**20-1: “Using Shareholder Value to Evaluate Strategic Choices”** by Nick Fera, *Management Accounting* (November 1997).

The basic principle of the article is that performance evaluation based on accounting measures alone is not sufficient. The evaluation of a business unit or of the unit’s manager must also consider the business unit’s performance in creating shareholder value. Based on ideas from Alfred Rappaport’s book, Creating Shareholder Value, the article develops the measures of cash flow and market risk. An illustration for a hypothetical firm is provided.

20-1: Using Shareholder Value to Evaluate Strategic Choices

*By Nick Fera*

Creating shareholder wealth or value has become the mantra for most corporate boards, especially in the United States. Yet as recently as the mid-1980s, the idea of "shareholder value" or "shareholder wealth" was not an overwhelmingly accepted principle. But as academics began to teach the principle in business schools around the world, such noted authorities as Professor Alfred Rappaport of Northwestern University's J. L. Kellogg Graduate School of Management, author of *Creating Shareholder Value*,[[1]](#footnote-1) began to apply it to corporate mergers and acquisitions in the 1980s. Shareholder value, or free cash flow analysis, became the measurement standard for the 1980s and into the 1990s. Given today's increased demand for international capital returns, as well as the proliferation of private baby boomer pension funds in the United States, investors have imposed new stringency in their vigil against corporate wealth destruction. Even the brightest stars are not immune to the pressure of pension funds or Wall Street. Witness the pressure that CALPERS (the state of California's teachers' retirement funds) placed on Michael Eisner at Walt Disney Co. despite Eisner's laudable success in Increasing Disney's market value from $5 billion to more than $42 billion during his first 10 years in office. During a 10-year period from January 1986 to December 1996, Disney's stock price grew at a cumulative annual growth rate of more than 21%, while the S&P 500 index has returned approximately 15%. Historical performances are not always enough; investors continue to ask for more.

Measuring performance no longer can be left to the traditional accounting department's calculations of earnings per share (EPS) or return on equity (ROE), as these accrual-based accounting measures aren't always useful indicators of future growth or performance. Thus, it is necessary to understand and adopt measurement techniques that will help make decisions while driving increasing profitability. One of the economic measurement techniques that can be used is free cash flow analysis or Shareholder Value Analysis (SVA).

**shareholder value analysis**

Because managers began to realize that businesses needed a more realistic means of assessing their value than accrual-based accounting standards offered, such respected academics as Professor Rappaport sought to develop sophisticated economic models for strategic evaluations. As a result, shareholder value analysis was conceived. SVA works by explicitly measuring the economic impact of each strategy on the value of a business. Any strategic decision, regardless of whether it involves internal or external investment, should be evaluated. Examples of such strategic decision-making situations include mergers and acquisitions, joint ventures, divestitures, new product development (R&D), and capital expenditures (major plant and equipment investments).

The actual measurement of shareholder value combines three main factors: 1) cash flow, 2) cash as measured over a given period of time (value growth duration), and 3) risk, otherwise known as the cost of capital. (See Fig. 1.) With a basic understanding of these three components, you are well on your way to valuing a business or entity. Next, let's discuss the difference between corporate value and shareholder value.

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| figure 2 corporate and shareholder value |

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Corporate

Value

NPV of all

Cash flows

Market value of non-operating assets

Shareholder

value

Corporate

value

Market value

Of all debts

=

=

+

–

**creating value**

Corporate value is equal to the net present value of all future cash flows to all investor types, including both debt and equity holders. Shareholder value is the corporate value minus all future claims to cash flow (debt) before equity holders are paid. Future claims typically include both short-and long-term debt, capital lease obligations, underfunded pensions, and other claims such as contingent liabilities—lawsuits brought against the company. (See Fig. 2.) Another way to define shareholder value is to say that it is equal to the net funds a company generates that shareholders could receive in the form of a cash distribution, such as a dividend.

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| figure 1 factors in sharholder value |

Cash flow

(1)

Cash flow

Over time

(2)

Risk

(3)

Be careful not to confuse this figure with the actual dividend a company pays. A company's dividend policy has little or nothing to do with the actual cash the company generates. Look at the high growth of businesses such as computer software or biotechnology. Few pay dividends because they have strategic opportunities to reinvest cash flows and earn the higher returns investors desire.

Generally, it's easy to determine the market value of future obligations or debt. In most cases, it's the accumulation of several debt instruments. To obtain the market value of these financial instruments, use the yield to maturity to calculate the *market value* of each debt instrument. Avoid adding the face value of each debt or bond issue. The question to ask is, "If this obligation were to be paid in full today, how much would the lender need to retire it?"

**measuring cash flow**

After determining corporate and shareholder value, the next step is to measure cash flow. The most tangible measurement of cash flow (also referred to as operating cash flow or free cash flow) can be calculated as shown in Table 1.

Notice that the calculation focuses on the relationship between operating cash income and expenses, specifically by using operating cash taxes rather than the provision for income taxes. It accounts for the investments made on the balance sheet. Many companies measure cash flow by looking at net operating profit after taxes (NOPAT), but it tells only part of the story. Investments to grow the business, either by expansion of the plant and facilities or with working capital policies such as extending the receivable period from net 30 to net 60 days, have a significant impact on the capital employed. Remember: Shareholders are looking for returns on their capital invested in business growth, which requires well-planned capital expenditures. Failure to account for the investment makes for a crucial mistake in the evaluation of strategic alternatives.

**calculating cash flows**

The calculation of cash flow illustrates a high level of performance in an organization and produces a result that approximates the net cash of a company. In effect, these funds are a potential dividend to shareholders because they reflect optimal use of shareholder monies for ongoing growth. That is why dividend policy and free cash flow are not synonymous. Few companies base their dividend payout on net cash flow, while others are justified in generating free cash flow, without paying dividends.

To forecast cash flow, most companies require a more detailed formula, as presented in Table 1. In most cases, sales growth tells very little about actual sales activity, so companies use metrics such as price, volume, GNP, and other micro or macroeconomic factors to forecast revenues and costs more realistically. This calculation usually is conducted at a strategic business unit level and then consolidated for corporate purposes. The key is to plan accurately at the appropriate level of business activity (business unit, value chain, or some other distinction).

Sales or market growth estimations can be achieved many different ways. Predicting price and volume, for instance, provides for a more manageable metric that can be evaluated readily and used later for compensation purposes. In other words, sales growth is a "*value driver*." But what *drives* the value drivers? Herein typically lies the metric operational professionals can get their hands on. Planning and forecasting can become a real *operating activity rather than a boardroom exercise.*

**cash flow over time**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| table 1 measuring cash flow | | | | |
|  | **Formula** | **Example** | | **Value Drivers** |
|  |  |  |  |  |
|  | Sales | $1,000 |  | Sales growth (Sg) |
| Less | Operating expenses | –$  600 |  | Margin (P) |
| Equals | Pre-tax profit | $  400 |  |  |
|  |  |  |  |  |
| Less | Cash taxes | –$  100 |  | Tax rate (T) |
| Equals | Net operating profit after taxes (NOPAT) | $  300 |  |  |
|  |  |  |  |  |
| Add | Depreciation expense | $   75 |  |  |
| Less | Fixed capital investment | –$  125 |  | Fixed capital investment (F) |
| Less | Incremental working capital investment | –$   50 |  | Working capital investment (W) |
| Equals | Operating cash flow (free cash flow) | $  250 |  |  |

Once cash flow has been defined, the next step is to determine the length of the forecast period. The definition of cash flow over time or value growth duration is the length of time expected for a company to invest in opportunities that will yield internal rates of return (IRR) above their weighted average cost of capital (WACC). This premise is the core of value creation—performing above expectations for a sustainable period of time.

Management usually plans for cycles of three to five years. If this is the case and if the cash flows are discounted over a period of time, the valuation probably will be inaccurate as it does not allow for fluctuations in cash flow throughout the requisite growth period. To determine the appropriate length of the forecast period (or the value growth duration), consider several factors.

One is Michael Porter's work on the competitive structure and five forces of industries (see Fig. 3). Porter says that management's responsibility is to map the company and its competition according to several factors. Some areas to consider are distribution channels, established brand names, and research and development. Take the pharmaceutical industry, for instance. It has a relatively long value growth duration because of patented products, proven processes, and research and development investment that raise the barriers of entry.

Also, read Alfred Rappaport's discussion of the use of public information to assess the market's expectation for a company's value growth duration.[[2]](#footnote-2) He suggests gathering forecasting information on a particular company as well as identifying competitors. He also advises managers to employ the researched information and forecast the cash flows, as discussed previously. But rather than changing any value driver assumptions, change only the length of the forecast until the present value of the cash flows less debt equals the market value of your company. Surprisingly, most companies in a given industry tend to fall within a certain range; thus, the market is suggesting an implied value growth duration. These "market signals" are helpful for starting an internal analysis and discussion.

**residual value**

Once you have determined the value growth duration, you must address the value of the cash flows beyond the current period. This determination is called the terminal or residual value. Assume that, after the forecast period, new investments (fixed and working capital) will yield returns equal to the cost of capital. In other words, the internal rate of return is equal to the weighted average cost of capital. Therefore, the net present value of cash flows from new or incremental investments beyond the value growth duration will be equal to zero. The only cash flow left to value in the residual period is the preinvestment cash flow, or NOPAT (see Table 1). Note that depreciation is *not* included because it is viewed as a proxy for reinvestment. Given that the cash flows are valued infinitely, the business probably would not continue to generate the same level of cash flow if the plant, equipment, or other physical assets were allowed to deteriorate fully. In fact, some companies recognize a higher level of "maintenance" spending and will adjust the cash flow in the residual period to reflect higher replacement costs.

**terminal value**

At this point, it is necessary to discuss some assumptions of terminal value. The net present value of the residual cash flows is equal to an infinite stream of cash flow (as measured by NOPAT) discounted back at the WACC. Mathematically, this is NOPAT at the end of the value growth duration divided by the WACC. Once this calculation is complete, it is necessary to discount the value back to the current period. The formula is presented in Table 2 (assuming a five-year value growth duration and 12% WACC).

**defining risk**

The last component of determining the value of an entity is deciding on the overall risk. The risk of a company usually is measured with WACC. The approach assumes there is some mixture of debt and equity that is financing the company. The cost of debt is measured as the after-tax cost, that is, the cost accounting for the tax deductibility of interest payments. The marginal cost of debt is not necessarily the average coupon rate on various debt instruments. Instead, it is the rate for which banks will lend the company an incremental dollar.

The cost of equity is somewhat more complex. If companies use the Capital Asset Pricing Model approach developed by economists Sharpe, Lintner, and Treynor in the mid-1960s, the cost of equity has two basic components: a risk-free return required by investors and a premium for investing in equities that are of higher risk. The risk-free rate is the treasury rate on 30-year U.S. government bonds. This standard generally is used because these bonds typically are seen as delivering the most risk-free, long-term returns investors can earn. The second component is the premium for investing in something that is of higher risk than the U.S. government. This element is called the market risk premium (MRP itself and a multiplier, called beta, for investments that are more or less risky than the market portfolio.

**market risk premium**

The market risk premium is calculated and published by sources such as Ibbotson Associates in its annual SBBI (Stocks, Bonds, Bills, and Inflation). Historically, the premium for holding a portfolio of equities, as opposed to investing in a risk-free instrument, is between 6% and 7%, depending on whether you use the arithmetic or geometric average.

Beta is a measure of the relative riskiness of an individual company or portfolio as compared with the market. Thus a beta of 1.0 correlates exactly with market returns. Beta is measured by comparing the returns of an individual security or portfolio with those of the market. Sources of beta estimates include Merrill Lynch, ValueLine, and Alcar.

Measurement Methodologies:

1. Economic Principles  
   Shareholder Value Analysis  
   (SVA)—also known as Discounted Cash Flow  
   analysis (DCF) or Net Present Value (NPV)
2. Evaluates cash inflows to cash outflows on a risk-adjusted basis
3. Most widely accepted approach to business evaluation

Economic Value Analysis (EVA)

1. Primarily used as a performance measurement tool to calculate period-by-period performance
2. Helps an organization to focus on value creation or increased cash flow
3. Measuring the change in EVA also may be an effective financial measurement tool

Cash Flow Return on Investment (CFROI)

1. Derived from market data to determine cash flow growth and the overall discount rate
2. Helps an organization to focus on value creation or increased cash flow
3. Seen as a complex financial measurement device
4. Accounting Principles  
   Return on Capital (ROC)  
   Return on Invested Capital (ROIC)  
   Return on Equity (ROE)  
   Earnings per Share (EPS)

There is another way to measure the MRP that is consistent with a forecasting approach. This tack uses estimates of the expected return on the market for the next year. Each month Merrill Lynch publishes a 12-month expected return on the market (S&P 500). Using this forecast, you can determine the expected MRP by subtracting the current risk-free rate, as measured by 30-year treasuries, from the current forecast of market returns. As of October 1, 1997, Merrill Lynch's forecast of market returns was 10.9%, while the risk-free rate is currently 6.38%. As a result, the expected market risk premium is 4.52%. Some companies prefer to use the ex-ante approach because it matches the *forecasting* of cash flows with the *forecasting* of expected returns.

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| Figure 3  Forces driving industry competition |

Suppliers

Buyers

Substitutes

Potential  
entrants

Putting all the components of the cost of equity equation together yields the following formula:

Cost of Equity = Risk-free rate + Beta \* (Market Risk Premium) or, Ke = Rf + ß \* (MRP)

Once you have calculated the cost of equity and the cost of debt, you may use the WACC approach to combine both costs (debt and equity). In calculating the WACC, use the market values of debts and equity, not the book values, because the market costs of each source of financing are being measured. The equation is as follows:

WACC (Kc) = % of Debt \* [Cost of Debt (Kd)] +  
% of Equity \* [Cost of Equity (Ke)]

Let's look at an example involving a manufacturing company using risk estimation:

A U.S. manufacturing company is publicly traded and has a market capitalization of $550 million. Its outstanding debt totals $250 million at a marginal borrowing rate of 8.5% (assume this is the market value of debt and includes all obligations of the company). The current risk-free rate is 7%, the expected return on the market is 12%, the beta of this company has been published as .90, and its marginal tax rate is 28%. What is the weighted average cost of capital (WACC)?

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| MRP | = | 12 – 7 | = | 5% |
| Ke | = | .07 + .9(.05) | = | 11.5% |
| Kd | = | .085 \* (1 – 28) | = | 6.12% (after tax) |
| WACC | = | (250/800) \* .0612 | + | (550/800) \* .115 = 9.8% |

**from the boardroom**

**to the shop floor**

Once you have established the methodology, take it out of the boardroom (as a planning exercise), and implement it at all levels, including the shop floor (or any manufacturing or operating activity). The importance of moving the analysis out of the boardroom and into regular practice is that managers and shareholders will have the same economic interests. If managers are compensated on accrual-based accounting measures, they may optimize their own interest when there is a conflict between cash flow and accrual accounting. But if you align the interest and performance measurement of all managers to be the same, both are optimized.

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **TABLE 2 SHAREHOLDER VALUE ANALYSIS:  AN EXAMPLE** | | | | | | | | | | | | | | | |
|  |  | Forecasted cash flows | | | | | | | | |  | | | Terminal | |
|  |  | Year 1 | | Year 2 | | Year 3 | | Year 4 | | | Year 5 | | | CF (NOPAT) | |
|  |  | $10 | | $15 | | $17 | | $23 | | | $25 | | | $30 | |
| NPV CF | $ 61.79 |  |  |  |  |  |  |  |  | |  |  | |  | |
|  | | | | | | | | | | | |  |  |
| NPV RV |  | Discounted to | | | | | | | | | | | | $250 (Future value) | |
| Current period | | | | | | | | | | | |
| Total NPV CF | |  | | | | $203.65 | | | |  | | |  |  | |
| Add | Marketable securities | | | | | $ 25.00 | | | |  | | |  |  | |
| Equals | Corporate value | | | | | $228.65 | | | |  | | |  |  | |
| Less | MV debt | | | | | $ 15.00 | | | |  | | |  |  | |
| Shareholder Value | | | |  | | $213.65 | | | |  | | |  |  | |
|  | |  | |  | |  | | | |  | | |  |  | |

Moving the methodology to the shop floor may pose a challenge. Not only is it more difficult to identify key value drivers on the shop floor (such as production yield, waste, inventory management), but there also is an important educational component. Not all managers have been introduced to the concepts and methodologies of financial metrics. Many still are entrenched with the simpler accrual-based accounting measures. Yet once key drivers are identified and their relative impact on value is measured, managers relate to the results.

**ongoing maintenance and   
performance measurement**

Once the methodology is in place, the final challenge is to put it into practice every year. What adds to the complexity of the implementation is the ability to monitor performance in a timely manner due to the multitude of manual and multiple systems currently in place to do the job. Many companies implement and attempt to monitor their performance with the use of disconnected spreadsheet technology. Beyond all the difficulties of performing rigorous economic analysis in a spreadsheet (with factual integrity and documentation leading the pack), the use of spreadsheets can create pockets of information that are disjointed from the rest of the organization. These pockets of information make it difficult to monitor performance, test new scenarios regularly, and make new, informed decisions on a timely basis.

Fortunately, the recent development of new technologies that interface seemlessly with each other is making it easier to gather data quickly and spend the majority of analytical time on planning, testing, and choosing new strategic alternatives. Thus, the planning process is changing from an annual event generally found on the bookshelf to a regularly used strategic exercise that becomes a living document, enabling companies to manage their business by making value-based strategic choices in our ever-evolving environment.

1. Alfred Rappaport, *Creating Shareholder Value: The New Standard for Business Performance*, New York: The Free Press, 1986. [↑](#footnote-ref-1)
2. Alfred Rappaport, "Stock Market Signals to Managers." Harvard Business Review, November-December 1987, pp. 57-62. [↑](#footnote-ref-2)