

Relationship between the Book Value of Goodwill in the Consolidated Financial Statements and Stock Prices

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Abstract: This study sought to examine the applicability of existing realities and arguments put forward opinions about the usefulness of information to the consolidated financial statements companies accepted in Tehran Stock Exchange during the 2007-2011 years. Statistical sample of this research is companies accepted in Tehran Stock Exchange during and sample size is 102 companies regarding screening methods after elimination outliers. In this study, book value of pooled goodwill for independent variable, firms' net income variables, pooled net income, book value of equity holders, cash obtained by firm's operational activities, cash obtained from pooled operational activities are considered as control variables and price per share is dependent variable. In this research, panel data were used with stable effects. Multiple regression results in 95% confidence level showed that pooled goodwill has communication value regarding prediction of share price. Pooled goodwill also has increasing information content for predicting stock price.

Keywords: goodwill, pooled financial statements, predicting share price, increasing information content.

1. Introduction

Pooled financial statement is a group statement (main business unit and all sub-units) which is prepared using combination criteria. Purpose of preparing pooled statements is providing information about financial condition and financial performance of main business unit and its sub-units because in cases that sub-units are under control of main business units, main business unit statements did not reflect full picture of economic activities and financial condition. Business unit statement users need information about financial performance and cash flows. This need is met through pooled financial statements which present financial information of a group as a single economic entity without regarding legal boundaries of legal entities. In theoretical frameworks related to financial reporting of pooled statements, two theories ownership theory and business unit theory are very important. In ownership theory, the emphasis is on owners of economic unit. In this theory, in a group consisted of some legal entities, group owner is controlling stockholder which are usually major shareholders. Based on ownership theory, benefits of minority shareholders exit from pooled statements and pooled statements essentially prepare for major shareholders; in other words, according to this theory, share of minority from assets, debts and goodwill should not be included in pooled balance-sheet (Iran's accounting standards, 2009).

In economic entity theory, assets and debts of whole economic group have been emphasized and group as a separate economic unit and benefits of minority shareholders are considered as a part of equity. In pooled financial statements based on separate economic entity theory, all beneficiaries are considered and share of shareholders is presented in pooled balance sheet in equity

section. Based on this theory, there is no difference between majority and minority. Recently, Iran's accounting standard number 18 is essentially based on business unit theory and in rare cases ownership theory concepts were used. Based on Iran's accounting standard and international accounting standards, goodwill obtained by a business subunit that it's all shares did not belong to group is identified only relative to share of group and no amount is dedicated to minority (Iran's accounting standards, 2009). Purpose of this study is studying goodwill information content in pooled financial statements. This research tries to investigate empirical evidences and therefore, it studies existing realities conformity with opinions and reasons about usefulness of pooled statements' information. In order to achieve this purpose, research hypothesis are formulated as below:

First hypothesis: pooled goodwill relative to predicting price of share has value communication characteristic.

Second hypothesis: pooled goodwill regarding prediction of share price has increasing information content.

2. Literature Review

Regarding research subject, there are various researches throughout the world that some of them are referred below:

Oliviera et.al (2010), by studying value communication of identifies invisible assets and reported goodwill in firms accepted in Portuguese Stock exchange during 1998-2008, concluded that net income, reported goodwill and other invisible assets have significant relationship with price of share. In addition, their evidences showed that after using international accounting standards in 2005, goodwill value relation and research and development costs have increases but income value communication is reduces. Nicolas et.al (2011) empirically studied profitability of all reported

pooled incomes comparing with sub firms income dedicated to main company. Their results showed that in the case of lack of inflation, all reported pooled income is suitable for economic decisions of users but profitability of these incomes is lower than reported income of main firm.

Hsu et.al (2012) studied this subject in their research that which of approaches based on control and ownership in preparing pooled financial statements can better reflect market value of company. Their results showed that an approach based on control has higher profitability to reflect market value of companies' share. Khushtinat (2003) studied reasons of lack of using pooled financial statement in managers' decision making. Their results showed that although managers are somehow familiar with financial

statements, but complexity of techniques related to these statements and their lower importance from legal authorities view caused managers not use pooled financial statements in decision making. Sheri and Sabzalipoor (2005) studied profitability of pooled financial statements information comparing information of main statements using regression models based on evaluation approaches and showed that in firms accepted in Tehran Stock Exchange pooled financial statements are more profitable comparing with main company. Rahmani & Qasemi (2013) in a research studied reported goodwill value proposition in financial statements of firms accepted in Tehran Stock Exchange as invisible asset and concluded that net income and reported goodwill in financial statements have meaningful relation with share price.

3. Methodology

1.3. Model for Testing Research Hypothesis

$$(1) P_{i,t} = \beta_1 + \beta_2 PE_{i,t} + \beta_3 PVB_{i,t} + \beta_4 CE_{i,t} + \beta_5 PCF_{i,t} + \beta_6 CCF_{i,t} + e_{i,t}$$

$$(2) P_{i,t} = \beta_1 + \beta_2 PE_{i,t} + \beta_3 PVB_{i,t} + \beta_4 CE_{i,t} + \beta_5 PCF_{i,t} + \beta_6 CCF_{i,t} + \beta_7 GW_{i,t} + e_{i,t}$$

P: price per share of company i 4 months after end of fiscal year.

GW: book value of pooled goodwill in balance sheet date

PE: net earning

CE: pooled net earning

PVB: book value of equity holders in main company

PCF: cash obtained from operational activities

CCF: cash obtained by pooled operational activities

R^2 in model shows that how much percent of dependent variable variation is explained by independent variable.

Linear regression can be used only in following conditions:

One of assumptions which are considered in regression is lack of autocorrelation or consecutive correlation between errors (difference between real values and predicted values by regression equation). In other words, covariance among error sentences will be zero.

Fitted regression equation is meaningful. F-statistics is used in 95% level for significance test.

Equation errors have normal distribution with zero mean. In order to study normality of equation errors, standard errors are calculated and error component curve is drawn in regression model and compared with normal curve.

There was no independent variable in correlation regression pattern (without multicollinearity). Because when intensity

of relationship between independent variables is high, it is very difficult to separately measure effects of each variable on dependent variable.

2.3. Testing Research Hypothesis

1.2.3. Testing First Hypothesis

In order to test first hypothesis regression model number (2) is used. After fitting regression model based on β_7 coefficients and regarding t-student statistics and significance level, first hypothesis is studied. If β_7 is statistically meaningful and nonzero, first hypothesis is confirmed; otherwise, it is rejected.

2.2.3. Testing Second Hypothesis

In order to test second hypothesis, after fitting each of above regression models (1 and 2), exploratory power (R^2) obtained by each model is calculated that by comparing exploratory power (R^2), if (R^2) of second model was higher

than first model, second hypothesis confirmed; otherwise, it is rejected.

3.3. Determination Test in Pooled Data

In order to determine model used in pooled data different tests will be used:

1.3.3. Chaw Test

Chaw test is conducted to determine using fixed effects model comparing with combination of all data (integrated model). Hypotheses are as follows:

H_0 : Pooled Model

H_1 : Fixed Effect Model

First hypothesis is based on limited values and contrary hypothesis is based on unlimited values. Chaw test statistic based on sum of first limited and unlimited squared errors is as below:

$$chow = \frac{(RRSS - URSS) / N - 1}{URSS / NT - N - K}$$

This statistics has F distribution with N-1 and NT-N-K degree of freedom. If value of F statistics is lower than value of F statistics in table, H_0 is rejected in determined significance level and it will have significant effect on cross-sections. Therefore, fixed effect model is selected; otherwise pooled data model will be used (Ashrafzade & Mehrgan, 2008).

2.3.3. Hausman Test

Hausman test is conducted to determine use of fixed effect model in contrary with random effect. Hausman test is estimated based on relationship between estimated regression error and independent variables.

If there is such a relationship, fixed effect model will be used; otherwise, random effect model will be applied. H_0 hypothesis shows lack of relationship between independent variables and estimation error and H_1 shows relationship (Zaranejad & Anvari, 2005).

H_0 : Random Effect

H_1 : Fixed Effect

In order to conduct Hausman test, Maddala (1998) shows estimation of q variance with V (q) and M statistics as below:

$$M = \frac{\hat{q}^2}{\hat{v}(\hat{q})}$$

4.3. Statistical Sample

Because time scope of this research is 2007-2011; therefore, study sample is all firms accepted in Tehran Stock Exchange which was 470 firms based on Rahavard Novin software and by screening, sample is 165 companies. Finally, number of final sample using Cochrane formula is 102.

4. Discussion & Conclusion

1.4. Testing Classic Regression Hypothesis

Regarding above table and Z statistics of Kolmogrov-Smearnov, because significance level is higher than 0.05, H_0 is confirmed; therefore, by 95% confidence we can say that dependent variable share price has normal distribution. Because calculated Durbin-Watson statistic of regression models in this research are higher than critical value in 0.01 error level, lack of consecutive or serial correlation of remainder in first and second regression models is confirmed in 0.01 significance level. It was clear that in regression model (1) mean of error distribution is approximately zero and its standard deviation is 1 (0.994); as a result, distribution of regression model errors is normal. It was clear that in second regression model mean of error distribution is almost zero and its standard deviation is near to 1 (0.981); as a result, distribution of regression model errors is normal. Results of White test showed that F statistics of first and second models are not significant in 0.05 error level. As a result, null hypothesis indicating non-homogeneity of variance between data model in 0.05 error level is rejected. For this purpose, we can use

OLS regression model. Because tolerance threshold and variance factor for all independent variables is higher than 0.2 and variance inflation factor is near 1 (very lower than 5); therefore, the assumption of lack of multicollinearity between independent variables is confirmed.

2.4. Determining Suitable Model for Estimating Regression Model

In order to determine suitable model, Chaw and Hausman tests were used to test hypotheses.

1.2.4. Chaw Test

Regarding first and second model, results of Chaw test show that H_0 is not confirmed (pooled model). In other words, there are individual or group effects and panel methods should be used to estimate research regression model. In order to determine panel model type (with random or fixed effect) Hausman test is used.

2.2.4. Hausmann Test

After determining that coordinates are not same for different years, applied method for estimating model (fixed or random effects) should be determined by Hausman test.

Results of Hausman test for first and second models showed that X^2 statistics of Hausman test were

respectively 36.121 and 45.732 which is significant in 99% confidence level and confirmed H_1 hypothesis; therefore, regarding Hausman test, fitness of first and second regression model is suitable using panel data model with fixed effects method.

3.4. Testing Research Hypothesis

After testing regression hypotheses and their establishment, results of fitting above regression equation are presented in table 1. F statistics (14.781) indicates significance of regression model. As bottom part of table 1- shows, determination factor and modified determination factor of above model are 54.1 and 50.1%, respectively. Therefore, we can conclude that in this regression equation, only 50.1% of changes in price per share for studies companies are determined by studying dependent and control variables. In this table, positive numbers (negative) in columns of coefficients shows direct effect (inverse) of each variable on share price of studied companies. Based on table 1, significance level of all variables is lower than significance level considered in this research (5%). T-statistics related to these variables is higher than t-statistics obtained from table with that degree of freedom. Therefore, in 95% confidence level, obtained coefficient for above variable in regression model is significant.

Table 1: results obtained from fitting regression equation model (1)

| Variable name | Variable coefficient | Coefficient value | t-statistic | Significance level |
|------------------------------|----------------------|-------------------|-------------|--------------------|
| Integer | β_0 | 8.762 | 5.507 | 0.000 |
| Net earnings of main company | β_1 | 3.215 | 2.141 | 0.003 |

| | | | | |
|---|-----------|---|-------|--------|
| | | | | |
| Pooled net earning | β_2 | 4.761 | 2.388 | 0.002 |
| Book value of equity holders | β_3 | 6.409 | 2.847 | 0.014 |
| Cash obtained by operational activities | β_4 | 2.311 | 2.601 | 0.0037 |
| Cash obtained by pooled operational activities | β_5 | 3.421 | 2.387 | 0.018 |
| Determination factor=0.541 Modified determination factor=0.501 | | F Statistics =14.781 Significance (<i>P-Value</i>) =0.000 Durbin-Watson stat =2.089 | | |

In table 1. F statistics (11.978) indicates significance of regression model. As bottom part of table 2 - shows, determination factor and modified determination factor of above model are 60.5 and 59.1%, respectively. Therefore, we can conclude that in this regression equation, only 59.1% of changes in price per share for studies companies are determined by studying dependent and control variables. In this table, positive numbers (negative) in columns of

coefficients shows direct effect (inverse) of each variable on share price of studied companies. Based on table 1, significance level of all variables is lower than significance level considered in this research (5%). T-statistics related to these variables is higher than t-statistics obtained from table with that degree of freedom. Therefore, in 95% confidence level, obtained coefficient for above variable in regression model is significant.

Table 2: results obtained from fitting regression equation model (2)

| Variable name | Variable coefficient | Coefficient value | t-statistic | Significance level |
|--|----------------------|-------------------|-------------|--------------------|
| Integer | β_0 | 8.762 | 5.507 | 0.0001 |
| Net earnings of main company | β_1 | 2.641 | 3.588 | 0.0045 |
| Pooled net earning | β_2 | 1.21 | 2.158 | 0.0411 |
| Book value of equity holders | β_3 | -3.871 | 3.266 | 0.0032 |
| Cash obtained by operational activities | β_4 | 4.671 | 2.297 | 0.0212 |
| Cash obtained by pooled operational activities | β_5 | 2.365 | 2.108 | 0.0423 |

| | |
|-------------------------------------|--|
| Determination factor=0.605 | F Statistics =11.978 |
| Modified determination factor=0.591 | Significance (<i>P-Value</i>) =0.000 |
| | Durbin-Watson stat =2.089 |

1.3.4. The First Hypothesis

Pooled goodwill has value proposition about predicting share price.

Based on table 1, significance level of pooled goodwill (0.0045) is lower than considered significance level in this study (5%). T-statistics related to this variable (3.588) is larger than obtained t-statistics from table with same degree of freedom. Therefore, H_0 hypothesis is confirmed in 95% confidence level and H_1 which shows that pooled goodwill has value proposition regarding prediction of share price is confirmed.

2.3.4. The Second Hypothesis

Pooled goodwill has increasing information content regarding prediction of share price.

Based on table 2, modified determination factor (information content) of first regression model (without pooled goodwill) is 50.1% which shows that 50.1% of variations in share price of all studied firms are explained by independent and control variables. On the other hand, based on table 4-11, modified determination factor (information content) of second regression model (including pooled goodwill) is 50.9% which shows that 50.9% of variations in share price of studied companies is explained by independent and control variables. Therefore; because in second model (pooled goodwill) modified determination factor (information content) is higher than first model (without pooled goodwill), second hypothesis is confirmed.

5. Suggestions

Regarding results of this research, some suggestions are presented for using these results:

- 1- Attention of legislating institutions like Stock Exchange organization, association of Iran's investment institutions, brokers' association, brokers and investment companies, all activists in capital market and information content of pooled goodwill which are referred in this research.
- 2- Regarding findings of this research it is suggested to activists in capital market, decision-makers, financial analysts and potential investors of stock exchange to pay special attention to goodwill information content in analyzing investment plans in financial assets and stocks, because these important factors lead to selecting optimized investment options with least risk and highest return. It also doubled resolution of decision making and obtained results.

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