and information services (-9,000) showed a drop in employment. Within *goods-producing* industries, construction (22,000) jobs led the pack, while natural resources/mining (6,000) and manufacturing (2,000) showed considerably smaller gains. By *company size*, medium (61,000), large (31,000), and small (25,000) all added to payrolls. Turning to ADP's *median annual pay* measures, the yearly rate for *job-*

stayers slowed to 5.2% in January, continuing a deceleration that began from last September's 7.8% peak, while the rate for *job-changers* eased to 7.2%—the smallest annual gain since May 2021.

Employment Cost Index ([link](#)): The overall ECI for private industry workers increased 0.9% during the three months ending December, with gains in both wages & salaries (to 0.9% from 1.1%) and benefits (0.6 to 0.8) slowing during the quarter. On a yearly percent change basis, overall labor costs for the private sector slowed for the sixth consecutive quarter since peaking at a recent high of 5.5% during Q2-2022, easing to a two-year low of 4.1% during Q4, with the rates for wages and salaries (from 5.7% to 4.3%) and benefits (5.3 to 3.9) both slowing over the comparable periods. Meanwhile, the Atlanta Fed's median wage growth tracker, which tracks the ECI wages & salaries component closely, held at its recent low of 5.2% based on the three-month average, down from 5.6% in June and 6.4% y/y in March.

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