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AI, the Economy, and Financial Stability

Remarks by

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Thank you, Director Knotek, for the kind introduction. It is a pleasure to be with you today and to be back in Cleveland and the beautiful Fourth district.[1] It is always a pleasure to visit the Federal Reserve Bank of Cleveland—and all the Reserve Banks. The hard work and dedication of Reserve Bank staff, leadership, and directors help ensure the economic well-being of communities across the country, including in Ohio, Pennsylvania, West Virginia, and Kentucky. One of the many important roles the Reserve Banks have is to be the connection between policymakers and families, workers, and businesses in every corner of the country. That allows us to be well-informed and to make the best decisions for the benefit of all Americans. I thank everyone here at the Cleveland Fed for their service.

As we are gathered to discuss financial stability in an era of rapid economic and technological transformation, I would like to turn our attention to what many see as a significant catalyst of change: artificial intelligence (AI). Today, I will talk about how I approach thinking about AI. First, I will build on remarks I gave earlier this month and discuss how I see AI affecting the economy through the lens of the dual mandate given to the Federal Reserve by Congress to pursue maximum employment and price stability.[2] Next, I will discuss AI in the context of financial stability because a stable and resilient financial system is, of course, critical to achieve that dual mandate. I will do so by highlighting some of the findings in our recently released *Financial Stability Report* (FSR). And finally, I will discuss how the current period compares with another recent

[1] The views expressed here are my own and are not necessarily those of my colleagues on the Federal Reserve Board or the Federal Open Market Committee.
[2] See Philip N. Jefferson (2025), "AI and the Economy," speech delivered at Euro20+, Deutsche Bundesbank, Frankfurt, Germany, November 7, https://www.federalreserve.gov/newsevents/speech/jefferson20251107a.htm.

period of notable technological change—the late 1990s. Afterwards, I would be happy to answer your questions.

AI technology has been advancing at an extraordinary pace in recent years.[3] Hundreds of millions of people now regularly use AI to write and translate documents, obtain practical guidance on a variety of topics, and search for information.[4] A recent report from the St. Louis Fed showed that in August almost 55 percent of working-age adults said they used generative AI for personal or work use, up notably from a year earlier.[5] Businesses are increasingly adopting AI, with use cases clearly moving from the experimentation phase to operations. In the financial industry, AI adoption rates are even higher.[6] And while it may take some time before we see its full effects, many believe that AI has the potential to generate substantial change across the economy and to be a valuable tool for people all around the world.[7]

AI and the Dual Mandate

I see, as many others do, the promise for AI technology to be transformative, perhaps in ways as dramatic as past technological achievements, such as the printing

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[3] See Microsoft (2025), "AI Diffusion Report: Where AI Is Most Used, Developed, and Built," AI Economy Institute, November, https://www.microsoft.com/en-us/research/group/aiei/ai-diffusion/.

[4] See Aaron Chatterji, Thomas Cunningham, David J. Deming, Zoe Hitzig, Christopher Ong, Carl Yan Shan, and Kevin Wadman (2025), "How People Use ChatGPT," NBER Working Paper Series 34255 (Cambridge, Mass.: National Bureau of Economic Research, September), https://www.nber.org/papers/w34255.

[5] See Alexander Bick, Adam Blandin, and David Deming (2025), "The State of Generative AI Adoption in 2025," Federal Reserve Bank of St. Louis, *On the Economy Blog,* November 13, https://www.stlouisfed.org/on-the-economy/2025/nov/state-generative-ai-adoption-2025.

[6] This assessment is based on Federal Reserve staff analysis of data from the U.S. Census Bureau's Business Trends and Outlook Survey, which is available on its website at https://www.census.gov/programs-surveys/btos.html.

[7] See Erik Brynjolfsson, Danielle Li, and Lindsey R. Raymond (2023), "Generative AI at Work," NBER Working Paper Series 31161 (Cambridge, Mass.: National Bureau of Economic Research, April; revised November 2023), https://www.nber.org/papers/w31161.

press, steam engine, and the internet. When I think about the macroeconomic consequences of AI, I consider how it will affect both sides of our dual mandate.

AI can enable a worker to complete in seconds or a few minutes tasks that previously took many minutes, if not hours. Already, it is boosting worker productivity in a wide range of industries and occupations, including customer service, logistics, computer programming, and medical research. Increased productivity leads to economic growth, which may also create new employment opportunities. There is already robust competition among high-tech firms for workers who possess the skills to develop and effectively deploy this technology.

At the same time, many people have legitimate concerns that AI will cause job loss. At least for certain firms and workers in certain occupations, this is likely to be true. Indeed, some large employers have recently indicated they are lowering overall hiring plans in light of advances in AI and other forms of automation.[8] Some research has also suggested that AI is having a more detrimental effect on the job prospects of younger, less-experienced workers, including recent graduates, compared with those further along in their careers.[9]

The net effect on employment is highly uncertain and may show variation across industries and occupations over time. For the overall economy, one way to think about AI-related job losses—at least until it creates new jobs—is that AI can create economic slack. In a world where firms only deployed AI to replace existing workers, even at a

[8] For example, see Tom Huddleston Jr. (2025), "Walmart CEO: 'AI Is Literally Going to Change Every Job'—How the Best Employees Can Still Stand Out," CNBC, September 29; also, see Karen Weise (2025), "Amazon Plans to Replace More than Half a Million Jobs with Robots," *New York Times,* October 21.
[9] See J.P. Morgan (2025), "AI's Impact on Job Growth," webpage, https://www.jpmorgan.com/insights/global-research/artificial-intelligence/ai-impact-job-growth.

lower level of overall employment, the productive capacity of the economy has increased (or stayed the same). Of course, if people get redeployed to more productive tasks, the economy produces more without any additional slack. Whether AI substitutes for labor or complements it is an important question that requires continued study.

On the other side of our dual mandate—price stability—AI could help the economy achieve higher growth through increased productivity while reducing inflationary pressures. Specifically, increased productivity could lower production costs and put downward pressure on prices. Not only could AI allow a specific worker to be more efficient in their day-to-day tasks, but it also has the potential to allow for better thinking around complex problems. More efficient allocation of resources as well as potential improvements in supply chains could reduce associated costs, leading to lower prices for various goods and services. Conversely, AI could put upward pressure on certain price categories as many firms push to scale up the technology. I mentioned the rising wages for certain workers with skills that complement AI. AI technology also requires data centers, which compete with other production processes for land, energy, and other inputs. As with the labor market, the timing and degree of AI's effect on prices are uncertain and should be monitored.

In terms of AI's implications for monetary policy, it is likely still too soon to tell. Policymakers must sort out changes in the economy that are due to cyclical factors from those resulting from structural change, which AI may well represent. Productivity gains from AI may affect the relationship between employment and inflation and, hence, the conduct of monetary policy. Monetary policy decisions, of course, need to be made with a broad view of what is happening in the economy, not just in one sector or technology.

There is still much to learn. I counsel exercising humility about the challenges in predicting AI's effects on employment and inflation.

AI and Financial Stability

Now, I will turn to discussing AI through the lens of financial stability. But first I would like to step back and briefly offer my overall assessment. The financial system remains sound and resilient, with high levels of risk appetite and leverage at hedge funds balanced by strong household and business balance sheets and high levels of capital in the banking system. Because the continued resilience of the financial system is so important to achieving our dual-mandate goals, policymakers monitor a range of indicators associated with vulnerabilities, as is discussed in our semiannual FSR. The latest version of that report was published a few weeks ago.[10]

As part of our financial stability monitoring work at the Fed, we routinely survey market contacts regarding potential risks to the U.S. financial system. A finding in the most recent survey is likely of particular interest to a conference exploring financial stability in a time of technological change—30 percent of contacts surveyed cited a turn in the prevailing sentiment toward AI as a salient risk to the U.S. financial system and the global economy. That was up from 9 percent in the spring survey. Participants noted that if such an unwinding were to occur, it could tighten financial conditions and restrain economic activity more broadly. It is not my intention to make a judgement on the likelihood of those, or other scenarios offered in the FSR. Rather, I want to reiterate that I am monitoring the scenarios.

[10] The most recent FSR is available on the Federal Reserve Board's website at https://www.federalreserve.gov/publications/files/financial-stability-report-20251107.pdf.

Some observers have asked about comparisons with the late 1990s, which was another period when promising new technological advances were closely tied to strong stock market performance.[11] They have asked, are we experiencing "dot-com boom 2.0?" So, in the rest of my talk, I will address this question. I will argue that there are important differences between the recent period and the stock market experience during the dot-com boom of the late 1990s. Of course, much has changed over the past quarter-century, so history can only be a useful reference and not a predictor of future outcomes.

How Current Conditions Compare with the Dot-Com Era

I see clear differences across the two periods. Before I discuss three notable differences, let me first refresh our memory and mention a dimension along which the dot-com era and the AI era are similar—the particularly rapid stock price appreciation of firms that encapsulate the promise of transformational technologies.[12] Indeed, the stock prices of dot-com firms increased more than 200 percent during their boom between 1996 and 1999, a little faster than the increase we have seen so far in the stock prices of AI-related firms since 2022.[13]

A closer inspection of the firms driving the stock price increases, however, reveals the first critical difference in the stock market dynamics across the two periods. In the late 1990s and early 2000s, many, albeit not all, dot-com firms typically had little to no realized earnings and only speculative revenue prospects even as they obtained

[11] For example, AI technology and its effect on financial markets is the focus of the 10th Foundation for Advancement of Research in Financial Economics (FARFE) Conference. Information about the conference is available on FARFE's website at https://farfe.org/Conference-2025.html.

[12] See Alexander Ljungqvist and William J. Wilhem Jr. (2003), "IPO Pricing in the Dot-Com Bubble," *Journal of Finance,* vol. 58 (April), pp. 723–52; also, see Tim Loughran and Jay R. Ritter (2002), "Why Don't Issuers Get Upset about Leaving Money on the Table in IPOs?" *Review of Financial Studies,* vol. 15 (January), pp. 413–44. Dot-com firms are identified following the approach in Ljungqvist and Wilhelm Jr. (2003) and Loughran and Ritter (2002) by using a specific set of SIC codes.

[13] Similarly, the NASDAQ stock price index increased about 215 percent between 1996 and 1999.

external funding and were listed on public exchanges with relative ease amid pronounced investor enthusiasm. In contrast, the firms most closely identified with AI technologies in today's market generally have well-established and growing earnings streams.

The second difference is that because of their solid earnings base, the price-to-earnings ratios of AI-related firms have thus far remained well below the peak ratios of dot-com firms in the late 1990s and early 2000s. During the dot-com episode, investors were apparently far more willing to bet on the promise of the internet, with dot-com stocks commanding far larger premiums than AI stocks do today.

The third difference is that the proliferation of dot-com firms in the late 1990s and early 2000s suggests a less discriminating enthusiasm than what we are observing in today's market. At the peak in the late 1990s, more than 1,000 firms were publicly listed as dot-com companies, with many having minimal revenue and highly speculative business models. Indeed, researchers have shown that the mere addition of "dot-com" to a company name was sufficient to boost the stock price of the firm.[14] By contrast, in the current environment, by one measure about 50 publicly traded firms are considered to be AI-focused enterprises, in the sense that they are expected to derive revenue from other firms using AI technologies, as opposed to the broad-based speculation that we saw in the late 1990s.[15] However, it is important to acknowledge that the rapid growth of private capital markets—which are not publicly traded—in recent years may obscure the extent

[14] See Michael J. Cooper, Orlin Dimitrov, and P. Raghavendra Rau (2001), "A Rose.com by Any Other Name," *Journal of Finance,* vol. 56 (December), pp. 2371–88.

[15] This assessment is based on the iShares Future AI & Tech ETF, which focuses on "companies that provide products and services that are expected to contribute to AI technologies in areas including generative AI, AI data and infrastructure, AI software, and AI services." Obviously, the number of firms that use AI technology is much larger.

of investor enthusiasm for financing AI firms, as a growing number of private firms reportedly now identify as AI-focused or AI-native enterprises.

Finally, with respect to financial leverage, both dot-com previously and AI firms recently exhibited limited reliance on debt financing for the most part. This more limited use of leverage may reduce the extent to which a shift in sentiment toward AI could transmit to the broader economy through credit markets. That said, recent market reports suggest that AI firms may be increasing their use of debt, from both public and private credit markets, to fund substantial investments in computing infrastructure and talent acquisition. Just a few weeks ago, large volumes of corporate bonds were issued to support AI infrastructure buildout by key players in the industry. Some analysts estimate that future investments in AI infrastructure will require a lot more debt.[16] If that turns out to be the case, leverage in the AI sector could increase—and so could the losses if sentiment toward AI shifts. I will watch this developing trend closely.

In sum, looking at these dimensions, as of now, the differences between the current market and the dot-com era make it less likely that we are witnessing a replay of the late 1990s. Most notably, in contrast with the dot-com era, the current AI-related stock market activity appears more concentrated among established firms with actual earnings. Additionally, these developments are occurring against the backdrop of a financial system that is sound and resilient.

Conclusion

To conclude, it is important to acknowledge that assessing the implications of rapidly developing technology for financial stability is subject to a great deal of

[16] See Morgan Stanley (2025), "Bridging a $1.5tr Data Center Financing Gap," July.

uncertainty. The ultimate implications of AI for both the macroeconomy and financial stability may take a long time to crystallize. Technology, the financial system, and the broader economy are always evolving. The potential transition to our new world could be bumpy, and it is too early to tell what trajectory will ultimately play out. Our research is continually enriched by the insights provided by market participants in regular outreach, keeping us abreast of the latest developments in AI and their economic implications, and by an ever-expanding analytical toolkit, including AI. Ensuring that the AI revolution unfolds within the context of a stable financial system is not just desirable—it is also imperative for achieving our dual-mandate objectives of maximum employment and price stability.

Thank you.

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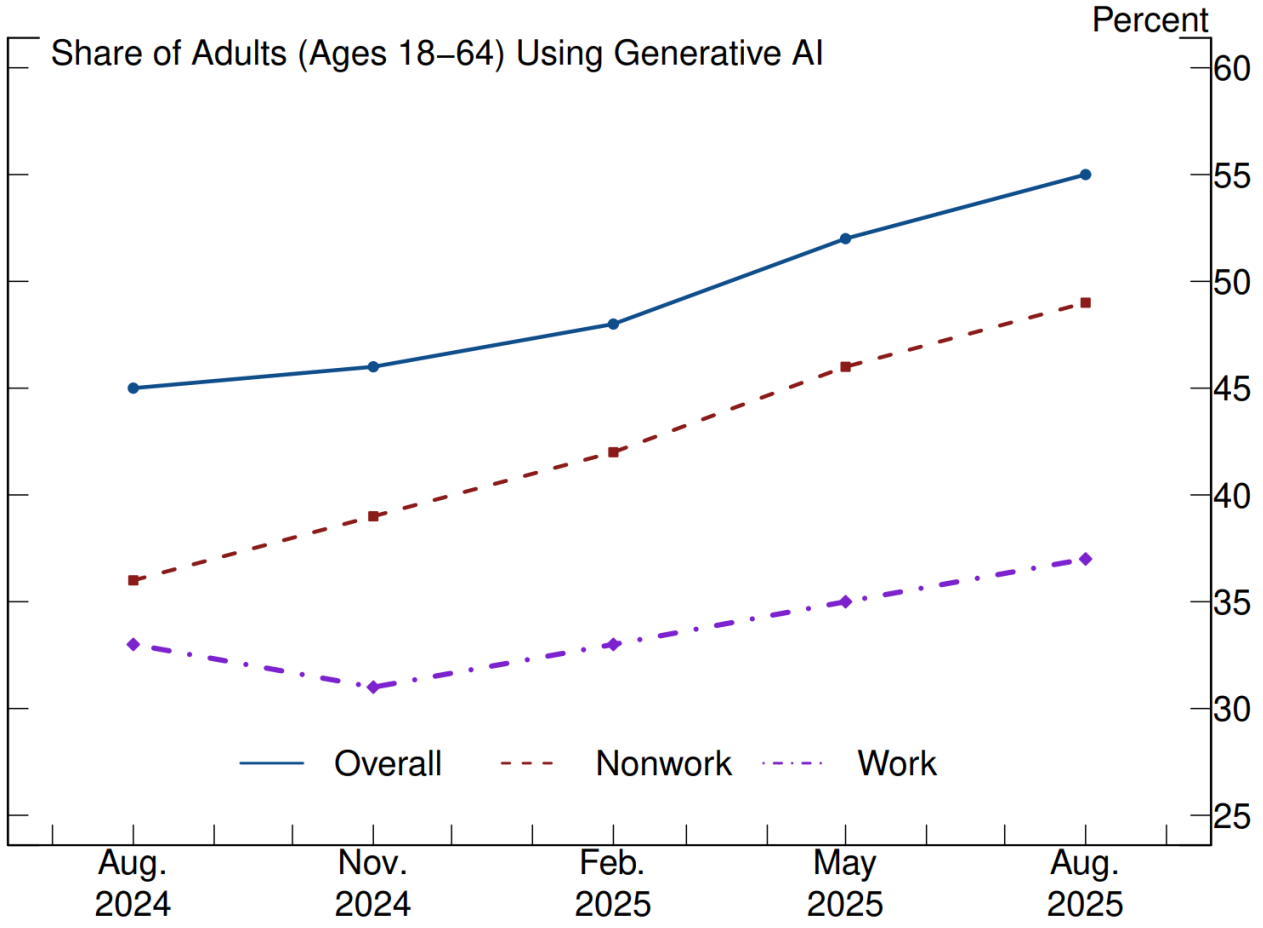
Road Map of Talk

- AI and the dual mandate
- AI and financial stability
- Comparing recent trends with the late 1990s
- Discussion

AI Adoption in the Economy



Source: Federal Reserve Bank of St. Louis, Real-Time Population Survey; author's calculations.

Survey of Salient Risks to Financial Stability

	Policy uncertainty	Geopolitical risks	Higher long-term rates	Persistent inflation	Artificial intelligence	Asset price declines
Fall 2025	61% of contacts surveyed	48% of contacts surveyed	43% of contacts surveyed	43% of contacts surveyed	30% of contacts surveyed	30% of contacts surveyed
Spring 2025	50% of contacts surveyed	23% of contacts surveyed	9% of contacts surveyed	41% of contacts surveyed	9% of contacts surveyed	36% of contacts surveyed

Source: Federal Reserve Board, November 2025 *Financial Stability Report*.

Contrasts with the Late 1990s

Currently…

- Firms identified with AI generally have well-established and growing earnings streams
- Price-to-earnings ratios of AI-related firms are below peak 1990s ratios
- Relative to the number of dot-com firms in the late 1990s, fewer publicly traded firms are considered AI-focused enterprises

Conclusion

"Ensuring that the AI revolution unfolds within the context of a stable financial system is not just desirable—it is also imperative for achieving our dual-mandate objectives."

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