

**WEB-ARTICLE  
TO ACCOMPANY  
THE MSCI EXECUTIVE CHART BOOK (ECB)**

**Note to Readers:** This is the second in a series of articles by Dr. Roger K. Harvey, President of Value Associates, Ltd. using statistics from the annual *MSCI Executive Chart Book (ECB)*.

Each article is presented in three parts:

- I. [Executive Summary](#)
- II. [Explanation of Topic](#)
- III. [Presentation and Interpretation of Selected ECB Performance Measures](#)
- IV. [Statistical Data from the ECB](#)

The statistical data from the *ECB* is presented as a downloadable Excel Worksheet. If you wish to go directly to the statistical data, please [click here](#).

This series of articles is presented for the benefit of both *ECB* subscribers and non-subscribers. Subscribers should refer to their confidential *ECB* for their center's calculated values of the performance measures referenced in this and future articles.

**If you are a non-subscriber** and wish to benchmark your center's performance, you will need to calculate your own performance measures using the formulas presented in Part I of the article.

**If you are a non-subscriber**, you may contact Chris Marti at MSCI headquarters ([cmarti@msci.org](mailto:cmarti@msci.org) or 773.867.8760 x104) for information on this free MSCI service.

**If you are a non-subscriber**, you can still receive your own confidential *ECB* by contacting Value Associates, Ltd. at [valueassociates@yahoo.com](mailto:valueassociates@yahoo.com) or 970.963.1444. It is not too late to submit a survey form with your 2001 annual data and receive a 2002 *ECB*. There is no charge for this MSCI service.

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**ARTICLE II: SOLVENCY MEASURES FOR YOU  
AND YOUR BOARD-OF-DIRECTORS**

**I. Executive Summary**

These are difficult economic times for the metal service center industry ... so difficult, in fact, that without knowing it, your company may be exposed to the risk of insolvency. This article presents seven key measures of solvency for you and your Board members to use in assessing the risk of insolvency (bankruptcy) in your organization. I have calculated benchmarking statistics from the *2002 MSCI Executive Chart Book (ECB)* and

used them to establish alert values for potential insolvency. The quartile statistics are available as an Excel file for downloading.

The following measures and alert values are presented in the body of the article:

1. [Cash Flow from Operations](#): an absolute dollar value whose benchmark value depends on the size of the firm. The survey data suggests this value should be no lower than \$7mm for the typical service center. A negative value is a red flag for Board members, owners and top managers.
2. [Free Cash Flow](#): an absolute dollar value whose benchmark value depends on the size of the firm. The survey data suggests this value should be no lower than \$500K for the typical service center. A negative value is a red flag for Board members, owners and top managers.
3. [Fixed Charge Coverage Ratio](#): a value below 3.0 times should serve as an alert. Board members, owners and top managers should deepen their analysis and implement cash forecasting tools.
4. [Times Interest Earned](#): a value below 1.0 is a red flag suggesting that earnings are not even covering interest payments.
5. [Debt to Equity Ratio](#) (%): a ratio of greater than 250% suggests too much debt. Board members, owners and top managers should ensure through in-depth analysis that cash flows are high enough to service both principal and interest payments.
6. [Current Assets minus Inventory to Current Liabilities](#): a not-so-reliable variation of the Current Ratio; *ECB* benchmark statistics suggest this ratio should not fall below .60.
7. [Cash Days](#): a liquidity ratio that measures the velocity of working capital; *ECB* benchmark statistics suggest this measure should not be greater than 150 days.

The risk of insolvency increases as your company falls outside of more than two of the benchmarks present in the article. To understand and measure the risk of insolvency in your company, please read on; and, if you are not an *ECB* participant, we suggest you sign-up today for the *Executive Chart Book*.

## II. What is “Solvency” and Why is it Important to You and Your Board?

### Overview

Members of your Board of Directors have a responsibility to stockholders, creditors and employees to insure the viability of their company. “Viability” means “life;” “viability” means “on-going concern” – both in the short-run and long-run. The viability

responsibility rests on the shoulders of every Board member, not just on those members who are on the audit committee. When Enron collapsed and WorldCom went into bankruptcy, fingers pointed at all Board members – not just those with finance or accounting backgrounds. Whether you are responsible to the Board or you are a Board member, the responsibility for the life of the company rests on your shoulders.

(Note to members of the Board of Directors: the assumption here is that you will be receiving accurate accounting data and financial ratios which you can use to assess insolvency risk in your company. Based on recent bankruptcies, this has not always been the case.)

In my first article of this series – *Getting More Value for Your Stockholders Through Economic Value Added Measures* – I proposed Economic Value Added (EVA) as one measure of viability. Your company will achieve positive EVA when its Return on Capital Employed exceeds its Cost-of-Capital. A company that year-after-year pays more for its capital than it earns certainly won't be viable in the long-run. EVA is one measure of viability and a measure that should be tracked by top management, owners and Board members.

But EVA is only one dimension of the two dimensions of viability. Your company can have positive EVA and still end up insolvent! Positive profitability and positive EVA are necessary but not sufficient conditions for survival. The other condition is “solvency.”

“Solvency” is the ability, or even more strongly stated, the act of paying creditors on time. The short-term connotation of solvency is liquidity, that being, paying suppliers and short-term creditors as their payments come due. The long-term connotation of solvency is paying principal and interest to bondholders and other long-term creditors, again when they come due. Failure to pay the piper means bankruptcy, and out goes the viability of the company.

This article will address the issue of viability by suggesting seven key performance measures of solvency. Because solvency has both short and long-run connotations, some of the measures will be designated short-term, others long-term. As each measure is developed, benchmark values for the measure will be presented from the 2002 *MSCI Executive Chart Book (ECB)*. Quartile benchmarks will be presented for all reporting firms and for firms by product line-of-business (i.e., Generals Line, Plates & Shapes, Flat-Rolled, Bar, Tubing, and Stainless/Non-Ferrous).

For this article, I will define three new performance measures that did not appear in the 2002 *ECB*: Cash Flow from Operations, Free Cash Flow, and Fixed Charge Coverage. Value Associates has calculated quartile statistics for these new measures from data submitted by last year's *ECB* participants. The other performance measures that I propose for evaluating your insolvency risk appeared in last year's *ECB* and, therefore, may be found in the *ECB*'s of participating companies. Finally, Table II-A – MSCI Solvency Statistics – presents the new as well as previously published benchmarking data referenced in this article; and, Table II-B – Solvency Statistics for Sample Companies –

presents benchmarking data for a group of companies with high bond ratings (Alcoa, General Electric, Wal-Mart, Kimberly Clark, and General Motors) and a group of companies with very low bond ratings (U.S. Steel, Bethlehem Steel, Weirton Steel, WorldCom, and Enron). The latter table is presented to give you an idea of how solvency measures vary across credit ratings.

### III. Seven Key Measures of Solvency

Let's start with the short-run and move to the long-run, although your Board members are probably less concerned with day-to-day bill paying than the long-term. Short-term solvency may be thought of in terms of liquidity; that is, paying bills as they come due. I will define two liquidity measures that traditionally have been used for measuring short-term solvency. Unfortunately, neither of them has proved accurate in predicting insolvency. The two measures are *Current Assets minus Inventory divided by Current Liabilities* and *Cash Days*.

I don't consider these two measures "key" measures of insolvency because of their poor track record, but I will present them under a cautionary note. Because the time horizon is short for "the ability to pay bills on time," better tools for assessing liquidity are either a Cash Budget or a short-term cash flow forecast.<sup>1</sup> These tools are typically spreadsheet-based with columns as months or weeks, and rows as those accounts having cash inflows or cash outflows during the period. The cell of the spreadsheet pinpoints the magnitude and time of the cash flow. The bottom row of the spreadsheet shows the cash need or surplus for the month or week.

With better cash planning tools in mind and the my cautionary notes about using annual liquidity ratios to predict insolvency, let me proceed with presenting *Current Assets minus Inventory divided by Current Liabilities* and *Cash Days* as two measures of short-term solvency.

#### **Current Assets minus Inventory divided by Current Liabilities**

This short-term liquidity measure is a variation of the Current Ratio. The idea is that Current Assets are liquid except for Inventory, so Inventory is "subtracted out" of Current Assets. (Because many service centers seem to be in love with their inventory and therefore reluctant to sell it, there may be some validity to this adjustment to the Current Ratio.)

A ratio equal to 1.0 suggests that for every dollar of Current Liabilities (liabilities that are coming due within a year), there is a dollar of Cash, Accounts Receivable, and Other Current Assets to pay the liability. The assumption, of course, is that Accounts Receivables and Other Current Assets will cycle into cash before the liabilities come due. This is not necessarily a valid assumption during difficult economic times, and might explain the poor predictive record of the ratio.

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<sup>1</sup> Roger K. Harvey, *Workshop Notes on Cash Forecasting Tools*. These notes as well as other information are available at no charge from Value Associates, Ltd., 970-963-1444 or [valueassociates@yahoo.com](mailto:valueassociates@yahoo.com).

[Table II-A](#) reports the quartile data for *Current Assets minus Inventory divided by Current Liabilities* for all reporting firms and for firms by product line-of-business. The median for all firms is approximately 1.0 suggesting a dollar in Cash, Accounts Receivable, and Other Current Assets for every dollar of short-term debt. The lower quartile for all firms was approximately .60. Service centers below this value should apply cash planning tools to closely monitor their monthly or weekly inflows and outflows of cash. The cost of a low *Current Assets minus Inventory divided by Current Liabilities* ratio is usually missing cash discounts and poor bargaining power with suppliers rather than bankruptcy.

## Cash Days

*Cash Days* is a measure of working capital in which Accounts Receivable, Inventory and Accounts Payable are defined in terms of “days” rather than “dollars.”

$$\text{Cash Days} = (\text{Days of A/R} + \text{Days of Inventory}) - \text{Days Payable Outstanding}$$

Usually, lower *Cash Days* are better than higher *Cash Days*. Companies that are doing a good job of turning their receivables and inventories, and who are negotiating favorable terms with their vendors, will have fewer *Cash Days*. Companies with slow turning inventories and receivables will have a higher number of *Cash Days*.

At the lower extreme, zero *Cash Days* suggest that creditors are financing all the receivables and inventory of the company – an unlikely scenario in the metal service industry. Any *Cash Days* greater than zero must be financed by short-term or long-term debt and equity. The higher the number of *Cash Days*, the more dollars that must be financed by these cost-bearing fund sources.

A cautionary note for this performance measure: *Cash Days* can be lowered by not paying vendors on time. Company’s can artificially lower their number of *Cash Days* by pushing up their Days Payable Outstanding. If they miss cash discounts or impede their sources of supply in doing so, then low *Cash Days* is bad for the company, not good.

Reviewing the median and upper quartile statistics for *Cash Days* in [Table II-A](#), a safe benchmark for metal service centers appears to be 100 days. This benchmark varies from line-of-business to line-of-business (a low of 75 days for General Line centers), but 100 days seems to be a good overall benchmark regardless of line-of-business.

Service centers with more than 150 days (approximately the lower quartile for all reporting firms and several lines-of-business) should implement the more detailed cash forecasting tools. This might include monthly cash inflow/cash outflow forecasts extended 6 to 12 months in the future. Looking ahead will allow negotiating short-term bank loans or lines-of-credit and, hopefully, avoid missing cash discounts and crisis cash management.

## Cash Flow

I developed two measures of cash flow for this article: *Cash Flow from Operations* and *Free Cash Flow*. Both of these measures move us from a short-term to a long-term perspective. Cash flow measures recognize that earnings are based on accrual accounting and do not equal cash flow except in the very long run. Both *Cash Flow from Operations* and *Free Cash Flow* are performance measures in their own right, but we will also use *Cash Flow from Operations* as numerator in our *Fixed Charge Coverage Ratio*.

How these two cash flow measures are defined varies all over the map. They are calculated one way for published annual reports, another way for SEC reporting, and still another way by the bond rating agencies. I was guided in my definition by academic formulas and by the data available in the annual *MSCI ECB* survey. My definitions do not include the more detailed adjustments used for published annual reports and SEC filings (e.g., bond amortization, share in minority interest income, and undistributed income of affiliates).<sup>2</sup> My results should not be materially distorted by ignoring these adjustments because most service centers in the *MSCI ECB* survey do not have material transactions of this nature.

### Cash Flow from Operations

I defined *Cash Flow from Operations* for the year 2001 as:

$$\begin{aligned} & \text{Earnings before Taxes for 2001} \\ & \text{Plus: Depreciation \& Amortization for 2001} \\ \\ & \text{Minus: Increase in Accounts Receivable from 2000 to 2001} \\ & \text{Minus: Increase in Inventory from 2000 to 2001} \\ \\ & \text{Plus: Increase in Accounts Payable from 2000 to 2001} \\ & \text{Plus: Increase in Other Current Liabilities from 2000 to 2001} \\ \\ \hline & \text{Equals: } \textit{Cash Flow from Operations} \end{aligned}$$

*Cash Flow from Operations* is a measure of the cash generated from operations (earnings, depreciation and increases in accounts payable, accrued wages, accrued taxes, etc.) minus cash used by operations (increases in accounts receivable and inventory). The signs of these accounts may be reversed so, for example, a decrease in accounts receivable results in an increase in *Cash Flow from Operations* and not a decrease in it. *Cash Flow from Operations* is a residual value, and if positive, is available for capital expenditures and/or the repayment of debt. As we will see below with the *Fixed Charge Coverage Ratio*, it is *Cash Flow from Operations* that is used to “cover” interest and principal payments.

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<sup>2</sup> For the more detailed formulas for Cash Flow from Operations and Fixed Charge Coverage ratios, see Leopold A. Bernstein and John J. Wild, *Analysis of Financial Statements*, 5<sup>th</sup> Edition, McGraw-Hill, 2000.

Reviewing the median and upper quartile statistics in [Table II-A](#), the median *Cash Flow from Operations* of all firms that reported in both years 2000 and 2001 was approximately \$17mm. Twenty-five percent of the firms in the survey generated less than \$7 mm in cash from operations. The Bar line-of-business experienced the lowest median cash flow at approximately \$5mm, and Stainless/Non-Ferrous the highest at \$65mm. (There may be a scale factor here with larger firms tending to generate higher cash flows.)

In evaluating your company's cash flow, you can use the lower and upper quartile statistics for all firms and for your line-of-business. Again, keep the scale factor in mind: Are you a large, medium or small service center? Regardless of the size of your service center, the risk of insolvency increases the lower your *Cash Flow from Operations*. The risk becomes much greater if your cash flow is negative, and your insolvency risk is especially high if *Cash Flow from Operations* has been negative over the past three or more years.

### **Free Cash Flow**

For this article, I defined *Free Cash Flow* for the year 2001 as:

Earnings before Interest & Taxes (EBIT) for 2001  
Minus: Taxes on EBIT (your effective tax rate in 2001 times EBIT)

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Equals: Operating Profit After Taxes for 2001

Plus: Depreciation & Amortization for 2001

Minus: Increase in Accounts Receivable from 2000 to 2001

Minus: Increase in Inventory from 2000 to 2001

Plus: Increase in Accounts Payable from 2000 to 2001

Plus: Increase in Other Current Liabilities from 2000 to 2001

Minus: Capital Expenditures for 2001

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Equals: *Free Cash Flow*

Unlike *Cash Flow from Operations*, *Free Cash Flow* is after taxes and after capital expenditures. *Free Cash Flow* is the cash that remains for short-term and long-term debt servicing and to pay dividends. It is an important measure for creditors because *Free Cash Flow* is available for debt repayment. *Free Cash Flow* is important to shareholders because it represents cash available for dividends, acquisitions, stock repurchase, capital restructuring, and other needs within or outside of the company. From a stockholder's viewpoint, if Free Cash Flow minus debt repayment is zero over the long-run, the company's stock has no value – all cash is being consumed by operations and creditors.

*Free Cash Flow* as defined here should not be confused with Free Cash Flow as it is used in the Cash Flow Statement found in annual reports. Accountants define Free Cash Flow as the residual of Cash Flow from Operating Activities, Cash Flow from Financing Activities, and Cash Flow from Investing Activities in an annual report's Cash Flow Statement. I use *Free Cash Flow* in an economic context as the net cash flow from operations after deduction for reinvestment in working capital and capital equipment, i.e., after capital investment to keep operations going. *Free Cash Flow* as used here is frequently the numerator in discounted cash flow calculations to determine the market value of a company.

A zero *Free Cash Flow* value for a company means the company's operations are not throwing off any cash. All cash being generated by operations is required to sustain those operations. A review of [Table II-A](#) shows the median *Free Cash Flow* for all reporting service centers was approximately \$3mm (compared to *Cash Flow from Operations* of \$17mm). Taxes and capital expenditures in 2001 accounted for the difference between the two cash flow numbers. Twenty-five percent of all service centers generated less than \$500K of *Free Cash Flow*. Surprisingly, the lower quartile *Free Cash Flow* for Stainless/Non-Ferrous service centers was negative; surprising, because the median company in the Stainless/Non-Ferrous line-of-business was the highest median value (\$12mm) of any line-of-business.

Although benchmarking this measure is useful, the measure can be evaluated by itself. If your company's *Free Cash Flow* is zero or negative, then the company faces a higher risk of not being able to repay creditors. As with zero or negative *Cash Flow from Operations*, this might lead to insolvency if it persists over three or more years. Equally risky over the long-run is pumping-up *Free Cash Flow* into positive territory by cutting back on capital investment ... not replacing or not upgrading equipment that will sustain the cash generating ability of operations has a positive affect on *Free Cash Flow* in the short-run and a negative affect in the long-run. A strategy of not reinvesting in operations threatens the long-run viability of the company.

### **Fixed Charge Coverage Ratio**

After evaluating your company's *Cash Flow from Operations* and *Free Cash Flow*, you can take solvency analysis to the next level by asking the following questions: Will my cash flow cover my debt servicing requirements? What is the ratio of my cash flow to debt service payments? I will use *Cash Flow from Operations* as the numerator in a coverage ratio to answer these questions.

Fixed charges may be defined to include a number of different "required" payments to creditors or quasi-creditors. If debt and lease payments are not met, the company will be in default of loan or lease agreements, and could be thrown into bankruptcy. Again, for this measure, I defined fixed charges in terms of data that was available from the *MSCI*

ECB survey.<sup>3</sup> The fixed charges that I will use in the denominator of my *Fixed Charge Coverage Ratio* are

Interest Expense  
Plus: Lease Expense  
Plus: Current Portion of Long-Term Debt

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Equals: Fixed Charges

The formula for the *Fixed Charge Coverage Ratio*, adding back Interest Expense and Lease Expense to the numerator to avoid double-counting, is as follows:

Cash Flow from Operations + Interest Expense + Lease Expense

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Interest Expense + Lease Expense + Cur. Maturities of L.T. Debt

From the survey, I am using the account *Other Current Debt-Interest Bearing* as an approximation for *Current Maturities of Long-Term Debt*. To the extent that this account includes revolving bank credit in the form of short-term notes payable, I have overstated the amount of debt that must be repaid during the period. Future surveys will ask for *Current Maturities of Long-Term Debt* directly so this ratio may more accurately reflect the “required” debt repayment of MSCI service centers.

The *Fixed Charge Coverage Ratio* is one of the best measures of insolvency risk. Rather than being an absolute number such as *Cash Flow from Operations* or *Free Cash Flow*, this is a “ratio” that relates cash flow to required debt service payments. Because it is a ratio, you can benchmark the *Fixed Charge Coverage Ratio* with quartile statistics for the industry or for your line-of-business, regardless of the size of your company.

Quartile statistics in [Table II-A](#) suggests that a safe benchmark for the *Fixed Charge Coverage Ratio* is 8.0 times. This means that, on average, the median company’s cash flow covered its fixed charges 8 times; lower quartile companies covered their fixed charges less than 3.0 times. (As we will see below, comparing the typical MSCI service center with our sample of companies with high bond ratings, an 8.0 coverage ratio appears to be more than adequate.) A *Fixed Charge Coverage Ratio* of 1.0 means that the company has covered its fixed charges one time. Higher values are better than lower values. Zero or negative values suggest very high insolvency risk.

[Table II-B](#) shows the *Fixed Charge Coverage Ratio* for five companies with high bond ratings (AA rated or higher) and five companies with low bond ratings (C rated or lower). The *Fixed Charge Coverage Ratio* for most of the companies with low bond ratings is

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<sup>3</sup> For the more detailed formulas for fixed charges, see Leopold A. Bernstein and John J. Wild, *Analysis of Financial Statements*, 5<sup>th</sup> Edition, McGraw-Hill, 2000.

negative; the exception is WorldCom with a ratio of 3.36 times. Surprisingly, the typical ratio for companies with high bond ratings is not as high as the 8.0 median for MSCI service centers. It appears, then, that the typical MSCI company, with an 8.0 ratio, has more than adequate coverage of fixed charges. The lower quartile Stainless/Non-Ferrous service centers appear to be in the highest insolvency risk position with *Fixed Charge Coverage Ratios* of 1.5 times or lower.

### **Times Interested Earned Ratio**

The *Times Interest Earned Ratio* is defined as

$$\frac{\text{Earnings Before Taxes} + \text{Interest Expense}}{\text{Interest Expense}}$$

The *Times Interest Earned Ratio* is an earnings coverage ratio that defines Interest Expense as its only fixed charge. With computation so simple, it is potentially misleading, and a weak sister to the previously defined *Fixed Charge Coverage Ratio*. When the *Fixed Charge Coverage Ratio* is available, it should be used to assess insolvency risk rather than the *Times Interest Earned Ratio*.

A review of [Table II-A](#) shows that the median *Times Interest Earned Ratio* for all reporting MSCI service centers is approximately 2.3 times. This means that the typical metal service center has earnings before interest and taxes (EBIT) that is 2.3 times their Interest Expense. When this ratio is equal to 1.0, it means that earnings just cover Interest Expense, that is, earnings before taxes are zero and Interest Expense has been covered one time. As was true for the *Fixed Charge Coverage Ratio*, Stainless/Non-Ferrous service centers had the lowest *Times Interest Earned Ratio* with a median value of .67 times and a lower quartile value of -.92. A negative *Times Interest Earned Ratio* indicates that negative earnings, which obviously do not cover Interest Expense. If your line-of-business is Stainless/Non-Ferrous or if your service center's *Times Interest Earned Ratio* is below 1.0, you need to pay special attention to your *Fixed Charge Coverage Ratio* – it also may be in the danger zone.

### **Capital Structure Ratios**

Solvency measures thus far have focused on the flows within a company: cash flows, earnings flows, and debt service requirements. A second element in evaluating insolvency risk is capital structure. Capital structure refers to the relationship between debt and equity, and the timing of debt repayments.

I propose three ratios for evaluating your capital structure and the ensuing risk of insolvency:

- *Debt to Equity Ratio* = Total Debt divided by Total Equity

- *Long-Term Debt to Equity* = Long-Term Debt (including Deferred Taxes) divided by Total Equity
- *Current-Debt to Equity* = Current Liabilities divided by Total Equity

The formulas for these ratios are self-explanatory, except to note that Total Debt and Long-Term Debt include Deferred Taxes. This definition is consistent with the *MSCI ECB* survey.

From [Table II-A](#), the median *Debt to Equity Ratio* for all reporting firms is approximately 100%. In ratio terms, each \$1.00 of equity was supporting \$1.00 in debt. For Flat-Rolled and Stainless/Non-Ferrous service centers the median moved up to 150%. *Debt to Equity Ratios* in the range of 100% to 150% are prudent, and within the range of the typical wholesale distribution firm. The lower quartile *Debt to Equity Ratio* for all reporting firms is approximately 250%; the lower quartile value for Stainless/Non-Ferrous service centers is a high 300%. The Bar service centers by far are the mostly conservatively financed with a median *Debt to Equity Ratio* of only 28%.

*Debt to Equity Ratios* above 250% suggest a higher probability of insolvency, especially if the same company is in the lower quartile for the *Fixed Charge Coverage Ratio*. This relationship suggests too much debt combined with difficulty covering the debt payments – the path to insolvency.

The median value for *Long-Term Debt to Equity* for all reporting companies is approximately 30%, and median *Current Debt to Equity Ratio* is approximately 50%. More of the typical service center's debt came from short-term sources (mills and banks) than from long-term sources (bonds, notes, and mortgages). This is typical in wholesale distribution businesses where companies typically do not have access to the bond market and other sources of long-term financing. That having been said, short-term debt is more risky than long-term debt because it comes due sooner and, when renegotiated, more frequently.

Service centers with high *Debt to Equity Ratios* (i.e., over 250%) and the majority of the debt in short-term payables and short-term notes face a higher risk of insolvency. If this is the case in your company, you should consider applying the in-depth cash forecasting tools mentioned earlier in the article.

## Conclusion

Contemporary psychology finds that people can remember “7” items and no more than seven (e.g., 7 days in the week, 7 deadly sins, 7 habits of ..., the “7” commandments, etc.). This article presented “7” key performance measures for evaluating insolvency risk in your company. As you fall out of the benchmarking ranges discussed in this article, and presented in [Table II-A](#), your company's risk of insolvency increases. Your risk will be especially high if your company falls outside the lower quartile values in more than two of the seven ratios.

If you evaluate your company with a high insolvency risk, your analysis and actions should go beyond those discussed in this article. There are in-depth tools for forecasting cash inflows and outflows on a monthly or weekly basis. These tools will estimate your cash needs and give you lead time in negotiating additional sources of cash or taking the necessary operational actions to reduce your need for cash. Failure to act early can threaten the vitality of your company.<sup>4</sup>

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<sup>4</sup> For more information of cash flow forecasting resources, contact the author at [rh Harvey\\_2@yahoo.com](mailto:rh Harvey_2@yahoo.com) or by calling 970.963.1444.

**Table II-A  
MSCI SOLVENCY STATISTICS  
From Year 2001 Data**

Ratio ID	Performance Measure	Your Firm	All Firms			
			Count	Lower Quartile	Median	Upper Quartile
N/A	Cash Flow From Operations		93	\$6,910,480	\$16,950,725	\$39,273,307
N/A	Free Cash Flow		93	\$436,193	\$2,996,610	\$9,823,085
N/A	Fixed Charge Coverage		92	2.91	7.91	14.85
RAT132	Times Interest Earned		82	0.38	2.29	5.34
RAT104	Debt to Equity Ratio		87	242.1%	105.7%	28.4%
RAT500	Long-Term Debt to Equity Ratio		78	89.3%	28.7%	4.2%
RAT501	Current Debt to Equity Ratio		87	160.5%	50.8%	20.6%
RAT503	Current Assets - Inventory to Cur Debt		89	0.58	1.04	1.66
RAT525	Cash Days (Avg.)		69	143	111	93

Ratio ID	Performance Measure	Your Firm	General Line			
			Count	Lower Quartile	Median	Upper Quartile
N/A	Cash Flow From Operations		22	\$4,578,445	\$12,248,949	\$28,667,690
N/A	Free Cash Flow		22	\$244,487	\$818,137	\$6,927,902
N/A	Fixed Charge Coverage		21	4.71	8.36	13.41
RAT132	Times Interest Earned		19	0.28	1.35	2.47
RAT104	Debt to Equity Ratio		20	163.7%	125.2%	73.6%
RAT500	Long-Term Debt to Equity Ratio		19	100.3%	64.2%	14.9%
RAT501	Current Debt to Equity Ratio		20	112.5%	48.7%	21.4%
RAT503	Current Assets - Inventory to Cur Debt		21	0.84	1.14	1.86
RAT525	Cash Days (Avg)		15	109	93	75

Ratio ID	Performance Measure	Your Firm	Plates & Shapes			
			Count	Lower Quartile	Median	Upper Quartile
N/A	Cash Flow From Operations		20	\$4,741,605	\$12,237,234	\$29,404,440
N/A	Free Cash Flow		20	\$949,776	\$3,287,682	\$12,001,019
N/A	Fixed Charge Coverage		20	3.55	10.98	16.25
RAT132	Times Interest Earned		18	1.39	3.96	8.40
RAT104	Debt to Equity Ratio		18	196.1%	76.7%	28.5%
RAT500	Long-Term Debt to Equity Ratio		16	83.1%	33.5%	8.5%
RAT501	Current Debt to Equity Ratio		18	119.5%	46.5%	25.0%
RAT503	Current Assets - Inventory to Cur Debt		18	0.76	1.14	1.52
RAT525	Cash Days (Avg)		15	134	101	91

Ratio ID	Performance Measure	Your Firm	Flat Rolled			
			Count	Lower Quartile	Median	Upper Quartile
N/A	Cash Flow From Operations		33	\$11,026,913	\$19,717,675	\$29,347,525
N/A	Free Cash Flow		33	\$417,283	\$3,786,048	\$8,473,789
N/A	Fixed Charge Coverage		33	2.00	6.05	10.76
RAT132	Times Interest Earned		28	-0.25	1.81	4.27
RAT104	Debt to Equity Ratio		28	342.7%	200.9%	99.1%
RAT500	Long-Term Debt to Equity Ratio		24	107.2%	45.6%	12.3%
RAT501	Current Debt to Equity Ratio		28	255.1%	139.2%	37.1%
RAT503	Current Assets - Inventory to Cur Debt		29	0.36	0.56	1.39
RAT525	Cash Days (Avg)		23	123	112	103

Ratio ID	Performance Measure	Your Firm	Bar			
			Count	Lower Quartile	Median	Upper Quartile
N/A	Cash Flow From Operations		8	\$3,029,476	\$5,188,260	\$43,509,174

N/A	Free Cash Flow		8	\$477,798	\$961,634	\$9,912,246
N/A	Fixed Charge Coverage		8	4.52	11.01	16.54
RAT132	Times Interest Earned		6	2.89	6.08	9.92
RAT104	Debt to Equity Ratio		9	32.4%	28.1%	13.3%
RAT500	Long-Term Debt to Equity Ratio		8	7.4%	2.1%	0.0%
RAT501	Current Debt to Equity Ratio		9	28.1%	15.7%	8.9%
RAT503	Current Assets - Inventory to Cur Debt		9	1.04	1.90	6.00
RAT525	Cash Days (Avg)		7	156	143	130

Ratio ID	Performance Measure	Your Firm	Tubing			
			Count	Lower Quartile	Median	Upper Quartile
N/A	Cash Flow From Operations		N/A			
N/A	Free Cash Flow		N/A			
N/A	Fixed Charge Coverage		N/A			
RAT132	Times Interest Earned		N/A			
RAT104	Debt to Equity Ratio		N/A			
RAT500	Long-Term Debt to Equity Ratio		N/A			
RAT501	Current Debt to Equity Ratio		N/A			
RAT503	Current Assets - Inventory to Cur Debt		N/A			
RAT525	Cash Days (Avg)		N/A			

Ratio ID	Performance Measure	Your Firm	Stainless/Non-Ferrous			
			Count	Lower Quartile	Median	Upper Quartile
N/A	Cash Flow From Operations		7	\$10,373,355	\$64,710,020	\$278,758,870
N/A	Free Cash Flow		7	(\$500,876)	\$12,233,678	\$69,522,653
N/A	Fixed Charge Coverage		7	1.51	7.52	14.22
RAT132	Times Interest Earned		7	-0.92	0.67	4.88

<b>RAT104</b>	<b>Debt to Equity Ratio</b>		7	297.5%	145.9%	95.2%
<b>RAT500</b>	<b>Long-Term Debt to Equity Ratio</b>		7	94.8%	7.0%	2.6%
<b>RAT501</b>	<b>Current Debt to Equity Ratio</b>		7	182.0%	66.7%	49.3%
<b>RAT503</b>	<b>Current Assets - Inventory to Cur Debt</b>		7	0.51	0.58	0.98
<b>RAT525</b>	<b>Cash Days (Avg)</b>		6	162	140	106

**Table II-B**  
**SOLVENCY STATISTICS FOR SAMPLE COMPANIES**  
**From Year 2001 Data**

Ratio ID	Performance Measure	Your Firm	Companies with HIGH Grade Bond Ratings				
			Alcoa [AA]	General Electric [GE]	Wal Mart [WMT]	Kimberly Clark [KMB]	General Motors [GM]
N/A	Cash Flow From Operations (millions)		\$3,912	\$153,762	\$14,550	\$2,880	\$16,662
N/A	Fixed Charge Coverage		5.27	3.39	2.63	8.16	2.24
RAT132	Times Interest Earned		4.93	1.50	8.82	12.33	1.17
RAT104	Debt to Equity Ratio		167.1%	802.9%	138.0%	166.0%	154.3%
RAT500	Long-Term Debt to Equity Ratio		60.2%	240.0%	11.6%	91.9%	122.0%
RAT501	Current Debt to Equity Ratio		47.1%	304.0%	77.7%	73.8%	32.6%
RAT503	Current Assets - Inventory to Cur Debt		0.85	0.79	0.21	0.58	0.74
Ratio ID	Performance Measure	Your Firm	Companies with High LOW Bond Ratings				
			U.S. Steel [X]	Bethlehem Steel [BHMSQ]	Weirton Steel [WRTL}	Worldcom [WCOEQ]	Enron 2000 [ENRON}
N/A	Cash Flow From Operations (millions)		(\$328)	(\$1,419)	(\$271)	\$8,345	\$2,237
N/A	Fixed Charge Coverage		(0.56)	(11.29)	(0.80)	3.36	1.46
RAT132	Times Interest Earned		(2.57)	(11.39)	(8.97)	3.33	2.77
RAT104	Debt to Equity Ratio		233.0%	Negative	Negative	73.4%	471.0%
RAT500	Long-Term Debt to Equity Ratio		182.0%	Negative	Negative	58.0%	223.0%
RAT501	Current Debt to Equity Ratio		50.2%	Negative	Negative	15.3%	248.0%
RAT503	Current Assets - Inventory to Cur Debt		0.96	1.76	0.22	1.00	1.04