

An Empirical Evaluation of Goodwill Accounting

Dr. Zheming Wang, Accounting, North Dakota State University

Abstract

While the current amortization period for goodwill is criticized by many financial statement preparers for being too short, the accounting profession and regulatory bodies indicate the intention of further reducing the amortization period. This study documents consistent evidence suggesting that any attempt to significantly shorten the amortization period may impose an unfair penalty on firms with goodwill assets and cause the reported goodwill to be significantly understated.

Introduction

There are scores of issues on which financial statement preparers and accounting standard setting bodies part company, but few are as contentious - or important - as the treatment for goodwill. Under APB No.17, the cost of an acquired company in excess of the fair value of its identifiable assets must be capitalized and amortized over a period not to exceed 40 years. Some financial statement preparers have criticized this amortization requirement, arguing that since companies regularly incur large expenses to maintain and enhance goodwill, the value of goodwill is not expected to decline, and therefore, APB No.17's amortization requirement systematically penalizes these companies (see Duvall et al., 1992). Contrary to the preparers' view, members of the accounting profession and regulatory bodies seem to view goodwill as having a very short life. They argue that the 40-year amortization period permitted under APB No.17 allows assets and earnings to be systematically overstated, and therefore, should be significantly shortened. As goodwill constitutes an increasingly larger part of acquisition prices, resulting in a greater impact on financial statements, it is apparent that goodwill accounting is due for an overhaul (see Davis, 1992). This study attempts to document some empirical evidence on how investors - one of the most important user groups of financial statements - value the goodwill assets reported by companies in the service industry. I choose the service industry because it is generally believed that goodwill accounting has the greatest impact on firms in this industry (see Laderman and Nathans, 1989).

Using Landsman's (1986) equity valuation model, this study obtains significant evidence on investors' assessment of the reported goodwill. The evidence indicates that the speed at which the sample firms amortize their goodwill assets under APB No.17 is faster than the

speed at which the economic value of goodwill assets diminishes as perceived by investors. This evidence suggests that the current amortization requirement may be too restrictive. The evidence strongly rejects the argument that goodwill assets have a very short life. A direct policy implication of the findings is that any attempt to significantly reduce the amortization period may impose an unfair penalty on firms with goodwill assets and cause the reported goodwill assets by these firms to be systematically understated.

The rest of this paper is organized as follows. Section 1 discusses the ongoing goodwill debate. Section 2 develops the model and describes the sample selection criteria and the data. Section 3 presents the empirical tests and the results. The final section concludes the paper.

I. The Ongoing Goodwill Debate

When one company buys another, the difference between the purchase price and the fair market value of net identifiable assets is recorded as goodwill. Under APB No.17, goodwill must be amortized over a period not to exceed 40 years. Prior to APB No.17, goodwill is reduced only when there is evidence that the asset's value is diminishing.

Since the adoption of APB No.17 in 1970, there has been an ongoing debate on the appropriateness of the amortization requirement. Some critics of the amortization requirement argue that since goodwill has an indefinite life, an uniform amortization requirement may impose an unfair penalty on some firms. For example, the four APB members who voted against the adoption of APB No.17 stated:

Whether amortization is appropriate depends on the particular circumstances of each case, including the evidence of increases or decreases in the value of such assets. In some cases, the facts may indicate maintenance or enhancement rather than diminution of value of the intangibles. In such cases, amortization is inappropriate.

Some financial statement preparers expressed even stronger dissatisfaction with APB No.17's amortization requirement because they feel the economic value of goodwill is not expected to diminish and their firms are being unfairly penalized by the amortization requirement. Furthermore, they argue that since companies regularly incur large expense to maintain and enhance the acquired goodwill, the required amortization rule forces companies to incur a double hit on their reported earnings: the out-of-pocket expense of maintaining the value of goodwill as well as the required amortization charges.

Contrary to the above argument, other critics of the current amortization requirement argue that bad management can destroy the goodwill very quickly. They tend to view goodwill as having a very short life. They argue that the wide range of amortization period currently permitted under APB No.17 allows firms to significantly overstate the reported assets and earnings. For example, Siegel (1982) criticized APB No.17 because it provides a large latitude in the selection of the amortization period. The Securities and Exchange Commission (SEC) expressed a similar attitude toward the current amortization requirement through its recent regulatory actions. The SEC has reportedly caused some firms to reduce the amortization period for goodwill in certain industries (e.g., see Berton and Salwen, 1991). The view that goodwill has a very short life also seems to be gaining predominance in the international accounting community. In a recent statement of intent, the International Accounting Standard Committee (IASC, 1990) proposed to limit the amortization period for goodwill to within 5 years unless a longer period can be justified, but under no circumstances can it exceed 20 years, which is considerably shorter than the amortization period currently used by many U.S. firms under APB No.17.

APB No.17, now over 20 year old, has been considered one of the most controversial accounting announcements ever issued and is under increasing attacks from both the preparers and the regulatory agencies. Clearly, if IASC's position in its statement of intent is adopted, together with the SEC's attitude toward the current goodwill amortization period, it may put considerable pressure on the Financial Accounting Standard Board (FASB) to reconsider the current amortization policy and, specifically, to significantly reduce the amortization period.

II. Model Specification and Sample Selection

It is evident that the focus of the ongoing goodwill debate is on the amortization requirement. The amortization period under APB No.17 is attacked by both financial statement preparers (for being too short) and regulatory agencies (for being too long). The accounting profession, under pressure from the SEC, seems to move towards the direction of significantly reducing the permitted amortization period, which will inevitably make the already controversial issue even more contentious. Given the significance of the issue, it is important that policy makers take full consideration of the investors' view on the issue before drawing any conclusions. This study attempts to document some empirical evidence on the investors' assessment of reported goodwill assets using Landsman's (1986) equity valuation model.

Landsman's model is based on the basic accounting identity which holds that shareholders' equity is the residual of corporate assets less corporate liabilities. The model was used originally by Landsman in investigating pension fund property rights. In the context of this study, Landsman's model can be written as:

$$MVE = b_1MVNGWA + b_2MVGW + b_3MVL \quad (1)$$

where MVE, MVNGWA, MVGW and MVL represent the market values of the firm's equity, non-goodwill assets, goodwill assets and total liabilities. Landsman (1986) uses the book values of assets and liabilities as proxies for their corresponding market values. Analogous to Landsman's approach, the empirical analogue of equation 1 can be written as:

$$MVE_i = b_0 + b_1NGWA_i + b_2GW_i + b_3TL_i + e_i \quad (2)$$

where NGWA, GW and TL represent the book values of the firm's non-goodwill assets, goodwill assets and total liabilities. This model permits goodwill assets to be priced differently from non-goodwill assets by the security market, and therefore, allows us to investigate how investors value the reported goodwill assets under the current reporting standards. Specifically, the coefficient estimate for goodwill, b_2 , represents the market valuation for one dollar of reported goodwill assets. The goodwill coefficient estimate from Equation 2, b_2 , will be compared to its theoretical value of +1 (see Landsman, 1986). In addition, the magnitude of the goodwill coefficient estimate, b_2 , will be compared to that of the non-goodwill asset coefficient estimate, b_1 . Under APB No.17, firms are required to amortize their goodwill within 40 years. A recent survey by Duvall et al. (1992) reported that over 85% of the firms use the maximum 40-year amortization period. If the argument that goodwill assets have a very short life is consistent with the investors' assessment of the economic value of goodwill, the reported goodwill assets under current

standards are significantly overstated. Therefore, the coefficient estimate for goodwill assets in equation 2 is expected to be significantly less than its theoretical value of +1 and the coefficient estimate of its corresponding non-goodwill assets. On the other hand, critics against amortizing goodwill argue that goodwill is understated under the current standard, and therefore, predict a significantly larger coefficient estimate for goodwill than its theoretical value of +1 and the coefficient estimate for the non-goodwill assets. A goodwill coefficient of +1 would imply that the amortization period used by sample firms under APB No.17 is consistent with the speed at which the economic value of goodwill diminishes.

Equation 2 is tested in the next section using the data from firms in the service industry. Unlike capital-intensive industries in which the bulk of the purchase price can be attributed to physical assets, the bulk of the purchase price is goodwill in the service industry. For example, in the 1989 Time Warner merger, 80% of the \$14 billion paid was for goodwill. It is generally believed that the amortization requirement has the greatest impact on firms in the service industry (see Laderman and Nathans, 1989). All the data used in this study are drawn from the 1989 Compustat Industrial Data File. Since goodwill data became available only after 1988, the test period in this study consists of the two-year period of 1988 and 1989. To be included in the sample, a firm must have the following information available in Compustat data file: (1) number of shares outstanding and price per share for common stock (Compustat item #24 and #25, respectively); (2) preferred stock data (Compustat item #10); (3) total assets (Compustat item #6); (4) total liabilities (the sum of Compustat item #5 and #9); (5) net sales (Compustat item #12); and (6) goodwill (Compustat item #204).

Applying the above sample selection criteria resulted in a sample size of 67 firms for the 1988 sample and 69 firms for the 1989 sample. Sample descriptive statistics are presented in Table 1. All sample firms reported significant goodwill assets during the sample period. Specifically, for each of the two years, over half of the sample firms reported goodwill that exceeds 15% of the firms' reported shareholders' equity. The average goodwill to equity ratio is .45 for the 1988 sample and .53 for the 1989 sample. Clearly, given the sizable reported goodwill by the sample firms, any significant overstatement or understatement of goodwill under APB No.17 should be most readily detectible.

III. Empirical Tests and Results

This section assesses the market valuation of reported goodwill assets using Equation 2. Consistent with the discussion above, the goodwill coefficient estimate, b_2 , is expected to be significantly larger (smaller) than its

theoretical value of +1 if the reported goodwill is significantly understated (overstated). b_2 is expected to be +1 if the current amortization requirement is appropriate. Before regressing market values on the book values of assets and liabilities, all the regression variables are transformed using net sales to mitigate the heteroscedasticity problem. The regression result using transformed data is presented in Table 2. All the coefficient estimates have the predicted sign and are significantly different from zero (except the intercept term which is expected not to be significantly different from zero). Furthermore, the book value of assets and liabilities explained 39% and 54% of the variations of the firms' market value for the 1988 sample and the 1989 sample, respectively. But more important, the goodwill coefficient estimate is 1.59 for the 1988 sample and 1.57 for the 1989 sample. Both are significantly larger than its theoretical value of +1 at .001 significance level. This evidence indicates that the security market perceived the reported goodwill assets as being understated under the current amortization requirement, and therefore, is consistent with the argument against the current amortization requirement for being too short. Since over 85% of the firms use the maximum 40-year amortization period now, this evidence suggests that any attempt by the accounting profession to significantly reduce the amortization period would result in goodwill assets being understated and firms with goodwill assets being unfairly penalized.

The result in Table 2 indicates that the coefficient estimates for non-goodwill assets and liabilities are also significantly larger than their theoretical values of +1 and -1, respectively, which is consistent with the widespread belief that assets (liabilities) reported at their original purchase prices (the amount borrowed) are understated. While the evidence that the goodwill coefficient is significantly larger than its theoretical value implies that the current 40-year amortization period should be further extended, an immediate change of the current standard may not be called for if goodwill is measured consistently with non-goodwill assets. To determine this, the goodwill coefficient is compared to its corresponding non-goodwill asset coefficient estimate. The result in Table 2 seems to suggest that the goodwill coefficient is similar in magnitude as its corresponding non-goodwill assets. This implies that goodwill assets under the current standard are measured consistently with non-goodwill assets. To formally assess the relative magnitude of the coefficient estimates for goodwill assets and non-goodwill assets, the following regression is suggested:

$$MVE_i = \delta_0 + \delta_1 TA_i + \delta_2 GW_i + \delta_3 TL_i + v_i \quad (3)$$

where TA is the book value of the firm's total assets. Since $TA = NGWA + GW$, Equation 3 is apparently a linear transformation of Equation 2, and the relation

TABLE 1
Summary Statistics

		1988	1989	Pooled
MV	:mean (std. dev.)	546.45 (1383.42)	596.71 (1282.64)	571.95 (1328.52)
TA	:mean (std. dev.)	625.32 (1147.36)	649.95 (1155.67)	637.82 (1147.38)
TL	:mean (std. dev.)	331.38 (608.28)	347.83 (603.86)	339.73 (603.85)
GW	:mean (std. dev.)	56.80 (116.27)	71.56 (151.32)	64.29 (134.90)
RAT	:mean (%) (median%)	44.48 15.80	52.65 15.71	46.30 15.78

MV: Market value of shareholders' equity.
 TA: Book value of total non-goodwill assets.
 TL: Book value of total liabilities.
 GW: Book value of goodwill.
 RAT: Goodwill to equity ratio.

between b 's and δ 's can be expressed as $b_1 = \delta_1$, $b_2 = \delta_1 + \delta_2$, and $b_3 = \delta_3$. Clearly, δ_2 in Equation 3 captures the difference between the coefficient estimates of goodwill assets and the corresponding non-goodwill assets. Specifically, if investors perceive goodwill assets as being measured consistently with non-goodwill assets, δ_2 is expected to be zero, which implies δ_1 equal to b_2 . However, if investors perceive goodwill assets as being significantly understated relative to its corresponding non-goodwill assets under APB No.17, δ_2 is expected to be significantly greater than zero. This test result is presented in Table 3. δ_2 is .32 for 1988 and -.09 for 1989, but neither of them are significantly different from zero at the conventional significance level. This evidence suggests that goodwill assets are valued consistently with non-goodwill assets under APB No.17, and therefore, a change of the current standard may not be immediately necessary. But in the long run, it may be appropriate to relax the current amortization requirement.

In summary, the evidence seems consistent with the argument that the reported goodwill is understated relative to its theoretical value under APB No.17, suggesting that the current amortization period may be

too short and too restrictive. The evidence also indicates that the reported goodwill is measured consistently with its corresponding non-goodwill assets. The evidence is least consistent with the argument that goodwill has a very short life and the reported goodwill under the current standard is systematically overstated.

Two of the regression variables in equation 2, namely the non-goodwill assets and the total liabilities, are highly correlated, indicating there is potentially a multicollinearity problem. The presence of a multicollinearity problem could result in a high sampling variance and a high degree of sensitivity of coefficient estimates to a particular set of sample data. However, it is worth mentioning that the regression coefficients and the sample t-statistics reported in Table 2 and Table 3 are unbiased in the presence of multicollinearity (see Landsman, 1986). To test the sensitivity of the above results to the multicollinearity problem, I considered the following net asset model:

$$MVE_i = a_0 + a_1NA_i + a_2GW_i + u_i \quad (4)$$

where NA represents the book value of net assets ($NA = NGWA - TL$). The regression result using Equa-

TABLE 2
Regression Results-Balance Sheet Model

$$\text{Model: } MV_{i,t} = b_0 + b_1NGWA_{i,t} + b_2GW_{i,t} + b_3TL + e_{i,t}^a$$

	b_0	b_1	b_2	b_3	Adj. R^2
1988 (N=67)	7.23 (1.44)	1.27*** (6.30)	1.59*** (3.52)	-1.32*** (-4.73)	.39
1989 (N=69)	40.15 (1.14)	1.66*** (7.77)	1.57*** (3.61)	-1.62*** (-4.94)	.54
Pooled (N=136)	9.68 (1.53)	1.54*** (10.30)	1.61*** (5.04)	-1.55*** (-6.98)	.49

^aMV represents the market value of shareholders' equity. NGWA, GW and TL represent the book value of non-goodwill assets, goodwill assets and total liabilities, respectively. Parameter estimates (b_0 , b_1 , b_2 and b_3) and corresponding t-statistics (in parentheses) are presented for each regression. A * (**/****) designates statistical significance at .05 (.01/.001) level.

TABLE 3
Test on the Significance of Difference between the Coefficient Estimates
for Goodwill Assets and Non-goodwill Assets

$$\text{Model: } MV_{i,t} = \delta_0 + \delta_1TA_{i,t} + \delta_2GW_{i,t} + \delta_3TL_{i,t} + v_{i,t}^a$$

	b_0	b_1	b_2	b_3	Adj. R^2
1988 (N=67)	7.23 (1.44)	1.27*** (6.30)	.32 (.80)	-.132*** (-4.73)	.39
1989 (N=69)	40.15 (1.14)	1.66*** (7.77)	-.09 (-.20)	-1.62*** (-4.94)	.54
Pooled (N=136)	9.68 (1.53)	1.54*** (10.30)	.07 (.23)	-1.55*** (-6.98)	.49

^aMV represents the market value of shareholders' equity. TA, GW and TL represent the book value of total assets (including goodwill), goodwill assets and total liabilities, respectively. Parameter estimates (δ_0 , δ_1 , δ_2 and δ_3) and corresponding t-statistics (in parentheses) are presented for each regression. A * (**/****) designates statistical significance at .05 (.01/.001) level.

tion 4 is presented in Table 4. The magnitude and significance level of all the coefficient estimates remain substantially the same, supporting the argument that goodwill assets are understated relative to its theoretical value under APB 17 and rejecting the argument that goodwill assets are systematically overstated under APB No.17.

Although not reported, I also tested the sensitivity of the results to the sampling procedures used in this study by including all New York Stock Exchange firms in my regression and obtained similar results. In addition, the results are unaltered after deleting extreme observations from the sample. In summary, my sensitivity tests indicate that the results are robust across research designs and stable over time.

IV. Concluding Remarks

Significant controversies currently exist on the appropriate accounting treatment for goodwill. Some critics of the current standard view goodwill as having a very short life and argue that the 40-year amortization period currently permitted under APB No.17 allows firms to systematically overstate their reported goodwill. The accounting profession and regulatory bodies seem to be

moving towards the direction of significantly shortening the permitted amortization period. The empirical evidence of this study strongly suggests that such a move may result in goodwill assets being significantly understated and firms with goodwill assets being unfairly penalized.

Suggestions For Future Research

This study adopted the balance sheet approach in assessing the goodwill amortization requirement under APB No.17. Using Landsman's equity valuation model, this study documented significant empirical evidence consistent with APB No.17. A direct extension of this study would be to use the income statement approach to assess how investors perceive the periodic goodwill amortization expense charged to reported earnings under the current standard.

The author would like to thank John Scheibelhut, Michael Garrison, and Terry Knoepfle for their comments on earlier versions of this manuscript. The financial support from Robert Beyer Center for Managerial Accounting and Control at the University of Wisconsin at Madison is gratefully acknowledged.

TABLE 4
Regression Results - Net Asst Model

$$\text{Model: } MV_{i,t} = a_0 + a_1 NA_{i,t} + a_2 GW_{i,t} + u_{i,t}^a$$

	b ₀	b ₁	b ₂	Adj. R ²
1988 (N = 67)	6.62 (1.41)	1.24*** (6.51)	1.51*** (3.81)	.39
1989 (N = 69)	43.45 (1.36)	1.68*** (8.55)	1.61*** (4.00)	.55
Pooled (N=136)	9.54 (1.67)	1.54*** (10.90)	1.61*** (5.43)	.49

^aMV represents the market value of shareholders' equity. NA and GW represent the book value of net assets (non-goodwill assets minus total liabilities) and goodwill assets, respectively. Parameter estimates (a₀, a₁ and a₂) and corresponding t-statistics (in parentheses) are presented for each regression. A * (**/***) designates statistical significance at .05 (.01/.001) level.

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