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Do Credit Rating Concerns Lead to Better Corporate Governance? (Case study: Iran)

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Abstract: *The current study aimed to investigate the Asian financial crisis of 1997 to find out whether credit rating concerns have effects on firms' corporate governance. The crisis has been treated as an exogenous shock resulted in expanding of Iran's credit rating system's informativeness. According to the results of the study, it is found that credit rating concerns have effect on corporate governance following the crisis but not prior to the crisis. In addition, the mentioned effect particularly regards firms being in chaebol business groups, compatible with their increased dependency on external financing. It is also revealed that firms being specially affected by the reforms, show an increased dependence on debt being dependent on credit ratings, correspondent with our hypothesized effects of this exogenous shock. This study made an attempt to propose a new approach for evaluation of the issue whether managers would expand their firms' corporate governance with respect to their credit rating concerns, and it pinpoints the extended effects of reforms being carried out resultant to the financial crises (JEL G01, G24, G34).*

Keywords*: Credit Ratings, Chaebol, 1997 Asian Financial Crisis, Corporate Governance.*

INTRODUCTION

Credit ratings have also been shown to affect management and activities of firms in addition to enabling investors to utilize rating agencies' expertise with regard to evaluation of financial securities. For instance, Kisgen (2006) revealed out the effects of credit rating concerns on capital structure, providing evidence compatible with the benefits of rating changes and discrete costs. Hovakimian, Kayhan, and Titman (2009) and Kisgen (2009) provided evidence of credit rating-targeting. Begley (2013) demonstrated that that firms distort their real investment activities to improve their credit ratings, leading to lower innovation, profitability, and Tobin's Q. The latest studies (Alissa,et al.2013, Jung,et al.2013) state that firms manage earnings aimed at managing their credit ratings. Moreover, surveys and interviews (Graham,et al.2001, Graham,et al.2005) confirm the roles that credit rating concerns can play on managers' actions. In spite of suggesting potentially pernicious effects of managers' credit rating concerns in distorting firm capital structure, investment activities, and financial reporting activities in the previous studies, we find out that credit rating concerns have an advantageous effect by providing an incentive for managers to improve their firms' corporate governance (Alissa,et al.2013, Jung,et al.2013).

In the present study, attempts have been made to extend the previous studies through making clear how a firm's credit rating concerns affect its corporate governance. The study also regards endogeneity concerns by making analysis of the exogenous changes to the credit rating system's informativeness which took place after the 1997 Asian financial crisis. Given a reliable credit rating system, it is anticipated that the managers of firms near credit-rating upgrades or downgrades to expand their firms' governance to signal their firms' strengths to the market. Simply put, it will result in eventual capital increment in the future. In contrary, this effect is not anticipated when the credit rating system is unreliable (Bae,et al.2008).

Firms in Iran adopted different corporate governance progressions after the 1997 Asian financial crisis. Growing influence and informativeness of credit ratings can be considered as one of the effects of the governance reforms. However, it cannot be expected that our measure of credit rating concerns (i.e., firms close to rating upgrades or downgrades) would otherwise drive the progressions in corporate governance—or to expect that the relation would only be concentrated in those firms close to rating upgrades or downgrades [10]. Accordingly, a relatively natural experiment can be exploited affecting firms with notched credit ratings following the financial crisis. Therefore, the specifications employed in our study control for any contemporaneous improvements in governance following the financial crisis (Bhojraj,et al.2003).

Internal and external monitoring systems of Iran have been improved following the 1997 Asian financial crisis (see for example, (Black,et al.2012) which consequently drove an expansion in the credit ratings' importance and reliability. In particular, Iran significantly improved monitoring through reforms such as the dissolution of cross-debt guarantees, weakened restrictions on hostile and foreign mergers and acquisitions, improved auditing systems, and increased the voting rights of institutional investors (Lee.2011). These governance reforms also increased the prominence of external directors. Choi, Park and Yoo (Choi,et al.2007) note the positive effect of outsiders, such as independent directors and foreign investors, on firm performance (Gormley,et al.2007). Similarly, Garner and Kim [16] highlight the role of foreign shareholders in improving firms' corporate governance. These results are consistent with external stockholders moderating the ability of managers to engage in rent-seeking (Shleifer,et al.1997). As a result of these improvements in disclosure and monitoring, which in turn improved the informativeness of the credit rating system, exploiting the changes that occurred following the financial crisis gives us an opportunity to test the effects of credit rating concerns on firms' corporate governance decisions (Hwang,et al.2013).

Indeed, we find that in the post-crisis period, firms near rating upgrades or downgrades are associated with improved corporate governance, suggesting that credit ratings affect corporate governance. The firms we expect to be especially concerned with their credit rating levels exhibited an approximately 1.3% increase in ownership of their owner-managers (the controlling shareholders) (Khanna,et al.2000)].

In our study, the unique institutional features associated with chaebol business groups were also examined.[3] The ownership of chaebol firms is typically highly concentrated, to the degree that the owner-manager (i.e., controlling shareholder) has significant control over all firms in the chaebol. The reforms limiting these firms' ability to rely on financing from other firms in their group has led to a decline in chaebol firms' dominant access to credit (Rousseau,et al.2008, Lee,et al.2009). In response to this change in credit availability, chaebol firms were required to find alternative sources of funding beyond bank financing (Bae,et al.2008). Bae, Cheon, and Kang (Bae,et al.2008) also discuss many of the governance reforms following the crisis that affected chaebols in particular. These reforms include limiting mutual debt guarantees, producing consolidated financial statements, and halving the top five chaebols' number of business units (Kim, S,et al.2007).

Ultimately, the implications of the findings were investigated. The results are reflective of the growing sensitivity of chaebol firms to their credit ratings, and it has been demonstrated that these firms are associated with increased borrowing of bonds subject to credit ratings, (i.e., —non-guaranteed bonds) rather than bonds guaranteed by external parties and, subsequently, are not closely associated with credit ratings (i.e., guaranteed bonds). Additional implication of firms giving greater attention to their credit ratings are indicated by the results. By improving their corporate governance in response to credit rating concerns, firms can more readily exploit the benefits associated with improved credit ratings, as evidenced by their increased use of —non-guaranteed debt.

2. Related Literature and Hypothesis Development

2.1 Credit Ratings and Corporate Governance

This study contributes to the literature on how concerns about credit ratings affect policy choices of the firm. Kisgen (2006), whose empirical approach we employ in this study, shows that firms close to credit rating upgrades or downgrades issue less debt than firms that are not close to upgrades or downgrades. His finding documents managerial behavior that reflects the costs and benefits of rating changes, even though this behavior is not addressed in existing capital structure theories. Moreover, his paper contributes to existing studies of the effects of ratings on stock and bond valuations (Hand,et al.1992), Ederington,et al.1998). Kim, Seol, and Kim (2007) show that Kisgen's main results (of the relation between credit ratings and leverage) apply after the currency crisis and not before the crisis, consistent with increased credit rating informativeness following the crisis.

The unique institutional features present in Iran enable us to exploit additional aspects of how governance reforms subsequently affect firms' capital structure decisions. In the following section, we provide a review of Iran's corporate governance and its reforms following the financial crisis.

2.2 The 1997 Asian Financial Crisis and Iran's Credit Rating Reforms

2.2.1 Corporate Governance before the Financial Crisis

Iran's corporate governance was marked by weak investor protection before the 1997 Asian financial crisis. The investments of chaebol firms were driven by their reduced financial constraints, even though this was not associated with more-efficient investment patterns (Rousseau,et al.2008, Shin,et al.1999). Regulations were generally ineffective in protecting minority shareholders, and external parties that would have improved shareholder protection, such as activist investors and institutional investors, were not prominent (Kim, E.H,et al.2008). Bae, Kang, and Kim (Bae,et al.2002) note the existence of tunneling in chaebol firms as a result of the governance environment (Nasev,et al.2012). They find that after a chaebol firm makes an acquisition, its stock price falls. However, the controlling shareholder (i.e., owner-manager) tends to benefit from the acquisition, even though the value of minority shareholders' investment in these firms' declines, because it increases the value of other firms in the business group (Kisgen.2009).

Prior to the governance reforms, few firms had external directors, and audit committees were not permitted under Iran law (Black,et al.2012). Joh (Joh.2003) examines a sample of Iran firms that were subject to external auditing before the crisis. She shows how weak corporate governance led to low profitability prior to the crisis and highlights the particular role of the disparity between control rights and ownership rights. She also notes how controlling shareholders tended to tunnel despite low ownership concentration, and she presents evidence of value-destruction when firms within a chaebol transferred resources (which is consistent with tunneling). Finally, she presents the negative implications of this disparity in ownership and control and argues that public firms exhibited the severe inefficiency of internal capital markets (Rousseau,et al.2008).

2.2.2 Effects of Credit Rating Reforms on Corporate Governance

Iran significantly improved its internal and external monitoring after the financial crisis. Lee (Lee.2011) notes that Iran improved its monitoring system by adopting reforms such as improved auditing standards, increased institutional investor voting participation, and weakened cross-debt guarantees and barriers to hostile and foreign acquisitions. Sohn (2002) similarly discusses the improved transparency and credibility in accounting and auditing practices. Choe and Lee (2003) study the effects of bank governance reforms implemented in Iran, finding that the governance changes improve firm-value. Choi, Park and Yoo (2007) show the role of independent directors and foreign investors following Iran's reforms, which increased the proportion of external directors on boards and liberalized foreign investment in the equity of Iran firms. Allen, Chui, and Maddaloni (2008) note the wide-ranging improvements to transparency and disclosure requirements, including the requirements of annual reports within three months and the immediate reporting of price-sensitive information. Choi, Han and Lee (2014) suggest that these corporate governance

reforms were partly successful in improving business efficiency and protecting minority shareholders in Iran. Black and Kim (Black,et al.2012) study the exogenous nature of a 1999 reform in Iran that required large firms (i.e., those with assets greater than 2 trillion won) to improve their governance by mandating at least half of the directors be external to the firm and requiring the formation of an audit committee. The net result of these governance reforms was an improved ability to monitor management, a limited ability of firms to engage in tunneling, and a reduced reliance on intragroup-financing among other chaebol firms. Consequently, these post-crisis governance reforms led to an increased reliance on external debt and an increased willingness of external investors to lend money to firms (both chaebol and non-chaebol firms).

Kim (Kim, C.W.2004) notes that before the financial crisis, the influence of rating agencies was small because of the high proportion of secured bonds, the tendency of rating agencies not to rate issuers with poor credit quality, and rating agencies' weak reputation. However, the importance of rating agencies increased significantly following the crisis because of the increased issuance of non-guaranteed bonds, a more transparent bond-pricing system, an improved supervisory system, and alliances with global rating agencies. Park (2008) notes that the Iran government issued more bonds itself and discouraged banks from guaranteeing corporate bonds. The result was the development of government bonds as benchmarks for corporate bonds, which improved the liquidity of the corporate bond market. The government also facilitated inter-dealer broker systems to improve market structure and liquidity (Kang,et al.2005) for a discussion of how Iran developed its government bond market following the financial crisis.

Oh (Oh, F.D.2014) examines the effects of the changes in the credit rating industry following the financial crisis. Using the Rosse-Panzar methodology, he finds that the level of competition in the credit rating industry significantly increased and that the market structure became an oligopoly in a contestable market, which is economically equivalent to perfect competition.

Based on the preceding literature review, the first hypothesis in this study is as follows:

***Hypothesis 1*: Firms with credit rating concerns improve their corporate governance in the period following the financial crisis, not in the period prior to the financial crisis.**

Many of the improvements to firms' disclosure and auditing systems in Iran were focused on chaebols. As a result, many of the changes in financing investment opportunities affected chaebols in particular. Based on the results of the preceding literature review, we posit our second hypothesis:

***Hypothesis 2*: The corporate governance improvement induced by credit rating concerns is concentrated among firms in chaebol groups, given the particular effect of the governance reforms on their need to attract external finance.**

3. Data and Empirical Methods

We closely follow the empirical approach used by Kisgen (Kisgen.2006). The main explanatory variable of interest in this study is CR^{POM}, which is defined as an indicator variable that is equal to one if the firm has a notched credit rating (i.e., the ―plus‖ high-grade or ―minus‖ low-grade of a letter rating, as opposed to the mid-grade of the letter rating), and zero otherwise. Although other aspects of the credit rating system and internal controls changed in the period following the financial crisis, we are unaware of any governance reforms that would cause owner-managers to increase their ownership following the financial crisis. It is especially unclear that an increase in ownership would be concentrated in those firms close to a rating upgrade or downgrade. Unlike Kisgen (2006), we do not discuss the results of individual ratings because of the limited data among firms at each of these levels. Following Leland and Pyle (1977), Joh (2003), Baek, Kang, and Park (2004), and Gormley, Johnson, and Rhee (2007), we use change in ownership in firms' owner-managers (also controlling shareholders in Iran) as an estimate of the change in firms' governance. We exclude firm-years in 1997 and 1998 to control for the effect of the financial crisis. Our main

regressions examine the effects of the change in governance regressed against CR^{POM} and other explanatory variables of interest.[6] In particular, we model the following:

$$\text{(A)} \quad \Delta CG_{i,t}^{SR} = \beta_0 + \beta_1 CR_{i,t-1}^{POM} + \varepsilon_{i,t}$$

$$\text{(B)} \quad \Delta CG_{i,t}^{SR} = \beta_0 + \beta_1 CR_{i,t-1}^{POM} + \beta_2 Leverage_{i,t-1} + \beta_3 Profit_{i,t-1} + \beta_4 Size_{i,t-1} + \varepsilon_{i,t}$$

This regression shows whether firms with credit ratings that are close to a rating upgrade or downgrade (i.e., CR^{POM}) are significantly associated with improved levels of corporate governance (i.e., ß1>0).[7] We use the change in the owner-manager's percentage of security rights

(i.e., ΔCG^{SR}) to model the change in his or her ownership level. *Leverage* is the firm's leverage (i.e., total debt scaled by the market value of equity), *Profit* is the return on assets (i.e., EBITDA scaled by total assets), and *Size* is the natural log of the firm's sales.

In subsequent regressions, the effects of chaebol firms through dividing the sample into non-chaebol firms and chaebol firms, were analyzed. This procedure enables examination concerning whether the results are concentrated in chaebol firms, as these firms were particularly affected by the increased informativeness to the credit rating system following the financial crisis. This analysis follows from *Hypothesis 2*.

Finally, in order to focus on the use of non-guaranteed debt for firms being concerned with their credit ratings, the use of non-guaranteed debt for firms in the pre-crisis and post-crisis periods was calculated.

Although our measure for corporate governance is the owner-manager's ownership, we wish to stress that the effect of this variable on the shareholder-bondholder agency problem should affect the bond rating, not the credit rating *concerns*. This is a benefit of our empirical approach, in that the credit rating concerns should be present even when controlling for the shareholder-bondholder conflict.

Number of sources are used to collect the data. We use TS-2000 from the Iran Listed Companies Association for ownership data, FnGuide for credit ratings data and chaebol data, and the KisValue database provided by NICE Information Service Co. for financial and accounting data. The data on guaranteed debt and non-guaranteed debt issues was collected from the BondWeb database. The tests in this study involve 683 firm-year observations, and we use 50 chaebol groups for our separate tests to compare chaebol firms and non-chaebol firms.

The top 50 chaebol groups are defined using FnGuide and are based on their total assets as of 2002. The financial crisis occurred toward the end of 1997, and many of the ramifications and reforms appeared in 1998. Therefore, in order to control for any other confounding issues occurring around the crisis, these firm-years are excluded from the sample. This exclusion enables the direct analysis of the effects of the improvements to the credit rating system following the crisis.

There are three large credit rating agencies in Iran: Iran Investors Service (KIS), Iran Ratings (KR), and NICE Investors Service (NICE). In case of receiving various grades from the agencies, the lowest grade is selected; for example, if firm ―ABC‖ receives grades ―A‖ from KIS and ―B+‖ from KR, then ―B+‖ is used for ABC's grade in the analyses.

4. Results

4.1 Sample Statistics

Table 1 shows the credit ratings of all firms in our sample, sorted by year. Consistent with these firms making more use of public debt markets, the sample reflects the increase in the number of firms rated following the financial crisis. This sample also shows a reasonable distribution of firms with notched ratings as opposed to ratings that are at the —mid level of the letter grade. Credit ratings vary over time, and thus, it is reasonable for owner-managers to change their firms' governance to improve their firms' credit ratings. In the sample, among the 92 firms with notched credit ratings in 1999, 58.7% experienced at least one change in their rating in 2000, 2001, or 2002. In the same vein, among the 51 firms with mid-level credit ratings in 1999, 52.9% experienced at least one change in their rating in 2000, 2001, or 2002.

	1993	1994	1995	1996	1999	2000	2001	2002
AAA	6	3	3	4	0	1	2	2
AA+	6	9	5	5	1	1	0	0
AA	6	5	7	5	0	1	0	1
AA-	7	8	7	8	2	3	5	4
A+	4	6	5	5	2	5	6	8
A	2	7	2	2	13	9	12	10
A-	0	2	3	3	7	10	10	7
BBB+	0	0	0	2	12	15	12	13
BBB	0	2	3	2	21	25	32	21
BBB-	0	0	0	2	36	34	18	9
BB+	0	0	0	0	17	15	13	8
BB	0	0	1	2	11	17	18	10
BB-	0	0	0	0	15	10	7	6
B+	0	0	0	0	0	0	2	1
B	0	1	1	0	3	0	2	0
B-	0	0	0	0	0	0	0	1
CCC	0	0	0	0	1	1	0	0
CC	-	-	-	-	-	-	-	-
C	0	0	0	0	2	1	0	1
D	-	-	-	-	-	-	-	-
Total	31	43	37	40	143	148	139	102

Table 2 shows the statistics for sample firms across the various credit ratings. In Panel A, division of full sample into chaebol firms and non-chaebol firms was carried out. Chaebols tend to be larger, although they do not necessarily have higher levels of leverage or profitability as expected. This table demonstrates that leverage initially tends to decline with lower credit ratings before increasing among speculative-grade bonds and lower-quality investment-grade bonds. For firms with lower credit ratings, profitability is declined. Eventually, firm size remains fairly consistent across the credit ratings.

		Chaebols				Non-chaebols			
		SR	Leverage	Profit	Size	SR	Leverage	Profit	Size
AAA	N	10	10	10	10	11	11	11	11
	Mean	10.052	0.647	0.142	29.851	15.832	0.661	0.083	28.048
	Median	7.310	0.720	0.147	29.623	13.510	0.691	0.100	27.706
	S.D	6.463	0.186	0.090	0.892	7.321	0.071	0.032	1.058
AA+	N	16	16	16	16	11	11	11	11
	Mean	16.444	0.690	0.109	28.273	22.595	0.592	0.107	26.252
	Median	13.575	0.714	0.085	27.955	25.120	0.538	0.102	26.414

	S.D	10.613	0.139	0.090	1.207	8.869	0.105	0.036	0.686
AA	N	14	14	14	14	11	11	11	11
	Mean	18.774	0.714	0.084	27.511	25.048	0.635	0.083	25.663
	Median	16.725	0.775	0.069	27.464	24.340	0.685	0.073	25.514
	S.D	10.278	0.195	0.052	0.462	10.730	0.158	0.041	0.743
AA-	N	22	22	22	22	22	22	22	22
	Mean	17.229	0.572	0.107	28.076	18.322	0.703	0.108	26.082
	Median	14.100	0.602	0.085	27.724	16.045	0.717	0.119	26.084
	S.D	14.008	0.159	0.081	1.591	9.719	0.079	0.064	0.508
A+	N	16	16	16	16	25	25	25	25
	Mean	17.659	0.617	0.085	28.289	21.933	0.620	0.096	25.948
	Median	22.270	0.593	0.085	28.322	25.010	0.602	0.104	25.997
	S.D	11.538	0.111	0.051	1.838	10.784	0.123	0.036	0.827
A	N	26	26	26	26	31	31	31	31
	Mean	23.525	0.488	0.092	27.762	27.233	0.506	0.126	26.066
	Median	23.365	0.474	0.101	27.687	29.940	0.513	0.121	25.813
	S.D	15.436	0.133	0.053	1.655	11.415	0.172	0.048	1.029
A-	N	16	16	16	16	26	26	26	26
	Mean	16.916	0.621	0.089	28.925	26.501	0.435	0.101	25.884
	Median	14.775	0.632	0.089	28.949	26.785	0.421	0.096	25.900
	S.D	13.094	0.100	0.030	1.034	13.699	0.161	0.065	0.933
BBB+	N	26	26	26	26	28	28	28	28
	Mean	13.600	0.616	0.091	28.304	23.290	0.422	0.124	26.048
	Median	9.670	0.582	0.081	28.181	25.190	0.383	0.120	25.969
	S.D	11.965	0.140	0.053	1.104	11.145	0.126	0.050	0.793
BBB	N	41	41	41	41	65	65	65	65
	Mean	14.105	0.674	0.092	28.100	28.080	0.498	0.085	25.932
	Median	15.530	0.651	0.085	28.181	26.250	0.477	0.081	25.795
	S.D	10.354	0.104	0.048	0.920	11.653	0.156	0.047	0.837

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4.2 Effects of Credit Rating Concerns on Corporate Governance

The information concerning the extent to which a firm close to a credit rating upgrade or downgrade (i.e., CR^{POM} equal to one) promotes its corporate governance, is shown in Table 3. In fact, this was the case after the financial crisis and prior to the crisis, there was no significant association between the variable of interest (i.e., CR^{POM}) and the change in governance (i.e., ΔCG^{SR}).[10] The coefficient of interest is - 0.467 in our first specification and -0.464 in our second specification (i.e., Regressions (1) and 2), respectively) which is statistically insignificant. However, CR^{POM} is positive and significant after the crisis. According to the regression (3), a firm close to being upgraded or downgraded is associated with an approximately 1.3% increase in the ownership interest of its principal owner-manager. In our second specification, we control for additional explanatory variables of interest. The coefficient of interest in this specification also remains significantly positive, with a value of 1.29. This suggests that the ownership of controlling shareholders increases by a significant

1.29%, even when controlling for other, potentially confounding, explanatory variables.[11] These coefficients in the post-crisis period are significantly different from their corresponding value in the pre-crisis period.

	Pre-Crisis (1993–1996)		Post-Crisis (1999–2002)	
	(1)	(2)	(3)	(4)
$_{CR}$POM	-0.467	-0.464	1.302**	1.285**
	(0.795)	(0.813)	(0.519)	(0.519)
Leverage		3.098		1.699
		(4.254)		(1.751)
Profit		-2.453		3.478
		(9.929)		(4.492)
Size		-0.164		0.075
		(0.456)		(0.178)
Constant	0.400	2.853	0.151	-3.112
	(0.710)	(11.100)	(0.399)	(4.475)
Observations	151	151	532	532
R-squared	0.000	0.001	0.012	0.016
Number of Firms	66	66	178	178
P-value of $CR^{POM}_{Pre\text{-}Crisis} = CR^{POM}_{Post\text{-}Crisis}$			0.0047	0.0041

One potential confounding issue is the change in sample characteristics in the post-crisis period. It is possible that the larger number of firms issuing bonds in the post-crisis period drives our results. To examine this issue, in Appendix A, we find that our results remain comparable in economic and statistical significance with firm-years rated investment-grade (BBB- and greater); the coefficients corresponding to specifications (3) and (4) are 1.547 and 1.536, with t-statistics of 2.25 and 2.22, respectively. Although changes in firm characteristics between the pre-crisis and post-crisis periods can still be contributing to our results (as is generally the case with these types of regressions), we would suggest that our results can still be interpreted as presenting evidence that credit rating concerns affect corporate governance, assuming that the credit ratings are informative.

Although we believe that the change in the owner-manager's security rights is the most appropriate governance measure for our setting, other potential measures exploit the owner-manager's *voting* rights, or the divergence between voting rights and security (cash-flow) rights. Those measures, however, are potentially problematic. The divergence between voting rights and cash-flow rights, such as the difference (―wedge‖) or ratio of these values, generally fluctuate to a much smaller degree on an annual basis. Additionally, an increase in voting rights can, in theory, be driven either by increased security rights (and, thus, governance improvements) or by a desire for increased control of the firm.[12]

Despite our concerns with these measures, we study their role in robustness specifications. Our results are broadly robust. Specifically, our results remain significant with using the change in voting rights as our corporate governance measure; the coefficients are insignificant in the pre-crisis period and significant at the 5% level in the post-crisis period, with values of 1.282 and 1.299, respectively. This confirms Hypothesis 1 using an alternative corporate governance measure.

Using the wedge or ratio between voting rights and security rights, we find negative coefficients in the post-crisis period but not in the pre-crisis period. This is consistent with the improvements in corporate governance, although the improvements are not statistically significant; this is not surprising given the smaller variation in these measures over time.

Although the informativeness of credit ratings (and the associated improvements in internal controls and external monitoring) increased after the financial crisis, one benefit of our corporate governance measure is that there is no other reason to expect increased ownership by owner-managers (i.e., controlling shareholders) to be associated with CR^{POM}. Consequently, according to the results, it is suggested that the governance improvement in these firms is primarily driven by their credit rating concerns.[13]

Panel A: Non-chaebol Firms

	Pre-Crisis (1993–1996)		Post-Crisis (1999–2002)	
	(1)	(2)	(3)	(4)
CRPOM	-0.042	0.078	0.853	0.881
	(1.129)	(1.187)	(0.651)	(0.652)
Leverage		2.473		-0.005
		(5.732)		(2.071)
Profit		-7.535		1.862
		(13.800)		(5.568)
Size		0.834		0.437
		(1.005)		(0.351)
Constant	0.397	-22.110	0.397	-11.120
	(1.006)	(24.590)	(0.504)	(8.743)
Observations	103	103	338	338
R-squared	0.000	0.004	0.005	0.011
Number of Firms	47	47	118	118
P-value of $CR^{POM}_{Pre\text{-}Crisis} = CR^{POM}_{Post\text{-}Crisis}$			0.1786	0.1246

Panel B: Chaebol Firms

	Pre-Crisis (1993–1996)		Post-Crisis (1999–2002)	
	(1)	(2)	(3)	(4)
CRPOM	-0.576	-0.955	2.076**	2.028**
	(0.818)	(0.858)	(0.862)	(0.875)
Leverage		-4.616		5.875*
		(5.416)		(3.479)

Profit		3.979		7.086
		(9.373)		(8.176)
Size		-0.824*		-0.089
		(0.426)		(0.341)
Constant	0.000	26.450**	-0.254	-1.927
	(0.594)	(13.300)	(0.655)	(9.249)
Observations	48	48	194	194
R-squared	0.007	0.092	0.029	0.043
Number of Firms	19	19	60	60
P-value of $CR^{POM}_{Pre\text{-}Crisis} = CR^{POM}_{Post\text{-}Crisis}$			0.0039	0.0045

We further extend our earlier results by examining, in Table 4, the extent to which our results are driven by chaebol firms. Panel A of Table 4 is indicator of the point that the related effect does not exist among non-chaebol firms: CR^{POM} is insignificant and positive (and the coefficient's value post-crisis is not significantly different from its value pre-crisis). This is in agreement with the finding that, although our results hold in the cross-section, they are not driven by non-chaebol firms. The focus of most of the corporate governance improvements discussed in this study was chaebol firms, and the increased focus on external financing and informativeness were important issues for them.

The results in Panel B show that the effect is present among chaebol firms: CR^{POM} is positive and significant following the crisis, with a value of approximately 2.08, which is approximately 60% larger than the value in our pooled regression of all firms. Based on Table 3, it remains significantly different from its value in the pre-crisis period. This suggests the results are even stronger when focusing on chaebol firms. The previous hypotheses are supported considering the (i.e., *Hypothesis 1* and *Hypothesis 2*).[14]

In Appendix B, we show that our results are robust to the subsample of investment-grade firm-years. Here, too, the coefficient of CR^{POM} is significant for chaebol firms and insignificant for non-chaebol firms.

Our empirical approach follows from Kisgen (2006). However, to show that our results are not subsumed by omitted monitoring variables, we add board independence as an explanatory variable. These data are only available for the post-crisis period and, thus, do not form our main results. We follow from Black, Jang, and Kim (2006) and construct an indicator variable for firm-years with at least 50% outside directors; we also construct an indicator variable for firm-years with boards that are more independent than the median in that corresponding firm-year. We provide these results in Table 5. Our results are consistently robust to including these measures for board independence.

Panel A: Full sample

	Post-Crisis (1999–2002)	
	(1)	(2)
CRPOM	1.295**	1.278**
	(0.5520)	(0.520)
BoardIndepMedian	0.220	
	(0.558)	

BoardIndepHalf		-0.232
		(0.893)
Leverage	1.705	1.722
	(1.752)	(1.754)
Profit	3.810	3.296
	(4.574)	(4.550)
Size	0.049	0.106
	(0.190)	(0.214)
Constant	-2.552	-3.893
	(4.699)	(5.397)
Observations	532	532
R-squared	0.015	0.015
Number of Firms	178	178

Panel B: Non-chaebol Firms

	Post-Crisis (1999–2002)	
	(1)	(2)
CRPOM	0.882	0.854
	(0.654)	(0.654)
BoardIndepMedian	0.027	
	(0.705)	
BoardIndepHalf		-1.419
		(2.235)
Leverage	-0.005	0.041
	(2.074)	(2.074)
Profit	1.899	1.429
	(5.656)	(5.614)
Size	0.437	0.510
	(0.351)	(0.369)
Constant	-11.13	-12.93
	(8.762)	(9.207)
Observations	338	338
R-squared	0.011	0.012
Number of Firms	118	118

4.3 Implications of Credit Rating Reforms on Debt-Issuance

In this section, additional implication of the findings of the study is presented. To the degree that chaebol firms improved their corporate governance in response to credit rating concerns following the financial crisis, we would expect them to issue more non-guaranteed bonds. Table 6 presents our findings on this issue.

	Guaranteed Bonds		Non-guaranteed Bonds		Total
	Chaebols	Non-chaebols	Chaebols	Non-chaebols	
1993	938	1,100	884	434	3,356
	(28.0%)	(32.8%)	(26.3%)	(12.9%)	
1994	4,442	5,296	4,309	3,463	17,510
	(25.4%)	(30.2%)	(24.6%)	(19.8%)	
1995	6,933	7,031	4,759	4,138	22,861
	(30.3%)	(30.8%)	(20.8%)	(18.1%)	
1996	14,499	9,271	5,023	5,352	34,144
	(42.5%)	(27.2%)	(14.7%)	(15.7%)	
1997	19,594	7,347	7,573	4,721	39,235
	(49.9%)	(18.7%)	(19.3%)	(12.0%)	
1998	13,106	3,231	43,158	16,965	76,460
	(17.1%)	(4.2%)	(56.4%)	(22.2%)	
1999	253	924	25,474	25,705	52,356
	(0.5%)	(1.8%)	(48.7%)	(49.1%)	
2000	421	941	28,274	21,098	50,734
	(0.8%)	(1.9%)	(55.7%)	(41.6%)	
2001	142	883	41,431	22,829	65,285
	(0.2%)	(1.4%)	(63.5%)	(35.0%)	
2002	237	427	25,198	15,110	40,973
	(0.6%)	(1.0%)	(61.5%)	(36.9%)	

Table 6 shows that all firms increased their exposure to non-guaranteed bonds and reduced their exposure to guaranteed bonds. This is consistent with our earlier hypotheses, in that it shows that the firms' decisions are primarily driven by credit ratings. Guaranteed bonds account for a significantly greater proportion of issuance activity prior to the financial crisis (for example, 23.8 trillion won in 1996 for guaranteed bonds compared to 10.4 trillion won for non-guaranteed bonds in that year). However, the use of guaranteed bonds plummeted after the financial crisis to 1 trillion won in 2001 compared to 64.3 trillion won for non-guaranteed bonds in that year.

Significant change was found among chaebol firms concerning table 6. Contrariwise, the guaranteed bonds of non-chaebol firms showed a small proportion of their total debt offerings decreasing from 63% of their total debt offerings in 1996 to approximately 4% in 2001. With regard to the falling from 74% of total debt offerings in 1996 to 0.3% in 2001, the role of guaranteed bonds decreases for chaebol firms. The finding is indicator of the point that guaranteed bonds were practically abandoned by chaebol firms in response to the post-crisis governance reforms. Implications of the study are provided in the table: chaebol firms became

particularly responsive to credit ratings after the crisis, and through the mentioned responsiveness, their corporate governance and their capital structure decisions were affected.

Panel A: Full Sample

		NonGuaranteed	Size	Fixed	Profit	Dividend
1993	N	12	12	12	12	12
	Mean	23.855	28.095	0.411	0.066	0.169
	Median	23.778	28.408	0.409	0.055	0.089
	S.D	1.141	1.405	0.146	0.047	0.298
1994	N	40	40	40	40	40
	Mean	23.906	27.319	0.376	0.098	0.075
	Median	23.719	27.195	0.393	0.083	0.054
	S.D	1.305	1.504	0.192	0.059	0.072
1995	N	42	42	42	42	42
	Mean	23.808	27.228	0.374	0.102	0.063
	Median	23.431	27.196	0.401	0.090	0.054
	S.D	1.521	1.483	0.177	0.055	0.046
1996	N	34	34	34	34	34
	Mean	23.204	26.427	0.303	0.112	0.069
	Median	23.026	26.224	0.269	0.091	0.066
	S.D	1.460	1.618	0.175	0.067	0.039
1999	N	105	105	105	105	105
	Mean	24.247	26.970	0.408	0.098	0.089
	Median	24.124	26.916	0.410	0.088	0.072
	S.D	1.394	1.536	0.170	0.052	0.065
2000	N	82	82	82	82	82
	Mean	24.542	27.181	0.391	0.094	0.089
	Median	24.412	26.939	0.367	0.093	0.070
	S.D	1.458	1.630	0.175	0.047	0.091
2001	N	82	82	82	82	82
	Mean	24.474	27.223	0.415	0.109	0.083
	Median	24.125	27.145	0.436	0.098	0.068
	S.D	1.932	1.632	0.192	0.051	0.055
2002	N	56	56	56	56	56
	Mean	24.735	27.760	0.456	0.111	1.078
	Median	24.818	27.717	0.480	0.108	0.079
	S.D	1.530	1.531	0.190	0.059	7.277
Total	N	453	453	453	453	453
	Mean	24.242	27.195	0.398	0.101	0.207
	Median	24.124	27.062	0.406	0.091	0.067
	S.D	1.579	1.592	0.182	0.054	2.561

Panel B: Separate Analysis of Chaebol and Non-Chaebol Firms

	Chaebols					Non-chaebols				
	Non Guaranteed	Size	Fixed	Profit	Dividend	Non Guaranteed	Size	Fixed	Profit	Dividend
1993 N	9	9	9	9	9	3	3	3	3	3

	Mean	23.940	28.359	0.394	0.069	0.205	23.600	27.303	0.461	0.055	0.064
	Median	24.124	28.739	0.400	0.053	0.096	23.362	26.827	0.418	0.058	0.082
	S.D	1.276	1.340	0.161	0.053	0.341	0.723	1.559	0.093	0.020	0.037
1994	N	29	29	29	29	29	11	11	11	11	11
	Mean	24.128	27.858	0.392	0.100	0.066	23.322	25.896	0.334	0.091	0.098
	Median	24.124	27.672	0.400	0.084	0.053	23.026	25.730	0.338	0.082	0.061
	S.D	1.230	1.283	0.188	0.066	0.067	1.375	1.069	0.204	0.040	0.081
1995	N	22	22	22	22	22	20	20	20	20	20
	Mean	24.479	28.081	0.420	0.118	0.057	23.070	26.289	0.325	0.084	0.069
	Median	24.124	27.910	0.466	0.100	0.041	22.659	26.161	0.313	0.085	0.056
	S.D	1.441	1.222	0.159	0.065	0.048	1.267	1.152	0.185	0.037	0.045
1996	N	11	11	11	11	11	23	23	23	23	23
	Mean	24.453	27.840	0.404	0.138	0.049	22.607	25.751	0.254	0.100	0.078
	Median	24.124	28.160	0.430	0.120	0.030	22.920	25.578	0.220	0.088	0.073
	S.D	1.604	1.754	0.188	0.096	0.042	0.936	1.025	0.149	0.046	0.035
1999	N	50	50	50	50	50	55	55	55	55	55
	Mean	25.097	28.059	0.422	0.094	0.094	23.474	25.980	0.396	0.101	0.084
	Median	25.105	27.957	0.442	0.085	0.077	23.719	25.792	0.374	0.096	0.063
	S.D	1.298	1.368	0.190	0.052	0.070	0.967	0.867	0.149	0.052	0.060
2000	N	43	43	43	43	43	39	39	39	39	39
	Mean	25.397	28.290	0.443	0.101	0.081	23.599	25.958	0.334	0.086	0.098
	Median	25.424	28.287	0.439	0.101	0.079	23.431	25.889	0.332	0.079	0.068
	S.D	1.257	1.314	0.175	0.047	0.044	1.019	0.912	0.159	0.046	0.125
2001	N	46	46	46	46	46	36	36	36	36	36
	Mean	25.400	28.139	0.430	0.117	0.087	23.291	26.052	0.395	0.099	0.077
	Median	25.467	28.132	0.449	0.101	0.085	23.431	26.026	0.414	0.095	0.061
	S.D	1.984	1.433	0.191	0.058	0.050	1.007	1.005	0.196	0.038	0.061
2002	N	36	36	36	36	36	20	20	20	20	20
	Mean	25.324	28.213	0.467	0.110	1.629	23.673	26.945	0.437	0.113	0.087
	Median	25.328	28.092	0.507	0.105	0.096	23.719	26.913	0.469	0.108	0.073
	S.D	1.088	1.439	0.197	0.063	9.073	1.658	1.372	0.180	0.050	0.114
Total	N	246	246	246	246	246	207	207	207	207	207
	Mean	24.999	28.116	0.428	0.106	0.310	23.343	26.101	0.363	0.096	0.084
	Median	25.006	28.063	0.450	0.094	0.071	23.121	25.993	0.344	0.088	0.066
	S.D	1.501	1.365	0.184	0.060	3.474	1.139	1.061	0.174	0.046	0.080

Summary statistics for the sample are provided in Table 6, the summary statistics for all sample firms are provided in Panel A, and separate values for chaebol and non-chaebol firms are provided in Panel B. Panel A shows the increased issuance of non-guaranteed debt across time. With the exception of *Dividend,* which reflects a reduced rate of dividend payouts after the financial crisis, the other obtained statistics remained constant across time. As there was an anticipation of increased size among chaebol firms and the particular increase in non-guaranteed debt issuance among chaebols, Panel B provided separate summary statistics for chaebol firms and non-chaebol firms. Particular and obvious increase can be found through making a comparison with non-chaebol firms.

	Pre-Crisis (1993–1996)		Post-Crisis (1999–2002)	
	(1)	(2)	(3)	(4)

Chaebol	1.157***	-0.242	1.857***	0.531**
	(0.241)	(0.200)	(0.210)	(0.209)
Size		0.710***		0.628***
		(0.062)		(0.064)
Fixed		1.491***		1.489***
		(0.456)		(0.431)
Profit		0.871		-4.716***
		(1.382)		(1.277)
Dividend		-0.380		0.019
		(0.752)		(0.015)
Constant	22.820***	3.968**	23.270***	6.857***
	(0.172)	(1.652)	(0.143)	(1.665)
Observations	128	128	325	325
R-squared	0.209	0.658	0.324	0.609
Number of Firms	84	84	165	165
P-value of ChaebolPre-Crisis = ChaebolPost-Crisis			0.0544	0.0437

Finally, Table 8 provides the regression results for the previously mentioned findings. We regress non-guaranteed bond issuance activity against a chaebol indicator variable (i.e., *Chaebol*) that is equal to one if the firm is a chaebol and zero otherwise; firm-size (i.e., *Size*) as the log of sales; fixed assets to total assets (i.e., *Fixed*) to reflect the firm's solvency; the EBITDA on total assets (i.e., *Profit*) to reflect the firm' s profitability; and dividends scaled by EBITDA (i.e., *Dividend*) to reflect the extent to which a firm's profitability increases or decreases shareholders' equity.

In mutual agreement with previous findings, we found out that non-guaranteed debt usage by chaebol firms was significantly higher after the crisis (i.e., a significant coefficient of 0.531 is found for chaebol dummy variable), reflecting 53% increase in non-guaranteed bonds' usage among chaebol firms in the period. The chaebol dummy is not significant in the pre-crisis period, consistent with chaebol firms not having higher levels of non-guaranteed debt prior to the financial crisis. In contrast, the difference in the chaebol variable (between the periods prior to and following the crisis) is significant across specifications.

5. Conclusions

The effect of credit ratings on a firm's policy choices is an important factor in understanding the determinants of corporate decision-making. The degree to which credit rating concerns lead to progressions in corporate governance is the focus of the present study. The difficulty with properly identifying the direction of causality in this relationship is a major reason this has not been sufficiently studied in prior research. An advantage of the test's employed setting is being able to focus on an exogenous shock to the informativeness of the credit rating system along with investigation of a corporate governance measure not affected by this exogenous shock. To the degree that recent crises—including the 2008 financial crisis—were

followed by reforms that affected the credit rating system, our findings are generalizable to the wide-ranging effects of other financial crises, not just the Asian financial crisis. Moreover, because many crises were at least partly perpetuated by the corporate governance system, our study shows that governance changes can be driven by reforms that are not directly focused on changes to the governance system.

The study's findings demonstrate that credit rating concerns are a significant determinant in firm's corporate governance decisions. 1.3% improvement was found among sample firms in the ownership of the owner-manager among firms that have credit rating concerns. Though the findings regard cross-sectional research, chaebol firms are the focal point. In fact, the expansion in chaebol firms is approximately 2.1%. The findings of both tests hold after the financial crisis, but not before. These results are consistent with the shock to ratings' informativeness having a real effect on firms' governance decisions.

We extend our results by studying their effects on firms' financing choices. If firms tend to improve corporate governance in response to credit rating concerns and the concerns are particularly evident among chaebol firms, it is anticipated that the firms increase their financing from debt-instruments related to their credit ratings. It is found out through making a comparison between guaranteed and non-guaranteed bonds. Here, as well, much of the effect is driven by chaebol firms.

Simply put, credit rating concerns affect firms' corporate governance structure. Our study thus pinpoints an advantageous effect of managers' credit rating concerns.

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