

**EQUITY VERSUS FAIR-MARKET-VALUE METHOD FOR
THE CARRYING VALUE OF INVESTMENTS IN
COMMON STOCK: A RESEARCH NOTE**

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Key Words: Fair Market Value Method and Equity Method

JEL Classification(s): G12, G18, M48

Abstract

This study examines whether the equity or the fair-market-value method of accounting for investments produces higher values for the balance sheet and income statement. We gathered data on 517 companies listed in the *Value Line Investment Survey* (i.e., 30.6% of the approximately 1,690 listed companies) and conducted an analysis of the data. This research examined whether firms might choose one method over the other merely to present a better income statement rather than for economic reasons. Our analyses of the apparent differences between the two methods suggest that the equity method does not anticipate future earnings whereas the fair-market-value method consistently provides a higher estimate of value (i.e., less conservative) in up markets. Consequently, the data indicate that the equity method is the more conservative of the two methods of accounting for investments in the securities of other entities.

INTRODUCTION

Comiskey and Milford (1986) found that management's decision concerning whether to purchase more or less than 20% of another company's common stock (i.e. use cost method or equity method) is significantly impacted by whether the investee reports accounting profits or losses. However, no prior research on the quantitative or qualitative differences between the fair-market-value method and equity method of accounting has been conducted. Nor has any prior research investigated the question whether a firm's management may choose to purchase slightly more or less of a company's stock in order to use either the equity method or fair market method of accounting for the sake of producing better financial statements rather than for the substance of the transaction. Our study investigates the quantitative aspect of the first issue, and may indicate strong support of the second. This indicates a need to further investigate management's investment behavior in regards to deciding how much of a company's common stock to purchase.

There is also question as to the justification of using the equity method. Davis and Largay (1999, p. 281) believe that the equity method cannot be justified due to the limited quality of informational characteristics related to the equity method. Such "limited informational characteristics" include not reporting an investee's assets and liabilities on the investing company's balance sheet (Ciesielski, 2002). This problem also exists for the fair-market-value method. Given this concern, examining the differences between the carrying values may provide further insight to the impact of these 'hidden' aspects of an investor firm's financial statements.

This study examines whether the fair-market-value or equity method of accounting for investments provides a higher value for the financial statements of the investor. Our research updates the Comiskey and Milford study, using equity and fair-market-value methods. We examined whether the use of one method over the other resulted in a significant difference on the

investor's financial statements. Any significant difference may indicate that investor firms purchase a slightly higher or lower percentage of stocks (i.e. slightly above or slightly below the 20% threshold) as appeared to be the case with cost method and equity method by Comiskey and Milford.

LITERATURE REVIEW

Prior to the implementation of the fair-market-value method (Financial Accounting Standard 115, 1992), Comiskey and Milford (1986) found that there were indications that firms used the equity method of accounting for investments in other corporations' common stock when those corporations had positive accounting income. These authors examined over 8,000 corporations, but they narrowed their analysis to those firms whose investment represented between 19.00 and 19.99% ownership (i.e., those who would be expected to use the cost method of accounting for their investment) and those firms whose investment represented between 20.00 and 20.99% ownership (i.e., those who would be expected to the equity method of accounting for their investment).

Comiskey and Milford's hypothesized that firms in the 19.00 and 19.99% ownership range (i.e., those that just missed the threshold for the equity method) would have a history of losses and the investor anticipated these losses would continue into the future. On the other hand, they hypothesized that investors in the 20.00 and 20.99% ownership range (i.e., those that just marginally qualified for being accounted for under the equity method) would have a history of accounting earnings and that the investors anticipated these earnings would continue into the future. Their premise was based on the belief that incentives such as bonus compensation plans and debt covenants would cause management to find ways to increase their corporations' accounting income if this served as a computational component of their bonus. Comiskey and Milford (1986, p. 522) found that: "a considerable number of investor firms appear to be concentrated in the ownership percentage cells that fall within the sensitive region (16

to 23.99%).” Their data indicate a significant difference between the two groups of firms. While 30.4% of firms with investments in the 19.00-to-19.99 range reported losses, only 16.1% of the firms in the 20.00-to-20.99% range reported losses. This finding supports their belief about the influence of management incentives on decisions concerning which method to account for investments in other corporations’ common stock.

Nobes (2002, p. 40) presented an interesting proposition concerning management’s motivations when choosing the equity method of accounting for investments by international firms. Nobes maintains that the 20% cutoff is arbitrary and unsupported means of creating an accounting rule. He posits that when this occurs, management has the option of choosing how to make their financial statements attractive. Research indicates differences in findings occur among countries. For example, Kothavala (2002) found that, for a Canadian sample, equity method statements were better at explaining the risk aspect of bond ratings. Bauman (2007) found that proportionally-consolidated financial statements were better at explaining bond ratings for a sample of corporations from the United States.

While Davis and Largay (1999, p. 281) believe that the equity method cannot be justified as it has only “limited informational characteristics”, the equity method is still the required method of reporting investments in other corporations’ stock when the investing corporation holds 20% or more of the outstanding stock of another corporation or has the ability to influence the decision-making process of another corporation in which it has less than a 20% investment. However, Penman (2007) maintains that one of the problems with the fair-market-value method is that it does not reflect the profitability of the investee. Still, Emerson et al. (2010, p. 84) note that the “FASB is moving incrementally toward fair market value (method), if for no other reason than to enhance comparability with international standards.” Given the difference between Davis and Largay’s and Penman’s concerns, our research question (RQ) examines whether one

method of accounting for an investment consistently provides a higher valuation on the investor's financial statements:

RQ: Does either the fair-market-value method or the equity method of accounting for an investment consistently provide a higher valuation on the investor's financial statements.

METHODOLOGY

Time-Period Selection

Panel A of Figure 1 shows the Dow Jones Industrial data between 1995 through 2016. Our preference would be to use the most recent data; however, the trend line in Panel B for the Dow Jones Industrial data between 2008 through 2016 indicates an ever-increasing average ($R^2 = 0.96$).¹ The data in Panel B includes no down periods or relatively stable periods to assess differences in market performance for the period between 2008 and 2016. The arrowed line in Panel A below the data between 2000 through 2005 indicates a period that provides a series of different market performances that we desired for our analysis. Panel C shows the Dow Jones Industrial data between 2000 through 2005; the trend line for the data indicates an essentially flat line ($R^2 = 0.05$). Although the average of the six observations for the Dow Jones Industrial data in Panel C is approximately 10,500, the series contains two down years (2001 and 2002), two up years (2003 and 2004), and one relatively stable year (2005).

Additionally, the period between 2000 and 2005 provided us with a contrast in market trends that did not include the traumatic consequences throughout the economy as did the later period. For example, while the crash of 2002 resulted in "\$7.7 trillion knocked off U.S. market capitalization" (Lahart, 2002), the market crash of 2008 "destroyed \$16.4 trillion of American households' net worth from 2007 through 2009. It wiped out more

¹ Our market data are from FedPrimeRate (2016).

than \$2 trillion of Americans' retirement savings" (Clarke, 2015).² Consequently, the 2000-to-2005 period provided with us with the contrasts of decreasing-and-increasing markets necessary for the testing of our research question.

Sample

Table 1 identifies the *Value Line Investment Survey* industries (listed alphabetically) used in the collection of our data. For each industry the total number of companies reported in *Value Line Investment Survey* as well as the number of corporations used in our data set. Table 1 also indicates the percentages of companies in each industry in the *Value Line Investment Survey* that we used in our analysis. The number of companies in Table 1 is representative of the number of firms Value Line reported in the first edition of *Value Line Investment Survey*, which was referenced in the collection of our data (January 2006).

Our sample includes 517 companies from the *Value Line Investment Survey* (2006, 2007). The data collected (Table 1) include market values at December 31, 2000 (i.e., our base year), and data for calendar years 2001 through 2005 that included: earnings per share, dividends per share, and stock splits/stock dividends. We used earnings per share because this allowed us to work around the 20 percent requirement for influence, which is required to use the equity method and would vary among the 517 firms in our sample.

At the end of each year, the fair market value of each stock was also recoded. Our initial data source was the *Value Line Investment Survey* (2007) for the years 2001 through 2005. Of the corporations listed in the *Value Line Investment Survey*, over half were eliminated for various reasons:

² For comparison purposes, the inflation-adjusted amount of the \$7.7 trillion loss in 2002 would be \$9.2 trillion in 2008 dollars (US Inflation Calculator, 2016).

1. the financial industries because of their size and the fact that these corporations would not be likely candidates for another corporation's long-term investments; and,
2. firms that did not have a sufficient financial history dating back to the base year of this study (i.e., 2000).

Consequently, our data set consists of 517 corporations or approximately 30.6% (517/1,690) of the corporations remaining in the *Value Line Investment Survey*.

Data Gathering Procedures

We used the *Value Line Investment Survey* to record the earnings per share and dividends per share for each of the companies studied in 2001 through 2005. We also made note of any stock splits, stock dividends and the company's industry. Stock splits and stock dividends required that we adjust the beginning stock price, which was the closing market on the last trading day of 2000 and subsequent years. We also recorded stock prices for each company using *Yahoo Finance*, which was then used to cross check dividends and to look for abnormal dividends that the *Value Line Investment Survey* did not report. For example, Altria reported an unusual dividend of \$21.09 in 2007, which was not reported on the *Value Line Investment Survey*. Adjustments were then made to the *Yahoo Finance* price values for stock dividends and stock splits; for example, the price from earlier years was multiplied by the reciprocal of the split.

In this research, we denominated all amounts by the number of shares outstanding. Thus, we did not have to compute where a 20% cutoff in ownership was for each of the 517 companies. What is of concern is whether one method of accounting provides a higher value for the investment account and thus higher revenue amounts on the income statement and higher retained earnings.

In the overall analysis, we used the market value on the last trading day of 2000 as our initial point, and the closing price in 2005. Equity method values were calculated using the 2000 closing

price, minus any cash dividends, plus the earnings. The difference between the two ending values was then calculated. Each company's gains or losses for the five-year period were computed using each fair-market-value and the equity method of accounting for investments in other corporations.

ANALYSIS

Overall Evaluation of Methods

To determine the significance of the results, we used the nonparametric statistical Wilcoxon Signed-Rank test. The Wilcoxon Distribution-Free Rank test (Hollander and Wolfe, pp. 68-75) was used to compare our matched sample of firms for the equity and fair-market-value valuation methods for accounting for an investment in another corporation. In doing so, we found the absolute value of the differences, ordering and ranking these values. We then found the sum of the ranks for each the negative and positive values in addition to finding the sum of the ranks (i.e. $1+2+\dots+n$).

$$W^* = \frac{W - E_0(W)}{[\text{var}_0(W)]^{1/2}}$$

$$= \frac{W - [n(m+n+1)/2]}{[m n (m+n+1)/12]^{1/2}}$$

Where: m = firms with higher valuations
 n = firms with lower valuations

To expand our sample, we examined the data on a per-share basis; consequently, we started out for each method with an initial investment on the opening day of trading in 2001 using the closing values from 2000. The value of each method was first examined over the entire five-year period of this research. For the fair-market-value method, the investment account was adjusted

annually for its market value. However, for the equity method, the value of the investment was reduced by the amount of dividends per share and increased by the amount of earnings per share.

For the overall period of 2001 through 2005, our data consist of 517 firms. Of the 517 firms, 300 (217) had a higher (lower) valuation using the fair-market-value method (i.e., 58.0% versus 42.0% of the sample). Using the Wilcoxon-Signed Rank test, the difference in the sum of the ranks for the firms that had a higher (lower) valuation was 87,014 (46,889) and was significant ($p \leq 0.0001$). Consequently, the fair-market-value method provides a significantly higher valuation in a generally increasing market for the majority of firms (i.e., 300 versus 217).

By-Year Evaluation of Methods

We also used the Wilcoxon-Signed Rank test to compare our matched sample of firms for the individual years. For 2001, which was a year with only a small decline for the stock market (i.e., a loss of 766 points [7.1%]), 275 (242) of the 517 firms that had a higher (lower) valuation using the fair-market-value method (i.e., 53.2% versus 46.8% of the sample).³ Using the Wilcoxon-Signed Rank test, the difference in the sum of the ranks for the firms that had a higher (lower) valuation was 66,445 (67,458), which was not significant. Consequently, the fair-market-value method does not provide a significantly higher valuation in a decreasing market (i.e., 275 versus 242 firms) in 2001.

In general, 2002 was our one significantly down year (i.e., a loss of 1,680 points [16.8%] or over twice the previous year's loss) for the stock market over the five-year period from 2001 through 2005. For 2002, only 118 (399) of the 517 firms had a higher (lower) valuation using the fair-market value method (i.e., 22.8% versus 77.2% of the sample). The difference in the sum of the ranks for the firms that had a higher (lower) valuation was 19,167

³ Percentage gain or loss for the year was equal to difference for the year (i.e., the closing value for the current year minus the closing value for the prior year) divided by the prior year's closing value.

(114,727) and was significant ($p \leq 0.0001$). Consequently, the fair-market-value (equity) method provides a significantly lower (higher) valuation in a decreasing market for the majority of firms (118 versus 399).

For 2003, which was the first and had the largest change of the two consecutive up years for the stock market (i.e., a gain of 2,112 points [25.3%]), 451 (66) of the 517 firms had a higher (lower) valuation using the fair-market-value method (i.e., 87.2% versus 12.8% of the sample). The difference in the sum of the sum of the ranks for the firms that had a higher (lower) valuation was 124,093 (9,810) and was significant ($p < 0.0001$). Consequently, the fair-market-value method provides a significantly higher valuation in an increasing market for the majority of firms (i.e., 451 versus 66).

For 2004, which was the second of two consecutive up years for the stock market (i.e., a 329-point gain [3.1%] or about one-seventh the prior year's gain), 349 (168) of the 517 firms had a higher (lower) valuation using the fair-market-value method (i.e., 67.5% versus 32.5% of the sample). Using the Wilcoxon-Signed Rank test, the sum of ranks for the firms that had a higher (lower) valuation was 88,070 (45,833), which was significant ($p \leq 0.0001$). Consequently, the fair-market-value method provides a higher valuation in an increasing market for the majority of firms (i.e., 349 versus 168).

For 2005, which was essentially a level year for the stock market (i.e., a loss of only 66 points [0.6%]), 249 (268) of the 517 firms had a higher (lower) valuation using the fair-market-value method (i.e., 48.2% versus 51.8% of the sample). The sum of the ranks for the firms that had a higher (lower) valuation was 66,319 (67,584), which was not significant. The no difference finding provides an interesting contrast to the other years in our data set.

CONCLUSIONS

While prior research had shown a significant difference between the equity and cost methods of accounting for the

investments in other company's common stock, there has not been a study to confirm differences between the equity and fair-market-value methods of accounting for investments. In our study, we examined the potential for differences between the equity and fair-market-value methods for accounting for long-term investments in the common stock of other corporations. Our primary finding was that there are indications suggesting that equity method is a more conservative method. The differences apparent between the two methods (i.e., the fair-market-value method providing a higher estimate of value [i.e. less conservative] in up market) suggest that the equity method does not anticipate future earnings.

In 2001, the total value of all stocks in our sample had a down year; however, 2001 did not have a significant change in the value of all stocks (i.e. a percent change of a minus one percent). In 2001, there were approximately an equal number of firms higher in the equity method than fair-market-value method. Similarly, in 2005, the total value of all stocks in our sample had a slight down year (0.6% loss), but not by a significant amount. In 2005, there were approximately an equal number of firms (249 versus 268) for each method. Consequently, the difference between the equity and fair-market-value methods was not substantially different in 2001 and 2005; either method would have provided similar information content. The years 2003 and 2004 both had an increase in the total value of all stocks, being 25.3% and 3.1% respectively. In both of these years, the fair-market-value method provided a significantly higher number of firms having a greater value than the equity method.

In the year 2002, the value of all stocks in our sample had a down year (i.e., a loss of 16.8%). In this year the equity method provided a greater number of firms with a higher carrying value. Our overall analysis also provided a higher value during a period where the stocks included in our sample remained approximately the same for the end of 2000 (10,788) through the end of 2005 (10,718). This period had a 0.7% decrease, with 58% of companies having a higher value.

Another implication for our findings is that management might be motivated to use one method to avoid volatility. This choice would involve a tradeoff between maximizing assets or income in an attempt to normalize earnings. Finally, one should also recall that unrealized holding gains or losses on available-for-sale securities do not affect net income; rather these gains or losses are reflected in other comprehensive income in the stockholders' equity section of the balance sheet.

Our research has two apparent limitations. First, we only used firms listed in the *Value Line Investment Survey* (2006, 2007). Second, we only considered the 2001-to-2005 timeframe. Consequently, our results may not be generalizable to the overall population.

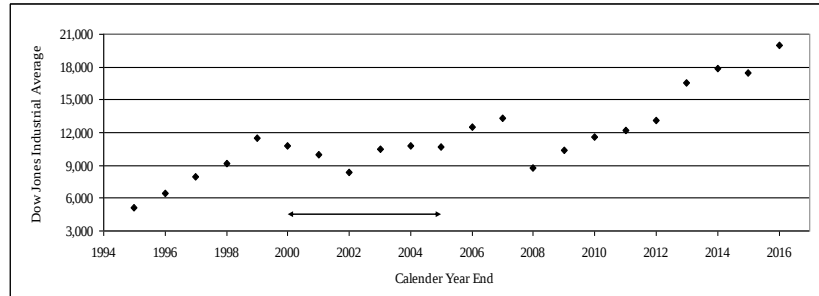
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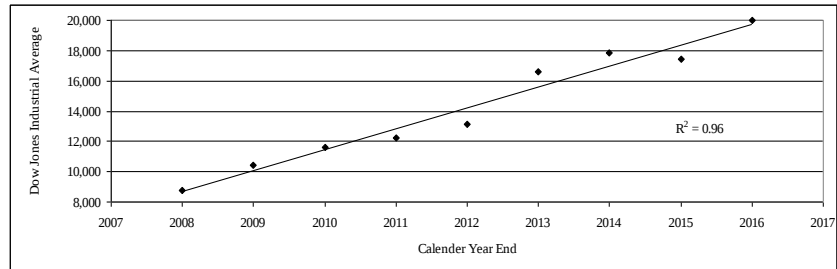
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FIGURE 1
Dow Jones Industrial Average History

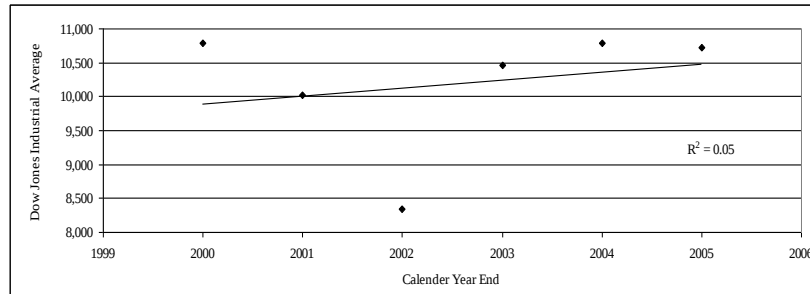
Panel A: DJIA data between 1995 and 2015



Panel B: DJIA data between 2008 and 2016



Panel C: DJIA data between 2000 and 2005



Data from: FedPrimeRate (2016)

TABLE 1
Sample by Industry and Percent of Industry

Industry	Total	Sample	Percent
Advertising	8	5	62.5
Aerospace/Defense	20	7	35.0
Air Transport	10	6	60.0
Apparel	14	8	57.1
Auto & truck	11	5	45.5
Auto Parts	18	1	5.6
Basic Chemical	8	4	50.0
Beverage	13	13	100.0
Biotech	17	4	23.5
Building Materials	96	9	9.4
Cement & Aggrates	12	5	41.7
Chemical (Special)	32	2	6.3
Computer & Peripherals	27	16	59.3
Diversified	37	17	45.9
Drug Industry	44	25	56.8
Electric Utilities (Comb)	69	35	50.7
Electrical Equip	20	11	55.0
Electronics	25	14	56.0
Entertainment	15	6	40.0
Environmental	8	3	37.5
Food processing	32	16	50.0
Food wholesale	5	5	100.0
Home Furnish	74	7	9.5
General Steel	10	6	60.0
Grocery Store	13	8	61.5
Home Appliance	6	4	66.7
Home Building	98	7	7.1
Hotel/ Gaming	14	4	28.6
Household Prod	61	10	16.4
Human Resources	11	6	54.5
Industrial Services	27	12	44.4
Inform Services	44	2	4.5
Machinery	40	18	45.0
Maritime	8	2	25.0
Medical Supplies	60	11	18.3

Table 1 (continued)

Metal Fabricating	9	5	55.6
Mining and Metal	12	1	8.3
Newspaper	12	5	41.7
Office supplies	12	6	50.0
Package & Contain	57	13	22.8
Paper/Forest Prod	51	5	9.8
Petroleum (Integrated)	20	3	15.0
Pharmacy Services	9	2	22.2
Power	62	7	11.3
Precious Metals	10	1	10.0
Precision Instruments	29	22	75.9
Publishing	13	5	38.5
Railroad	7	2	28.6
Recreation	18	10	55.6
Restaurant	20	9	45.0
Retail Auto	8	3	37.5
Retail Build Sup	80	6	7.5
Retail Store	19	10	5.3
Semiconductor	39	26	66.7
Shipping	21	2	9.5
Shoe	11	4	36.4
Specialty line Retail	86	25	29.1
Steel (integrated)	5	1	20.0
Tobacco	6	4	66.7
Telecom Services	17	11	64.7
Telecom Equip	21	3	14.3
Tire & Rubber	4	1	25.0
Toiletries/Cosmetics	11	1	9.1
Wireless Network	14	10	71.4
Totals	1,690	517	30.6