

THE IMPACT OF FORECASTING ON RETURN ON SHAREHOLDER'S VALUE

By John T. Mentzer

High level executives are more concerned with the impact of forecast accuracy on shareholder value than on forecast accuracy per se...shows by how much a company increased its shareholder value by improving the forecast accuracy...describes steps the forecaster should take before making a proposal to upper management for implementing a forecasting system or revising the existing one.

Few "C-Level" executives (CEO, COO, CFO, etc.) care about forecasting accuracy. What they care about is the impact of improved forecasting accuracy on shareholder value. In this paper, we present a model of the impact of improved forecasting accuracy on shareholder value and how improvement in forecasting accuracy in one company improved its shareholder value.

No company was ever successful simply from more accurate demand forecasting. Unless these more accurate forecasts can be translated into higher levels of customer service and lower supply chain costs, the impact of improved forecasting accuracy is lost on corporate profitability. By the same token, "C-level" executives are not interested in investing corporate dollars to improve forecasting performance unless it can be translated into higher return for the shareholders. After all, return on shareholder value is the primary concern of upper management. Although improved forecasting accuracy often has a profound impact upon corporate profit and shareholder value, it is seldom presented as such to upper management.

Given this reality of business mana-

gement, what is the most effective way to demonstrate the impact of improved demand forecasting performance? The answer lies in the translation of forecasting accuracy into improved operational plans and execution and improved service to customers. The former results in lower costs per dollar of sales, and the latter results in increased sales.

A MODEL OF RETURN ON SHAREHOLDER VALUE

The improvement in shareholder value resulting from improvement in forecasting



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accuracy can be visualized with the help of the famous "Du Pont model" of financial performance. The Du Pont Model is a framework for viewing the impact of changes in sales, capital, and operating expenses on return on net assets. A slight revision in this model gives us a return on shareholder value model (See Figure 1). In this model, we start with sales revenue and subtract from it all the costs of doing business. Notice this is not a gross margin calculation, where only the costs of goods sold are subtracted from sales revenue, but rather all costs (fixed and variable) are subtracted to give us the profitability of the business unit.

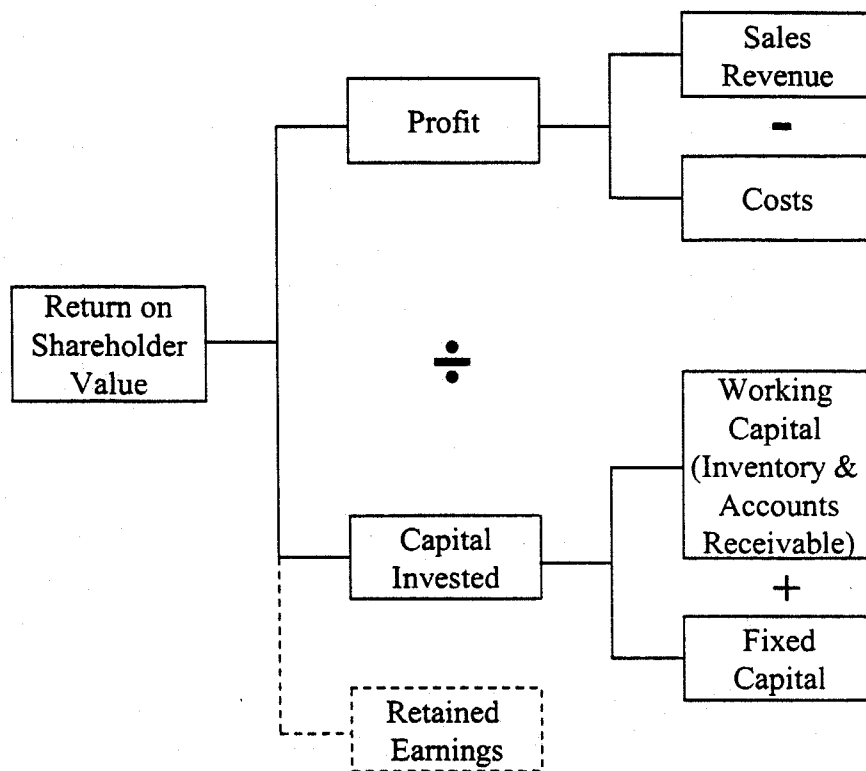
In the lower right part of the model, we examine the total investment by shareholders in capital, both working (primarily accounts receivable and inventory) and fixed. Ordinarily, to this is added retained earnings of the company to arrive at shareholder value. However, retained earnings is a financial decision by the Board of Directors and the shareholders whether to leave money not invested in capital in the company or take it out. Further, since we are solely concerned here with the impact of operations decisions on shareholder value, retained earnings is irrelevant and, thus, left out of the decision model in Figure 1.

Dividing profit by shareholder value (capital investment) gives us a return on shareholder value. This is a primary factor for any decision made by chief executive officers, chief operating officers, chief financial officers and, in fact, any executive in the business unit.

AN ACTUAL EXAMPLE

Figure 2 illustrates an actual example of how improved forecasting performance impacts shareholder value. Although the

FIGURE 1
IMPACT OF FORECASTING IMPROVEMENTS ON SHAREHOLDER VALUE



numbers have been slightly altered to protect the identity of the example company, this company originally had sales revenue of \$2,000,000,000 and total costs of \$1,900,000,000 (annual profit of \$100,000,000), on a working capital base of \$200,000,000. The fixed capital base (consisting primarily of plant and equipment and three distribution centers) was \$500,000,000. This resulted in a return on shareholder value (RSV) each year of 14.29%.

Based on our benchmarking of their sales forecasting management processes, we revealed to the company a number of areas for potential improvement. As a result, management authorized a series of actions to implement recommended improvements to these processes – actions which included a new sales forecasting package to provide a more accurate base forecast; a revised process that included greater input from marketing, sales, and

operations to the base forecast to arrive at a final revised forecast; a computer and communications system to augment this process; and a new performance evaluation system to measure and reward everyone involved in the forecasting process who improved forecasting accuracy or who used those improved forecasts to lower operations costs and/or improve customer service.

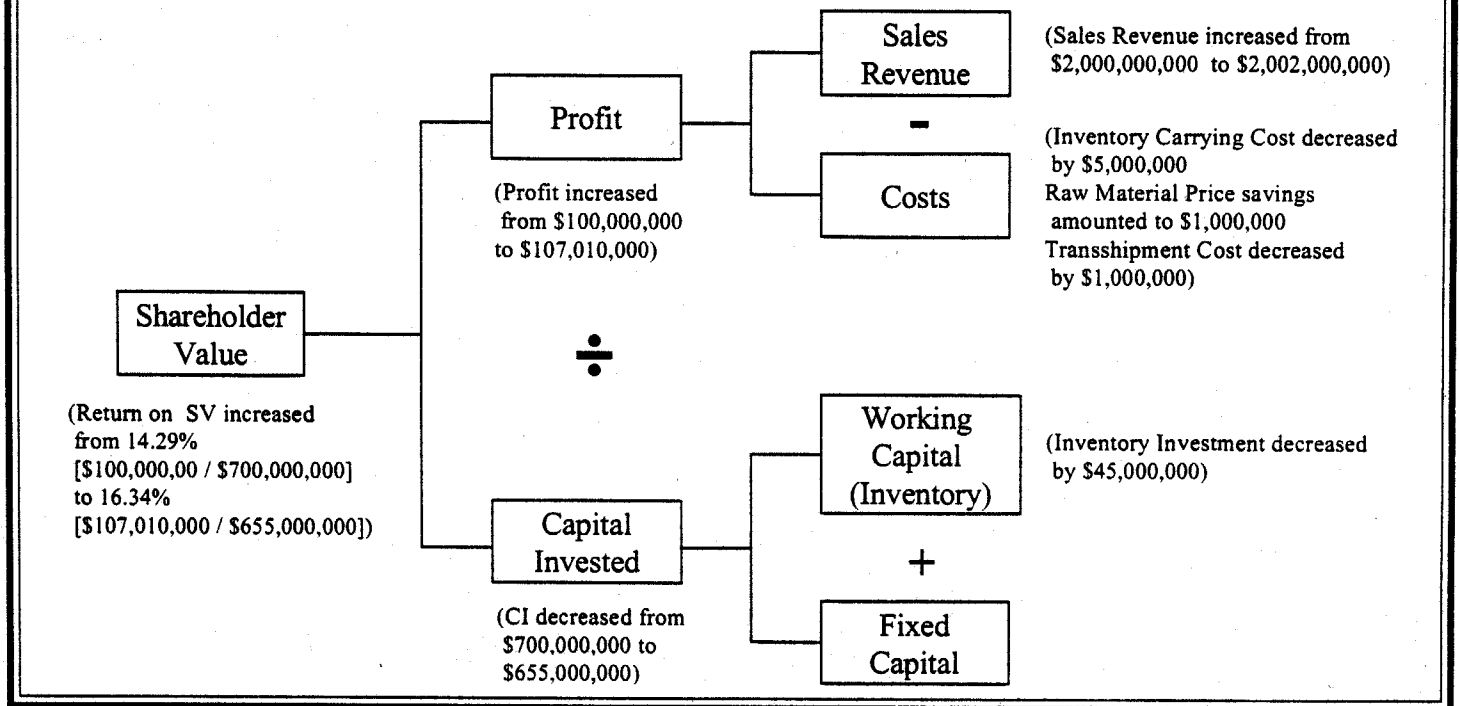
From the start of this effort, upper management insisted upon dollar measures of the impact of these more accurate forecasts upon lower operations costs and increased sales from improved customer service. We quickly realized that the latter of these two could not be fully and accurately measured, so we settled for documenting only when the more accurate forecasts led to improvements in inventory available to meet customer demand – in other words, when sales were made because the inventory was available, as opposed to

a lost sale due to stockouts.

The results of this documentation are illustrated in Figure 2. Increased sales as a result of improved in-stock situations were \$2,000,000, while the operating costs of meeting total demand decreased by \$7,000,000, resulting in increased profit of \$7,010,000.

The operating cost savings fell into three main categories. First, more accurate forecasts led to a reduction in the amount of inventory held by the company to meet uncertain demand variations (i.e., safety stock) in the amount of \$45,000,000 (also note that the reduction in inventory resulted in lower Working Capital). This resulted in savings in the cost of money on those invested funds, lower risk costs on the inventory (obsolescence, shrinkage, and insurance), and lower facility costs. The total of these three cost components is typically referred to as Inventory Carrying

FIGURE 2
AN ACTUAL EXAMPLE OF IMPACT OF FORECASTING IMPROVEMENTS ON SHAREHOLDER VALUE



Cost, which was reduced \$5,000,000 per year.

Second, more accurate forecasts led the company to buy more of their required raw materials on long term contract, rather than on the spot market. The reduction in price between these two methods of procurement led to a \$1,000,000 annual savings.

Finally, the company often faced the situation of producing a certain product and shipping it to their East Coast distribution center to meet anticipated demand, only to find the demand was lower than forecast on the East Coast and higher than forecast on the West Coast. As a result, some of the inventory of that product that had already been shipped from the production facility (located in the Mid-West) to the East Coast distribution center would have to be moved (transshipped) to the West Coast distribution center. Improved forecasting accuracy by product and by distribution center lowered the incidence of this scenario and its

accompanying costs in the amount of \$1,000,000 a year.

Although fixed capital was negligibly affected by these changes, working capital (money invested in inventory) decreased by \$45,000,000. This resulted in a decrease in capital invested in the company by the shareholders of \$45,000,000. As we mentioned, whether this \$45,000,000 is paid out to the shareholders as a dividend or kept in retained earnings for future investments is irrelevant to the financial impact being evaluated here.

The result of all these changes in forecasting performance was improvement in profit by \$7,010,000 each year, the capital investment base went down by \$45,000,000, and return on shareholder value increased from 14.29% to 16.34%. The total cost of all the improvements in sales forecasting management was less than \$1,000,000. All this clearly shows that improvement in forecasting accuracy can have a dramatic effect on corporate profitability and shareholder value.

LESSONS LEARNED

The most important lesson learned from this example is that we should estimate the potential impact on return on shareholder value (RSV) prior to making the investments in sales forecasting improvements. We make a serious mistake in sales forecasting management when we go to upper management with a proposal to spend money to improve forecasting accuracy, without indicating what "impact" it will have on shareholders.

To properly document the impact of improved sales forecasting performance forecasting managers must answer the following questions:

1. What will be the total costs of all improvements to the sales forecasting process (packages, systems, training, performance rewards)?
2. What will be the estimated improvement in forecasting accuracy?