# Equity Method of Forecasting

David Schalow and Christine Schalow

## Abstract

Projecting financial performance into the future is an important task for any business venture, and this is particularly true for new startups that have no track record. This paper examines the common pedagogy of "Percent of Sales Method" forecasting and suggests a new approach using initial equity rather than sales as the starting point for startups without a great deal of historical data. Using an unknown estimate like sales to forecast the remaining unknown values of the balance sheet and income statement is fraught with difficulties. Using a known value such as initial equity might allow the entrepreneur or other financial professionals to develop *proforma* statements which will be more realistic and perhaps more believable to outside stakeholders.

## I. Introduction

Projecting future performance is always a difficult undertaking. We all know that the past is not equal to the present; but knowing the past can obviously be helpful in forecasting the future. Forecasting difficulty is even more pronounced for small businesses, because of the dearth of information that they have available. Often they do not have the Accounting or Management Information Systems that larger entities would have available. McCarthy, Davis, Golicic, and Mentzer (2006) suggest that with the increasing availability of more and more sophisticated forecasting technologies you would assume that the reliability of sales forecasts would be improving, but this does not seem to be supported.

The percent of sales method of forecasting provides an excellent starting point for understanding how *proforma* financial statements can be developed from a limited amount of financial information. The method also highlights the importance of a good sales forecast, and encourages the user to learn key financial ratios, and establishes a basic understanding of key accounting relationships on the balance sheet and income statement.

Specifically, this paper will be limited to trying to project a *proforma* balance sheet and income statement one year out into the future. This is the typical task confronted by an entrepreneur, and is commonly used when introducing this topic in the typical accounting or finance course taught at most universities. The principal idea being proposed can be utilized more broadly, but this paper will address only the most difficult forecasting situation: A brand new business with no track record. Forecasting the financial needs of a new venture is particularly critical and extremely difficult[Stancill, 1986].

The difficulty in forecasting financial statements is not due to any particular controversy over the methodology. A quick look inside the standard textbooks used at universities to teach accounting or financial management leads to almost no choice in methodology: only some variant of the Percent of Sales Method. A brief survey of a few financial management textbooks all suggested the use of the Percent of Sales Method as a tool to forecast future financial statement values.

David Schalow, Ph.D. and Christine Schalow, Ph.D. are finance and accounting professors, respectively at the School of Business and Economics, University of Wisconsin, Stevens Point, WI 54481. They can be contacted at dschalow@uwsp.edu and cschalow@uswp.edu.

- The entire Brigham series of Financial Management textbooks published by Southwestern Cengage
- Principles of Managerial Finance (Gitman) Prentice-Hall
- Fundamentals of Financial Management (Van Horne, et al) Prentice-Hall
- Introduction to Corporate Finance (Megginson & Smart) Southwestern Cengage
- Contemporary Financial Management (Moyer, McGuigan, Kretlow) Southwestern Cengage

This level of agreement is quite surprising given the question that all college professors dread when delivering the standard Percent of Sales Method lecture: "Professor, what happens if the sales forecast is wrong?" This is a surprisingly insightful question. Indeed, what do you do if the sales forecast is wrong? If the sales forecast is wrong, all of the forecasted asset and liability accounts will also be wrong. Remember the old adage, garbage in, garbage out.

## II. Start with the Sales Forecast

A brief review of the basic Percent of Sales Method of Forecasting follows. Everything starts with a good sales forecast. An accurate sales forecast is important for every aspect of planning, organizing, implementation, and controlling. Numerous techniques can be used to arrive at a sales forecast.[Pride and Ferrell, 2008] A few examples are:

- Executive Judgment
- Customer Forecasting Surveys
- Sales Force Forecasting
- Expert Forecasting (Delphi Technique)
- Time Series Analysis
- Regression Analysis
- Market Tests

This is just a partial listing. Entire university courses and countless company resources are devoted each year to forecasting sales. There are so many variables involved that even with all the available techniques; the accuracy of the sales forecast is always a question. For an established company, with a solid track record the above methods can lead to some reasonably accurate forecasts, but for a new business startup with limited historical data, the above methods may come up short. The uncertainty about the sales forecast is the key aspect that might lead to questioning the reliability of the Percent of Sales Method as a tool to forecast future financial performance.

## III. Traditional Method of Forecasting *Proformas*

Ratio analysis is an accepted approach to trying to provide meaningful information to a financial analyst.[Nissim and Penman, 2001] Once the sales number has been determined, it is assumed that many items on the income and balance sheets increase in direct proportion to sales. Past percentages can be calculated for a particular company, or if no past data is available, industry norms may be used as a substitute. The other items that are not directly related to sales are

estimated based on the firm's relative use of debt, equity, or other historical accounting relationships.

The following is a typical scenario described in textbook problems. Dave wants to start a business and needs a *proforma* Balance Sheet and Income Statement in order to present to potential investors or lenders. Dave estimates Sales his first year to be $1 Million. (No mention of how this was estimated.) In addition, Dave has found the following industry ratios highlighted in Table 1 from sources like Dun & Bradstreet, Risk Management Association (RMA) etc. With a sales estimate and the following step by step procedure, the basic financial statements can be estimated.

**Table 1 (Industry Ratios)**

| | |
|---|---|
| **Debt/Equity =1.5** | **Debt/Assets = 60%** |
| **Sales/Assets = 4** | **Current Assets/Current Liabilities** = **2.5** |
| **Sales/Inventory = 10** | **Gross Income/Sales** = 20% |
| **Net Income/Sales = 3%** | **Net Income/Equity** = 30% |
| **Fixed Assets/Assets 40%** | **Sales/Accounts Receivables** = 33.3 |

- Step 1: Use the known variable of sales to find Total Assets ie. 1,000/Assets = 4 (000's) Result: Total Assets must be 250
- Step 2: If Assets are 250, then Assets plus Equity must be 250
- Step 3: Find another ratio that includes one of your known variables. (In this case you now know the assets so you can also find the fixed assets by taking the percentage of fixed assets (40percent) and multiplying by the assets of 250 to arrive at 100.
- Step 4: If Fixed Assets are 100 and Total Assets are 250, then Current Assets must be 150.
- Step 5: If Current Assets are 150 and the CA/CL ratio is 2.5, then Current Liabilities must be 60. (150/CL = 2.5)
- Step 6: Use the D/A ratio to solve for the Total Debt. (D/250 =0 .60) The result is 150. If Total Debt equals 150 and Current Liabilities equal 60, then Long Term Debt must equal 90.
- Step 7: If Total Debt is equal to 150, Equity must be equal to 100 by default because Total Debt plus Equity must be equal to 250.
- Step 8: Now use the Sales/Inventory and Sales/Accounts Receivables to find the corresponding numbers using the same technique. ie. (1,000/10 = 100 for Inventory and 1000/33.3 = 30 for Accounts Receivables.
- Step 9: Finally, Cash must be equal to 20 because the Cash + Inventory + Accounts Receivable must equal 150.

The completed *proforma* balance sheet is shown in Table 2.

**Table 2**
**(Results of the Pro-Forma Balance Sheet)**

| | | | |
|---|---|---|---|
| **Cash** | 20 | **Current Liabilities** | 60 |
| **Accts Receivable** | 30 | **Long Term Liabilities** | 90 |
| **Inventory** | 100 | **Total Liabilities** | 150 |
| **Current Assets** | 150 | | |
| | | **Total Equity** | 100 |
| **Fixed Assets** | 100 | | |
| **Total Assets** | 250 | **Total Liabilities + Equity** | 250 |
| **Initial Sales Forecast** | 1000 | | |

This is a typical example of the use of the Percent of Sales Method to forecast a balance sheet for a new business startup as found in most finance textbooks. The ratios could be different, but the basic process is the same. Find any ratio that contains a known number and algebraically solve for the unknown variable and plug it into the balance sheet. Keep doing this until you run out of ratios. Then the student must use some element of the accounting equation to determine another unknown. For example, if you know that Total Assets are 250 and Total Liabilities are 150, Equity must be 100 because the Accounting Equation is Total Assets = Total Liabilities + Total Equity. Repeat the entire process until all the unknowns are solved.

The same process can be used to plug in the gaps for a *proforma* income statement. However, a better technique for the income statement is to use a set of industry norms using the common size income statement approach to generate more detail. This basically treats the Sales Estimate as 100 percent and then gives percentages as norms for the various income statement categories.

## IV. Alternative Equity Method

The only problem is that if the sales forecast is wrong, the entire *proforma* financial statements are wrong because they are primarily driven by fixed percentages of the incorrect sales number. Using an alternative approach, the basic procedure to create *proforma* financial statements is fundamentally the same but with a slight perceptual shift. Instead of starting with a volatile unknown variable like sales, start with a variable which is already known such as equity. The first question the new business start up will be asked, is how much equity they and their partners are going to be putting into the business. It seems logical that if you start with a known quantity as the basis of your forecast, the resulting *proformas* would be more realistic.

In the earlier example from Table 1, the only major change would be that you don't know the sales number; therefore you start with the known value of the equity of $100,000 or whatever the owners can contribute. If that were the case, you would look for any ratio that had equity in it; plug in the value of the equity and solve for the unknown variable, etc, etc. In this case,

Debt/Equity (100) = 1.5; therefore Debt must be 150 (100 X 1.5). If Debt and Equity are 150 and 100 respectively, Total Assets must be 250. If Total Assets are 250 and the Total Asset Turnover (Sales/Total Assets) is 4, then Sales must be 1,000. (Sales/250 = 4)

Alternatively, the starting point could have been, Net Income/Equity =0 .30. Net Income must be 30. (NI/100 = 0.30) If Net Income is 30 and the Net Profit Margin (NI/S = 0.03), then Sales must be 1000. (30/Sales = 0.03) The analyst would then continue in the same manner as the Percent of Sales Method to fill in the remaining gaps in the Balance Sheet and Income Statement.

The Equity Method is no panacea; there are still no guarantees. The sales forecast may still be wrong. But, at least there would be a reasonable belief that it could be realized, because you know that other firms in that particular industry with that much equity have achieved similar sales and asset levels. Deriving the Sales figure by starting with a known variable like equity, may give a more realistic figure of what might be obtainable. It might be unreasonable for a new firm to hit these targets, but at least it is a starting point.

The Equity Method might also be a good first step to develop a sales forecast. Using this realistic and obtainable number as the starting point, the entrepreneur can then apply all of the other more traditional sales forecasting techniques. The entrepreneur might then work backwards and develop a marketing plan that might be able to achieve the projected sales level. To attain a particular level of sales, the plan must be supported by the appropriate level of assets devoted to the sales budget.[Kotler and Keller, 2008] A quality sales forecast is an important step in developing the appropriate marketing mix that can lead to the attainment of the target sales level. [Lackman, 2007]

A lender or investor looking at a *proforma* derived by the Equity Method is more likely to see the projection as realistic because they are going to compare it to the industry norms. When they look at the Current Ratio to measure liquidity, CA/CL should be equal to 2.5. What they will find is 150/60 or 2.5. This same result will occur right down the line. The Equity Method also addresses the tendency for an enthusiastic entrepreneur to put forward an overly optimistic sales forecast. The level of sales being projected is actually being achieved by other firms in the industry with that much equity committed to the firm. A *proforma* projected by the Equity Method can now become a much more reliable planning device for the new entrepreneur because they now know what their competition is really doing. How much cash do they need to support the projected sales? How much credit should they grant? How about inventory levels? Although simplistic, it can still be valuable for management to be engaged in talking through these issues.

The Equity Method also lends itself to developing Optimistic/Pessimistic/Most Likely projections. Many sources of the industry norms break down the ratios by quartile and the entrepreneur could redo the forecast using the upper or lower quartile numbers depending on how much detail they are looking to include in their business planning models. [RMA, 2010] This is particularly relevant because it is unlikely that a new startup is going to realistically be operating at the industry averages. The lower quartile numbers for the relevant ratios might be

most likely for a new startup with the average or upper quartile numbers being used as targets for the future.

The only way that the Percent of Sales Method will perform as well as the Equity Method in developing an accurate *proforma* is if the sales forecast is accurate. An accurate sales forecast will trump all other methods. If we could accurately project sales, the other aspects of planning become trivial. Similar to the Wall-Street wisdom of,"Buy stocks at a low price and when they go up in price, sell. If they don't go up, don't buy!" Hindsight is 20/20.

Another useful application of the Equity Method is in the classroom for training, the professor assigns a project asking the student to do a financial forecast in addition to the standard ratio analysis assignment. With the normal percent of sales method, these are difficult to grade because no two students will have the same forecast because of the various assumptions that go into forecasting. With all the students using the same equity value from the latest financial statement, the final *proforma* should be the same from each student, making objective comparisons between students easier.

## VI. Conclusion

The percent of sales method will clearly lead to incorrect *proformas* if the sales forecast is incorrect. The premise of this paper is that it is more appropriate to use equity rather than sales as a starting point for developing *proformas* because equity is easier to predict, compared to the sales figure and therefore the resulting forecast might be closer to reality. The basic pedogogy of the percent of sales method is maintained, but the tenuous nature of the sales forecast is mitigated. Traditional sales forecasting methods are viable for existing businesses with a track record, but they are limited in usefulness for the new firm with limited or no past historical data and this is where the Equity Method may prove to be useful.

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