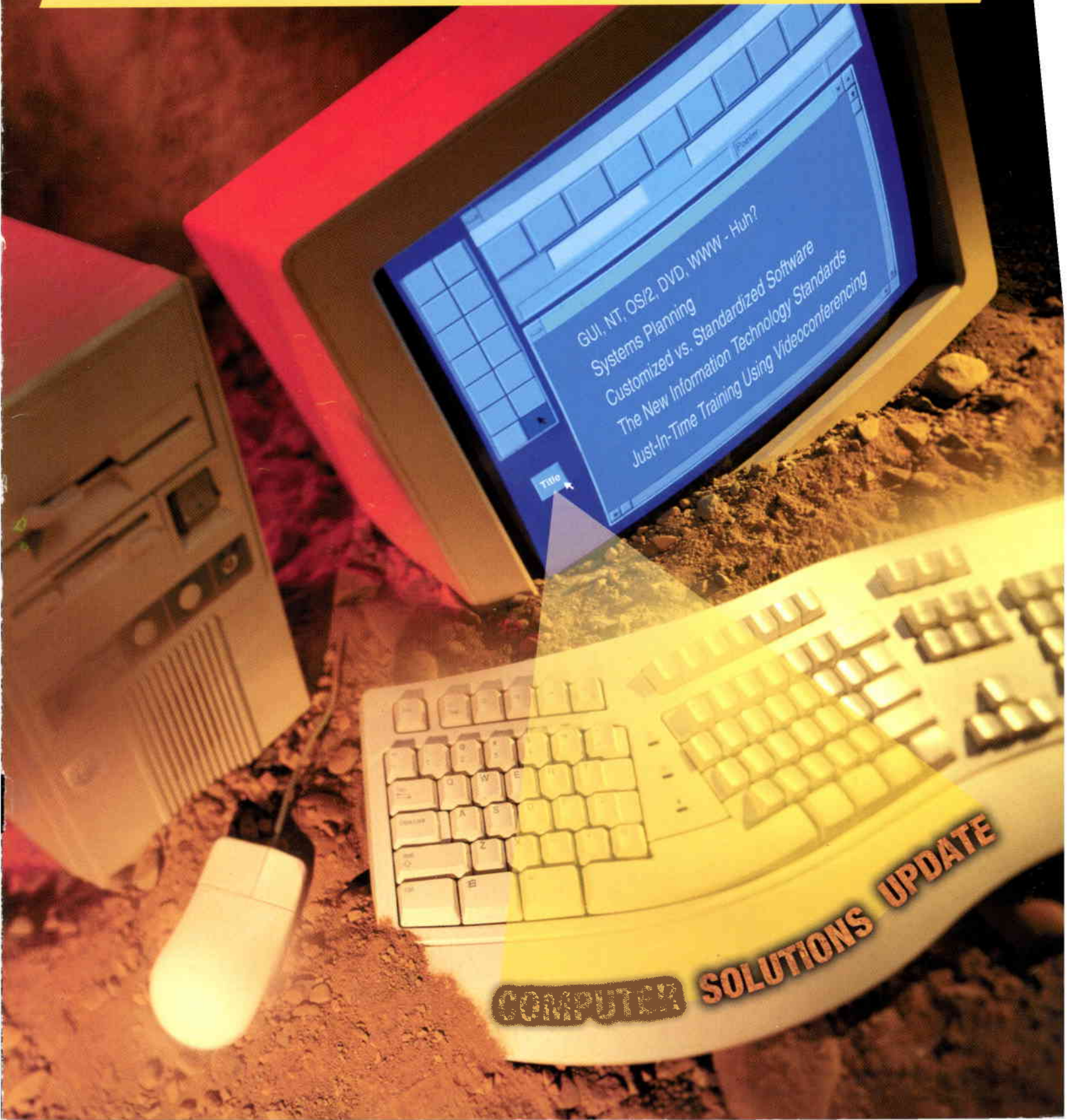


Building Profits



The CFO's Toolbox:

Measuring Financial Risk in the Closely-Held Construction Company

by Thomas C. Schleifer

As those of you with a history in the construction business know, the corporate decisions or events that are the common causes of financial failure usually precede the actual failure by two to three years. Unfortunately, modest changes in either financial statement data or standard financial ratios do not accurately forecast deterioration in financial performance or possible increases in financial risk. So, early detection of financial weakness is important because it allows management time to take appropriate defensive action in an effort to keep the business from failing.

A New Method

Since better control of financial risk could reduce the incidence of failure, a new method is needed that can provide CFOs with:

- 1) A warning of any changes in the performance of closely-held construction companies.
- 2) A combination of ratios that crosses categories of standard ratios – in effect, reducing or eliminating the impact of different accounting methods.
- 3) An accurate measurement of the performance of closely-held construction companies that is easy to use and not too complicated or labor intensive.

A New Measure of Risk

The financial risk of a closely-held construction company will change as annual sales (turnover) change unless the relationship of profit margin, assets, liabilities, and debt remains the same. Measuring the changes in these relationships by using performance, efficiency, and debt ratios can measure changes in financial risk, assuming that the appropriate ratios have been selected. For example, the efficiency ratio of sales to total assets can be misleading when used to interpret a construction company's financial risk. If assets are reduced and sales remain the same, the company's

sales turnover or efficiency ratio (S/A) goes up. However, when the assets that a company has to support its bank and bonding credit are reduced, the company is at greater financial risk. The same relationship exists when liabilities of a company increase in the total liabilities to total assets ratio over what they were during successful or profitable years. A company may continue to be profitable when its liabilities increase relative to its assets, but its financial risk increases.

By combining the turnover ratio of a company with its debt structure, one can determine whether or not they are in balance. The outside financing that a closely-held construction company is able to obtain is limited by debt and performance ratios set by banks and bonding companies, which effectively form industry credit-granting standards. A company with too much debt can find itself cut off by its lenders, causing immediate failure if an alternate source of financing cannot be arranged quickly. A combination of performance, efficiency, and debt ratios can be used to determine if a company is approaching that point. Debt to equity and liabilities to assets combined with the performance indicator of net profit margin can gauge the direction in which the firm is heading.

A New Formula

Changes in one financial ratio inevitably force changes in other ratios. The interdependence of various ratios can be traced and used to develop a financial measurement formula, but several variables must be considered. The problems of different bookkeeping methods and treatment of work-in-progress suggest that gross ratios, rather than ratios found internally, should be used. The significant standard financial ratio categories are turnover, profit, and debt. Ratios selected from these categories are least affected by internal bookkeeping methods.

Available Profit – A new concept for the closely-held construction company. The term “profit” seems to imply that a firm can use the funds generated by profits for whatever purpose it chooses. This is not the case because it takes money to run the business. In order to remain competitive in an ever-changing industry, a portion of the profits will be required for next year’s operations, for replacement of the assets not covered by inflation, and for obsolescence and productivity improvements. In addition, some of the profits earned are needed just to deal with the timing of receipts and the retirement of liabilities.

The balance of liabilities to assets is a measure of the long-term liquidity of the firm, and a certain portion of profits is needed to replenish assets and retire liabilities in the near term to maintain the balance. The replenishment will vary, depending on the liabilities to asset ratio unique to each company, which is simply the financial makeup of the company or its financial foundation. The amount of funds generated by profits that will remain more or less permanently within the financial structure of the company can be measured to determine the Available Profit.

Available Profit is the portion of profits that can be taken out of the company or applied to the expansion of the business without materially affecting the financial foundation of the firm in its existing operations. The measurement of Available Profit is accomplished by reducing the total profits by the proportional amount of liabilities in the liability to asset ratio (total liabilities divided by total liabilities plus assets). The formula is:

$$AP = 1 - NP/S - \{10 [TL/(TL + TA)] (NP/S)\}$$

NP/S is Profit/Sales
 TL is Total Liabilities
 TA is Total Assets

One minus net profit to sales is used to deal with companies with negative profit (loss) to create a positive number in this element of the formula. Sales to total assets and total liabilities to assets is generally a number greater than one. Therefore, the decimal place for the profit element is moved one place to the right to create an appropriate relationship with the other elements in the formula. This formula is not used independently, but is one building block of the new Risk Factor Formula presented in this article.

Real Earning Power – The measurement of financial risk includes the earning power of a company. The earning power ratio is profit margin times sales to asset ratio. When Available Profit is substituted for profit margin, a different

earning power (referred to as the Real Earning Power) can be determined by multiplying the Available Profit by the turnover ratio. The formula is:

$$REP = (AP) (S/TA)$$

AP is Available Profit
 S/TA is Sales/Total Assets

Debt Structure – In addition to its financial performance and turnover rate, the debt structure must also be considered when determining the overall financial picture of a company. Debt in the capital structure of the corporation can be described as the portion of the company owned by others or funds otherwise committed. Combining the firm’s debt ratio of total liabilities to equity with Real Earning Power represents the current financial risk or the “Risk Factor” of a company. (The Risk Factor Formula is shown at the bottom of this page.)

The Concepts Behind the Formula

A construction company does not have the luxury to withdraw from its operations *all* of the profit that it earns in any given year because some of it is needed to run the business. The portion that must remain in the business to maintain the company’s assets to liability balance will vary between individual firms, but is approximated by subtracting from net profit margin the proportion that liabilities represent in the liabilities to assets ratio. Simply put, if a firm’s liabilities to assets are 1 to 3, one third of the profits must remain in the operation to support ongoing business. If more than that is taken out of the company or used for other than normal business activity, other funds will have to replace those taken. For the closely-held company, that inevitably means borrowing. Borrowing increases liabilities with a resultant change in the liabilities to assets ratio. The amount of investment in the company held by outsiders goes up, while the investment of the owners of the company goes down. The company is at greater financial risk because it is less self-sustaining. Consequently, there is definitely a difference between profit and Available Profit.

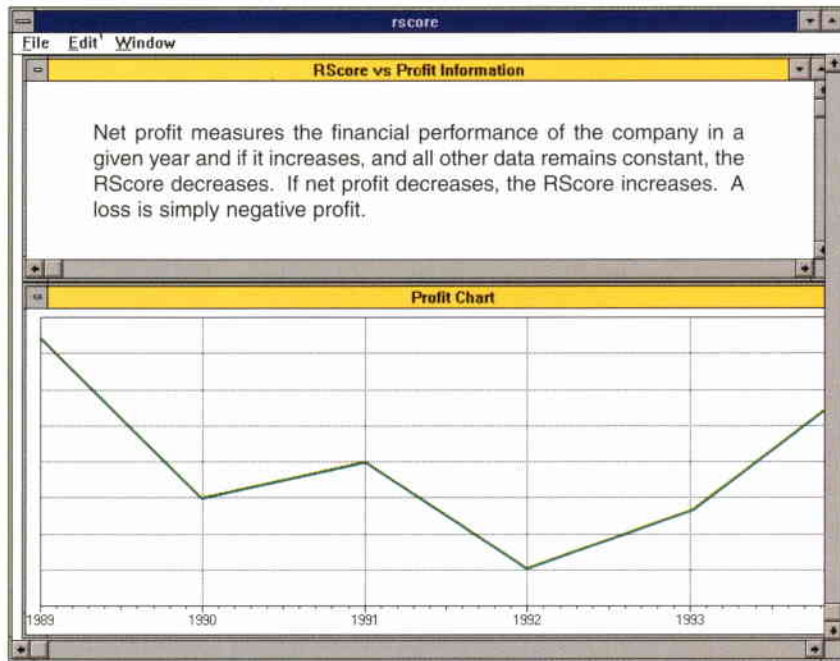
The Real Earning Power of a closely-held construction company is an extension of the standard earning power ratio. A company’s earning power can be calculated by multiplying its profit margin by its turnover ratio of sales to assets. The turnover ratio is a measure of the relative efficiency with which a firm uses its resources to generate outcome (funds). All of the profit margin is not available to apply to earning power in the short run. When Available Profit is used in the earning power formula the closely-held construction company’s Real Earning Power is calculated.

The Risk Factor (RScore) Formula:

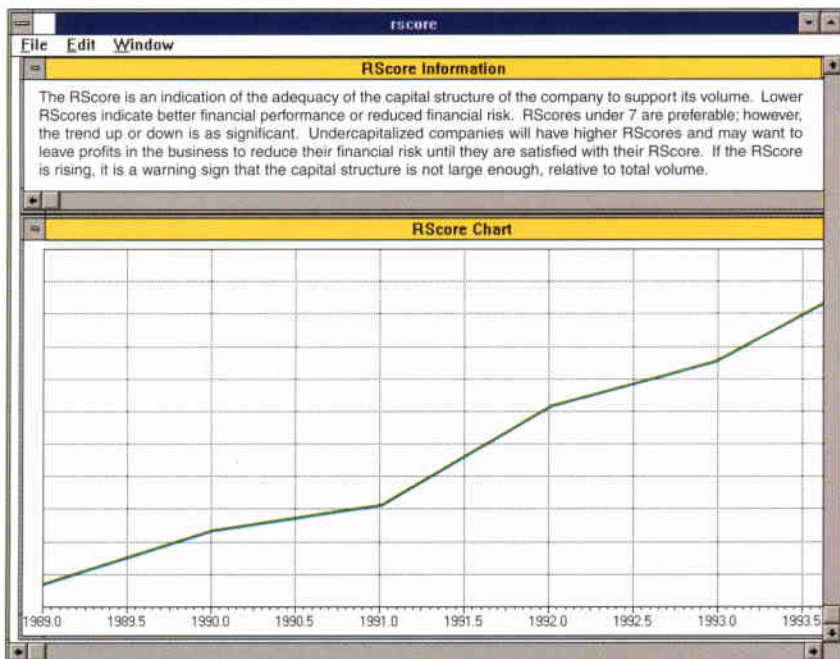
$$R = (1 - NP/S - (10 (TL/(TL + TA)) (NP/S))) (S/TA) (TL/E)$$

R = Available Profit x Asset Turnover x Debt Structure
 R is Risk Factor
 TL/E is Total Liability/Equity

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Real Earning Power combined with the company's capital structure determine its financial well-being. If there is too much debt in the capital structure, outsiders are too heavily invested in the company compared to equity holders. In which case, reserves may be limited or non-existent because there is a real cost of debt, and few business people substitute debt if internal funding is available. The debt to equity ratio describes the amount of debt in the capital structure of the company and a measure of the prudence of the debt management of the firm. However, the total liabilities of the company represents what it owes to others or its "total debt."



A measurement of the financial risk or relative financial strength of a closely-held construction company is achieved by combining, in a logical manner, its Real Earning Power with its ratio of total debt to equity, represented by total liabilities to equity. The Risk Factor (RScore) Formula uses net profit margin, total liabilities to total assets, the turnover ratio, and total liabilities to equity in calculating the financial risk of a closely-held construction company. The Formula combines measurements of performance (NP/S), long-term liquidity (TL/TA), resource utilization efficiency (S/A), and debt management (TL/E).

Why the Formula Works

The Risk Factor Formula answers three questions:

- 1) Is the construction company's performance adequate, considering its capital structure?
- 2) Is the company's earning power providing enough funds to maintain its assets to liabilities balance?
- 3) Is there adequate equity in the company's capital/debt structure to deliver the capital or credit necessary to underwrite operations and ensure against unforeseen losses?

What Your RScore Means

Test data suggest that RScores below 5 indicate low financial risk; scores between 5 and 7 are moderate. Scores above 7 indicate that financial resources are stretched; scores above 9 indicate high financial risk. If the RScore is very high, the company is highly leveraged. An over-leveraged company cannot deal with a slow year or with disruptions in receivables. The company may be profitable, but its financial condition is precarious. Operating profitably "on the edge" makes little sense for the closely-held company for many reasons, not the least of which is that the principals are personally liable. There is too much at stake to allow high financial risk to continue once discovered.

Your RScore *trend* is more important than your raw score. Determine what your RScore was for each of the past five years. Or better yet, figure it for a year when you were happy with your company's performance. If it was 6 in a good year and is now 8, the risk is shifting in the wrong direction. If your RScore was 8 or 9 in a year when you were satisfied with results and it's now 7 or 8, the trend is in the proper direction.

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Summary

The Risk Factor Formula gives a numerical and accurate measurement of financial risk and provides an accurate measurement of financial strengths or weaknesses; its proper use can provide early warning of financial distress and help reduce the failure rate in the U.S. construction industry.

- The Risk Factor Formula provides an easy-to-use, accurate financial risk and relative financial strength measurement tool for the closely-held construction company.
- A multi-year trend evaluation, using the RScores of a closely-held construction company, provides a quick and accurate picture of financial performance and financial risk.
- The Risk Factor Formula can be used as a self-evaluation tool for closely-held construction companies or as an external tool for credit grantors.

Better control of financial risk through use of the Risk Factor Formula should reduce the number of construction failures. And a reduction in the industry's extremely high failure rate should lower aggregate construction costs and have a positive effect on the economy. **BP**

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About the Author

Dr. Thomas C. Schleifer is a turnaround expert and management consultant to the construction industry located in Scottsdale, AZ (602-945-7680). He has over 30 years of contracting and consulting experience and advises contractors on organization, structure, and strategic planning. Tom has lectured extensively at universities and professional and trade associations, as well as authored numerous articles and publications on construction and business management.



Tom is the creator of the Risk Factor (RScore) Formula and the developer of its accompanying software. He is also the author of the "Construction Contractors' Survival Guide."

Tom has a BS and MS in Construction Management from East Carolina University and a PhD in Construction Management from Heriot-Watt University in Edinburgh, Scotland.

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