

The **V** Formula

It helps you decide whether you're making sound investments that will grow shareholder wealth.

BY CHRISTOPHER VOLK

“YOU CAN FOOL ALL THE PEOPLE SOME OF THE TIME, AND SOME OF THE PEOPLE ALL THE TIME, BUT YOU CANNOT FOOL ALL THE PEOPLE ALL THE TIME.”

—Abraham Lincoln

This is especially true when you're talking about earnings growth. Earnings growth without investments made at required shareholder targets isn't quality earnings growth. Shareholders can be fooled for only so long, and, eventually, investment returns become obvious to all. *Nobody* is fooled.

Boston Chicken shareholders were fooled. Why? Because the lure of an aggressive development schedule in a new foodservice arena, together with rapid earnings growth, proved irresistible. Lost in the equation were dismal results at the store level. Shareholder capital was being eroded even as the stock was reaching all-time highs. By last October, Boston Chicken found itself in bankruptcy. It goes to show, quality earnings growth is vital to increasing shareholder wealth.

So how do you ensure quality earnings growth? If you can get returns greater than the cost of your equity capital, your company will be worth more than the sum of its parts. And if you can do that over a long period of time, you can drive shareholder wealth.



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Two years ago, I came up with a formula to help our clients ensure they are making sound investments that will grow shareholder wealth. Called the V Formula, it determines the amount of value created by each new investment. The notion is simple: Shareholder returns always drive the capitalization equation.

The formula, which is a single equation, estimates if a company's investments in assets will realize returns in excess of what they cost. It can also provide overall industry rankings based on the ability to grow in ways that add most to shareholder value.

Because the importance of measuring shareholder wealth creation has received a lot of attention in recent years, you're probably already familiar with Economic Value Added (EVA) and Market Value Added (MVA). Each illustrates how a company's investments in its assets impact shareholder wealth. EVA basically restates profit-and-loss statements and determines the degree to which a company makes (or loses) more money than its cost of capital. MVA, on the other hand, is the degree to which a company is worth more than the sum of its parts. In general, shareholders are the beneficiaries.

Unlike MVA and EVA, the V Formula is a percent concept that deals in pre-tax rates of shareholder return. The formula is also easy to use. Plug in six variables (amount of the investment, sales generated by the investment, operating profits the investment produces, amount of borrowings, cost of borrowings, and the amount of ongoing capital investment to maintain the enterprise), and you can determine your pre-tax return on equity (ROE).

Later, I'll apply the formula to an example from the restaurant industry. But to whet your appetite, here's the V Formula.

Formula #1 The V Formula

$$\frac{(\text{Sales/Investment} \times \text{Operating Profit Margin} - \text{Portion Financed} \times \text{Interest Rate} - \text{Annual Capital Investments/Investment})}{\text{Portion of Equity}}$$

$$= \text{Current Pre-Tax ROE}$$

Table 1 Current Pre-Tax ROE Example

	VARIABLE	AMOUNT
1. Investment		\$1,500,000
2. Sales		\$1,400,000
3. Operating Profit Margin	20% of Sales	\$ 280,000
4. Amount of Leverage	75% of Investment	\$1,125,000
5. Interest Rate and Expense	9.0%	\$ 101,250
6. Annual Capital Investment	2% of Investment	\$ 30,000
7. Pre-Tax Cash Flow	3 - 5 - 6	\$ 148,750
8. Equity	25% of Investment	\$ 375,000
Current Pre-Tax ROE	7 ÷ 8	39.7%

ANALYZE A PIECE OF THE PIE

While you can apply the V Formula to entire businesses, it's best to apply it to the analysis of individual corporate undertakings such as expansion or remodeling. Companies typically rely on expansion to drive returns. McDonald's or any other company can't drive shareholder returns by same-store sales growth alone. They drive returns by building more stores. In the case of expansion, the V Formula can determine the appropriate mix of debt/equity and the resulting economic viability of the investment. The V Formula can also analyze whether investing in remodeling makes economic sense: Should you invest \$300,000 in a 10-year-old restaurant to elevate sales by 40%?

Companies with less opportunity for expansion instead focus on recapitalization strategies, acquisition strategies, or operational enhancements that require incremental investments. Again, the V Formula can be a potent tool to analyze optimal corporate capitalization. Such an understanding should begin, not at an altitude of 30,000 feet as many analysts tend to do, but at ground level. But this means you have to thoroughly understand the six V Formula variables I mentioned earlier.

THE V FORMULA IN ACTION

Now let's look at a real example that involves the development of a new restaurant property. The land, building, and equipment investment required to construct the restaurant is a combined \$1.5 million. Estimated sales are \$1.4 million, with an operating profitability (defined as EBITDA as a percent of sales) of 20%. The result is a 39.7% current pre-tax return on shareholder equity as illustrated in Table 1. An after-tax current ROE would be the current ROE multiplied by one minus the effective tax rate. The difference between the current pre-tax rate

of shareholder return and the total pre-tax rate of shareholder return resides in changes in the variables as well as a residual value.

The analysis can be boiled down in the V Formula.

Formula #1 The V Formula

$$\frac{(\text{Sales/Investment} \times \text{Operating Profit Margin} - \text{Portion Financed} \times \text{Interest Rate} - \text{Annual Capital Investments/Investment})}{\text{Portion of Equity}}$$

= Current Pre-Tax ROE

OR

$$(.933 \times 20\% - 75\% \times 9\% - \$30,000/\$1,500,000)/25\% = 39.7\%$$

THE CONSTANT GROWTH CONCEPT

In the example in Table 1, long-term shareholder value created by a new restaurant will depend on the rate of cash flow growth in addition to ongoing changes in V Formula variables. Within many industries, analysts often use what's called a "constant growth" formula to estimate equity values. Used most readily for seasoned businesses (and many business ventures season rapidly), the constant growth concept essentially subtracts the expected growth of cash flow from the equity discount rate to arrive at a

Formula #2 V Formula as a Component of Total Shareholder Return

$$\text{V Formula} + \text{Constant Growth Rate (CGR)} = \text{Total Pre-Tax ROE}$$

OR

$$39.7\% + 3\% = 42.7\%$$

cash flow capitalization rate. So, a 30% required pre-tax rate of return would need a current cash flow capitalization rate of 27% (presuming a constant growth rate of 3%). Since the V Formula simply computes a current pre-tax ROE, it will be less than the expected total return on equity by the amount of the growth rate. That means the pre-tax current ROE shown in Formula 2 would translate into a total pre-tax ROE of 42.7%, presuming a 3% annual constant growth rate (CGR).

The V Formula in reverse determines the minimum amount of debt you need to realize targeted shareholder returns. Companies that achieve great returns with the least leverage are the best investments. To determine the minimum amount of required debt, start with the pre-tax ROE target and work backward as shown in Formula 3.

If the V Formula equates to a total pre-tax ROE of 42.7%, using 75% leverage, what's the minimum the company has to borrow to realize a 30% total pre-tax shareholder rate of return target? With a targeted pre-tax ROE of 30% and the CGR of 3%, then current pre-tax cash flow would be capitalized at 27% (30% less a 3% growth rate) and the minimum amount of required leverage would be as follows:

$$\frac{(.933 \times 20\% - 27\% - \$30,000/\$1,500,000)}{9\% - 27\%} = 57.4\% \text{ Leverage}$$

SENSITIVITY TO FAILURE

Unfortunately, losses from the sales of underperforming investments are a fact of life, and the ROE is more sensitive on the downside. Let's consider our example. You can modify the V Formula to estimate the current pre-tax ROE for an underperforming restaurant that is closed and sold at a loss. Assume that at a 20% drop in sales to \$1,120,000, the operating profit margin in the model falls from 20% to 15%. Take these changes, combine them with a predicted 20% loss over the cost of the investment, and incorporate them into the V Formula variables (insert this loss where you would

Formula #3 V Formula in Reverse: Determining the Minimum Required Amount of Leverage

$$\frac{(\text{Sales/Investment} \times \text{Operating Profit Margin} - \text{Current Pre-Tax ROE Target}^* - \text{Annual Capital Investments/Investment})}{\text{Interest Rate on the Debt} - \text{Current Pre-Tax ROE Target}^*}$$

* Where Current Pre-Tax ROE Target (the V Formula) equals a targeted Total Pre-Tax ROE (30%) minus a Constant Growth Rate (3%)

Formula #4 Percent of Shareholder Wealth Created Above Investment

$$\frac{\text{V Formula}}{\text{Targeted Current Pre-Tax Shareholder Rate of Return}} - 1 \quad \text{or} \quad \frac{39.7\%}{27\%} - 1 = 47\%$$

normally place the annual capital investment variable). The result? A -62.2% V Formula. What's clear is that returns on investment are far more sensitive to the downside than they are to high sales achievement. Why? Less profitable locations may be closed and sold at a loss, not to mention even further potential losses including employee layoffs and other costs of discontinued operations.

ACHIEVING EXCESS RETURNS

How can you use the V Formula to estimate the percentage of shareholder wealth created above or below the amount invested in a capital asset? In our example in Table 1, the restaurant achieves a V Formula of 39.7%. In light of our return in excess of the required current pre-tax shareholder return, the added shareholder wealth created is 47% as shown in Formula 4. Therefore, total pre-tax shareholder expected return, presuming the investment is held for a year, would be 86.7% (39.7% + 47%). In business terms, this is a winning proposal. Open-

ing this restaurant was a good investment decision. The company's stock should go up 47% because at 39.7%, the company is exceeding current pre-tax shareholder expectations of 27% by 47%. One caveat: The 27% target doesn't include any allowance for failure. Shareholder return targets should

be set higher to allow for the possibility of failures.

Insufficient equity returns can put businesses on an earnings growth treadmill that they'll eventually fall off. In order to drive shareholder value, companies must determine the amount of value created by each new investment. Now there's a formula that's easy to use to ensure ROE targets are met. The V Formula gets behind the smoke screen of earnings growth to estimate the quality of earnings growth. After all, investors will be fooled for only so long. ■

Six Main Ingredients

There are six major ingredients of the V Formula that contribute to current pre-tax equity returns:

- **SALES:** The notion of ROE is heavily sales driven. The greater the sales, the greater are the operating profits.
- **INVESTMENT:** The single largest fixed cost that most businesses incur tends to be occupancy and equipment related. Therefore, a lower investment in land, buildings, and equipment will imply lower interest costs and rents, thereby increasing shareholder pre-tax cash flow.
- **ANNUAL CAPITAL INVESTMENTS:** The investment that's made in plant and equipment has no end. Each year, companies must make ongoing capital expenditures

to replace worn-out equipment, furniture, and building components. In addition, companies often undergo more major "remodeling" every five to 10 years, which is designed to retain their competitiveness. Losses on the sale of underperforming assets are also a form of recurring capital investment.

- **OPERATING PROFIT MARGIN:** A higher operating profit margin (which is EBITDA/Sales) has a very positive impact on pre-tax current ROE. Operating profit margins tend to be higher at higher sales levels because businesses tend to generate the highest profits on the last marginal dollar of sales.
- **DEBT/EQUITY MIX:** Debt is less expensive than equity, which means that a higher portion of debt will raise ROEs. But higher debt levels raise investor and lender risk

profiles, which can raise the return requirements of both. While there is definitely a "chicken and egg" issue here, this financial balancing act generally begins with shareholder return expectations. It's important to note that borrowing terms will also impact current pre-tax ROEs by changing the debt/equity mix as loans amortize. All other V Formula variables being equal, debt reduction will reduce returns because borrowings are being replaced by equity.

- **COST OF BORROWINGS:** The cost of borrowings is the final V Formula variable and should be the last variable considered. The other five variables are each individually more important. To the extent that lower cost borrowings restrict any other V Formula variables, the borrowings can be rendered considerably more expensive.