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Abstract

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INSIGHTS

Earnings per share (EPS) is among the most widely cited measures of financial performance for public companies. As an individual statistic, and as a component of the price/earnings ratio, EPS is a central feature in the reports of rating services, the financial press, and private investment advisors.

For the past twenty-eight years, publicly traded corporations have calculated and reported applicable EPS figures in accordance with the provisions of Accounting Principles Board Opinion No. 15, Earnings per Share (APB 15). Beginning with the first financial statements, annual or interim, that companies issue for accounting periods ending after December 15, 1997, however, reported EPS figures will be determined in accordance with the provisions of Financial Accounting Standards Board Statement of Financial Accounting Standards No. 128, Earnings Per Share (SFAS 128).

SFAS 128 requires calendar year-end firms to initially report the newly prescribed EPS data in their 1997 annual financial statements. It requires non-calendar year-end firms to initially reflect the provisions of SFAS 128 in the first financial statements, annual or interim, they issue for accounting periods ending after December 15, 1997. SFAS 128 does not allow firms to adopt its provisions early. Accordingly, all firms will be required to continue to follow the provisions of APB 15 until SFAS 128 becomes effective.

The principal impact of SFAS 128 will be that certain EPS numbers will increase solely as a result of complying with the new standard. A complication for the financial community is that this effect will differ across firms. For some companies, the new standard will result in potentially significant changes in reported EPS. For others, the effect will be minimal or zero. The one certainty is that, when changes occur, they will increase reported EPS.

Companies may provide an early warning of the change in registration statements and Form 10-Qs filed with the Securities and Exchange Commission in 1997 and in notes to their interim financial statements. The full impact of SFAS 128, however, will not be known until financial statements for periods ending after December 15, 1997, are released.

Because EPS will continue to be an important summary statistic to the investment community, and because the newly prescribed EPS figures will have a differential effect on firms, analysts who rely on EPS data should find it beneficial to have information about 1) the nature of the

prescribed change, 2) the number of firms that may be affected, and 3) the potential magnitude of these effects. The primary purpose of this article is to provide this information to help analysts anticipate and understand the potential effects of the newly prescribed EPS.

THE NATURE OF THE CHANGE

The changes prescribed by SFAS 128 primarily affect publicly traded companies whose capital structure is classified as complex. A company has a complex capital structure if the company has outstanding both common stock and potential common stock, that is, securities or other contracts that may entitle the holder to obtain common stock either during or after the end of the reporting period.

APB 15 generally required these firms to report a dual presentation of EPS -- primary and fully diluted. SFAS 128 continues the dual presentation requirement, but it replaces primary EPS figures with "basic EPS" figures, an EPS previously reported only by firms whose capital structure is classified as simple. The appendix provides a brief overview of the provisions of SFAS 128 and illustrates the new calculation requirements.

Under APB 15, primary EPS is calculated as a combination of the weighted average number of common shares and certain other securities. These other securities are included in the calculation only if 1) the terms of their conversion to common stock are such that they are considered in substance the equivalent of common shares, and 2) they have a dilutive effect; that is, they result in a lower primary EPS when included. These other securities (such as certain stock options, convertible bonds, and convertible preferred stock) are classified as common stock equivalents.

In contrast, basic EPS reflects only the weighted average number of common shares outstanding. Thus, SFAS 128 eliminates the concept of a common stock equivalent. Because basic EPS excludes the dilution that could affect primary EPS, basic EPS may be higher than primary EPS, but it cannot be lower. The magnitude of the increase, however, will vary depending on the extent to which a company's capital structure includes securities previously classified as dilutive common stock equivalents.

SFAS 128 replaces fully diluted EPS required by APB 15 with diluted EPS. This newly prescribed figure will continue to be based on the weighted average number of both common stock and all potential common stock that has a dilutive effect. Dilutive convertible securities (primarily bonds and preferred stock) will be included as if they had been converted to common stock at the beginning of the period or time of issuance, if later -- the if converted method. Dilutive options and warrants will be included as if they had been exercised at the beginning of the period, or time of issuance, if later, with the proceeds from the exercise used to purchase treasury stock -- the treasury stock method. Following the assumed conversion or exercise, this dilutive potential common stock shares in the income of the company as if it is common stock.

What will change is that 1) the number of shares of common stock issued to satisfy the exercise of options and warrants will no longer be restricted to 20% of the common stock outstanding, and 2) the market price used to calculate the number of treasury shares purchased always will be the average market price for the period; the end-of-period price no longer will be considered.

The effects of these changes for most firms will be minor. Because diluted EPS is more a change in terminology than a change in calculation, it will continue to reflect the potential dilution that could occur if potential common stock that has a dilutive effect were converted or exercised. Thus, investment-related decisions previously based on fully diluted EPS required by APB 15 will be largely unaffected by the presentation of diluted EPS required by SFAS 128.

Strategies that previously were based on primary EPS required by APB 15, however, may need to be revised to incorporate basic EPS.

THE POTENTIAL IMPACT OF THE CHANGE

Our empirical results focus on the potential effects of the replacement of primary EPS with basic EPS. The potential impact of the change is based on a comparison of primary EPS and basic EPS for income from continuing operations, net of income taxes, and adjusted for preferred dividends for 4,161 firms. This income number, labeled as income from continuing operations available to common shareholders, is selected because EPS for income from continuing operations is the focus of many in the financial community. It is also the published basis for calculating EPS from operating income, another key financial statistic.

Data used to compare primary EPS and basic EPS are obtained from the August 1, 1997, release of Compustat PC Plus. Primary EPS figures are those reported by the 4,161 companies in their financial statements issued for annual periods ending after December 31, 1995. Basic EPS figures are calculated by dividing income from continuing operations available for common shareholders by an estimate of the weighted average number of shares of common stock outstanding during the year for which the income statement is presented.[1]

The 4,161 firms represent the companies included in Compustat PC Plus for which 1) the provisions of SFAS 128 would be effective, 2) financial statements for annual periods ending after December 31, 1995, are available, 3) results for continuing operations adjusted for preferred dividends are positive, 4) both primary and fully diluted EPS are reported, and 5) data are available to calculate basic EPS.

The descriptive statistics in Exhibit 1 indicate that these 4,161 firms are a representative sample of firms. Panel A verifies that all are publicly traded. The majority, 52.4%, trade on Nasdaq. An additional 35.8% trade on the New York Stock Exchange. The remaining 11.8% trade on the American Stock Exchange, the NASD OTC, or a regional stock exchange.

Panel B reports that these 4,161 firms represent a significant portion of the firms included in certain major indexes -- the Fortune 500 includes 372 of these firms, the S&P 500 417, the S&P Midcap 400 326, and the S&P Smallcap 600 442 firms.

Panel C indicates a cross-section of fiscal year-ends among firms included in the study. The majority, 64.3%, issued 1996 calendar year-end financial statements. An additional 26.3% issued financial statements for fiscal years ending January through November 1996, while approximately 9.4% issued financial statements for fiscal years ending January through April 1997.

To compare primary and basic EPS, two statistics are calculated. These statistics, percentage increase and absolute increase, are calculated for all 4,161 firms included in the study. They are chosen because both are cited regularly in the financial press. The percentage increases are reported in Exhibit 2, Panel A, the absolute increases in Panel B.

Both panels indicate that the replacement of primary EPS with basic EPS will result in little or no change in the reported EPS figures for most firms. The largest number (45.3% or 1,887 firms) will experience a percentage increase of less than 1%. Likewise, 49.1% (2,043 firms) will experience an absolute increase of less than 1 cent.

If a non-material increase in percentage is defined as less than 3%, 66.3% (2,757 firms) will experience little or no increase. If non-material is defined as less than 5%, 78.6% (3,272 firms) will experience little or no increase.

The results for the absolute increases are similar. If a non-material increase in absolute amounts is defined as less than 3 cents, 70.4% (2,928 firms) will experience little or no increase. If non-material is defined as less than 5 cents, 81.7% (3,398 firms) will experience little or no increase.

While the majority of firms will experience little or no increase in either percentage or absolute amounts, a significant minority will experience material increases. Panel A of Exhibit 2 indicates that 14% (583 firms) will experience a percentage increase equal to or greater than 5% but less than 10%. An additional 7.4% (306 firms) will experience a percentage increase equal to or greater than 10%.

The results reported in Panel B are similar. 12.1% (505 firms) will experience an increase equal to or greater than 5 cents but less than 10 cents, and an additional 6.2% (258 firms) will experience an absolute increase equal to or greater than 10 cents.

Accordingly, if a material percentage increase is defined as equal to or greater than 5%, 21.4% (889 firms) will experience this increase. And, if material is defined as equal to or greater than 3%, 33.7% (1,404 firms) will be within this category. Similarly, if a material absolute increase is defined as equal to or greater than 5 cents, 18.3% (763 firms) will experience this increase. And, if material is defined as equal to or greater than 3 cents, 29.6% (1,233 firms) will be in this category.

Thus, when SFAS 128 is implemented, a significant minority of firms will experience material increases in EPS solely as a result of the change in accounting standards. These increases will be material in both percentage and absolute amounts, and will be included in basic EPS for income from continuing operations and basic EPS for income from operating activities.

POTENTIAL INDUSTRY EFFECTS

The analysis of percentage and absolute increases in basic EPS is extended to consider possible industry effects. The 4,161 study firms first are classified according to three-digit Standard Industrial Classification (SIC) codes. The industries then are ranked according to the percentage

of firms within each industry that experienced material increases in basic EPS. To maintain consistency, both absolute and percentage increases are considered.

For absolute increases, material is defined as either equal to or greater than 5 cents per share or 3 cents per share. For percentage increases, material is defined as either equal to or greater than 5% per share or 3% per share.

The results indicate that firms in a broad spectrum of industries will experience material increases in basic EPS. The results further indicate, however, that the majority of firms in most industries will not experience material increases.

When absolute increases are considered in industries that include more than fifteen sample firms, no industry has a majority of firms that experience increases of 5 cents per share or more. Furthermore, only non-store retailers (52.2%) and computer and data processing services (51.8%) have a majority of firms that experience increases of 3 cents per share or more.

When percentage increases are considered in industries with more than fifteen firms, only computer and office equipment (52.3%) has a majority of firms that experience increases of 5% or more. However, eleven industries have a majority of firms that experience increases of 3% or more. These industries are: computer and data processing services (73.3%), nonstore retailers (65.2%), computer and office equipment (59.6%), electronic components and accessories (58.7%), special industry machinery (54.9%), personnel supply services (53.8%), communications equipment (53.3%), measuring and controlling devices (53.1%), health and allied services (52.9%), professional and commercial equipment (51.5%), and medical instruments and supplies (50.6%).

Thus, when the focus is on percentage increases of 3% or more, these are the industries in which the analyst might expect to find firms likely to experience such increases. In the majority of cases, however, the results suggest that industry will not facilitate the identification of firms that will experience material increases in basic EPS attributable to the implementation of SFAS 128.[2]

SUMMARY AND CONCLUSIONS

Obviously, the impact of SFAS 128 varies from firm to firm. For the majority of firms, EPS will be unaffected, but for a significant minority, EPS may increase by a material amount. Knowledge of a firm's capital structure is necessary to determine which firms will be affected. Firms whose capital structures include dilutive potential common stock that previously was classified as common stock equivalents will realize the greatest impact from the rule change. The dilutive effects of common stock equivalents were included in the calculation of primary EPS; these effects will not be included in basic EPS. Thus, basic EPS will increase by an amount equal to the dilutive effects of this class of potential common stock.

For options and warrants, the dilutive effect is a function of the number of options and the amount by which the end-of-period market price exceeds the strike price -- the degree to which the options and warrants are in the money. For convertible preferred stock, the effect is

attributable to the preferred dividend relative to the number of shares of common stock to be issued on conversion. For convertible debentures, dilution is determined by the relationship between interest, net of taxes, and the number of shares of common stock to be issued on conversion.

Forecasting the change in a particular firm's EPS that will result solely from complying with the provisions of SFAS 128 is possible by evaluating previously reported EPS figures and making an estimate of basic EPS. The appendix illustrates the calculations of both basic and diluted EPS for a company with a complex capital structure. Combined with a detailed knowledge of the firm's capital structure, this computation scheme should assist analysts in preparing estimates of basic and diluted EPS.

APPENDIX OVERVIEW AND ILLUSTRATION

SFAS 128 prescribes the standards for computing and presenting EPS. The provisions of SFAS 128 apply to entities with publicly traded common stock or potential common stock. This appendix provides an overview of its provisions and an illustration of the new computation requirements.

SFAS 128, EARNINGS PER SHARE

EPS is a summary statistic that the investing community uses to measure financial performance. The statistic is calculated as the ratio of earnings to common shares outstanding. Because the exact definitions of both the numerator and denominator can vary, multiple definitions of EPS exist. SFAS 128 prescribes two forms for this ratio -- basic EPS and diluted EPS. When losses are reported, SFAS 128 requires presentation of loss per share figures as well.

Basic EPS measures the entity's earnings performance based on common stock outstanding during all or part of the reporting period. Basic EPS is computed by dividing income available to common shareholders by the weighted average number of shares of common stock outstanding. Income available to common shareholders is equal to income (either income from continuing operations or net income) minus dividends on cumulative preferred stock and/or dividends declared on non-cumulative preferred stock. When a loss from continuing operations or a net loss is reported, dividends on preferred stock increase the amount of the loss. The weighted average number of shares of common stock outstanding is equal to the shares of common stock outstanding during the entire period adjusted for shares issued or reacquired during the period.

Diluted EPS measures the entity's earnings performance during the reporting period, based on both common stock and potential common stock that has a dilutive effect. Potential common stock is a security or other contract that may entitle the holder to obtain common stock. Potential common stock includes: convertible securities (convertible preferred stock and convertible debt), stock options and warrants (and their equivalents), and contingently issuable common stock. Option and warrant equivalents include: non-vested stock granted to employees, stock purchase contracts, and partially paid stock subscriptions. Potential common stock is dilutive if its inclusion in the calculation of EPS results in a lower statistic.

Diluted EPS is computed by 1) increasing the denominator of basic EPS for the weighted average number of shares of common stock that would be issued if potential common stock that has a dilutive effect is converted into common stock, and 2) increasing the numerator of basic EPS for preferred dividends and after-tax amounts of interest related to potential common stock for which the denominator of basic EPS is increased. In determining whether a potential common stock is dilutive, each issue or series of issues is considered separately and in sequence, from the most dilutive to the least dilutive.

The if converted method, which is used to determine the dilutive effect of convertible securities, assumes that the convertible security is converted at the beginning of the period or the time of issuance, if later. Thus, the diluted EPS denominator is increased by the weighted average number of shares of common stock assumed to be issued. The numerator is increased by the preferred dividends and after-tax amounts of interest related to convertible securities for which the denominator is increased.

The dilutive effect of outstanding call options and warrants is determined using the treasury stock method. Dilution occurs if the average market price for the period exceeds the exercise price. The treasury stock method assumes that 1) the options and warrants are converted at the beginning of the period or the time of issuance, if later; 2) the proceeds are used to purchase common stock at the average market price during the period; and 3) the diluted EPS denominator is increased by the difference between the number of shares issued and the number of shares purchased.

If a potential common stock has a dilutive effect on the calculation of diluted EPS for income from continuing operations, the same number of shares used to adjust the denominator for that calculation is used to adjust the denominator for the calculation of diluted EPS for all other reported earnings figures -- discontinued operations, extraordinary items, cumulative effect of a change in accounting principle, and either net income or net loss. If a loss from continuing operations is reported, potential common stock is not included in the calculation of diluted EPS because its inclusion would have an antidilutive effect; that is, the loss per share would be decreased. If diluted EPS are reported for at least one period, they shall be reported for all periods reported, even if they are equal to basic EPS.

ILLUSTRATION OF CALCULATION OF EPS

Example Company, a company with a complex capital structure, reports income from continuing operations of \$5,500,000 in its financial statements issued for the year ending December 31, 1997. The company is subject to an annual effective tax rate of 35%. During 1997, the average market price of its common shares was \$40.

The capital structure of EPS Example Company is as follows:

- 2,250,000 shares of common stock outstanding from January 1 through December 31, 1997.
- An additional 500,000 shares of common stock outstanding from July 1, 1997, through December 31, 1997.

- Preferred stock entitled to an annual \$500,000 dividend; convertible into 400,000 shares of common stock.
- Debentures subject to annual interest expense of \$750,000; convertible into 260,000 shares of common stock.
- Stock options to purchase 200,000 shares of common at \$22 per share.
- Stock options to purchase 250,000 shares of common at \$45 per share.

Basic EPS is calculated as follows:

Basic EPS = Income from continuing operations available to common shareholders/Weighted average shares of common stock

$$= \$5,500,000 \text{ net income} - \$500,000 \text{ preferred dividends} / (2,250,000 \text{ shares} \times 6/12) + (2,750,000 \times 6/12)$$

$$= \$5,000,000 / 2,500,000 = \$2.00$$

Diluted EPS incorporates the impact of dilutive potential common stock and is calculated as follows:

Dilutive EPS = Income from continuing operations available to common shareholders + Effects of assumed conversions / Weighted average shares of common stock + Weighted average dilutive potential common shares

In order to determine which potential common shares should be included in the determination of diluted EPS, the numerator effect of the assumed conversion is divided by the weighted average number of potential common shares for each issue or series of issues of potential common stock. The potential common stock is then ranked in sequence, from the most dilutive to the least dilutive. Beginning with the most dilutive issue, the potential common stock is assumed converted until either 1) all potential common stock has been included, or 2) the next issue to be included would have an antidilutive effect. Because options and warrants do not have a numerator effect, they are incorporated if their strike price is in the money.

The numerator effects divided by the denominator effects for Example Company's potential common stock issues ranked in sequence from most dilutive to least dilutive are:

$$\text{Stock options (200,000 shares)} = \$0 / 200,000 \text{ option shares} - 110,000 \text{ treasury shares} [3]$$

$$= \$0 / 90,000$$

$$\text{Preferred stock} = \$500,000 \text{ preferred dividend} / 400,000 \text{ potential common shares} = \$1.25$$

$$\text{Debentures} = \$750,000 \text{ interest} \times (1 - 35\% \text{ tax rate}) / 260,000 \text{ potential common shares}$$

$$= \$487,500 / 260,000 = \$1.88$$

Stock options (250,000 shares) = Antidilutive the strike price is greater than the market price)

The calculations of diluted EPS figures adjusted for the inclusion of these potential common shares, ranked in sequence from most dilutive to least dilutive, are:

$$\begin{aligned} \text{Common shares + stock options (200,00 shares)} &= \$5,000,000 + 0/2,500,000 + 90,000 \\ &= \$5,000,000/2,590,000 = \$1.93 \end{aligned}$$

$$\begin{aligned} \text{Common shares + options + preferred stock} &= \$5,000,000 + \$500,000/2,590,000 + 400,000 \\ &= \$5,500,000/2,990,000 = \$1.84 \end{aligned}$$

If included, the convertible debentures now would have an antidilutive effect. Thus, Example Company should report basic EPS from continuing operations as \$2.00 and diluted EPS as \$1.84.

ENDNOTES

1 The weighted average number of shares of common stock outstanding during the year is estimated as the average of the shares of common stock outstanding at the end of each quarter of the year for which the statistic is calculated. If shares outstanding were increased at a time other than the end of a quarter, the estimate of the weighted average number of shares may be biased upward. The result is that basic EPS may be biased downward. If shares outstanding were decreased, basic EPS may be biased upward. The 4,161 study firms experienced primarily increases in the number of shares outstanding. Thus, the percentage and the absolute increases reported may be understated.

- 2 The percentage and absolute increases in basic EPS also were classified according to the exchanges and markets on which the 4,161 study firms trade and the indexes that include certain of the firms. The results are similar to those obtained for the 4,161 firms overall. For each exchange, market, and index, the majority of firms experience little or no change, and a significant minority experience material increases.
- 3 Treasury shares = \$4,400,000 option proceeds divided by \$40 average market price.

EXHIBIT 1 DESCRIPTION OF 4,161 FIRMS INCLUDED IN THE STUDY

PANEL A. EXCHANGES AND MARKETS ON WHICH THE STUDY FIRMS TRADE

Exchanges and Markets	Number of Firms	Percentage
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Nasdaq	2,178	52.4	New York Stock Exchange	1,490	35.8	American Stock Exchange	316	7.6
NASD OTC	175	4.2	Regional Stock Exchange	2	0.0	Total	4,161	100.0

PANEL B. INDEXES IN WHICH CERTAIN STUDY FIRMS ARE INCLUDED

Index	Number	Percentage	
Fortune 500	372	74.4	
S&P 500	417	83.4	
S&P Midcap	400	326	81.5
S&P Smallcap	600	442	73.7

PANEL C. FISCAL YEAR-ENDS OF THE STUDY FIRMS

Number	Month	of Firms	
Percentage	Jan 96	3	0.1
	Feb 96	1	0.0
	Mar 96	63	1.5
	Apr 96	52	1.3
	May 96	71	1.7
	Jun 96	318	

7.6 Jul 96 60 1.4 Aug 96 74 1.8 Sep 96 284 6.8 Oct 96 114 2.7 Nov 96 58 1.4 Dec 96 2,675 64.3
 Jan 97 162 3.9 Feb 97 66 1.6 Mar 97 154 3.7 Apr 97 6 0.2 Total 4,161 100.0

EXHIBIT 2 ESTIMATED INCREASES IN BASIC EPS RELATIVE TO
 PRIMARY EPS FOR ALL FIRMS

PANEL A. PERCENTAGE INCREASES IN BASIC EPS RELATIVE TO PRIMARY
 EPS

% Increase	Number of Firms	Percentage	Cumulative Number of Firms	Cumulative Percentage
>/= 0.00 < 0.01	1,887	45.3	1,887	45.3
>/= 0.01 < 0.03	870	20.9	2,757	66.3
>/= 0.03 < 0.05	515	12.4	3,272	78.6
>/= 0.05 < 0.10	583	14.0	3,855	92.6
>/= 0.10 < 0.15	149	3.6	4,004	96.2
>/= 0.15 < 0.25	98	2.4	4,102	98.6
>/= 0.25	59	1.4	4,161	100.0

PANEL B. ABSOLUTE INCREASES IN BASIC EPS RELATIVE TO PRIMARY EPS

% Increase	Number of Firms	Percentage	Cumulative Number of Firms	Cumulative Percentage
>/= 0.00 < 0.01	2,043	49.1	2,043	49.1
>/= 0.01 < 0.03	885	21.3	2,928	70.4
>/= 0.03 < 0.05	470	11.3	3,398	81.7
>/= 0.05 < 0.10	505	12.1	3,903	93.8
>/= 0.10 < 0.20	175	4.2	4,078	98.0
>/= 0.20	83	2.0	4,161	100.0

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