Andvari's Q2 2026 Letter

AI and the Capital Cycle

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American railroad scene; lightning express trains leaving the junction (1874)

Please enjoy the lightly edited excerpt from Andvari's Q2 2026 letter.

Andvari Holdings

From a financial perspective, Andvari's portfolio of businesses has generally performed well. For example, Constellation Software in its first quarter results showed revenue growth of 19.9% and record free

cash flows. Given the contraction in software company values over the last 12 months, Constellation this year has also been very active in acquiring other vertical market software businesses. RBC Capital Markets estimates Constellation is on track to spend a record $2.76 billion on acquisitions in 2026. If that happens, it would be a record year for Constellation in terms of capital deployed for acquisitions. Finally, the company and its subsidiaries have devoted more time to sharing with the public how they are using AI tools to (1) become more productive and (2) to further solidify their customer relationships, which typically have spanned decades. If Constellation can prove over the next few years that its 1,000+ software businesses are still valuable, cash-flowing assets despite the fears and uncertainties caused by the advent of AI-based coding tools, its share price should begin to recover.

Tyler Technologies, a software company focused solely on state and local government customers, recently *raised* its 2030 financial goals because the cloud transition for its customers has moved from aspiration to solid proof. Since its 2023 investor day, Tyler has met or exceeded its 2025 interim targets, shifted more than 95% of new-client total contract value to SaaS ("software as a service"), completed the migration of its roughly 5,000 hosted customers onto AWS, and exited its last private data center on schedule. All this gives management more confidence in both future growth and margins. Tyler's remaining on-premise maintenance base still represents a large conversion pool, and each maintenance-to-SaaS "flip" is expected to lift recurring revenue by roughly 1.7x before any cross-sell, payments attach, or module expansion. Just as important, Tyler's next phase—"Cloud Living"—should reduce version complexity, lower support burden, speed upgrades, and create a more scalable operating model.

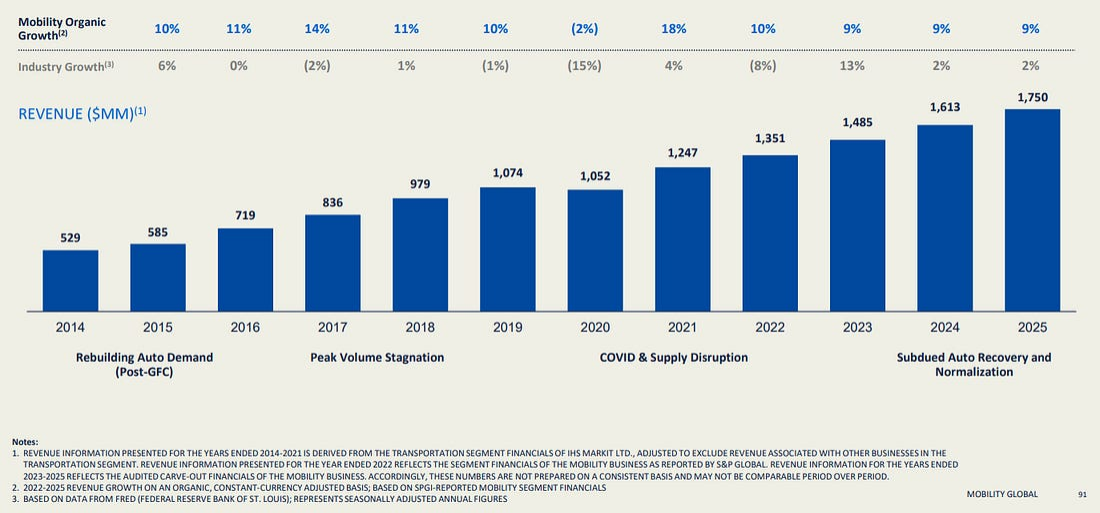
The other reason for Tyler raising its 2030 financial goals is that its transaction-based businesses have become a more visible growth and cash-flow lever, not just a sidecar. Management says transaction goals

set in 2023 were met or exceeded, with growth coming from higher volumes, higher attach rates, and expansion of transaction-funded software. That model matters because Tyler's customers can fund public-sector software *outside* normal budget appropriations. For example, California State Parks is one of Tyler's largest transaction-based customers.[1] Tyler's software enable visitors to California parks to reserve spots and Tyler gets a fee for each spot reserved via its software. California doesn't have to spend any money upfront for this software because Tyler collects its revenues and profits via the transactions on its reservation platform. The upside for California is it gets to collect revenues with little to no initial outlays. Put together, cloud conversion, transaction attach, and operating leverage support Tyler's raised 2030 targets: recurring revenue of $3.3B–$3.4B, free cash flow of $1.1B–$1.2B, and low-30s free cash flow margins.

Another portfolio company with notable activity is S&P Global which recently spun out its Mobility Global (MBGL) division to shareholders. The remaining S&P Global is now an even higher quality business because its crown jewels can shine even brighter. In 2025, S&P's credit ratings business had adjusted operating margins of 65%, its S&P Dow Jones Indices business had 71% adjusted operating margins, and its Energy business had 48% adjusted operating margins. Mobility Global had *just* 40% margins.

As a new separate entity, Mobility Global will likely be a good business to hold on to as it has many trusted products (CARFAX, Polk, Automotive Mastermind, and Market Scan) that are deeply embedded in the automotive ecosystem. MBGL's customers span from nearly every global auto OEM and tier 1 supplier to thousands of car dealers. With annual revenues of just $1.75 billion, high margins, >80% subscription-based revenues, and now with greater flexibility to invest and acquire, MBGL management believes it can continue to grow at a high single-digit rate and expand margins.

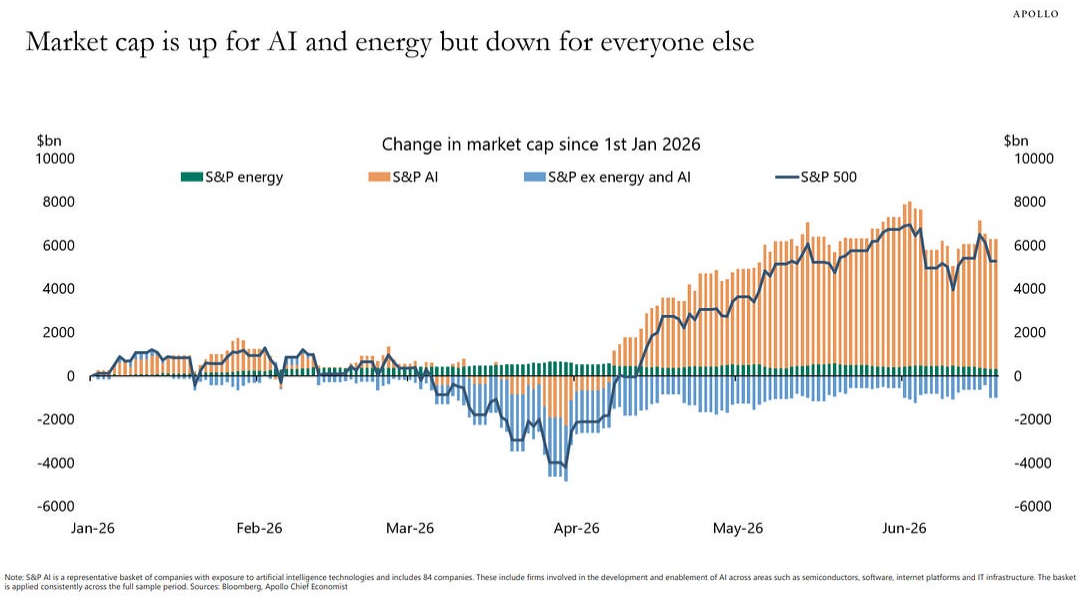
Mobility Global's Track Record of Revenue Growth



Source: Page 91 of MBGL's 2026 Investor Day presentation.

The Artificial Intelligence Investment Theme

Almost every company directly associated with artificial intelligence has outperformed almost every other company. This is due to a combination of extreme hype around this investment theme and an extraordinary imbalance between supply and demand. Samsung and SK Hynix have sold out their high-bandwidth memory capacity chips for the next 12-15 months. Nvidia's advanced AI processors are effectively booked out for 12 months. Manufacturers of power generating turbines —like GE Vernova, Siemens Energy, and Mitsubishi Heavy Industries— have record backlogs with some deliveries that won't occur until 2030. By stripping out AI and Energy from the S&P 500 you would then see the index would be *down* year to date as of June 19.[2]



Animal spirits are running wild and I believe there is a growing disconnect between the valuations of many of these AI-related businesses and the future cash they are likely to bring in. There is just too much excitement, too much competition, and too much uncertainty for me to stick these types of businesses into a portfolio.

Another reason why I am increasingly cautious here is I've begun to see more examples of circular financing among the companies involved with the AI investment boom. For example, when Nvidia invested in OpenAI in late 2025, it was reported most of the money would be used to lease Nvidia chips.[3] Also, some companies like Nvidia and Anthropic have invested directly into special purpose vehicles (SPVs), which in turn use that money to buy hardware from those exact same hardware makers. Then there are AI companies like Anthropic who have begun to use massive SPVs, backed by private equity firms, to borrow billions to buy chips and servers. The AI company then leases the chips from the SPV and thus the debt can stay off its own balance sheet. I've also read that some Nvidia customers are using Nvidia chips as collateral for loans to buy even more chips. This is the same type of behavior that eventually got many telecom and tech companies into huge trouble during the dot com bubble of the 1990s.

All this said, Andvari does have some exposure to the AI theme. This year I added two hyperscalers: Amazon.com and Microsoft. I also added Texas Instruments, which makes analog and power management chips. Martin Marietta, one of the largest aggregates companies in the U.S., is also a minor beneficiary of the AI theme given robust construction activity in data centers and power generation.

While each of these companies has varying degrees of exposure to the AI theme, I like that they all generate revenues and profits from other sources. Although Amazon and Microsoft are two of the five largest hyperscalers, Amazon has its logistics network, online retailing business, advertising network, and grocery stores. Microsoft will continue to sell its ubiquitous software to consumers and businesses, it has its gaming business, it has LinkedIn, and it has its Azure cloud computing platform. Texas Instruments and Martin Marietta might be getting a nice temporary bump in profits and revenues from helping build out AI infrastructure, but AI and data center-related revenues are by no means the majority of revenues for either of these two companies.

The Capital Cycle

Near the end of 2025, I interviewed a portfolio manager at U.K.-based Marathon Asset Management. Marathon is a storied firm with a great track record and is best known for its investment philosophy that centers around what they call the capital cycle. From their viewpoint, the best way to predict how a business will perform is to look at how much new supply and competition is entering an industry, not just at how much customers want a product. When an industry is doing well, that success attracts competition and new capital, existing companies expand, and everyone assumes the good times will continue. But...

As new capacity comes online, there will eventually be too much supply chasing the same customers. Profits get squeezed just as everyone becomes the most optimistic. The reverse is also true: when an industry

has been struggling for a while, weaker competitors go out of business or stop investing, capacity shrinks, and the companies that survive often find themselves in a much healthier position—right when everyone else has given up on the sector. In other words, the capital cycle embodies the idea that industries sow the seeds of their own boom-and-bust cycles. Thus, an understanding of where an industry sits in the cycle can tell you more about future profitability than simply asking whether demand is growing.

In September 2025, Marathon published its views of the AI infrastructure buildout in a piece entitled "AI: Mad Maths?".[4] They describe the scale of spending as staggering and arguably unmoored from reality. Estimates for data center investment through the late 2020s range from Morgan Stanley's ~$3 trillion to McKinsey's $5.2 trillion, with Citi adding another $1.4 trillion for R&D on top of $2.3 trillion for hardware.

Meanwhile, from the time ChatGPT launched in November 2022 to September 2025, ten US tech firms added $12 trillion to their market value, which to Marathon, meant the market priced in returns well above the cost of the investment itself. Furthermore, Marathon's math suggests the investment hurdle is nearly impossible to clear. Just to earn back the cost of capital on chips and hardware alone (before counting energy infrastructure or R&D), the industry would need to generate over $500 billion in net cash flow in 2028 alone. And that is the bare minimum, not the profit bonanza current valuations seem to assume. Extending the logic further, Marathon estimated data center operators would need $2.5 trillion in revenue, which means their downstream customers would need to pay close to $3.1 trillion for AI services—roughly 10% of US GDP and 5% of global labor costs. From Marathon's perspective (and mine), this is asking for a huge amount of economic value to materialize very quickly.

To further illustrate my belief that AI is approaching a zenith in its capital cycle, let's review the U.S. railroad industry during the 1800s and

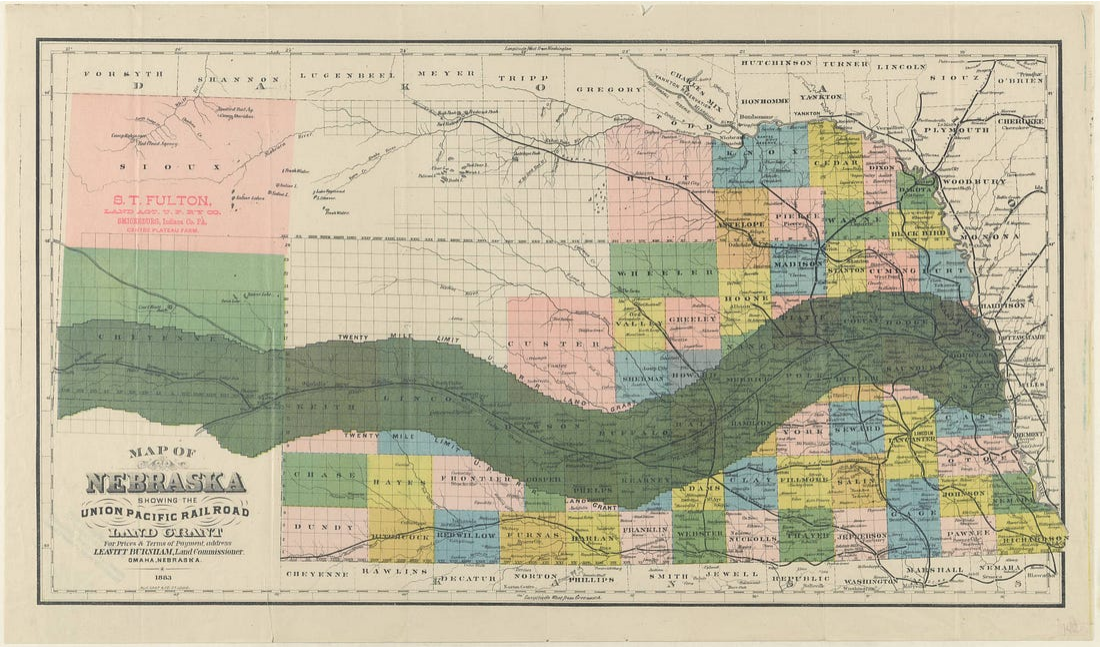
the tech bubble of the 1990s. Starting with railroads, construction in the United States first began with the Baltimore & Ohio's groundbreaking in 1828.[5] Work by Pereira, Hausman, and Pereira (2014) showed that net railroad capital formation grew at an average annual rate of **17.2%** between 1828 and 1860, far outpacing real GDP growth of 4.6% per year over the same period.[6] Railroad investment rose from roughly 0.2% of GDP in 1830 **to a peak of 2.6% of GDP** in 1854, and by the 1850s railroads absorbed **15–20% of total U.S. capital investment**.[7] *(The current contemplated spend of $1 trillion on AI infrastructure over the next year is roughly 3% of current U.S. GDP)*. By 1860, the U.S. had more railroad mileage than the rest of the world combined.[8] Mileage then grew from about 35,000 miles at the end of the Civil War to 70,000 miles by 1873, financed substantially by foreign capital. Total U.S. railroad milage peaked at roughly 240,000 miles in 1910 and employed about 1.7 million workers (~2% of the entire U.S. population).

In terms of the several bust periods that happened during the 19th century buildout of rail lines, here are the best figures I could compile:

- **1837–42**: 8 states + Florida Territory in default on debt interest; 2 states fully repudiated, 3 partially repudiated[9]
- **1873–79**: ~50% of all outstanding U.S. railroad bonds defaulted; >$1 billion in debt went bad in 1874 alone; Union Pacific entered receivership; Northern Pacific went formally bankrupt, incomplete, and stranded in Montana[10]
- **1893 (year-end)**: 74 railroads in receivership — 30,000 miles of track, $1.8 billion in capital[11]
- **1893-97**: 192 railroads had failed — at least 25% of all U.S. railroad track, including repeat failures of Union Pacific, Northern Pacific, Santa Fe, and the Erie (*its fourth bankruptcy*)[12]

By the standards of any era, the railroad busts represent an extraordinary rate of capital destruction. At the depth of the 1890s

crisis, at least **a full quarter of the entire national rail network was under formal receivership simultaneously**.



1883 map of Nebraska showing the Union Pacific land grant.

So, after nearly two centuries of extraordinary growth, investment, several boom/bust periods, and then consolidation down to just the four Class I railroads we have today in the U.S., what returns did investors realize? Financial data firm Finaeon shows railroad stock prices rose roughly 2,000-fold from 1830 to 2023, a 4% annualized price return. Adjusting for dividends, the total return index rose approximately to 5 million-fold, equating to an 8.3% annualized total return over the same span, against roughly 2% average inflation.[13]

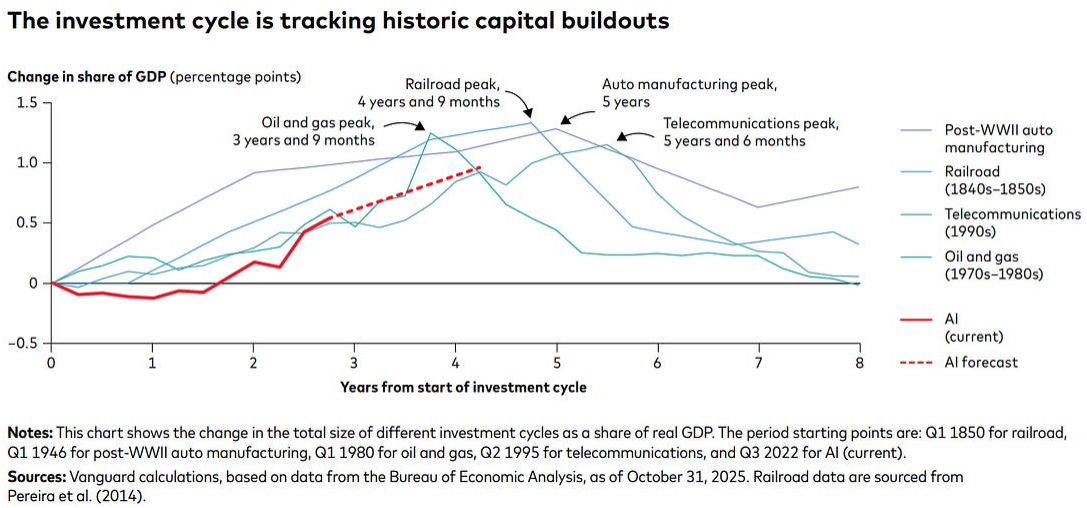
Let that figure sink in. Despite the enormous investment and all the benefits that accrued to the economy and society, railroad investors only earned 8.3% over the long term. It is by no means a shabby result, but it still just roughly equates to the market average. Critically, this return was far from smooth. The Railroad index made only minor gains through the 1830s–50s (the U.S. largely avoided Britain's 1840s mania),

surged during the Civil War (1861–64), surged again in the late 1870s, surged a third time after 1896, and then collapsed by more than 90% between 1929 and 1932, falling below its 1832 level before recovering.[14]

Now let's look at the aftermath of the 1990s tech bubble. One estimate is that at least 4,854 internet companies had either been acquired or shut down in the three years after the bursting of the tech bubble in March 2000.[15][16] On the telecom side, the failures were fewer in number but far larger in dollar terms: WorldCom's 2002 collapse was, at the time, the largest bankruptcy in U.S. history ($107 billion in assets and $41 billion in liabilities) while Global Crossing filed for bankruptcy in 2002 with assets of $22.4 billion and $12.4 billion in debt. Equipment suppliers like Nortel Networks (whose market cap fell from C$398 billion to under C$5 billion) and Lucent Technologies (stock down ~99%, from $84 to $0.55/share) survived as going concerns but were financially eviscerated.

Andvari Takeaway

According to a December 2025 research report by Vanguard, the AI investment cycle is tracking closely to other historic capital buildouts. If this is true, there might only be another 1-3 years before the investment phase tails off and when AI-related company valuations might begin to deflate.



Notes: This chart shows the change in the total size of different investment cycles as a share of real GDP. The period starting points are: Q1 1850 for railroad, Q1 1946 for post-WWII auto manufacturing, Q1 1980 for oil and gas, Q2 1995 for telecommunications, and Q3 2022 for AI (current).

Sources: Vanguard calculations, based on data from the Bureau of Economic Analysis, as of October 31, 2025. Railroad data are sourced from Pereira et al. (2014).

Chart source: "AI exuberance: Economic upside, stock market downside", Vanguard, December 2025.

In the meantime, the current demand for AI data centers and services remains enormous—I myself have made great use of a variety of AI tools to become more productive. However, another $1 trillion will likely be spent over the next twelve months on AI infrastructure in the U.S. This colossal demand has already invited, and will continue to invite, enormous competition across the entire ecosystem. Chinese AI models have already made great strides in their share of the world's most-used models and in token usage.[17] There will eventually be overbuilding, overinvestment, and returns will be competed away. Some businesses will use far too rosy financial assumptions and take on dangerous levels of debt. For example, S&P recently downgraded the credit rating of Oracle to just one notch above the level reserved for junk bonds as it plans to spend $90-$95 billion in 2027 on AI cloud infrastructure.[18] Other businesses might engage further in riskier financial behavior like vendor financing and using SPVs.

Just as the buildout of this nation's railroad and internet infrastructures benefited society greatly in the end, it also inevitably invited booms and busts for those particular industries in the interim. I believe the same boom/bust cycle will eventually happen with the buildout of AI infrastructure. The hard thing is knowing how long the spending will go

on before businesses realize they have overbuilt. And this is the classic capital cycle trap: *strong demand does not guarantee strong long-term returns* if too much capital comes in and competition intensifies. This is why Andvari has underweighted its exposure to the AI infrastructure buildout, which also explains our poor relative investment performance over the last several years.

Despite poor performance during this AI investment boom, Andvari's continuing goal is to maintain its discipline to protect and grow assets over the long term. This means investing in a variety of advantaged businesses, with capable management, operating in a multitude of more predictable industries with less competition and capital flooding in.

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Data sources for all charts come from SEC filings, Koyfin, and other publicly available information.

Footnotes

1 "Tyler Technologies Signs Eight-Year Agreement with California State Parks", Tyler Technologies, February 13, 2024. <https://bit.ly/4ypa7D6>

2 "Strip Out AI and Energy, and the S&P 500 Is Down", The Daily Spark, June 19, 2026. <https://www.apollo.com/wealth/insights-news/insights/daily-spark/strip-out-ai-and-energy-and-the-sp-500-is-down>

3 Sigalos, MacKenzie and Ari Levy. "Nvidia's investment in OpenAI will be in cash, and most will be used to lease Nvidia chips", *CNBC.com*, September 24, 2025. <https://www.cnbc.com/2025/09/24/nvidia-openai-investment-in-cash-mostly-used-to-lease-nvidia-chips.html>

4 "AI: Mad Maths?", *Marathon Global Investment Review*, Volume 39 No. 6, September 30, 2025. <https://bit.ly/4vYcafK>

5 Pereira, R.M., Hausman, W.J., and Pereira, A.M. (2014), "Railroads and Economic Growth in the Antebellum United States," College of William & Mary Department of Economics Working Paper No. 153, p. 5–6.

6 Ibid., Table 1, p. 24.

7 Ibid., p. 6.

8 Ibid., citing Atack, Bateman, Haines, and Margo (2010), p. 172.

9 Pereira, Hausman, and Pereira (2014), op. cit., p. 7, footnote 6.

10 O'Laughlin (2025), op. cit.

11 Ibid.

12 Ibid.

13 Taylor, B. (2023), "The Growth of Railroads in the United States", Finaeon Insights. <https://finaeon.com/the-growth-of-railroads-in-the-united-states/>

14 Ibid.

15 "The Dot-Com Crash of 2000-2002," Money Morning, citing Webmergers Inc. data.

16 TED Ideas, "A revealing look at the dot-com bubble of 2000 — and how it shapes our lives today." <https://ideas.ted.com/an-eye-opening-look-at-the-dot-com-bubble-of-2000-and-how-it-shapes-our-lives-today/>

17 Slok, Torsten. "A Slower AI Payoff Would Be Everyone's Problem", *The Daily Spark*, July 9, 2026. <https://bit.ly/4vsp7xg>

18 "Oracle stock shrugs off S&P Downgrade to 'BBB-', but $160B debt shadow looms", *Investing.com*, July 9, 2026. <https://yhoo.it/4aKFDB8>