Analyzer and Pattern Catalog

US Risk Assessment Tool · Current as of November 2026 (build v49.26)

This catalog lists every measure the tool computes and every combination it looks for. For each measure it gives what the measure is, when it adds risk, how many points it is worth in each sector, and where the data come from. For each combination it gives what the combination means, what has to be true for it to fire, and what it adds.

All measures are built from IPEDS, the federal data every US institution reports, except where noted. Finance data run through fiscal year 2024 (years ending in calendar 2024). Points are shown for public four-year institutions, private nonprofit institutions and community colleges.

Two rules apply throughout. A measure that cannot be computed for an institution leaves both the numerator and the denominator; it is never scored as zero risk. And for public institutions, balance-sheet measures are calculated with pension and retiree-health liabilities removed, so that they describe the institution rather than its state's pension funding.

Part 1. Measures that earn risk points

Market demand and student success

Brand Pipeline (Acceptance and Yield)

Admissions demand over time: applications, the share admitted, and the share of admitted students who enroll, compared with peers.

- **Risk rises when:** applications grow more slowly than peers', the entering class shrinks, or yield falls. For private institutions the measure scores applications, entering class and yield against peer medians; the admit rate is reported but not scored.
- **Maximum points:** public 10 · private 8 · not scored at community colleges, which are open admission.
- **Source:** IPEDS Admissions, from 2014.

Enrollment

Change in twelve-month full-time-equivalent (FTE) enrollment over the long run (2010–2024) and the most recent five years (2019–2024).

- **Risk rises when:** enrollment declines, and more so when the recent decline is steeper than the long-run trend. Doing worse than peers adds risk; doing better earns no credit.
- **Maximum points:** public 15 · private 18 · community college 15.
- **Source:** IPEDS 12-Month Enrollment and Fall Enrollment, 2010–2024.
- **Note:** Separate scoring ladders for publics, privates and community colleges.

Retention

The share of first-time students who return for a second year.

- **Risk rises when:** retention is low or has fallen materially.
- **Maximum points:** 6 in every sector.
- **Source:** IPEDS Fall Enrollment (retention), 2010–2024.

150% Graduation Rate

The share of first-time, full-time students who complete within 150% of normal time.

- **Risk rises when:** the rate is low or falling.

- **Maximum points:** 8 in every sector.
- **Source:** IPEDS Graduation Rates, 2010–2024.

Transfer-Out Rate

The share of first-time students who transfer to another institution before completing.

- **Risk rises when:** the rate is high or rising. A non-zero score is unusual; most institutions score zero.
- **Maximum points:** public 8 · private 8 · reported but not scored at community colleges, where transfer is often the intended outcome.
- **Source:** IPEDS Graduation Rates, 2010–2024.

Pell Grant Recipients

The share of undergraduates receiving Pell Grants, with the household-income profile of first-time students.

- **Risk rises when:** the Pell share is high: no points below 35% at publics or 25% at privates, with an add-on for position against peers.
- **Maximum points:** 4 in every sector.
- **Source:** IPEDS Student Financial Aid, latest year 2024.
- **Note:** This measures exposure to federal aid policy, not a judgment about students or mission.

Revenue dependence and pricing

Net Tuition per FTE

Tuition and fee revenue after institutional aid, per FTE student, against peers, with growth since 2010.

- **Risk rises when:** revenue per student is below the peer average or falling.
- **Maximum points:** 6 in every sector.
- **Source:** IPEDS Finance, fiscal 2010–2024.

Tuition Dependency

Tuition's share of core revenue, with position against peers and the trend.

- **Risk rises when:** the share is high or rising. Publics and community colleges treat roughly 45% as minimal and 65–75% as high; privates treat roughly 46% as minimal and 85% as high.
- **Maximum points:** public 8 · private 18 · community college 8.
- **Source:** IPEDS Finance, fiscal 2010–2024.

State Appropriations Dependency

State and local appropriations as a share of core revenue.

- **Risk rises when:** the share is high, which means greater exposure to state budget cycles and policy.
- **Maximum points:** public 15 · community college 15 · not applicable to privates.
- **Source:** IPEDS Finance, fiscal 2010–2024.

Institutional Aid

The share of first-time, full-time undergraduates receiving institutional grants, and the average grant.

- **Risk rises when:** coverage or average award is high or rising.
- **Maximum points:** public 6 · private 2 · not scored at community colleges.
- **Source:** IPEDS Student Financial Aid, 2010–11 to 2022–23.

- **Note:** This is not the discount rate. See First-Year Tuition Discount in Part 2.

Endowment Dependency

Endowment payout as a share of total revenue.

- **Risk rises when:** operations rely heavily on endowment payout, which is fragile because investment returns are volatile.
- **Maximum points:** private 6 · reported but not scored for publics and community colleges.
- **Source:** IPEDS Finance, fiscal 2021–2024.

Operating performance and cost structure

Adjusted Operating Margin

The operating result, combining a three-year average, the current year and the trend. For publics and community colleges it is the operating margin as reported. For privates it excludes investment return, includes the endowment spending distribution, and removes gifts to the permanent endowment.

- **Risk rises when:** the margin is low, negative or deteriorating.
- **Maximum points:** 8 in every sector.
- **Source:** IPEDS Finance, fiscal 2021–2024 for privates; 2010–2024 for others.
- **Note:** The gap between this margin and the structural margin is the endowment payout.

Structural Operating Margin

The operating margin with investment return removed from both revenue and the result. For privates, gifts to the permanent endowment are also removed. For a private institution this is the operating result before any endowment support.

- **Risk rises when:** the margin is low, negative or deteriorating. Cut-points are −3%, 0% and +2% in every sector. For privates, one further point is added when the adjusted margin is +2% or better while the structural margin is −2% or worse in two of the last three years, that is, when endowment payout is balancing operations.
- **Maximum points:** 8 in every sector.
- **Source:** IPEDS Finance, fiscal 2010–2024.

Return on Net Assets

The change in net assets relative to total net assets.

- **Risk rises when:** the return is low or negative; a persistently negative return implies a structural deficit.
- **Maximum points:** 10 in every sector.
- **Source:** IPEDS Finance, fiscal 2010–2024.

Salaries and Benefits per FTE

For privates: cost against price, meaning growth in salary and benefit cost per FTE against growth in net tuition per FTE, 2019–2024. For others: level and growth against peers.

- **Risk rises when:** for privates, costs grow faster than net tuition (from 1 point at a 2.5-point annual gap to 5 points at 8 points), plus 1 point where salaries per FTE are at least 1.3 times net tuition per FTE. For others, cost is high or growing faster than peers.
- **Maximum points:** 6 in every sector.
- **Source:** IPEDS Finance, fiscal 2010–2024.

Institutional Support

The share of spending on administration (institutional support).

- **Risk rises when:** the share is high.
- **Maximum points:** 6 in every sector.
- **Source:** IPEDS Finance, fiscal 2010–2024.

Student Support

The share of spending on student services.

- **Risk rises when:** the share is low (underinvestment) or extremely high (above 25% at publics, 30% at privates).
- **Maximum points:** 6 in every sector.
- **Source:** IPEDS Finance, fiscal 2010–2024.

Student-Facing Expenditure per FTE

Spending on instruction, academic support and student services per FTE, with growth.

- **Risk rises when:** spending is low or growing weakly against peers; very high spending can signal inefficiency.
- **Maximum points:** 6 in every sector.
- **Source:** IPEDS Finance, fiscal 2010–2024.

Student-to-Faculty Ratio

Students per faculty member, scored in absolute bands.

- **Risk rises when:** the ratio is very low (a cost signal) or very high (a quality signal).
- **Maximum points:** 2 in every sector.
- **Source:** IPEDS Fall Enrollment, 2024.

Research Support

How well government grants and contracts cover research spending, and how that coverage is moving against peers.

- **Risk rises when:** grant support grows more slowly than peers' or covers a falling share of research spending.
- **Maximum points:** public 8 · private 8 · scored only for doctoral research universities (Carnegie 15 and 16); not applicable elsewhere.
- **Source:** IPEDS Finance, fiscal 2010–2024.

Academic program breadth and sustainability

Program Distribution

How concentrated degree production is across programs, measured with an entropy index against peers.

- **Risk rises when:** degrees are over-concentrated in a few programs or spread across a long tail of small ones. Certificate concentration is reported but not scored.
- **Maximum points:** 6 in every sector.
- **Source:** IPEDS Completions, 2023.

Program Sustainability

Program scope and cost per credential against peer averages.

- **Risk rises when:** there are more undersubscribed programs, weaker completions, or higher cost per credential.
- **Maximum points:** 12 in every sector.
- **Source:** IPEDS Completions and Finance, 2023.

Liquidity and balance sheet

Primary Reserve Ratio

Spendable (expendable) net assets relative to total expenses: how long the institution could operate on reserves alone. Scored on the three-year average (7 points) and the trend (3 points).

- **Risk rises when:** reserves are low. Bands, every sector: below 15% earns 7 points; below 25%, 5; below 35%, 3; below 50%, 1; 50% or above, 0. A negative three-year average earns 7.
- **Maximum points:** 10 in every sector.
- **Source:** IPEDS Finance, fiscal 2010–2024.

Viability Ratio

Spendable net assets relative to long-term debt, on the three-year average, current position and current-year distress. Where restriction data exist, a stricter version using only unrestricted net assets is also computed and used if it scores worse.

- **Risk rises when:** the ratio is low. One scale for every sector: below 0.20 Critical, below 0.30 Weak, below 0.40 Fair, below 0.50 Good, 0.50 and above Excellent.
- **Maximum points:** 8 in every sector.
- **Source:** IPEDS Finance, fiscal 2019–2024.
- **Note:** This scale is more lenient than NACUBO guidance, where 1.0 is the usual adequacy threshold. The labels are the tool's, not NACUBO's.

Capitalization Ratio

The share of assets financed by net assets rather than debt. A stricter version using only unrestricted net assets is also computed and used if it scores worse.

- **Risk rises when:** the ratio is low or falling. Thresholds: 0.25 critical, 0.40 adequate, 0.60 excellent.
- **Maximum points:** 10 in every sector.
- **Source:** IPEDS Finance, fiscal 2010–2024.

Unrestricted Net Assets per FTE

The unrestricted cushion per student, scored as a percentile against peers on level and trend, with points for a run of negative years and for one-time aid.

- **Risk rises when:** the cushion is low in the peer distribution or falling against it.
- **Maximum points:** 5 in every sector.
- **Source:** IPEDS Finance, fiscal 2010–2024 (privates through fiscal 2023).
- **Note:** This is the one balance-sheet measure still scored against peers, because a dollar cushion per student has no defensible fixed threshold across very different institutions.

Net Asset Restriction Profile

The share of net assets that are donor-restricted and therefore unavailable for operations or debt service.

- **Risk rises when:** the restricted share is high or rising, meaning apparent wealth masks thin operating flexibility.
- **Maximum points:** private 6 · reported but not scored for publics and community colleges.

- **Source:** IPEDS Finance, fiscal 2010–2024.

Endowment per FTE

Endowment per student in absolute tiers; for privates, long-run growth is added.

- **Risk rises when:** endowment per student is low.
- **Maximum points:** public 6 · private 12 · not scored at community colleges.
- **Source:** IPEDS Finance, fiscal 2010–2024.

Endowment Draw Sustainability

Annual payout as a share of endowment value, on the three-year average.

- **Risk rises when:** the draw is high; rates well above 5% signal structural pressure.
- **Maximum points:** private 10 · reported but not scored for publics and community colleges.
- **Source:** IPEDS Finance, fiscal 2021–2024.

Leverage

Debt to Revenue

Long-term debt relative to revenue. The level of leverage is the main component, with debt growth and ratio growth as the remainder.

- **Risk rises when:** leverage is high or growing fast. Level bands on the three-year average: publics below 0.30 earn 0, below 0.60 earn 2, below 1.00 earn 4, otherwise 5; other sectors below 0.40 earn 0, below 0.75 earn 2, below 1.25 earn 5, otherwise 6. Growth is not scored where the starting ratio is below 0.10, because percent change off a near-zero base is meaningless.
- **Maximum points:** public 8 · private 10 · community college 10.
- **Source:** IPEDS Finance, fiscal 2010–2024.

Part 2. Measures reported for context (no points)

These are computed and printed in every report but earn no points and sit outside the denominator.

- **First-Year Tuition Discount.** Institutional grant aid to first-time, full-time undergraduates as a share of price, falls 2010–2023, against peers. For privates the price is published tuition and fees; for publics it is blended by the in-state share of first-time students. Not scored because, on its own, it did not separate institutions that closed or predict later net tuition decline. It is not the institution's own discount rate. It feeds one pattern (see Part 3).
- **Student Equity Profile.** Access and completion by student group in 2024, each against peers. Unscored deliberately and permanently: completion gaps are already priced through graduation and retention, and enrollment composition is not a condition that threatens an institution's ability to operate. Single year, so no trend.
- **Instructional Spending Share.** Unscored since October 2026. It awarded nearly the same points to almost every institution and bore no relationship to graduation, retention or financial results.
- **Operating Margin (as reported).** Kept as a reference figure. The adjusted and structural margins are the scored measures.
- **Net Revenue Ratio.** Unscored since August 2026; its source series duplicates the adjusted operating margin.
- **Federal Policy Exposure.** A profile of Pell, federal loan, international and graduate enrollment and federal grant reliance. Exposure to federal policy is not by itself evidence of financial weakness.

- **Sector-specific context.** Transfer-out, institutional aid and endowment per FTE at community colleges; restriction profile, endowment dependency and endowment draw outside the private sector, where reporting conventions and short data series do not yet support scoring.

Part 3. Combinations: archetypes, patterns and accelerators

The measures price weaknesses one at a time. The combinations price configurations that mean more together than apart. Archetypes describe a type of institution under stress; patterns describe a specific mechanism of deterioration; accelerators are broad conditions that intensify the rest; resilience credits reduce the score. Each report lists every combination, including the reason any that did not fire was not met.

Archetypes

Small Scale, High Dependency (A1)

A small institution heavily reliant on a single revenue source.

- **How it fires:** scale and dependency conditions met together.
- **Points:** +4
- **Applies to:** all sectors.

Leverage-Led Growth Bet (A2)

Debt-funded expansion not matched by revenue or demand growth.

- **How it fires:** leverage and growth conditions met together.
- **Points:** +4
- **Applies to:** all sectors.

Academic Sprawl (A3)

Program breadth outrunning the enrollment that supports it.

- **How it fires:** program distribution and sustainability conditions.
- **Points:** +1
- **Applies to:** all sectors.

Monoculture Dependency (A4)

Enrollment and revenue concentrated in a narrow set of programs.

- **How it fires:** a program concentration condition.
- **Points:** +1
- **Applies to:** all sectors.

High-Cost Architecture, Stalling Demand (A5)

A cost structure built for more demand than the institution now has.

- **How it fires:** cost and demand conditions together; for privates, a three-year operating margin of −5.3% or worse.
- **Points:** +3
- **Applies to:** all sectors.

Brand Weakening (A6)

Applications, admit rate and yield deteriorating together, with the weakness reaching enrollment.

- **How it fires:** admissions and enrollment conditions together. Common, so it is most telling alongside other flags.
- **Points:** +2
- **Applies to:** publics and privates.

High-Pell Mission Pressure (A7)

A high Pell share combined with thin margins and reserves.

- **How it fires:** Pell and financial-stress conditions together.
- **Points:** +3
- **Applies to:** publics and privates. Not scored at community colleges, where high Pell enrollment is the mission and is already priced by the Pell measure.

Brand-Strong, Margin-Thin (A8)

Strong demand alongside weak operating results.

- **How it fires:** admissions risk of 1 point or less, and either margin scoring 5 or more, or net tuition per FTE down since 2010.
- **Points:** +2
- **Applies to:** publics and privates.

The Squeezed Middle (A9)

A mid-market institution losing pricing power without the scale or brand to offset it.

- **How it fires:** demand and balance-sheet conditions while the institution is still coping (for privates, a three-year operating margin above −3.6%).
- **Points:** +2
- **Applies to:** all sectors.

Endowment-Masked Operating Deficit (A10)

An operating deficit absorbed by a heavy endowment draw against a largely restricted balance sheet.

- **How it fires:** all four together: structural margin 4 points or more, endowment draw 4 or more, endowment dependency 2 or more, and restriction profile 3 or more.
- **Points:** +6
- **Applies to:** privates.

Broad Balance-Sheet Failure (A12)

Weakness across several balance-sheet measures at once.

- **How it fires:** three or more Critical readings across at least two balance-sheet constructs.
- **Points:** +6
- **Applies to:** all sectors.

Critical-Mass Escalation (A13)

Four or more measures rated Critical across three or more domains.

- **How it fires:** the critical-mass condition. Priced at 4 since September 2026 as a judgment about what Critical should mean; it changes level, not ordering.
- **Points:** +4
- **Applies to:** all sectors.

Demand Collapse with Intact Reserves (A14)

Severe demand decline at an institution whose balance sheet still looks sound.

- **How it fires:** three or more demand measures failing while reserves remain intact.
- **Points:** +8
- **Applies to:** all sectors.

Resilience credits

Resilient by Scale and Diversification (R10)

Credit for scale combined with genuine revenue diversification.

- **How it fires:** enrollment at or above the peer median (or 10,000 or more) and no single revenue source above 50%.
- **Points:** −8
- **Applies to:** all sectors.

Brand-Strong Anchor (R12)

Credit for demand strength at scale.

- **How it fires:** strong admissions and scale; for privates, a three-year operating margin above −2.7%.
- **Points:** −6
- **Applies to:** all sectors.

A research-strength credit (R11) exists in the framework but is switched off pending a better measure of research strength.

Patterns

Price Pressure (P1)

Very high tuition dependence combined with weakening demand.

- **How it fires:** tuition dependence of 70% or more, and applications down 10% or more since 2014 or a severe enrollment decline. Two more points where applications are down 20% or five-year enrollment down 15%.
- **Points:** +4 (up to +6)
- **Applies to:** privates.

Discount Without Enrollment Response (P2)

The first-year discount rose sharply, the entering class did not respond, and net tuition per student is no better than peers'. A forecast of risk that has not yet arrived, not present distress.

- **How it fires:** discount up 8 points or more from fall 2019 to fall 2023, entering class not up, and net tuition per FTE at or below the peer average. One more point where the rise is 12 points or more, and one more where net tuition per FTE is at or below 80% of the peer average.
- **Points:** +4 (up to +6)
- **Applies to:** privates.

Appropriations Dependence with Enrollment Decline (P3)

Heavy state dependence alongside falling enrollment.

- **How it fires:** appropriations dependency of 40% or more (35% with a severity condition) and enrollment decline. Two more points where dependency is 50% or more or five-year enrollment is down 25%.
- **Points:** +10 (up to +12)
- **Applies to:** publics.

Net Tuition Erosion (P4)

Net tuition per FTE deteriorating against peers.

- **How it fires:** net tuition per FTE weak against peers.
- **Points:** +5 (+7 with a severity condition)
- **Applies to:** publics and privates.

Thin Unrestricted Cushion (P5)

Weak unrestricted net assets with a weak margin or low reserves.

- **How it fires:** weak unrestricted net assets plus a weak margin (for privates, −1.5% or worse) or low primary reserve.
- **Points:** +6 (up to +8)
- **Applies to:** publics and privates.

Brand Positioning (P7)

A large application decline paired with a high admit rate or low yield.

- **How it fires:** applications down 20% or more since 2014, and an admit rate of 85% or more or yield of 12% or less. Two more points at 90% admit or 10% yield.
- **Points:** +6 (up to +8)
- **Applies to:** publics and privates.

Market Position (P8)

Several concurrent market-position signals across acceptance, yield and applications.

- **How it fires:** multiple market signals together; 7 points where three or more are present.
- **Points:** +5 (up to +7)
- **Applies to:** publics and privates.

Endowment Drain (P9)

The endowment drawn faster than peers with a modest endowment per student.

- **How it fires:** a three-year draw above 5.5% and endowment per FTE below the peer median. Scores zero when the endowment-masked deficit archetype (A10) fires, so the same deficit is not counted twice; the report says whether it would have fired on its own.
- **Points:** +4
- **Applies to:** privates.

Accelerators

Financial Distress

Concurrent weakness across reserves, viability, unrestricted net assets, the operating margin and enrollment.

- **How it fires:** weakness across those measures together; for privates, a three-year operating margin of −2.7% or worse.

- **Points:** +12
- **Applies to:** all sectors.

Enrollment Cliff

Severe enrollment decline with loss of market share.

- **How it fires:** enrollment down 10% or more with market share down more than 10%, or enrollment down 30% or more.
- **Points:** +10
- **Applies to:** all sectors.

Operational Inefficiency

Several cost or delivery-weakness signals together, across administrative share, student services share, student-to-faculty ratio and retention.

- **How it fires:** two or more cost signals, or one cost signal with two delivery-weakness signals.
- **Points:** +3
- **Applies to:** all sectors.

Unscored flags

These are printed so a pattern can be counted before anything is priced. They add no points.

- **Endowment Carrying a Structural Deficit (U38).** A private institution with a Critical structural margin drawing more than 5.5% of its endowment, where neither A10 nor P9 fired. Printed with an endowment runway in years: arithmetic at fiscal 2024 levels, not a forecast.
- **Resilience Credit on a Structural Deficit (U39).** The scale-and-diversification credit held while the structural margin is −10% or worse, or while A10 or P9 fired. Usually a heavily endowed institution whose negative structural margin is by design.

Part 4. How the points combine

- **Measures.** Each scored measure earns points up to its maximum. The full framework maximum is 211 for public four-year institutions, 233 for privates and 175 for community colleges. An institution's own maximum is lower when a measure cannot be computed or does not apply.
- **Combinations.** Points from every archetype, pattern and accelerator that fires are summed, resilience credits are subtracted, and the total is capped at 50.
- **Severity.** Where several critical conditions coincide, the adjustment is the greater of a severity score (12, 16 or 20, depending on how many corroborating signals are present) and the combination total. It is never the sum of the two.
- **Numerator only.** Combination points add to the numerator and not the denominator. The composite is therefore a scale, not a share of a fixed risk budget.
- **Bands.** Low, 25% or below; Moderate, above 25% up to 44%; High, above 44% up to 68%; Critical, above 68%. The bands are a reporting convention laid over a continuous score, so reports always show the percentage beside the band.
- **Reading axes.** Reports also group the measures' own points into two axes, Market Position and Financial Condition, to show whether pressure sits mainly in demand, mainly in finances, or in both. The axes exclude the combinations and change nothing in the composite.