

Board Political Connections and Effectiveness Impacts on Credit Risk

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Abstract

This study investigates how credit risk is affected by board political connections, board effectiveness or both for firms listed in Taiwan for the period from 2006 to 2009. We find that board politically-connected firms are associated with higher credit risk than their non-connected peers. However, the empirical results reveal that an effective board plays an important role in mitigating corporate credit risk in the case of Taiwanese firms. In addition, our findings demonstrate that board political connections and effectiveness jointly affect credit ratings, and firms with directors with effective political ties are less likely to face credit risk.

Keywords: board political connections; board effectiveness; credit risk; credit ratings; corporate governance

I. Introduction

In this study, we investigate whether board political connections and effectiveness affect corporate credit risk. Credit ratings have been widely regarded as primary indicators when assessing the credit risk of firms, and a higher credit rating can translate into direct benefits for a firm's shareholders (Kisgen, 2007). The Taiwan Economic Journal (TEJ) credit rating agency integrates ten different kinds of financial data to derive the Taiwan Corporate Credit Risk Index (TCRI), and routinely provides a quarterly unsolicited rating for Taiwanese firms. The TCRI is a good and reliable credit risk proxy for firms (Hwang et al., 2012). Prior studies have documented that political ties have both positive and negative effects on firms. However, there are few studies in the extant literature that document the impact of the board of directors' political connections on the assessment of corporate credit ratings. Therefore, in using the TCRI credit ratings provided by the TEJ to proxy for credit risk, the first objective of this study is to examine the effect of board political connections¹ on corporate credit risk.

Prior studies have documented that better corporate governance mechanisms are associated with better credit ratings. The board of directors is one of the salient governance mechanisms and is responsible for monitoring, evaluating, and disciplining a firm's operations. Board attributes that influence the validity of accounting statements may thus be of great importance to creditors (Anderson et al., 2004). Liu and Tsai (2015) incorporate seven board member characteristic variables based on agency, sociological and resource

¹ Due to the availability of the data regarding political ties, we only investigate the effect of directors' political ties on credit risk. A few prior studies have examined the impacts of politically-connected CEOs on corporate decisions (Fan et al., 2007; You and Du, 2012).

dependence perspectives to establish an index to measure the quality of the board, and indicate that the index has been successful in evaluating the effectiveness of the board members of firms in Taiwan. Therefore, the second objective of this study is to employ the methodology developed by Liu and Tsai (2015) and examine the influence of board effectiveness on credit risk.

Shen et al. (2015) find that political connections and corporate governance act as substitutes for each other and that well-governed firm do not obtain better loan terms by building political connections. However, Lin et al. (2016) document that political connections and government policy jointly affected the abnormal returns during the 2008 election period for Taiwanese firms. Hence, we further incorporate the interactions between board political connections and effectiveness in our regression models to investigate the impacts of their interaction on corporate credit risk.

Our study shows that board political ties are positively related to corporate credit risk and imply that board political ties have negative effects on credit ratings, thereby increasing firms' credit risk. Besides, the empirical results reveal that board effectiveness plays an important role in mitigating corporate default risk and indicate that our board characteristic index dummy variable has been successful in evaluating the effectiveness of the board attributes of firms in Taiwan. In addition, our results demonstrate that board political connections and effectiveness jointly affect credit ratings and firms with effective board political ties are less likely to face credit risks.

Our study provides three sets of contributions to the extant literature. First, our study adds to the growing literature on the negative effects of political ties and shows that political ties do not bring about better credit ratings for firms listed in Taiwan. Second, while much prior research has indicated that a better board structure has an impact on corporate credit ratings, our study includes board member characteristics to establish a board effectiveness dummy variable to comprehensively consider the effectiveness of the board of directors, and shows that an effective board plays an active role in mitigating corporate credit risk. Third, our findings provide policy implications for the authorities in which, regulators should encourage the voluntary disclosure of firm political connections and strengthen board member effectiveness to improve the corporate governance practices of listed firms.

The rest of this study is organized as follows. Section II provides a brief discussion of the relevant prior literature and illustrates our hypothesis development. Section III presents our research design and sample selection. Section IV provides the empirical results. Section V describes additional tests, and our conclusions follow in Section VI.

II. Literature Review and Hypotheses

II.1 Political connections and credit risk

Political connections are relatively widespread in both developed and developing countries and are particularly common in countries with high levels of corruption or that restrict foreign investment, as well as in more transparent economic systems that need greater access to information (Faccio, 2006). There is a growing body of literature that has pointed out that political ties may be beneficial to specific firms. Such studies have indicated the positive associations that exist between political connections and (1) preferential access to bank loans (Khawaja and Mian, 2005; Leuz and Oberholzer-Gee, 2006; Claessens et al., 2008; Faccio, 2010; Boubakri et al., 2012; Chen et al., 2014; Houston et al., 2014; Infante and Piazza, 2014), (2) lighter taxation (Faccio, 2006; Wu et al., 2012), (3) obtaining government bailouts (Faccio et al., 2006; Tsai et al., 2016) and contracts (Goldman et al., 2009; 2013), (4) improved firm performance and market value (Hillman, 2005; Ferguson and Voth, 2008; Francis et al., 2009; Goldman et al., 2009; Cooper et al., 2010; Boubakri et al., 2012; Wu et al., 2012; Su and Fung, 2013; Yang, 2013), and many others.

However, contradictory messages emerge regarding the impact of political connections on firm performance and market value and it is argued that the relationships may actually harm shareholders. Chen et al. (2011) find that the presence of incentives for government officials to engage in rent seeking motivates private firms listed in China to look for alternative safeguards through political connections and allows the controlling owner to retain all of the benefits arising from connections with politicians. Fan et al. (2007), Boubakri et al. (2008), Faccio (2010), and Chaney et al. (2011) document that politically-connected firms exhibit poor accounting performance compared to their non-connected counterparts. Chen et al. (2010) demonstrate that multinational enterprises that are politically connected exacerbate the information asymmetry between investors and the managers of those multinational enterprises. Boubakri et al. (2013) find that politically-connected firms engage in more risk-taking and indicate that close political ties lead to less conservative investment choices. Bona-Sánchez et al. (2014) find that the presence of politicians on the board negatively affects earnings informativeness for firms listed in Spain.

Bliss and Gul (2012) find that Malaysian politically-connected firms are perceived as exhibiting higher risk and are charged higher interest rates by lenders as a result of efficient contracting given their higher inherent risks. To assess corporate default risk, a credit rating has additional information value for lenders and if a firm has a weak rating then the interest rate has to increase significantly to compensate for a possible loss in case of default (Czarnitzki and Kraft, 2007). Credit ratings have been widely regarded as primary indicators when assessing the credit risk of firms (Kisgen, 2007). In Taiwan, the TCRI is a good credit

risk proxy for firms (Hwang et al., 2012). There are two leading credit-rating agencies in Taiwan - the Taiwan Ratings Corporation (TRC) and TEJ. The TRC is a subsidiary of the internationally-renowned credit-rating agency Standard & Poor's Global Ratings. In contrast to TRC's solicited ratings, which are requested and involve the payment of rating fees by issuers, the TEJ integrates ten different kinds of financial data to obtain the TCRI and has routinely provided quarterly unsolicited ratings for firms listed in Taiwan since 1996.

While the finance literature contains a number of studies that use financing accounting ratios and other public information to predict credit ratings (Blume et al., 1998; Gray et al., 2006), there are few studies in the extant literature that examine the impact of board political ties on credit risk. Therefore, motivated by recent research on the costs and benefits of political connections as mentioned above, the first objective of our study is to employ the TCRI to proxy for credit risk and examine the effect of politically-connected boards on credit risk in the case of Taiwanese firms. Given that prior studies have documented that political ties have both positive and negative effects, the direction of the relationship is an empirical question.

Therefore, we construct our first hypothesis as follows:

H1: Board political connections will be related to credit risk.

H1a: Board political connections will be positively related to credit risk.

H1b: Board political connections will be negatively related to credit risk.

II.2 Corporate governance and credit risk

Prior studies indicate that better corporate governance mechanisms are associated with higher credit ratings. Ashbaugh-Skaife et al. (2006) use four governance components (ownership structure and influence, financial stakeholders rights and relations, financial transparency and disclosure, and board structure and processes) developed by Standard & Poor's in 2002 as surrogates of governance and find that firms with better corporate governance mechanisms are associated with higher bond ratings. Based on Ashbaugh-Skaife et al. (2006), Alali et al. (2012) use three different indexes to proxy for governance and find that US firms with stronger governance have higher credit ratings, and the relationship is accentuated for smaller firms relative to larger firms. Bradley and Chen (2011) find that firms that provide limited liability and indemnification for their directors enjoy higher credit ratings and lower yield spreads. Anderson et al. (2011) find that investors place valuation premiums on heterogeneous boards in complex firms, but discount heterogeneity in less complex firms.

Aman and Nguyen (2013) use three group variables (board structure, institutional ownership and information quality) to proxy for corporate governance and show that good governance is associated with higher credit ratings. Chen (2014) uses the passage of the Sarbanes-Oxley

Act of 2002 and the contemporaneous change in exchange listing standards as a natural experiment and documents a non-monotonic relationship between board independence and credit ratings. Shen et al. (2015) shows that Taiwanese firms with better corporate governance (cash flow and voting rights deviation, pledges, duality and independent directors) were able to obtain preferential treatment with regard to the cost of bank loans.

As mentioned above, board structure has typically been treated as one of the most salient aspects of corporate governance mechanisms in improving credit ratings. Rather than examining board structures individually, Liu and Tsai (2015) incorporate seven board member characteristic variables from agency, sociological and resource dependence perspectives to construct a board member quality index to measure the characteristics of the board members. Therefore, based on the board member quality index developed by Liu and Tsai (2015), the second objective of this study is to incorporate seven characteristics of the firm's director members (independence, ownership, pledges, education, expertise, busyness and diligence) to construct an index dummy variable as a proxy measure for a board's effectiveness and investigate how an effective board affects credit risk. In light of the aforementioned discussion, we expect that firms with effective boards could negatively influence the assessment of the likelihood of a default and thereby credit ratings. Thus, we propose:

H2: Firms with effective boards will be negatively related to credit risk.

II.3 Political connections, corporate governance and credit risk

Shen et al. (2015) examine how loan contracts are affected by political connections, corporate governance, or both for firms listed in Taiwan. They find that political connections and corporate governance are substitutes for each other and that well-governed firms do not obtain better loan terms by building political connections. Nevertheless, Lin et al. (2016) find that political connections and government policy did jointly affect the abnormal returns during the 2008 election period for firms listed in Taiwan. Therefore, based on the prior literature as discussed above, we further incorporate the interactions between political connections and board effectiveness into our regression models to investigate the combined effects of board political connections and effectiveness on corporate credit risk. We predict that board political connections and effectiveness jointly affect corporate credit risk and that the benefits of board effectiveness may outweigh the costs of board political connections in credit risk assessment. Thus, we establish our third hypothesis as follows:

H3: Politically-connected boards with effectiveness will be more negatively related to credit risk than those without.

III. Research Design

To examine the hypotheses constructed in our study, we estimate the following ordered logit regression model because our dependent variable TCRI is discrete and ordinal. We first include the political connections (PC) and board effectiveness (BE) dummy variables as key explanatory variables to test H1 and H2, respectively. We then introduce the interaction term between PC and BE to test H3. The specifications of the variables are shown in Table 1.

$$\begin{aligned}
 TCRI_{it} = & \beta_0 + \beta_1 PC_{it} + \beta_2 BE_{it} + \beta_3 PC_{it} * BE_{it} + \beta_4 GOVOWN_{it} + \beta_5 MANOWN_{it} \\
 & + \beta_6 INSOWN_{it} + \beta_7 LEV_{it} + \beta_8 SIZE_{it} + \beta_9 DUAL_{it} + \beta_{10} ROA_{it} + \beta_{11} BIG4_{it} \\
 & + \beta_{12} BONUS_{it} + \beta_{13} RETURN_{it} + \delta YEAR + \phi IND + \varepsilon_{it}
 \end{aligned} \tag{1}$$

Table 1 Variable Definitions

Variable	Definition
TCRI	The corporate credit risk index ranging from 1 to 9
PC	Political connection dummy, which takes a value of 1 if firms have politically-connected directors, and 0 otherwise
BE	The board of directors effectiveness dummy, which takes a value of 1 if the board member characteristics index of the firm is larger than the median of the sample, and 0 otherwise
GOVOWN	Government ownership, which equals the percentage of outstanding shares owned by the government
MANOWN	Managerial ownership, which equals the percentage of outstanding shares owned by the top-level managers, and excludes the duality CEOs
INSOWN	Institutional ownership, which equals the percentage of outstanding shares owned by domestic and foreign financial institutions and trust funds
LEV	Total debt to total assets
SIZE	Natural logarithm of total assets
DUAL	Duality dummy, which takes a value of 1 if a CEO serves as the chairman of the board of directors, and 0 otherwise
ROA	Return on assets, which equals the ratio of the sum of the profit after tax plus interest expenses to total assets
BIG4	Auditing firm dummy, which takes a value of 1 if the firm’s auditor is among the top-4 auditing firms, and 0 otherwise
BONUS	Natural logarithm of bonus compensation received by the top level managers
RETURN	Annual market-adjusted stock return of the firm
YEAR	Year dummy variables
IND	Industry dummy variables

III.1 Measurement of variables

III.1.1 Credit risk (TCRI)

This study employs credit ratings as a surrogate to measure corporate credit risk. TEJ adopts constrained expert judgement-based processes by using publicly available information and expert opinions to assess credit risk and has since 1996 routinely provided quarterly unsolicited ratings TCRI for firms listed in Taiwan. Unsolicited credit ratings have been widely used since the 1990s and account for a sizeable portion of the total number of credit ratings (Fulghieri et al., 2014). Therefore, following prior research (Hwang et al., 2012, Lin and Shen 2015; Shen et al., 2015), this study employs the credit rating index according to the TEJ to measure corporate credit risk. The TEJ integrates ten different kinds of financial data to obtain the TCRI. The value of the TCRI is discrete and ordinal, ranging from 1 to 9, and means that the larger the value of the TCRI, the higher the credit risk and the worse the creditworthiness of the firms.

III.1.2 Political connections (PC)

Following previous studies such as those of Faccio (2006), Fan et al. (2007), Ferguson and Voth (2008), Boubakri et al. (2008) and Yeh et al. (2013), this study defines a firm as being politically connected if at least one of its directors is or was an officer in the central government or local government, a member of parliament or a minister. After defining the political measures, we set the dummy variables for political connections, PC, to one if top managers satisfy one of the above two measures of political connections and zero otherwise.

III.1.3 Board effectiveness (BE)

Based on the index developed by Liu and Tsai (2015), we incorporate seven factors related to director member characteristics (independence, ownership, pledges, education, expertise, busyness and diligence) in our study to construct a director characteristics index by aggregating the seven attributes, and then use this index as a proxy for the board's effectiveness. The board of directors' effectiveness dummy variable (BE) is then given the value 1 if the index of the director characteristics of a company is larger than the median of the sample firms, and 0 otherwise. Thus, BE with a value of 1 represents the firms with more effective board members. The seven board member factors can be measured as follows:

1. Independence: The independence dummy variable is given the value 1 if the proportion of independent directors on the board of a firm is larger than the median of the sample firms and 0 otherwise.
2. Ownership: The ownership dummy variable is given the value 1 if the directors' ownership of a firm is larger than the median of the sample firms, and 0 otherwise.
3. Pledges: The pledge ratio is measured as a dummy variable and is given the value 1 if the ownership-in-pledge ratio of directors in a firm is smaller than the median of the sample

firms, and 0 otherwise. 4. Expertise: The profession is given a value of 1 if the directors in a company belong to the financial, accounting, management, or legal profession, and 0 otherwise. The expertise dummy variable is then defined as 1 if the proportion of the professional heterogeneity on the board of a company is larger than the median of the sample firms and 0 otherwise. 5. Education: The educational levels are coded as follows: 1 – below middle school/vocational, 2 – middle school/vocational, 3 – bachelor, and 4 – master or doctoral. The educational heterogeneity is defined as a dummy variable and is given the value 1 if the average educational level in a firm is larger than the median of the sample firms, and 0 otherwise. 6. Busyness: The busyness dummy variable is given a value of 1 if the average number of seats held by the busy directors in a company is smaller than the median of the sample firms, and 0 otherwise. Finally, the diligence dummy variable is given a value of 1 if the average meeting attendance of the directors in a company is greater than the median of the sample firms and 0 otherwise.

III.1.4 Control variables

Additional firm-specific control variables are included in the models that previous studies show affect firm credit risk (Faccio, 2006; Fan et al., 2007; Ferguson and Voth, 2008; Boubakri et al., 2008; Borisova and Megginson, 2011; Borisova et al., 2012; Hwang et al., 2012; Yeh et al., 2013; Guedhami et al., 2014; Lin and Shen, 2015; Liu and Tsai, 2015; Shen et al., 2015; Beuselinck et al., 2017). Specifically, we subsequently use government ownership, managerial ownership, institutional ownership, leverage, size, CEO duality, the return on assets, big4 auditor, top managers' bonus compensation, the stock return rate, as well as year and industry dummies as control variables. Based on prior studies, government ownership (GOVOWN) is measured as the percentage of outstanding shares owned by government, managerial ownership (MANOWN) is defined as the percentage of outstanding shares owned by top-level managers, which excludes the duality CEO, and institutional ownership (INSOWN), equal to the percentage of outstanding shares owned by institutional investors, which includes domestic and foreign financial institutions and trust funds.

Firm leverage (LEV) is measured as total debt divided by total assets. Firm size (SIZE) is defined as the natural logarithm of total assets. CEO duality (DUAL) is a dummy variable that takes a value of one if a CEO serves as the chairman of the board, and zero otherwise. The return on assets ratio (ROA) is measured as the sum of profit after tax plus interest expenses divided by total assets. Big4 auditor (BIG4) is a dummy variable that takes a value of one if the firm's auditor is among the top-4, and zero otherwise. The bonus compensation (BONUS) is defined as the natural logarithm of the bonus compensation received by the top managers. The stock return rate (RETURN) is the firm-year stock return rate. Finally, this study adds year and industry dummy variables to account for the unobserved variation.

III.2 Sample selection

Our sample includes firms listed in Taiwan for the period from 2006 to 2009. The sample period begins with the year 2006 because the data regarding the board member characteristics are only available from the TEJ database since 2006. Data on the TCRI and financial information are also collected from the TEJ database. Data on political connections is hand collected from various media, central and local government websites, political party websites and other sources. Our initial sample includes 5,415 firm-year observations. We drop the finance and insurance industries due to the unique nature of their regulations and requirements. After deleting firm-years with missing data, a total of 3,770 firm-year observations that span 19 different industries are included in our study to examine the hypotheses.

The sample of 3,770 firm-year observations for the period from 2006 to 2009 includes 868 firms in 2006, 925 firms in 2007, 963 firms in 2008 and 1,014 firms in 2009, respectively. The listed sample firms have grown steadily and slowly over the sample period. The electronics industry² is the biggest industry in the Taiwan stock market, and accounts for 57.65% of the main credit risk sample. The chemical and construction industries are the next two more than proportional industries and account for 6.93% and 5.01% of our sample, respectively.

IV. Results

IV.1 Descriptive statistics

Table 2 presents the descriptive statistics of our sample, and shows that on average the corporate credit risk index (TCRI) is 5.662 with a standard deviation of 1.000. On average, 18.0% of the listed firms have political connections. The mean value of the board effectiveness dummy variable (BE) is 0.319. On average, government (GOVOWN), top-level managers (MANOWN) and institutional investors (INSOWN) hold 0.612%, 0.017% and 0.075% of the total shares of a company, respectively. Leverage (LEV) is approximately 41.2%. The mean of the firm size (SIZE) is 21.617. The CEO, who serves as the chairman of the board of directors (DUAL), accounts for 30.0% of the listed firms. On average, the return rate on total assets (ROA) is 9.484%. On average, 84.0% of the listed firms are audited by a big4 auditor (BIG4). The means of the natural logarithm of the bonus compensation (BONUS) and stock return rate (RETURN) are 4.258 and 44.409%, respectively.

² For the sake of brevity, we do not provide the results of the industry distributions of the samples.

Table 2 Descriptive Statistics (N=3,770)

Variable	Mean	Median	Std. Deviation	Minimum	Maximum
TCRI	5.662	1.551	1.000	6.000	10.000
PC	0.180	0.384	1.000	0.000	1.000
BE	0.319	0.466	0.000	0.000	1.000
GOVOWN	0.612	0.000	3.265	0.000	45.150
MANOWN	0.017	0.256	0.000	0.007	0.228
INSOWN	0.075	0.074	0.000	0.056	0.272
LEV	0.412	0.172	0.013	0.420	0.981
SIZE	21.617	1.311	18.571	21.446	26.921
DUAL	0.300	0.458	0.000	0.000	1.000
ROA	9.484	7.828	-8.710	8.770	28.790
BIG4	0.840	0.366	0.000	1.000	1.000
BOUNS	4.258	0.447	2.538	4.216	6.343
RETURN	44.409	119.188	-88.174	14.971	2880.959

Notes: Variable definitions are as defined in Table 1.

For the sake of brevity, we do not provide the results of the correlation coefficients for our sample. The results reveal that almost all of the correlations are significant at least at the 10% level. The TCRI is significantly positively associated with political connections at the 10% level, implying that firms with political connections exhibit a higher level of credit risk. The TCRI is negatively but not significant correlated with director effectiveness. We also find that credit risk declines with higher levels of institutional ownership, lower financial leverage, larger size, higher returns on total assets, higher levels of managerial bonus compensation, and lower stock returns. The relationships preliminarily suggest that all of the explanatory variables are important in explaining the credit risk levels. While most of the independent variables are correlated with the others, the variable inflation factors (VIF) of the variables in the regressions amount to 3 and suggest that a severe multicollinearity problem does not exist.

IV.2 Multivariate analysis

Table 3 presents the empirical results of the ordered logit regressions based on equation (1) with the TCRI as the dependent variable. The first objective of our study is to examine the impact of board political connections on corporate credit risk. Column 1 reveals the results. The PC coefficient in Column 1 is 0.211 and positive and significant at the 5% level. The findings support the argument for the negative effects of the PC variable on credit risk and show that firms with political connections exhibit worse credit rankings and thereby higher credit risk. The results in Column 1 of Table 3 provide evidence to support our first

hypothesis H1a and are consistent with the argument that politically-connected firms are perceived as posing a higher risk by lenders (Bliss and Gul, 2012).

Column 2 of Table 3 reveals the regression results of the impact of director effectiveness on corporate credit risk. The BE coefficient in Column 2 is -0.205 and strongly negative and significant at the 1% level, which suggests that firms with effective directors can mitigate corporate credit risk and show that director member effectiveness can serve as a good proxy for governance mechanisms (Liu and Tsai, 2015). The findings support our second hypothesis H2 and are consistent with previous studies (Ashbaugh-Skaife et al., 2006; Alali et al., 2012; Aman and Nguyen, 2013).

Column 3 of Table 3 provides the regression results of the interaction term between PC and BE for corporate credit risk. The coefficients of PC and BE in Column 3 still indicate the expected signs as reported in Columns 1 and 2 despite the presence of the interaction term, respectively. Moreover, the interaction term, the PC*BE coefficient, in Column 3 is -0.616 and negatively significant at the 1% level, implying that the presence of effective director members in PC firms reduces the sensitivity of credit risk to PCs, which supports Hypothesis H3 and reveals that effective politicians on the board of directors help to mitigate corporate credit risk.

Table 3 Regression analyses of board political connections and effectiveness on credit risk
(N=3,770)

<i>Variables</i>	<i>Predicted Sign</i>	<i>Column 1</i>	<i>Column 2</i>	<i>Column 3</i>
		<i>Coefficient</i>	<i>Coefficient</i>	<i>Coefficient</i>
PC	+/-	0.301 (3.370)**		0.377 (3.650)***
BE	-		-0.160 (-2.340)***	-0.097 (-1.330)*
PC*BE	-			-0.353 (-1.860)**
GOVOWN	-	-0.067 (-5.910)***	-0.058 (-5.090)***	-0.059 (-4.940)***
MANOWN	-	-0.057 (-4.850)***	-0.055 (-4.680)***	-0.056 (-4.750)***
INSOWN	-	-0.360 (-0.750)	-0.381 (-0.800)	-0.363 (-0.750)
LEV	+	3.656 (17.970)***	3.632 (17.900)***	3.632 (17.900)***
SIZE	+/-	-1.001 (-21.790)***	-1.002 (-21.590)***	-1.012 (-21.780)***
DUAL	+/-	0.015 (0.220)	0.004 (0.060)	0.009 (0.140)
ROA	-	-0.122	-0.122	-0.122

		(-23.870)***	(-23.930)***	(-23.790)***
BIG4	-	-0.459	-0.463	-0.454
		(-4.960)***	(-5.030)***	(-4.910)***
BONUS	-	-2.180	-2.179	-2.192
		(-17.590)***	(-17.540)***	(-17.620)***
RETURN	+/-	0.003	0.003	0.003
		(4.670)***	(4.610)***	(4.610)***
YEAR		YES	YES	YES
IND		YES	YES	YES
Wald chi-square		3058.470***	3039.800***	3047.050***
Pseudo R ²		30.990%	30.930%	31.040%

a. Robust *t*-statistics are in parentheses. The symbols ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. b. Variable definitions areas defined in Table 1.

Regarding the control variables, Columns 1, 2 and 3 of Table 3 provide similar results for the control variables employed in our study and are consistent with the prior literature. Collectively, firms with higher levels of government, managerial and institutional ownership, larger size, more profitability, audited by big4 auditors and with higher levels of managerial bonus compensation tend to face lower credit risk, while firms with higher financial leverage and stock returns are more likely to face more credit risk.

V. Robustness Tests

Apart from the empirical investigations mentioned above, a concern could be that there are further key determinants of credit ratings which have been omitted in the previous ordered-probit models. Therefore, in this section, tests on several possible confounding factors that may influence the credit ratings are performed to check the robustness of our results. These tests are described below.

V.1 Earnings management

Because credit ratings have significant cost implications for firms, prior studies demonstrate that managers have incentives to engage in earnings management activities, as measured by accruals and real activities earnings management to improve or maintain their credit ratings. Jiang (2008) finds that firms beating earnings benchmarks have a higher probability of credit rating upgrades. Alissa et al. (2013) indicate that firms below or above their expected credit ratings may be able to move toward expected ratings through the use of directional earnings management. Jung et al. (2013) show that earnings smoothing activity can be used as a tool to manage credit ratings. Shen and Huang (2013) find that earnings management influences credit ratings, and thus the cost of debt. Carter (2015) indicates that income-decreasing (-increasing) accruals during the Sarbanes-Oxley Act period are associated with higher (lower) short-term credit ratings compared to control firms. Brown et al. (2015) provide results and imply that firms tend to manage earnings through real activities due to credit rating concerns.

Lin and Shen (2015) find that accruals-based earnings management positively affects credit risk, but real earnings management negatively affects credit risk.

Therefore, based on these prior studies, our study incorporates both discretionary accruals (DA) and real earnings management (REMI) variables in the regression models to check the robustness of our results. Consistent with the prior literature, we construct a real earnings management index³ (REMI) by aggregating the three individual measures related to real earnings management: the standardized measure of abnormal levels of cash flow from operations, production costs, and discretionary expenses (Roychowdhury, 2006; Cohen et al., 2008; Visvanathan, 2008; Chi et al., 2011; Kang and Kim, 2012; Zang, 2012; Zgarni et al., 2014; Brown et al., 2015; Lin and Shen, 2015). Following the extant literature, we use a cross-sectional version of the modified Jones (1991) model to measure abnormal accruals to proxy for discretionary accruals (DA) earnings management (Dechow et al., 1996; Dechow and Skinner, 2000; Louis et al., 2008; Alissa et al., 2013).

Columns 1 and 2 of Table 4 provide the empirical results of the effects of REMI and DA on credit ratings, respectively. The REMI coefficient in the regression model is negative and significant at the 5% level while the DA coefficient in the regression model is positive and significant at the 1% level. The results are consistent with Lin and Shen (2015) and demonstrate that accruals-based earnings management positively affects credit risk but real earnings management negatively affects credit risk.

Table 4 Additional analyses of board political connections and effectiveness on credit risk (N=3,770)

<i>Variables</i>	<i>Predicted Sign</i>	<i>Column 1</i>	<i>Column 2</i>	<i>Column 3</i>
		<i>Coefficient</i>	<i>Coefficient</i>	<i>Coefficient</i>
PC	+	0.371 (3.580)***	0.386 (3.750)***	0.377 (3.620)***
BE	-	-0.103 (-1.410)*	-0.076 (-1.040)	-0.071 (-0.960)
PC*BE	-	-0.355 (-1.840)**	-0.360 (-1.890)**	-0.413 (-2.110)**
GOVOWN	-	-0.066 (-3.100)***	-0.064 (-2.960)***	-0.068 (-3.000)***
MANOWN	-	-0.056 (-4.730)***	-0.056 (-4.590)***	-0.050 (-4.220)***
INSOWN	-	-0.385 (-0.800)	-0.347 (-0.720)	0.027 (0.050)
LEV	+	3.646 (17.970)***	3.517 (17.320)***	3.635 (17.460)***

³ REMI= -standardized abnormal cash flow from operations + standardized abnormal production costs - standardized abnormal discretionary expense.

SIZE	+/-	-1.012 (-21.770)***	-1.119 (-23.010)***	-1.143 (-22.460)***
DUAL	+/-	0.010 (0.160)	0.033 (0.500)	0.009 (0.140)
ROA	-	-0.122 (-23.930)***	-0.130 (-25.000)***	-0.124 (-23.990)***
BIG4	-	-0.453 (-4.900)***	-0.477 (-5.120)***	-0.502 (-5.340)***
BONUS	-	-2.197 (-17.680)***	-2.077 (-16.650)***	-2.252 (-17.890)***
RETURN	+/-	0.003 (4.610)***	0.002 (4.410)***	0.002 (3.930)***
REMI	-	-0.046 (-1.800)**		
DA	+		2.049 (8.860)***	
BETA	+			1.114 (9.030)***
YEAR		YES	YES	YES
IND		YES	YES	YES
Wald chi-square		3068.470***	3047.290***	2946.300***
Pseudo R ²		31.070%	31.620%	31.740%

a. Robust *t*-statistics are in parentheses. The symbols ***, **, and * denote statistical significance at the 1%, 5%, and 10% levels, respectively. b. REMI is a real earnings management index; DA is the discretionary accruals measured by the Jones model; and BETA is the systematic risk measured by the market model. Other variables are as defined in Table 1.

V.2 Systematic risk

Blume et al. (1998) indicate that separating equity risk into beta and non-beta risk allows for the possibility that these two measures of risk might be related to the debt rating in different ways. Anderson et al. (2004) suggest that credit ratings are used to control for differences in default risk. Gray et al. (2006) find that a firm with a higher equity beta is expected to have a lower credit ranking. Consistent with Bhojraj and Sengupta (2003), Alali et al. (2012) indicate that the beta variable captures the systematic risk of the firm, and thus increased levels of market risk could accentuate the risk of default and reduce the credit ratings of the firm. Acharya et al. (2013) extend their model by also including firm risk in their study because signaling theory, bankruptcy costs theory and agency costs theory all point to the relevance of firm risk in relation to the capital structure of the firm.

Based on past studies such as those referred to above, we also include the equity beta⁴ as a measure of systematic risk to check the robustness of the effects of PC and effectiveness on

⁴ BETA is a regression coefficient estimate (β_{it}) measured from the following firm-specific market model using the monthly stock return rate in year *t*, $R_{it} = \alpha + \beta_{it} R_m + \varepsilon_{it}$, where R_{it} is the stock return of firm *i* in year *t* and R_m is value-weighted market return obtained from the TEJ.

credit risk. Column 3 of Table 4 provides the empirical results of the effect of systematic risk on credit rankings. The BETA coefficient in the regression model is positive and significant at the 1% level. The evidence shows that the firms with higher systematic risk have worse credit ratings and higher credit risk and the result is consistent with those of prior studies. The results of these three tests are qualitatively similar to those of the main test specifications, and no inferences are affected.

VI. Summary and Conclusion

Using hand collected data for listed firms in Taiwan from 2006 to 2009; we have explored the effects of director political ties and effectiveness on corporate credit risk. Our study helps to explain the inconsistent findings of the prior literature on the effects of political connections on firms, as we find that politically-connected firms are associated with higher credit risk than their non-connected peers. Furthermore, the empirical results reveal that an effective board plays an important role in depressing corporate credit risk for Taiwanese firms. Moreover, our findings demonstrate that board political ties and effectiveness jointly affect credit ratings and firms with directors with more effective political ties are less likely to face credit risks than those of their peers with less effective political ties. In robustness tests, this study finds that systematic risk and accruals-based earnings management positively affect credit risk but real earnings management negatively affects credit risk.

Our findings reveal that the board member characteristics can be used as a valuable measure of board effectiveness and shed light on the importance of the effectiveness of the composition of the board members in mitigating firm credit risk. Our findings also provide implications for the authorities in that regulators should encourage the voluntary disclosure of board political ties and strengthen board effectiveness to improve the corporate governance practices of listed firms. Further research that incorporates more board member characteristics such as gender or age to establish a board effectiveness index may further verify the propositions of our study. Due to the limitations on the availability of the data regarding board member characteristics and credit ratings, our sample period only covers a 4-year period. A further exploration covering longer sample periods to examine the endogeneity problems in the empirical analysis of corporate credit risk could open the way for future analysis, given that our time span is short and might somewhat limit the generalizability of our empirical findings.

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