

ARTICLE

It's Hard to Predict, Especially About the Future

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It's Hard to Predict, Especially About the Future

By James Catty, MA, CA, CPA, CFA, CBV, CFE*

Editor's note: The BVU editorial team worked closely with Jim on this article to provide the most solid framework for working with management projections. Jim is joining Neil Beaton for the BVR Thought Leader Series session, "The Uses and Abuses of Management Projections" on Friday August 15 in Lake Tahoe, NV. This exclusive one-day workshop is limited to the first 40 registrants and promises to deliver attendees a blueprint for bulletproofing management projection analysis. For more information go to www.bvresources.com/projections.¹

There are many reasons for trying to predict the future operations of a business—ranging from determining future people and plant needs to establishing its value for sale—however, as shown by the title, which is ascribed to the immortal Yogi Berra, the process invokes numerous risks and difficulties. It is impossible, by definition, to be accurate, but one must strive to be effective.

Because things can change over time, we strongly suggest that management and valuers consider at least three scenarios in assessing future activities, especially in preparing a valuation of an entity or its assets. Three common and recommended choices are Success (management's most likely view), Survival (rather poor performance) and Status-Quo (no change from the current year). For all scenarios it is essential that a user understands the context, especially the economic outlook in which the particular

financial projection is developed. This must reflect not only the present situation but also "what has happened before."

In addition, it is helpful to prepare one or more "cones of certainty" which reflect possible, but not expected events. Two I currently find useful are "\$200 Oil" and "House prices drop 30%."

Base the future on the past

Used properly, a rearward view is an extraordinarily powerful forecasting tool. The context of past events can help connect the dots of present indicators and thus more reliably map the future's trajectory—provided one looks back far enough. One problem with relying on history is that a love of certainty and continuity often causes us to draw the wrong conclusions. It is essential to look for the turns, not the straight-aways; however a valuator must peer far enough back to identify any patterns.

When looking for parallels, always go back at least twice as far as you plan to project (normally 10 years in the past to five in the future). Search for similar patterns such as recessions, keeping in mind that "history doesn't repeat itself, but sometimes it rhymes."

Financial statement analysis

Another part of the context of a financial projection is continuity. To be meaningful, all prospective financial information must be based on the actual historical results of the entity. This should be done by detailed analysis of past financial statements after any necessary adjustments, such as excessive management remuneration. The trends, over time, in revenues, costs, assets

¹ This article is an abbreviated version of a paper presented by Mr. Catty at the June 2008 NACVA Consultants' Conference in Las Vegas, NV

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and liabilities, as well as relevant ratios, present a useful picture of management's reactions to outside developments and events.

Analytical procedures are designed to identify relationships and pinpoint individual items that appear unusual. Those may indicate changes in the business that should be reflected in the financial projections. The most common techniques consist of comparing: 1) current financial information with those of previous periods; 2) actual past results with the comparable budgets or forecasts; 3) amounts or ratios with expectations developed by management; and 4) projected ratios with industry averages or those similar, publicly traded guideline companies.

A valuator should be careful when comparing actual financial information with budgets, forecasts or other anticipated results because of the inherent difficulties of projecting and the susceptibility of such information to either innocent or intentional manipulation by management.

Examples of analytical procedures the valuator may find useful include: 1) Comparing, line-by-line, current actual financial information with budgets or forecasts for the most recent and past reporting periods; 2) Verifying current and past financial information with relevant non-financial data such as production activity or market research studies; 3) Fitting regression lines to revenues, direct costs (costs of sales) and major expense categories. It is essential to consider not only the trends, but also the standard deviations of the data and the correlations of the other items with sales to judge the reasonableness of management's assumptions; 4) Determining the patterns in the key ratios for the complete period for which information is available and comparing them to management's expectations; 5) Comparing such key ratios for current and past periods with industry averages, as well as those of comparable, publicly traded guideline companies; and 6) Determining changes in relationships between financial, physical and intangible assets as percentages of the total, as well as the percentage changes in sales to those of receivables.

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Change is not linear

Another part of the context is variation in the rate of change, which rarely unfolds in a straight line. Important developments typically follow the “S-curve” of a power law: they start slowly and incrementally, putter along quietly, and then suddenly explode before eventually tapering off and even dropping back down. Another important feature of S-curves is that they are fractal in nature. Large, broadly defined curves are usually composed of several smaller, more precisely defined and linked ones. A valuator discovering an emergent S-curve should suspect a larger, more important one lurking in the background. Miss that and the firm’s strategy may amount to standing on a whale, fishing for minnows.

Once an inflection point arrives, don’t underestimate the speed of the changes. We are all linear thinkers by nature, and phenomena governed by exponential growth catch us by surprise. After the beginning of a change, some of us instinctively draw a straight line through the S-curve, missing both the lag at the start and the explosive growth in the middle, even though we may arrive at the same end. Timing, of course, is everything.

The truth is in the parts

Normally, valuers and management look at the whole of a business. But it is essential also to look at the parts. Nearly all entities perform more than one function. Normally every successful business has at least two, and preferably all of the following segments: 1) Existing Operations; 2) Emerging Activities; and 3) Future Opportunities. The latter are the future of the entity, the difference is that Emerging Activities exist and either are, or are about to be, providing revenues while Future Opportunities are R&D projects.

In assessing Existing Operations, it is important to look at the trends and fluctuations in the entity’s different sources of revenues and gross profits. These supply essential information for the verification of the reasonableness of the assumptions recommended by management. Such analyses become particularly important if

any entity is in more than one line of business. They should be undertaken using disaggregated data; this may be period (quarters or years), product line or component (subsidiary, division or branch), depending on the availability and relevance of the information.

Projecting revenue

As many cost figures are established as percentages of revenues, projecting them is one of the most important functions of a financial projection. There are two basic methods: “Bottom-Up”, starting with major customers and building volumes and related prices for them and the various sales channels, and “Top-Down”, fitting trends to historic data, preferably by business segment. The bottom-up method is preferable as it allows for various lifecycles affecting revenues.

A number of statistical tools can help develop sales projections and assess the quality of the “fit” (high R²), between the data plotted against

time and a trend line drawn through it. Microsoft Excel can calculate six types of trend lines (see chart). Excel will project the curve out into the future and display the relevant mathematical formulas. At least five years of historic data is needed for trend line analyses, but more will provide increasingly better results.

Even if the regression line has an excellent fit, the resulting projections may not be reasonable. In many cases, a polynomial regression can have an excellent fit with the last 10 years’ sales, but can result in implausible projections showing sales rising or falling rapidly. Therefore caution is recommended in using such trends.

Based on experience, a valuator, if preparing to capitalize next year’s earnings should use: 1) A weighted average when there is a pattern in sales or staying in a range; 2) A linear trend when the past sales have moved in a way that can reasonably be expected to continue.

If discounting projected cash flow, use: 1) A linear trend when growth is expected to continue, but at a steady or declining rate. This method is also

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useful if the entity has demonstrated increases or decreases; 2) A logarithmic trend when historic results suggest a consistent pattern that has a high probability of continuing. In some cases, a geometric or polynomial trend may be applicable.

Garbage in, garbage out

The choice of assumptions will materially affect any financial projection. The title of this section refers to the fact that with any model, the quality of the conclusions depends on that of the assumptions adopted. Therefore, the valuator must ensure that they are reasonable, reliable and consistent with existing market information, the current economic climate and past experience. It is essential that key external and internal non-financial performance indicators such as market share and customer satisfaction be taken into account.

The valuator should also be aware of trends in the various markets served by the business. Combining the opinions of key stakeholders with those of senior executives and finance staff is desirable. Important participants are front-line managers who are often in the best position to know how a line of business is performing; key suppliers who have an overview of the industry; and major customers who can offer feedback from consumers.

Management spends a great deal of time in developing the most likely financial forecasts. Unfortunately, in some cases they look like a

hockey stick, with revenues, margins and net incomes all increasing rapidly, which is implausible. As previously mentioned, we strongly recommend that valuers work with management to generate at least three future scenarios. This is of particular importance in business combinations where synergies are involved. The scenarios should reflect management's most likely expectations (Success scenario), some lesser level of synergies, in line with those achievable by market participants (Survival scenario) and, reflecting the poor performance of most mergers, a continuation of the past year (Status-Quo scenario).

In general, everything will not go as management expects; some middle position is probable. In other words, the valuator must distinguish between the possible and various degrees of probable. Certain practical problems apply to such a three-scenario method. One is to determine which assumptions are appropriate for each scenario, another is to ensure that only probable situations are covered and the third is to confirm that all results are plausible.

Synergies

In projecting the effects of business combinations, the assumptions should take into account the various costs of the transaction, as well as the amounts and timings of anticipated synergies. It is important to segregate those that market participants (financial buyers) can achieve by introducing industry best practices from those obtainable by the specific acquirer (usually a strategic buyer).

Under GAAP, synergies expected by the acquirer can be used in the cash flow forecasts underlying the fair values used for the purchase price allocation. However GAAP only allows those obtainable by a market participant to be applied in the goodwill impairment tests. It is important to note that synergies nearly always take longer to achieve than expected and usually involve unforeseen costs.

There are two major forms of synergies: cost reductions that can often be realized relatively

Trend	Best Used
Linear	When past results are relatively consistent and expected to continue
Logarithmic	When rate of change increases/ decreases quickly then levels out
Geometric	When data increases at a regular rate (data cannot contain zeros or negative numbers)
Exponential	When data rises or falls at increasing rates
Polynomial	When data fluctuates up and down

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quickly and revenue enhancements that result from strategic factors which often take a substantial time to reach. In considering the amounts and timings of expected synergies, the valuator must take into account the costs to obtain them, as well as their possible negative impacts.

Every assumption used in financial projections should be based on evidence such as information from existing operations, guidelines or

industry experience. All data should be tested to ensure it comes from a reliable source, is complete, mathematically accurate and consistent with other available industry research material. Subsequent events and transactions should be examined to confirm or refute any conclusions, as well as the processes already described.

James Catty is the Chairman of the International Association of Consultants, Valuators and Analysts (www.iacva.org)