

Risk architecture Part 1. Scoring Logic for Individual Measures

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Series introduction

The risk architecture is built in three layers.

- 1) Layer 1. Risks points are calculated and assigned for each measure (maximum risk points per measure and assignment logic are defined in Risk Architecture Part 1. Scoring Logic for Individual Measures).
- 2) Layer 2. Risk points are calculated and assigned for measure combinations that are associated with financial trajectories, and that show up in an institution's data. Measure Combinations are subtly different and include:
 - a. **archetypes** - structural patterns that quietly shape an institution's long-term health. They're not fully captured by a single ratio, but rather by combinations of factors, such as revenue dependence, program mix, debt loads, or enrollment trends. So far, the research has identified nine archetypes that signal risk and three that signal resilience;
 - b. **patterns** - recur with some frequency across higher education segments, but not enough to be considered as archetypes. Think of them as emerging archetypes; and
 - c. **accelerators** - patterns that, if present in an organization's data profile, accelerate its financial decline. They include protracted enrollment decline, softness in two or more financial health ratios (e.g., primary reserves, viability, operating margins, etc.), and expenditure patterns suggestive of inefficient operations.

Max risk points per measure combination are defined in Risk Architecture Part 2. Scoring Logic for Archetypes, Patterns, and Accelerators

- 3) Layer 3. Overall risk level assignment (low, medium, high, critical) is based on a percent value calculated as the total risk points assigned to an institution / total available (maximum) risk points. Thresholds are defined in the risk scoring engine.js (analyzer), and are currently set as follows:

Assignment	Range
Low	0-25%
Moderate	26-48%
High	49-68%
Critical	>68%

This file provides details about Layer 1.

Analyzers are listed in alphabetical order.

150% Graduation Rate — Risk Scoring Map (max 8 pts)

This measure tracks the share of first-time, full-time students who complete a degree within 150% of normal time (e.g., six years for a four-year program). It focuses on completion adequacy and trajectory, not peer-relative standing.

A low graduation rate signals weak student throughput, which erodes tuition revenue, damages brand, and attracts regulatory scrutiny. However, low rates that are actively improving represent a different risk profile than low rates that are stagnant or declining.

In short: A completion-adequacy indicator with a built-in recovery gate.

Conditional Gate

Risk points are assigned **only** when both conditions are met:

- Graduation rate is below 30%, **AND**
- The trend is not improving (i.e., stable or decreasing)

If either condition fails — the rate is 30% or above, or the rate is below 30% but trending upward — the score is **0**. This prevents penalizing institutions that are successfully turning around weak completion performance.

Components

1. Current Rate (0–5 pts) — only scored when the gate is triggered

Graduation Rate Points Assessment

< 15%	+5	Critical completion failure
15–< 20%	+4	Severe completion weakness
20–< 25%	+3	Significant completion risk
25–< 30%	+2	Below adequacy threshold
≥ 30%	0	Gate not triggered

2. Trend Component (0–3 pts) — only scored when the gate is triggered **and** trend is decreasing

Trend (2010–2024) Points Assessment

Decreased > 25%	+3	Critical deterioration
Decreased 10–25%	+2	Concerning decline
Minor decrease	+1	Modest erosion
Stable	0	No additional trend penalty
Increasing	—	Gate not triggered; total score = 0

Total capped at 8.

Risk Level Thresholds

Level	Points
Low	0–2

Level Points

Moderate 3–5

High 6–8

Peer Context

Peer benchmarking is displayed in the narrative for interpretive context but does not affect scoring. Risk points are determined entirely by absolute rate and trend.

Applicability

Scored for Public (sector 1) and Private (sector 2). Excluded for Community Colleges (sector 4), which use Transfer Out Rate as their primary student-flow measure.

Academic Programs Sustainability — Risk Scoring Map (max 12 pts)

Structure

- Scale risk (grads per program): up to +6 (quartile logic)
- Cost risk (student-facing exp. per degree): up to +4 (quartile logic)
- Combo bonus: +2 when both scale & cost risks present
- Total capped at 12

Scale risk (grads per program; lower is riskier)

- Institution \leq peer 25th percentile \rightarrow +3 (and may accumulate up to +6 when multiple scale flags fire)

Cost risk (SFE per degree; higher is riskier)

- Institution \geq peer 75th percentile \rightarrow +4

Combo bonus

- If any scale risk > 0 and cost risk $> 0 \rightarrow$ +2

Peer-relative micro-rules used inside the measure helpers

- Enrollment measures (e.g., grads per program): ratio to peer avg $< 0.8 \rightarrow$ +2; $0.8\text{--}<1.0 \rightarrow$ +1; $\geq 1.0 \rightarrow \leq +0.5$
- Cost measures (e.g., SFE per degree): ratio to peer avg $> 1.2 \rightarrow$ +2; $1.0\text{--}\leq 1.2 \rightarrow$ +1; $\leq 1.0 \rightarrow \leq +0.5$
(These helper thresholds determine sub-points that feed the quartile/accumulation logic.)

Acceptance & Yield — Risk Scoring Map (max = sector-dependent: Public = 10 pts, Private = 8 pts)

This is a brand-strength *trend* indicator, not a prestige indicator. It does not measure raw selectivity. Instead it measures brand trajectory relative to peers, using:

- Application momentum
- Selectivity change direction, not level
- Yield movement, not level

Components (as implemented)

Factor	Weight (proportion of max points)	Metric
Applications trend vs peers	40% of total points	Change in applications over ~10 years
Acceptance rate trend vs peers	30% of total points	Direction & magnitude of selectivity change
Yield rate trend vs peers	30% of total points	Change in student conversion / attractiveness

Peer comparison is relative to mean change among the peer group, not absolute values.

1. Applications Trend Scoring (40% of total)

Scoring thresholds

Condition (institution vs peers) Points Awarded

≥ 15% <i>below</i> peers	full 40% of max
8–14.9% below peers	~75% of 40%
3–7.9% below peers	~50% of 40%
0–2.9% below peers	~25% of 40%
≥ peer mean	0

The code includes an absolute fallback for applications when peers are unavailable: decline >30% = full points, 10–30% = 50%, <10% decline = 25%.

Absolute change in applications 2014→2024 Points

< -30%	full 40% of max
-10% to -29.9%	~50% of 40%
-0.1% to -9.9%	~25% of 40%
≥ 0%	0

2. Acceptance Rate Trend Scoring (30% of total)

Acceptance rate change vs peers Points

≥ 15% <i>more increase</i> than peers	full 30%
8–14.9% more increase	~67% of 30%
3–7.9% more increase	~33% of 30%

Acceptance rate change vs peers Points

Less increase than peers 0

3. Yield Rate Trend Scoring (30% of total)

Yield change vs peers Points

≥ 15% worse than peers full 30%

8–14.9% worse ~67% of 30%

3–7.9% worse ~33% of 30%

Same or better than peers 0

Total Risk Score

clamped at 10 for publics, 8 for privates

Risk Level

% of max points Risk Level

≥ 75% High

≥ 50% Moderate

25–49% Low–Moderate

<25% Low

Adjusted Operating Margin (AOM) — Risk Scoring Map (max 8 pts)

This measure assesses an institution's ability to sustain operations using recurring income — that is, income from tuition, fees, state appropriations, and other core activities, *excluding* one-time gains or losses and investment income.

It shows whether an institution can cover its ongoing expenses from its ongoing revenues.
In short: A measure of structural operating health, not short-term profit or loss.

Components

- 3-yr rolling avg (sector-aware) up to 5
- Peer quartile up to 2
- Current-year distress (sector-aware) up to 5
- Trend deterioration up to 2

- OM–AOM divergence kicker +1
- Final clamped to 8

Public cut-points (illustrative from code)

- 3-yr avg: < -2% = +5, -2 to <0 = +4, 0–<2 = +2, 2–<4 = +1, ≥4 = 0
- Current year: < -10% = +5, -10–<-5 = +4, -5–<-2 = +3, -2–<0 = +2, 0–<2 = +1, ≥2 = 0

Private cut-points

- 3-yr avg: < -15% = +5, -15–<-10 = +4, -10–<-5 = +3, -5–<0 = +2, 0–<3 = +1, ≥3 = 0
- Current year: < -20% = +5, -20–<-15 = +4, -15–<-10 = +3, -10–<-5 = +2, -5–<0 = +1, ≥0 = 0

Peer quartile: bottom = +2; below median = +1; ≥ median = 0

Trend: change rate < -2%/yr = +2; -2 to < -1%/yr = +1

Appropriations Dependency — Risk Scoring Map (Max 15 pts)

This measure evaluates exposure to state funding volatility by measuring the share of core revenue derived from state appropriations. Higher dependency means greater vulnerability to legislative budget cycles, political shifts, and state fiscal crises.

In short: A measure of revenue concentration risk tied to state funding.

The analyzer uses absolute dependency percentages, not peer-relative percentiles; trend direction, not volatility bands; and treats public universities and community colleges identically. It does not scale scoring to Carnegie type, enrollment size, or mission.

Applicability

Public Universities (sector 1) and Community Colleges (sector 4): scored, max 15 pts. Private institutions: Not Applicable (0 pts).

Components

Component	Max pts	Basis
Current dependency level	0–10	Absolute dependency % (2024)
Dependency trend	0–5	Annualized change, 2010–2024
Cap	15	

Factor 1: Current Dependency Level (0–10 pts)

Dependency = % of core revenue from state appropriations.

Dependency % (2024) Points Interpretation

≤20% 0 Highly diversified revenue base

Dependency % (2024) Points Interpretation

20–30%	3	Mild reliance
30–50%	5	Material reliance
50–<70%	7	High reliance
≥70%	10	Very high exposure to state volatility

Factor 2: Dependency Trend (0–5 pts)

Annualized percentage change from 2010 → 2024.

Trend	Points
Improving (decreasing >2%/yr)	0
Stable (-2 to +2%/yr inclusive)	2
Moderate increase (>2 to ≤5%/yr)	4
Concerning (>5%/yr)	5

Total capped at 15.

Risk Level

% of Max Risk Level

≤10%	Minimal
10–25%	Limited
25–50%	Moderate
50–75%	High
>75%	Critical

Peer Context

Peer benchmarking is performed but does not change scoring. It appears only in narrative text (e.g., "above peer average = higher exposure").

Capitalization Ratio — Risk Scoring Map (max 10 pts)

Meaning: expendable net assets ÷ total assets (balance-sheet strength)

This measure evaluates balance sheet strength — the share of total assets that are financed with equity rather than debt. It reflects the institution's long-term solvency and its ability to withstand external shocks without excessive borrowing. In short: A gauge of how much of the university is owned, not owed.

Status thresholds

- critical < 0.25

- concerning 0.25–<0.40
- adequate 0.40–<0.60
- excellent ≥ 0.60

Points

- Factor 1: Current value (20% → 2 pts): critical +2; concerning +1.5; adequate +0.5
- Factor 2: 3-yr rolling average (40% → 4 pts): critical +4; concerning +3; adequate +1; excellent 0
- Factor 3: Trend direction (20% → 2 pts): declining +2; stable +0.5; improving 0
- Factor 4: Volatility (10% → 1 pt): $>0.15 \rightarrow +1$; $0.10\text{--}0.15 \rightarrow +0.5$
- Factor 5: Peer percentile (10% → 1 pt): bottom quartile +1; below median +0.5

Composite Financial Index (CFI) — Risk Scoring Map (max 10 pts)

This is a summary indicator of overall financial health prepared by the Department of Education. It combines several core ratios (operating results, viability, reserves, and return on net assets) into a single standardized score. CFI provides a quick, directional view of whether financial performance is improving or deteriorating over time.

In short: A composite “vital signs” score for institutional finance. Status thresholds (CFI score)

- < 0.0 severe distress
- $0.0\text{--}<1.5$ stress
- $1.5\text{--}<3.0$ adequate/monitor
- ≥ 3.0 strong

Points

- Current level / 3-yr avg if available (60% → 6 pts):
 $<0.0 +6$; $<1.5 +4$; $<3.0 +2$; $\geq 3.0 0$
- Long-term change (40% → 4 pts):
decline $< -0.8 +4$; $< -0.4 +2$; improving/stable 0
- Peer quartiles are recorded as narrative (informational), not points.
Clamp to 10. (Sector-neutral thresholds.)

Debt to Revenue — Risk Scoring Map

Measures

- Long-term growth in total debt (2010 → 2024)
- Long-term growth in debt-to-operating-revenue ratio
- Sector-aware maximum scoring:

- Publics: max 8 pts
- Privates: max 10 pts

Component	Public Max Private Max Interpretation		
	Public	Private	Interpretation
Debt Growth % (2010–24)	0–4 pts	0–5 pts	Rising debt load
Debt-to-Revenue Ratio Growth % (2010–24)	0–4 pts	0–5 pts	Declining debt-service capacity

Debt Growth – Thresholds

Growth %	Public Points (max 4)	Private Points (max 5)
≤ 0% (debt declined)	0	0
0–20% (pub) / 0–15% (priv)	~20% of max	~20% of max
20–40% (pub) / 15–30% (priv)	~40% of max	~40% of max
40–80% (pub) / 30–60% (priv)	~70% of max	~70% of max
> 80% (pub) / > 60% (priv)	max points	max points

Debt-to-Revenue Ratio Growth – Thresholds

Growth %	Public Points (max 4)	Private Points (max 5)
≤ 0% (ratio improves)	0	0
0–8% (pub) / 0–5% (priv)	~20% of max	~20% of max
8–20% (pub) / 5–15% (priv)	~40% of max	~40% of max
20–40% (pub) / 15–30% (priv)	~70% of max	~70%
> 40% (pub) / > 30% (priv)	max points	max points

Total Score → Risk Level

Public Score (0–8) Private Score (0–10) Risk Level

≤25% of max	Low
25–50% of max	Moderate
50–75% of max	High
>75% of max	Critical

Note: The code uses: excellent (debt decreased) = 0; ≤good = ceil(max×0.2); ≤moderate = ceil(max×0.4); ≤poor = ceil(max×0.7); >poor = max. For public: debt growth thresholds are 0/20/40/80; ratio growth

0/8/20/40. For private: debt growth 0/15/30/60; ratio growth 0/5/15/30. Consider adding these if the tables were meant to contain them.

Endowment per FTE — Risk Scoring Map (Private max 12 pts; Public = informational only)

This measure evaluates endowment adequacy and growth trajectory. It combines per-student endowment levels with total endowment growth relative to an inflation benchmark, and adjusts both for peer standing.

For **public universities**, the analyzer runs and produces benchmarking data but assigns **zero risk points**. The analyzer returns zero risk points and zero max points for publics, excluding the measure from both scoring and the denominator. Endowment levels at public institutions reflect state funding models, not institutional financial weakness.

For **private universities**, endowment is a significant financial resilience indicator and is scored up to 12 points.

In short: A measure of financial cushion and asset stewardship, scored for privates only.

Components

Factor 1: Per-FTE endowment level (60% of max → up to 7 pts for privates)

Private thresholds (per-FTE value):

- <\$10,000 → full base points (7)
- \$10,000–<\$50,000 → 75% of base (5)
- \$50,000–<\$100,000 → 50% of base (4)
- \$100,000–<\$200,000 → 25% of base (2)
- ≥\$200,000 → 0

Peer adjustment add-on (up to 15% of max → ~2 pts):

- Bottom quartile → +2
- Below median → +1

Factor 2: Total endowment growth, 2010–2024 (40% of max → up to 5 pts for privates)

Inflation benchmark: 45% cumulative growth (2010–2024) maintains purchasing power.

- Negative growth → full base points (5)
- <22.5% growth (below 50% of benchmark) → 80% of base (4)
- 22.5–<33.75% (below 75% of benchmark) → 50% of base (2)
- 33.75–<45% (below benchmark) → 25% of base (1)
- ≥45% (meets benchmark) → 0

Peer adjustment add-on (up to 10% of max → ~1 pt):

- Bottom quartile → +1

- Below median → +1 (rounded from 0.5)

Total capped at 12 (private) or 0 (public).

Applicability

- Private (sector 2): Scored, max 12 pts
- Public (sector 1): Informational only (0 pts scored; excluded from denominator)
- Community College (sector 4): Not included in engine framework

Enrollment — Risk Scoring Map (max sector-dependent: Public = 15, Private = 18, CC = 12)

This measure tracks student demand and market position over time.

It focuses on the trend (long- and short-term) and the institution's performance relative to peers, not its absolute size. Declining or underperforming enrollment signals weakening demand and future revenue stress.

In short: A market-demand indicator, not a scale measure.

Components

- Long-term vs peers (10y): 0–5 pts
- Short-term vs peers (5y): 0–3 pts
- Fallback (no peer data): absolute 10y trend 0–4 pts
- Missing long-term data: +3 pts penalty

Peer-relative thresholds (how much worse than peer avg.)

- ≥ 30% worse → +5 (LT) / +3 (ST)
- 15–29% worse → +4 (LT) / +2 (ST)
- 5–14% worse → +3 (LT) / +1 (ST)
- 0–4.9% worse → +2 (LT only)
- Up to 10% better → +1 (LT only)
- ≥10% better → 0

Absolute fallback (10y change)

- ≤ -20% → +4
- -10% to -19.9% → +3
- -5% to -9.9% → +2
- -0.1% to -4.9% → +1
- ≥ 0% → 0

Note on bonuses:

- **Two-down-years combo rule (+3 pts):** If both long-term AND short-term show declines of 3%+ each, add 3 momentum-risk points.
- **Severe absolute decline bonus:** If total change $\leq -20\%$, add +5 pts; if $\leq -10\%$, add +3 pts. These are **in addition to** the peer-relative scoring.

These bonuses explain how the analyzer can reach 18 pts.

Max points are sector-dependent: Public = 15, Private = 18, CC = 12. The analyzer is the sole source of truth for these values.

Risk Level Thresholds

Low	≤ 4
Moderate	5–8
High	9–12
Critical	> 12

Grant Funding (Institutional Grants as % of Tuition) — Risk Scoring Map (Public max 6 pts; Private max 2 pts)

This measure examines institutional grant coverage — the share of tuition revenue returned to students through institutional grants and scholarships. High grant coverage relative to peers signals unsustainable revenue discounting that erodes operating income to maintain enrollment.

In short: A measure of pricing sustainability and revenue discounting risk.

Components

Factor 1: Current grant coverage vs peers (0–5 pts with peer data)

Peer-relative thresholds (% above peer average):

- $\geq 40\%$ above peers \rightarrow +5 (critical)
- 25–<40% above peers \rightarrow +3 (high)
- 15–<25% above peers \rightarrow +2 (moderate)
- Within $\pm 10\%$ of peers \rightarrow +1 (near peer)
- 10% below peers \rightarrow 0

Absolute fallback (if peer data unavailable):

- 85% coverage \rightarrow +4
- 75–85% \rightarrow +3
- 65–75% \rightarrow +2
- $\leq 65\%$ \rightarrow +1

Missing data penalty: +3 if grant coverage data is entirely unavailable.

Factor 2: Grant coverage trend (0–3 pts)

Annual change in grant coverage percentage points:

- 5 pp/year increase → +3 (unsustainable)
- 2–5 pp/year increase → +2 (concerning)
- -2 to ≤2 pp/year → +1 (modest growth)
- ≤-2 pp/year (decreasing) → 0

Missing trend data: +1

Total capped at sector max.

Risk Level

- Low: 0–33% of max
- Moderate: 34–67% of max
- High: 68–99% of max
- Critical: 100% of max

Applicability

- Public (sector 1): max 6 pts
- Private (sector 2): max 2 pts
- Community College (sector 4): excluded (0 pts in engine)

Institutional Support (Administrative) Expenditure *Share* — Risk Scoring Map (max 6 pts)

(Share of total core operating expenses.)

This measure captures the portion of total spending dedicated to institutional overheads. It looks at relative administrative cost burden, not staffing quality or service effectiveness.

A growing share signals potential inefficiency and erosion of the academic core. It is also a product of declining enrollment and/or net revenue per fte and/or appropriations.

Components

- Peer-relative cost level (0–5 pts)
- Trend (0–1 pt)

Peer-Relative Thresholds (Cost per FTE vs Peer Median)

Cost per FTE Relative to Peers Points

≤ Peer median 0

Cost per FTE Relative to Peers Points

1–10% higher	+1
10–20% higher	+2
20–30% higher	+3
30–40% higher	+4
>40% higher	+5

Trend Component (5-year real-dollar change)

Condition Points

Stable or decreasing 0

Increasing >10% +1

Notes

- No sector-aware scoring differences.
- If peer data unavailable → fallback to sector-standard quartile bands.
- Cap at 6 points.

Instructional Expenditure *Share* — Risk Scoring Map (max 6 pts)

(“How much of the operating budget goes to instruction.”)

This measure captures the portion of total spending dedicated to direct instruction — faculty salaries, instructional technology, academic departments, and classroom activities.

A declining share signals a potential erosion of the academic core.

In short: A measure of academic investment intensity.

Components

- Peer-relative percentile / deviation (0–4 pts)
- Trend direction (0–2 pts)

Peer-Relative Thresholds (Share vs. total core spending)

Relative to Peer Median	Points
≥ Peer median + 2+ percentage points	0 (normal / appropriately instructional)
Within ±2 percentage points of peer median	+1
2–5 percentage points <i>below</i> peers	+2
5–8 percentage points below	+3

Relative to Peer Median	Points
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> 8 percentage points below peers	+4
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Trend Component (5-year trend in instructional share)

Direction	Points
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Increasing or stable	0
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Decreasing 0.5–1.5 pp over 5 yrs	+1
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Decreasing >1.5 pp over 5 yrs	+2
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Notes

- If peer group < 20 institutions, fallback to absolute share:
 - ≥45% of total expense → 0
 - 40–44.9% → +1
 - 35–39.9% → +2
 - 30–34.9% → +3
 - <30% → +4
- Cap total at 6 points.

Net Income Ratio — Risk Scoring Map (max 10 pts)

Measures: Operating sustainability (annual surplus/deficit) based on:

- Current-year net income ratio
- Recent 3-year rolling average
- Long-term trend (start→end of series)
- Volatility (stability of earnings over time)
- Peer percentile position

Components (weights = implemented in code)

Component	Weight Raw Points Before Clamping	
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Current-year ratio	20%	0–2 pts
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3-year rolling average	40%	0–4 pts
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Trend (2010→2024)	20%	0–2 pts
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Volatility (std deviation)	10%	0–1 pt
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Peer quartile adjustment	10%	0–1 pt
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Total maximum = 10 points (clamped).

Status Thresholds Used in All Components

Net Income Ratio Level Status Code Meaning

< -5%	critical	Persistent annual operating deficit
-5% to < 0%	concerning	Near-breakeven / weak surplus
0% to < 3%	adequate	Small positive operating margin
≥ 3%	excellent	Strong and sustainable margin

1. Current-Year Ratio (max ~2 pts)

Status	Points
critical (<-5%)	+2
concerning (-5 to <0%)	+1.5
adequate (0-<3%)	+0.25
excellent (≥3%)	0

2. 3-Year Rolling Average (max ~4 pts)

Status Points

For 4-year institutions (public and private), this measure is informational only — the analyzer returns 0/0 risk points with a risk level of "Informational," excluding the measure from both scoring and the denominator. The Adjusted Operating Margin handles scored risk assessment for these sectors.

For **community colleges**, this is the **primary operating performance measure** because AOM data is generally unavailable for public CCs.

In short: The scored operating health indicator for community colleges; a display-only companion to AOM for four-year institutions.

Components (Community College scoring, max 12 pts)

Factor 1: 3-year rolling average (up to 6 pts)

- <-15% → +6
- -15 to <-10% → +5
- -10 to <-5% → +4
- -5 to <0% → +3

- 0 to <2% → +2
- 2 to <4% → +1
- ≥4% → 0

Factor 2: Peer comparison (up to 2 pts)

- Bottom quartile → +2
- Below median → +1
- ≥ Median → 0

Factor 3: Current-year distress (up to 4 pts)

- <-15% → +4
- -15 to <-10% → +3
- -10 to <-5% → +2
- -5 to <0% → +2
- 0 to <2% → +1
- ≥2% → 0

Factor 4: Trend deterioration (up to 2 pts)

- Declining >2%/yr → +2
- Declining 1–2%/yr → +1
- Stable/improving → 0

Total clamped at 12.

Applicability

- Community College (sector 4): Scored, max 12 pts
- Public 4-year (sector 1): Informational only
- Private (sector 2): Informational only

Pell Dependency — Risk Scoring Map (max 4 pts)

Measures

- The share of students receiving Pell Grants (proxy for income mix & exposure to federal aid policy)
- Peer-relative standing (percentile among similar institutions)
- Higher Pell % = higher policy-risk in current scoring logic, and greater pressure on retention strategies as means of revenue retention
(*this is not a value judgment about mission*)

Components

Component Points How It Works

Overall Pell Dependency 0–2 pts Based on % of Pell recipients at the institution

Peer Position / Percentile 0–2 pts Based on how Pell % compares to peers in same sector & Carnegie

Sector-Aware Thresholds (from code)

Sector 0 pts (Low Exposure) 1 pt (Moderate Exposure) 2 pts (High Exposure)

Public < 35% Pell 35–50% > 50%

Private < 25% Pell 25–40% > 40%

Peer Comparison Logic

Percentile Position Points Meaning

Bottom quartile (≤25th) +2 High relative dependency vs peers

Below median (26–50th) +1 Moderate

Above median (>50th) 0 Low relative risk

Overall Pell level (0–2 pts):

- Public: ≥50% → 2 pts; 35–50% → 1 pt; <35% → 0
- Private: ≥40% → 2 pts; 25–40% → 1 pt; <25% → 0

Peer comparison (0–2 pts):

- Bottom quartile (≤25th percentile) → 2 pts
- Below median (25th–50th percentile) → 1 pt
- Above median → 0

Total Score → Risk Level

Total Points (0–4) Level

0 Low

1–2 Moderate

3 High

4 Critical

Primary Reserve Ratio — Risk Scoring Map (max 10 pts)

Meaning: expendable net assets / total expenses (liquidity runway).

This measure assesses liquidity and financial flexibility — how long an institution could operate using expendable reserves if no new revenues came in. It converts expendable net assets into months of operating capacity.

In short: A “cash-on-hand” indicator.

3-yr rolling avg (up to 7 pts)

- < 15% → +7
- 15–<25% → +5
- 25–<35% → +3
- 35–<50% → +1
- ≥ 50% → 0

Trend (up to 3 pts)

- Declining < -5%/yr → +3
- Declining -2 to -5%/yr → +2
- Minor decline → +1
- Stable/improving → 0

Risk level bands (informational): ≥7 High; 4–6 Moderate. (Sector-neutral; peers used only for context in report.)

Program Distribution (Portfolio Balance Index) — Risk Scoring Map (max 8 pts)

This measure evaluates the breadth and concentration of academic programs across degree levels and disciplines.

It detects both monoculture risk (too much concentration in one area) and sprawl risk (too many small, under-enrolled programs).

In short: A measure of academic portfolio balance. Metric & Rule of Thumb

- Portfolio Balance Index (PBI) = $z(\text{Top-5 share}) - z(\text{Concentration Stability Index})$
- Score on the worst absolute PBI across award levels; then apply peer-gap add-on.

Base points (by |PBI|)

- ≥ 0.18 → +6
- 0.10–0.18 → +3
- < 0.10 → +0

Peer-gap add-on

- $|\text{institution PBI} - \text{peer median PBI}| \geq 0.20 \rightarrow +2$
- Total capped at 8

Sector support

- Works for Public (1), Private (2), Community College (4).

Research Expenditure — Risk Scoring Map (max 6 pts) – not currently implemented

Components

- Current level (share of total spend): 0–6 pts
- Trend since 2010 (total change in %-pts): 0–2 pts
- Inefficiency check (too high a share): +2 pts (included in total; still capped at 6)

Public cut-points (current level)

- >15% → +0
- 8–15% → +1
- 4–8% → +3
- 2–4% → +5
- <1% → +6
- Inefficiency add-on: ≥35% → +2 (cap still 6)

Private cut-points (current level)

- >12% → +0
- 6–12% → +1
- 3–6% → +3
- 1–3% → +5
- <0.5% → +6
- Inefficiency add-on: ≥40% → +2 (cap still 6)

Trend (2010→2024, research share)

- < -2 %-pts → +2
- < 0 to ≥ -2 → +1
- ≥ 0 → +0

Applicability

- Only scored for Carnegie 15–20 (research & master's). Otherwise returns “Not Applicable.”

Research Grants & Contracts vs Research Expenditures — Risk Scoring Map (max 8 pts)

This measure examines the volume and trajectory of externally funded research activity, particularly the share supported by government grants and contracts. It signals both the institution's research competitiveness and its exposure to changes in federal and state funding.

In short: A measure of research vitality and funding dependence.

Components (peer-relative CAGR vs peers, 2010–2024)

- Research Expenditure CAGR gap: 0–3 pts
- Government Grants & Contracts CAGR gap: 0–3 pts
- Gov Grants as % of Research CAGR gap: 0–2 pts

CAGR gap to points (applies to each component)

- Gap ≥ -1 pp (i.e., within 1% of peer CAGR or better) \rightarrow full points for that component
- Gap ≥ -3 pp and < -1 pp \rightarrow half of that component's max
- Gap < -3 pp $\rightarrow 0$

Applicability & peers

- Research-university filter by Carnegie (defaults to 15/16/17). Uses standardized peer filtering when available; falls back to legacy filtering.

Retention — Risk Scoring Map (max 6 pts)

This measure tracks first-year retention — the share of first-time students who return for a second year. It is level-based, not peer-based: the retention rate itself is the primary indicator, with a trend penalty only when retention has dropped meaningfully.

It does not currently differentiate by selectivity, adjust scoring by student mix (Pell, adult learners, part-time), use peer-relative percentile scoring, or detect stability at low levels.

In short: An absolute-threshold retention indicator with a conditional gate.

Conditional Gate

Risk points are assigned only if **either** condition is met:

- Current retention rate is below 65%, **OR**
- Total decline since 2010 exceeds 5 percentage points

If neither condition is met, the score is 0.

Components

Component	Max pts	Notes
Current retention level	0–4	Universal thresholds (not sector-differentiated)
Long-term trend (2010 \rightarrow 2024)	0–2	Only declines exceeding 5 pp incur points
Cap	6	Hard-coded clamp

1. Current Rate (0–4 pts, universal — only scored when gate is triggered)

Retention Rate Points

$< 50\%$	+4
50– $< 55\%$	+3
55– $< 60\%$	+2
60– $< 65\%$	+1
$\geq 65\%$	0 (rate alone does not trigger gate)

2. Trend (0–2 pts — only scored when gate is triggered)

Decline since 2010 Points

> 10 percentage points +2

5–10 percentage points +1

< 5 percentage points 0

Total capped at 6.

Peer Context

Peer benchmarking is displayed in the narrative but does not affect scoring. Retention risk points do not change based on peer averages or percentiles. Peer analysis is used only for rankings, narrative comparison lines, and report interpretation language.

Risk Level Mapping

Total Points Risk Level

0–2 Low

3–5 Moderate

6 High

Design Note

The constructor defines sector-specific thresholds (Public: 85/75/65/60; Private: 90/80/70/65) that are not currently used in the scoring method. These could support a future enhancement that differentiates expectations by sector.

Return on Net Assets (RONA) — Risk Scoring Map (max 10 pts)

This measure assesses the change in total net assets over time, capturing the relationship between surplus generation and asset growth. It shows whether the institution is building or depleting its net worth.

In short: A profitability trend measure for the balance sheet.

Status thresholds

- critical < -5%
- concerning -5% to < 0%
- adequate 0% to < 3%
- excellent ≥ 3%

Points (mirrors Net Income structure)

- Current value (2 pts): critical +2; concerning +1.5; adequate +0.5
- 3-yr rolling avg (4 pts): critical +4; concerning +3; adequate +1
- Trend (2 pts): declining +2; stable +0.5

- Volatility (1 pt): >5% +1; 3–5% +0.5
- Peer percentile (1 pt): bottom quartile +1; < median +0.5
Clamp to 10. (Sector-neutral thresholds.)

Salaries & Benefits per FTE — Risk Scoring Map (max 6 pts)

This measure tracks personnel cost intensity — how much an institution spends per student FTE on salaries and benefits. It reflects both compensation competitiveness and cost discipline.

In short: A measure of human-capital cost structure.

Components

- Peer-relative compensation cost per FTE (0–5 pts)
- 5-year trend in real-dollar cost (0–1 pt)

Peer-Relative Thresholds (Cost per FTE vs. peer median)
(Same for publics, privates, and CCs — sectors only change peer set)

Cost per FTE relative to peer median Points

≤ Peer median	0
1–10% higher	+1
10–20% higher	+2
20–30% higher	+3
30–40% higher	+4
>40% higher	+5

Trend Component (inflation-adjusted 5-year change)

5-year change	Points
Stable or decreasing in real dollars	0
Increasing >10% in real dollars	+1

Quick Interpretation Guide (for report output)

Result Meaning

0–1 pts Compensation levels are aligned with scale and peer set

2–3 pts Compensation intensity is elevated relative to peers; cost structure may be less flexible

4–5 pts Compensation model is structurally expensive relative to peer institutions

6 pts High-cost labor model + rising compensation; cost rigidity likely affects strategic agility

This is purely structural, not evaluative:

It says “the cost of labor is high relative to enrollment and peers”, not “staff are overpaid”.

Student-Facing Expenditure per FTE — Risk Scoring Map (max 6 pts)

This measure analyzes fixed cost structure through student-facing expenditure per full-time equivalent student. Higher expenditure may support retention but increases fixed cost exposure. The risk scoring focuses on whether an institution's expenditure is elevated relative to peers and growing faster than peers.

In short: A measure of cost structure risk from student-facing spending.

Components

Component	Max pts	Basis
Current expenditure vs peer median	0–3	Peer-relative (% above peer median)
Expenditure growth trend vs peer trend	0–3	Peer-relative (CAGR gap, 2010–2024)
Cap	6	

Factor 1: Current Expenditure vs Peer Median (0–3 pts)

Position vs Peer Median	Points
>30% above peer median	+3
15–30% above peer median	+2
5–15% above peer median	+1
≤5% above or below peer median	0

Absolute fallback (if peer data unavailable):

Public: ≥\$20,000 → +3; ≥\$16,000 → +2; below \$16,000 → 0 Private: ≥\$50,000 → +3; ≥\$35,000 → +2; below \$35,000 → 0

Factor 2: Expenditure Growth Trend vs Peer Median, 2010–2024 (0–3 pts)

CAGR Gap (institution minus peer median) Points

>5 pp faster than peers	+3
3–5 pp faster	+2
1–3 pp faster	+1
≤1 pp faster or slower	0

Absolute fallback (if peer trend data unavailable):

6% annual growth → +3; 4–6% → +2; 2–4% → +1; ≤2% → 0

Total capped at 6.

Risk Level

Total Points Level

≥5	High
3–4	Moderate
0–2	Low

Peer Context

Peer comparison directly drives scoring in both factors. When peer data is unavailable, sector-specific absolute thresholds serve as fallback.

Applicability

Scored for Public (sector 1), Private (sector 2), and Community Colleges (sector 4). Max 6 pts for all scored sectors.

Bug Note: The analyzer constructor currently defines `maxRiskPoints` twice — first as 6 (line 65), then as 5 (line 93). The second overwrites the first, making the effective max 5 and silently capping the score one point below the intended ceiling. Fix: delete `maxRiskPoints: 5` at line 93 in `unified_sfe_analyzer.js`.

Student–Faculty Ratio — Risk Scoring Map (max 2 pts)

Components (as implemented)

- Current SFR level only → 0–2 pts
- No peer-relative scoring used for points
- No trend points (trend only appears in narrative text)

Absolute cut-points (sector-agnostic; same for public/private)

- < 8:1 → +2 (Very high cost model)
- 8–<12:1 → +1 (Premium cost model)
- 12–<18:1 → +1 (Balanced efficiency)
- 18–<25:1 → +0 (Efficiency focus)
- ≥ 25:1 → +2 (Quality concerns)

Peer rules (for scoring)

- None. The analyzer builds a peer list and shows peer context in findings, but risk points are not peer-relative.

Trend treatment

- Trend is calculated and mentioned in the write-up; it does not change points.

Student Services Expenditure *Share* — Risk Scoring Map (max 6 pts)

(“How much of the operating budget is allocated to student support.”)

This measure assesses the share of spending devoted to student-facing support, such as advising, counseling, career services, and student life. Changes over time indicate whether institutions are maintaining investment in student success infrastructure.

In short: A measure of student-support investment.

Components

- Peer-relative expenditure share (0–4 pts)
- Trend direction (0–2 pts)

Peer-Relative Thresholds

(Share of total core expenses vs peer median)

Relative Position	Points
Within ± 2 percentage points of peers	0
2–4 pp <i>below</i> peers	+1
4–6 pp below	+2
6–8 pp below	+3
>8 pp below peers	+4

Trend Component (5-year change in share)

Condition	Points
Stable or increasing	0
Decreasing >1.0 pp over 5 yrs	+1
Decreasing >2.0 pp over 5 yrs	+2

Fallback (if peer set < 20 institutions)

Student Services Share Points	
$\geq 12\%$ of total expense	0
10–11.9%	+1
8–9.9%	+2
6–7.9%	+3
<6%	+4

Notes

- No sector-specific scoring difference.
- Cap total = 6 pts.

- This analyzer captures allocation, not effectiveness.

Transfer Out Rate — Risk Scoring Map (max 8 pts)

This measure tracks the share of first-time, full-time students who transfer to another institution before completing a degree. It focuses on retention failure and trajectory, not peer-relative standing.

A high transfer-out rate signals that students are choosing to leave — a market judgment on institutional value. However, a high rate that is stable or declining represents a different risk profile than one that is actively growing.

In short: A student-retention indicator with a built-in stability gate.

Conditional Gate

Risk points are assigned **only** when both conditions are met:

- Transfer out rate is above 30%, **AND**
- The trend is increasing

If either condition fails — the rate is 30% or below, or the rate is above 30% but stable or declining — the score is **0**. This prevents penalizing institutions where elevated transfer rates reflect a stable mission-appropriate pattern (e.g., community colleges feeding into four-year institutions) rather than an accelerating retention problem.

Components

1. Current Rate (0–5 pts) — only scored when the gate is triggered

Transfer Out Rate Points Assessment

≥ 50%	+5	Critical retention failure
45–< 50%	+4	Severe retention weakness
40–< 45%	+3	Significant retention risk
30–< 40%	+2	Above adequacy threshold
≤ 30%	0	Gate not triggered

2. Trend Component (0–3 pts) — only scored when the gate is triggered

Trend (2010–2024) Points Assessment

Increased > 25%	+3	Critical acceleration
Increased 10–25%	+2	Concerning growth
Minor increase	+1	Modest drift
Stable or decreasing	—	Gate not triggered; total score = 0

Total capped at 8.

Risk Level Thresholds

Tuition Dependency — Risk Scoring Map (Public max 8 pts; Private max 18 pts)

Meaning: tuition as % of core revenues.

This measure captures the proportion of total operating revenue derived from student tuition and fees. It reflects the institution's exposure to enrollment volatility and the extent to which its financial model depends on maintaining tuition revenue. High tuition dependency means the institution is more vulnerable to shifts in demand, discounting, or market competition; low dependency generally signals more diversified revenue streams.

In short: A measure of revenue concentration and exposure to enrollment risk.

Components

Factor 1: Absolute dependency level (60% of max)

Public (max 8 → base 5 pts): ≥75% → +5; 65–<75% → +4; 55–<65% → +3; 45–<55% → +1; <45% → 0

Private (max 18 → base 11 pts): ≥85% → +11; 75–<85% → +8; 60–<75% → +6; 46–<60% → +3; <46% → 0

Factor 2: Peer comparison (25% of max)

Public (2 pts): Bottom quartile → +2; Below median → +1; ≥ Median → 0 Private (5 pts): Bottom quartile → +5; Below median → +3; ≥ Median → 0

Factor 3: Trend — change in dependency over analysis period (15% of max)

Public (1 pt): Increase >10 pp → +1; 5–10 pp → +1; <5 pp → 0 Private (3 pts): Increase >10 pp → +3; 5–10 pp → +2; <5 pp → 0

Total capped at sector max (8 public, 18 private).

Note: The constructor also defines a riskPoints config with hardcoded values (private: 0, 0, 0, 4, 8). This config is not used by the scoring method and is dead code.

Unrestricted Net Assets per FTE (UNA/FTE) — Risk Scoring Map (max 5 pts)

This measure gauges financial flexibility per student — how much unrestricted wealth an institution has to absorb shocks or invest strategically. It compares both the institution's current level and its growth trajectory against peer performance.

In short: A per-student financial safety net, scored relative to peers.

Components

Component	Max pts	Basis
Current UNA/FTE level vs peers	0–3	Peer-relative (% below peer average)
UNA/FTE trend vs peer trend	0–2	Peer-relative (growth gap)

Component	Max pts Basis
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Cap	5
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1. Current Level (0–3 pts)

Position vs Peer Average	Points
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50%+ below peers	+3 (critical)
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25–50% below peers	+2 (high)
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10–25% below peers	+1 (moderate)
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Within 10% of peers or above 0

2. Trend (0–2 pts)

Growth vs Peer Trend	Points
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20%+ worse trend than peers	+2
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10–20% worse trend	+1
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Within 10% of peer trend or better 0

Total capped at 5.

Notes

- No absolute dollar-value thresholds are used; scoring is entirely peer-relative.
- If UNA is negative, the institution will almost certainly fall 50%+ below peers, triggering the maximum 3 current-level points.

Viability Ratio — Risk Scoring Map (max 8 pts)

Meaning: (expendable net assets ÷ long-term debt)

This measure evaluates the institution's capacity to cover long-term debt with expendable resources. A high ratio signals manageable leverage; a low ratio means debt obligations could overwhelm available assets.

In short: A measure of debt sustainability.

3-yr rolling avg (50% of max → 4 pts)

- Public: <0.10 → +4; <0.20 → +3; <0.30 → +2; <0.40 → +1; ≥0.40 → 0
- Private: <0.20 → +4; <0.30 → +3; <0.40 → +2; <0.50 → +1; ≥0.50 → 0

Peer position (25% of max → 2 pts)

Bottom quartile +2; below median +1; ≥ median 0

Current-year distress (25% of max → 2 pts)

- Public: <0.05 → +2; <0.10 → +1.3; <0.15 → +0.7

- Private: $<0.10 \rightarrow +2$; $<0.20 \rightarrow +1.3$; $<0.30 \rightarrow +0.7$
(Values are rounded from fractions of the 2-pt bucket.)