



Received: 06-09-2026  
Accepted: 16-10-2026

## International Journal of Advanced Multidisciplinary Research and Studies

ISSN: 2583-049X

### Who Holds the AI Debt? A Traceable-Share Methodology for AI Infrastructure Credit Exposure

<sup>1</sup> Benedict Amissah-Ocran, <sup>2</sup> Mark Tetey Ayumu, <sup>3</sup> Pavis Dawuni  
<sup>1, 2, 3</sup> Amazon.com Services LLC, United States

DOI: <https://doi.org/10.62225/2583049X.2026.6.5.7076>

Corresponding Author: Benedict Amissah-Ocran

#### Abstract

**Background:** United States senators, the Financial Stability Board and the Bank for International Settlements each asserted during 2026 that the holders of artificial intelligence infrastructure debt cannot be identified, and that private credit, securitisation and off balance sheet structures conceal where the exposure sits. Each describes an opacity that no one has measured.

**Objectives:** To define a reproducible perimeter of United States AI infrastructure debt, establish what public records reveal about its holders, report the traceable share, and locate where the untraceable remainder concentrates.

**Methods:** We construct a purpose linked perimeter at 30 June 2026, map twenty holder channels to their disclosure regimes, and grade each into three tiers: named holder identifiable from a public filing, holder sector identifiable only, or untraceable. The holder distribution of registered

corporate bonds is measured from Federal Reserve Z.1 table L.213; the rest are constructed and varied over 4,000 Monte Carlo draws. We also compute the age of the most recent public observation for every traceable dollar.

**Results:** The perimeter is \$816 billion. Named holders are identifiable for 40.6 per cent, sector attribution for a further 25.1 per cent, and 34.4 per cent is untraceable. Two thirds of the remainder sits in private credit funds and separately managed accounts, one third with foreign holders of ordinary public bonds. Traceable holdings average 149 days stale.

**Conclusion:** Opacity is approximately one third, it is concentrated but not only where the official sector says, and the securitisation disclosure reform that dominates the policy debate would not move it at all.

**Keywords:** Disclosure Regulation, Financial Stability, Opacity Measurement, Private Credit, Securities Holdings

#### 1. Introduction

##### 1.1 Three assertions of opacity

On 22 January 2026 four United States senators wrote to the Financial Stability Oversight Council asking it to open a formal investigation into the financial stability risks of artificial intelligence related debt <sup>[1]</sup>. Their letter set out a financing arithmetic that has since become the standard framing of the problem: roughly \$3 trillion of data centre spending through 2028, of which about \$1.4 trillion can be funded from the operating cash flow of the companies doing the spending, leaving a \$1.6 trillion external financing requirement to be met by some \$200 billion of traditional bond offerings, \$800 billion of private credit, \$150 billion of asset backed and commercial mortgage backed securitisation, and \$350 billion from private equity and other sources. The letter's central complaint was not about the quantity of debt but about its visibility. Convoluted financing arrangements, the senators wrote, are "making it easier for companies to obscure the true financial nature of their balance sheets," with the consequence that "it is difficult to map the economic consequences of debt-related stress" <sup>[1]</sup>. They asked FSOC to confirm by 13 February 2026 that an investigation had begun, and to use the Office of Financial Research to compel data from banks, insurers, private credit funds and real estate investment trusts. A second letter from the Senate Banking Committee to the Securities and Exchange Commission and the Treasury in May 2026 pressed the same point on private credit specifically <sup>[2]</sup>, and the Council's own annual report had flagged the sector a year earlier <sup>[3]</sup>.

On 6 May 2026 the Financial Stability Board published its report on vulnerabilities in private credit <sup>[4]</sup>. It reached a similar conclusion from a different direction. Authorities, the FSB found, rely on regulatory, public and commercial datasets with significant jurisdictional variation, and lack harmonised private credit definitions and granular fund level and loan level data. Investors themselves "may only have partial information and understanding of correlations and concentrations, which could

hamper the effective pricing of risk” [4]. The report enumerated six data gaps and placed AI exposure squarely inside them, noting that AI related transactions rose to 34 per cent of private credit deals in 2025 against a historical average of 17 per cent, and that private credit is projected to supply \$800 billion of the external capital for AI infrastructure between 2025 and 2028.

The Bank for International Settlements reached the same place a third way. Its January 2026 bulletin on financing the AI boom estimated roughly \$200 billion of private credit outstanding to AI related borrowers by mid 2025, about 8 per cent of the private credit market, with \$40 billion originated during 2025 at an average loan size of \$169 million against \$90 million for other private credit [5]. The bulletin’s warning was that leverage does not disappear “by being out of sight,” and that special purpose vehicles and structured arrangements obscure the true level of borrowing. The BIS repeated the warning in its 2026 Annual Economic Report [6].

Three institutions, three methods, one conclusion. None of them says how much is obscured.

## 1.2 What has not been done

The claim that exposure cannot be traced is an empirical claim, and it is testable. The United States has an unusually dense securities holdings disclosure infrastructure. Registered investment companies file portfolio holdings on Form N-PORT. Insurers file security level bond schedules with the National Association of Insurance Commissioners. Business development companies publish complete schedules of investments in their quarterly and annual reports. The Federal Reserve publishes quarterly holdings of corporate bonds across twenty four sectors in table L.213 of the Financial Accounts. Banks report loans to non depository financial institutions in five subcategories on the Call Report. Any dollar of debt is held by someone, and for a large fraction of the market that someone leaves a public trace.

What has not been done is to put the perimeter and the disclosure infrastructure side by side and ask what fraction of the former is visible through the latter. The academic literature on corporate bond ownership establishes the aggregate sectoral picture and uses it to study pricing and intermediation [7, 8], but does not ask what is knowable at instrument level. The official sector reports catalogue data gaps qualitatively [1, 4, 5]. The market commentary counts issuance [9, 10, 11]. Nobody counts holders.

The gap matters for three reasons. First, a policy debate about disclosure reform cannot be settled without knowing how much disclosure is missing and where. Second, opacity claims that are asserted rather than measured are unfalsifiable, and unfalsifiable claims are poor foundations for supervisory action. Third, and most practically, the untraceable share is the part of the market where a supervisor cannot answer the only question that matters in a stress: who is on the other side.

## 1.3 Contribution

This paper makes four contributions.

First, it defines a **reproducible perimeter** of purpose linked United States AI infrastructure debt at a stated date, built from public sources and published with its component

ranges, so that others can reprice the boundary rather than argue about it.

Second, it proposes a **traceability tier framework** that maps each holder channel to the disclosure regime it is subject to and grades it as instrument level identifiable, sector identifiable, or untraceable. The framework is deliberately mechanical: it turns a legal question about reporting obligations into an arithmetic one about coverage.

Third, it reports the **traceable share**. Named holders can be identified for 40.6 per cent of the perimeter and sector attribution is available for a further 25.1 per cent, leaving 34.4 per cent untraceable. The untraceable remainder is concentrated but not in a single place: roughly two thirds sits in private credit funds and separately managed accounts, and roughly one third sits with foreign holders of ordinary registered corporate bonds. The second finding is not in any of the three official sector documents that motivate this paper.

Fourth, it introduces **observation latency** as a second dimension of opacity and quantifies it. What is traceable is on average 149 days old, because the largest identifiable holders, insurers and registered funds, report annually and quarterly with permitted delays. A supervisor who wants to know who holds AI debt today can learn it, for two fifths of the market, as it stood five months ago.

The paper closes by pricing five disclosure reforms in units of perimeter. The result is uncomfortable for the current policy debate: extending securitisation disclosure to private placements, the reform most often proposed, would add nothing at all to holder traceability, because it governs collateral rather than ownership.

Section 2 sets out the perimeter, the channels and the measurement. Section 3 reports the results. Section 4 discusses what follows. Section 5 concludes.

## 2. Materials and Methods

### 2.1 Defining the perimeter

A measurement of opacity is meaningless without a denominator, and the denominator here is contested. We adopt a **purpose linked** definition: debt whose proceeds or collateral are identifiably tied to artificial intelligence compute or data centre capacity. This includes corporate bonds issued by hyperscale operators to fund capital expenditure, borrowings of specialist compute providers, data centre asset backed and commercial mortgage backed securities, project debt raised through special purpose and joint venture vehicles, private credit extended to AI borrowers, and bank construction and project lending to data centre developers. It excludes the general corporate debt of firms that happen to own data centres, the debt of chip suppliers, and utility and transmission borrowing raised to serve data centre load. Those exclusions are defensible rather than obvious, and Section 4.7 records what they cost.

Two properties of the perimeter deserve emphasis. It is a **stock** at 30 June 2026, not a projection. The widely quoted \$1.6 trillion is a financing requirement through 2028 [1]; the amount actually outstanding today is a different and smaller number, and conflating them overstates present exposure. And it is **purpose linked rather than issuer linked**, so a hyperscaler’s legacy debt is outside it while its 2026 capital expenditure bond is inside.

**Table 1:** The perimeter: United States purpose-linked AI infrastructure debt outstanding at 30 June 2026, USD billions

| Instrument class                                                | Central    | Low        | High         | Share of perimeter | Principal basis                                                                                                   |
|-----------------------------------------------------------------|------------|------------|--------------|--------------------|-------------------------------------------------------------------------------------------------------------------|
| C1 Registered corporate bonds issued for AI capital expenditure | 310        | 260        | 360          | 38.0%              | \$121bn hyperscaler issuance in 2025 and \$220bn in 2026 to 10 August, less non-capex issuance <sup>[9, 10]</sup> |
| C2 Data-centre ABS and CMBS                                     | 61         | 55         | 70           | 7.5%               | \$61bn outstanding, Barclays Research via <sup>[11]</sup>                                                         |
| C3 SPV and joint-venture project notes                          | 60         | 45         | 80           | 7.4%               | Beignet Investor LLC \$27.3bn <sup>[12]</sup> plus comparable vehicles                                            |
| C4 Private credit to AI borrowers                               | 260        | 200        | 320          | 31.9%              | \$200bn at mid-2025 <sup>[5]</sup> , extrapolated at the 2025 origination rate                                    |
| C5 Bank construction and project loans                          | 80         | 55         | 110          | 9.8%               | Residual of the financing stack, bounded by NDFI and CRE reporting <sup>[13]</sup>                                |
| C6 Neocloud corporate and facility debt                         | 45         | 35         | 60           | 5.5%               | CoreWeave borrowings <sup>[1]</sup> plus peer disclosures                                                         |
| <b>Total</b>                                                    | <b>816</b> | <b>650</b> | <b>1,000</b> | <b>100%</b>        |                                                                                                                   |

The perimeter is a stock at a date. It is not comparable with the \$1.6 trillion external financing requirement projected to 2028 <sup>[1]</sup>, which is a flow.

**Table 2:** Holder channels, governing disclosure regime, traceability tier and observation latency

| Holder channel                       | Governing public filing                                                                        | Tier | Age of most recent public observation (days) |
|--------------------------------------|------------------------------------------------------------------------------------------------|------|----------------------------------------------|
| Registered open-end funds            | Form N-PORT, quarterly public, 60-day delay <sup>[14, 15]</sup>                                | 1    | 150                                          |
| Exchange-traded funds                | Daily published creation baskets; Form N-PORT                                                  | 1    | 1                                            |
| Closed-end funds                     | Form N-PORT                                                                                    | 1    | 150                                          |
| Money market funds                   | Form N-MFP, monthly, 5-day delay                                                               | 1    | 35                                           |
| Listed BDCs                          | Form 10-Q and 10-K schedule of investments                                                     | 1    | 60                                           |
| Non-traded BDCs                      | Form 10-Q and 10-K schedule of investments                                                     | 1    | 75                                           |
| Life insurers, bonds                 | NAIC annual statement, Schedule D Part 1, CUSIP level <sup>[16]</sup>                          | 1    | 240                                          |
| P&C insurers, bonds                  | NAIC annual statement, Schedule D Part 1 <sup>[16]</sup>                                       | 1    | 240                                          |
| Insurers, other invested assets      | NAIC Schedule BA, aggregate categories <sup>[16]</sup>                                         | 2    | 240                                          |
| US banks                             | Call Report, category aggregates <sup>[13]</sup>                                               | 2    | 100                                          |
| Foreign banking offices in US        | Call Report, category aggregates <sup>[13]</sup>                                               | 2    | 100                                          |
| Credit unions                        | NCUA call report aggregates                                                                    | 2    | 100                                          |
| Private pension funds                | Form 5500, annual, long lag, partial coverage                                                  | 2    | 500                                          |
| Public pension funds                 | State annual reports and manager disclosures, uneven                                           | 2    | 300                                          |
| State and local governments          | Z.1 sector aggregate <sup>[17]</sup>                                                           | 2    | 100                                          |
| CLOs                                 | Trustee reports, uneven public access                                                          | 2    | 120                                          |
| Brokers, dealers and other financial | Z.1 sector aggregate <sup>[17]</sup>                                                           | 2    | 100                                          |
| Private credit funds and SMAs        | Form PF confidential <sup>[18]</sup> ; Form ADV reports AUM only                               | 3    | none                                         |
| Rest of the world                    | Z.1 single sector, no counterparty detail <sup>[17]</sup> ; TIC aggregate only <sup>[19]</sup> | 3    | none                                         |
| Households, direct                   | No holdings reporting                                                                          | 3    | none                                         |

Component estimates and their ranges are given in Table 1 and sourced individually. Where a component is bounded by two credible published figures we take the midpoint and carry the spread into the uncertainty analysis of Section 2.7.

## 2.2 Holder channels and disclosure regimes

Every dollar of the perimeter is held through one of twenty channels, each subject to a distinct disclosure regime. Table 2 lists them with the governing filing and the typical age of the most recent public observation.

The regimes differ in three respects that turn out to matter. They differ in **granularity**: Form N-PORT and the NAIC annual statement report positions at security level with an identifier, whereas the Call Report reports loan categories in aggregate. They differ in **publicity**: Form PF is filed with the Securities and Exchange Commission but is confidential, so a private credit fund's portfolio is known to the regulator and to no one else. And they differ in **timeliness**: exchange traded funds publish baskets daily, listed business development companies report within about sixty days, registered funds are public quarterly with a sixty day delay, and insurers file annually with a delay that leaves the most recent public observation roughly eight months old.

One regime change during the sample period is directly relevant. Amendments adopted in 2024 would have required registered funds to file Form N-PORT monthly and would

have made monthly holdings public. Implementation was paused in 2025, and in February 2026 the Commission proposed to revert to quarterly public reporting with the sixty day delay retained <sup>[14]</sup>. The ceiling on fund channel traceability is therefore lower in 2026 than the 2024 rulemaking had contemplated.

## 2.3 The traceability tiers

We grade each channel into one of three tiers.

**Tier 1, instrument level attribution:** The ultimate holder and the amount held are identifiable from a public filing. Registered open end funds, closed end funds, exchange traded funds, money market funds, listed and non traded business development companies, and insurers reporting bonds on Schedule D of the NAIC annual statement all fall here.

**Tier 2, sector attribution only:** The holder's sector is identifiable from an aggregate statistical source but neither the institution nor the amount can be attributed to the instrument. Banks, credit unions, pension funds, collateralised loan obligations, insurers reporting other invested assets on Schedule BA, and the residual financial sectors of the Financial Accounts fall here.

**Tier 3, untraceable:** Neither holder nor sector can be established at instrument level from any public record. Private credit funds and separately managed accounts fall

here, because Form PF is confidential and Form ADV discloses assets under management rather than positions. Direct household holdings fall here. The Financial Accounts' rest of the world sector falls here in the base case, for reasons discussed in Section 2.7.

The tier assignment is a statement about **public** records. It is not a statement about what a supervisor with subpoena power could learn, and it is not a claim that untraceable holdings are unregulated. It is a claim about what can be established by an analyst, an investor, a legislator or a journalist working from filings.

## 2.4 Measurement

Let  $i$  index instrument classes and  $c$  index holder channels. Write  $O(i)$  for the amount of class  $i$  outstanding,  $s(i,c)$  for the share of class  $i$  held through channel  $c$ , so that the shares  $s(i,c)$  sum to one across channels for each class, and  $\tau(c)$  for the traceability tier of channel  $c$ . Let  $C(k)$  denote the set of channels assigned to tier  $k$ , that is,  $C(k) = \{c: \tau(c) = k\}$ . Define the class weight  $w(i)$  as  $O(i)$  divided by the total of  $O(j)$  across all classes  $j$ , and define the tier  $k$  share of class  $i$  as:

**$S(i,k)$  = the sum of  $s(i,c)$  across all channels  $c$  in  $C(k)$**

The share of the whole perimeter falling in tier  $k$  is then the size weighted average of  $S(i,k)$  across classes:

**$T(k)$  = the sum of  $w(i) \times S(i,k)$  across all instrument classes  $i$**

The **strict traceable share** is  $T(1)$ . The **traceable share** is  $T(1) + T(2)$ . The **untraceable share** is  $T(3)$ . By construction the three sum to one.

Let  $\ell(c)$  be the age in days of the most recent public observation for channel  $c$ . The **observation latency** of the traceable stock is the exposure weighted mean age across Tier 1 holdings. Writing  $N$  for the sum of  $O(i) \times s(i,c) \times \ell(c)$  across every pair of a class  $i$  and a Tier 1 channel  $c$ , and  $D$  for the sum of  $O(i) \times s(i,c)$  across the same pairs,

$$L = N / D$$

Reporting  $L$  alongside  $T(1)$  is the paper's second measurement claim. A share of exposure that is knowable only with a five month delay is not equivalent, for supervisory purposes, to a share that is knowable today, and a single number that ignores the distinction flatters the disclosure regime.

## 2.5 Holder distributions

The distribution of class C1, registered corporate bonds issued for AI capital expenditure, is **measured rather than assumed**. We take the holder shares of table L.213 of the Federal Reserve's Financial Accounts at the fourth quarter of 2025, which reports \$16,854.8 billion of corporate and foreign bonds outstanding allocated across twenty four holder sectors <sup>[17]</sup>. Applying the aggregate market's ownership structure to a subset of it is an assumption, and Section 2.7 varies its most consequential component.

**Table 4:** Holder distribution of class C1, from Federal Reserve Z.1 table L.213, 2025 Q4 <sup>[17]</sup>

| Holder sector                                 | Share of US corporate and foreign bonds | Tier |
|-----------------------------------------------|-----------------------------------------|------|
| Rest of the world                             | 28.65%                                  | 3    |
| Life insurance companies                      | 23.28%                                  | 1    |
| Mutual funds                                  | 15.04%                                  | 1    |
| Exchange-traded funds                         | 7.95%                                   | 1    |
| Private pension funds                         | 5.58%                                   | 2    |
| Property-casualty insurance companies         | 5.22%                                   | 1    |
| US-chartered depository institutions          | 4.36%                                   | 2    |
| State and local government pension funds      | 3.86%                                   | 2    |
| State and local governments                   | 1.91%                                   | 2    |
| Brokers, dealers and other financial business | 1.47%                                   | 2    |
| Household sector                              | 1.15%                                   | 3    |
| Foreign banking offices in the US             | 0.86%                                   | 2    |
| Closed-end funds                              | 0.43%                                   | 1    |
| Credit unions                                 | 0.16%                                   | 2    |
| Money market funds                            | 0.10%                                   | 1    |

Total corporate and foreign bonds outstanding, 2025 Q4: \$16,854.8 billion.

The distributions of classes C2 to C6 are **constructed** from the structural features of each instrument and the institutional evidence available. Data centre asset backed securities and commercial mortgage backed securities are predominantly issued under Rule 144A to qualified institutional buyers, which excludes retail and tilts the buyer base toward insurers and asset managers with long dated liabilities. Special purpose and joint venture project notes are more concentrated still: the Hyperion campus financing was executed as a single 144A for life senior secured amortising note of \$27.294 billion issued by Beignet Investor LLC <sup>[12]</sup>, and press reporting placed a single asset manager as the holder of a majority of it. Private credit is split between vehicles that publish complete schedules of investments, namely listed and non traded business development companies, and vehicles that do not. Non traded business development companies alone held more than \$200 billion of assets in 2025, within a wider evergreen private credit universe of roughly \$644 billion at 30 June 2025 <sup>[20]</sup>, against a United States private credit market of about \$1 trillion <sup>[4]</sup>. Data centre securitisation, by contrast, is a smaller and better documented pool, with 69 transactions and \$34.4 billion of cumulative issuance through September 2025 <sup>[21]</sup>. Bank construction and project lending is by construction held by banks. Each distribution is set out in Appendix A and every element is varied in Section 2.7.

## 2.6 A note on what Rule 144A does and does not conceal

It is worth being precise about a point the policy debate often blurs. A 144A for life offering is exempt from Securities Act registration, and therefore from the asset level disclosure that Regulation AB II imposes on registered asset backed shelf offerings. That exemption conceals **collateral** detail, since the asset level and shelf eligibility requirements of Regulation AB II attach to registration rather than to the security itself <sup>[22]</sup>. It does not conceal **holders**. A registered fund that buys a 144A note reports it on Form N-PORT with

its identifier like any other position, and an insurer reports it on Schedule D. The opacity of a private placement to the holder question is therefore inherited from who buys it, not from the exemption itself. This distinction drives one of the paper's results and is returned to in Section 4.3.

## 2.7 Uncertainty and definitional variants

Three treatments of uncertainty are applied.

**Perimeter uncertainty:** Each component is drawn from a triangular distribution over its low, central and high estimates.

**Distribution uncertainty:** Each constructed distribution is drawn from a Dirichlet centred on its point estimate with concentration parameter 45, which reproduces the point estimate in expectation while allowing meaningful dispersion. The measured C1 distribution is varied only in its foreign share, over a range of minus ten to plus six percentage points, with the remaining sectors rescaled.

**Definitional variant:** The treatment of the rest of the world sector is the single most consequential judgement in the tier map. The Treasury International Capital system collects foreign holdings of United States long term securities and reports them by country of holder in an annual survey. That is genuine sector information, and on a permissive reading foreign holdings belong in Tier 2. But TIC does not attribute holdings to instruments and cannot say who holds a given security, so on the strict instrument level reading applied throughout this paper they belong in Tier 3. We report the base case and the variant side by side rather than choosing.

## 3. Results

### 3.1 The perimeter

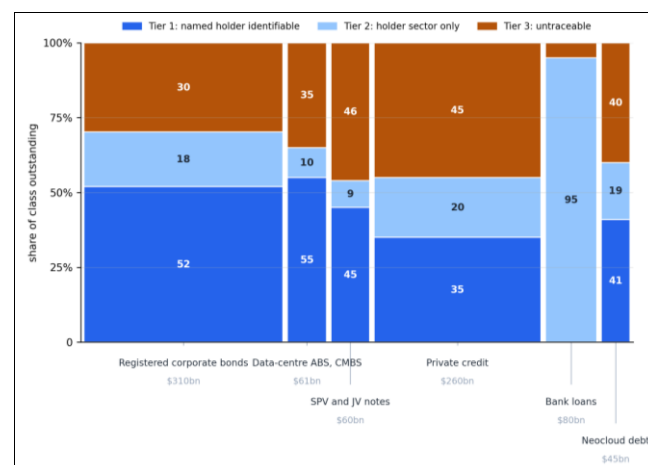
Table 1 reports the perimeter. The central estimate is \$816 billion outstanding at 30 June 2026, with a range of \$650 billion to \$1,000 billion.

Registered corporate bonds are the largest component at \$310 billion, reflecting \$121 billion of hyperscaler issuance

during 2025, about four times the five year average, and \$220 billion during 2026 through 10 August [9, 10]. Private credit to AI borrowers is second at \$260 billion, extrapolated from the \$200 billion the Bank for International Settlements measured at mid 2025 [5]. Data centre securitisation, which stood at \$4 billion outstanding in 2020, reached \$61 billion by mid 2026 and is projected to approach \$180 billion by 2028 [11].

The perimeter is roughly half the \$1.6 trillion external financing requirement the senators identified [1], which is the expected relationship between a stock measured today and a flow projected to 2028.

### 3.2 Traceability by instrument class



Source: Authors' calculations from Tables 1 to 3

**Fig 1:** Traceability of the perimeter. Each column is an instrument class, its width proportional to amount outstanding and its height divided into the three traceability tiers. Values are percentages of class outstanding

Fig 1 and Table 3 report the tier composition of each class.

**Table 3:** Traceability by instrument class, share of class outstanding

| Class                                  | Outstanding (\$bn) | Weight      | Tier 1       | Tier 2       | Tier 3       | Traceable (T1+T2) |
|----------------------------------------|--------------------|-------------|--------------|--------------|--------------|-------------------|
| C1 Registered corporate bonds          | 310                | 38.0%       | 52.0%        | 18.2%        | 29.8%        | 70.2%             |
| C2 Data-centre ABS and CMBS            | 61                 | 7.5%        | 55.0%        | 10.0%        | 35.0%        | 65.0%             |
| C3 SPV and joint-venture notes         | 60                 | 7.4%        | 45.0%        | 9.0%         | 46.0%        | 54.0%             |
| C4 Private credit                      | 260                | 31.9%       | 35.0%        | 20.0%        | 45.0%        | 55.0%             |
| C5 Bank construction and project loans | 80                 | 9.8%        | 0.0%         | 95.0%        | 5.0%         | 95.0%             |
| C6 Neocloud debt                       | 45                 | 5.5%        | 41.0%        | 19.0%        | 40.0%        | 60.0%             |
| <b>Perimeter, weighted</b>             | <b>816</b>         | <b>100%</b> | <b>40.6%</b> | <b>25.1%</b> | <b>34.4%</b> | <b>65.6%</b>      |

The ordering is not the one the policy debate would predict. Data centre securitisation, the instrument class most often described as opaque, has the **highest** strict traceable share in the perimeter at 55 per cent, because its buyers are insurers and registered funds, both of which report at security level. Bank lending has the lowest strict traceable share at zero and the highest traceable share at 95 per cent, because we know with certainty that banks hold it and cannot discover which banks or how much.

The most transparent class on any conventional description, registered corporate bonds, is 52.0 per cent Tier 1, 18.2 per cent Tier 2 and 29.8 per cent Tier 3. That a registered, exchange reported, rated and publicly traded instrument should be three tenths untraceable is the first result that does not follow from the received account of the problem, and

Section 3.4 explains it.

### 3.3 The headline shares

Weighting classes by outstanding amounts:

- Strict traceable share, Tier 1: **40.6 per cent**, or \$331 billion.
- Sector attribution only, Tier 2: **25.1 per cent**, or \$204 billion.
- Untraceable, Tier 3: **34.4 per cent**, or \$280 billion.
- Traceable share, Tier 1 plus Tier 2: **65.6 per cent**.

Opacity, on this construction and at this date, is approximately one third. The assertion that holders “cannot be identified” is false for two fifths of the perimeter and true for another third, with a middle band of a quarter where the sector is known and the institution is not.

### 3.4 Where the untraceable remainder sits

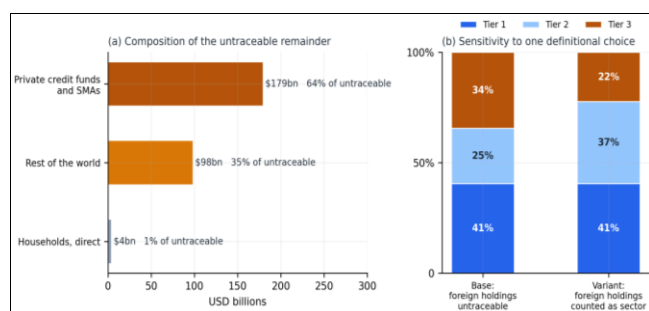


**Fig 2:** The untraceable third. Panel (a) decomposes the \$280 billion untraceable remainder by holder channel. Panel (b) shows the effect of the single definitional choice discussed in Section 2.7, in which foreign holdings are treated as sector identifiable rather than untraceable

Fig 2 and Table 5 decompose the \$280 billion.

**Table 5:** Composition of the untraceable remainder

| Holder channel                                       | USD billions | Share of untraceable total | Share of perimeter |
|------------------------------------------------------|--------------|----------------------------|--------------------|
| Private credit funds and separately managed accounts | 179          | 63.8%                      | 21.9%              |
| Rest of the world                                    | 98           | 34.9%                      | 12.0%              |
| Households, direct                                   | 4            | 1.3%                       | 0.4%               |
| <b>Total</b>                                         | <b>280</b>   | <b>100%</b>                | <b>34.4%</b>       |

**Private credit funds and separately managed accounts hold \$179 billion, 64 per cent of the untraceable total.** This is the concentration the official sector documents describe, and the measurement confirms it. The mechanism is precise: Form PF collects portfolio information from private fund advisers but is confidential, and Form ADV requires disclosure of assets under management but not of positions, so a private credit fund's AI exposure is known to its regulator and to nobody else. Separately managed accounts are not covered by either.

**Foreign holders hold \$98 billion, 35 per cent of the untraceable total.** Almost all of it is ordinary registered corporate bonds. The rest of the world sector held 28.6 per cent of all United States corporate and foreign bonds at the end of 2025, more than any other single sector including life insurers at 23.3 per cent [17], and the Financial Accounts report it as one undifferentiated bucket.

A worked example shows how the tiers operate on a single instrument. The Hyperion campus in Richland Parish, Louisiana was financed in October 2025 through a joint venture in which funds managed by Blue Owl Capital hold 80 per cent and Meta 20 per cent [23]. The debt was issued by a bankruptcy remote vehicle, Beignet Investor LLC, as a single senior secured fully amortising note of \$27.294 billion sold under Rule 144A for life [12]. Every element of that structure is the kind the official sector describes as opaque. Yet the note carries an identifier, and any registered fund holding it must report it on Form N-PORT, and any insurer holding it must report it on Schedule D. What determines its traceability is therefore not the vehicle, the exemption or the joint venture, but the composition of the buyer base. Press reporting placed a single asset manager as the holder of a majority of the note. That manager runs both registered funds, which disclose, and separately managed

accounts and private funds, which do not, and the split between them is the entire difference between Tier 1 and Tier 3 for this instrument. The structure is legible; the ownership is not.

This second finding reframes the problem. Roughly a third of the untraceable dollars in AI infrastructure debt are not in private credit, not in a special purpose vehicle and not in a securitisation. They are in plain registered bonds held outside the United States, invisible for a reason that has nothing to do with AI, data centres or financial innovation, and everything to do with the fact that the domestic holdings reporting infrastructure stops at the border.

### 3.5 The latency of what is traceable

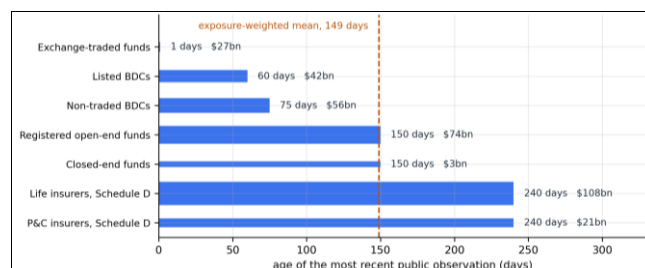


**Fig 3:** When traceable holdings become visible. Each bar is a Tier 1 holder channel, positioned by the age of the most recent public observation and drawn with thickness proportional to the exposure held through it. The dashed line is the exposure weighted mean of 149 days

Fig 3 reports observation latency. The exposure weighted mean across Tier 1 channels is **149 days**.

The distribution is highly uneven and inversely related to exposure. Exchange traded funds publish holdings daily and account for \$27 billion of the traceable stock. Life insurers hold \$108 billion, the largest Tier 1 position in the perimeter, and their most recent public observation is roughly 240 days old. Registered open end funds hold \$74 billion at about 150 days. The channels that hold the most report the least often.

Restoring the monthly public Form N-PORT regime adopted in 2024 and since paused would reduce the mean latency from 149 to 135 days. It would not change the traceable share at all.

### 3.6 Sensitivity to the foreign holdings definition

Panel (b) of Fig 2 reports the definitional variant. Treating the rest of the world sector as Tier 2, on the ground that the Treasury International Capital system supplies country level information, moves the untraceable share from 34.4 per cent to 22.4 per cent and the traceable share from 65.6 per cent to 77.6 per cent. The strict traceable share is unchanged at 40.6 per cent, because the variant moves dollars between Tiers 3 and 2 and never into Tier 1.

The twelve percentage point swing from a single definitional choice is itself a result. Any statement of the form "X per cent of AI debt is opaque" is meaningless without a declared position on whether aggregate cross border statistics count as visibility. This paper's position is that they do not, because they cannot answer the question a supervisor asks in a stress, but the alternative is defensible and the difference is large enough that it must be stated rather than assumed.

### 3.7 The marginal disclosure value of five reforms

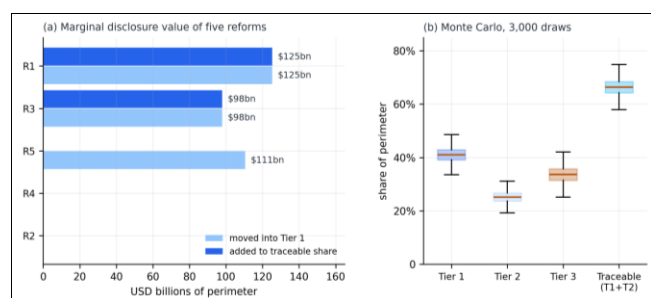


**Fig 4:** What disclosure reform would buy, and how sure we can be.

Panel (a) prices five reforms in billions of dollars of perimeter, distinguishing dollars moved into Tier 1 from dollars added to the traceable share. Panel (b) reports the Monte Carlo distribution of the four headline shares over 3,000 draws

Panel (a) of Fig 4 and Table 6 price five reforms in units of perimeter.

**Table 6:** Marginal disclosure value of five reforms, USD billions of perimeter

| Reform                                                           | Moved into Tier 1 | Added to traceable share | Strict traceable share after | Traceable share after |
|------------------------------------------------------------------|-------------------|--------------------------|------------------------------|-----------------------|
| R1 Publish Form PF portfolio holdings for private credit funds   | 125               | 125                      | 55.9%                        | 81.0%                 |
| R3 Instrument-level reporting of foreign holdings under TIC      | 98                | 98                       | 52.6%                        | 77.6%                 |
| R5 Add a data-centre category to the Call Report and FR Y-14     | 111               | 0                        | 54.1%                        | 65.6%                 |
| R4 Restore monthly public Form N-PORT reporting                  | 0                 | 0                        | 40.6%                        | 65.6%                 |
| R2 Extend Regulation AB asset-level disclosure to 144A offerings | 0                 | 0                        | 40.6%                        | 65.6%                 |

R4 leaves shares unchanged and reduces mean observation latency from 149 to 135 days. R5 raises precision without raising coverage, because bank-held loans are already Tier 2.

**R1, publishing portfolio level holdings for private credit funds currently reported confidentially on Form PF, is the largest single measure available.** It would move \$125 billion into Tier 1, lifting the strict traceable share from 40.6 to 55.9 per cent and the traceable share from 65.6 to 81.0 per cent. The gain is bounded by the share of private credit held in separately managed accounts rather than funds, assumed here at 30 per cent, which no fund reporting requirement reaches.

**R3, instrument level reporting of foreign holdings under the Treasury International Capital system, would move \$98 billion into Tier 1,** lifting the strict share to 52.6 per cent. It is the second largest measure and it addresses the component of opacity that no current policy proposal mentions.

**R5, adding a data centre category to the Call Report and to FR Y-14, would move \$111 billion into Tier 1 and would add nothing to the traceable share,** because bank held loans are already Tier 2. It buys precision rather than coverage: it would tell a supervisor which banks hold the exposure, which is worth having, but it would not reduce the

untraceable third.

**R4, restoring monthly public Form N-PORT reporting, changes no shares and reduces latency by 14 days.**

**R2, extending Regulation AB asset level disclosure to 144A offerings, changes nothing at all.** This is the reform most frequently proposed in response to the opacity claim and it has no effect on the question, for the reason set out in Section 2.6: the registration exemption withholds collateral detail, not holder identity, and the holders of a 144A note report it exactly as they report a registered one.

### 3.8 Uncertainty

Panel (b) of Fig 4 and Table 7 report the Monte Carlo over 4,000 draws.

**Table 7:** Monte Carlo distribution, 4,000 draws

| Quantity                                  | 5th percentile | Median | 95th percentile |
|-------------------------------------------|----------------|--------|-----------------|
| Tier 1, strict traceable share            | 36.5%          | 41.0%  | 45.7%           |
| Tier 2, sector attribution only           | 21.7%          | 25.2%  | 29.1%           |
| Tier 3, untraceable share                 | 28.6%          | 33.6%  | 38.8%           |
| Traceable share (T1+T2)                   | 61.2%          | 66.4%  | 71.4%           |
| Mean observation latency of Tier 1 (days) | 141            | 149    | 158             |

The fifth to ninety fifth percentile ranges are 36.5 to 45.7 per cent for the strict traceable share, 21.7 to 29.1 per cent for sector only attribution, 28.6 to 38.8 per cent for the untraceable share, and 61.2 to 71.4 per cent for the traceable share. Mean observation latency ranges from 141 to 158 days.

The qualitative conclusions are stable across the parameter space explored. The untraceable share does not fall below a quarter of the perimeter in any draw, and it does not exceed two fifths. The claim that opacity is approximately one third survives the uncertainty; the claim that it is precisely 34.4 per cent does not, and is not made.

## 4. Discussion

### 4.1 Opacity has a magnitude

The three documents that motivate this paper share a rhetorical structure. Each identifies a set of instruments, observes that those instruments are hard to see through, and concludes that exposure cannot be mapped. None asks how much cannot be mapped, and the omission is consequential, because the answer is neither “all of it” nor “very little.”

Two fifths of the perimeter is attributable to a named holder from public filings. That is a substantial and underappreciated amount of visibility, and it exists because of disclosure infrastructure built for other purposes over several decades: Form N-PORT for fund investors, the NAIC annual statement for policyholder protection, business development company reporting for retail shareholders. None of it was designed for AI infrastructure and all of it works on AI infrastructure.

A further quarter is knowable at sector level. A third is not knowable at all. That is a serious number and it justifies concern, but it is a different proposition from the one being asserted, and it points at different remedies.

### 4.2 The official sector diagnosis is two thirds right

The private credit diagnosis is correct and the measurement supports it. Sixty four per cent of the untraceable dollars sit in private credit funds and separately managed accounts, the

FSB's enumeration of data gaps describes the mechanism accurately, and the single most valuable disclosure reform available acts directly on it.

The securitisation and special purpose vehicle diagnosis is largely wrong for this question. Data centre securitisation has the highest strict traceable share of any class in the perimeter. Special purpose vehicle notes are less traceable, at 45 per cent, but not because they are special purpose vehicles: it is because a large share of a small number of very large notes was placed with asset managers holding them outside registered vehicles. The structure is not the problem; the buyer is.

The cross border gap is missing from the diagnosis entirely, and it is a third of the untraceable total.

#### 4.3 The reform that dominates the debate does nothing

The finding that extending Regulation AB style disclosure to 144A offerings would add zero to the traceable share deserves emphasis, because that reform is the standard response to the opacity complaint and it is aimed at the wrong object.

Asset level disclosure tells an investor what is in the pool. It is valuable, and after the experience of 2007 there are good reasons to want it. But the question this paper asks is not what backs the security, it is who owns it, and those are governed by different regimes. Ownership visibility is a function of the **holder's** reporting obligation, not the **issuer's** registration status. A supervisor who wants to know where AI credit risk sits should regulate the holders, not the issuers, and the two policy conversations have been conflated.

#### 4.4 Latency is the second dimension

A disclosure regime that reveals everything a year late is not a disclosure regime, and the measurement of coverage alone conceals this. The exposure weighted latency of 149 days means that a supervisor asking today who holds AI infrastructure debt would receive, for the traceable two fifths, an answer describing the position five months ago.

The structure of the latency is worse than the average. The channels holding the largest traceable positions report least often. Life insurers, the largest single identifiable holder class in the perimeter, are visible annually at roughly eight months' remove, at a time when the composition of their bond portfolios is shifting toward private placements and structured credit <sup>[24]</sup>. The visibility that exists is concentrated in the parts of the market that move slowest.

This suggests a cheap and specific reform that the current debate does not contain: a quarterly rather than annual security level filing for the largest insurance general accounts would cut the perimeter's mean latency by more than the fund side reform of R4, at a fraction of the aggregate filing burden.

#### 4.5 Concentration is invisible by construction

The measurements in this paper are about **coverage**, not concentration, and the distinction has a sharp implication. Even at 40.6 per cent Tier 1 coverage, an analyst cannot compute the concentration of AI infrastructure credit risk, because concentration is a property of the whole distribution and a third of it is missing. If the untraceable third is held broadly, the market is more diversified than the visible part suggests. If it is held by a handful of large managers, it is far

less. Press reporting around the Hyperion financing suggests a single asset manager took a majority of a \$27.3 billion note <sup>[12]</sup>, which if representative implies concentration in exactly the segment that cannot be observed.

A holder register would resolve this. Nothing short of one will.

#### 4.6 What a holder register would require

The reforms priced in Section 3.7 are incremental. The alternative is a purpose built register, and the components already exist in fragments.

Three elements would be needed. A **common instrument identifier** applied at issuance and flagged for purpose, so that AI infrastructure debt can be aggregated across instrument classes without the definitional argument of Section 2.1. A **holder reporting obligation** that reaches private funds and separately managed accounts at position level, whether through publication of what Form PF already collects or through a new filing. And **instrument level cross border reporting**, which is the element with no current proposal behind it and the second largest gap in the measurement.

None of this requires new supervisory powers. Two of the three data collections exist and are confidential; the third exists and is aggregate.

#### 4.7 Limitations

Six limitations qualify the results.

*The perimeter boundary is a choice.* Excluding utility and transmission debt raised for data centre load, and the debt of semiconductor suppliers, keeps the definition defensible but understates the exposure an economist would call AI related. A broader perimeter would be larger and, because the excluded categories are mostly conventional corporate and municipal debt, probably more traceable.

*Four of six holder distributions are constructed rather than measured.* Only class C1 is taken from a statistical source. The remaining distributions rest on the structural features of each instrument and on institutional evidence, and although they are varied over a wide Dirichlet in Section 3.8 they are not observations.

*Applying aggregate ownership to a subset is an assumption.* The holder distribution of recently issued AI capital expenditure bonds may differ from the distribution of the corporate bond market as a whole, plausibly with a higher index fund share and a different foreign share. The foreign share is varied; the rest is not.

*Tier 1 is a statement about identifiability, not about assembly.* Establishing named holders for the traceable 40.6 per cent would require matching millions of filing lines across four reporting systems with inconsistent identifiers. The paper measures what is legally discoverable, not what any analyst has actually assembled, and the gap between the two is itself a form of opacity that we do not quantify.

*Latency parameters are typical rather than exact.* Filing deadlines are known but actual filing behaviour varies, and the values in Table 2 are the permitted maxima rather than observed medians.

*The measurement is a snapshot.* The perimeter is growing quickly and its composition is shifting toward private credit and project debt, both of which are less traceable than the corporate bond component. On present trends the untraceable share rises without any change in disclosure

policy, simply through mix.

## 5. Conclusion

United States senators, the Financial Stability Board and the Bank for International Settlements have each asserted during 2026 that the holders of AI infrastructure debt cannot be identified. This paper set out to test the assertion by construction rather than argument: define a perimeter, map the disclosure regimes, and count.

On a purpose linked perimeter of \$816 billion outstanding at 30 June 2026, named holders are identifiable from public filings for 40.6 per cent, holder sectors are identifiable for a further 25.1 per cent, and 34.4 per cent is untraceable. Opacity has a magnitude and the magnitude is approximately one third, robust across 4,000 draws to a range of roughly a quarter to two fifths.

Three findings bear on policy. The untraceable remainder is concentrated in private credit funds and separately managed accounts, which holds 64 per cent of it and where publishing what Form PF already collects would recover \$125 billion of perimeter, the largest single measure available. But a further 35 per cent of the untraceable total sits with foreign holders of ordinary registered corporate bonds, a gap that appears in none of the three official sector documents and that only instrument level cross border reporting would close. And extending securitisation disclosure to private placements, the reform most often proposed, would recover nothing, because registration exemptions withhold collateral detail rather than holder identity.

Finally, coverage is not the whole of the problem. What can be traced is on average 149 days old, and the channels holding the largest identifiable positions are the ones that report least often. A disclosure regime should be judged on when it reveals as well as on how much, and on the second criterion the current arrangement performs worse than the first alone would suggest.

The opacity claims that motivated this paper are neither vindicated nor refuted. They are, for the first time, measured.

## 6. Acknowledgements

To be completed.

## 7. Conflict of interest

The author declares no conflict of interest.

## 8. Data availability

The perimeter file, holder distributions, tier map, model code and output tables underlying Sections 2 and 3 are available from the author on request.

## 9. References

- Warren E, Blumenthal R, Van Hollen C, Smith T. Letter to the Financial Stability Oversight Council on the financial stability risks of AI-related debt. Washington (DC): United States Senate Committee on Banking, Housing, and Urban Affairs, Jan 22, 2026.
- Senate Committee on Banking, Housing, and Urban Affairs. Letter to the Securities and Exchange Commission and the Department of the Treasury regarding private credit, May 13, 2026.
- Financial Stability Oversight Council. Annual Report 2025. Washington (DC): FSO, Dec 2025.
- Financial Stability Board. Report on Vulnerabilities in Private Credit. Basel: FSB, May 6, 2026.
- Aldasoro I, *et al.* Financing the AI boom: Cash flows and debt. BIS Bulletin No 120. Basel: Bank for International Settlements, Jan 7, 2026.
- Bank for International Settlements. Annual Economic Report 2026. Basel: BIS, Jun 2026.
- Koijen RSJ, Yogo M. Understanding the ownership structure of corporate bonds. NBER Working Paper 29679. Cambridge (MA): National Bureau of Economic Research, Jan 2022.
- Koijen RSJ, Yogo M. A demand system approach to asset pricing. *J Polit Econ.* 2019; 127(4):1475-1515.
- Quartz. Tech hyperscalers are displacing banks as top US investment-grade bond issuers, May 2026.
- MLQ. Hyperscaler bond issuance reaches about \$220 billion as AI financing costs rise, Aug 10, 2026.
- Structured Finance Association. Research Corner: How data center ABS and CMBS fit in a broader financing ecosystem. Washington (DC): SFA, Jul 23, 2026.
- S&P Global Ratings. Beignet Investor LLC \$27.294 billion senior secured notes. New York (NY), Oct 2025.
- Federal Deposit Insurance Corporation. Bank lending to nondepository financial institutions. Washington (DC): FDIC, Feb 2026.
- Sidley Austin LLP. US SEC proposes to scale back 2024 Form N-PORT amendments, Mar 2026.
- Securities and Exchange Commission. Reporting enhancements for registered investment companies; Form N-PORT and Form N-CEN amendments. Release No. IC-35308. Washington (DC): SEC, Aug 28, 2024.
- National Association of Insurance Commissioners. Annual statement instructions, Schedule D Part 1 and Schedule BA. Kansas City (MO): NAIC, 2026.
- Board of Governors of the Federal Reserve System. Financial Accounts of the United States, Z.1, table L.213, corporate and foreign bonds, 2025 Q4. Washington (DC): Federal Reserve, Mar 19, 2026.
- Securities and Exchange Commission. Form PF: reporting form for investment advisers to private funds. Washington (DC): SEC, 2024.
- United States Department of the Treasury. Treasury International Capital system: annual survey of foreign portfolio holdings of US securities. Washington (DC): Treasury, 2026.
- With Intelligence. Private credit outlook 2026: Market faces first big test, 2026.
- Charles River Associates. Data center ABS: Risks, yields, and ratings, Dec 2025.
- Securities and Exchange Commission. Asset-Backed Securities Disclosure and Registration. Release No. 33-9638. Washington (DC): SEC, Sep 4, 2014.
- Meta Platforms, Inc. Meta announces joint venture with funds managed by Blue Owl Capital to develop Hyperion data center, Oct 21, 2025.
- AM Best. Best's Special Report: Bond shifts highlight evolving investment strategies among US life and annuity insurers, Jul 20, 2026.