

Cannons, Data Centers and Banks

EJF



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by Neal J. Wilson

One of the iconic features of a European medieval town is the stone castle, typically strategically placed on high ground or on a nearby chokepoint along a river or sea. Castles are regal, imposing structures emanating power, prestige and even elegance. They are designed to inspire intimidation and awe in invaders. And castles did exactly that for centuries ... until new technologies made them functionally obsolete.

Medieval castles were built to defeat the siege weapons of their era: trebuchets, catapults and battering rams. A castle's defense was its height and thickness — tall vertical walls that were hard to scale, hard to batter down with mechanical siege engines, and hard to penetrate with defenders perched on commanding citadels. A well-sited castle on high ground with thick stone walls could hold out for months or years against even the most patient of marauders.

The medieval breakthrough of cannon technology occurred in the 15th century, shifting from weak iron-stave bombards to powerful, cast-bronze artillery. Improved metallurgy, improved ordnance, and, most significantly, improved gunpowder -- both in terms of offensive firepower and operator safety -- were the technology developments that almost overnight enabled the relatively easy and efficient destruction of traditional stone fortifications. The Ottoman cannons at the siege of Constantinople in 1453 symbolized the beginning of the end of the stone castle era.¹

Financing the Gunpowder Revolution

Like the AI-driven scramble to build out data center infrastructure today, medieval kings raced to keep up with cannon-related technologies. Medieval kings found themselves required to borrow immense sums of money specifically to fund the "gunpowder revolution". Like the "Magnificent Seven" with data centers today, only the wealthiest of monarchs could afford to compete in building and maintaining modern artillery.²

Two sovereign financing models eventually developed to pay for the gunpowder revolution. The first model, deployed by the Spanish and French monarchies, used resources they had readily available to collateralize loans. The Spanish, with colonial lands in the Americas producing silver and, to a lesser degree gold, chose to borrow against these valuable, but uneven and unpredictable commodity flows. The episodic nature of this collateral predictably led to periodic Spanish sovereign defaults: the Spanish crown defaulted six times between 1555 and 1647. The French, with vast and productive agricultural lands, taxed food production and sold tax

¹ The famous Theodosian castle wall of Constantinople had withstood attack for 800 years. See The Byzantine Legacy, <https://www.thebyzantinelegacy.com/theodosian-walls> (accessed September 7, 2026).

² Advanced bronze cannons were significantly more costly than iron, costing roughly three to four times more per ton by the 16th century. See Paul Strathern, "The Medici: Godfathers of the Renaissance" (Vintage Books: London 2007), p. 210-211.

collection posts to leading local officials. The French collateral financing method, although more predictable than Spain's, also had limitations. French local middlemen holding posts were a feature of inefficiency, skimming tax receipts before paying the crown.

A Better System of Borrowing Develops: Aligning Stakeholders and Creditors

Ultimately, the Dutch sovereign and, later, the English Crown, adopted a more sustainable system of finance that rested on establishing a stakeholder linkage between tax revenue and creditors. Buoyed by the sovereign Bank of Amsterdam, the Dutch Republic issued bonds that were bought largely by its own merchant class and municipal governments. Because the creditors were also the political stakeholders who controlled taxation, the perceived risk of default was very low — the people deciding whether to repay were the same people who would lose if they did not. This produced remarkably cheap, deep, and liquid credit for a small state, letting the Dutch punch far above their demographic weight militarily through most of the 17th century.

England imported the Dutch Republic's financing approach after the Glorious Revolution in 1688 when the Dutch Prince William of Orange assumed the English throne with Queen Mary of England. The Bank of England was established in 1694 patterned after the Bank of Amsterdam. A permanent, funded national debt, combined with Parliament's control over taxation, allowed England to borrow enormous sums at historically low interest rates through the 18th century. Lenders trusted that revenue streams pledged to service debt would not be arbitrarily diverted by Parliament, which held the English purse strings.

The Anglo-Dutch model -- the one sovereigns use today -- was the more successful one, precisely because it turned creditors into stakeholders and made repayment credible.³

Today's Systems of Borrowing

The story of the financing of the gunpowder revolution highlights the importance of a country's system of borrowing. At the time of the gunpowder revolution, the sovereign *was* the state, so its fate was tied to its system of borrowing. In today's market economy, national outcomes rest on how and from whom *the country's commercial actors* borrow. The system of borrowing chosen by the sovereign for its private economic actors, primarily through law and regulation, is thus a key determinant in how well a country meets unanticipated technological and financial challenges.

US economist Tyler Goodspeed makes precisely this point in a recent publication of the UK think tank, the Institute for Economic Affairs.⁴ Asked why the US economy has grown at a significantly more robust rate than the UK since the 2008 Great Financial Crisis (GFC), Goodspeed identifies a system of borrowing cause. He argues that the UK's strict adherence after 2008 to the

³ See David Stasavage, "States of Credit: Size, Power, and the Development of European Polities" (The Princeton Economic History of the Western World 2011).

⁴ Tyler Goodspeed, "The Never Ending Credit Crunch: Why Britain Stopped Growing" (IEA The Great Stagnation Briefing No. 1, July 2026), <https://economicsaffairs.co.uk/p/the-never-ending-credit-crunch>.

Basel Accords – which required banks above certain size thresholds to hold more capital and to pass tougher stress tests -- has dampened economic growth as it imposes across-the-board regulatory tightening of bank capital, leverage, and liquidity. He finds this decision to tighten bank lending capital the most convincing explanation for why the UK growth trajectory diverged from that of the US specifically after 2008 rather than before it.⁵ Goodspeed asserts that a robust private credit industry combined with a broader system of banks in the US -- with two tailored regulatory regimes based on bank asset thresholds – is why the US has seen steady economic expansion since the GFC. Unlike the UK, the US has a dual-track regulatory architecture that lets smaller, geographically dispersed lenders keep extending credit largely outside the Basel III capital drag. The UK's more universal application of bank regulatory rules to its relatively few banks meant the credit contraction hit the entire system, with no significant less-constrained tier to pick up the slack.

The US implementation of Basel III (and Dodd-Frank generally) built in asset-threshold tailoring — banks below certain size cutoffs (originally \$10 billion, later raised to \$250 billion under the 2018 Economic Growth, Regulatory Relief, and Consumer Protection Act) were exempted from the more onerous capital, stress-testing, and liquidity coverage requirements that applied to Global Systemically Important Banks (GSIBs). The US's system of borrowing thus proved more resilient as it took advantage of its dense layer of 4,200 small, locally chartered community banks and thrifts.

US Banks and the Data Center Buildout

Although the dual-track regulatory bank structure may have performed a critical lending function in the economic recovery since the GFC, are smaller banks outdated in the world of data center buildouts by the “Magnificent Seven”? Are 4,200 small banks simply a modern version of the uncompetitive commodity lending systems of 16th-century Spain and France?

At EJF, we are frequently asked this question. And it is logical to do so. Perhaps the greatest financial weapon the US enjoys is its capital markets, the largest and deepest in the world. As long as the capital markets are open, cash-flowing and capital-rich companies like the “Magnificent Seven” can tap them for inexpensive and liquid debt.⁶ This raises the question of why small and regional SME lending banks in the US are not on the same road to obsolescence as castles.

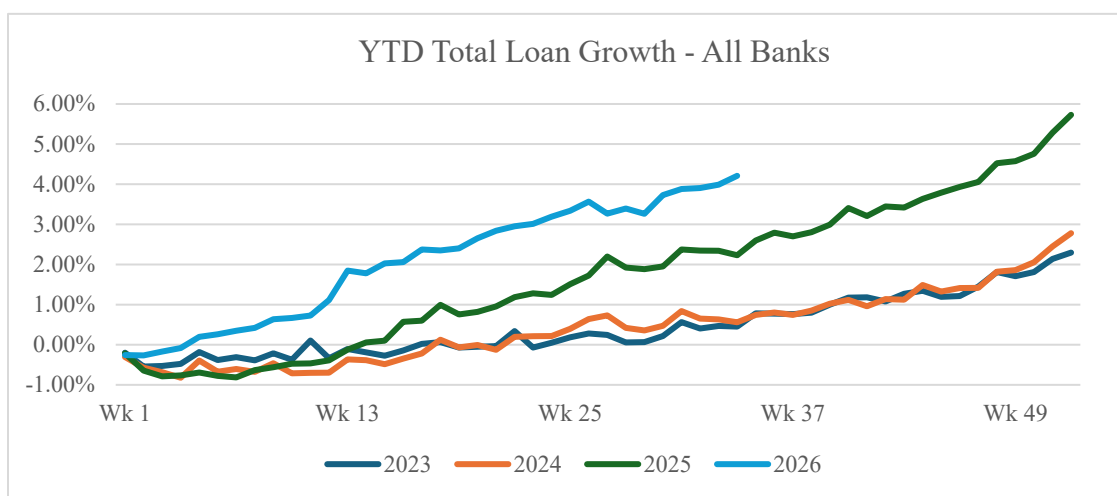
Like Mr. Goodspeed, EJF believes that the answer lies in the financial data. Loan-level figures over the past few years tell an interesting, and somewhat paradoxical, story in the wake of the AI revolution. Although small and regional banks do not fund data centers directly, they do provide loans to local companies providing trade goods, local contractors and their employees (e.g., electrical, HVAC, plumbing, etc.) that support large data center builds. The second- and

⁵ Based on his review of the data, Goodspeed specifically rejects the reasons cited by most politicians for the UK's growth stagnation: fiscal austerity after the GFC and the “Brexit” decision to leave the EU economic trade block.

⁶ Alphabet, Amazon, Apple, META, Microsoft, Nvidia and Tesla borrow money at an average effective yield of 4.0% to 4.4% for short to medium term debt and between 5.3% and 6.0% for long term debt. (Bloomberg as of September 8, 2026)

third-order effects of a data center infrastructure buildout require borrowing that is not easily accessed via the capital markets that flow through GSIBs. According to the Pew Research Center, about 67% of newly planned data centers are in rural locations.⁷ Traditional hubs like Northern Virginia are running out of cheap power and open land, the two ingredients that data centers require. Thus the paradox: the more capital the large, public companies like the “Magnificent Seven” tap from the capital markets and money-center GSIBs, the more loans geographically diverse small banks will generate in the hinterlands of America.

Industry loan growth has been strong and is on an aggressively positive trajectory. The chart below shows year-to-date total loan growth for all commercial banks, split by year. Total loans are up approximately 3.5% so far this year. That is more than double where the industry stood at this point last year, while 2023 and 2024 were essentially flat through the first half. Most of this year’s growth showed up in the second quarter, as total loans grew approximately 2.0%, just over an 8% annualized pace and up from the approximately 5% year-over-year growth rate of Q1 2026.⁸ This loan growth data tracks the trajectory of the AI buildout. We have been hearing regional bank management teams speak to this dynamic at industry conferences, and it has been a recurring topic on smaller bank Q2 2026 earnings calls.



The policy choices being made by the current Congress and White House have, in our view, meaningfully contributed to not only the AI buildout, but the manner in which the US banking system has responded to it. The restoration of 100% bonus capital depreciation in the 2025 “One Big Beautiful Bill” incentivizes capex broadly. During a second quarter earnings call, one of the larger regional banks noted that loan pipelines are broadening beyond digital infrastructure into those industrial and healthcare subsectors that are more capex-heavy, with middle-market activity

⁷ “Most Data Centers are Coming to Rural Areas,” Pew Research Center (April 13, 2026), <https://www.pewresearch.org/short-reads/2026/04/13/most-new-data-centers-in-the-us-are-coming-to-rural-areas//>

⁸ Federal Reserve H.8 Data as of September 4, 2026



increasing.⁹ We believe those positive middle-market dynamics read through directly to the small and mid-sized banks in which EJF invests.

The regulatory environment for smaller banks under this presidential administration also continues to be broadly constructive. The Federal Reserve has proposed capital rule changes that would adjust risk-weighted assets in a more nuanced way that will benefit all banks, but particularly smaller banks. The proposed rules would give small banks a greater share of the mortgage market by way of lower capital risk weight requirements for mortgage servicing rights (MSRs) and low-LTV (loan-to-value) loans. We estimate that banks under \$100 billion in assets will benefit the most with capital requirement reductions of about 7.8% Common Equity Tier 1 (CET1) (versus 4.8% for Category I and II and 5.2% for Category III and IV regional banks) as a consequence of the more nuanced regulatory approach. One tangible example is Old National Bancorp, with \$73 billion in assets, estimating in April that the changes could add roughly 100 basis points to its 11.1% CET1 ratio – capital it said it would redeploy rather than hold.

The diverse US banking system and the federal government’s regulation of it are part of the mosaic of reasons why the US has (at least so far) led the AI technology revolution. Although local and regional resistance to the data center buildout threatens this reality, the US system of borrowing has largely proven resilient and responsive to the capital demands triggered by AI.

Conclusion

The AI technology revolution is already rendering some software “castles” functionally obsolete. The cost of the data center buildout is the cost of not being left behind – the same life-and-death borrowing imperative medieval monarchs faced. Although the US capital markets and GSIB banks are the primary funders of that direct buildout, non-GSIB banks and private credit lenders are backfilling the economic second- and third-order demands for capital. In EJF’s opinion, the US financial regulators have correctly decided that a banking system that is both diverse geographically and diverse in asset size (and regulatorily tailored as such) is the right one to have in an ever-changing world, including one in the midst of an AI-driven technology spending revolution.

⁹ Citizens Financial Group, Inc. (NYSE: CFG) Q2 earnings conference call July 16, 2026



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