The Influence of Corporate Governance Practices and Ownership Structure on Credit Ratings: Evidence from Indonesia

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ABSTRACT

Manuscript type: Research paper

Research aims: This study aims to investigate the influence of corporate governance practices and ownership structure on the credit ratings of listed firms in Indonesia.

Design/Methodology/Approach: This study empirically employs the ordered logit model and a corporate governance measure that is based on OECD corporate governance principles.

Research findings: This study finds that corporate governance practices reduce agency problems between creditors and shareholders. This is reflected by their positive impact on firm credit ratings. The results of the tests further show that credit ratings are affected positively by share ownership held by blockholders. Thus, higher concentrated ownership provides oversight functions which could lead to higher debt ratings. However, when blockholders are from families, the possibility of expropriation increases and this, in turn, reduces debt ratings.

Theoretical contributions / Originality: This study examines the effect of a comprehensive measure of corporate governance practices and families as blockholders on firms' credit ratings.

Practitioner / Policy implications: Firms need to improve their corporate governance practices in order to facilitate the issuance of long term debt at lower yield.

Research limitations / Implications: This study has limited observations that may affect the power of statistical test. Future

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studies should increase sample size, extend the period of the study and employ more recent data.

1.   Introduction

According to the agency theory (Jensen & Meckling, 1976; Smith & Warner, 1979), agency conflict may arise in the relationship between bondholders (the principals who provide the capital to shareholders) and shareholders (the agents who control the capital and may divert the capital for their own best interests). As previous extant studies show, bondholders are exposed to asymmetric information problems that could cause possible conflicts of interest between bondholders and shareholders. Eventually, the asymmetric information problem raises the default risk of their investments. Hence, bondholders would seek for instruments that can help to reduce this problem. Among others, bondholders may rely on firm credit ratings provided by independent appraisal institutions (Jewell & Livingston, 2000) to alleviate the problem faced. Firm credit ratings show the ability of bond issuers in paying the interest and principal sum. Thus, credit ratings imply the security level of bonds. In other words, firm credit ratings help in the assessment of the creditworthiness of firm issuers. Specifically, it looks at how a firm is likely or less likely to default. It also looks at the protection creditors have in the event of any default. In this regard, firm credit ratings are concerned with the possibility of defaults (Ross, Westerfield, & Jaffe, 2013).

There are a few studies which show that firm credit ratings can be improved through better corporate governance (CG) practices (Setyapurnama & Norpratiwi, 2003; Setyaningrum, 2005; Ashbaugh-Skaife, Collins, & Lafond, 2006; Bradley, Chen, Dallas, & Snyderwine, 2007; Aman & Nguyen, 2013). The globally known corporate governance principles developed by the Organization for Economic Co-operation and Development (OECD) (2004) consist of the following five principles that are relevant for corporations: (a) protection of shareholders' rights; (b) equitable treatment of shareholders; (c) role of stakeholders; (d) disclosure and transparency; and (e) responsibility of the board. Previous studies employed a sub-set of the OECD corporate governance principles to measure CG practices. For example, some studies used

corporate governance scores that measured only shareholders' rights (e.g., Ashbaugh-Skaife et al., 2006) or a sub-set of CG practices such as the existence of independent commissioners (e.g., Setyapurnama & Norpratiwi, 2003).

The use of a relatively narrow scope of CG does not reflect the overall CG practices. Thus, the findings of previous studies may in fact, reflect only the partial effect of CG practices on bond ratings. In that regard, the first objective of this study is to examine the influence of a comprehensive measure of CG practices on firms' credit ratings. This study employs the CG measure that is based on OECD corporate governance principles. This measurement is expected to increase the validity of empirical results.

The next objective of this study is to examine the impact of several dimensions of ownership structure (percentage of share of blockholders' ownership, identity of blockholders, i.e., institutional ownership and family ownership) on credit ratings. Previous studies (Bhojraj & Sengupta, 2003; Setyaningrum, 2005; Ashbaugh-Skaife et al., 2006) indicate that the existence of concentrated ownership/blockholder ownership and institution ownership induce better supervision which results in better credit ratings. However, to the best of the authors' knowledge, no study has examined the impact of family ownership on credit ratings even though majority of the listed firms in East Asia are controlled by families. This study aims to close the research gap. The current study also posits that higher family ownership decreases firm credit ratings because family ownerships tend to expropriate firm resources for their own benefits.

This study contributes to literature by investigating whether CG practices mitigate agency problems between bondholders and shareholders and eventually, yield higher firm credit ratings. In addition, this study also contributes to literature by investigating the effect of family ownership on credit ratings. Unlike previous studies conducted by Ashbaugh-Skaife et al. (2006) and Bhojraj and Sengupta (2003), the current study examines the impact of family ownership on credit ratings. It is further noted that the measure of CG practices employed by Ashbaugh-Skaife et al. (2006) capture only shareholders' rights. In the context of this study, the measurement for CG practices adopted is more comprehensive as it captures not only shareholders' rights but also other CG principles of OECD.

There are several reasons for examining the issues stated through data acquired from Indonesia. First, Indonesia is the largest country in

the South East Asian region in terms of economy and population. In this regard, it has the potential to become the biggest bond market in the region. Nevertheless, even though the size of the corporate bond market in Indonesia has grown double in the past five years, the market is relatively very small when compared to the size of Indonesia's economy and its neighbouring countries. According to the Bank for International Settlements (2016), the total outstanding amount of domestic debt securities issued by Indonesian firms was only USD 21 billion while the gross domestic product of Indonesia in year 2015 amounted to almost USD 900 billion. The amount of bonds issued in Indonesia is thus unfavourable when compared to its smaller neighbouring countries such as Malaysia (USD 126 billion) and Thailand (USD 168 billion) (BIS, 2016). The Indonesian bond market, at its infancy stage, needs to be further developed.

Second, it has been observed that one factor which influences the development of bond markets is a well-functioned bond rating process (OECD, 2001; Braun & Briones, 2006). Therefore, given the relative scarcity of research that examines the influence of CG, ownership structure and other determinants on credit ratings in Indonesia, a study covering this issue is warranted.

Third, since the year 2004, regulations have been introduced to enhance CG practices. For example, the capital market regulator stipulates that listed firms need to have an audit committee. Thus, it would be necessary to conduct a research to examine if the newly implemented CG practices do create a significant impact on firm credit ratings.

Fourth, Indonesian firms vary widely in terms of their CG practices and ownership structures.[1] The high prevalence and varying degrees of CG practices and ownership structure provides the opportunity for research to investigate the issue at hand.

The current study employs a sample of 117 bond issuances and bond revised ratings of publicly listed firms in Indonesia issued during the period 2004 to 2008. The study also uses a multinomial ordered logit to test the hypotheses. The empirical tests find that better CG practices and more concentrated ownerships improve credit ratings while higher family ownership worsens credit ratings.

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[1] The descriptive statistics of CG and ownership concentration provided in Table 3 show that the standard deviation and the range of the maximum and minimum value of the variables are very high. These indicate that CG practices and ownership structure vary widely in Indonesia.

The remainder of this paper is organised as follows: The next section reviews the extant studies and develops the hypotheses; the subsequent section describes data sources and empirical models. This is followed by a section discussing the empirical results. The last section provides the conclusion and recommendation for future research.

2. Literature Review and Hypotheses Development

2.1 Corporate Governance in Indonesia

The World Bank Report which looks at the Observance of Standards and Code (ROSC) on CG practices in Indonesia (2010) highlights that there are recent improvements in Indonesia.[2] According to the World Bank (2010), between the years 2004 and 2009, there was improvement in CG in all five OECD CG principles [i.e. the rights of shareholders and key ownership functions (RIS); the equitable treatment of shareholders (ETS); the role of stakeholder in corporate governance practices (ROS); disclosure and transparency (DT); and the responsibilities of the board (RESB)].

A study published by the Indonesian Institute for Corporate Director (IICD) in 2007 shows that the overall mean CG score of public-listed firms in Indonesia in the year 2006 is 61.26 per cent. The CG score is obtained from a CG instrument that incorporates the OECD CG principles. This will be further elaborated in section 3 (Research Design) of this paper. The IICD found that majority of the items listed in the instrument which were not practiced were those not mandated by law/rules in Indonesia. Therefore, the IICD interprets the results as follow: the relatively low average score may reflect the possibilities that firms just comply with the local regulation while the practice of CG goes beyond compliance. The IICD (2007) then concludes that the implementation of CG practices in Indonesia needs to be improved in accordance with international standards.

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[2] The Code of Good Corporate Governance (CG Code), first adopted in 1999, was amended in 2006, and specific codes were issued for the banking and insurance sector. In 2007 a new Company Law that introduced explicit duties for board members was adopted. The Ministry of State Owned Enterprises has also carried out significant corporate governance reform in the State Owned Enterprise (SOE) sector (World Bank, 2010, p. 1)

In Indonesia, until now the CG Code is voluntarily applied and there is no requirement for companies to disclose the extent of their compliance to the CG Code. As a result, the impact of the CG Code on CG practices is not substantial. Currently, the OJK (the Financial Service Authority) is planning to require public listed firms (PLCs) to follow the 'comply or explain' rule to CG Code especially developed for PLCs.

Good CG practices are expected to enhance investors' trust, protect minority shareholders, improve better decision making and relationship with creditors, workers, and other stakeholders. Since CG practices are expected to have a positive impact on creditors, this study focuses on the impact of CG practices on firm credit ratings in Indonesia. In addition, it employs the CG score provided by the IICD which is based on OECD CG principles.

2.2   *Corporate Governance and Firm Credit Ratings*

Corporate governance is a mechanism which ensures that investors are protected and compensated at least, by normal returns (Shleifer & Vishny, 1997). CG practices have been found to strengthen firm credit ratings because the implementation of CG increases better monitoring of managerial performance, facilitates and enhances effective decision making, mitigates opportunistic behaviour that is not consistent with corporate interest, and reduces the asymmetric information between managers and investors (Ashbaugh-Skaife et al., 2006). Ashbaugh-Skaife et al. (2006) advocate that better CG practices enhance credit ratings since they improve disclosure and transparency (Iskander & Chamlou, 2000; Bhojraj & Sengupta, 2003) and firm performance (Fűerst & Kang, 2004). It also yields better control and increase monitoring of managerial performance (Turley & Zaman, 2007). Since firms have lower asymmetric information, the credit ratings of firms are higher (Aman & Nguyen, 2013) and the cost of capital is lower (Tran, 2014)[3].

Some studies measure CG practices by using either one/several variable(s) which may or may not capture the overall CG practices of a firm. The following studies show that the existence of independent commissioners/directors[4], as one corporate governance mechanism, can induce better quality financial reports and lower the cost of debts (Piot & Piera, 2007) whilst also increasing credit ratings (Susiana & Herawaty, 2007). Aman and Nguyen (2013) previously used CG attributes to investigate the influence of CG practices on firm credit ratings. They find that firm credit ratings are either (1) positively affected by board size, the

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[3] Instead of using credit ratings, Tran (2014) used cost of debt because credit rating is not wide-spread in the German corporate landscape.

[4] Indonesia adopts dual board structure, i.e., the Board of Directors (BOD) which is in charge of managing the company and the Board of Commissioners (BOC) which provides oversight and direction to the Board of Directors. Thus, the role of BOC is similar to that of BOD in the single board structure. In this respect, the function of an independent commissioner is the same as an independent director in the single board structure.

percentage of shares owned by institutional ownership, the timeliness of financial reporting and the richness on the information provided to investor; or (2) negatively influenced by managerial ownership. Setyapurnama and Norpratiwi (2003) investigated the influence of corporate governance mechanism which is measured by the existence of independent commissioners and audit committee on firm credit ratings and bond yields. Their study used logit regression instead of ordered logit model and they classified credit rating as a binary variable, i.e. one (1) for investment grade and zero (0) for speculative grade. They find that the existence of independent commissioners improves firm credit ratings while the existence of audit committee reduces bond yields. Using ordered logit model, Setyaningrum (2005) finds that firm credit ratings could be (1) negatively affected by the number of blockholders who own at least 5 per cent ownership on the firm; (2) positively influenced by the percentage of institutional ownerships; (3) positively influenced by the size of public accounting firm; and (4) positively affected by the existence of an audit committee.

Other studies measured CG practices by using a CG index. However, the index does not cover all relevant OECD CG principles. For example, Ashbaugh-Skaife et al. (2006) investigated the impact of shareholder rights which is measured by G_SCORE, on firm credit ratings. G_SCORE is an index developed by Gompers, Ishii, and Metrick (2003)[5] to measure the power-sharing relationship between investors and management. Higher G_SCORE indicates lower shareholders' rights and greater management power. Since firm credit ratings consist of six categories, Ashbaugh-Skaife et al. (2006) used ordered logit model and find that G_SCORE has a negative impact on firm credit ratings. Ashbaugh-Skaife et al. (2006) argue that lower G_SCORE (stronger shareholder rights and lower management power) reveals (a) higher supervision and control over management; and (b) lower managerial decision making that heightens firm default risk. Consequently, firm credit worthiness becomes higher and firm credit ratings improve. On the contrary, higher G_SCORE (lower shareholders' rights and shareholder

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[5] Gompers et al. (2003) construct an instrument based on 24 governance provisions, referred to as the G_SCORE, to measure the power-sharing relationship between investors and management. The 24 provisions are classified into five categories of management power: (1) tactics for delaying hostile bids; (2) voting rights; (3) director/officer protection; (4) other takeover defenses; and (5) state takeover laws. Each firm's G_SCORE is the sum of points, where one point is awarded for the presence of each governance provision (Ashbaugh-Skaife et al., 2006).

power) denotes managers with greater power than shareholders and this can lead to opportunistic behaviours. Consequently, firm default risk becomes higher and firm credit ratings would worsen. This result also supports Klock, Mansi, and Maxwell's (2005) work which finds that firms with stronger anti-takeover provisions (weaker shareholder rights) tend to have higher costs of debt financing which is relative to firms with weaker anti-takeover provisions.

Based on the above explanation, this study posits its first hypothesis as follows:

H_1: Corporate governance has a positive influence on firm credit ratings.

As explained above, previous studies had employed a rather narrow measure of corporate governance. To compensate for the gap, the current study thus employs a more comprehensive measure of corporate governance which is based on the OECD CG principles.

2.3 Ownership Structures and Firm Credit Ratings

Extant literature shows that ownership structures have a significant impact on firm credit ratings. Ownership is defined by Bhojraj and Sengupta (2003) as blockholders (shareholders) who own at least 5 per cent of the firm's outstanding shares. As their invested capital gets higher, blockholders are more likely to conduct an oversight function so as to ensure that managers carry out a good managerial performance. Blockholders have the financial interests and rights to be informed about corporate policy and managerial performance, to evaluate firm performance, and have the power to mitigate management willingness to perform a moral hazard (Jensen, 1993; Shleifer & Vishny, 1997). This claim is corroborated by Burns, Kedia, and Lipson (2010) who find that concentrated ownership may alleviate management from misreporting. Hence, a higher proportion of blockholders' ownership can induce higher financial transparency and in turn, lower information asymmetry. This phenomenon makes it easier to appraise management conduct which tends to expropriate investors (Adams & Ferreira, 2010). In this regard, if blockholders conduct effective oversight functions, firm credit ratings will improve (Bhojraj & Sengupta, 2003). The above argument thus leads to the following hypothesis:

H_2: Firm credit ratings are improved by higher ownership of blockholders.

Institutional ownership shows the percentage owned by financial institutional investors (e.g., banks, investment banking, insurance, pension funds). As mentioned above, large ownerships by institutional investors can motivate institutional investors to oversee managerial performance. Since blockholders have a larger stake on the ownership and also greater voting rights, they can mitigate agency problems and enhance managerial performance (Shleifer & Vishny, 1997). Brickley, Lease, and Smith (1988) find that institutional investors tend to exercise their voting rights actively so as to mitigate takeover threats from other institutional investors. This exercise can improve the firm's value.

Bhojraj and Sengupta (2003) find that there is a positive relationship between firm credit ratings and institutional ownership. They state that institutional investors can provide reliable information disclosure and transparency, hence, exercise a greater control over the firm as compared to individual investors. Ashbaugh-Skaife et al. (2006) show that bond yields can be reduced by the mere existence of institutional ownership. In another study, Aman and Nguyen (2013) find that the control and monitoring role of institutional investors in Japan is expected to replace corporate control in markets which are inactive in Japan. This argument is corroborated by Nguyen (2012) who finds that Japanese institutional investors can cause firms' performances to become more stable. Consequently, default risk will be lower and firm credit ratings tend to be higher. In this regard, the third hypothesis developed is stated as follows:

H_3: The level of percentage ownership of institutional investors has a positive impact on firm credit ratings.

The following hypothesis develops an argument which looks at the impact of family controlled ownership on credit ratings. To the best of the authors' knowledge, there has been no empirical study examining this relationship although studies have examined the impact of family firms on the agency cost of debts. For example, Ellul, Guntay, and Lel (2007) who employed cross-countries analysis, find that family firms in low investor protection environments incur higher cost of debts compared to non-family firms while the opposite relationship holds for family firms in high investor protection environments. In countries that have poor investor protection rules, families, as controlling shareholders, extract private benefits for themselves. This can result in higher bankruptcy risk and further exacerbate debt agency costs.

In countries that have good investor protection practices (e.g., USA), the study by Anderson, Mansi, and Reeb (2003) finds that founding family firms can lead to lower debt costs. They further find that if family members hold CEO positions, the debt cost of firms will be higher compared to firms where family members do not hold CEO positions. This signifies that having family members in managerial positions can increase the expropriation incentive of family firms. In another study, Lin and Shen (2015) find that family firms with higher idiosyncratic risk tend to increase firm credit risks and lower credit ratings. However, Lin and Shen were only looking at family firms as their sample. They did not examine credit ratings of family firms relative to non-family firms.

A number of studies (Claessens, Djankov, & Lang, 2000; Claessens, Djankov, Fan, & Lang, 2002) indicate that rules and practices of investor protection in Indonesia are relatively poor. In Indonesia, it is common to have family members appointed as presidents or directors in family controlled firms. From the findings of Ellul et al. (2007) and Anderson et al. (2003), this study posits that family firms in Indonesia tend to have higher debt agency costs as compared to other firms. Family ownership may act as entrenched controlling shareholders, thus, exacerbating firm credit ratings through risky investment projects (i.e., asset substitution). This phenomenon can also increase the size of assets under their control (i.e., empire building) thereby, causing higher default risks.

Based on the above argument, this study hypothesises that bond ratings will be lower for firms with higher family ownership because they tend to have a higher firm bankruptcy risk. Therefore, the fourth hypothesis is stated as follows:

H_4: Firm credit ratings are lower for firms with family ownership compared to other firms.

2.4 Other Determinants of Firm Credit Ratings: Probability of Default

Lamy and Thompson (1988), Ziebart and Reiter (1992), and Ashbaugh-Skaife et al. (2006) use several proxies to evaluate firm's probability of default i.e., the level of debt, profitability, loss in net income, and interest coverage. Bhojraj and Sengupta (2003) and Ashbaugh-Skaife et al. (2006) agree that higher leverage leads to greater financial bankruptcy, thus, higher debt causes lower firm credit ratings. Further, a firm with higher profitability has a greater ability to pay its debts, thus, higher

profitability causes higher credit ratings (Ashbaugh-Skaife et al., 2006). In contrast, a firm that suffers a loss in net income will experience lower credit ratings than that of other firms (Ashbaugh-Skaife et al., 2006). The ratio of operating income to interest payment (i.e., interest coverage) can also be used to measure firm's ability to pay interest (Ashbaugh-Skaife et al., 2006). Lower interest coverage indicates that the firm has a cash flow difficulty and may default its debt. This can consequently, lead to a decline in its credit rating. Other empirical studies (Longstaff, Mithal, & Neis, 2005; Tran, 2014) find that higher leverage and lower interest coverage increase a firm's default risk, thus, higher debt costs. Based on previous findings, this study hypothesises as follows:

H_5: Level of leverage has a negative impact on firm credit ratings.
H_6: Level of profitability has a positive impact on firm credit ratings.
H_7: Level of interest coverage has a positive influence on firm credit ratings.
H_8: Firm credit ratings are lower for firms that suffer loss in net income compared to others.

Firm size can also determine credit ratings. Ziebart and Reiter (1992), Sengupta (1998), Bhojraj and Sengupta (2003), and Ashbaugh-Skaife et al. (2006) reveal that a firm's size has a positive effect on credit ratings. Ashbaugh-Skaife et al. (2006) argue that because larger firms have a greater ability to pay debts, default risk will be lower and credit ratings higher. In addition, gross property, plant, and equipment per total assets denote a firm's capital intensity. Therefore, both measurements (total assets and ratio of gross property, plant and equipment to total assets) indicate debt collaterals of a firm's leverage. Thus, larger firm size will decrease firm default and yield higher firm credit ratings. The ninth hypothesis is stated as follows:

H_9: Firm size has a positive influence on firm credit ratings.

3. Research Design

3.1   Sample and Data Collection

This study obtains the initial samples of all publicly listed firms in Indonesia Stock Exchange that issued bonds with credit ratings during the period 2004 to 2008. This study is unable to use more recent years as the period of observation since corporate governance (CG) scoring data from IICD is only available for two years, i.e., 2005 and 2007. A

priori, there is no expectation that the relation between CG practices and bond rating is a function of time. Thus, it is assumed that CG practices do not significantly change from year to year. As a result, CG scoring in one year can be valid for a year before and a year after CG scoring announcement. Thus, this study uses the IICD CG scores in year 2005 as the CG scores for years 2004, 2005 and 2006. The study also uses the IICD CG scores in year 2007 as the CG scores for years 2007 and 2008.[6]

The observations include credit ratings acquired from newly issued bonds and revised credit ratings from existing bonds. For example, a firm issues bond in year one with credit rating A. In year three, the credit ratings are revised upward to become AA. In year four, the company issues new bonds with credit ratings AA. For this firm, this study includes credit rating A in year one, credit rating AA in year three and credit rating AA in year four as observations of the study.

This study collected data on bond ratings from PT Pefindo which is the dominant credit rating agency in Indonesia and is affiliated to Standard & Poor's rating agency.[7] Pefindo periodically reviews the credit ratings and revises a bond credit rating if it perceives any change in the default risk of the bond. A company that issues a new bond will get a new credit rating.

The result of the sample selection is shown in Table 1 below. Information on ownership structures and financial data were extracted from financial statements, annual reports and other public sources.

Table 1: Summary of Sample Selection Procedure

Data	N
Total observations provided by Pefindo Rating Agency	200
Total observations that do not have CGI	(40)
Total observations categorised as banks, financial, and insurance industry and observations that did not have complete data	(43)
Total Observations	117

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[6] Since CG scores for year 2008 employs the IICD CG scores in year 2007 (i.e., one year back), thus to be consistent, the study chooses CG scores for year 2006 to use the IICD CG scores in year 2005 (i.e., also one year back).
[7] PEFINDO's rating serves issuers, insurers, counterparties, intermediaries and investors in the Indonesian financial markets by providing both **Debt Specific Ratings** which apply to specific debt instruments, and **Company Ratings** which apply to companies or obligors. Indonesian obligors include all active borrowers, guarantors, insurers and other providers of credit enhancement domiciled in Indonesia, as well as any foreign obligor active in the Indonesian financial markets. PEFINDO ratings are characterised by the use of the "id" prefix to underline that the ratings are assigned within an Indonesian context. (http://new.pefindo.com/content.php?mid=22&cid=12)

3.2   Measurement of Variables

3.2.1   Credit Ratings

Pefindo's division of rating categories are as shown in Table 2. The ratings from AAA to B may be modified by the addition of a plus (+) or minus (-) sign to show its relative strength with the rating category.

Table 2: Credit Rating Categories issued by PT Pefindo

Category	Explanation
AAA	A debt security rated **AAA** has the highest rating assigned by PEFINDO. The obligor's capacity to meet its long-term financial commitments on the debt security, relative to other Indonesian obligors, is **superior**.
AA	A debt security rated **AA** differs from the highest rated debt only to a small degree. The obligor's capacity to meet its long-term financial commitments on the debt security, relative to other Indonesian obligors, is **very strong**.
A	Debt security rated **A** indicates that the obligor's capacity to meet its long-term financial commitments on the debt security, relative to other Indonesian obligors, is **strong**, however, the debt security is somewhat more susceptible to adverse effects of changes in circumstances and economic conditions than higher-rated debt.
BBB	Debt security rated **BBB** denotes **adequate** protection parameters relative to other Indonesian debt securities. However, adverse economic conditions or changing circumstances are more likely to lead to a weakened capacity on the part of the obligor to its long-term financial commitments on the debt security.
BB	Debt security rated **BB** denotes **somewhat weak** protection parameters relative to other Indonesian debt securities. The obligor's capacity to meet its long-term financial commitments on the debt security is susceptible to major ongoing uncertainties or exposure to adverse business, financial, or economic conditions.
B	Debt security rated **B** denotes **weak** protection parameters relative to other Indonesian debt securities. Although the obligor currently still has the capacity to meet its long-term financial commitments on the debt security, any adverse business, financial, or economic conditions would likely impair the capacity or willingness of the obligor to meet its long-term financial commitments on the debt security.
CCC	Debt security rated **CCC** is currently **vulnerable** to non-payment, and is dependent upon favorable business and financial conditions for the obligor to meet its long-term financial commitments on the debt security.
D	Debt security is rated **D** when it is in payment **default**, or default of a rated obligation occurs automatically upon the first occurance of non-payment of the obligation. An exception is warranted when an interest payment missed on the due date is made within the grace period, or whenever such a non-payment is subject to a bona fide commercial dispute.

Source: Pefindo (2005)

The website of Pefindo explains its rating methodology for corporate sectors. In general, the assessment includes three major risk assessments: industry risk, business risk, and financial risk. Industry risk covers five major assessments i.e., growth and stability of the industry; revenue and cost structure of the industry; barriers to entry and competition in the industry; regulation of the industry; and financial profile of the industry. The business risk assessment evaluates the key success factors of the industry in which the firm is classified. Financial risk assessment covers financial policy, capital structure, cash flow protection and liquidity, and financial flexibility. Thus, corporate governance is not directly taken into account in the rating methodology. However, this study hypothesises that CG practices have an impact on the variables employed by credit rating agencies in determining credit ratings.

Consistent with previous studies (Bhojraj & Sengupta, 2003; Ashbaugh-Skaife et al., 2006), the credit rating (RATE) is converted to numeric value consecutively from one (1) to six (6) as shown in Table 3.

Table 3: Numeric Value for Credit Rating

Rating	Score
AAA	6
AA+	5
AA	5
AA-	5
A+	4
A	4
A-	4
BBB+	3
BBB	3
BBB-	3
BB+	2
BB	2
BB-	2
< B+	1

Source : Pefindo (2005), has been modified

3.2.2 *Corporate Governance*

The globally recognised CG principles of OECD (2004) consist of six principles: (1) ensuring the basis for an effective CG framework; (2) the rights of shareholders and key ownership functions (RIS); (3) the equitable treatment of shareholders (ETS); (4) the role of stakeholder (ROS); (5) disclosure and transparency (DT); and (6) the responsibility of the board (RESB). The first principle basically stipulates that effective CG requires effective supervision and enforcement of law by the regulators. The other five principles are directly applicable for publicly listed firms.

The Thai Institute of Directors, with the support from McKinsey consulting firm, developed a CG Scorecard to measure CG practices of publicly listed firms. This instrument is based on the second until the sixth CG Principles of OECD (IICD, 2007). The first CG principle of OECD is excluded since the principle is applicable to regulators.

IICD adopts the instrument developed by the Thai Institute of Directors since the instrument is comprehensive and the methodology is relatively objective (IICD, 2007). The instrument consists of 117 questions, and the answers are evaluated as: one (poor), two (fair), or three (good). The answers given should be supported by publicly disclosed information such as annual reports, company announcements, corporate websites and so on. The total score is considered as a weighted sum of all the items and it is stated as a percentage. The methodology helps to ensure an objective assessment and it is further explained below:

> The level of CG practice in each individual company is conveyed through the total weighted score and the check and balance technique is conducted to prevent subjectivity in providing scores. A research team consisting of thirty (30) members evaluates the CG practices in each company and is subdivided into smaller teams which consisted of two (2) assessors who cross-checked every score to ensure accuracy and consistency. Finally, the result is interpreted based on the following criteria: 1) excellent (90-100%), 2) good (80-89%), 3) fair (60-79%), and 4) poor (less than 60%).
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> (IICD, 2007, p.8-9)

The instrument has been used by various studies in Indonesia and Asian countries. A number of studies in Indonesia (Utama & Utama, 2014; Utama & Utama, 2013; Utama & Handy, 2011; Utama & Musa, 2011) employ the results of assessment conducted by IICD.

The instrument has also been used in other countries such as in China (Cheung, Jiang, Limpaphayom, & Lu, 2010), Thailand (Connelly, Limpaphayon, & Nagarajan, 2012) and multi-countries that include China, Hong Kong, the Philippines, Indonesia and Thailand (Cheung, Connelly, Estanislao, Limpaphayom, Lu, & Utama, 2014).

The current study employs the CG scores adopted from the IICD to measure CG practices of the samples. Since the IICD conducted the assessment for only two years (2005 and 2007), the current study is confined to choosing the period of study (2004 - 2008) that surrounded the years of assessment.

3.2.3   Ownership Structure

The current study employs two measures of ownership structure i.e. percentage ownership of blockholders (BLOCK) and the identity of the blockholders. This includes institutional ownership (INST), and family ownership (FAMOWN). In line with Eng and Mak (2003) and Thomsen, Pedersen, and Kvist's (2006) definition, blockholder ownership is hereby, defined as the proportion of ordinary shares collectively held by substantial shareholders (that is, shareholdings of 5 per cent or more). The identity of the blockholder can be that as a family, a state, an institutional investor, and so on provided its ownership is 5 per cent or more.

Institutional ownership is represented by the collective percentage of institutional ownership such as banks, investment banks, insurance companies and pension funds. This study uses a binary variable that takes the value of one (1) if the firm is controlled by family and zero (0) if otherwise.

3.2.4   Firm Default Risk

This study uses three proxies of default risk i.e., leverage, profitability, interest coverage, and firm loss (Ashbaugh-Skaife et al., 2006). Financial leverage is computed debt over total assets (DAR). Profitability is measured by the returns on assets (ROA) which is net income per total assets. Interest coverage (INT_COV) is calculated as Earnings before Interest and Taxes over Interest Expense. LOSS conveys whether a firm has operating loss or not during research window. A categorical variable with a value of one (1) is given if a firm experiences operating loss and zero (0) if otherwise.

3.2.5 Firm Size

This study uses two proxies of firm size, i.e. log of total assets (LTA) and gross property, plant, and equipment per total assets (CAPINT) (Ashbaugh-Skaife et al., 2006).

3.3 Empirical Models

To test the influence of CG on firm credit ratings, this study employs the ordered logit model as firm credit ratings are ordered from numbers one (1) to six (6). The empirical model is provided below.

$$\text{RATE}_{it} = \alpha1\,\text{CGI}_{it} + \alpha2\,\text{BLOCK}_{it} + \alpha3\,\text{INST}_{it} + \alpha4\,\text{FAMOWN}_{it} + \qquad (1)^8$$
$$\alpha5\,\text{DAR}_{it} + \alpha6\,\text{ROA}_{it} + \alpha7\,\text{INTCOV}_{it} + \alpha8\,\text{LOSS}_{it} +$$
$$\alpha9\,\text{LTA}_{it} + \alpha10\,\text{CAPINT}_{it} + \varepsilon_{i}$$

where
$_{it}$ is for newly issued/revised bond rating i in year t,

RATE = Firm credit ratings
CGI = Corporate Governance Index
BLOCK = Percentage of blockholders ownership
INST = Percentage of institutional ownership
FAMOWN = Dummy variable, takes the value of one (1) if firm has family ownership and zero (0) if otherwise
DAR = Debt per total assets
ROA = Return on Assets
INTCOV = Interest coverage
LOSS = Dummy variable, takes the value of one (1) if firm suffers operating loss and zero (0) if otherwise
LTA = Log (total assets)
CAPINT = Capital intensity
ε = Error terms.

The ordered logit model follows a few steps: (1) the dependent variable Y represents categories that have a sequence (ordered categories) and (2) Y is a function of other variables that have not been measured, i.e., (a) there is a continuous variable that is latent variable D, which is determined from the value of an ordered variable Y to be

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[8] In an ordered logit model, there is no intercept.

observed; (b) continuous latent variable D has a limit point (δ_{1-6}). The value of the variable Y to be observed will depend on the interval limit point. In accordance with this study, the bond ratings will be observed with six categories (M = 6) from AAA to B, i.e:

$Y_i = 1$ if $D_i \leq \delta_1$
$Y_i = 2$ if $\delta_1 \leq D_i \leq \delta_2$
$Y_i = 3$ if $\delta_2 \leq D_i \leq \delta_3$
$Y_i = 4$ if $\delta_3 \leq D_i \leq \delta_4$
$Y_i = 5$ if $\delta_4 \leq D_i \leq \delta_5$
$Y_i = 6$ if $D_i \geq \delta_6$

where δ shows limit point for each category. This value is provided by output statistic.

Next, the value of Z is calculated as the predicted value of the regression results in equation 1. Finally, the probability for each category is computed and the rating for each observation is determined according to the greatest probability value which is based on the following equations:

$$P(Y = 1) = \frac{1}{1 + \exp(z_i - \delta_1)} \quad \text{..(2.1)}$$

$$P(Y = 2) = \frac{1}{1 + \exp(z_i - \delta_2)} - \frac{1}{1 + \exp(z_i - \delta_1)} \quad \text{..........................(2.2)}$$

$$P(Y = 3) = \frac{1}{1 + \exp(z_i - \delta_3)} - \frac{1}{1 + \exp(z_i - \delta_2)} \quad \text{..........................(2.3)}$$

$$P(Y = 4) = \frac{1}{1 + \exp(z_i - \delta_4)} - \frac{1}{1 + \exp(z_i - \delta_3)} \quad \text{..........................(2.4)}$$

$$P(Y = 5) = \frac{1}{1 + \exp(z_i - \delta_5)} - \frac{1}{1 + \exp(z_i - \delta_4)} \quad \text{..........................(2.5)}$$

$$P(Y = 6) = 1 - \frac{1}{1 + \exp(z_i - \delta_5)} \quad \text{..(2.6)}$$

where Y is an observed ordinal variable, (δ_{1-6}) is a limit/threshold point, D_i is unmeasured latent variables, Z_i is the predicted value the regression results of equation (1) and i is for observation i.

4.   Results

4.1 Descriptive Statistics

The descriptive statistics for the variables employed are provided in Table 4. The table shows that the average firm credit ratings is 3.931 which, according to Table 3, indicates that firm credit ratings range from A- to A+. Thus, average firms have good credit ratings and are included in the investment category. In line with this, Table 5 shows the frequency distribution of firm credit ratings and it reveals that most firm credit ratings are in the range of A-, A, or A+, suggesting that most firms have relatively good credit ratings.

The average score of CGI is 0.688 (68.8 per cent) and this shows that the implementation of CG practices is relatively fair. The ownership structure in Table 4 shows that the average percentage of blockholders' ownership (BLOCK) is 47.6 per cent, indicating that the ownership structure of the sample firms is concentrated. The average institutional ownership (INST) is 11.1 per cent while family ownership (FAMOWN) is 28.2 per cent.

The average ROA is 0.051 (5.10 per cent), indicating that the average firm generates moderate income from managing its assets. The average interest coverage (INTCOV) is 4.769 while the average LOSS is 0.043 (4.30 per cent). This shows that only 4.30 per cent of the total number of firms suffer operating loss. The statistics show that on average, the samples (firms) are financially healthy.

Further, the average debt ratio (DAR) is 0.328 (32.8 per cent), meaning that most firms have equity as their major financing. The average capital intensity (CAPINT) is 0.419 (41.90 per cent). This shows that average firms have relatively low fixed assets which can be used as debt collaterals.

4.2 Correlation Analysis

Based on the correlation analysis shown in Table 6, it appears that all independent variables have the expected relationship with firm credit ratings except for operating loss (LOSS). Firm credit ratings (RATE) have a positive relation with corporate governance practices (CGI), profitability (ROA), interest coverage (INTCOV), and firm size (LTA) proxied by the log of total assets and capital intensity respectively. Those variables are significant at 1 per cent level. While leverage (DAR) has a negative relationship with firm credit ratings, family ownership

Table 4: Descriptive Statistics

	RATE	CGI	INST	BLOCK	FAMOWN	ROA	INTCOV	DAR	LOSS	LTA	CAPINT
Mean	3.931	0.688	0.111	0.476	0.282	0.051	4.769	0.328	0.043	20.908	0.419
Median	4.000	0.679	0.000	0.505	0.000	0.039	2.700	0.320	0.000	21.778	0.409
Maximum	6.000	0.857	0.981	0.981	1.000	0.241	35.520	0.801	1.000	24.853	0.910
Minimum	1.000	0.529	0.000	0.094	0.000	-0.075	-0.580	0.061	0.000	12.522	0.033
Std.Dev.	0.878	0.088	0.193	0.196	0.452	0.052	5.935	0.155	0.203	3.181	0.211
Skewness	-0.250	0.138	2.273	0.335	0.969	1.497	2.919	0.643	4.522	-1.627	0.091
Kurtosis	4.184	1.982	8.418	3.106	1.938	6.221	12.171	2.933	21.445	4.633	2.247
Jarque-Bera	8.056	5.423	243.884	2.242	23.792	94.251	576.193	8.073	2057.169	64.623	2.928
Probability	0.018	0.066	0.000	0.326	0.000	0.000	0.000	0.0177	0.000	0.000	0.231
Sum	460.000	80.465	13.039	55.725	33.000	5.970	557.960	38.422	5.000	2446.153	49.026
SumSq.Dev.	89.453	0.855	4.323	4.478	23.692	0.310	4085.911	2.780	4.786	1173.980	5.154

Notes: RATE = Firm credit ratings; CGI = Corporate governance index; INST = Institutional ownership; BLOCK = Blockholders ownership; FAMOWN = Family ownership; ROA = Return on assets; INTCOV = Interest coverage; DAR = Debt per total assets; LOSS = Operating loss, LTA = Log (total assets); CAPINT = Capital intensity.

Table 5: Frequency Distribution of Firm Credit Ratings

Rate	Value of Rate	Count	Percent	Cumulative Count	Percent
≤ B+	1	2	1.00	2	1.71
BB-, BB, BB+	2	1	0.00	3	2.56
BBB-, BBB, BBB+	3	30	25.00	33	28.21
A-, A, A+	4	58	49.00	91	77.78
AA-, AA, AA+	5	22	18.00	113	96.58
AAA	6	4	3.00	117	100.00

(FAMOWN) has lower credit ratings. Both are significant at 5 per cent level. Further, higher percentage ownership by blockholders, regardless of the identity of blockholders, results in better firm credit ratings. This indicates that more concentrated ownership improves oversight function.

Table 6: Correlation Analysis

	RATE	CGI	INST	BLOCK	FAMOWN	ROA	INTCOV	DAR	LOSS	LTA
CGI	.525**									
	.000									
INST	.161*	.178*								
	.041	.028								
BLOCK	.225**	.129	.065							
	.007	.082	.244							
FAMOWN	-.213*	.008	-.188*	-.138						
	.010	.466	.021	.069						
ROA	.494**	.197*	-.104	.229**	.166*					
	.000	.016	.133	.007	.037					
INTCOV	.402**	.167*	-.038	.097	-.016	.730**				
	.000	.036	.341	.148	.434	.000				
DAR	-.160*	-.039	.065	-.014	.042	-.366**	-.448**			
	.043	.338	.242	.440	.327	.000	.000			
LOSS	-.104	.029	.183*	.204*	-.039	-.316**	-.144	.040		
	.132	.380	.024	.014	.340	.000	.060	.333		
LTA	.253**	-.042	.053	-.163*	.112	.217**	.173*	-.060	-.253**	
	.003	.325	.285	.040	.115	.009	.031	.259	.003	
CAPINT	.226**	.161*	.205*	-.020	-.059	-.047	-.195*	.323**	.206*	-.167*
	.007	.042	.013	.417	.265	.308	.017	.000	.013	.036

Notes: RATE = Firm credit ratings; CGI = Corporate governance index; INST = Institutional ownership; BLOCK = Blockholders ownership; FAMOWN = Family ownership; ROA = Return on assets; INTCOV = Interest coverage; DAR = Debt per total assets; LOSS = Operating loss, LTA = Log (total assets); CAPINT = Capital intensity.
The p-values are shown on the second row whereas the coefficient estimates are on the first row.
* and ** indicate significance at the 5% and 1% levels (1-tailed) respectively.

Finally, as shown in Table 6, the correlations among independent variables are all below 0.8. Thus, there is no-multicollinearity problem.

4.3 Analysis of Result

Table 7 presents the results of the ordered logit regression. They reveal that firm credit ratings are positively affected by CG practices thereby, supporting the first hypothesis (significant at 1 per cent). As explained in the literature review, this result corroborates with the results of previous studies which state that CG has a positive impact on investor protection (La Porta, Lopez-de-Silanes, & Shleifer, 1999; La Porta, Lopez-de-Silanes, Shleifer, & Vishny, 2000), disclosure and transparency (Iskander &

Table 7: Output Statistic of Ordered Logit Model

Variable	Coefficient	Std. Error	z-Statistic	Prob. (1-tailed)
CGI	14.256***	2.812	5.071	0.000
INST	-0.817	1.115	-0.733	0.232
BLOCK	2.821***	1.182	2.387	0.009
FAMOWN	-2.149***	0.515	-4.168	0.000
DAR	-0.725	1.547	-0.468	0.320
ROA	14.811**	7.522	1.969	0.025
INT_COV	0.066	0.0610	1.082	0.140
LOSS	0.143	1.127495	0.126678	0.450
SIZE	0.190***	0.067237	2.831455	0.002
CAP_INT	3.710***	1.200686	3.089646	0.001
Limit Points				
LIMIT_2:C(11)	11.116	2.738	4.060	0.000
LIMIT_3:C(12)	11.622	2.717	4.278	0.000
LIMIT_4:C(13)	15.017	2.729	5.502	0.000
LIMIT_5:C(14)	18.958	3.018	6.281	0.000
LIMIT_6:C(15)	22.487	3.307	6.800	0.000
Pseudo R-squared	0.310	Akaike info criterion		1.964
Schwarz criterion	2.318	Log likelihood		-99.902
Hannan-Quinn criter.	2.108	Restr. log likelihood		-144.698
LR statistic	89.592	Avg. log likelihood		-0.8545
Prob(LR statistic)	0.000			

Note: *, **, and *** indicate significance at the 10%, 5% and 1% levels respectively.

Chamlou, 2000; Ashbaugh-Skaife et al., 2006, Bhojraj & Sengupta, 2003), and firm performance (Fűerst & Kang, 2004). Consequently, they yield better control and better monitoring of managerial performances (Turley & Zaman, 2007). Since firms have lower asymmetric information, firm credit ratings tend to be higher (Aman & Nguyen, 2013) and cost of capital tends to be lower (Tran, 2014).

As mentioned above, previous studies had used a sub-set of CG practices. For example, Ashbaugh-Skaife et al. (2006) used only shareholders' right. In contrast, the current study uses a comprehensive measurement of CG practices that is based on OECD recommended CG principles. This helps to affirm that CG practices have a major impact on firm credit ratings.

Nonetheless, the IICD (2007) finds that many public firms are still practicing poor governance. These firms will thus receive low bond ratings and high debt costs, should they need to issue bonds. Based on the IICD's finding, this study recommends that regulatory bodies should enforce good CG practices as they have been proven to improve firm values as well as enhance bond ratings. The increase in bond ratings will eventually induce a more widespread use of bond market as external financing resources.

This study also proves that CG practices which focus on the five OECD principles in Indonesia have a positive impact in reducing agency problems between shareholders and bondholders. In that regard, this study supports the results of Ashbaugh-Skaife et al. (2006). The findings which indicate the positive impact of CG on credit ratings is consistent with the agency theory (Jensen & Meckling, 1976) in that more transparent and better monitoring of managers can reduce conflicts of interests and agency costs. Further, the findings of this study show that firm credit ratings are not only affected by shareholders' rights but also by other factors such as disclosure and transparency and board responsibilities. For example, better disclosure and transparency can reduce the degree of asymmetric information between creditors and shareholders, hence, it can induce higher firm credit ratings.

The results shown in Table 7 suggest that blockholders' ownership has a significant positive influence on firm credit ratings. In this regard, the second hypothesis H_2 is also substantiated. La Porta et al. (2000) conclude that countries with poor investor protection typically yield more concentrated ownerships than those with good investor protection - concentrated ownership is needed to enhance the monitoring roles of managers. Thus, concentrated ownership can substitute for the weak

investor protection rules in the country. Given that the rule on investor protection in Indonesia is relatively weak (La Porta et al., 1999), the finding that there is a positive impact of blockholders' ownership on credit ratings is consistent with La Porta et al.'s (2000) suggestion.

The current finding also supports the argument that blockholders with high financial interests and rights are better informed, better able to evaluate firm performance and to oversee firm management. These abilities can prohibit management from diverting firm assets for personal gains and benefits (Jensen, 1993; Shleifer & Vishny, 1997). Consequently, this can lead to higher firm credit ratings (Bhojraj & Sengupta, 2003; Burns et al., 2010).

The current study does not find any positive impact of institutional ownership on firm credit ratings. In that regard, the third hypothesis H_3 is not sustained. The possible explanation for this result is that the average proportion of institutional ownership in Indonesia is relatively low (i.e., 11.14 per cent). According to Brickley et al. (1988), it is difficult for a shareholder with relatively low ownership to conduct oversight functions such as effectively overseeing managerial decision making functions. Further, some public listed firms have more than one substantial shareholder, and in many cases, the percentage ownership of institutional investors is lower than the largest controlling shareholders. This diminishes the oversight function of institutional investors. Furthermore, Shleifer and Vishny (1997) have argued that institutional ownership may cause agency problems between shareholders and bondholders. In other words, these investors tend to maximise shareholders' wealth at bondholders' expense or they tend to expropriate firm resources for shareholders' benefit, both of which, can jeopardise bondholders' wealth.

Table 7 indicates that firm credit ratings are lowered by the existence of family ownerships (significant at 1 per cent). This result is consistent with the agency problem hypothesis which states that family ownership may act as entrenched controlling shareholders and expropriate bondholders through corporate decisions that increases the probability of defaults. This occurrence can consequently, lower firm credit ratings. The finding thus supports Ellul et al. (2007) and Lin and Shen's (2015) results that the existence of family ownership has a detrimental effect on shareholder-bondholder relations. Ellul et al. (2007) find that family firms in low investor protection environments incur higher debt costs as compared to non-family firms. The opposite relation holds for family firms in high investor protection environments.

In countries with poor investor protection rules, families which are also controlling shareholders, extract private benefits for themselves. This practice can result in higher bankruptcy risk and thereby, exacerbate debt agency costs.

The findings in the current study thus indicate that higher blockholders' ownership enhances firm credit ratings and family ownership worsens firm credit ratings but institutional investor ownership does not affect firm credit ratings. These findings suggest that more concentrated ownership improves the oversight functions on managers. However, once blockholders are family members, the oversight function becomes less effective and private incentives to expropriate firm assets, simultaneously, become more easily executed.

This study does not find impact of leverage on firm credit ratings. Thus, hypothesis H_5 is not supported. This result is contrary to Ashbaugh-Skaife et al. (2006) but is consistent with Setyapurnama and Norpratiwi (2003) who find no relationship between the level of leverage and firm credit ratings. One possible argument for this is that firm leverage does not influence firm credit ratings, instead, firm leverage is influenced by firm credit ratings. Kisgen (2006) shows that changes in firm credit ratings coerce firms to change their optimal capital structure. Specifically, firms near a rating change issue less net debt than firms not near a rating change (Kisgen, 2006).

Table 7 also shows that ROA has a positive impact on firm credit ratings (significant at 5 per cent), so hypothesis H_6 is substantiated. This result proves that higher credit rating is achieved through higher profitability. Higher profitability indicates that the probability of default is either on the decrease or that firms have the ability to pay debts (Ashbaugh-Skaife et al., 2006).

Consistent with Ashbaugh-Skaife et al. (2006), this study is also unable to find any impact of interest coverage on firm credit ratings. In this regard, hypothesis H_7 is thus not supported. Therefore, interest coverage may not be the primary indicator for default risk. The possible explanation for this result is firm's ability to pay its interest should be measured by its cash flow while operating income does not reflect the cash flow owned by the firm.

The finding of this study indicates that operating loss does not have a significant impact on firm credit ratings. It also shows that operating loss does not necessarily imply that the firm cannot pay its debt. This is because operating loss may be temporary. Alternatively, the firm may be experiencing operating loss in the first stage of its business cycle.

This study finds firm size has a positive impact on firm credit ratings (significant at 1 per cent). Thus, hypothesis H_9 is supported. Larger firms have more opportunities to get external financing because larger firms are assumed to have lower asymmetric information and more collateral for their debts (Ashbaugh-Skaife et al., 2006). In other words, the size of a firm indicates the firm's ability to pay its debts. A larger firm tends to decrease default risk. Consequently, firm credit ratings improve (Bhojraj & Sengupta, 2003; Ashbaugh-Skaife et al., 2006; Tran, 2014).

The results in Table 7 also show that capital intensity has a positive impact on firm credit ratings (significant at 1 per cent) thereby, supporting hypothesis H_{10}. Higher capital intensity implies that the firm has higher fixed assets to assure its payment for long-term debts. Consequently, the probability of default is lower and firm credit ratings increase (Ashbaugh-Skaife et al., 2006).

The above explanation provides statistical tests of the hypotheses. Based on the regression results, this study can predict the credit rating category for each firm by computing the probability value of Z_i and $P(Y)$. A firm's predicted credit rating is based on the greatest Y value. For example, based on the results of ordered logistic model, the probability to determine firm credit ratings (Z_i) may be stated as follows:

$$Z_i = 14.256 \text{ CGI}_{it} + 2.821 \text{ BLOCK}_{it} - 0.817 \text{ INST}_{it} - 2.149 \text{ FAMOWN}_{it} - 0.725 \text{ DAR}_{it} + 14.811 \text{ ROA}_{it} + 0.066 \text{ INTCOV}_{it} + 0.143 \text{ LOSS}_{it} + 0.190 \text{ SIZE}_{it} + 3.710 \text{ CAPINT}_{it}$$

where all variables are defined in equation 1.

Next, the limit point for each credit rating is determined according to the output statistic in Table 6 through the following:

$Y_i = 1$ if $D_{it} \leq 11.116$
$Y_i = 2$ if $11.116 \leq D_{it} \leq 11.622$
$Y_i = 3$ if $11.622 \leq D_{it} \leq 15.017$
$Y_i = 4$ if $15.017 \leq D_{it} \leq 18.958$
$Y_i = 5$ if $18.958 \leq D_{it} \leq 22.487$
$Y_i = 6$ if $D_{it} \geq 22.487$

The probability of each firm is calculated and its rating classified. For example, the Z-value for bond issued by PT Apexindo Pratama Duta (APEX) in 2004 is as follows:

Z_i = (14.256 x 0.774) + (2.821 x 0.775) – (0.817 x 0) – (2.149 x 0) – (0.725 x 0.213) + (14.811 x (–0.010)) + (0.066 x 1.680) – (0.143 x 1) + (0.190 x 12.549) + (3.710 x 0.712) = 17.912

Based on the equation (2), the value of probability for each level credit rating can be computed as follows:

$$P(Y = 1) = \frac{1}{1 + \exp(17.912 - 11.116)} = 0.001$$

$$P(Y = 2) = \frac{1}{1 + \exp(17.912 - 11.622)} - \frac{1}{1 + \exp(17.912 - 11.116)} = 0.001$$

$$P(Y = 3) = \frac{1}{1 + \exp(17.912 - 15.017)} - \frac{1}{1 + \exp(17.912 - 11.622)} = 0.051$$

$$P(Y = 4) = \frac{1}{1 + \exp(17.912 - 18.958)} - \frac{1}{1 + \exp(17.912 - 15.017)} = \mathbf{0.688}$$

$$P(Y = 5) = \frac{1}{1 + \exp(17.912 - 22.487)} - \frac{1}{1 + \exp(17.912 - 18.958)} = 0.250$$

$$P(Y = 6) = 1 - \frac{1}{1 + \exp(17.912 - 22.487)} = 0.010$$

By looking at the greatest probability value, i.e. 0.688 it is noted that PT Apexindo Pratama Duta (APEX) has a 68.8 per cent probability to be rated as Y=4 (A+, A, or A-). This result is consistent with its actual rating of A.

5. Conclusion

The aim of this study was to investigate the impact of CG practices, ownership structure, and firm default risk on firm credit ratings. Using 117 observations of bond issuances of listed firms in the Indonesia Stock Exchange from the period 2004 to 2008, this study finds that after controlling ownership structure, firm default risk, and firm size, CG practices do have positive influence on firm credit ratings. Firms tend to have better credit ratings and more access to long-term debt if they conduct best practices of CG. This result is consistent with Bhojraj and Sengupta (2003), Ashbaugh-Skaife et al. (2006), and Aman and Nguyen (2013). This study employed a comprehensive measure of CG practices that include more than shareholders' rights such as role of stakeholders, disclosure and transparency and the responsibilities of

the board. In that regard, this study has generated adequate evidence to show that comprehensive CG practices can reduce agency problems between creditors and shareholders. Inevitably, it also increases firm credit ratings.

This study also finds that firm credit ratings of family ownership are lower than that of other ownerships. This implies that in a country such as Indonesia with poor investor protection rules (Claessens et al., 2000; Claessens et al., 2002), families acting as controlling shareholders tend to extract private benefits for themselves. This extraction can result in higher bankruptcy risks and also exacerbate debt agency costs (Ellul et al., 2007).

Further, this study also finds that the proportion of blockholders' ownership has a significant positive impact on firm credit ratings (Bhojraj & Sengupta, 2003; Burns et al., 2010). Thus, the existence of concentrated ownership has a significant positive influence on a firm's strategic decision and hence, has a positive impact on firm credit ratings. However, this study does not find that institutional ownership influences firm credit ratings. The finding is possibly due to the relatively low ownership of the institutions.

Leverage, interest coverage, and the presence of loss as proxies of firm default risk do not have significant impact on firm credit ratings while profitability has a positive effect on firm credit ratings. Thus, the greater the efficiency in managing the firm's assets in order to earn a profit, the greater the firm's ability to pay the debts. This can consequently lower the firm's default risk while improving the firm's credit ratings. Finally, this study finds that firm size and capital intensity have a positive impact on firm credit ratings.

The implication of this study is that firms have to improve their CG practices in order to facilitate the issuance of long term debt at better credit ratings. This study also shows that higher concentrated ownership of blockholders has the advantage to conduct oversight functions in firms which can result in higher debt ratings. However, when blockholders are families, the possibility of expropriation increases. This then reduces debt ratings. Finally, capital market regulators may need to set up policies so as to encourage institutional investors to increase ownership in listed firms in order to make oversight functions more effective.

The following are some limitations of the study and suggestions for future research. Since not many listed firms in Indonesia issued bonds in the years of 2004 to 2008, this study has limited observations

that may affect the power of statistical test. Thus, the empirical results should be interpreted with caution. Future studies should increase sample size, extend the period of the study and employ more recent panel data. Further, as mentioned earlier, in year 2007 the company law of Indonesia was revised and major changes were made to improve the governance mechanism. In this regard, future studies may want to examine the impact of the revised law on CG practices and credit ratings and thus, the effectiveness of the law.

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