USE OF FINANCIAL RATIOS IN COMMUNITY COLLEGE INSTITUTIONAL RESEARCH

David Case
Vice President for Institutional Research & Effectiveness
East Central Community College
Decatur, MS
WHAT IS A FINANCIAL RATIO?

A financial ratio or accounting ratio is a relative magnitude of two selected numerical values taken from an enterprise's financial statements. Often used in accounting, there are many standard ratios used to try to evaluate the overall financial condition of a corporation or other organization.
WHY USE FINANCIAL RATIOS IN COMMUNITY COLLEGE INSTITUTIONAL RESEARCH?

Broadens the institutional story told by the IR office.
WHY USE FINANCIAL RATIOS IN COMMUNITY COLLEGE INSTITUTIONAL RESEARCH?

Possibly broadens the influence of the IR office.
WHY USE FINANCIAL RATIOS IN COMMUNITY COLLEGE INSTITUTIONAL RESEARCH?

*When it’s all said and done* – most institutions that experience pervasive or terminal accreditation problems do so due to.....
WHY USE FINANCIAL RATIOS IN COMMUNITY COLLEGE INSTITUTIONAL RESEARCH?

In many – likely most – cases, comparative financial ratio analysis is not happening, at least not in-depth, in finance wings of the college.
WHY USE FINANCIAL RATIOS IN COMMUNITY COLLEGE INSTITUTIONAL RESEARCH?

Ratios address issues of differing scale when comparing institutions.
WHY USE FINANCIAL RATIOS IN COMMUNITY COLLEGE INSTITUTIONAL RESEARCH?

Data for comparative analysis is readily available via IPEDS.
WHY USE FINANCIAL RATIOS IN COMMUNITY COLLEGE INSTITUTIONAL RESEARCH?

In many cases, *less subjectivity or variability* of data collection is present than in IPEDS student achievement related information. In many cases, data for comparison is audited.
WHY USE FINANCIAL RATIOS IN COMMUNITY COLLEGE INSTITUTIONAL RESEARCH?

Ratios provide information often missed with only relatively surface comparisons like enrollment, tuition, faculty salaries, average class size, etc.
WHY USE FINANCIAL RATIOS IN COMMUNITY COLLEGE INSTITUTIONAL RESEARCH?

Often highly correlated with and/or confirms student achievement outcomes.
WHY USE FINANCIAL RATIOS IN COMMUNITY COLLEGE INSTITUTIONAL RESEARCH?

May provide a **check** on student achievement outcomes.

“Triangulation”
WHY USE FINANCIAL RATIOS IN COMMUNITY COLLEGE INSTITUTIONAL RESEARCH?

Can reveal hidden strengths or weaknesses.
WHY USE FINANCIAL RATIOS IN COMMUNITY COLLEGE INSTITUTIONAL RESEARCH?

Obviously informs key decisions: new programs; employee expansions or possible reduction in force; tuition increases; fees; capital projects; student-faculty ratio; pedagogical initiatives.... etc.
WHY USE FINANCIAL RATIOS IN COMMUNITY COLLEGE INSTITUTIONAL RESEARCH?

Has value in communicating information to legislative representation.
WHY USE FINANCIAL RATIOS IN COMMUNITY COLLEGE INSTITUTIONAL RESEARCH?

Tends to raise “leading red flags.” Informs regarding risk.

Has value in forecasting.
CHALLENGES ASSOCIATED WITH THE USE OF FINANCIAL RATIOS IN COMMUNITY COLLEGE INSTITUTIONAL RESEARCH

Can be highly dependent on public funding structures and formulas.

Be careful comparing state versus state as apples-to-apples.
In some cases comparative differences may merely reflect differing institutional priorities.
Local differences in accounting techniques can occur.

Example: treatment of PELL grants in “Federal Funds.”
CHALLENGES ASSOCIATED WITH THE USE OF FINANCIAL RATIOS IN COMMUNITY COLLEGE INSTITUTIONAL RESEARCH

Naturally lends itself to another valuable IR Dashboard.
IPEDS

http://nces.ed.gov/ipeds/datacenter/
The Data Center allows users to retrieve IPEDS data using the functions listed on the main menu to the left. As you mouse over each function, the function will be described in this bubble. Find the function you wish to use and click on the function to begin. Once inside the Data Center, use the Main Menu to switch between functions without losing the information you have already selected.

**Shortcuts...**

- Upload a previously saved session
- Create, Save, or Upload variables
- Create, Save, or Upload institutions

**Use Other IPEDS Tools...**

- IPEDS Trend Generator
- Tables Library
<table>
<thead>
<tr>
<th>Available Data</th>
<th>Preliminary/Provisional release</th>
<th>Final Release</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutional Characteristics</td>
<td>2015-16 ~</td>
<td>2008-09 to 2014-15</td>
</tr>
<tr>
<td>Pricing and Tuition</td>
<td>2015-16 ~</td>
<td>2008-09 to 2013-14</td>
</tr>
<tr>
<td>Admissions</td>
<td>2014-15</td>
<td>2008-09 to 2013-14</td>
</tr>
<tr>
<td>Completions</td>
<td>2014-15 ~</td>
<td>2007-08 to 2013-14</td>
</tr>
<tr>
<td>12-month Enrollment</td>
<td>2014-15 ~</td>
<td>2007-08 to 2013-14</td>
</tr>
<tr>
<td>Fall Enrollment</td>
<td>2014</td>
<td>2008 to 2013</td>
</tr>
<tr>
<td>Graduation Rates</td>
<td>2014</td>
<td>2008 to 2013</td>
</tr>
<tr>
<td>Student Financial Aid</td>
<td>2013-14</td>
<td>2007-08 to 2012-13</td>
</tr>
<tr>
<td>Finance</td>
<td>2013-14</td>
<td>2007-08 to 2012-13</td>
</tr>
<tr>
<td>Human Resources</td>
<td>2014-15</td>
<td>2008-09 to 2013-14</td>
</tr>
<tr>
<td>Academic Libraries</td>
<td>2013-14</td>
<td>--</td>
</tr>
</tbody>
</table>
Retention Rates, Entering Class and Student to Faculty Ratio

Graduation Rates

Student Financial Aid and Net Price

Finance

- Public institutions - GASB 34/35
- Private not-for-profit institutions or Public institutions using FASB
- Private for-profit institutions
- Public institutions - Reporting Standards before (GASB 34/35): Fiscal years 1987 to 2003
- All institutions - Reporting Standards before (GASB 34/35 and FASB): Fiscal years 1987 to 1996
- Public institutions - GASB 34/35 (Component units using FASB): Fiscal years 2002 to 2007
- Public institutions - GASB 34/35 (Component units using GASB): Fiscal years 2002 to 2007
- Response status

Human Resources
PRIMARY RESERVE RATIO

• Snapshot of flexible financial strength.
• How long can an institution function using reserves?
• How resistant is the institution to budget cuts/shortfalls?
• \[
\frac{\text{[Expendable (Current) net assets]}}{\text{[Total Expenses]}}
\]
EXPENDABLE FINANCIAL RESERVES

• Relative measure of net assets expendable in a long run.
• Informs long term planning.
• \[
\frac{[Total\ Unrestricted\ +\ Temporarily\ Restricted\ Net\ Assets\ plus\ Total\ Long-Term\ Debt\ less\ Investment\ in\ Physical\ Plan]}{Total\ Debt\ or\ Obligations}
\]
EXPENDABLE FINANCIAL RESERVES

Expendable Financial Resources to Direct Debt

 Represents sample of 40 Midwest-based institutions (90% private; 10% public)
NET OPERATING REVENUES

• Did total *unrestricted* activities result in surplus or deficit?
• Is the institution living within its means?
• Ratio < 0 obviously undesirable.
• Looking for a > 0 ratio hopefully at least 0.15.

• \[
\frac{\text{Operating Income (or Loss)} + \text{Net Non-operating Revenue (or Expenses)} + \text{CHANGE in Unrestricted Net Assets}}{\text{Operating Revenues + Non-operating Revenues + CHANGE in Unrestricted Revenue}}
\]
CASH INCOME RATIO

• The higher the ratio, the more operational liquidity.
• The higher the ratio, the more flexibility – options – the institutionally generally has.
• \[
\frac{\text{Net Cash from Operating Activities}}{\text{Total Unrestricted Income minus Gains/Losses}}
\]
OPERATING INCOME RATIO

• Measures *institutional self-sufficiency*.

• To what extent did the current year’s educational activities contribute the current operations?

• Low comparative ratios may suggest *excessive reliance* on investments or – wait for it – *government support* in the case of public institutions.

• [Operating Income minus Investments, Restricted Income, etc.] / [Educational Expenses]
DEFERRED MAINTENANCE RATIO

- Institution should have some alarm if this ratio is increasing over time.
- Declining ratio over a short run may not necessarily indicate health in the case of recent large investments in buildings.
- Outstanding Maintenance Requirements may be estimated by subtracting actual maintenance costs from accumulated depreciation.
- \[
\frac{\text{Outstanding Maintenance Requirements}}{\text{Expendable Net Assets}}
\]
NET TUITION DEPENDENCY

• Increasing ratio over time is not desirable.
• High ratios compared to cohort institutions is not desirable.
• \( \frac{\text{Net Tuition Revenue}}{\text{Total Revenue including Investments, Support}} \)
RETURN ON NET ASSETS RATIO

• Are the institution’s assets growing?
• In general, increasing ratio over time is desired.
• Measures ability to set aside resources for future flexibility.
• Periodic declines in this ratio may be appropriate if better suited to institution’s mission.
• \[\text{[Change in Net Assets]} / \text{[Total Net Assets]}\]
COMPOSITION OF ASSETS RATIO

• Generally institutions in strong financial condition have a ratio > 1.
• Higher ratios indicate positioning for future generations in favor of current.
• In practicality, difficult for public community colleges to achieve.
• \[
\frac{[\text{Financial Assets (excludes Property, Plant, Equipment)}]}{\text{[Physical Assets (net of depreciation)]}}
\]
VIABILITY RATIO

• Are resources available to cover obligations?
• In general a ratio range of over 1.25 is desired.
• [Expendable Net Assets]/ [Plant Related Debt and Obligations]
DEBT SERVICE COVERAGE

• *Comfort Level* (cushion) to cover obligations?
• Should at least be > 0; negative ratio means real trouble.
• Amount of *cash flow* to meet annual obligations.
• \[
\frac{\text{Net Operating Income + Non-operating Revenues + Interest Expense + Depreciation}}{\text{Total Debt Service}}
\]
AGE OF FACILITIES RATIO

• Indicates aging of facilities and need for future resources to be invested in facilities.
• Generally would like to see low comparative ratio.
• High ratio = “intangible asset.”
• Low ratio hint at deferred reinvestment, future obligations.
• Low ratio = “unrecorded liability.”
• Amount of *cash flow* to meet annual obligations.
• \([\text{Accumulated Depreciation}] / [\text{Depreciation Expense}]\)
COMPOSITE FINANCIAL INDEX
COMPOSITE FINANCIAL INDEX

• Developed by KPMG and Prager McArthy & Sealy, LLC in late 1990’s.
• Also much credit to BKD CPAs & Advisors (produced several slides in this presentation)
• Developed specifically for higher education.
• Widely accepted.
• Consists of **FOUR CORE RATIOS.**
COMPOSITE FINANCIAL INDEX

• Primary Reserve Ratio
  *How long can an institution function using reserves?*

• Net Operating Revenues Ratio
  *Is institution living within its means?*

• Return on Net Assets Ratio
  *Are the institution’s assets growing?*

• Viability Ratio
  *Are resources available to cover obligations?*
COMPOSITE FINANCIAL INDEX

CFI allows the four core ratios to be combined into one score of financial health, allowing strengths in one or more areas to offset weakness in another.
Ratios computed
Converted to strength factor
Factors weighted
Four numbers totaled
# Scale for Converting Core Ratios to Strength Factors

<table>
<thead>
<tr>
<th>SCORING SCALE</th>
<th>1</th>
<th>3</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Reserve Ratio</td>
<td>0.133x</td>
<td>0.4x</td>
<td>1.33x</td>
</tr>
<tr>
<td>Net Operating Revenues Ratio</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private Institutions</td>
<td>0.7%</td>
<td>2%</td>
<td>7%</td>
</tr>
<tr>
<td>Public Institutions</td>
<td>1.3%</td>
<td>4%</td>
<td>13%</td>
</tr>
<tr>
<td>Return on Net Assets Ratio</td>
<td>2.0%</td>
<td>6%</td>
<td>20%</td>
</tr>
<tr>
<td>Viability Ratio</td>
<td>0.417%</td>
<td>1.25x</td>
<td>4.17x</td>
</tr>
</tbody>
</table>
## Weighting Patterns

<table>
<thead>
<tr>
<th>Ratio</th>
<th>Institutions with Long-Term Debt</th>
<th>Institutions with No Long-Term Debt</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary Reserve</td>
<td>35%</td>
<td>55%</td>
</tr>
<tr>
<td>Net Operating Revenues</td>
<td>10%</td>
<td>15%</td>
</tr>
<tr>
<td>Return on Net Assets</td>
<td>20%</td>
<td>30%</td>
</tr>
<tr>
<td>Viability Ratio</td>
<td>35%</td>
<td>--</td>
</tr>
</tbody>
</table>
CFI Scale

-1  0  1  2  3  4  5  6  7  8  9  10

Assess institutional viability to survive

Reengineer the institution

Direct institutional resources to allow transformation

Focus resources to complete in future state

Allow experimentation with new initiatives

Deploy resources to achieve a robust mission
COMPOSITE FINANCIAL INDEX

- Indicates a range of financial health.
- Most useful over a time period > 1 year.
- Excludes the “deferred maintenance” hidden obligation!
- Since the metric combines multiple ratios, bias is reduced and is thus an excellent comparison tool.
- Lends to graphical presentation.
Linking Mission to Strategic & Other Plans

Institutional Mission

Strategic Plan
(Goals, Strategies, Key Metrics)

Institution Risk Management Summary

Institution Wide Plans
(Academic, Research, Facilities, Operating and Capital Budgets, etc.)

Institutional Academic and Administrative Processes

STRATEGIC PLANNING QUESTIONS AIDED BY FINANCIAL RATIO ANALYSIS

• How does the institution measure and manage risk?
• How liquid is the institution and how are operations and initiatives impacted?
• Is debt used strategically? (Some debt can be a good thing).
• Are financial resources corroborating/confirming institutional strategies?
• What is the institution’s overall health (CFI)?
NEED FOR FURTHER RESEARCH...

Expansion of the concept of “Return”....

Merging financial ratio analysis with student achievement and learning outcomes performance.
EXEMPLARY – DEFINITIVE – RESOURCE ON
FINANCIAL RATIOS IN HIGHER EDUCATION
UPDATE TO THE 7TH EDITION OF STRATEGIC FINANCIAL ANALYSIS IN HIGHER EDUCATION SUMMER 2016 Kindle Edition

by Phil Tahey (Author), Ron Salluzzo (Author), James Stil (Author), Fred Prager (Author), Lou Mezzina (Author), & 2 more

2 customer reviews

Since it was first published in 1980, the Strategic Financial Analysis for Higher Education series has been acknowledged by leaders in the higher education industry as important financial publications and used extensively by trustees, senior managers, financial analysts, and credit analysts. This update...