REPRESENTATIONAL FAITHFULNESS OF THE BALANCE SHEET IN THE NEW BUSINESS PARADIGM

Philip Little, Western Carolina University
David Coffee, Western Carolina University

ABSTRACT

Some accountants are becoming increasingly concerned over what many users of financial information perceive as the growing gap between the actual assets of business enterprises and the assets reported on their balance sheets. This gap may be more significant for companies with knowledge and service based business models-which are particularly important in the new business paradigm centered around communications and information. Thus, for these companies the balance sheet may not be representationally faithful. In our study, we test the representational faithfulness of balance sheets using an assumption that the relationship of the market value and book value of a company's stock (PRBV) is an indicator of the representational faithfulness of the balance sheet in reporting the economic resources of a business enterprise. A sample was taken from the Value Line data base of 200 companies with the highest PRBV multiples and 200 companies with the lowest PRBV multiples to determine which type of industries tended to fall in the high and low categories. We also collected data on the 400 companies to examine other variables that could contribute to our understanding of the differences that exist between the high and low groups. We observed a predominance of knowledge and service based companies in the high group and a predominance of more traditional companies in the low group. Further, we found that the high PRBV companies have higher market risk, a higher growth rate and lower levels of capital intensity. Accordingly, we conclude that the balance sheets of knowledge and service based companies of the new business paradigm may systematically under-report assets.

BACKGROUND

The role of financial reporting in the economy is to provide information that is useful in making business and economic decisions. The FASB has concluded, as expressed in their Statement of Financial Accounting Concepts No. 1: Objectives of Financial Reporting by Business Enterprises, issued in November 1978, that financial reporting should provide information about an enterprise's economic resources, obligations, and owners' equity (FASB, 1978). This is merely the confirmation of a long standing and widely recognized convention in financial reporting that the balance sheet is basic to financial accounting. Indeed, the measurement of an entity's assets, liabilities and owners equity is the foundation of the financial accounting model. However, many accountants and users

of financial accounting information are becoming increasingly concerned that the emerging focus of business enterprises toward a service and knowledge based product is resulting in balance sheets which omit certain assets of such business enterprises. If true, balance sheets for companies in the service and knowledge based sectors of the economy may be losing their representational faithfulness and their relevance.

One reason for the omission of assets of knowledge and or service based companies is that some of the assets of these companies are of a soft intangible nature as opposed to the comparatively hard and tangible nature of assets of more traditional business enterprises like heavy manufacturing and traditional wholesaling/retailing. The primary qualities that make accounting information useful are relevance and reliability (FASB, 1980). Because of the inherent reliability problems associated with soft intangible assets and accounting's traditional adherence to conservatism, many of these assets are not recognized and the resulting balance sheets may lack representational faithfulness.

The FASB defines representational faithfulness as the "…correspondence or agreement between a measure or description and the phenomenon it purports to represent. In accounting, the phenomena to be represented are economic resources…." (FASB , 1980). Thus, by leaving out important assets of knowledge and service based companies, their balance sheets may not faithfully represent the companies' financial position.

Steve Wallman, a Commissioner at the Securities and Exchange Commission, has made numerous references to this problem in four commentaries based on speeches presented to the AICPA (Wallman, 1995; 1996). He states:

> …the inability to recognize at all as assets on the balance sheet some of the new and most significant building blocks of business has resulted in balance sheets that bear little resemblance to the true financial position of the firms they are supposed to describe.
>
> (Wallman, 1995, p. 85)

Wallman continues:

> My concerns, then, are that there are a significant number of assets that are poorly measured through historical cost accounting and, more importantly, that we have entire categories of assets that are not recognized at all. And the problem is getting worse. In particular, it is the latter group of assets—those that are not even recognized—that are the fastest growing and most important parts of most of our new firms. In recent years, for example, service firms comprise the fastest growing segment of our economy. Yet, the most important assets of many of these firms—intellectual property and human assets—will not be found anywhere on the balance sheet of these entities.
>
> (Wallman, 1995, p. 85)

Wallman concludes:

> I understand the traditional objections to doing more with regard to this issue, but suggest that these objections are not responsive to the needs of the future—unless we wish simply to view the balance sheet as an increasingly limited-purpose, almost anachronistic, statement. By consigning the balance sheet to the status of an antique, we are ignoring the needs of a broad array of financial statement users, including users such as creditors who increasingly are lending on soft assets.
>
> (Wallman, 1995, p. 85)

Wallman cites, as evidence of the problem, the relationship of the market value ($35.6 billion) and book value ($4.45 billion) of Microsoft's common stock on December 31, 1994. (Wallman, 1995). On January 31, 2000, as we complete this study, the market value of Microsoft common stock is $507 billion and the book value is $29 billion, which reflects a more than doubling of the market price/book value ratio between 1994 and 2000.

BOOK VALUE VERSUS MARKET VALUE

Book value per share of common stock measures the amount each share of common would receive if all assets on the balance sheet were sold at an amount equal to the balance sheet carrying (book) value, all liabilities were retired at their carrying (book) value, preferred stockholders were paid according to the liquidation provisions of the preferred stock (usually call value), and the common shareholders received the remaining cash in a pro-rata distribution. The book value per share of common stock can therefore be viewed as a measure of the net assets of each share of common stock, as these net assets are recognized and measured in accordance with generally accepted accounting principles.

Market value per share of common stock is subject to the capital market's determination of buyers and sellers in a free market. Essentially it is the capital market's collective measure of the perceived present value of the future cash flows of a share of common stock, with both the amounts and timing of the future cash flows and the discount rate being in the eyes of the capital market. When the market value is above book value this indicates the capital market's recognition of valuation not represented on the balance sheet. This could be the result of assets reported on the balance sheet (usually at historical cost) at less than their market valuation, or it could indicate the existence of separately identifiable (usually intangible) assets which are not recognized on the balance sheet, or it could indicate the existence of goodwill. Here, goodwill in essence could be viewed as the whole (the business entity) being worth more than the sum of the parts (the individual assets on the balance sheet).

There can be many reasons for the existence of goodwill and many reasons for high market/book multiples. Since the capital markets place a high premium on growth, one would expect companies which the capital market perceives as growth companies to have higher market to book value ratios after controlling for risk (see Stickney & Brown, 1999). But high market/book multiples are not necessarily unique to growth companies. In fact, if it is true that the emergence of knowledge

and service based companies has affected the representational faithfulness of balance sheets, there may be a number of other factors that account for higher market/book multiples such as the percentage of plant assets to total assets. This variable is especially related to traditional manufacturing based companies, but less so to knowledge and service based companies. Much of the investing type activities of knowledge based companies, in particular, are research and development which, in most part, are required to be expensed in the year incurred (see Stickney & Brown, 1999). Also, size as measured by total revenues or total assets, may have an influence on variations in market/book multiples (see Fama & French, 1992).

Whether associated with traditional industries or newer knowledge based service industries, large differences between market valuations and book valuations could infer a balance sheet that does not have representational faithfulness. We use this inference to make the following assumption. The nearer a company's market/book ratio is to 1 to 1, the greater the representational faithfulness of the company's balance sheet. We state this as an assumption which is, indeed, in conflict with many assumptions incorporated into generally accepted accounting. The FASB's conceptual framework, for example, specifically states the purpose of financial accounting is not to report the value of a business entity (FASB, 1978;1984). This assumption is, however, consistent with Wallman's views of a more relevant balance sheet.

OBJECTIVE OF THIS STUDY

The reasons that Generally Accepted Accounting Principles (GAAP) do not recognize and measure certain "potential" assets are many and complex. They involve recognition and measurement issues which have been debated in the accounting community for decades and will continue to be debated. Those involved in this debate agree that conservatism is a time honored tradition in accounting that helps explain the current accounting treatment of "soft" assets. As Ijiri and Nakano (1989) have illustrated, such conservatism of measurements of past income may lead to overstatements of future income.

The purpose of this study, however, is not to argue the recognition and measurement issues which have lead to the problem of asset understatement or to propose solutions. Those interested in new models should read Wallman's Colorized Accounting Model which proposes a five tier approach presenting multiple levels of accounting information with the higher tiers relaxing the current conservatism in recognition and measurement to produce balance sheets reflecting all firm resources (Wallman, 1996).

Based on the assumption that the relationship of the market value and book value of a firm's common stock is an indicator of the representational faithfulness of the balance sheet in reporting the economic resources of a business enterprise, we have examined these relationships for selected types of businesses to determine if in fact there are differences in service based and knowledge based businesses and businesses in traditional manufacturing and other industries. If this difference does exist it can be viewed as an indication that the balance sheets of companies which make up the core of the new business paradigm have less representational faithfulness than the balance sheets of companies in more traditional industries.

RESEARCH METHODOLOGY

In order to test the representational faithfulness of balance sheets of knowledge and service based companies versus more traditional companies, we used data from the 1998 Value Line database which included 1,746 companies from a wide variety of industry types. The first sample drawn from this database included companies with the 200 highest and the 200 lowest market price to book value ratios (PRBV).

We investigated the sample companies to determine which types of industries tended to fall in the high and low categories. We expected to find that more knowledge and service based companies would fall in the high category and more traditional manufacturing companies would fall in the low category. The results of this phase of our research is reported in Table 1 and discussed in the results section.

We also collected data on these 400 companies to examine other variables, other than PRBV, that might contribute to our understanding of the differences that exist between the high and low PRBV categories. These variables, along with the justification for inclusion in our research, are:

1.	Beta:	Risk Measure
2.	Natural Log of Sales and Total Assets	Size Measures
3.	Projected 5 Year EPS Growth	Growth Potential
4.	Plant Assets to Total Assets	Tangible Capital Asset Intensity

Sample statistics are reported in Table 2 and discussed in the results section. In order to test for statistically significant differences between the high and low PRBV categories, we used ANOVA tests with the high and low PRBV categories treated as categorical independent variables and each of the aforementioned variables treated as dependent variables. The results of these statistical tests are reported in Table 3 and discussed in the results section.

RESULTS OF THE RESEARCH

Table 1 reports the type of industries represented by the high and low PRBV categories. Interestingly, there are a number of industry types that are clearly indicative of either high or low PRBV's. In the high category, companies such as computer/software, drug, chemical, medical supplies, and telephone were predominant. In the low category, companies such as gas distribution, steel, and utilities were predominant. Thus, our contention that knowledge and service based companies are more likely to have higher PRBV's than traditional manufacturing based companies appears to hold true. Certainly, there are no more traditional type companies than steel and utilities. Also computer/software and drug companies are more indicative of knowledge based or research and development based companies discussed earlier.

Table 2 reports statistics for six variables chosen for the sample companies in the high versus low PRBV categories. Given the way the sample of high PRBV and low PRBV companies was

chosen, it is to be expected that the mean PRBV in the high category (9.35) would be greater than the mean PRBV in the low category (1.45). The mean beta of the high PRBV category (1.09) reflects a risk level slightly above market risk (1.00) while the low PRBV category beta (0.84) is much lower than market risk. We believe that this finding is to be expected given the predominant nature of the type of companies in the high and low categories. Companies in the knowledge and service based sector are more likely to be emerging companies with greater growth potential and higher overall risk than are mature companies. The high category does show greater growth potential with a projected 5-year EPS growth rate of almost 20% versus approximately 12% in the low category.

TABLE 1
TYPES OF INDUSTRIES REPRESENTED
HIGH AND LOW PRICE TO BOOK VALUE (PRBV) CATEGORIES

Industry	High Category	Low Category
Apparel	4	3
Automobile	1	5
Building	3	7
Chemical	11	4
Computer/Software	24	4
Drug	12	1
Electronics	4	7
Financial	5	1
Food Processing	8	3
Oil/Gas	9	5
Gas Distribution	0	11
Medical Service	4	3
Medical Supplies	14	3
Office	5	1
Paper	1	7
Retail	11	14
Steel	0	11
Telephone	17	5
Utility	0	25
Others	67	80

NOTES: (1) High = highest 200 price to book values out of 1,746 companies in value line data base; (2) Low = lowest 200 price to book values out of 1,746 companies in value line data base; (3) The other industry type includes companies in an industry with fewer than five high or low companies.

TABLE 2
SAMPLE STATISTICS
VARIABLES BY HIGH/LOW CATEGORIES

High PRBV Category:				
Variables	Mean	Std Dev	Max	Min
1. Price to Book Value	9.35	5.29	45.15	5.48
2. Beta	1.09	0.26	1.95	0.50
3. Log Sales	7.58	1.51	11.68	4.65
4. Log Assets	7.48	1.55	11.31	4.18
5. Projected 5 Year EPS Growth	19.9%	9.6%	79.5%	3.0%
6. Plant Assets to Total Assets	29.4%	17.8%	86.7%	2.1%
Low PRBV Category:				
1. Price to Book Value	1.45	0.27	1.79	0.63
2. Beta	0.84	0.25	1.85	0.40
3. Log Sales	7.05	1.26	11.76	4.52
4. Log Assets	7.11	1.40	11.65	4.32
5. Projected 5 Year EPS Growth	11.6%	8.9%	59.0%	1.0%
6. Plant Assets to Total Assets	40.9%	24.8%	97.0%	1.9%

NOTE: Number of observations = 200 high and 200 low.

Of particular interest to our research objectives, the variable "plant assets to total assets" is considerably higher in the low PRBV category indicating a greater level of tangible capital intensive assets. As mentioned before, research and development and other types of intangible assets in the knowledge and service based companies are not reflected as assets. Yet, these unrecorded "assets" are productive for these types of companies in the same way as plant assets are productive to steel and utility companies.

The two size measures, log of sales, and log of total assets do not seem to differ between the two categories.

Table 3 reports statistical tests of differences between the high and low PRBV categories for the seven variables. The results from the ANOVA tests show f-statistics that are statistically significant for all the variables tested. The highest f-statistic was PRBV (427.34) which again is an obvious finding given the sample selection method. Other high f-statistics are reported for beta (90.07), projected 5-year EPS growth (78.32), and plant assets to total assets (27.44).

TABLE 3
ONE WAY ANOVAS
STATISTICAL TESTS FOR SIGNIFICANT DIFFERENCES
BETWEEN HIGH AND LOW PRBV CATEGORIES

Independent Variable: High PRBV Category = 1, Low PRBV Category = 0			
Dependent Variables:	R Squared	f-statistic	PR > f
1. Price to Book Value	0.53	427.34	0.0001
2. Beta	0.19	90.07	0.0001
3. Log Sales	0.02	14.30	0.0002
4. Log Assets	0.01	5.80	0.0165
5. Projected 5 Year EPS Growth	0.17	78.32	0.0001
6. Plant Assets to Total Assets	0.07	27.44	0.0001
NOTE: Number of observations = 200 high and 200 low.			

The statistical significance of expected growth, risk, and size measures is consistent with findings of earlier studies (Stickney & Brown, 1999). Especially important to the premises explored in our research is the finding that levels of tangible capital intensity are significantly higher for the low PRBV category than they are in the high PRBV category. Under present accounting standards, with some types of intangible assets going unreported, it is little wonder that certain companies carry such high levels of PRBV's.

CONCLUSIONS

If one accepts the premise that certain types of companies which have high price to book value multiples have balance sheets that are less representationally faithful than the balance sheets of companies with low price to book value multiples, then there are some apparent conclusions that can be drawn from this study. By looking at the composition of companies in the high and low PRBV categories, we observe a predominance of knowledge and service based companies in the high group and a predominance of more traditional companies in the low group. Our study shows that the high PRBV companies have higher market risk, a higher growth rate and lower levels of capital intensity. The profile of the companies in the high group matches Wallman's concept for companies which make up the new business paradigm.

Based on the findings of our study, it does not appear that balance sheets, with their traditional accounting measurements, are representationally faithful with respect to certain types of knowledge and service based companies. In fact, the results of our study seem to suggest that in the new business paradigm the balance sheets of these type companies may systematically under-report assets. If so, the capital market's price to book ratios are overstated. Accordingly, the high multiples

of market price to book value prevalent in certain industries segments may not be as "irrational" as originally thought.

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