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From Home Equity to Data Centers

Leverage Stress Building, Again

From 1990 to 2007, falling rates and new loan structures let households borrow against their homes on a scale never seen before, and it ended in the 2008 crisis. Since then, the number of public companies has been cut in half, index funds have become the majority of fund assets, and the market's value has piled into a handful of technology companies now spending more than their cash flow on the AI build-out.

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10×
home equity cashed out in prime refinances, 2000 to 2006: $41B to $431B a year (Freddie Mac, 2021 dollars)

~30%
interest-only and option ARMs as a share of 2005 mortgage originations, up from under 10% in 2003 (GAO)

40.6%
of S&P 500 value in its 10 largest stocks, Sep 2026; 27.6% at the March 2000 peak

115%
AI-era capex as a share of operating cash flow, Microsoft, Alphabet, Amazon and Meta, Q3 2026

The thread

Every credit cycle needs three things: cheap or easy money, a structure that lets the borrowing grow faster than the income behind it, and a buyer who does not look too closely at the price. In the housing boom those were a 1% fed funds rate, second mortgages and interest-only loans, and a securitization machine that bought the loans by the trillion. This piece tracks each one from 1990 to 2008, then lines up the same three against today's AI build-out.

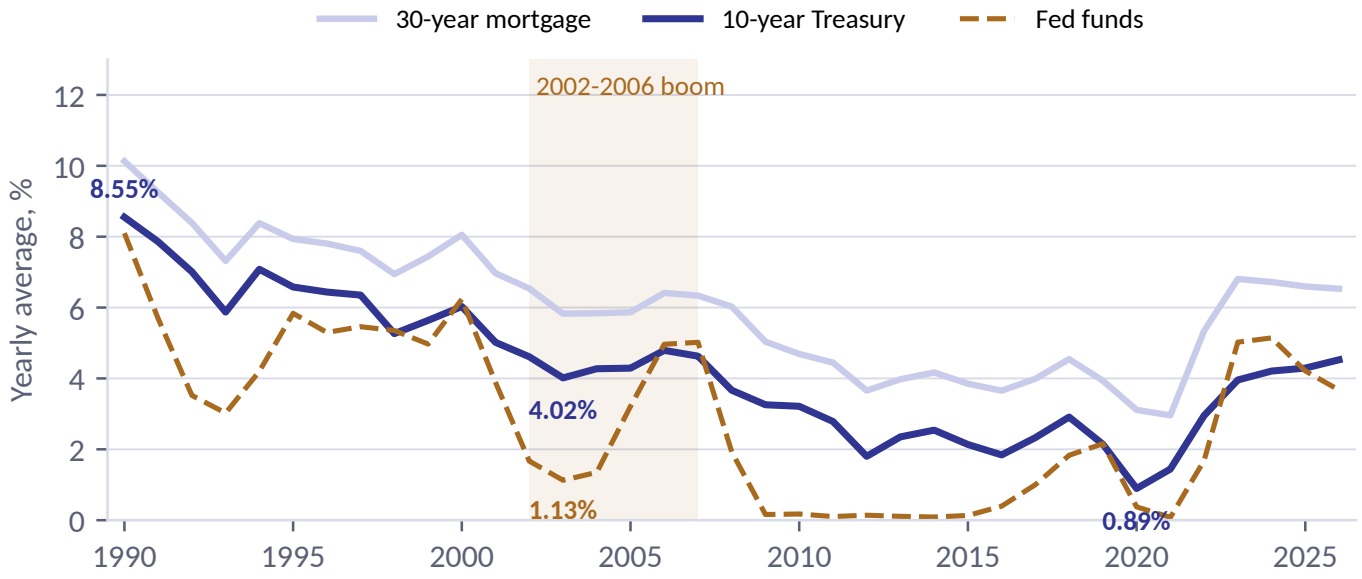
1990 → 2007	1990	2000	2007	Latest (2026)
10-year Treasury yield (yearly average)	8.55%	6.03%	4.63%	4.53% (Oct: 5.13%)
Household mortgage debt	$2.5T	$4.8T	$10.6T	$14.0T
Home equity lines at banks	$64B	$129B	$486B	$291B
Mutual fund assets (excl. money funds)	$0.6T	$5.1T	$8.9T	$25.3T
Federal debt	$3.4T	$5.7T	$9.2T	$39.5T
Federal debt / GDP	56%	54%	63%	121%
U.S. listed domestic companies	6,484	6,956	5,140	4,176 (2025)
Stock market value / GDP	50%	130%	117%	233% (2025)

Federal Reserve Z.1 and H.8, Treasury, BEA and World Bank data via FRED; year-end levels, latest = mid-2026 or Sep 2026 where available. Listed companies peaked at about 8,100 in 1996. Stock market value = market value of U.S. nonfinancial corporate equities (Fed Z.1).

PART I

Cheap money: the rate floor under the boom

The 10-year Treasury yield averaged 8.55% in 1990. By 2003 it averaged 4.02%, and the Federal Reserve held its overnight rate near 1% from mid-2003 to mid-2004 after the dot-com bust. The 30-year mortgage rate fell under 6% for the first time in a generation. Every refinance at a lower rate freed up monthly payment room, and every rise in home prices freed up equity to borrow against.



Yearly averages of monthly data: 10-year constant-maturity Treasury (GS10), effective fed funds rate, Freddie Mac 30-year fixed mortgage rate (weekly). 2026 is January to October. Shaded: 2002-2006.

Yearly average	1990	1995	2000	2003	2005	2007	2020	2026
10-year Treasury	8.55%	6.58%	6.03%	4.02%	4.29%	4.63%	0.89%	4.53%
Fed funds	8.10%	5.84%	6.24%	1.13%	3.21%	5.02%	0.38%	3.67%
30-year mortgage	10.13%	7.93%	8.05%	5.83%	5.87%	6.34%	3.11%	6.53%

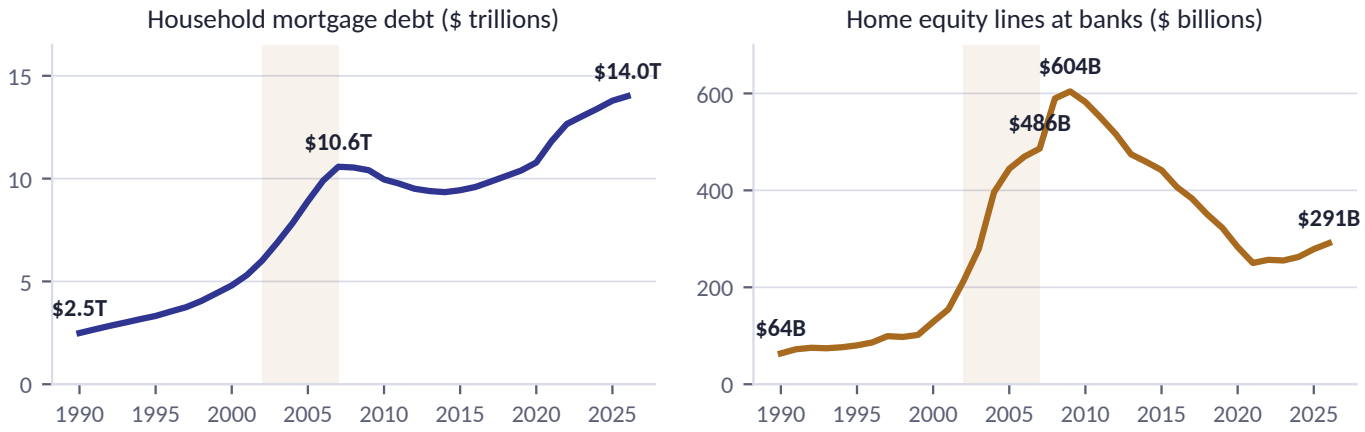
The 10-year stayed between 4.0% and 4.8% for all of 2002-2007, even as the Fed raised its rate 17 times from 2004 to 2006. Long rates did not follow short rates up, so mortgage money stayed cheap after the Fed began tightening. Greenspan called it a "conundrum."

The difference today. Money is not cheap now. The 10-year averaged 4.53% in 2026 and 5.13% in October, the fed funds rate is about 3.9%, and the 30-year mortgage was 7.18% on November 5. The 2020-2021 near-zero years refinanced most of the country's mortgages into fixed rates, so households are not the borrowers this time. The new borrowing is happening inside corporate balance sheets, at today's rates (Part VI).

PART II

The second mortgage: borrowing against the house

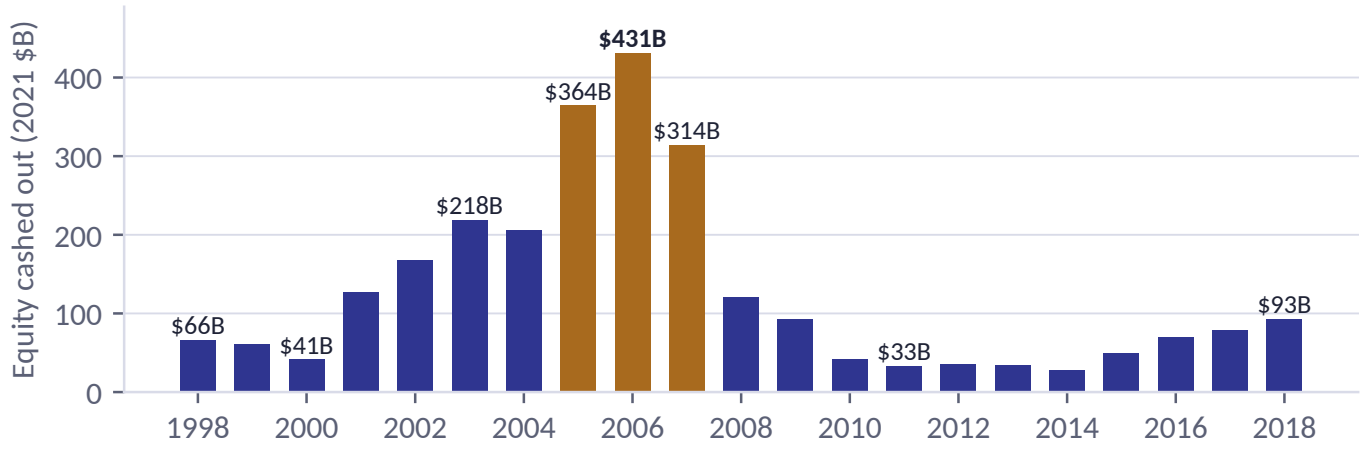
A second mortgage is any loan behind the first lien: a home equity line of credit (HELOC), a closed-end home equity loan, or a "piggyback" second taken out at purchase so the buyer can skip the down payment. Add cash-out refinancing, where the new first mortgage is larger than the old one, and households had several ways to turn rising home prices into spending money.



Household mortgage debt: Federal Reserve Z.1 (HHMSDODNS), year-end. Home equity lines: revolving home equity loans at all commercial banks, Federal Reserve H.8, December (2026 = September). Bank lines are only part of all home equity debt; they kept rising into 2009 as borrowers drew down lines already open.

Mortgage debt went from $4.8 trillion in 2000 to $10.6 trillion in 2007, from 47% to 73% of GDP in seven years. Home equity lines at banks nearly quadrupled, $129 billion to $486 billion. The Case-Shiller national home price index rose 68% from 2000 to 2006, then fell 26% by 2011.

Equity cashed out through refinancing



Freddie Mac: total home equity cashed out in conventional prime first-lien refinances, 2021 dollars. A cash-out is a new loan at least 5% larger than the old one. Excludes FHA, VA and subprime, so the true total was larger.

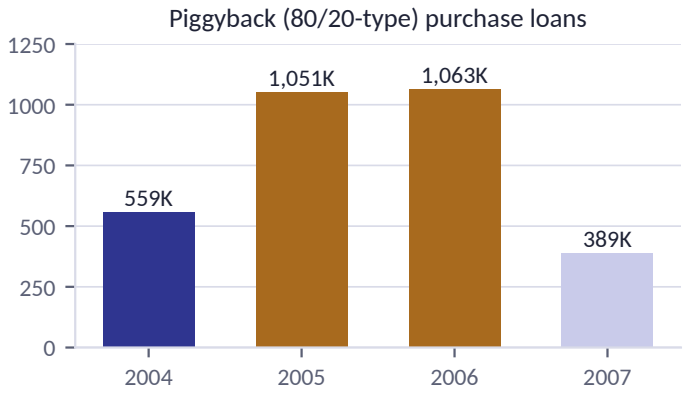
In 2000, prime borrowers cashed out about $41 billion. In 2006 they cashed out $431 billion, and 87% of all prime refinances took cash out. Much of it went to spending, debt paydown and other real estate. Home prices had to keep rising to support it.

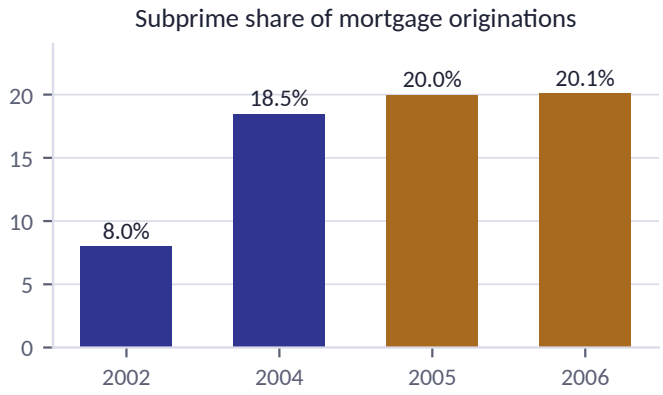
PART III

Interest-only loans and the 100% purchase

When prices outran incomes, lenders shrank the payment instead of the loan. An interest-only (IO) mortgage pays no principal for the first 5 or 10 years. A payment-option ARM let the borrower pay even less than the interest, adding the shortfall to the balance. Both reset to much higher payments later, on the assumption that the house would be worth more by then.

Riskier lending, 2000-2007	Figure	Source
IO + option ARM share of mortgage originations	under 10% (2003) → about 30% (2005)	GAO-06-1021
Same, first half of 2006 (trade estimate)	37%	GAO-06-1021
2005 dollar volume	IO $400B; option ARM $175B	GAO-06-1021
Option ARM share of securitized loans	~0.5% (2003) → over 12% (2006)	Keys et al., NBER
Low- or no-documentation share of new subprime loans	under 20% (pre-2000) → nearly 50% (2006)	Keys et al., NBER
Private-label mortgage securities issued	$136B (2000) → $1.19T (2005)	OFHEO
Alt-A share of originations	12.5% (2005), 13.4% (2006)	OFHEO





Left: home-purchase loans with a simultaneous second lien, HMDA (Federal Reserve Bulletin, 2007 HMDA article). About 24% of conventional first-lien home purchases in 2006. Right: subprime share of single-family originations, OFHEO citing Inside Mortgage Finance.

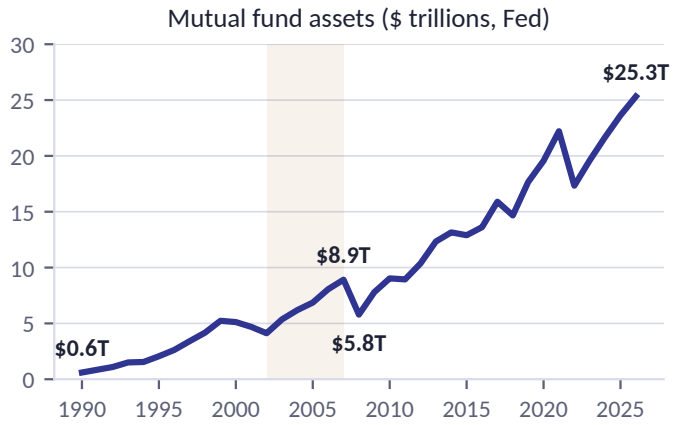
By 2005-2006, about one in five new mortgages was subprime, about one in eight was Alt-A, and close to a quarter of home purchases came with a piggyback second. Combined loan-to-value ratios on loans with second liens rose from about 85% to 95% between 2001 and 2006, leaving almost no cushion. When prices stopped rising in 2006, the structure reversed: piggybacks fell 63% in 2007 and subprime lending fell 68% to $191 billion.

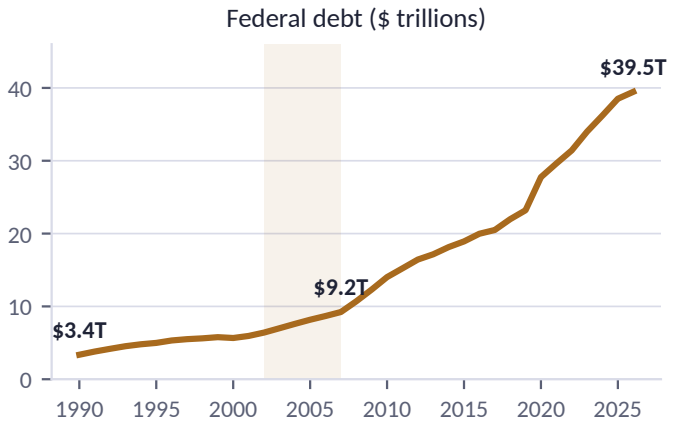
> The loans did not fail because they were complicated. They failed because each one needed the next buyer to pay a higher price.

PART IV

Fund assets and federal debt

Two other balance sheets grew through the same years and never stopped. Mutual fund assets grew almost fifteenfold from 1990 to 2007 as 401(k) plans replaced pensions, and federal debt nearly tripled. After 2008 the federal government took on the leverage that households had to give up.





Mutual fund total financial assets, excluding money market funds and ETFs: Federal Reserve Z.1 (L.122), year-end, 2026 = Q2. Federal debt: total public debt (GFDEBTN), Q4, 2026 = Q2.

	1990	2000	2007	2008	2020	2026
Mutual fund assets (Fed)	$0.60T	$5.12T	$8.91T	$5.79T	$19.56T	$25.32T
… of which stocks	$0.25T	$3.91T	$6.61T	$3.74T	$13.39T	$18.62T
Federal debt	$3.36T	$5.66T	$9.23T	$10.70T	$27.75T	$39.46T
Federal debt / GDP	56%	54%	63%	73%	126%	121%

The fund money now buys by weight

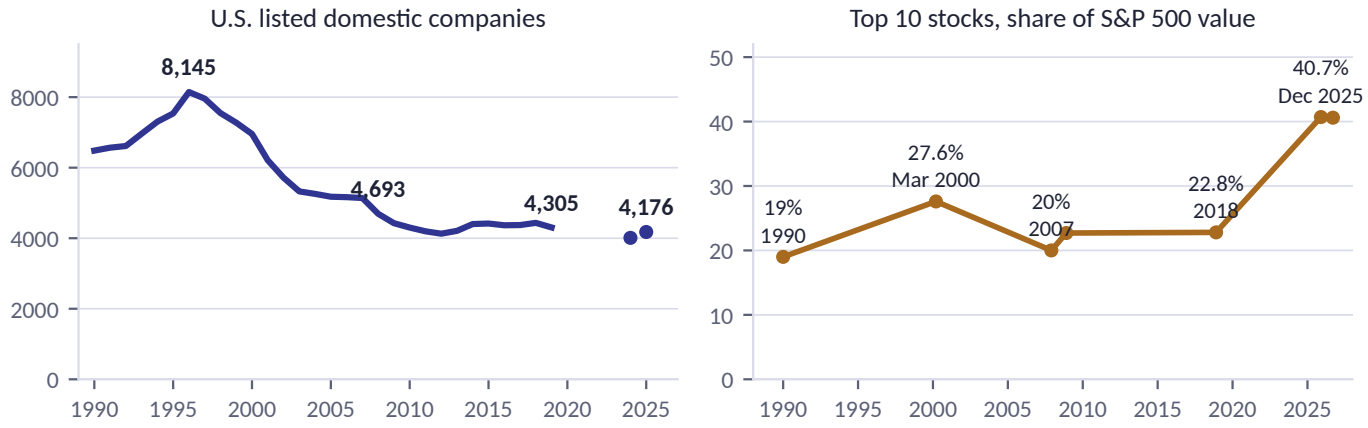
The bigger change is how fund money is invested. At the end of 2025, U.S. registered funds held $45.1 trillion: $31.4 trillion in mutual funds and $13.4 trillion in ETFs. Index funds held $19.1 trillion, 52% of long-term fund assets, up from 19% in 2010 and 40% in 2020 (ICI). Index funds now own about 19% of the whole U.S. stock market.

An index fund does not decide what a company is worth. Each new dollar is spread by market value, so the largest companies get the most money, which makes them larger and brings in still more. On the way down, the same rule sells the largest holdings first and in the largest amounts.

PART V

Fewer companies, bigger market

The U.S. had about 8,100 listed domestic companies at the 1996 peak. By 2007 it had about 5,100, and by 2025 about 4,200 (World Bank). Counting only operating companies, CRSP puts the end-2025 number at 3,657. Companies stay private longer on venture and private equity money, mergers absorb the rest, and fewer firms go public. Over the same years the stock market's total value grew from about half of GDP in 1990 to 2.3 times GDP in 2025.



Left: World Bank listed domestic companies (per-million series × U.S. population, 1990-2019; 2024 and 2025 from World Bank as reported). Right: 10 largest stocks' share of S&P 500 market value; 1990 RBC estimate, other points LENSE quarterly index weights; 2026 point is September.

Fewer companies and more index money meet at the top of the index. The 10 largest stocks held about 19% of the S&P 500 in 1990, 27.6% at the March 2000 peak, and 20% at the end of 2007. They held a record 40.7% at the end of 2025 and 40.6% at the end of September 2026. NVIDIA, Apple and Microsoft alone were about 21.7% in early October 2026, and NVIDIA by itself was about 7.5-7.8% in mid-2026, worth about $4.8 trillion. All ten of the largest companies are tied in some way to the AI build-out: chips, cloud, or both.

Concentration	1990	Mar 2000	Dec 2007	Dec 2025	Sep 2026
Top 10, share of S&P 500	~19%	27.6%	20.0%	40.7%	40.6%
Listed U.S. companies	6,484	6,956	5,140	4,176	—
Stock market value / GDP	50%	130%*	117%	233%	—

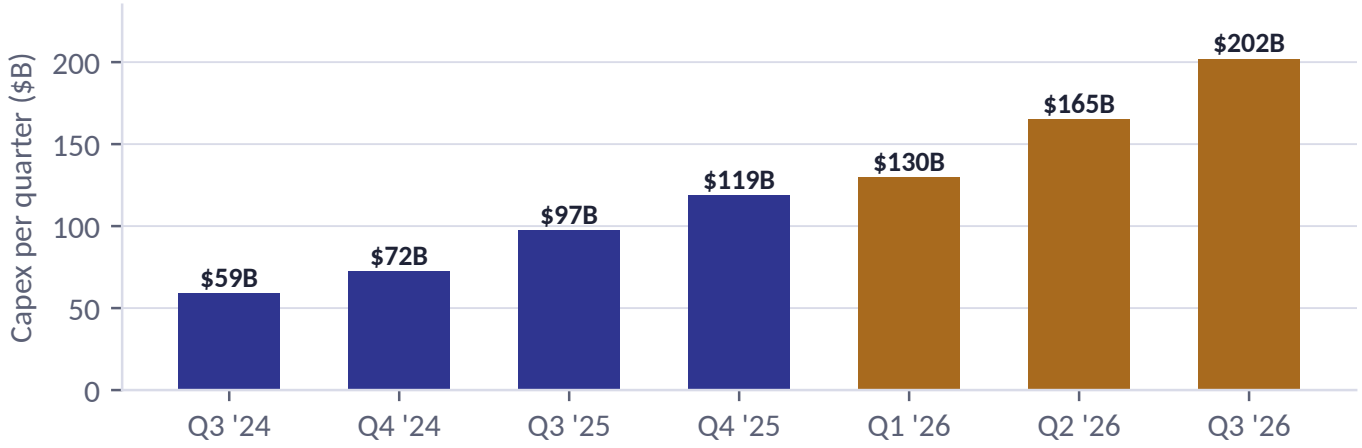
**Year-end 2000; it was 160% at year-end 1999. Stock market value: U.S. nonfinancial corporate equities, Federal Reserve Z.1.*

In 2000, the top 10 were 27.6% of the index and the market was 1.3-1.6 times GDP. Today the top 10 are 40% and the market is 2.3 times GDP. By these two measures, the market today is more concentrated and more highly valued than at the dot-com peak.

PART VI

The AI build-out: spending past the cash flow

The largest companies in the index are also the biggest spenders on AI data centers, chips and power. Microsoft, Alphabet, Amazon and Meta spent $376 billion on capital projects in 2025. Their 2026 guidance adds up to about $730 billion, close to 2.4% of U.S. GDP, and all four say 2027 will be higher.



Cash capital expenditures (purchases of property and equipment) for Microsoft, Alphabet, Amazon and Meta, by calendar quarter, from company filings as compiled by Walnut (Nov 8, 2026). Q1-Q2 2025 not shown.

2026 capex guidance (Oct 2026)	Guidance	Q3 2026 capex / operating cash flow
Amazon	~$220B	182%
Alphabet	$195-205B	121%
Microsoft	~$170B	68%
Meta	$135-145B	104%
Four combined	**~$730B**	**115% (61% a year earlier)**

Where the extra money comes from

- **Bonds.** Amazon, Alphabet and Microsoft each sold $25 billion of notes in 2026 and Meta $15 billion, plus euro and sterling deals. Amazon's long-term debt rose from $65.6 billion to $173.1 billion in nine months. Debt covered about 32% of the five largest spenders' capex in the year to June 2026, up from 9% in fiscal 2024 (FactSet).
- **Stock.** Meta set up a $25 billion forward sale of stock and $12.5 billion of mandatory convertible preferred in October.
- **Off the balance sheet.** Data-center joint ventures that lease the buildings back, such as Meta's Louisiana and Texas campuses, and about $820 billion of lease commitments not yet on balance sheets (FactSet).
- **Weaker hands.** Oracle was cut to BBB-, one notch above junk, in July 2026, and bonds of the AI cloud provider CoreWeave yield around 15%.

The pattern matches Part II. When the cash coming in no longer covers the building, the gap is filled with borrowing, and the borrowing assumes the asset will earn more later. In 2005 the asset was a house and the "later" was the next sale. In 2026 it is a data center, and the "later" is AI revenue large enough to pay for it.

PART VII

Then and now

	Housing, 2002-2007	AI build-out, 2023-2026
What is being built	Houses: Case-Shiller +68% from 2000 to 2006; mortgage debt 47% → 73% of GDP	Data centers: four-company capex $376B (2025) → ~$730B (2026 guidance); Q3 2026 +108% from a year earlier
How it is paid for	Home equity: prime cash-out $41B (2000) → $431B (2006); bank HELOCs $129B → $486B	Cash flow first, then debt and stock: capex 115% of operating cash flow; debt funds about a third
The structure that stretches it	Interest-only and option ARMs ~30% of 2005 originations; 1.06M piggyback purchases in 2006	Lease-back JVs, ~$820B of off-balance-sheet lease commitments, customer deals between the same few firms
Cost of money	Fed funds 1.0-1.3% (2003-04); 10-year 4.0-4.8%	Fed funds ~3.9%; 10-year 4.53% average, 5.13% in October
Who holds the risk	Households, banks and mortgage-bond buyers	Savers through index funds and 401(k)s: top 10 = 40.6% of the S&P 500; index funds 52% of fund assets
What turned it	Rates reset, prices stopped rising, payments came due	Open question: revenue growth that falls short of the spend, or a cost of debt that keeps rising

The MAZing view. A bubble is not identified by price alone. It is identified when the spending depends on borrowing, the borrowing depends on the asset rising, and the buyers are buying by rule rather than by price. The housing boom had all three by 2005. The AI build-out shows the first two beginning: capex above cash flow, debt and off-balance-sheet structures filling the gap. The third is already built into the market through index funds and a top 10 at 40%. The differences matter too. The largest spenders still earn enormous profits, households are not the borrowers, and much of the spending is real equipment and power capacity. This is not a forecast of when, or whether, the build-out turns. It is a map of where the pressure would show first.

What to watch

- **Capex versus cash flow.** Above 100% for the four largest spenders since mid-2026. 2027 guidance arrives in January and February.
- **Credit spreads on AI borrowers.** Oracle at BBB-, CoreWeave near 15%. In 2007, trouble showed first in subprime mortgage bonds, months before stocks peaked.
- **The 10-year yield above 5%.** Higher long rates raise the cost of every bond-funded data center.
- **Top-10 share of the S&P 500.** A falling share during a falling market means the largest names are leading the selling.
- **NQ range.** The Nasdaq-100 is the most concentrated version of this trade. Its average daily range has more than doubled since 2023 (No. 11), and its drops already run about three times faster than its lifts (No. 10).

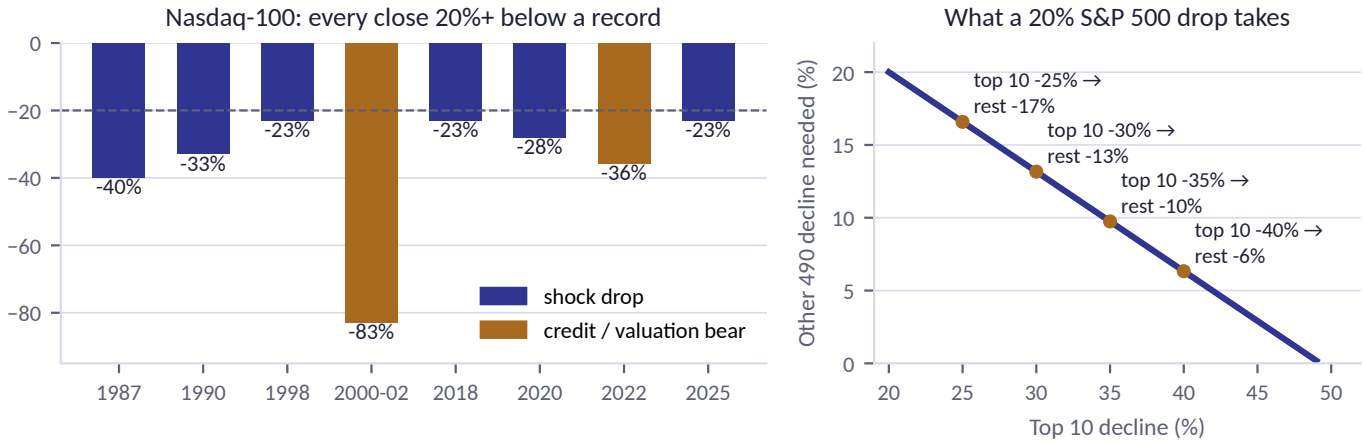
PART VIII

Stress test: a 20% drop from here

On November 11, 2026 the S&P 500 closed at 7,619, 2.6% under its October 6 record of 7,819. The Nasdaq-100 closed at 28,374, already 9.1% under its record of 31,224. A further 20% decline would put the S&P 500 near **6,095** (22% below the record) and the Nasdaq-100 near **22,699** (27% below), about 5,650 points on NQ futures.

A 20% drop from Nov 11 levels	Estimate
U.S. stock market value lost (about $83T in Q2 2026)	about $16-17 trillion
Stock holdings of mutual funds ($18.6T)	about −$3.7 trillion
Household spending (2-5 cents per dollar of stock wealth lost)	about −$0.3 to −0.8 trillion, 1-2.5% of GDP, over a year or two
NQ points at the 2026 average daily range of 553	about 10 sessions of range

Market value: Federal Reserve Z.1 nonfinancial corporate equities. The spending effect is a rule-of-thumb range from economic research, not a forecast.



Left: deepest close of every Nasdaq-100 decline that closed 20% or more below its record, 1985-2026 (Yahoo daily closes); dashed line = −20%; 2000-02 includes 2008 because the index did not regain its 2000 high until 2015. Right: with the top 10 at 40.6% of the S&P 500, the decline the other 490 stocks need for the index to fall 20%.

The drop has to come from the top. If the other 490 stocks fall 10%, the 10 largest must fall about 35%. If the top 10 fall 30%, the rest need only 13%. A 20% index decline is mostly a decline in the AI leaders, and index funds would sell them in the largest amounts (Part IV).

Past 20% declines, since 1985	S&P 500	Nasdaq-100
Times the index closed 20%+ below a record	5	8
Median sessions from the record to −20%	111	27
Kept falling past −30%	4 of 5	4 of 8
Median deepest close	−33.9%	−30.5%
Higher one year after the first −20% close	3 of 5	6 of 8

Two kinds of 20% drop. Shock drops (1987, 1990, 1998, 2018, 2020, 2025) were fast, bottomed within weeks, and regained the record in about 3 to 20 months; the Nasdaq-100 was 13% to 110% higher a year after first closing 20% down. Credit and valuation bears (2000-02, 2007-09, 2022) started slower and kept going: −49% and −57% on the S&P 500, −83% on the Nasdaq-100 after 2000, with recoveries of 2 to 15 years. A drop driven by AI spending outrunning cash flow and rising debt costs would belong to the second group, where −20% has been the beginning of the decline, not the bottom.

SOURCES AND METHOD

Sources

FRED (Federal Reserve Bank of St. Louis), pulled Nov 12, 2026. 10-year Treasury GS10; fed funds FEDFUNDS; Freddie Mac 30-year rate MORTGAGE30US; household mortgage debt HHMSDODNS (Fed Z.1); revolving home equity loans at commercial banks RHEACBM027NBOG (Fed H.8); S&P CoreLogic Case-Shiller national index CSUSHPINSA; mutual fund total financial assets BOGZ1FL654090000Q and corporate equities BOGZ1FL653064100Q (Fed Z.1, L.122); total public debt GFDEBTN and debt/GDP GFDEGDQ188S; nonfinancial corporate equities market value NCBEILQ027S; GDP GDPA; listed companies per million people DDOM01USA644NWDB (World Bank); population POPTHM. fred.stlouisfed.org

Mortgage lending. GAO-06-1021, Alternative Mortgage Products (gao.gov); OFHEO, Mortgage Markets and the Enterprises in 2005 and 2006 (fhfa.gov; fhfa.gov); Avery, Brevoort and Canner, The 2006 and 2007 HMDA Data, Federal Reserve Bulletin (federalreserve.gov; federalreserve.gov); Keys, Piskorski, Seru and Vig, Mortgage Financing in the Housing Boom and Bust, NBER (nber.org); Freddie Mac, refinance research note, April 2022, Table 1 (freddiemac.com).

Index history. S&P 500 (^GSPC) and Nasdaq-100 (^NDX) daily closes, Jan 1985 to Nov 11, 2026, Yahoo Finance. A decline counts once from a record close until the index closes at a new record.

Funds. ICI, 2026 Investment Company Fact Book, chapters 2 and 4 (icifactbook.org; ici.org).

Listed companies. World Bank CM.MKT.LDOM.NO as reported by HistorySaid (historysaid.com); Dream Exchange 2025 market report (prnewswire.com); CRSP operating companies via Uniqus (uniqus.com).

Concentration. LENSE S&P 500 concentration index, quarterly, updated Nov 9, 2026 (lense-analytics.com); Chartrow, SPY holdings (chartrow.com); ECM Source, June 2026 (ecmsource.com); Sartorial Wealth citing RBC and 24/7 Wall St, Nov 2026 (sartorialwealth.com).

AI capex and financing. Walnut AI capex tracker from company filings, Nov 8, 2026 (walnutinvest.com); Luminix, Hyperscaler capex Q3 2026 (useluminix.com); Business Insider via Hargreaves Lansdown, Oct 30, 2026 (hl.co.uk); Forbes, Oct 7, 2026 (forbes.com).

Method

Rates are yearly averages of monthly or weekly data; levels are year-end values, with 2026 the latest available (Q2 for Z.1 and federal debt, September for H.8, October for rates). Ratios to GDP use annual GDP. Listed-company counts for 1990-2019 are the World Bank per-million series multiplied by U.S. population; World Bank and CRSP counts differ in what they include and are not mixed in one series. Mortgage-lending series use different bases (all originations, securitized loans, HMDA-reported loans), so each figure is labeled with its source and not spliced into one line. Capex figures are cash purchases of property and equipment; company guidance definitions differ (Microsoft and Meta include finance leases). Several AI-financing figures come from secondary compilations of company filings and should be read as approximate.

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About the author

Michael A. Zingale, the "MAZ" in MAZing, was licensed in life insurance in 1988 and built the early part of his career around cash value life insurance used to pay estate taxes. As the federal estate tax exemption rose, from $600,000 per person in the 1990s to about $15 million today, he kept his life insurance practice and added investment services in the early 2000s. About twenty years later he added short-timeframe index forecasting and trading. Since January 2021 he has published a daily NQ futures forecast on TradingView before each U.S. open.