

DOES CORPORATE OWNERSHIP AFFECT CREDIT RISK?: AN INVESTMENT GRADE VS NON-INVESTMENT GRADE FIRM ANALYSIS – EVIDENCE FROM SOUTH KOREA

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Abstract

A credit rating indicates a firm's risk of financial default. Using 1) controlling shareholders' ownership and 2) foreign investors' ownership as proxies for corporate governance, we investigate whether corporate ownership structure influences a credit rating agencies' perception of risk. Using a sample of 1,213 KRX firm-year observations, and a t+1 approach, we find that firms with higher foreign ownership have higher credit ratings compared to those with lower foreign ownership. Moreover, we find that higher percentage of shareholder ownership does not affect credit ratings for our initial sample; however, after dividing our sample into investment/non-investment grade samples, we find a positive/negative relation for investment/non-investment firms. The results suggest credit rating agencies perceive the relation between corporate ownership and default risk differently for investment/non-investment grade firms.

Keywords: Corporate Ownership, Credit Risk, Investment Grade Firms, Non-Investment Grade Firms

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1. INTRODUCTION

A firm's credit rating reflects the probability of financial default based on financial data and corporate governance measures. Credit rating analysts view strong corporate governance as a mechanism to reduce agency problems, risk and a method to protect stakeholders' claims. In this paper, we consider the association between credit ratings and credit rating changes in period t+1, with a firm's ownership structure as a proxy for corporate governance in period t. First, we consider the effect of the relation between the percentage of shares held by the largest shareholder and credit ratings and credit rating changes in period t+1. Furthermore, we establish the relation between the percentage of foreign ownership and credit ratings and credit rating changes in period t+1.

The purpose of this paper is to empirically test if credit rating agencies associate corporate structure with risk. Based on previous literature, there is a possibility that large ownership structure is positively / negatively related with credit ratings. Moreover, there is a strong possibility that foreign ownership has a positive relation with credit ratings. However, the relation between a credit rating, risk and ownership structure is largely a question left unanswered. This paper is motivated by this caveat.

Using a sample of 1,213 KRX listed firm observations from 2002 to 2013, we perform

numerous tests to establish a relation between ownership structure and credit ratings and credit rating changes in period t+1. First, using ordered probit regression, we find that there is a positive relation between foreign ownership and credit rating levels. The results suggest that credit rating agencies consider foreign owners are more likely to monitor potential conflicts of interest between managers and stake holders, and improve corporate governance. We do not find a positive relation between the percentage of shares held by the largest shareholder and credit ratings in the entire sample, suggesting that overall a firm with high ownership concentration is not viewed as a firm with strong corporate governance.

However, after dividing the sample into investment and non-investment grade firms, we find different relations. There is a positive relation between the percentage of large equity ownership and credit ratings for investment grade firms whereas there is a negative relation between the percentage of large equity ownership and credit ratings for non-investment grade firms. Moreover, the association between foreign ownership and credit ratings becomes insignificant for investment grade firms. The results suggest that in a Korean context, credit rating agencies perceive a different relation between ownership structure and the corporate governance measures of investment grade and non-investment grade firms.

Next, we examine the relation between credit rating change in period $t+1$ and ownership structure in period t using ordered probit regression and multivariate OLS regression. Overall, the results suggest that; investment grade firms with large shareholders are more likely to experience a credit rating increase; non-investment grade firms with large shareholders are more likely to experience a credit rating decrease. Finally, we find evidence that, non-investment grade firms with higher levels of foreign ownership are more likely to experience a credit rating increase.

This paper makes the following contributions. We demonstrate that in a Korean context, credit rating agencies associate ownership structures with default risk. However, credit rating agencies consider ownership structure and the relation with default risk differently for investment and non-investment grade firms. Moreover, previous studies do not include lagged credit ratings as a dependent variable when calculating a firm's levels of default risk. Our results show that the inclusion of a firm's credit rating in previous years is a requirement because it includes the idiosyncratic errors excluded with the use of an independent variable approach.

The remainder of the paper is organized as follows. In section II, we review previous studies and develop hypotheses. Section III explains the research design. Section IV provides the results of empirical analysis. In section V, we perform additional analysis. Section VI concludes.

2. PREVIOUS STUDIES & HYPOTHESIS DEVELOPMENT

2.1. Previous Studies

Firms with similar credit ratings are grouped together and are considered to be of a similar quality by investors, government agencies and stakeholders (Kisgen, 2006). Credit rating agencies such as Standard & Poor's and Moody's in the U. S. and KIS, KR, NICE and SCI in South Korea issue credit ratings to reflect a firm's default risk. As a rule, there are ten broad categories AAA, AA, A, BBB, BB, B, CCC, CC, C, D; each category from AA to CCC is divided into subcategories with +/- notches. A firm's credit rating is directly linked to a firm's cost of debt, bond yield, and a firm's financial position.

Credit rating analysts assign firms into a rating grid that consists of mainly quantitative factors. The quantitative grid captures assessments of a firm's competitive position, size, stability, profitability, leverage, and financial strength (Hovakimian et al., 2009; Alissa et al., 2013). In addition to 'quantitative factors', credit rating agencies consider corporate governance measures based on management credibility (Kraft 2014). Corporate governance is viewed as a mechanism to protect stakeholders' claims. The need for corporate governance arises from conflict between stakeholders within the corporate structure because different stakeholders have different goals; thus, an imperfect flow of information has the potential to lead to agency problems.

Monitoring associated with debt financing reduces agency conflicts between managers and shareholders (Jensen and Meckling, 1976; Jensen, 1986). Governance mechanisms that ensure that

managers are independently monitored, promote effective managerial decision making, increase firm value and establish safeguards against opportunistic management behavior. Bhojraj and Sengupta (2003) find a positive relation between a firm's creditworthiness and its governance mechanisms. Effective monitoring limits information asymmetry between managers and external stakeholder. Moreover, monitoring can be used as a method to discipline managers to improve corporate governance mechanisms (Kang and Liu, 2007).

We consider two ownership structures with the potential to improve monitoring and influence Korean credit ratings, the percentage of shares held by the largest shareholder, and the percentage of foreign ownership. There are competing views on the relation between firm ownership and credit ratings. Agrawal and Mandelker (1990) suggest that a shareholder with a large percentage ownership can lead to increased performance and more efficient managers because large equity owners have the power to break disputes and provide leadership. Moreover, investors that hold a large equity share in a firm have incentives to ensure that corporate governance mechanisms are practiced to maximize performance (Jensen 1993; Shleifer and Vishny 1997). Foreign institutional investors are likely to view management behavior from an unbiased position, and have the power to influence management opportunistic behavior, if observed. Datta et al. (2005) find that managerial stock ownership influences the relation between credit quality and debt maturity and between growth opportunities and debt maturity. Pound (1988) find that share ownership influences voting outcomes of shareholder-sponsored proposals to change corporate governance mechanism. External foreign investors are more likely to align with shareholders to enhance corporate governance mechanism. Whilst managers and directors with a large equity stake in a firm are more likely to align with managers to oppose the shareholder-sponsored proposal.

On the other hand, there is evidence that concentrated ownership enables large shareholders to exercise unopposed influence over management to secure benefits that have the potential to be detrimental to minority shareholders and bondholders (Dann and DeAngelo, 1983; Shleifer and Vishny, 1997; Bhojraj and Sengupta, 2003). A large shareholder is likely to have the power to influence management to affect wealth transfers from bondholders, suggesting a negative relation between credit ratings and large share ownership. Ashbaugh-Skaife et al. (2006) find evidence that firms with a larger number of shareholders with large percentage ownership have lower credit ratings. Thus, finding evidence that large shareholders may exercise influence over management to secure benefits, at the expense of stakeholders.

Thus, there are two possibilities, governance features that weaken shareholder rights may be viewed positively from the perspective of stakeholders and credit rating agencies, consistent with the "wealth redistribution" hypothesis, On the other hand, there is a potential for large shareholders to expropriate wealth if corporate governance measures are weak.

Credit ratings are divided into two subcategories by credit rating agencies, banks, insurance companies, and government officials for decision making purposes. A firm with a credit rating from A- to AAA is considered an investment grade firm. A firm with a credit rating of BBB+ and below is considered a non-investment grade firm. Firms below the investment-grade threshold have limited access to investors because of government or self-imposed limitations. For example, Rule 2a-7 of the U.S. Investment Company Act of 1940, stipulates limitations in non-investment grade investments bonds. Moreover, non-investment grade firms may incur disadvantageous terms from suppliers, are required to pay a higher cost of debt and are considered firms with a fundamentally different risk structure compared to investment grade firms. Thus, we expect ownership structure to influence credit ratings and credit rating changes differently for investment and non-investment grade firms.

We consider equity ownership by foreign investors as the second ownership structure measure that is likely to influence a firm's level of default risk from the perspective of a credit rating analyst. Equity ownership by foreign ownership is expected to have a positive effect on corporate governance hence credit ratings. La Porta et al. (1997) suggests for the development of sound corporate governance and legal protection of stakeholders, it is important for emerging markets to attract foreign capital. Karmin (2000) suggests that historically, developing markets have had difficulty in attracting foreign investment, suggesting that "unless companies start paying more attention to corporate governance, emerging markets could remain stuck in the backwaters of global finance for years to come. Many investors say it is easier to 'vote with their feet' and simply abandon the market."

Whilst South Korea meets the criteria for a developed market in numerous respects, its legal enforcement is considered weak (Woods, 2013). Klapper and Love (2002) argue that the relation between foreign ownership and corporate governance is more important with countries with weak legal environments. Foreign investors are likely

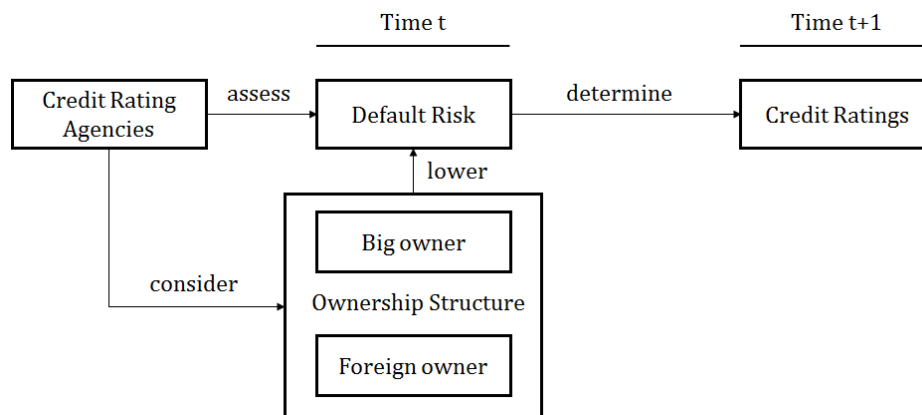
to demand stronger legal protection and corporate governance. Mitton (2002) suggests that during the Asian financial crisis, firms with concentrated foreign ownership showed statistically significantly higher stock returns. Bhojraj and Sengupta (2003) find that firms with a higher percentage of outside directors enjoy lower bond yields and higher ratings on their new debt issues. Masulis et al. (2010) find that independent foreign directors are associated with lower incidence of financial misreporting. Black et al. (2003) find a relation between corporate governance and market value in a Korean context. Moreover, firms with higher levels of foreign investments improve their governance credibility to protect stakeholders, and likely to attract investment (Reese et al., 2002; Doidge, 2003). Therefore, we can expect a positive relation between credit ratings and foreign ownership.

2.2. Hypothesis Development

Figure 1 illustrates the relation between corporate governance proxied by ownership structure in period t, and credit ratings and credit rating changes in period t+1. A credit rating agency's function is to provide information to stakeholders about a firm's risk of financial default. A firm's ownership structure has the potential to influence a credit rating analyst's perception of risk in period t, a firm with higher/lower risk in period t, has the potential to experience a credit rating change in period t+1. Hence, we expect an empirical relationship between ownership structure in period t and credit ratings and credit rating changes in period t+1.

We specifically use a t+1 approach because credit rating agencies have an incentive to keep credit ratings relatively stable, and are reluctant to change credit ratings without sufficient levels of assurance (Becker and Milbourn 2011). Ratings are updated only when agencies are confident that observed changes in a company's risk profile are likely to be permanent; this behavior is known as the prudent rating migration policy (Altman and Rijken 2004). Therefore, we conjecture that a t+1 approach is the most appropriate for our analysis.

Figure 1. Ownership structure and credit ratings at time t+1



The literature suggests that the relation between the percentage ownership of the largest shareholders with credit rating changes may be positive or negative. There is a potential that large

share ownership reduces a firm's default risk, hence increases credit ratings. A large equity holder has the potential to offer leadership and guidance to improve the performance of managers. Large equity

owners have the power to break disputes between stakeholders, consistent with the “wealth redistribution” hypothesis. Moreover, large investors have the potential to monitor management without bias, and have the power to enact change. On the other hand, there is a potential for conflicts of interest between the larger shareholder and minority stakeholders. Large shareholders have the voting power to exert influence on management if corporate governance systems are weak. Thus, there is a potential for large shareholders to exercise unopposed influence over management to secure benefits that have the potential to be detrimental to minority stakeholders. The relation between the percentage ownership of the of largest shareholder and credit rating levels is a question left unanswered. Therefore, we develop the following hypothesis:

H1: There is a positive/negative relation between credit ratings, credit rating changes and percentage of largest shareholder's ownership.

We expect a positive relation between credit rating and foreign ownership. Since the 1997 Asian financial crisis, Korea has experimented with numerous audit polices to improve the relevance and reliability of financial statements. Moreover, there is evidence of firms expropriating wealth from minority shareholders (Almeida, 2010). Therefore, we posit that foreign ownership is likely to influence a credit rating analyst's perception of risk because foreign institutional owners are likely to monitor the behavior of stakeholders to ensure adherence to corporate governance measurers. Thus, we develop the following hypothesis.

H2: There is a positive relation between credit ratings, credit rating change and percentage of foreign ownership.

Banks, insurance companies and other stakeholders consider the risk associated with investment and non-investment grade firms differently. Non-investment grade firms face

restrictions to investment and are required to pay higher interest on debt compared to investment grade firms. Therefore, we posit that credit rating agencies will perceive the relation between ownership structure and risk differently for investment and non-investment grade firms. Therefore, whilst we expect to find a positive relation between credit ratings and foreign ownership, the positive/negative relation between the percentage shareholding of the largest shareholder and credit rating is likely dependent on a firm's investment/non-investment grade status.

3. RESEARCH DESIGN

Credit ratings depend on firm specific characteristics that affect default risk, such as levels of borrowing, collateral requirements, covenant and maturity of debt. We use a firm's credit ratings as a proxy for a firm's risk level rather than include all individual risk measures because credit ratings reflect a more complete measure of risk (Webber, 2006). Numerous studies find a positive relationship between credit ratings and governance mechanisms, suggesting firms with lower agency costs are associated with higher credit ratings (Ashbaugh-Skaife et al., 2006; Gul and Goodwin, 2010; Boot et al., 2006).

In equation (1), we establish the relation between credit rating levels and ownership structure using ordered probit regression. Our dependent variable is a firm's credit ratings in period t+1. Credit ratings take an ordinal scale from 1 to 17 to represent all possible credit rating values. A value of 17 represents a credit rating level of AAA. An ordinal value of 16 represents an ordinal value of AA+. The ordinal values of credit ratings decrease by a value of 1 to represent all credit ratings to B-, that takes a value of 2. All credit ratings with a value of CCC+ or lower take a value of 1. We loosely base this approach on Ali and Zhang (2008) and Alissa et al. (2013).

3.1. Ordered probit regression model

$$CR_{t+1} = \beta_0 + \beta_1 BigOwn_{i,t} + \beta_2 Fore_{i,t} + \sum Controls_{i,t} + YD_{i,t} + ID_{i,t} \quad (1)$$

where,

Dependent Variable

CR_{t+1} : Credit rating scores at time t+1

Variable of our interest

$Bigown$: Largest shareholder's share (%)

$Fore$: Foreign owners' shares (%)

Control Variables

$Size$: Natural logarithm of total assets

Lev : debt ratio (= total liabilities / total assets)

Grw : Sales growth ratio

ROA : Return on assets

$DAMJ$: Abnormal accruals computed from the modified Jones model, suggested by Dechow et al. (1995)

$Loss$: Dummy variable that takes 1 if a firm experienced loss at time t-1, 0 otherwise

$Big4$: Dummy variable that takes 1 if a firm is audited by Big4 auditors, 0 otherwise

CR_t : Credit rating scores at time t

ID : Industry fixed effect

YD : Year fixed effect

Our independent variables of interest are the percentage of shares owned by the largest shareholder (Bigown) and the percentage of shares owned by foreign owners (Fore). It is possible that the relation between the percentage ownership of the largest shareholder is positive or negative. A positive relation between credit ratings and the percentage ownership of the largest shareholder's equity holdings would suggest that large shareholders reduce the risk of financial default through effective monitoring, the establishment of strict corporate governance measures, consistent with the “wealth redistribution” hypothesis. Moreover, a positive relation suggests that large equity shareholders use their voting power to offer, guidance, leadership and break disputes between stakeholders. On the other hand, a negative relation would suggest that increased share ownership increases a firm's risk of financial default, implying that the percentage of shares held by large shareholders is linked the shareholder's influence

over management to affect wealth transfers from stakeholders.

The second coefficient of interest is β_2 , foreign ownership. We expect the relation between percentage of foreign ownership and credit ratings to be positive in equation (1) because foreign owners are more likely to monitor potential conflicts of interest between managers and stakeholders and improve corporate governance mechanisms. An additional variable of interest, unique to this analysis is the inclusion of a firm's credit ratings in previous year, period t . A firm's credit rating is a proxy for a firm's credit risk and can be considered a comprehensive risk measure. Previous studies ignore a firm's previous year's credit ratings as independent variable when measuring default risk. We include credit rating in the previous period for robustness because a firm's credit rating in a previous year is likely to include idiosyncratic errors within the error term, but excluded from control variables. Thus, a firm's credit rating in period t is likely to have a significant relation with future credit rating in period $t+1$.

Additional control variables are taken from previous literature (Hovakimian et al., 2001). Size, the natural logarithm of total assets is expected to have a positive relation with credit ratings because larger firms are considered to have more resources and expertise to overcome a potential cash flow shortage. Leverage, total liability divided by total owner's equity is expected to be negative because firms with higher levels of debt are more likely to default on future interest payments. Growth is expected to be positive. However, if we consider that growing firms are often not stable, the results may not be statistically significant. ROA, return on asset, a proxy for financial performance is expected to be positive. DAMJ, a proxy of a manager's opportunistic behavior to manage earnings is expected to be negatively correlated with credit ratings in future

periods. Loss, a dummy variable that takes the value of 1 if a firm experiences a financial loss, 0 otherwise is expected to have a negative relation with future credit ratings. Big4, a dummy variable that takes the value of 1 if a firm is audited by a big 4 auditor, 0 otherwise is expected to have a positive association with credit ratings because Big4 auditors are considered superior to Non-Big 4 firms. ID and YD, industry effect and year effects are included.

3.2. OLS regression model

Next, we use OLS regression to establish a relation between credit rating change in period $t+1$ and ownership structure in period t . Credit rating change is calculated as the ordinal score of credit rating in value $t+1$ minus credit rating in period t . There is a potential for the relation between percentage ownership of the share largest shareholder to be positively or negatively related to credit rating change. A positive β_1 coefficient would suggest that large share ownership can increase operational and organizational performance and reduce the potential of subsequent risk, consistent with the 'wealth redistribution hypothesis'. On the other hand, there may be a negative relation between percentage of the largest shareholder's share ownership and credit rating change. A negative β_2 sign would suggest that large shareholders may exert influence on management to potentially extract wealth from stakeholders for opportunistic reasons, which is reflected by credit rating decrease by credit rating analysts. The relation between the percentage of shares owned by foreign owners and credit rating change is expected to be positive because it is likely that firms with higher foreign ownership are likely to demand strict corporate governance measures, which has the potential to reduce a credit rating agency's perception of risk.

$$\Delta CR_{t+1} = \beta_0 + \beta_1 BigOwn_{i,t} + \beta_2 Fore_{i,t} + \sum Controls_{i,t} + YD_{i,t} + ID_{i,t} \quad (2)$$

Where,

ΔCR_{t+1} : Credit rating changes ($= CR_{t+1} - CR_t$)

3.3. Logistic regression model

Next, we establish a relation between credit change and corporate structure using logistic regression. D_Change_{t+1} is a dummy variable that takes a value of 1 if a firm's credit rating levels change from period t to period $t+1$. The coefficients of interest, β_1 and β_2 compare the association between credit rating change with share ownership of the largest shareholder and the percentage of foreign ownership respectively. A positive β_1 coefficient suggests that the percentage ownership of the largest shareholder in period t is higher for firms that experience a credit rating changes in period $t+1$ compared to firms that remain stable. A negative

β_1 coefficient would suggest that the percentage ownership of the largest shareholder in period t is lower for firms that experience a credit rating change in period $t+1$ compared to firms that remain stable. A positive β_2 coefficient suggests that the firms that experience a credit rating change in period $t+1$ have statistically significantly higher levels of foreign ownership in period t compared to firms that remain stable. A negative β_2 coefficient suggests that the firms that experience a credit rating change in period $t+1$ have statistically significantly lower levels of foreign ownership in period t compared to firms that remain stable. Consistent with previous arguments, the relation between foreign ownership and credit rating change is expected to be positive. The relation between percentage of shares held by the largest shareholder has the potential to be positive or negative.

$$D_Change_{t+1} = \beta_0 + \beta_1 BigOwn_{i,t} + \beta_2 Fore_{i,t} + \sum Controls_{i,t} + YD_{i,t} + ID_{i,t} \quad (3)$$

Where,

D_Change_{t+1} : Dummy variable that takes 1 if credit rating changed from t to $t+1$ period, 0 otherwise

3.4. Additional Analysis

As additional analysis, we compare the different ownership structures in period t for firms that experience a credit rating increase, a credit rating decrease and firm's that maintain consistent levels of credit ratings in period $t+1$. To estimate the relation between corporate governance and credit rating changes, we run 3 individual logistic regressions. The first regression compares positive change with negative change. Change1 is a dummy variable that takes the value of 1 if a credit rating increases from period t to period $t+1$, 0 if the credit rating decreases. It is likely that credit rating agencies reward firms with higher foreign ownership; therefore, we expect β_1 to be positive. If credit rating agencies consider that large shareholders improve corporate governance measures, there is a potential for β_1 to be positive. If credit rating agencies consider that large shareholders to increase agency problems, there is a potential for the β_1 coefficient to be negative. The second regression compares the difference between firms that experience a credit rating increase and firms remain with stable credit ratings. In regression 2, Change2 is a dummy variable that takes the value of 1 if a credit rating increases from period t to $t+1$, 0 if the credit rating remains stable. Overall, we expect a similar sign for β_1 and β_2 for regression 1 and 2. The third regression establishes if credit rating agencies punish firms with lower corporate governance measures. Change3 is a dummy variable that takes the value of 1 if credit ratings decrease from period t to $t+1$, 0 if credit ratings remain stable. A negative β_2 coefficient would suggest that firms with lower corporate governance measures are more likely to be punished with a credit rating

decrease. An insignificant result would suggest that credit rating agencies do not necessarily consider reducing a firm's credit rating because of a perceived insufficiency of foreign investment. There is a potential for β_1 to be positive or negative.

D_Change_{t+1} for 3 sub-sample comparison

1. Positive Change vs Negative Change

Change1 : A dummy variable that takes 1 if credit rating increased from t to $t+1$ period, 0 if credit rating decreased

2. Positive change vs no change

Change2 : A dummy variable that takes 1 if credit rating increased from t to $t+1$ period, 0 if credit rating remained stable

3. Negative change vs no change

Change3 : A dummy variable that takes 1 if credit rating decreased from t to $t+1$ period, 0 if credit rating remained stable

3.5. Sample selection

We collect credit rating data from TS2000, and financial data from KIS-VALUE. The sample period covers 2002 to 2013. All financial data is collected per calendar year. The initial sample consists of 2480 KRX listed firm observations from 2002-2013. To perform this research, we require data on a $t+1$ basis, therefore an additional 739 firm observations were deleted, leaving a potential sample of 1,741. Finally, 528 firm observations with no financial data available were deleted consistent with previous studies, leaving a final sample of 1,213 observations. The sample selection process is illustrated in Table 1 Panel A. Table 1 Panel B shows the distribution of credit ratings for the sample. Firm's credit ratings are relatively normally distributed.

Table 1. Sample selection by credit ratings

Panel A: Audit fee and CR sample from 2002-2013					
Initial CR Sample					2,480
Excluding Post periods					(739)
Potential Sample					1,741
Excluding firms with no financial data available					(528)
Final Sample					1,213
Panel B: Sample selection by credit ratings					
CR scores	CR	Obs.	CR scores	CR	Obs.
17	AAA	65	8	BBB-	127
16	AA+	37	7	BB+	58
15	AA	50	6	BB	53
14	AA-	108	5	BB-	43
13	A+	112	4	B+	24
12	A	126	3	B	24
11	A-	144	2	B-	11
10	BBB+	113	1	Below B-	18
9	BBB	100	Total		1,213

4. EMPIRICAL RESULTS

4.1. Univariate Analysis

Table 2 Panel A shows descriptive statistics and Pearson correlations. CR_{t+1} is the mean credit rating level of our sample. The mean credit rating of the sample is 10.57, between BBB+ and A-, the central point between the investment grade and non-investment grade threshold. The mean ownership of the biggest shareholder by percentage and the percentage of foreign owner shares are 0.13 and 0.15 respectively. Their medians are 0.05 and 0.08, and the maximum values are 0.71 and 0.79, suggesting that the majority of firms have lower

levels of foreign ownership, and the percentage ownership of the largest shareholder is relatively small for the majority of firms. However, a small number of observations have relatively high foreign ownership, and there are a limited number of firms controlled by shareholders with a large percentage of ownership. Firms that borrow public equity are large and have positive leverage. Positive leverage is expected because our sample engages in the bond market as a form of financing. Overall firms are growing (0.08), show strong performance proxied by ROA (0.03). The mean level of discretionary accruals is close to zero, since it is a residual. 15% of firms make an economic loss. 79% of firms are followed by Big4 auditors.

Table 2. Descriptive Statistics and Pearson Correlations

Panel A: Descriptive Statistics										
Var.	Obs.	Mean(Med)	Max(Min)	S.D.						
<i>CR_{t+1}</i>	1213	10.57(11)	17(1)	3.71						
<i>Bigown</i>	1213	0.13(0.05)	0.71(0.01)	0.17						
<i>Fore</i>	1213	0.15(0.08)	0.79(0.00)	0.18						
<i>Size</i>	1213	20.63(20.48)	24.71(17.69)	1.54						
<i>Lev</i>	1213	0.51(0.53)	0.93(0.09)	0.18						
<i>Grw</i>	1213	0.08(0.07)	1(-0.72)	0.26						
<i>ROA</i>	1213	0.03(0.04)	0.18(-0.33)	0.08						
<i>DAMJ</i>	1213	0.00(0.00)	0.26(-0.28)	0.08						
<i>Loss</i>	1213	0.15(0)	1(0)	0.36						
<i>Big4</i>	1213	0.79(1)	1(0)	0.4						
Panel B: Pearson Correlation										
	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.
1. <i>CR_{t+1}</i>	1									
2. <i>Bigown</i>	0.01	1								
3. <i>Fore</i>	0.39***	0.15***	1							
4. <i>Size</i>	0.46***	-0.01	0.41***	1						
5. <i>Lev</i>	-0.41***	0.07**	-0.22***	0.06**	1					
6. <i>Grw</i>	0.02	0.09***	-0.02	0.05*	0.03	1				
7. <i>ROA</i>	0.42***	-0.02	0.32***	0.17***	-0.44***	0.23***	1			
8. <i>DAMJ</i>	-0.02**	0.02	-0.17***	0.02*	0.06**	0.08***	0.01	1		
9. <i>Loss</i>	-0.36***	-0.00	-0.20***	-0.11***	0.34***	-0.18***	-0.67***	-0.04	1	
10. <i>Big4</i>	0.28***	0.07**	0.23***	0.32***	-0.04	0.06**	0.15***	-0.02	-0.06**	1

Note 1: Variable Definitions

CR_{t+1}: Credit rating scores at time t+1

Bigown : Biggest shareholder's shares (%)

Fore : Foreign owners' shares (%)

Size : Natural logarithm of total assets

Lev : debt ratio (= total liabilities / total owners' equity)

Grw : Sales growth ratio

ROA : Return on assets

DAMJ : Abnormal accruals computed from the modified Jones model, suggested by Dechow et al. (1995)

Loss : Dummy variable that takes 1 if a firm experienced loss at time t-1, 0 otherwise

Big4 : Dummy variable that takes 1 if a firm is audited by Big4 auditors, 0 otherwise

Note 2: ***, **, * indicate significance level at 1%, 5%, 10% respectively.

Table 2 Panel B shows the Pearson correlations. Foreign ownership is positively correlated with credit ratings, suggesting that firms with higher foreign ownership (0.39) can be considered as firms with lower default risk. Moreover, large firms (0.46) with lower levels of leverage (-0.41) are considered to be firms with lower risk. Performance proxied by ROA (0.42) has a positive relation with credit ratings, loss (-0.36) has a negative correlation with credit ratings. Firms with lower levels of abnormal accruals (-0.02) are correlated with higher credit ratings. Firm's followed by Big4 auditors (0.28) have a positive correlation with credit ratings. We don't find a correlation between growth and credit ratings. A possible explanation for this insignificant result is because there is a different relationship between the maturity of firms in South Korea and in many developed economies; therefore, credit rating agencies may not consider a similar association between growth and risk. We do not find a statistically significant relation between the percentage share ownership of the largest equity holder and credit ratings in period t+1.

4.2. Multivariate Analysis

Table 3 provides the results of ordered probit regression where credit rating in period t+1 is the dependent variable. In model 1, we find a significant positive relation between the share ownership of the largest shareholder in period t and credit ratings in period t+1 at 10% level. However, the association becomes insignificant in model 2 and 6 with the inclusion of credit ratings in period t. The results suggest that the inclusion of a firm's credit rating in

the previous year drastically improves the explanatory power of the analysis. A firm's credit rating in period t can be considered as a variable containing a significant portion of idiosyncratic errors contained within the error term, suggesting that the inclusion of a firm's credit rating is a requirement for credit rating models, a variable largely ignored in previous studies.

In Model 3 and 5 we find a statistically significant relation between credit ratings in period t+1 and percentage of foreign ownership in period t at the 1% level. Moreover, we find a relation at the 10% levels in Model 4 and 6 with the inclusion of credit ratings in period t. Overall, the results suggest that higher percentage of foreign ownership is associated with higher credit ratings. However, there is limited evidence to suggest that percentage share of large ownership influences credit ratings for the combined sample. The majority of the control variables show the expected signs and are statistically significant. Size and ROA are positively related to credit rating in period t+1 in all models at the 1% level. Loss and Leverage are negatively related to credit rating in period t+1 in all models at the 1% level. We find a negative relation between earnings management in period t and credit ratings in period t+1. The results show that firms followed by Big4 auditors are more likely to have higher credit ratings. Growth does not show statistically significant signs, suggesting that credit rating agencies may consider growth as a consistent risk metric in less mature market.

Next, we divide the sample into investment and non-investment grade firms to establish a relation between ownership structure and credit ratings. The

Investment grade sample (IG) consists of 642 observations of firm with credit ratings from of A- to AAA. The non-investment grade firm sample (NIG) constitutes 571 firm observations of firms with a

credit rating of BBB+ and below. We hereafter include a previous year credit rating as a control variable for the remainder of our analysis.

Table 3. Ordered probit regression analysis - DV: CR_{t+1}

Model: $CR_{t+1} = \beta_0 + \beta_1 BigOwn_{i,t} + \beta_2 Fore_{i,t} + \sum Controls_{i,t} + YD_{i,t} + ID_{i,t}$							
Var	Sign	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Bigown	?	0.26* (1.94)	0.17 (0.99)			0.15 (0.84)	0.12 (0.68)
Fore	-			0.75*** (3.80)	0.38* (1.85)	0.72*** (3.58)	0.36* (1.70)
Size	+	0.37*** (17.14)	0.08*** (3.48)	0.35*** (14.95)	0.07*** (2.76)	0.35*** (14.95)	0.07*** (2.82)
Lev	-	-2.55*** (-13.42)	-0.69*** (-3.41)	-2.43*** (-12.7)	-0.64*** (-3.13)	-2.45*** (-12.78)	-0.66*** (-3.19)
Grw	?	-0.19 (-1.62)	0.01 (0.11)	-0.14 (-1.17)	0.04 (0.33)	-0.15 (-1.24)	0.03 (0.27)
ROA	+	2.05*** (3.77)	2.45*** (4.22)	1.65*** (2.96)	2.24*** (3.77)	1.65*** (2.97)	2.24*** (3.78)
DAMJ	-	-0.76** (-2.00)	-0.98** (-2.52)	-0.53 (-1.39)	-0.88** (-2.22)	-0.55 (-1.43)	-0.89** (-2.25)
Loss	-	-0.44*** (-3.98)	-0.29*** (-2.63)	-0.44*** (-4.04)	-0.30*** (-2.66)	-0.44*** (-4.04)	-0.30*** (-2.66)
Big4	+	0.36*** (4.69)	0.26*** (3.19)	0.34*** (4.43)	0.25*** (3.09)	0.34*** (4.37)	0.24*** (3.04)
CR	+		0.65*** (37.10)		0.66*** (37.02)		0.66*** (37.02)
ID		Included	Included	Included	Included	Included	Included
YD		Included	Included	Included	Included	Included	Included
Chi2		724.05***	2425.45***	736.18***	2427.89***	736.89***	2428.36***
Pseudo R2		0.1128	0.3778	0.1147	0.3782	0.1148	0.3783
Obs		1,213	1,213	1,213	1,213	1,213	1,213

Note 1: Variable Definitions

CR : Credit rating scores at time t

ID : Industry fixed effect

YD : Year fixed effect

For other variables, refer to Table 2

Note 2: ***, **, * indicate significance level at 1%, 5%, 10% respectively.

Table 4. Results of Ordered probit regression - Investment grade vs Non-investment grade

Model: $CR_{t+1} = \beta_0 + \beta_1 BigOwn_{i,t} + \beta_2 Fore_{i,t} + \sum Controls_{i,t} + YD_{i,t} + ID_{i,t}$							
Var	Sign	Investment grade group			Non-investment grade group		
		Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Bigown	?	0.45* (1.84)		0.45* (1.80)	-0.48* (-1.77)		-0.59** (-2.16)
Fore	-		0.11 (0.40)	0.04 (0.16)		0.65* (1.87)	0.79** (2.24)
Size	+	0.05 (1.52)	0.04 (1.18)	0.05 (1.41)	0.15*** (3.95)	0.13*** (3.28)	0.12*** (3.07)
Lev	-	-0.53* (-1.90)	-0.42 (-1.54)	-0.53* (-1.87)	-0.77** (-2.40)	-0.72** (-2.22)	-0.71** (-2.18)
Grw	?	0.03 (0.20)	0.07 (0.39)	0.04 (0.21)	0.00 (0.02)	-0.01 (-0.03)	0.03 (0.17)
ROA	+	0.80 (0.84)	0.86 (0.85)	0.75 (0.74)	2.89*** (3.86)	2.90*** (3.87)	2.77*** (3.68)
DAMJ	-	-1.31** (-2.25)	-1.26** (-2.11)	-1.29** (-2.17)	-0.64 (-1.18)	-0.64 (-1.18)	-0.54 (-1.01)
Loss	-	-0.65*** (-3.23)	-0.62*** (-3.06)	-0.66*** (-3.24)	-0.14 (-1.01)	-0.09 (-0.69)	-0.12 (-0.83)
Big4	+	0.17 (1.21)	0.19 (1.38)	0.17 (1.19)	0.27*** (2.67)	0.24** (2.39)	0.25** (2.44)
CR	+	0.92*** (24.26)	0.92*** (24.12)	0.92*** (24.08)	0.55*** (19.33)	0.56*** (19.63)	0.56*** (19.40)
ID		Included	Included	Included	Included	Included	Included
YD		Included	Included	Included	Included	Included	Included
Chi2		874.55***	871.33***	874.58***	630.12***	630.47***	635.15***
Pseudo R2		0.3364	0.3351	0.3364	0.2478	0.2480	0.2498
Obs		642	642	642	571	571	571

Note 1: Group Definitions

IG : Investment grade, credit ratings greater than or equal to BBB+ based on KISGEN (2006)

NIG : Non-investment grade, credit ratings below BBB+

For variable definitions, refer to Table 2 and Table 3

Note 2: ***, **, * indicate significance level at 1%, 5%, 10% respectively.

Table 4 shows the results of ordered probit regression where the dependent variable are the 17 ordinal scores that represent a firm's credit ratings. Overall, the results suggest that investment grade firms are considered to have more advanced corporate governance measures compared to non-investment grade firms by credit rating analysts. The results from Model 3 show a positive relation between percentage of large share ownership in period t and credit rating in period t+1 for investment grade firms (IG) at the 10% level (0.45). However, there is a negative relation between percentage of large share ownership in period t and credit rating in period t+1 for non-investment grade firms (NIG) at the 5% level (-0.59). In short, the relation between percentage of large shareholder ownership and credit rating in period t+1 is different for investment / non-investment grade firms. We interpret this result as credit rating analysts perceiving the corporate governance of non-investment firms to be weaker compared to investment grade firms. We conjecture, for non-investment grade firms, the likelihood of a large shareholder to exercise influence over management to secure benefits detrimental to minority stakeholders is higher than in investment grade firms.

Investment grade firms are likely to have stronger corporate governance measures to reduce agency problems. Thus, the results show that in a

Korean context, credit rating agencies perceive a different relation between ownership structure and the corporate governance measures of investment grade and non-investment grade firms. The relation between credit ratings in period t+1 and the percentage of foreign ownership is not statistically significant for investment grade firm in Model 3. The results suggest that investment grade firms have robust corporate governance measures. Therefore, monitoring by foreign investors may not influence risk. However, the relation between foreign ownership and credit ratings for non-investment grade (NIG) firms is positive (0.79) and statistically significant at the 5% level. The results are consistent with previous findings that suggest in a Korean context, credit ratings agencies perceive a fundamental difference in the corporate governance measures of investment and non-investment grade firms. The results suggest credit rating analysts perceive that foreign owners play an important role in monitoring and reducing the risk of non-investment grade firms. Thus, monitoring can be considered as a significant risk metric for non-investment grade firms because their internal corporate governance measures can be considered less robust compared to investment grade firms. Next, we establish the relation between ownership structure in period t and credit rating changes in period t+1.

Table 5. OLS regression DV: Change - Investment grade vs Non-investment grade

Model: $\Delta CR_{t+1} = \beta_0 + \beta_1 BigOwn_{i,t} + \beta_2 Fore_{i,t} + \sum Controls_{i,t} + YD_{i,t} + ID_{i,t}$							
Var	Sign	Investment grade group			Non-investment grade group		
		Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
Bigown	?	0.55*		0.56*	-0.93**		-1.06***
		(1.83)		(1.83)	(-2.50)		(-2.78)
Fore	-		0.04	-0.05		0.61	0.86*
			(0.14)	(-0.15)		(1.24)	(1.75)
Size	+	0.06	0.05	0.06	0.17***	0.15***	0.14**
		(1.39)	(1.13)	(1.37)	(3.30)	(2.78)	(2.53)
Lev	-	-0.89***	-0.77**	-0.89***	-0.98**	-0.91**	-0.89**
		(-2.63)	(-2.30)	(-2.62)	(-2.18)	(-2.03)	(-1.99)
Grw	?	-0.03	0.01	-0.03	0.03	-0.01	0.06
		(-0.14)	(0.04)	(-0.15)	(0.12)	(-0.03)	(0.24)
ROA	+	1.51	1.72	1.57	3.58***	3.68***	3.45***
		(1.27)	(1.36)	(1.24)	-3.68	(3.76)	(3.54)
DAMJ	-	-1.27*	-1.25*	-1.29*	-0.66	-0.72	-0.55
		(-1.77)	(-1.70)	(-1.76)	(-0.87)	(-0.95)	(-0.73)
Loss	-	-0.99***	-0.95***	-0.99***	-0.26	-0.21	-0.34
		(-3.99)	(-3.79)	(-3.96)	(-1.35)	(-1.06)	(-1.22)
Big4	+	0.26	0.29*	0.26	0.35**	0.31	0.32**
		(1.49)	(1.70)	(1.50)	-2.51	(2.24)**	(2.32)
CR	+	-0.13***	-0.13***	-0.13***	-0.22***	-0.21***	-0.22***
		(-4.35)	(-4.12)	(-4.23)	(-7.62)	(-7.16)	(-7.56)
ID		Included	Included	Included	Included	Included	Included
YD		Included	Included	Included	Included	Included	Included
F value		5.96***	5.56***	5.36***	12.60***	11.99***	11.69***
Adj R2		0.0783	0.0734	0.0783	0.1682	0.1613	0.1727
Obs		642	642	642	571	571	571

Note 1: Group Definitions

IG : Investment grade, credit ratings greater than or equal to BBB+

NIG : Non-investment grade, credit ratings below BBB+

Note 2: Variable Definitions

ΔCR_{t+1} : Credit rating changes ($=CR_{t+1} - CR_t$)

For variable definitions, refer to <Table 2> and <Table 3>

Note 3: ***, **, * indicate significance level at 1%, 5%, 10% respectively.

Table 5 shows the results of OLS regression where the dependent variable is credit rating change, credit rating in period t+1 minus credit ratings in

period t. We find a positive relation between the percentage ownership of the largest shareholder and credit rating change for investment grade firms in

Models 1 and 3 at the 10% level. The results suggest that as large ownership increase, an investment grade firm is more likely to experience a credit rating increase. However, in Model 4 and 6, we find a negative relation between largest shareholder's ownership in period t and credit rating change in period t+1 for non-investment grade firms at the 5% level.

Moreover, we find that credit rating change has a positive relation with large foreign ownership at a

10% significance level in Model 6. The results suggest, after controlling for all other variables, non-investment grade firms with higher foreign ownership are more likely to experience a credit rating increase compared to firms with lower levels of foreign management. The results in <Table 5> are consistent with previous findings that suggest that in a Korean context, a credit rating analyst's perception of risk is different for investment and non-investment grade firms.

Table 6. Logistic regression DV: D_Change - Investment grade vs Non-investment grade

Model: $D_Change_{t+1} = \beta_0 + \beta_1 BigOwn_{i,t} + \beta_2 Fore_{i,t} + \sum Controls_{i,t} + YD_{i,t} + ID_{i,t}$							
Var	Sign	Investment grade group			Non-investment grade group		
		Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
<i>Bigown</i>	?	0.19 (0.37)		0.18 (0.36)	-0.51 (-0.82)		-0.77 (-1.20)
<i>Fore</i>	-		0.11 (0.18)	0.08 (0.14)		1.41** (1.98)	1.61** (2.17)
<i>Size</i>	+	0.12* (1.69)	0.11 (1.54)	0.11 (1.57)	0.26*** (3.35)	0.22*** (2.61)	0.21** (2.48)
<i>Lev</i>	-	1.11* (1.83)	1.16* (1.93)	1.12* (1.83)	-0.21 (-0.30)	-0.07 (-0.10)	-0.06 (-0.08)
<i>Grw</i>	?	-0.34 (-0.88)	-0.32 (-0.84)	-0.34 (-0.87)	-0.58 (-1.37)	-0.55 (-1.32)	-0.52 (-1.22)
<i>ROA</i>	+	0.04 (0.02)	-0.00 (-0.00)	-0.05 (-0.02)	3.02* (1.80)	2.83* (1.71)	2.68 (1.61)
<i>DAMJ</i>	-	-0.38 (-0.31)	-0.33 (-0.26)	-0.34 (-0.27)	-0.38 (-0.32)	-0.29 (-0.24)	-0.18 (-0.15)
<i>Loss</i>	-	-0.12 (-0.28)	-0.11 (-0.25)	-0.12 (-0.29)	0.30 (0.99)	0.37 (1.20)	0.35 (1.14)
<i>Big4</i>	+	0.72* (1.96)	0.73** (1.99)	0.72* (1.94)	0.05 (0.21)	-0.02 (-0.07)	-0.01 (-0.03)
<i>CR</i>	+	-0.16*** (-3.03)	-0.16*** (-2.99)	-0.17*** (-3.00)	-0.06 (-1.25)	-0.04 (-0.98)	-0.05 (-1.18)
<i>ID</i>		Included	Included	Included	Included	Included	Included
<i>YD</i>		Included	Included	Included	Included	Included	Included
<i>Chi2</i>		24.85***	24.75***	24.87***	19.68**	22.80***	24.30***
<i>Pseudo R2</i>		0.0340	0.0338	0.0340	0.0294	0.0340	0.0363
<i>Obs</i>		642	642	642	571	571	571

Note 1: Group Definitions

IG : Investment grade, credit ratings greater than or equal to BBB+

NIG : Non-investment grade, credit ratings below BBB+

Note 2: Variable Definitions

D_Change_{t+1} : Dummy variable that takes 1 if credit rating changed from t to t+1 period, 0 otherwise.

For Other variable definitions, refer to <Table 2> and <Table 3>

Note 3: ***, **, * indicate significance level at 1%, 5%, 10% respectively.

Table 6 illustrate the results of logistic regression where D.Changet+1, the dependent variable is a dummy variable that takes the value of 1 if a credit rating changes from t to t+1, 0 otherwise. There is no statistically significant evidence to suggest that the percentage of shares held by the largest shareholder of firms that experience a credit rating increases/decreases is different to firms with stable credit ratings for investment or non-investment grade firms. However, there is a positive association between the percentage of foreign ownership and credit rating change at the 5% significance level (1.61) in Model 6 for non-investment grade firms. The results suggest that non-investment grade firms with foreign ownership are more likely to experience a credit rating change, consistent with previous results.

5. ADDITIONAL ANALYSIS

In Table 6, we establish if credit rating changes are influenced by ownership structure. However, credit ratings changes are bi-directional. Therefore, for robustness, we establish if ownership structure

influences credit ratings increases, decreases or if there is an association for firms with stable credit ratings. Therefore, we run three logistic regressions to compare the ownership structure of 1) positive vs negative credit rating change; 2) positive vs no credit rating change; 3) negative vs no credit rating change for investment and non-investment grade firms. To estimate logistic regression comparing positive vs negative credit rating change, we reduce our sample to 362 observations of 186 firms that experienced a credit rating increase and 176 firms that experienced a credit rating decrease. The results show that it is likely that investment and non-investment grade firms with higher levels of foreign ownership are likely to experience a credit rating increase. Moreover, these firms are likely to be larger, have strong performance, low levels of leverage and followed by a Big4 auditor.

To estimate logistic regression, comparing positive vs no credit rating change, we reduce our sample to 1,117 observations of 586 firms that experienced a credit rating increase and 531 firms with stable credit rating levels. Overall, we find the ownership structure of investment grade firms that experience a credit rating change compared to firms

with stable credit ratings are not different. However, we find that NIG firms with lower concentrations of shareholder are more likely to experience a credit rating increase than remain at a stable credit rating level. Moreover, we find that NIG firms with higher levels of foreign investment are more likely to experience a credit rating increase than remain at a stable credit rating level. To estimate logistic

regression comparing negative vs no credit rating change we reduce our sample to 988 observations of 533 firms that experienced a credit rating increase and 455 firms with stable credit rating levels. We find no statistically significant results, suggesting that credit rating agencies do not punish firms for having un-idealized ownership structure, rather reward firms with increased monitoring.

Table 7. Logistic regression using 3 Sub-samples - Investment grade vs Non-investment grade

Model: $D_Change_{t+1} = \beta_0 + \beta_1 BigOwn_{i,t} + \beta_2 Fore_{i,t} + \sum Controls_{i,t} + YD_{i,t} + ID_{i,t}$										
Var	Sign	Positive change vs Negative change			Positive change vs No change			Negative change vs No change		
		Full sample	IG	NIG	Full sample	IG	NIG	Full sample	IG	NIG
<i>Bigown</i>	?	0.48(0.61)	1.01(1.03)	-0.66(-0.46)	-0.38(-0.80)	0.47(0.75)	-1.44(-1.85)*	0.02(0.02)	-0.08(-0.10)	0.01(0.01)
<i>Fore</i>	-	2.42(2.38)**	2.13(1.69)*	4.28(1.82)*	0.49(0.95)	0.37(0.51)	1.69(2.07)**	-1.06(-1.24)	-0.50(-0.51)	-1.29(-0.57)
<i>Size</i>	+	0.39(3.29)***	0.31(2.15)**	0.60(2.59)**	0.24(3.79)***	0.18(2.15)**	0.29(3.08)***	-0.08(-0.87)	-0.06(-0.52)	-0.14(-0.72)
<i>Lev</i>	-	-3.53(-3.53)***	-3.75(-2.89)***	-3.84(-2.13)**	0.06(0.12)	0.08(0.11)	-0.29(-0.35)	2.49(3.20)***	2.78(2.85)***	1.75(1.24)
<i>Grv</i>	?	0.49(0.86)	0.26(0.34)	0.86(0.92)	-0.19(-0.62)	-0.21(-0.46)	-0.33(-0.66)	-0.88(1.78)*	-0.74(-1.14)	-1.46(-1.66)*
<i>ROA</i>	+	6.07(2.04)**	10.14(2.12)**	2.62(0.69)	4.46(2.63)***	2.58(0.95)	6.55(2.54)**	-1.61(-0.95)	-5.04(-1.45)	0.09(0.04)
<i>DAMJ</i>	-	-3.13(-1.87)*	-5.18(-2.09)**	-2.43(-1.01)	-1.05(-1.03)	-1.82(-1.22)	-0.38(-0.26)	2.09(1.42)	2.86(1.42)	0.77(0.34)
<i>Loss</i>	-	-1.12(-2.53)**	-0.82(-1.15)	-1.36(-2.35)**	-0.58(-1.71)*	-0.31(-1.05)	-0.29(-0.67)	1.18(3.50)***	0.44(0.77)	1.68(3.60)***
<i>Big4</i>	+	1.05(2.83)***	0.73(1.07)	0.79(1.74)*	0.73(3.02)***	0.99(2.00)**	0.50(1.75)*	-0.55(-1.92)*	0.18(0.35)	-1.07(-2.74)***
<i>CR</i>	+	-0.44(-7.32)***	-0.63(-5.27)***	-0.43(-3.49)***	-0.16(-5.97)***	-0.36(-4.79)***	-0.15(-2.80)***	-0.16(-5.97)***	0.14(1.71)*	0.34(3.00)***
<i>ID</i>		Included	Included	Included	Included	Included	Included	Included	Included	Included
<i>YD</i>		Included	Included	Included	Included	Included	Included	Included	Included	Included
<i>Chi2</i>		135.33***	65.13***	77.36***	75.76***	38.59***	59.18***	63.33***	26.17***	46.81***
<i>Pseudo R2</i>		0.2539	0.2293	0.3162	0.0675	0.0685	0.1062	0.1005	0.0730	0.1728
<i>Obs</i>		362	186	176	1,117	586	531	988	533	455

Note 1: 3 sub-sample comparison,

1. Positive Change vs Negative Change

Change1 : A dummy variable that takes 1 if credit rating increased from t to t+1 period, 0 if credit rating decreased

2. Positive change vs no change

Change2 : A dummy variable that takes 1 if credit rating increased from t to t+1 period, 0 if credit rating remained stable

3. Negative change vs no change

Change3 : A dummy variable that takes 1 if credit rating decreased from t to t+1 period, 0 if credit rating remained stable

Note 2: For other information, refer to previous tables

Note 3: Note 3: ***, **, * indicate significance level at 1%, 5%, 10% respectively

6. CONCLUSIONS

We examine the relation between ownership structure in period t and firm's credit ratings and credit rating changes in period t+1. A credit rating is an indication to market participants and stakeholders about a firm's level of default risk. Therefore, an empirical association between ownership structure and credit ratings implies that credit rating analysts consider that ownership plays an important role in reducing risk and agency problems.

We find a different relation between the percentage of shares held by the largest shareholder in period t and credit ratings, and credit rating changes in period t+1 for investment and non-investment grade firms. There is a positive relation between large equity ownership and credit ratings and credit rating changes in period t+1 for investment grade firms. The results suggest that large ownership can be considered as way to improve corporate governance consistent with the

'wealth redistribution' hypothesis. Investment grade firms are generally larger and are considered to have strong internal control measures. Moreover, the probability of agency problems may be reduced due to large owners exercising power without bias. Therefore, large equity owners are more likely to provide leadership, break disputes and have incentives to promote corporate governance. However, in non-investment grade firm's we find a negative association between the ownership of shares held by the largest shareholder and credit ratings and credit rating changes. The results suggest that in non-investment grade firms, credit rating agencies perceive it is likely that managers can exert influence over managers for personal gain because of weak corporate governance. Therefore, the expectation of a large shareholder with significant power to expropriate wealth may be higher in non-investment grade firms.

We find a positive relation between foreign ownership in period t and credit ratings in period t+1 for non-investment grade firms. Moreover, we

find a positive relation between positive credit rating changes in period t+1 and percentage of foreign ownership for non-investment grade firms. We do not find a relation between foreign ownership and credit rating for investment grade firms. The results suggest that credit rating analysts perceive the corporate governance structures of investment grade firms to be robust, and weak in non-investment grade firms. Thus, from the perspective of credit ratings agencies, foreign ownership has the potential to reduce agency problems in non-investment grade Korean firms.

Thus, our paper establishes that the corporate ownership structures of Korean are considered a significant corporate governance measure by credit rating agencies. Therefore, investment/non-investment grade firms with different ownership structures are considered to have different level of risk dependent on the percentage of shares held by foreign owners, and the percentage of shares held by the largest shareholder.

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