The K-Shaped Economy

AMEC Symposium @ NYFed

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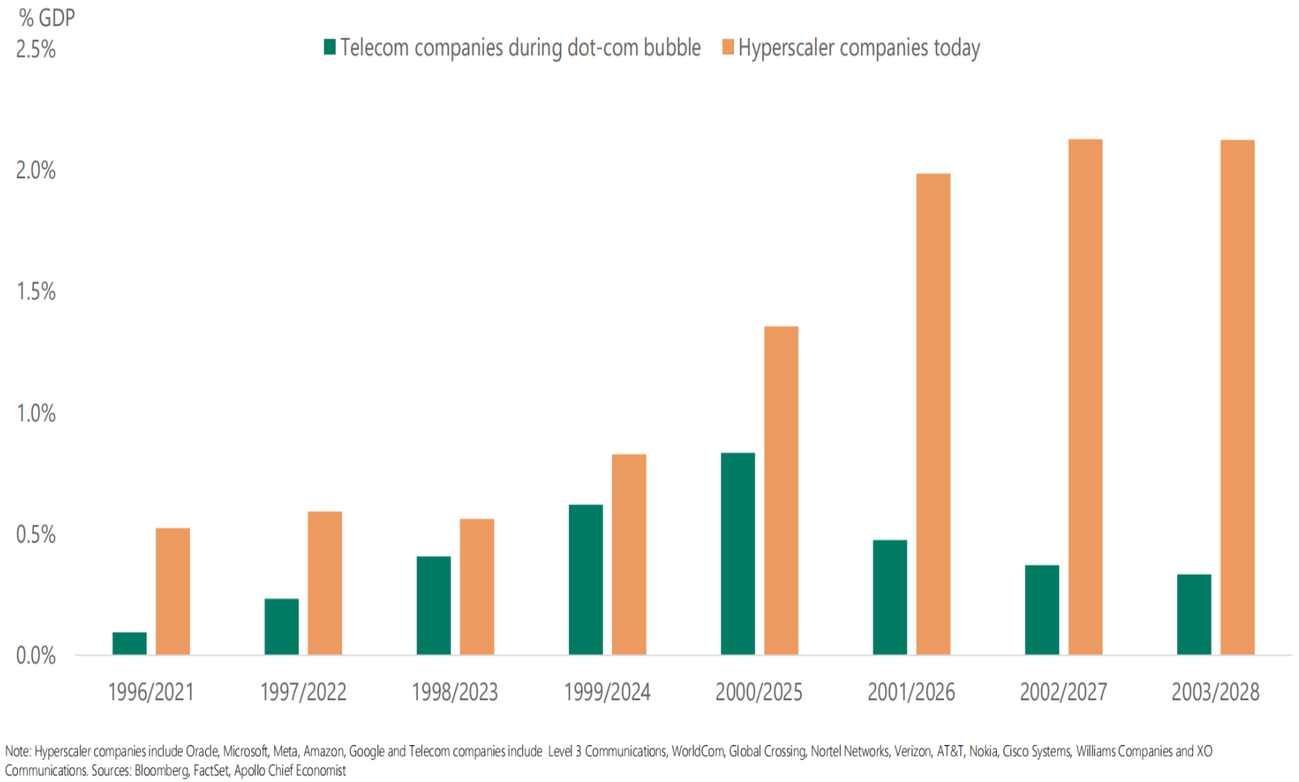
Capex as % of GDP: AI boom



Note: Hyperscaler companies include Oracle, Microsoft, Meta, Amazon, Google and Telecom companies include Level 3 Communications, WorldCom, Global Crossing, Nortel Networks, Verizon, AT&T, Nokia, Cisco Systems, Williams Companies and XO Communications. Sources: Bloomberg, FactSet, Apollo Chief Economist

Railroads (1865-1890): 2.4%

Electrification (1905-1925): 1.1%

Highways (1956-1973): 1.6%

Telecom/fiber (1996-2003): 0.8%

Artificial Intelligence (2025-2032): 2.8%

In 2025.Q4, AI buildout accounted for 100% of U.S. GDP growth

Source: Apollo

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Tech innovation and stock market bubble

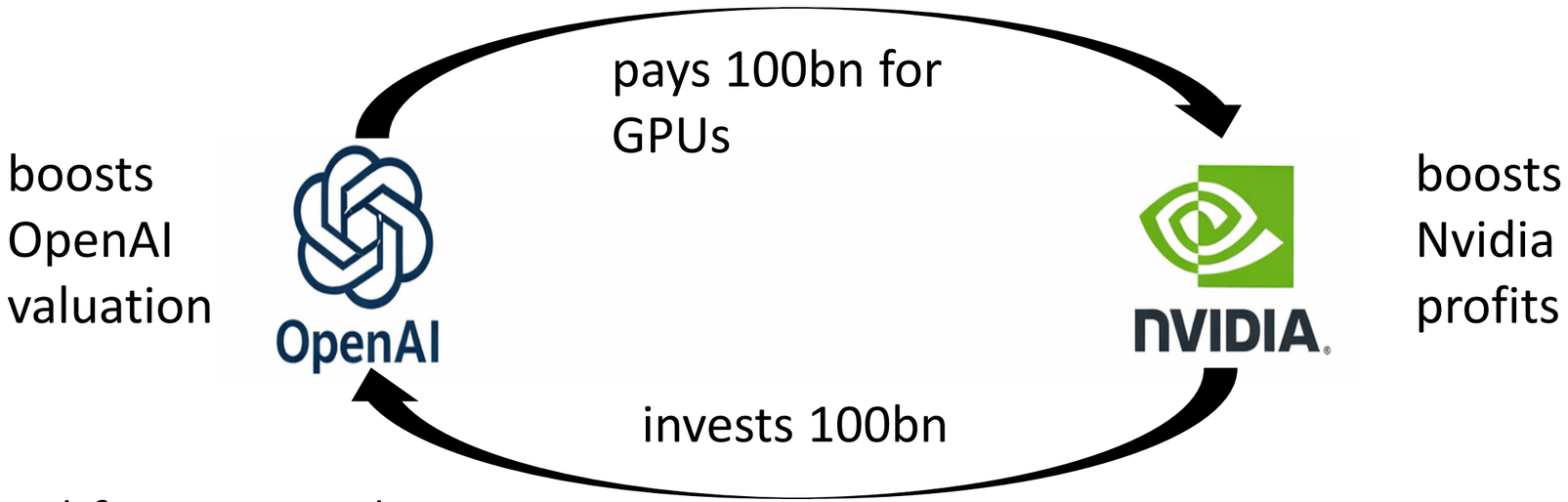
- Yes, it is common that innovation and stock market bubble **go hand in hand**

- See extended **bubble classification** e.g. in Brunnermeier and Schnabel (2016), …

Years	Technology / Era	Frac of Stock Market	Financing	Moat
1840s–1870s	**Railroads**	**63%** of US market (1881); **92%** in 1870	Heavily **debt** (bonds 1.6x equity by 1880s)	Weak — parallel routes, commodity service, near-zero switching costs
1900s–1920s	**Automobiles**	GM ~**8%** of market (1928)	Mix; equity-heavy; **consumer credit** (installment plans)	Low switching costs (buy different car); scale economies as moat
1920s	**Radio, Consumer Tech & Margin Trading**	Top **10 ~30%**; AT&T alone 13%	Equity + massive **margin debt** (broker call loans)	IP & brand moats; but margin lending had no moat (commodity credit)
1960s–1970s	**Nifty Fifty** (Blue-chip growth)	Top 5 = **23%** of S&P 500 (1972)	Mostly **equity**; low leverage	Strong brand & scale; medium-high switching costs (institutional adoption)
Late 1990s	**Telecom / Fiber Optic Infrastructure**	Telecom = major index weight; **$2T** in value	Heavily **debt** ($500B+ in bonds; $1T total industry debt)	Minimal — bandwidth is commodity; deregulation destroyed moats; near-zero switching costs
Late 1990s	**Dot-com / Web 1.0 Software Startups**	**Top 10 = 24%** of S&P (2000)	Mostly **equity**/VC; IPO-funded	Weak — pre-network-effect; low switching costs; first-mover illusion
2004–	**Web 2.0 / Platform Economy**	**Mag 7 = 37%** of S&P 500 (2025)	**Equity/VC** → strong free cash flow; minimal debt	Deep — network effects, data flywheels, ecosystem lock-in; very high switching costs
2023–	**AI Infrastructure (Data Centers / GPUs)**	Part of Mag 7; top 10 = **35%**	Rapidly **shifting** to debt ($121B hyperscaler bonds in 2025 alone)	Uncertain — obsolescence risk; commodity GPU-hour pricing emerging; moderate switching costs
2023–	**AI Foundation Models** (LLMs)	N/A (mostly private)	Equity/**VC** (for now)	Uncertain — open source competition; API switching costs low-medium; data moats developing
2023–	**AI Chips / Semis** (CUDA ecosystem)	Nvidia = **~7-8%** of S&P 500	Primarily **equity**; strong cash flow	Deep — CUDA lock-in, fab barriers, developer ecosystem; very high switching costs

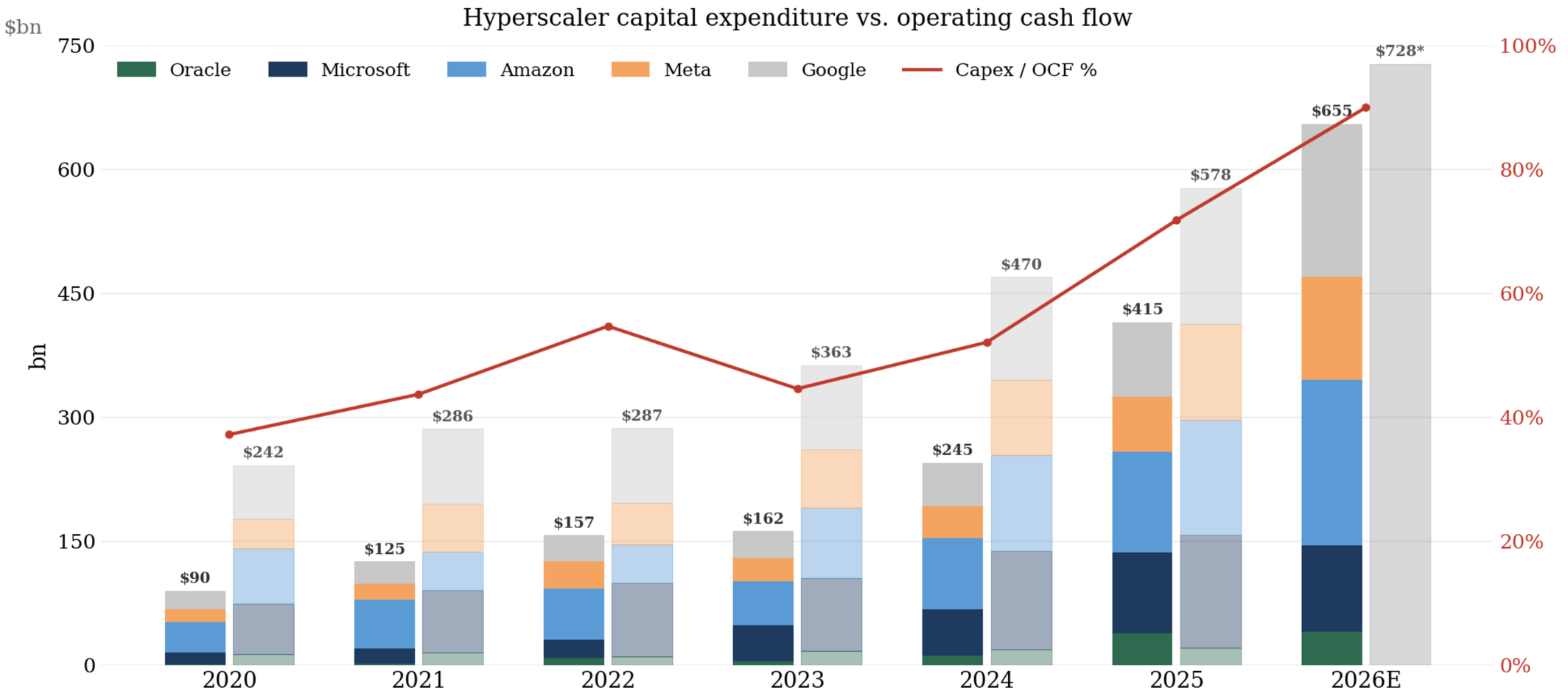
Type of Financing

- **Equity financing**
- **Debt financing** Impacts financial sector Fragility
  - Leverage
  - Maturity mismatch
  - Margin calls Margin spirals
- ***New trends:***
  - **Circular financing**



  - **Passive investing** amplification and
    - correlated crash risk + **liquidity illusion** (hold same positions)
    - Space X

Hyperscaler Capex



Source: FactSet, Apollo Chief Economist (capex); Yahoo Finance & company earnings releases (OCF 2020-2025).
*2026E OCF = aggregate estimate only, derived as capex (655bn) / 90% = 728bn, per Bank of America research (Seliger & Lee, ~Nov 2025). Company-level breakdown not available.

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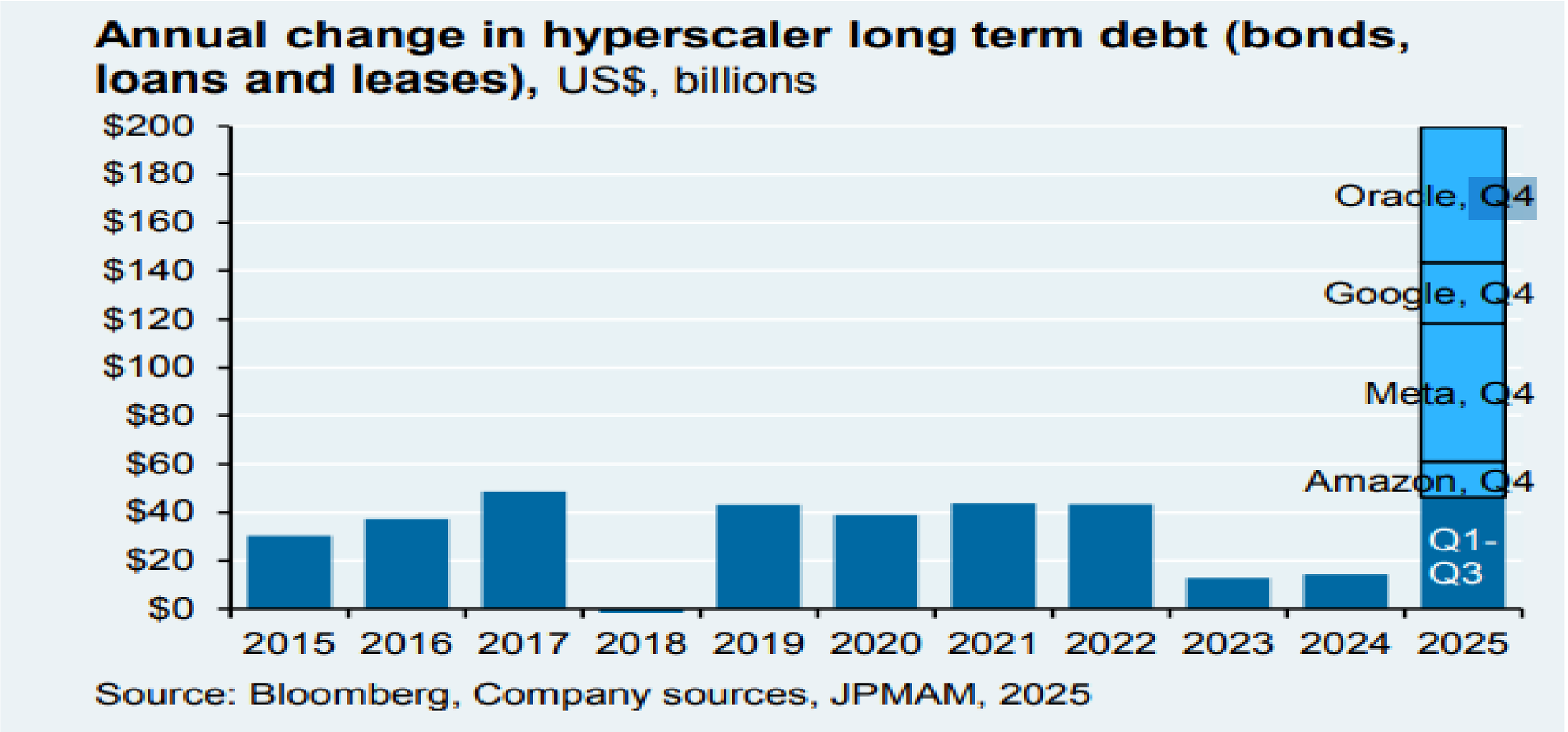
From Financing out of Cash flow to. Debt Financing



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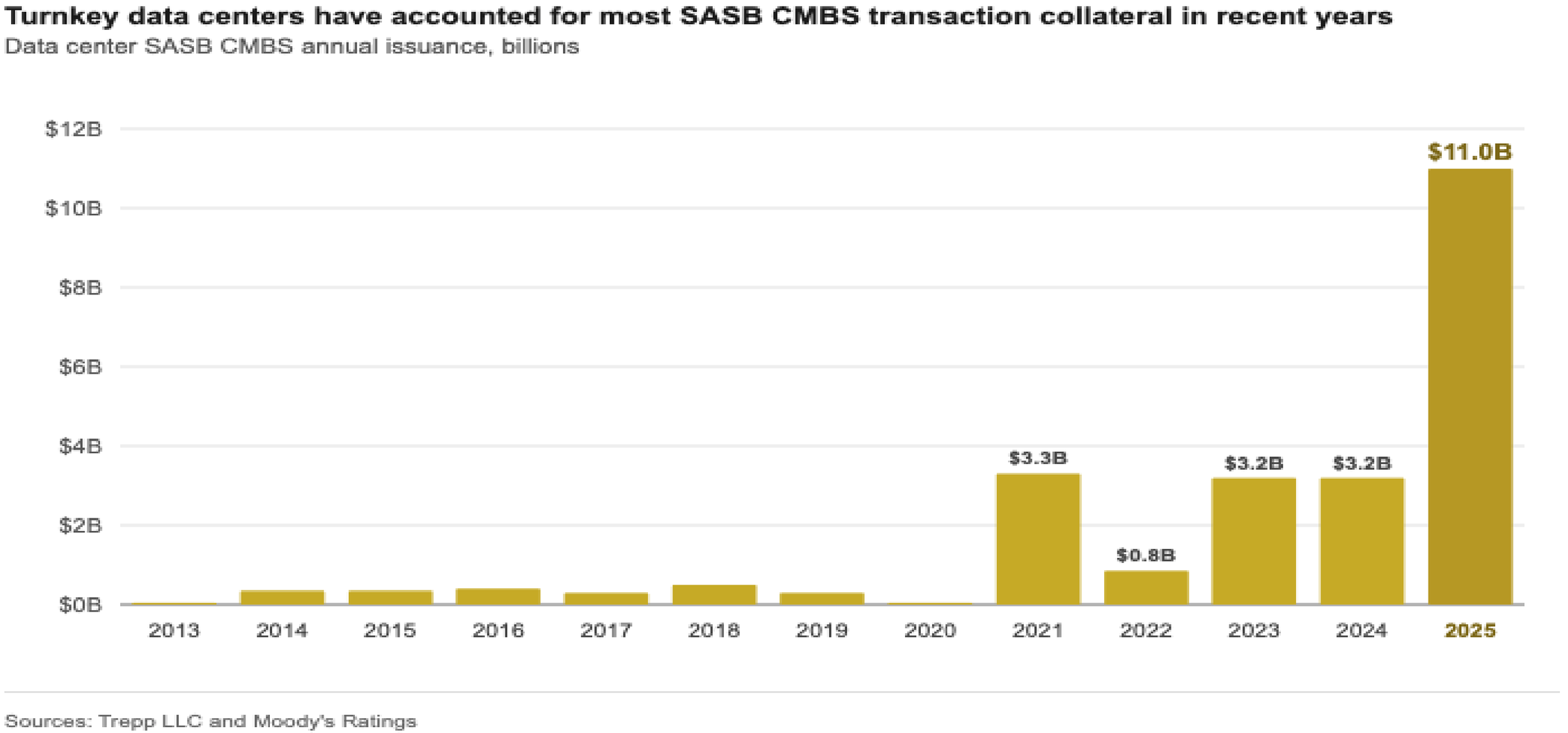
Financing: Cash flow to Debt to Structured Products

- CMBS Financing



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Type of Technology and Valuation with Moats

- **TFP Growth**
  - High growth rate & era of abundance $\Rightarrow u' \searrow 0$
    $\Rightarrow$ risk $\nearrow$
    $\Rightarrow r \searrow < g \Rightarrow$valuations $\nearrow$
  - Middle growth rate (for a while) => sustainability
    - Weak link theory – Chad Jones and Chris Tonetti
  - Low growth rate $\Rightarrow$ bubble implodes (more later)

- **Moat/switching costs**
  - High fixed costs + medium marginal costs
    (smaller platform externalities, less scale effects)
  - "Commodification" of foundation models
  - Second-mover advantage and/or rents goes to sectors, which apply technology
    - DeepSeek, Chance for Europe

SaaSpocalypse as a Moat Erosion Event

- SaaS companies had seemingly impenetrable moats through switching costs
  - SAP, Salesforce, Workday, …
  - Platform structure and economies of scale
- LLMs destroy the moat of many AI firms
  - iShare Expanded Tech-Software ETF (IGV) plummeted over 20%

Likely Turning Points and Stock Market Spillovers to GDP

- **Turning point:** analogy cholesterol and heart attack
  - Technological obsolescence shock
  - Open-source commoditization moment (another DeepSeek)

- **Stock market spillovers to real economy**
  - *Consumption:* Wealth effect (incl. 401 retirement accounts) + confidence effect
    - Top 10% of earners now account for nearly half of consumption spending
  - *Investments:* Capex Cliff
    - Data center buildout/capex is massive contributor to GDP (2%).

Sovereign Debt & Safe Asset Status (BruMerSan JPE 2024)

- US Treasury: The “US AI bet”
  - If “AI bet” does not pay off, then fiscal debt situation is unsustainable
  - Loss of safe asset status of US Treasury
    depends on alternatives (“the least ugly horse theory”)

- Europe:
  - Growth rate g stays low, but r increases (due to global markets)
    ⇒ fiscal situation in certain euro area countries are less sustainable
    ⇒ sovereign debt crisis
  - Second mover advantage or rent for sectors which apply AI ⇒ tensions within the West
- Other middle powers
  - similar