

An Impact of Information Asymmetry on Corporate Value: Focusing on Credit Ratings

Gi-Ryun Park* & Gye-Wan Moon**

*Gi-Ryun Park, School of Business Administration, Kyungpook National University, Daegu, Buk-Gu, SOUTH KOREA.
E-Mail: pdikhk{at}naver{dot}com

**Gye-Wan Moon, School of Business Administration, Kyungpook National University, Daegu, Buk-Gu, SOUTH KOREA.
E-Mail: gwmoon{at}knu{dot}ac{dot}kr

Abstract—This paper explores the significance of the premise that credit ratings can reflect the qualitative information of profits and used earnings persistence, a substitute of ‘quality of profits’ to analyse the difference in ‘quality of profits’ because information on the quality of profits may be differed by credit ratings, and materialized the effect of credit ratings as information from a different angle. As a result, it was found that corporate information asymmetry had a negative impact on long-term corporate value and did not have a significant an impact on short-term value. Also, information asymmetry of a company whose credit rating was in speculation grade did not have a significant impact on short-term and long-term corporate values. This suggests that asymmetric information cannot have an impact on short-term corporate value, whereas long-term corporate value is affected by the negative effect of an outsider who recognized asymmetric information. Therefore, the purpose of this paper is to examine how the corporate value has been changed on the differences between internal and external information. Also, this study seeks to examine the differences of that causal relationship based on Agency Evaluation Index.

Keywords—Corporate Information Asymmetry; Corporate Value; Credit Ratings; Information Asymmetry; Quality of Profits.

Abbreviations—Small-and-Medium-Sized (SME).

I. INTRODUCTION

PROFESSIONAL executive who is authorized to manage a company by shareholders as Chief Executive Office is easily accessible to the corporate information. But when professional executive obtained information superiority to shareholders, information asymmetry occurred between the twos and this occurrence was the cause to have professional executive make a decision for his/her own perquisites rather than for the profits of shareholders [Kim & Atkins, 7; Nadiri, 11]. This is the very problem of an agent occurred between professional executive and shareholders and when the manager gets to earn private profits, the loss incurred to shareholder is the very cost to be paid to the agent [Atanasova, 1; Deloof, 3]. If a credit-rating agency publishes credit ratings without filtering the profits adjusted, investors may have a big loss due to distorted information and can be ignored by the market requiring quality information. Therefore, a credit-rating agency should analyse the information on qualitative aspects of profit including growth potential of expected profits, quality of profits, and earnings persistence as well as superficial information of financial

statements and carry out credit ratings [Kim Mun-Tae et al., 5; Khurana & Raman, 6]. Therefore, it’s expected that reflection of credit ratings and information asymmetry may have an impact on short-term and long-term corporate values. On the other hand, it seems to be desirable to expand studies by distinguishing corporate information asymmetry from credit ratings, because there is a difference in the impact of information asymmetry and credit ratings on corporate value. Therefore, this study uses ROA as short-term corporate value and Tobin’s Q as long-term corporate value to analyse if the short-term and long-term corporate values are differential according to the type of credit ratings and information asymmetry.

II. THEORETICAL BACKGROUND

2.1. Effect of Credits Ratings as Information

According to the previous researches that’d been conducted so far, credit rating itself has an effect as information. To look at the results from the research, it was found that most of the credit ratings had a significant relation to information effect. Oh Se-Yeol & Jung Yong-Gwan [12] stressed that

corporate bill credit rating change announcement showed an asymmetrical reaction to shareholders and sought to find the causes of such a reaction appearing at the point of announcement from the movement of long-term stock prior to announcement. They also sought to find which properties were related to such a long-term stock movement. To this end, this study used the data before and after the time of financial crisis (1997, 1998, 1999) when interests in credit ratings began to rise in Korea and compared the scale of announcement effect between the two periods in order to find out if there occurred any change in the information strength of credit ratings between the two periods. As a result, it was found that announcement of credit rating changes by a credit-rating agency had a significant impact on the movement of stock price at the time of announcement although information on credit ratings may be reflected in advance. This study reveals if asymmetric reaction appeared through credit rating announcement due to leak of asymmetric information prior to announcement and finds out if business scale, a variable related to the actual potential of information spill is related to the size of excess earning.

III. DATA AND ANALYTICAL METHOD

3.1. Research Method

Regression analysis is conducted by using time-series data of sample enterprise. Also, this study classified sample enterprise based on the factors of information asymmetry because corporate information asymmetry and corporate value may be differed by credit ratings. As sample enterprise, first, this study used all large company groups and small-and-medium-sized (SME) company groups to understand the information asymmetry that's characteristic of company groups in Korea and second, classified those company groups based on the level of credit ratings where restraints on capital financing due to information asymmetry may appear. Also, if these factors appear multiply, such restraints on capital financing may be greater due to financial difficulty. Therefore, this study regarded business scale, profitability, total assets, total liabilities, and profits cash flow as control variables.

3.2. Definition of Variable

Table 1: Operational Definition

| Research Variables | Control Variables |
|--|---|
| 1. Information Asymmetry = analyst's analysis (standard deviation of profits) 2. Tobin's Q = Book value of assets (market value at the end of term + book value of debts) 3. Credit rating dummy = evaluated by KIS, NICE, ESB (0=investment grade, 1=speculation grade) | 1. Corporate dummy 2. Business activity cash flow 3. Total liabilities 4. Total capital 5. Total market value |

Table 2: Credit Ratings by Korean Credit-Rating Agencies

| Rating | Definition | |
|--------------------------|------------|--|
| Investment Grade | AAA | Principal and interest-paying ability is superlative |
| | AA | Principal and interest-paying ability is excellent, but rather inferior to AAA bonds |
| | A | Principal and interest-paying ability is excellent, but more easily affected by economic conditions and environmental deterioration than upper ratings |
| | BBB | Principal and interest-paying ability is good, but implies a possibility of paying ability getting to be lowered due to economic conditions and environmental deterioration than upper ratings |
| Speculation Grade | BB | Principal and interest-paying ability has no problem immediately, but implies speculative factors that cannot assert future safety. |
| | B | Principal and interest-paying ability is deficient, but speculative, and so interest-paying is not certain in recession |
| | CCC | There are still unstable factors in principal and interest-paying and the risk of default of obligation is too big and so speculative. |
| | CC | Unstable factors is greater than upper ratings |
| | C | The risk of default of obligation is highly likely and there is no principal and interest-paying ability. |
| | D | It's in the state of default of obligation and a party (or parties) of principal and interest is delinquent or bankrupt |

IV. VERIFICATION

4.1. Materials Selection

The materials required were obtained from Data Guide. Of the data obtained, valid data were used as time-series data for 23 years from 1990 to 2013 in the process of calculating 'incremental' compared to the previous year. Sample enterprise was set as a company who continued to grow as a blue chip in KOSDAQ during the analysis period and included the corporations who settled accounts at the end of December to exclude the difference caused by different month of settlement [Atanasya, 2; Lee & Stowe, 8]. Companies who had been managed even for one year during the analysis period or whose capital had been impaired or companies whose data were omitted were excluded. Also, to increase the reliability of regression analysis, companies whose core value of variables was over ±10% were excluded because they were classified as outlier.

4.2. Descriptive Statistics Analysis

Table 3 shows descriptive statistics of major variables used in empirical analysis. To identify the distribution characteristics of variables used in this study, this study presents observed value, mean, standard deviation, minimum value, and maximum value.

Table 3: Descriptive Statistics

| Item | Observation | Mean | Standard deviation | Minimum | Maximum |
|-----------------------|-------------|----------|--------------------|---------|----------|
| Return on Assets | 3264 | 7.2 | 11.51 | -123.14 | 119.01 |
| Tobin's Q | 3789 | 0.45 | 0.21 | 0 | 2.06 |
| Information Asymmetry | 201 | 166.13 | 351.17 | 0 | 3196.51 |
| Total Capital | 3789 | 1.47 | 2.5 | 48691 | 5.08 |
| Total Liabilities | 3528 | 7.17 | 1.66 | 317 | 3.9 |
| Total Market Value | 2854 | 145282.9 | 282124.2 | 1455 | 5234734 |
| Earned Surplus | 3488 | -2113895 | 3.44 | -7.79 | 2.5 |
| Sales Account | 3253 | 95.45 | 2525.38 | -96.16 | 125792.6 |

4.3. Correlation Analysis

Table 4 shows the results that analyzed Pearson's correlation between variables in the entire sample. Most variables were found to show a significant correlation.

Table 4: Correlation Analysis Results

| Item | Return on Assets | Tobin's Q | Information Asymmetry | Total Capital | Total Liabilities | Total Market Value | Earned Surplus | Sales Account | VIF |
|-----------------------|------------------|------------|-----------------------|---------------|-------------------|--------------------|----------------|---------------|------|
| Return on Assets | 1 | | | | | | | | - |
| Tobin's Q | -0.3296*** | 1 | | | | | | | 2.08 |
| Information Asymmetry | 0.0023 | 0.0509 | 1 | | | | | | 1.25 |
| Total Capital | -0.653** | 0.1037*** | 0.4462*** | 1 | | | | | 2.63 |
| Total Liabilities | -1.139*** | 0.2726*** | 0.4112*** | 0.9377*** | 1 | | | | 2.34 |
| Total Market Value | 0.1444*** | -0.0808*** | 0.4182*** | 0.4897*** | 0.2919*** | 1 | | | 1.88 |
| Earned Surplus | 0.0789*** | -0.1007*** | -0.0619 | -0.1460*** | -0.1594*** | -0.0767*** | 1 | | 1.8 |
| Sales Account | -0.0129 | -0.0358** | 0.0683 | -0.0129 | -0.0103 | 0.0338* | -0.0085 | 1 | 1.39 |

Table 5: Hypothesis Testing Regression Analysis Result

| Model 1 | $Tobin's Q_{it+1} = \beta_0 + \beta_1 INFOR_{it} + \beta_2 ASSET_{it} + \beta_3 DEBT_{it} + \beta_4 STOCK_{it} + \beta_5 FREE_{it} + \beta_6 SALES_{it} + \epsilon_{it}$ | | | | | | | \bar{R}^2 | F-Value |
|--------------------|--|------------------|------------|---------|---------|---------|------|-------------|---------|
| Dependent Variable | Independent Variable | Control Variable | | | | | | | |
| Tobin's Q | INFOR | ASSET | DEBT | STOCK | FREE | SALES | 0.56 | 42.31*** | |
| | -0.15 | -1.65 | 2.05 | -0.01 | 0.09 | 0.11 | | | |
| | (-2.83***) | (-8.78***) | (12.89***) | (-0.10) | (-1.49) | (1.83*) | | | |

| Model 2 | $ROA_{it+1} = \beta_0 + \beta_1 INFOR_{it} + \beta_2 ASSET_{it} + \beta_3 DEBT_{it} + \beta_4 STOCK_{it} + \beta_5 FREE_{it} + \beta_6 SALES_{it} + \epsilon_{it}$ | | | | | | | \bar{R}^2 | F-Value |
|--------------------|--|------------------|----------|-----------|---------|---------|------|-------------|---------|
| Dependent Variable | Independent Variable | Control Variable | | | | | | | |
| ROA | INFOR | ASSET | DEBT | STOCK | FREE | SALES | 0.16 | 7.1*** | |
| | 0.06 | -0.1 | -0.4 | 0.35 | 0.1 | 0.17 | | | |
| | -0.73 | (-0.40) | (-1.82*) | (3.27***) | (-1.20) | (1.89*) | | | |

| Model 3 | $Tobin's Q_{it+1} = \beta_0 + \beta_1 INVEST * INFOR_{it} + \beta_2 ASSET_{it} + \beta_3 DEBT_{it} + \beta_4 STOCK_{it} + \beta_5 FREE_{it} + \beta_6 SALES_{it} + \epsilon_{it}$ | | | | | | | \bar{R}^2 | F-Value |
|--------------------|---|------------------|------------|---------|---------|----------|------|-------------|---------|
| Dependent Variable | Independent Variable | Control Variable | | | | | | | |
| Tobin's Q | INVEST*INFOR | ASSET | DEBT | STOCK | FREE | SALES | 0.57 | 28.95*** | |
| | -0.164 | -1.83 | 2.18 | 0.65 | 0.12 | 0.16 | | | |
| | (-2.43**) | (-8.03***) | (11.35***) | (-0.68) | (-1.52) | (2.03**) | | | |

| Model 4 | $ROA_{it+1} = \beta_0 + \beta_1 INVEST * INFOR_{it} + \beta_2 ASSET_{it} + \beta_3 DEBT_{it} + \beta_4 STOCK_{it} + \beta_5 FREE_{it} + \beta_6 SALES_{it} + \epsilon_{it}$ | | | | | | | \bar{R}^2 | F-Value |
|--------------------|---|------------------|---------|----------|--------|--------|------|-------------|---------|
| Dependent Variable | Independent Variable | Control Variable | | | | | | | |
| ROA | INVEST*INFOR | ASSET | DEBT | STOCK | FREE | SALES | 0.13 | 3.05*** | |
| | 0.89 | -0.11 | -0.33 | 0.32 | 0.13 | 0.13 | | | |
| | (0.89) | (-0.33) | (-1.17) | (2.28**) | (1.14) | (1.17) | | | |

| Model 5 | | $ROA_{it+1}=\beta_0+\beta_1SPECUL*INFOR_{it}+\beta_2ASSET_{it}+\beta_3DEBT_{it}+\beta_4STOCK_{it}+\beta_5FREE_{it}+\beta_6SALES_{it}+\epsilon_{it}$ | | | | | | |
|--------------------|----------------------|---|-----------|---------|--------|---------|-------------|----------|
| Dependent Variable | Independent Variable | Control Variable | | | | | \bar{R}^2 | F-Value |
| Tobin's Q | SPECUL*INFOR | ASSET | DEBT | STOCK | FREE | SALES | 0.67 | 13.97*** |
| | 0.04 | -2.12 | 2.53 | 0.02 | 0.08 | 0 | | |
| | (0.36) | (-5.02***) | (6.53***) | (-0.17) | (0.54) | (-0.01) | | |

| Model 6 | | $ROA_{it+1}=\beta_0+\beta_1SPECUL*INFOR_{it}+\beta_2ASSET_{it}+\beta_3DEBT_{it}+\beta_4STOCK_{it}+\beta_5FREE_{it}+\beta_6SALES_{it}+\epsilon_{it}$ | | | | | | |
|--------------------|----------------------|---|------------|---------|--------|--------|-------------|---------|
| Dependent Variable | Independent Variable | Control Variable | | | | | \bar{R}^2 | F-Value |
| ROA | SPECUL*INFOR | ASSET | DEBT | STOCK | FREE | SALES | 0.51 | 7.25*** |
| | -0.13 | 1.36 | -1.92 | -0.01 | 0.14 | 0.31 | | |
| | (-1.02) | (2.65***) | (-4.08***) | (-0.07) | (0.81) | (1.67) | | |

*** 1% significance level, ** 5% significance level, * 10% significance level, () : t – value

V. CONCLUSION AND FUTURE WORK

This study understands if there is any difference in relevance between stock price and profits and book value – accounting information according to the corporate credit ratings. The previous researchers have discussed relevance between net profit and net assets and studied the value relevance between net profit and net assets by setting net loss [Atanasova, 1; Fisman & Love, 4], credit rating, and debt ratio as corporate substitute variables that’s likely to be settled. As a result, information asymmetry – an independent variable – had a negative impact on long-term corporate value and modified model explanatory power was 56%. This is why hypothesis 1 was supported: the hypothesis 1 is that the higher the information asymmetry is, it may have a negative impact on long-term corporate value. However, information asymmetry did not have a significant impact on ROA which is evaluated as short-term corporate value [Meltzer, 10; Nadiri, 11; Schwartz & Whitcomb, 13; Schwartz, 14]. The hypothesis that information asymmetry of a company whose investment grade is over BB in credit ratings which are set as hypothesis 3 had a negative impact on long-term corporate value(Tobin’s Q) was supported [Smith, 15]. As a result of verifying hypothesis 3, it was found that it was at B=-.164 and thus had a negative(-) impact and this impact had a statistically significant impact at a level of 5% and the explanatory power of regression model was 57%. As a result of regression analysis of the remaining hypotheses 4 to 6, it was found that all hypotheses did not have a significant impact and thus such hypotheses were rejected [Mian & Smith, 9]. To sum these results up, corporate information asymmetry had a negative impact on long-term corporate value and did not have a significant impact on short-term value [Brick & Fung, 2]. In addition, the information asymmetry of a company whose credit ratings were in investment grade was proven to have a negative impact on long-term corporate value, but did not have a significant impact on short-term value. Finally, the information asymmetry of a company whose credit rating is in speculation grade could not have a significant impact on short-term and long-term corporate value. This asymmetric information could not have an impact on short-term corporate value, but it can be said that negative effect caused by an

outsider who recognized asymmetrical information had a long-term impact on corporate value. The researches that’d been conducted so far could not prove the impact of credit ratings on determination of stock price as clearly as possible. According to these previous researches, credit ratings may have an impact on determination of stock price if credit ratings have a significant information effect, debt ratio affects corporate value, and net profit and net asset have value relevance.

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Gi-Ryun Park. He earned the master’s degree at Kyungpook National University in 2015. He is in the doctoral course in School of Business Administration at Kyungpook National University in Daegu. His current research interests are organizational innovation, strategic leadership and non-task behaviour.



Gye-Wan Moon. He earned a doctoral degree in strategic management at Southern Illinois University, Carbondale in 1996. Since 1998, he has been an associate professor in School of Business Administration at Kyungpook National University in Daegu. Since 2001, he has been Director in Innovation Center, Research Institute of Economics & School of Business Administration at Kyungpook National University. His current research interests are organizational downsizing & layoff, organizational innovation, culture & strategy, strategic leadership, knowledge sharing network, and Innovation cluster & HRD.