

# Steno Signals

with Andreas Steno

**Steno Research**

October 19, 2026



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## Is there something more fundamental to the AI risk this time?

*Semiconductors have fallen for eight sessions in a row, the longest streak since 2008; the SOX lost 11% last week, and the Fear & Greed index sits at 18. The narrative has followed the price, as it always does: a month ago AI was going to end the world; now it is not even useful. But is there something more fundamental to the risk this time? Honestly, maybe. We are in a hiking cycle, and a lot of what we are seeing is what happens when the price of money goes up. Herein: what to watch for when the funding stress ends, whether it's really unprofitable to run LLMs, whether China entering AI hardware kills the bet, and the two things that settle it within a fortnight.*

Happy Monday, and welcome back to my editorial on everything macroeconomic!

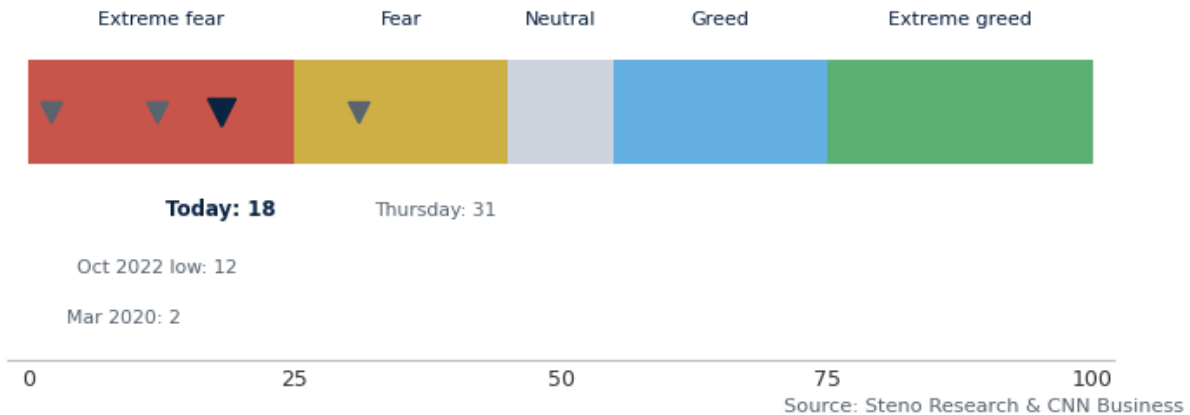
Let me start with the tape, because it's been brutal, and I will not pretend otherwise. The Philadelphia semiconductor index fell for an eighth consecutive session on Friday, its longest losing streak since 2008, and lost 11.4% on the week, its worst since April 2025. The Nasdaq fell 4.5%, its worst week since June.

Six memory makers have lost a trillion dollars of market value since October 2, the KOSPI dropped 7.6% in a single session on Thursday, and the S&P 500 broke a 55-day streak without a 1% down day on Friday. Underneath it, the market did something different: the equal-weight S&P rose 0.5% on the week, the Dow rose 0.7%, value beat growth by five points, and the equal-weight index had its best week against technology since 2009.

Chart 1: Fear & Greed at 18... extreme fear, in the zone of the October 2022 low

### Fear & Greed at 18.. extreme fear, in the zone of the October 2022 low

CNN Fear & Greed index, 0-100.. a reading below 20 has marked every major equity low since 2018 except Covid



A reader on X summarized the past month better than I can.

We went from *"Anthropic could wipe out humanity"*, *"Astra is AGI"* and *"software is worthless"* to *"AI isn't even that useful"*, *"Anthropic's growth is disappointing"* and *"OpenAI has zero moat"*. In a month. Crazy how the human mind works.

Narrative follows price, and the current narrative is being written by a price that has fallen eight days in a row. That is the easy part. The harder question, and the one I want to spend the editorial on, is whether there is something more fundamental to the risk picture this time around. In the earlier AI sell-offs of this cycle, in April, in June, in August, I considered the risk that "this is it" basically hilariously low, and I said so. This one is a bit trickier, admittedly. We are in a hiking cycle now. We are seeing wider spreads, higher funding costs, and increased uncertainty over anything financed with debt — all normal and natural when the price of money goes up. Which is to say they do not require an AI bubble to explain them. They require a Fed that has hiked and a ten-year at 5%.

But there is a second layer masking the setup: the calendar. The midterm elections are in fifteen days. Midterm years have a seasonal pattern that is as reliable as anything in the equity calendar: the index drifts and chops through the year on policy uncertainty, makes its LOW in late October, and then rallies 15-20% on average over the following twelve months. 1962, 1966, 1974, 1990, 1998, 2002 and 2022 all put the midterm-year low in October. We are in that window, and the fear is spiking in exactly the way the lows are made. On Friday, SPY traded 9.6 million put contracts, the third-highest put volume on record, and QQQ traded the second-highest put volume in its history. The two prior readings in that league were March 2020 and the yen unwind in August 2024. Both were lows within days.

So the honest framing is this: part of what we are seeing is fundamental, because the price of money has gone up, and part of it is the positioning extreme that the midterm calendar produces every four years. Today I will try to separate the two, and I will address three questions:

Funding stress: when does it end, and what do we watch for the moment to buy into it?

Is it really unprofitable to run LLMs, as the bears now claim?

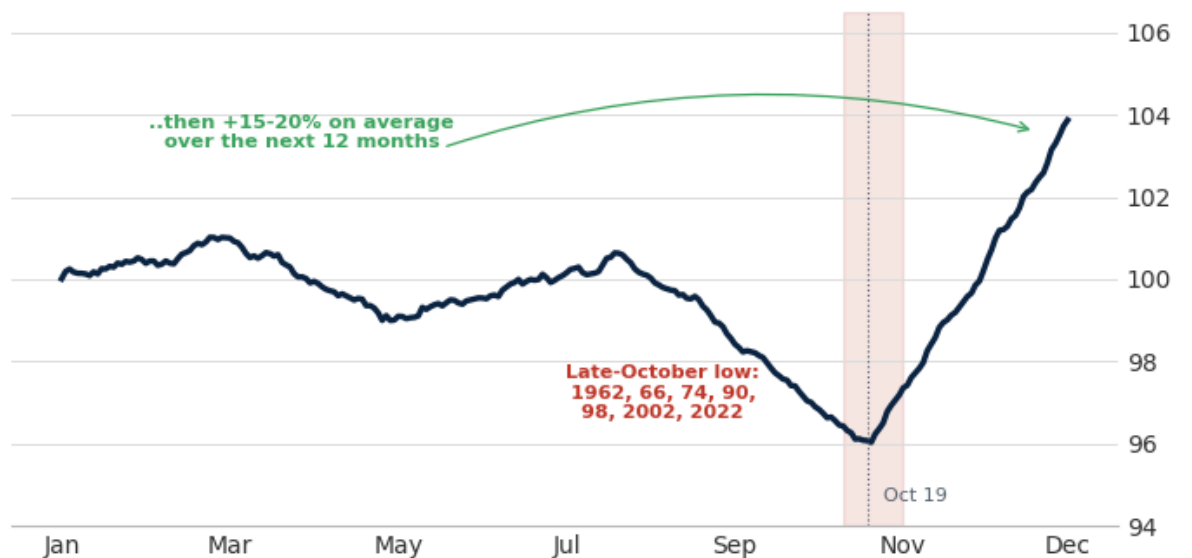
The Chinese are coming... is it an issue for the AI bet if China enters the hardware?

Follow along below.

## Chart 2: Midterm years make their LOW in late October... then rally. We are in the window

### Midterm years make their LOW in late October.. then rally. We are in the window

Average S&P 500 path in midterm election years, 1950-2022, indexed to 100 on Jan 1

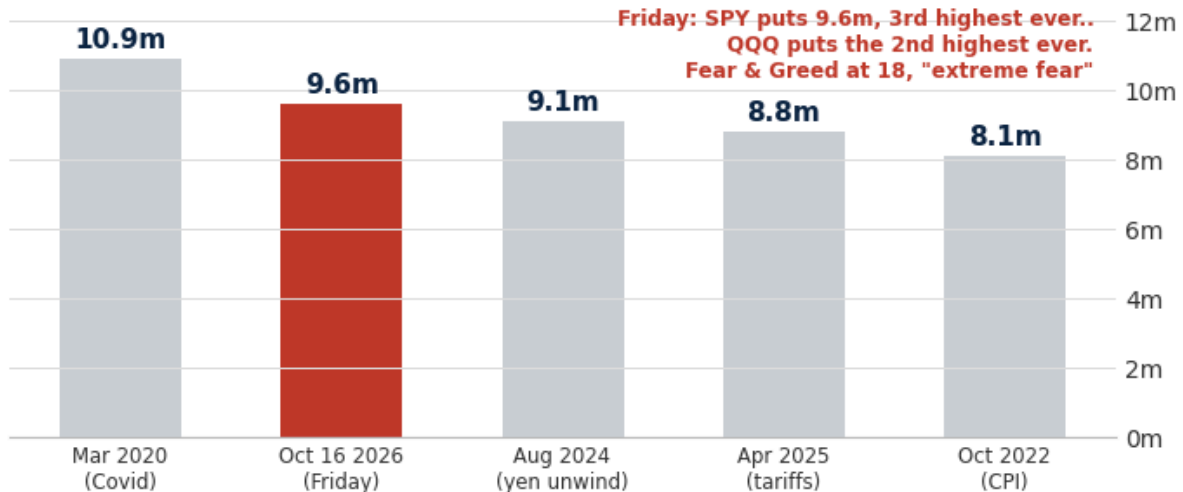


Source: Steno Research & Bloomberg (stylized average, approximate)

Chart 3: Fear is spiking in a major way... the third-highest SPY put volume on record

### Fear is spiking in a major way.. the third-highest SPY put volume on record

Daily SPY put option volume, contracts, selected panic days.. Friday ranks with Covid, the yen unwind and the tariff shock



Source: Steno Research, Cboe & Market Chameleon (approximate for historical days)

### Theme 1: Funding stress... when does it end?

Let me state the mechanism plainly, because it is the whole of the bear case that deserves respect. Central banks have hiked, the ten-year has gone from 4% to above 5% in a year, and everything in the AI build-out that is financed with debt has repriced: the hyperscalers' long bonds trade in the 60s (at least one of Meta's does), the neoclouds' unsecured paper yields 15%, the GPU-backed loans price off a curve that has moved two points.

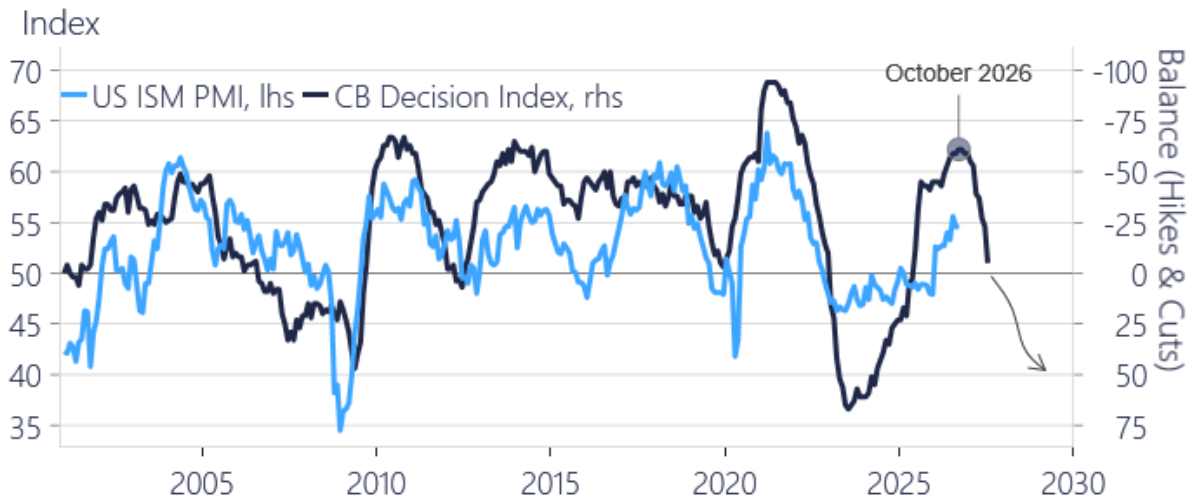
A market that was built on 6% money is being re-underwritten at 9%, and the equity in the most leveraged structures is the shock absorber. It is a cost-of-capital story, and it ends when the cost of capital stops rising. We need central banks to back off, on average, for momentum to return, and that is the uncomfortable part: the market is wobbling at exactly the timing the longer lead in our central-bank decision index suggested.

The index, which simply sums hikes and cuts across the major central banks, leads US activity by about ten months, and it rolled over hard this autumn as the ECB, the BoE, the RBNZ and the Fed moved within weeks of each other. The wobble is on schedule. The question is whether it is the end of the cycle or a correction within it.

Chart 4: US activity slows ten months after the CB decision index... the wobble is on schedule

### US economic activity slows 10 month later than the CB decision index

Last decision from central banks: Hike (+1), Cut (-1)



Source: Steno Research, Bloomberg and Macrobond

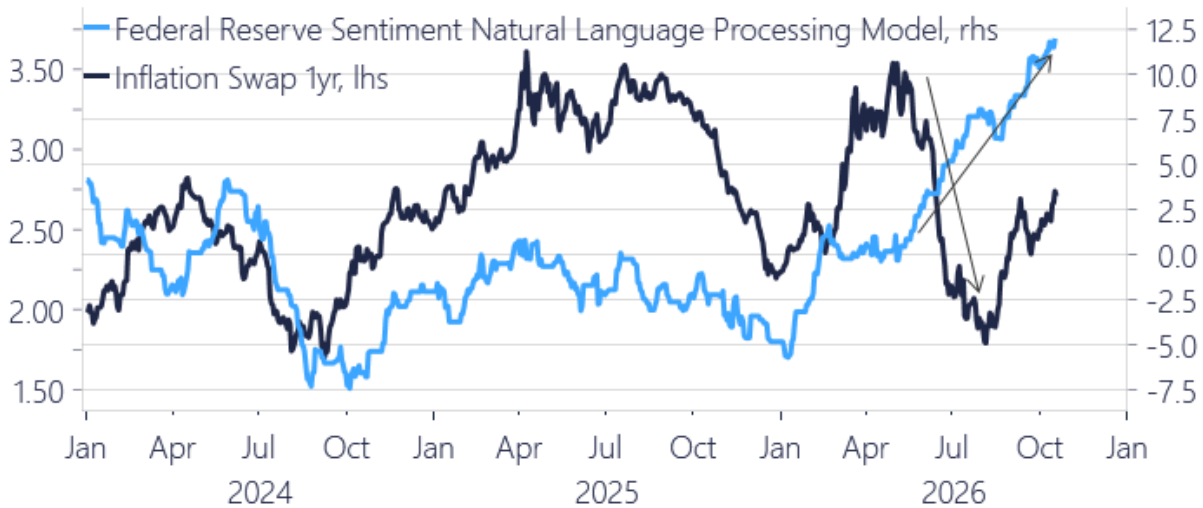
I lean towards the latter, *a correction*, for two reasons. The first is the Fed itself. Our natural-language model of Fed communication has climbed to its most hawkish reading of the cycle at the exact moment the one-year inflation swap peaked and rolled over. That is the classic error, and it is also the classic setup for a reversal: a central bank that tightens into decelerating inflation runs out of justification quickly, and the market front-runs the turn.

Williams said one more hike and no rush. The market priced two after the CPI and went back to about one after the PPI, because the bond market, as we discussed on Friday, has started to square its shorts regardless of the prints. The funding stress ends when the Fed stops sounding like this chart, and the chart says it is already as hawkish as it gets.

Chart 5: The Fed turned hawkish right when inflation rolled over... as hawkish as it gets

### The Fed turned hawkish right when inflation rolled over

The Fed members have decisively turned more hawkish as inflation rolled over



Source: Steno Research, Bloomberg and Macrobond

The second reason is the inflation impulse itself, which is the thing the Fed is reacting to. Financial conditions lead the second derivative of the CPI by about two quarters, and conditions stopped tightening in late summer; on that lead, the peak in the inflation impulse is October or November, which is to say now.

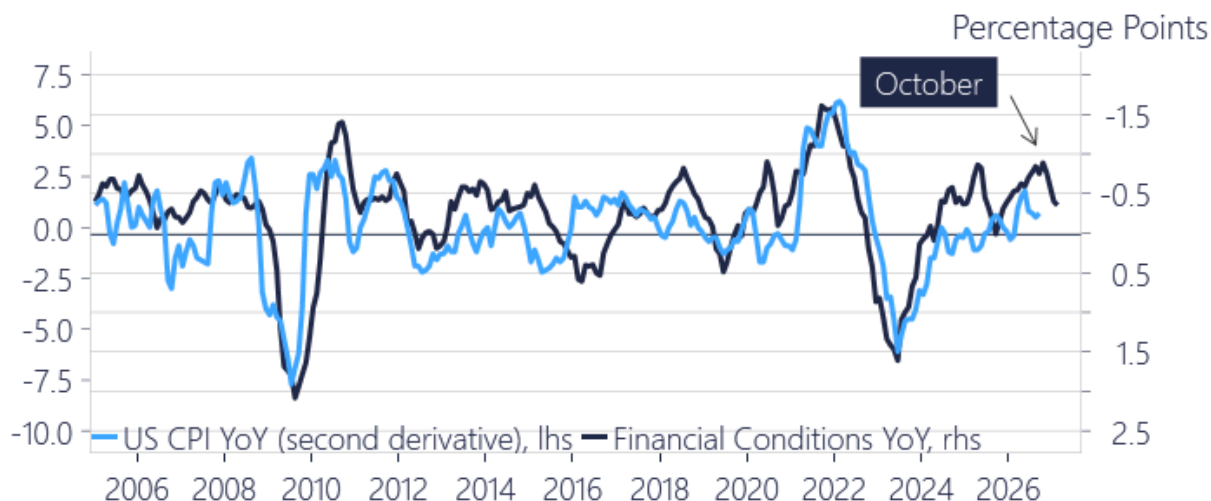
And the oil market, which has done the headline's work all year, helps from here: the base effects from the spring spike mean that even a flat oil price takes the energy contribution to the CPI sharply lower from December, and the first quarter of next year is the fade zone, where the year-on-year comparisons turn into tailwinds.

So the sequence is: one or two more hot official prints, a Fed that hikes once more on them, and then an inflation impulse that rolls over on arithmetic rather than on hope. The funding stress is a function of the Fed; the Fed is a function of the headline; the headline is a function of energy base effects that turn in December. That is the chain, and it is shorter than the market is pricing.

**Chart 6: Financial conditions say we are close to peak inflation... the FCI leads the impulse by two quarters**

### Financial conditions say that we are close to peak inflation...

The FCI index leads 2 quarters

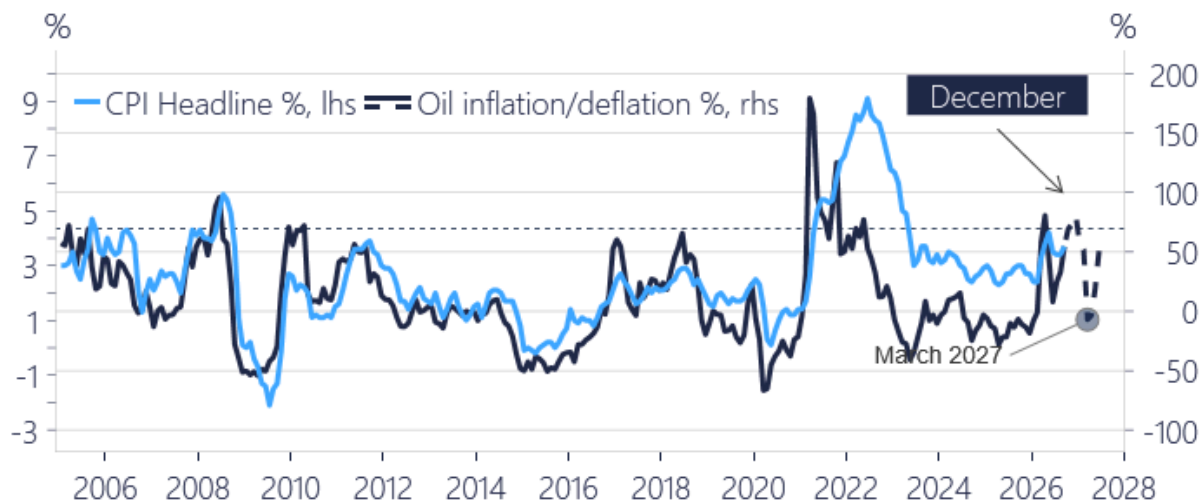


Source: Steno Research, Bloomberg and Macrobond

**Chart 7: The oil market will help inflation lower into 2027... Q1 is the fade zone**

### The oil market will help inflation lower into 2027

The inflation will see upside from energy this quarter. Q1 next year is the "fade zone"



Source: Steno Research, Bloomberg and Macrobond

So what do we watch for the moment to buy into the stress? Four things, in order:

**First**, the ten-year closing below 5% and holding; the funding curve for everything in AI prices off it, and the position squaring has already taken it from 5.30% to 5.08%. **Second**, the Fed on the 28th: one hike with no-rush language is the correction scenario; two is not. **Third**, the hyperscaler capex guidance the same week: Microsoft and Alphabet on the 28th, Meta and Amazon on the 28th and 29th; a 2027 capex number that is UP tells you the obligations are being honored, and the funding stress is a bond-market problem rather than a demand problem. **Fourth**, our own growth nowcast, which leads momentum in US risk assets by one to two months and has only just stopped falling; the March low in that series preceded the April rally by six weeks, and I do not buy the March analogy in full until it turns. Positioning says buy now. The nowcast says wait.

## Theme 2: It is not profitable to run LLMs?

The newest version of the bear case, and the one I find most irritating because it is the easiest to check, is that running large language models is not profitable: that the labs lose money on every query, that compute prices must collapse to make the economics work, and that the whole stack is therefore built on a subsidy.

Every study, every sell-side model, and every bear thesis of the past year has assumed that cloud compute prices come DOWN sharply, because that is what happened in every previous compute cycle. So let me show you what the price of compute has actually done. The Blackwell rental index, the market price for renting a B200 or B300 GPU in the US, is at \$5.29 an hour. It was around \$4 at the start of the year. It made its high of \$5.30 in May, and it has held within a few cents of that for five months, through the summer sell-off, through the FT story, through eight days of semiconductor declines. The price of the thing the bears say must fall has risen 30% in a year and has not fallen at all.

**Chart 8: The Blackwell rental index at \$5.29 an hour... every study says this comes down. It has not**

### Compute Desk Blackwell US Index (B200/B300/GB200/GB300)



Source: Steno Research, Bloomberg and Macrobond

And here is the part the “unprofitable LLM” argument misses entirely: rental prices are very correlated to actual hardware prices, and hardware prices have gone UP.

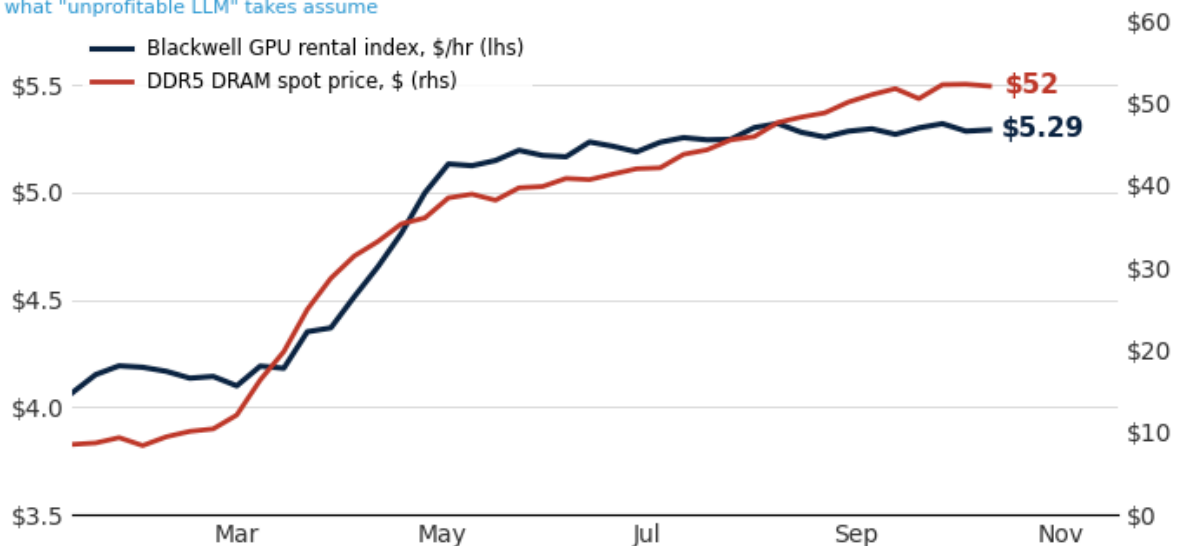
The cost of a GPU server is dominated by the accelerator and the memory around it, and memory is the component that has repriced most: DDR5 spot has gone from \$8 to \$52 this year, HBM is sold out through 2027 at contract prices with floors, and the Korean export data shows chips leaving the country in LOWER volumes at MUCH higher prices. When the input cost of a rack rises, the rental price of the rack follows, because nobody builds capacity to rent it below cost and the capacity is scarce enough that they do not have to. That is exactly what the chart below shows: the rental index rose WITH memory prices through the spring and has held with them since.

The bears have the causation backwards. Compute is not expensive because the labs are subsidising it; it is expensive because the hardware is, and the hardware is expensive because there is not enough of it. A business that sells a scarce input at a rising price is not an unprofitable business. Rather, it is a business with pricing power, and the labs are the ones paying for it — which is why the combined OpenAI-plus-Anthropic run-rate has added eleven to twelve billion dollars of new annualized revenue every month of the third quarter and why Anthropic’s growth slowed from June on CAPACITY rather than on demand.

Chart 9: Compute rents track hardware costs... the rental index rose WITH memory prices, not against them

## Compute rents track hardware costs.. rents rose WITH memory prices

Blackwell rental index vs DDR5 DRAM spot, 2026.. when the input cost rises the output price follows, the opposite of what "unprofitable LLM" takes assume



Source: Steno Research, Compute Desk & inSpectrum (approximate)

Chart 10: Korea has exported FEWER chips at MUCH higher prices... the hardware is scarce, and the rent reflects it

## Korea have exported FEWER Chips at MUCH higher prices

What happens if Volumes increase in 2028-2030? Probably still a good business



Source: Steno Research, Bloomberg and Macrobond

Could the economics still break?

Yes, in one way: if rental prices fall faster than hardware costs, which happens when capacity overshoots demand. Our IRR work on Friday put the numbers on it: at flat or rising rental prices, a rented data center earns 30-40% on capital against single-digit funding costs; at a 30% annual price decline it earns nothing.

The whole debate is the slope of that line, and the slope, so far, is up. I will change my mind when the Blackwell index breaks below \$5 and stays there. It has not been below \$5 since May.

### **Theme 3: The Chinese are coming... is it an issue for the AI bet if China enters?**

The third strand of the sell-off is China, and it deserves a precise answer because it comes in two very different versions. The general principle first, because it is the right instinct: China always makes margins go to zero. Solar, batteries, steel, shipbuilding, EVs: every industry China has entered at scale has ended with Chinese producers holding the volume and nobody holding the margin, which is exactly why Europe and the United States try to keep China OUT of everything that still has one. If China enters AI hardware at scale, the instinct says the AI hardware margin goes the way of the solar margin. So the question is not whether China is a threat in principle. The question is how much China is actually IN regarding AI hardware, and WHERE.

Not a lot, as it turns out — at least, where it matters. Go down the stack. AI accelerators: Chinese share of the global market outside Huawei's domestic sales is around 2%, and Huawei's chips are made on a process two generations behind TSMC. HBM: zero. Leading-edge foundry below 5 nanometres: zero, because the EUV tools that make it are the one thing the export regime has actually kept out.

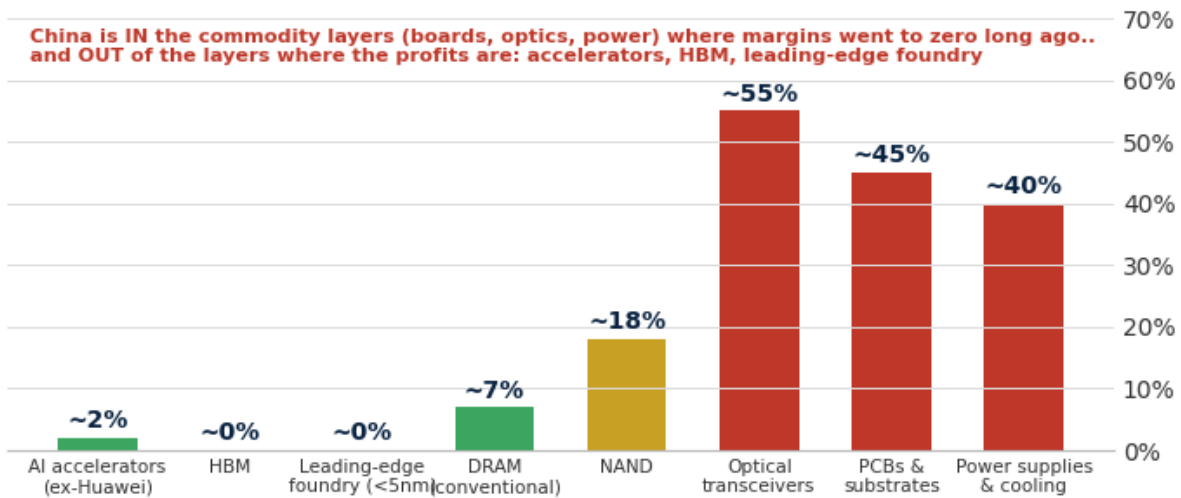
Conventional DRAM: around 7%, which is CXMT, and the real story, which I come to. NAND: around 18%, which is YMTC, and has been for years without destroying the NAND margin. Now the other end: optical transceivers, where Chinese producers are around 55% of global supply; printed circuit boards and substrates, around 45%; power supplies and cooling, around 40%. China is IN the commodity layers of AI hardware: the boards, the optics, the power, where margins went to zero long ago, and nobody in our book makes money.

And it is OUT of the layers where the profits are: the accelerators, the HBM, the leading-edge foundry, the layers behind the EUV wall. The AI bet, as we run it, is a bet on the layers China is not in.

Chart 11: How much is China IN AI hardware? Not a lot, where it matters

### How much is China IN AI hardware? Not a lot, where it matters

Estimated Chinese share of global supply by segment, 2026.. green = negligible, red = dominant



Source: Steno Research, TrendForce, Yole & industry estimates (approximate)

Which leaves CXMT, and I will give the risk its due rather than dismiss it, because the sell-off this week was partly about a CXMT announcement. There are two CXMT stories. The HBM version is utter nonsense, and the reason is yields: a 12-high HBM stack has a yield equal to the per-die yield compounded twelve times; SK Hynix runs HBM3E at around 80%, Micron in the 70s, Samsung has struggled to clear 60% and failed Nvidia's qualification for eighteen months on exactly this, and CXMT is shipping HBM2 samples with HBM3 targeted for 2026 and stack yields the industry puts around 30%.

Nobody buys 30%-yield HBM for a frontier accelerator at any price. That is not a 2027 story.

The DRAM version is real: CXMT is at 300,000 wafers a month with DDR5 yields at 80% and targeting 90%; it announced a server-memory module for year-end this week, and it is a genuine addition to commodity DRAM supply in 2027-28. That pressures the low end of DRAM, the PC and phone bit, and it is why we own the names with the highest HBM and server mix rather than the commodity exposure. Added Chinese RAM is a reason to be selective within memory. It is not a reason to be out of it, and it is certainly not a reason to sell the accelerator and foundry layers that China cannot reach.

### The Bottom Line

There IS something more fundamental to the AI risk this time, and it is the price of money. A hiking cycle reprices everything built on debt, and the AI build-out is built on debt, so wider

spreads, 15% neocloud bonds, and a trillion dollars off the memory makers are what a 5% ten-year does to a leveraged trade. That is real, and I will not call it hilarious.

But it is a correction within the cycle rather than the end of it, because the Fed is as hawkish as it gets while the inflation impulse peaks, the oil base effects turn in December, and the funding stress ends when the ten-year does. The “unprofitable LLM” story has the causation backwards: compute rents have risen with hardware prices, not fallen against them. And China is in the parts of AI hardware where nobody makes money and out of the parts where everyone does. Two things settle it within a week or two: the hyperscaler quarterly reports on the 28th and 29th, which tell us whether the obligations are being honored, and the rate of change in inflation, which tells us whether the Fed (and the ECB) can stop.

Positioning says the low is being made. The nowcast says give it a few weeks. The book is unchanged.

Have a great week ahead, and good luck out there!



## Andreas Steno

Andreas is the core macro consultant in Steno Research. Building on years of experience as Global Chief Strategist at Nordea Bank, he is one of the most quoted and sought-after macro analysts out there. Andreas' expertise is the FX/rates, energy, real estate and equity spaces, but doesn't shy away from hot takes on other topics if the underlying analysis is strong enough. Andreas anchors the weekly editorial 'Steno Signals'.

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