Guidelines for Making Good Capital Decisions

By Scott Peterson and Doug Post

Having the right ingredients and processes is critical to making quality ethanol. Likewise, the right information and procedures is the basis for good capital decisions. Whether it's building a brand new plant, retrofitting an existing facility, or simply purchasing a new piece of equipment, the following methodology will help managers make good capital decisions. It will also help them educate and develop other employees on capital purchases.

Post

Peterson

Methodology (how to do it)

1. The "why"—or purpose—of every capital purchase should be articulated on record (e.g. the purchase is needed to increase capacity, improve quality, grow profits, etc.). If the capital purchase is a significant purchase for the company, then the purpose statement should address the current status of the industry, benchmarks and projected industry trends. Also, the risk associated with operating the new asset—the "business risk"—should be identified.

2. Identify the initial costs of the project, including set-up fees, and how it will be funded (e.g., operating cash flows, borrowing, etc.). If a large capital purchase is going to be financed, then *pro forma* financial statements should be analyzed to ensure that all current debt covenants will be met. Financing increases the risk assumed by stockholders and usually leads to a higher expected rate of return on equity.

3. Ascertain the additional revenues and expenses, including depreciation, taxes and interest. Since interest expense is tax deductible, this lowers the real cost of debt or the effective interest rate (i.e., the effective cost of debt = interest rate - {interest rate x tax rate}).

4. From the above information, determine future cash flows of the project by month or year. These cash flows are normally extended out for only five years for small-and-medium size purchases. For new large-scale production projects, cash flows can be extended up to 15 years.

5. Determine the risk of the project by estimating the probability of future cash flow. Risk reflects the chance that the estimated cash flows or return will be different than the actual cash flows or return. Many people skip this step, since it is the most ambiguous element of the model. However, it is better to estimate or "guesstimate" the risk of the projected cash flows instead of ignoring it. At a minimum, you should assign your company's line of credit interest rate for very low risk projects and designate the best market returns for high-risk projects. Once calculated, this percentage is used to discount the cash

flows. The financial flexibility of the company should also be considered, since this represents the ability of the company to raise capital on reasonable terms under adverse conditions. The final element is the board's and management's conservatism or aggressiveness related to their willingness to assume debt.

6. Choose an analysis tool. This could vary from the simple payback method (e.g., how long it takes to recover the initial costs) to net present value, which considers the additional cash flows (e.g., positive and negative), while considering the time value of money. The following is a list of several analysis tools:

- **The Payback Period** is the simplest and quickest method. It uses the estimated cash flows to determine how long it takes to recapture the original investment. This

Summary of Analysis Methods

Method	Calculation	Description and Purpose
ROA (Return on Assets)	Net income/total assets	Focuses on operating efficiency of the purchase or project and helps leaders manage assets. It can be used to evaluate anything from small equipment purchases to new production facilities.
ROE (Return on Equity)	Net income/common equity	Measures the profitability of business units or new production facilities. It is usually not used for smaller purchases, major remodels or additions since it is difficult to allocate equity to various profit centers within a company or division.
ROI (Return on Investment)	Discount rate that forces discounted cash in-flows to the present value of cash out-flows	Calculates the expected rate of return. It can be used for small purchases or large production plants. However, it can give conflicting rankings for mutually exclusive projects.
Payback Period	Amount of time needed to recover the investment	Focuses on how long it takes to recover the original investment. This analysis tool can be used for small or large purchases. It ignores cash flows after the recovery period and does not discount cash flows. Therefore, this tool is most appropriately used for small and simple purchases.
NPV (Net Present Value)	Present value of net cash flow less the original investment	Calculates the net discounted cash flows of the purchase (e.g., discounted cash in-flows less discounted cash out-flows). If NPV is positive, the purchase should be made because it generates more cash than it uses. This is the best analysis tool because it is objective and can be used to evaluate both independent and mutually exclusive projects. Its only downside is that it is more complicated than the other tools.
Profitability Index	NPV/original investment	Allows capital projects of different sizes to be compared by calculating the purchase's "bang for the buck." If the result is greater than one, the purchase should be made. This is most commonly used to compare mutually exclusive purchases.

method stresses liquidity. However, payback period ignores the time value of money and the cash in-flows once the original investment has been recovered. It also favors short-term projects. This method can be used as a quick guide in reviewing projects, but not for comparing projects. It is best for equipment purchases that have low risk or require a small initial investment.

- **Return on Assets (ROA), Return on Equity (ROE) and Return on Investment (ROI)** focus on the efficiency of the investment (e.g., the net increase in profits or net income divided by assets, equity or original investment). Since none is inherently better than another, and the tools use different reference points, you should choose the one with which your company is most comfortable. All three can be used for large or independent projects. These tools do provide a percentage return. However, it may be hard to determine what is a good return. Also, it may be difficult to compare projects or purchases, since they ignore the risk and size of the investment.
- **Net Present Value (NPV)** is the present value of cash flows less the original investment. This is the best tool, since it always gives an objective and correct answer. Also, it can be used to evaluate independent and mutually exclusive projects. NPV is a little more difficult to calculate than the other tools, which is its only disadvantage.
- **Profitability Index (PI)** divides the net present value of the cash in-flows by the initial investment. This method determines the return per dollar invested, thus, it allows you to compare projects of various sizes. The method is good for ranking mutually exclusive projects or when firms need to ration their capital expenditures.

If the situation is complicated and you have ample time, then using a more robust analysis tool may be justified. If the situation is relatively simple or if a quick decision needs to be made, then one of the simple tools may be more appropriate. We also recommend using at least two of these tools for large projects. This allows the decision makers to have a broader perspective of the project or purchase.

7. Finally, make a recommendation. Provide pros and cons of the project, identify externalities or intangibles (non-financial items and their impact: increased safety, improved quality, etc.) and attach supporting information. This could vary from a full business plan for a new production site to a one-page analysis highlighting some key facts and issues related to the purchase.

Capital decisions are extremely important to the financial success of your company. Through implementing this methodology, decision makers can elevate the company's performance and be a good steward of the company's assets. EP

Scott Peterson, C.P.A., is CFO of Interstates and president of Harbor Group. Reach him by e-mail at Scott.Peterson@interstates.com. Doug Post, P.E., is president of Interstates Engineering. Reach him by e-mail at Doug.Post@interstates.com.