



ANNUAL STATEMENT STUDIES

**INDUSTRY DEFAULT PROBABILITIES AND
CASH FLOW MEASURES**

2018

2019

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About RMA

Founded in 1914, The Risk Management Association is a not-for-profit, member-driven professional association whose sole purpose is to advance the use of sound risk principles in the financial services industry. RMA promotes an enterprise approach to risk management that focuses on credit risk, market risk, and operational risk.

Headquartered in Philadelphia, Pennsylvania, RMA has 2,500 institutional members that include banks of all sizes as well as nonbank financial institutions. They are represented in the Association by 18,000 risk management professionals who are chapter members in financial centers throughout North America, Europe, and Asia/Pacific. Visit RMA on the Web at www.rmahq.org.

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**RMA ACKNOWLEDGES AND THANKS THE FOLLOWING
INSTITUTIONS, CONTRIBUTORS TO THE 2018 STATEMENT STUDIES
DATA SUBMISSION PROGRAM.**

Alabama

BBVA Compass
Regions Bank

Arizona

First Fidelity Bank

California

Bank of Stockton
Central Valley Community Bank
Citizens Business Bank
Montecito Bank & Trust
Pacific Enterprise Bank
Premier Valley Bank
Presidio Bank
Redding Bank of Commerce
Sacramento Bank of Commerce
Wells Fargo Bank N.A.

Colorado

Citywide Banks
Colorado Business Bank
First National Bank of Omaha
Independent Bank

Connecticut

Dime Bank
The Milford Bank

Florida

CenterState Bank
The Bank of Tampa

Georgia

SunTrust Banks, Inc.

Hawaii

Central Pacific Bank
Finance Factors Ltd.
First Hawaiian Bank

Idaho

Columbia Bank
First Interstate Bank
Washington Trust Bank

Illinois

First National Bank of Omaha
Illinois Bank & Trust
Glenview State Bank

Indiana

First Federal Savings Bank
First Financial Bank
Old National Bank
STAR Bank

Iowa

American Trust and Savings Bank
Dubuque Bank & Trust
Farmers State Bank

Kansas

Alliance Bank
Carson Bank
Conway Bank NA
Emprise Bank
First National Bank of Omaha
INTRUST Bank, N.A.
Midland National Bank

Kentucky

Community Trust Bank, Inc.

Louisiana

Fidelity Bank
Whitney Bank

Maine

Bangor Savings Bank
First National Bank
Kennebunk Savings

Maryland

First United Bank & Trust
Harford Bank
The Columbia Bank

Massachusetts

BankFive
Brookline Bancorp, Inc.
Eastern Bank
Pittsfield Cooperative Bank
Santander Bank, N.A.

Michigan

Comerica Bank
Commercial Bank
First National Bank of Michigan
First State Bank
Huron Community Bank
The State Bank

Minnesota

BankCherokee
BlackRidgeBANK
Community Resource Bank
Fidelity Bank
First Minnetonka City Bank
KleinBank
Minnwest Bank
North Star Bank
Stearns Bank N.A.

Mississippi

BancorpSouth
Hancock Bank
The Peoples Bank
Trustmark National Bank

Missouri

Academy Bank
Cass Commercial Bank
Commerce Bank
Royal Banks of Missouri

Montana

First Interstate Bank

Nebraska

First National Bank of Omaha
Mutual of Omaha Bank
Union Bank and Trust Company

New Hampshire

Mascoma Bank

New Jersey

Fulton Bank of NJ
Peapack-Gladstone Bank
TD Bank, N.A.

New Mexico

Los Alamos National Bank
New Mexico Bank & Trust

New York

Canandaigua National Bank & Trust
CIT Group
Community Bank NA
Lake Shore Savings Bank
M&T Bank
NBT Bank NA
Steuben Trust Company
Tompkins Trust Company

North Carolina

BB&T
 First Citizens Bank
 TowneBank

North Dakota

BlackRidgeBANK

Ohio

First Financial Bank
 The Huntington National Bank

Oklahoma

First Fidelity Bank
 First United Bank & Trust Co

Oregon

Columbia Bank
 First Interstate Bank
 People's Bank of Commerce
 Umpqua Bank
 Washington Trust Bank

Pennsylvania

1st Summit Bank
 Community Bank
 Dollar Bank, FSB
 First Columbia Bank & Trust Co.
 First Commonwealth Bank
 Firstrust Bank
 FNB Bank
 Fulton Bank
 Gemino Healthcare Finance, LLC
 Kish Bank
 Lafayette Ambassador Bank
 Orrstown Bank
 PeoplesBank, a Codorus
 Valley Company
 QNB Bank
 Republic Bank
 S&T Bank
 Somerset Trust Company
 Swineford National Bank
 Washington Financial Bank

Rhode Island

Citizens Financial Group
 Coastway Community Bank

South Dakota

First Interstate Bank
 First PREMIER Bank
 The First National Bank
 in Sioux Falls

Tennessee

Bank of Tennessee
 First Farmers and Merchants Bank
 First Tennessee Bank, N.A.
 Pinnacle Bank

Texas

American National Bank of Texas
 Comerica Bank
 Extraco Banks, N.A.
 First United Bank & Trust Co
 Frost Bank
 Independent Bank
 Texas Capital Bank, N.A.
 The Bank of San Antonio

Utah

Cache Valley Bank

Vermont

Community National Bank
 The Bank of Bennington
 The Brattleboro Savings
 and Loan Association
 Union Bank

Virginia

Access National Bank
 First Community Bank
 TowneBank
 United Bankshares, Inc.
 Virginia National Bank

Washington

Bank of the Pacific
 Columbia Bank
 First Interstate Bank
 Northwest Farm Credit Services
 Washington Trust Bank

West Virginia

United Bankshares, Inc.
 WesBanco

Wisconsin

Associated Bank N.A.
 Bank of Sun Prairie
 Farmers and Merchants Bank
 First Bank Financial Centre
 First National Bank and
 Trust Company
 Horicon Bank
 Johnson Bank
 State Bank Financial
 Wisconsin Bank & Trust

Wyoming

First Interstate Bank

Introduction to Annual Statement Studies: Industry Default Probabilities and Cash Flow Measures, 2018-2019 and General Organization of Content

The notes below will explain the presentation of *Annual Statement Studies: Industry Default Probabilities and Cash Flow Measures*, show formulas and ratio interpretations, and answer most of your questions.

- **The Quality You Expect from The Risk Management Association (RMA):** RMA is the most respected source of objective, unbiased information on issues of importance to credit risk professionals. For over 99 years, RMA's *Annual Statement Studies*® has been the industry standard for comparison financial data. Material contained in today's *Annual Statement Studies* was first published in the March 1919 issue of the *Federal Reserve Bulletin*. In the days before computers, the *Annual Statement Studies* data was recorded in pencil on yellow ledger paper! Today, it features data for over 700 industries derived directly from more than 260,000 statements of financial institutions' borrowers and prospects.
- **Data That Comes Straight from the Original Source:** The more than 260,000 statements used to produce the composites presented here come directly from RMA member institutions and represent the financials from their commercial customers and prospects. RMA does not know the names of the individual entities. In fact, to ensure confidentiality, company names are removed before the data is even delivered to RMA. The raw data making up each composite is not available to any third party.
- **Organized by the NAICS for Ease of Use:** This edition is organized according to the 2017 North American Industry Classification System (NAICS), a product of the U.S. Office of Management and Budget. At the top of each page of data, you will find the NAICS. Please note, in the revised 2017 catalog some industries were merged to create its new 2017 NAICS. In these instances, RMA recalculated aggregate historical reporting. For detailed 2017 and 2012 NAICS mapping, please visit the RMA site or: <http://www.census.gov/eos/www/naics/>
- **If You Do Not Know the NAICS Code You are Looking for...** Contact the Census Bureau at 1-888-75NAICS or naics@census.gov. Describe the activity of the establishment for which you need an industry code and you will receive a reply. Another source to help you assign the correct NAICS industry name and number can be found at www.census.gov/epcd/www/naics.html.
- **Cannot Find the Industry You Want?** There are a number of reasons you may not find the industry you are looking for (i.e., you know you need industry xxxxxx but it is not in the product). Many times we have information on an industry, but it is not published because the sample size was too small or there were significant questions concerning the data. (For an industry to be displayed in the *Annual Statement Studies: Industry Default Probabilities and Cash Flow Measures*, there must be at least 30 valid statements submitted to RMA.) In other instances, we simply do not have the data. Generally, most of what we receive is published.
- **Composite Data Not Shown?** When there are fewer than 10 financial statements in a particular asset or sales size category, the composite data is not shown because a sample this small is not considered representative and could be misleading. However, all the data for that industry is shown in the All Sizes column. The total number of statements for each size category is shown in bold print at the top of each column. In addition, the number of statements used in a ratio array will differ from the number of statements in a sample because certain elements of data may not be present in all financial statements. In these cases, the number of statements used is shown in parentheses to the left of the array.
- **Presentation of the Data on Each Page-Spread:** For all non-contracting spread statements, the data for a particular industry appears on both the left and right pages. The heading Current Data Sorted by Assets is in the five columns on the left side. The center section of the double-page presentation contains the Comparative Historical Data, with the All Sizes column for the current year shown under the heading 4/1/17-3/31/18. Comparable data from past editions of the *Annual Statement Studies: Industry Default Probabilities and Cash Flow Measures* also appears in this section. Current Data Sorted by Sales is displayed in the five columns to the far right.

- **Companies with Less than \$250 Million in Total Assets:** In our presentation, we used companies having less than \$250 million in total assets. There is no upper limit placed on revenue size for any industry. Its information is found on only one page.
- **Page Headers:** The information shown at the top of each page includes the following: 1) the identity of the industry group; 2) its North American Industry Classification System (NAICS) number; 3) a breakdown by size categories of the types of financial statements reported; 4) the number of statements in each category; 5) the dates of the statements used; and 6) the size categories. For instance, 16 (4/1-9/30/17) means that 16 statements with fiscal dates between April 1 and September 30, 2017, make up part of the sample.
- **Page Footers:** At the bottom of each page, we have included the sum of the sales (or revenues) and total assets for all the financial statements in each size category. This data allows recasting of the common size statements into dollar amounts. To do this, divide the number at the bottom of the page by the number of statements in that size category. Then multiply the result by the percentages in the common size statement. Please note: The dollar amounts will be an approximation because RMA computes the balance sheet and income statement percentages for each individual statement in an industry group, then aggregates and averages all the figures.
- **Recommended for Use as General Guidelines:** RMA recommends you use *Annual Statement Studies: Industry Default Probabilities and Cash Flow Measures* data only as general guidelines and not as absolute industry norms. There are several reasons why the data may not be fully representative of a given industry:
 1. **Data Not Random** — The financial statements used in the *Annual Statement Studies: Industry Default Probabilities and Cash Flow Measures* are not selected by any random or statistically reliable method. RMA member banks voluntarily submit the raw data they have available each year with no limitation on company size.
 2. **Categorized by Primary Product Only** — Many companies have varied product lines; however, the *Annual Statement Studies: Industry Default Probabilities and Cash Flow Measures* categorizes them by their primary product NAICS number only.
 3. **Small Samples** — Some of the industry samples are small in relation to the total number of firms for a given industry. A relatively small sample can increase the chances that some composites do not fully represent an industry.
 4. **Extreme Statements** — An extreme or outlier statement can occasionally be present in a sample, causing a disproportionate influence on the industry composite. This is particularly true in a relatively small sample.
 5. **Operational Differences** — Companies within the same industry may differ in their method of operations, which in turn can directly influence their financial statements. Since they are included in the sample, these statements can significantly affect the composite calculations.
 6. **Additional Considerations** — There are other considerations that can result in variations among different companies engaged in the same general line of business. These include differences in labor markets, geographical location, accounting methods, quality of products handled, sources and methods of financing, and terms of sale.

For these reasons, RMA does not recommend using the *Annual Statement Studies: Industry Default Probabilities and Cash Flow Measures* figures as absolute norms for a given industry. Rather, you should use the figures only as general guidelines and as a supplement to the other methods of financial analysis. RMA makes no claim regarding how representative the figures printed in these reports are.

DEFINITION OF RATIOS

Introduction

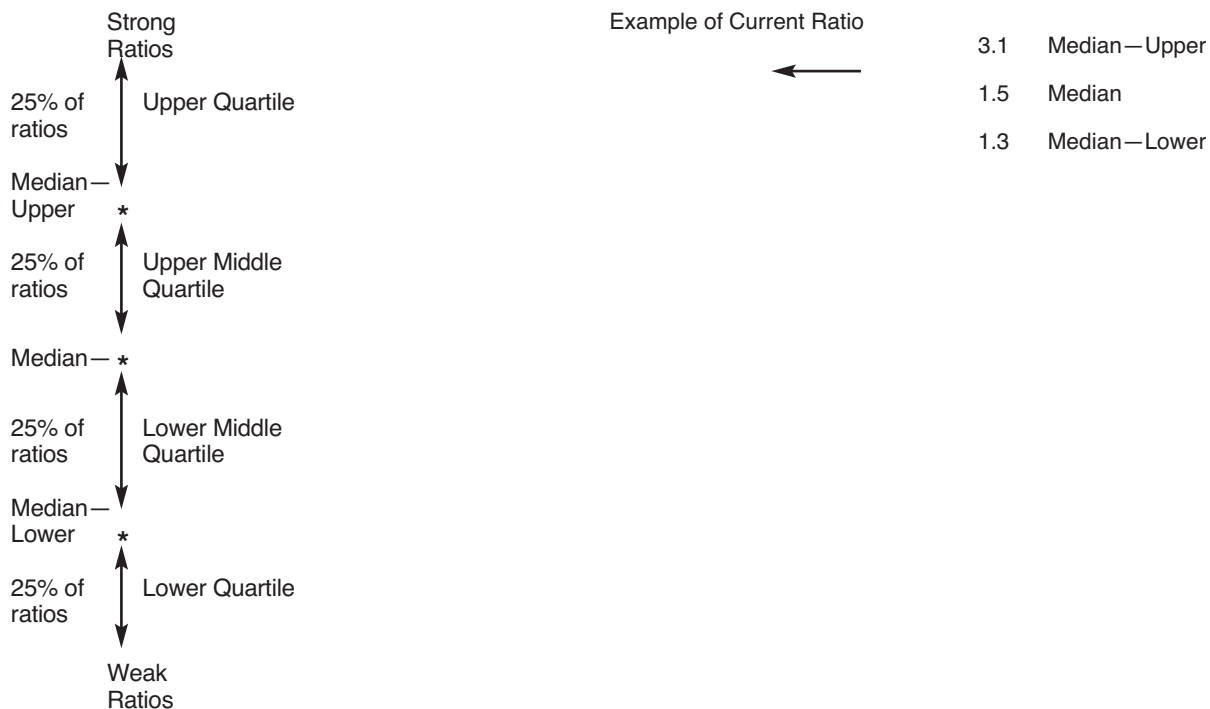
On each data page, below the common-size balance sheet and income statement, you will find a series of ratios computed from the financial statement data. Each ratio has three values: the upper quartile, median, and lower quartile.

Here is how these figures are calculated for any given ratio:

1. The value of the ratio is computed for each financial statement in the sample.
2. These values are arrayed (listed) in an order from the strongest to the weakest. Please note: In the case of and the funded debt/EBITDA ratios, the strongest is the lowest value and the "weakest" is the highest value.
3. The array of values is divided into four groups of equal size.

What Are Quartiles?

Each ratio has three points, or "cutoff values," that divide an array of values into four equal-sized groups called quartiles, as shown below. The quartiles include the upper quartile, upper-middle quartile, lower-middle quartile, and the lower quartile. The upper quartile is the cutoff value where one-quarter of the array of ratios falls between it and the strongest ratio. The median is the midpoint; that is, it is the middle cutoff value where half of the array falls above it and half below it. The lower quartile is the point where one-quarter of the array falls between it and the weakest ratio. In many cases, the average of two values is used to arrive at the quartile value. You will find the median and quartile values on all *Annual Statement Studies* data pages in the order indicated in the chart below.



Why Use Medians/Quartiles Instead of the Average?

There are several reasons why medians and quartiles are used instead of an average. Medians and quartiles eliminate the influence of an "outlier" (an extremely high or low value compared to the rest of the values). They also more accurately reflect the ranges of ratio values than a straight averaging method would.

It is important to understand that the spread (range) between the upper and lower quartiles represents the middle 50% of all the companies in a sample. Therefore, ratio values greater than the upper quartile or less than the lower quartile may begin to approach "unusual" values.

Linear versus Nonlinear Ratios:

An array that is ordered in ascending sequence or in descending sequence is linear. An array that deviates from true ascending or true descending when its values change from positive to negative (low to high positive, followed by high to low negative) is non-linear.

For example, the Funded Debt/EBITDA ratio is nonlinear. In other words, when the Funded Debt/EBITDA ratio is positive, then the top quartile would be represented by the *lowest positive* ratio. However, if the ratio is negative, the top quartile will be represented by the *highest negative* ratio! In a nonlinear array such as this, the median could be either positive or negative because it is whatever the middle value is in the particular array of numbers.

Nonlinear Ratios

Funded Debt/EBITDA

Linear Ratios

Cash from Trading
 Cash after Operations
 Net Cash after Operations
 Cash after Debt Amortization
 Debt Service P&I Coverage
 Interest Coverage (Operating Cash)
 Change in Inventory
 Total Current Assets (TCA)
 Total Assets (TA)
 Retained Earnings (RE)
 Net Sales (NS)
 Cost of Goods Sold (CGS)
 Profit before Interest & Taxes (PBIT)
 Depreciation/Depletion/Amortization (DDA)
 Sustainable Growth Rate

Important Notes

Whenever there were fewer than 10 statements in a sample, the ratio values have been omitted throughout. Occasionally, the number of statements used in a ratio array will differ from the number of statements in a sample because certain elements of data may not be present in all financial statements. In these cases, the number of statements used is shown in parentheses to the left of the array.

Inventory presentations are based on point-in-time balances at the end of the fiscal year, not averages. In addition, the data that we capture does not permit us to know what method of inventory accounting (LIFO or FIFO, for instance) was used.

The following ratios are contained in the *Annual Statement Studies: Industry Default Probabilities and Cash Flow Measures*:

Within the data pages, Δ stands for percent change from year to year.

Cash Flow and Debt Service Ratios:

All of the following cash flow composite figures are expressed as a percentage of net sales. This is the standard presentation we use for balance sheet and income statement figures. So, in the text of this document you will see a series of figures (quartiles), each of which represents a percentage of net sales for that respective cash flow line item.

For example:

	20	⇔	The upper quartile is 20%
Cash after Operations/Sales	15		
	10		of net sales.

At the bottom of each page, the sum of sales and total assets for all the financial statements in each size category are shown.

1. Cash from Trading

How to Calculate: Subtract cash production costs from cash from sales.

$$\frac{\text{(Cash from sales (Net sales + Change in current receivables) - Cash production costs (CGS + Change in inventories + Change in accounts payable))}}{\text{Sales}}$$

How to Interpret: This is the money left over after a company produces its goods for sale. In other words, it is the portion of the present year's sales collected in the present year, plus any amounts from previous years' sales collected during the year, *minus* the cash expended during the present year to produce goods for sale (manufacturer) or to acquire merchandise (wholesaler or retailer).

2. Cash after Operations

How to Calculate: Subtract cash operating costs from cash from trading.

$$\frac{\text{(Cash from trading - Cash operating costs (selling, general, \& administrative, expenses + other operation expenses + changes in prepaids + change in accrued expenses + change in other current assets/liabilities))}}{\text{Sales}}$$

How to Interpret: This ratio shows how efficiently the industry operates. In other words, it is the cash derived from trading *minus* the actual cash spent during the present year for selling, general, and administrative expenses.

3. Net Cash after Operations

How to Calculate: Add changes in income taxes to changes in miscellaneous assets and liabilities. Then, subtract from cash after operations.

$$\frac{\text{(Cash after operations - Taxes paid \& other Inc/Exp (Other income (exp)+change in other liabilities + income tax expense + change in deferred income taxes + change in income taxes payable))}}{\text{Sales}}$$

How to Interpret: This ratio reflects the amount of cash available for servicing interest on bank debt. In other words, it adjusts the cash after operations to reflect net cash outflows or inflows arising from changes in income taxes and miscellaneous assets and liabilities.

4. Cash after Debt Amortization

How to Calculate: Subtract the current maturities of debt outstanding at the end of the previous year from net cash income.

$$\frac{\text{(Cash after financing costs - Current portion of long-term debt (dividends or owners withdrawals + change in dividends payable + interest exp. + change in interest payable))}}{\text{Sales}}$$

How to Interpret: If there is a positive figure after this deduction, it means a company has generated sufficient cash from its internal operations to meet all its obligations to bank lenders, including interest and principal payments on its bank debt. On the other hand, if the figure is negative, the company must resort to external sources of financing to meet these obligations as well as to make any capital expenditure payments.

5. Debt Service P&I Coverage

How to Calculate: Divide net cash after operations by the sum of current debt obligations.

Net cash after operations (current period) / (Interest + noncash interest + current portion LTD & current portion of capital leases)

How to Interpret: This ratio is a measure of a firm's ability to service its debt with internally generated cash flow. It helps you determine whether a business can meet all its operating needs and has sufficient funds remaining to meet principal and interest debt-service requirements and to cover dividends. If the ratio is less than 1:1, this indicates a company must borrow funds to meet some or all of its financing obligations.

6. Interest Coverage (Operating Cash)

How to Calculate: Divide net cash after operations by cash and noncash interest expenses.

Net cash after operations (current period) / (Interest expense + noncash interest expense)

How to Interpret: This ratio is a measure of a firm's ability to service debt by generating cash to meet interest payments. It is an alternative to the earnings coverage return. This ratio also serves as an indicator of a company's capacity to incur additional debt.

Yearly Change in Selected Balance Sheet and Income Statement Accounts:

(Note: Within the data pages, Δ stands for percent change from year-to-year.)

1. Δ Inventory

Subtract prior period's inventory from the current period's inventory. Then, divide by the inventory for the prior period.

(Inventory current period - inventory prior period) / Inventory prior period

How to Interpret: Inventory is anything constituting inventory for the firm. Inventory presentations are based on point-in-time balances at the end of the fiscal year, not averages. In addition, the data that we capture does not permit us to know what method of inventory accounting (LIFO or FIFO, for instance) was used. The figures presented are the yearly percent change in the inventory level of the industry.

2. Δ Total Current Assets (TCA)

How to Calculate: Subtract the prior period's total current assets from the current period's total current assets. Then, divide by those for the prior period.

(TCA current period - TCA prior period) / TCA prior period

How to Interpret: TCA includes cash and equivalents, trade receivables (net), inventory, and all other current assets excluding prepaid items. The figures presented are the yearly percent change in total current asset level of the industry.

3. Δ Total Assets (TA)

How to Calculate: Subtract the prior period's total assets from the current period's total assets. Then, divide by those for the prior period.

(TA current period - TA prior period) / TA prior period

How to Interpret: Total assets includes total current assets as well as fixed assets (net), intangibles (net), and all other noncurrent assets. The figures presented are the yearly percent change in the total asset level of the industry.

4. Δ Retained Earnings (RE)

How to Calculate: Subtract the prior period's retained earnings from the current period's retained earnings. Then, divide by those for the prior period.

$(\text{RE current period} - \text{RE prior period}) / \text{RE prior period}$

How to Interpret: Retained earnings are profits that have not been distributed to shareholders. The figures presented are the yearly percent change in the retained earnings of the industry.

5. Δ Net Sales (NS)

How to Calculate: Subtract the prior period's net sales from the current period's net sales. Then, divide by those for the prior period.

$(\text{NS current period} - \text{NS prior period}) / \text{NS prior period}$

How to Interpret: Net sales equals gross sales minus returns and discounts allowed, if there are any. The figures presented are the yearly percent change in the net sales of the industry. Although a firm's advertising and pricing policies affect the variability of sales, the major cause is the industry in which the firm operates. Sales in a cyclical industry will be volatile over the business cycle compared to sales of a firm in a noncyclical industry.

6. Δ Cost of Goods Sold (CGS)

How to Calculate: Subtract the cost of goods sold for the prior period from those for the current period. Then, divide by cost of goods sold for the prior period.

$(\text{CGS current period} - \text{CGS prior period}) / \text{CGS prior period}$

How to Interpret: CGS is the actual amount it takes to produce the good or service. The figures presented are the yearly percent change in the industry's cost of goods sold.

7. Δ Profit before Interest & Taxes (PBIT)

How to Calculate: Subtract the prior period's profit before interest and taxes from the current period's. Then, divide by the profit before interest and taxes for the prior period.

$(\text{PBIT current period} - \text{PBIT prior period}) / \text{PBIT prior period}$

How to Interpret: The figures presented are the yearly percent change in the profit before interest and taxes of the industry.

8. Δ Depreciation/Depletion/Amortization (DDA)

How to Calculate: Subtract the prior period's depreciation/depletion/amortization from the current period's. Then, divide by the depreciation/depletion/amortization for the prior period.

$(\text{DDA current period} - \text{DDA prior period}) / \text{DDA prior period}$

How to Interpret: DDA is the sum of all such noncash expenses incurred during the year covered by the statement. The figures presented are the yearly percent change in the DDA of the industry.

Other Ratios

The following ratios should be interpreted in conjunction with all other analytical ratios to supplement and highlight different aspects of the company's financial condition. They should not be used alone as the sole indicator of the industries' status.

1. Sustainable Growth Rate

How to Calculate: Follow the formula below to compute the SGR.

$SGR = \frac{p(1-d)(1+L)}{t - [p(1-d)(1+L)]}$, where

$p = \text{Net Income/Total Sales}$

$d = (\text{Cash Dividends} + \text{Stock Dividends})/\text{Net Income}$

$L = \text{Total Liabilities}/(\text{Net Worth} - \text{Intangibles})$

$t = \text{Total Assets}/\text{Total Sales}$

How to Interpret: The Sustainable Growth Rate (SGR) is a single number representing the annual percentage increase in sales that is consistent with a stable debt and capital structure (i.e., where total debt/net worth ratios do not change significantly or materially, from year to year). If a company's sales expand at a rate greater than the SGR, the company's debt/worth ratio will rise and result in an "out-of-equilibrium situation." When this happens, the firm approaches an over-leveraged position that raises the possibility of liquidity and debt repayment problems.

2. Funded Debt/EBITDA

How to Calculate: Follow the formula below to compute this measure of a firm's ability to service its debt.

$$\frac{(\text{Notes Payable} + \text{Current Maturities LTD} + \text{LTD})}{(\text{Profit before Taxes} + \text{Interest Expense} + \text{Depreciation, Depletion, Amortization Expense})}$$

How to Interpret: This ratio is a general measure of a firm's ability to retire its funded debt with earnings. As the calculated ratio grows larger, it may indicate that a borrower would have more difficulty in meeting the debt obligations. The use of EBITDA ratios without consideration of other factors can be misleading.

Please note — The Funded Debt/EBITDA ratio is a nonlinear array. In other words, an array that is NOT ordered from highest positive to highest negative as is the case for linear arrays. The values for the Funded Debt/EBITDA ratio are arrayed from the lowest to highest positive, undefined, and then from the lowest to highest negative.

If the Funded Debt/EBITDA ratio is positive, then the top quartile would be represented by the *lowest positive* ratio. If the ratio is negative, the top quartile will be represented by the *lowest negative* ratio! In a nonlinear array such as this ratio, the median could be either positive or negative because it is whatever the middle value is in the particular array of numbers.