CORPORATE GOVERANCE AND EQUITY FINANCE

ABSTRACT

In this study, we assessed the relationship between corporate governance and equity financing of firms. Our results reveal that firms with good corporate governance are more likely to use equity financing than are firms with poor corporate governance. The magnitude of the equity issue is also related positively with the corporate governance index. Among the individual components of the corporate governance measures, the number of board members and the percentage of institutional investors are most significantly related to the frequency and magnitude of equity financing.

Keywords: corporate governance; equity finance; agency theory

JEL Classification: G3

I. INTRODUCTION

Information asymmetry between shareholders and managers is an inevitable problem in corporate organizations. It can create many agency problems if managers pursue their own interests at the shareholders' expense. Proper corporate governance has been suggested as an effective means to minimize the agency problems.[1] For example, one of the important functions that good corporate governance can provide is to ensure the quality of the financial reporting process (Cohen *et al*. 2004), thus enabling investors to monitor managers on the basis of reported financial achievements. Without quality financing reporting, investors would incur additional expenses to ensure that their funds are properly utilized. Therefore, efficient corporate governance benefits investors greatly; Shleifer and Vishny (1997) have remarked that efficient corporate governance is "the way[s] in which suppliers of finance to corporations assure themselves of getting a return on their investment". Following this trend in the literature, the principal objective of this study is to assess empirically whether good corporate governance plays a positive role in the efforts of firms to raise equity capital from investors.

Equity financing, which comes as the final means of corporate financing after internal retained earnings and debt, according to the well-known Pecking order theory, is often preferred to debt financing. According to extensive literature review by Klein, O'Brien, and Peters(2002) majority of empirical studies on Pecking order hypothesis (eg. Helwedge and Liang(1996), Jung, Kim, and Stulz(1996), and Frank and Goyal(2000))

[1] See Shleifer and Vishny (1997), and Bushman and Smith (2001) for review on corporate governance and agency problems.

clearly reject the hypothesis. Although, Shyam-Sunder and Myers(1999) support the pecking order hypothesis, their result is seriously questioned.[2]

Vast research explains these empirical results aginst the Pecking order theory with the difference between equity and debt financing to change the information asymmetry status of a firm. For example, Boot and Thakor (1993) claims that firm's choice of financing and information asymmetry can influence each other in both ways and the value of residual claim securities such as equity is more sensitive to information than the value of fixed income claim. Therefore, they show that good(bad) quality firms will want to issue equities(debt) in the market expecting that more(less) information sensitive securities can induce investors to produce more(less) information about firms. Fulghieri and Lukin (2001) expand this theory further by considering the cost of becoming informed. They find that as long as the cost of becoming informed is low, firms prefer a higher information sensitive security such as equity to promote information production. They find that the younger firms and higher growth opportunity firms belong to this category and prefer equity financing over debt financing. These research indicate that firm's choice of financing is strongly related to the degree of information asymmetry or expected change of it. Since better corporate governance can produce more information about firms and lower the cost of being informed, we can conjecture that the better the corporate governance of a firm, it is more like to use equity financing over debt financing. We also believe that good corporate governance can significantly ameliorate information asymmetry between investors and managers, through enhanced financial information transparency and improved levels of investors' assurance. This is because firms with

[2] Chirinko and Singha (2000) and Frank and Goyal(2000) questioned their methodology and provided result against Shyam-Sunder and Myers(1999)

strong corporate governance are less likely to manipulate financial information, thus resulting in better monitoring (Wu *et al*. 2007). Enhanced financial reporting quality as the result of high corporate governance quality reduces information asymmetry, which in turn increases the level of investors' assurance in the security of their investments. La Porta *et al*. (1998) have argued that greater investor protection increases investors' willingness to provide financing, and should be reflected in a greater availability of external financing. Moreover, firms with good growth opportunities are required to raise external financing in order to expand, and may therefore find it optimal to improve their governance mechanisms (La Porta *et al*. 1999). Coombes and Watson (2000) have previously reported the results of surveys concerning corporate governance. Three-quarters of the respondents of the surveys--institutional investors--asserted that board practices (that is, corporate governance) are at least as important as financial performance when they evaluate companies for investment. The institutional investors who participated in the survey responded that they would be willing to pay more for shares in well-governed companies. This suggests that companies that fail to reform their governance would find themselves at a competitive disadvantage when they attempt to attract potential investors.

There have been a number of studies conducted to evaluate the relationship between corporate governance and external financing, illustrating the centrality of this issue. Bhojraj and Sengupta (2003) have shown that firms with higher percentages of outside directors on the board and greater institutional ownership enjoy lower bond yields and higher ratings on their new debt issues. Ashbaugh-Skaife *et al*. (2006), using a broader set of corporate governance variables, documented that firms with strong

corporate governance benefit from higher credit ratings as compared to firms with weaker governance. Prior studies have also assessed the association between corporate governance and equity cost. Ashbaugh *et al*. (2004), for example, determined a negative relationship between the cost of equity and a number of governance attributes, including earnings quality, the independence of the board and audit committees, large institutional ownership, and the percentage of the board that owns stock.

Although these results bolster the argument that good corporate governance reduce firms' cost of capital via enhanced monitoring, they have yet to provide any *direct* evidence suggesting that good corporate governance actually expands ability to access equity capital. That is, prior studies have not attempted to determine whether high corporate governance quality is associated with greater frequency of equity finance and increased magnitude of equity finance. Therefore, using the comprehensive measure of corporate governance developed by DeFond *et al*. (2005), we have tackled this issue more directly, and have attempted to ascertain not only whether corporate governance performs significantly positive functions in equity financing, but also whether it contributes to how much equity capital is raised.

If good corporate governance is, indeed, associated with successful equity financing, we should be able to detect a positive relationship between corporate governance measures and the probability of successful equity issuance. In addition, quality corporate governance reduces information asymmetry, which in turn decreases the cost of equity capital. Such reduced equity capital costs should make it possible for issuers to raise larger amounts of equity capital. Thus, we also expect that the magnitude

of equity financing for a better-governed firm should be larger than its counterpart after controlling for firm-specific variables.

Our test results reveal that corporate governance is indeed important in successful equity financing. The results of both univariate analysis and multivariate regression analysis are consistent with our hypotheses. We detected a positive association between a corporate governance proxy and the tendency to raise equity finance. More specifically, our results suggest that the probability of using equity financing for a firm with strong governance is approximately 25% more than a firm with weak governance. Furthermore, we documented that the magnitude of issue amount increases with increases in corporate governance quality. Overall, we would argue that firms that use equity financing are likely to have better corporate governance quality. This is valuable information both for issuers and regulators. Issuers may benefit from this result for upcoming equity financing plans, considering that financing activity is crucial to a firm's growth. Regulators, on the other hand, find it a rationale to continue pursuing their attempts to enhance corporate governance[3], as it has been found to be a critical condition for the capital market to flourish.

The remainder of this study is organized as follows. Section 2 discusses the research sample, corporate governance measures, and research methodology. Section 3 reports the empirical results and explains their implications. The final section concludes the study.

[3] Some of regulators' efforts to improve corporate governance include enacting reforms to improve the effectiveness of the audit committee (Blue Ribbon Committee 1999; Sarbanes-Oxley Act 2002) and to make the board of directors and management more accountable for ensuring the integrity of the financial reports (SEC 2002).

II. RESEARCH DESIGN

2.1. Sample

We began our sample selection procedure with an initial sample of 66,547 active firm-years on Compustat for the fiscal years 2000-2006. Then, only those firms whose corporate governance data are available on the Investor Responsibility Research Center (IRRC) database were selected and 8,997 firm-years remained for subsequent analysis. We also excluded 54 more observations from the sample owing to a lack of firm-level financial and return data. This left us with a final sample of 8,943 observations. Panel A of Table 1 summarizes this sample selection process.

Panel B of Table 1 provides information regarding the sample distribution across the composite Governance Scores from 0 (minimum) to 6 (maximum), where higher scores represent higher corporate governance quality, and vice versa.[4] The panel also shows the number of firms that issued equity per the composite Governance Scores scale. This demonstrates that the Governance Score increases with higher percentages of stock-issuing firms. This preliminary check is consistent with our conjecture that firms with high corporate governance quality are more likely to issue equity.

Panel C of Table 1 shows the sample distribution across the type of finance for the year. It shows that more firms raise capital via debt than via equity. In addition, the mean of Governance Score for firms using equity finance only (2.960) is statistically

[4] See the next section for the Governance Score.

greater at a level of 1 percent than that of both firms using debt finance only (2.474) and firms without any finance (2.547). This provides additional preliminary evidence that firms using equity finance tend to have higher corporate governance quality.

(Insert TABLE 1 Here)

2.2. Corporate Governance Measure

We utilized IRRC data to obtain various corporate governance measures for individual firms. IRRC corporate governance information is derived from a variety of sources, including corporate by-laws, charters, annual reports, and regulatory documents filed with the SEC. IRRC data cover more than 90% of total market capital of the three primary U.S. stock exchanges (New York, American, and Nasdaq).

We selected the following five governance characteristics and G index (Gompers *et al*. 2003) and scored a 1 or 0 for each dichotomous variable to sum them, thereby acquiring a composite index for corporate governance quality, in accordance with the methods of DeFond *et al*. (2005). In this study, we refer to this index as the "Governance Score".

1) Board size – Previous studies (e.g., Yermack 1996; Cheng 2008) find that small board size is associated with good governance. Thus, we score 1 (for good governance) if the firm's board size is less than the sample median, and 0 otherwise.
2) Board independence – A higher proportion of outside directors is associated with strong corporate governance. Thus, we score 1 (for good governance) if 60% or more of the directors are independent, and 0 otherwise. (Denis, Denis, and Sarin, 1997, Defond *et al*., 2005)

3) Audit committee size – NYSE and NASDAQ require their registrants to have at least three directors on the audit committee, thereby suggesting that larger audit committees foster stronger governance. We score 1 (for good governance) if the proportion of a firm's audit committee size to the full board size is greater than the sample median, and 0 otherwise.

4) Audit committee independence – Fully independent audit committees are associated with stronger governance. We score 1 (for good governance) if the audit committee is composed of only independent members, and 0 otherwise.

5) Institutional ownership – Institutional owners improve corporate governance via external monitoring. Thus, we score 1 (for good governance) if the percentage of institutional ownership is greater than the sample median, and 0 otherwise.[5]

6) G index (Shareholder protection) – We score 1 if a firm's G index is below the sample median, and 0 otherwise.[6]

The sixth corporate governance characteristic, the G index, is a composite index that represents shareholder protection, as originally developed by Gompers *et al*. (2003). They divided IRRC firm-level provisions first into five categories: 1) tactics for delaying hostile bidders, 2) voting rights, 3) directors/officer protection, 4) other takeover defenses, and 5) state laws, and then into a total of 28 provisions (or 24 unique provisions).[7] The G index is calculated simply by giving one point for the existence of the provision for each of 24 unique provisions.

[5] Institutional ownership data are obtained from Thomson Reuters Databases (CDA/Spectrum).

[6] High levels of the G index represent high protection from takeovers, which reduces the effectiveness of market control and leads to lower quality of corporate governance.

[7] For the detailed description of each governance provision, see the appendix of Gomper et al. (2003)

A number of previous studies (e.g., Ashbaugh *et al*. 2004; Klock *et al*. 2005; Cremers and Nair 2005) have utilized this G index as a measure of the quality of firms' governance. Further, Bebchuk *et al*. (2008) develop the entrenchment index based on six provisions, a sub-set of 24 of the IRRC governance provisions. However, both the G index and the entrenchment index capture only the relative power between managers and investors, which is a sub-set of comprehensive corporate governance. This is the reason why we prefer the DeFond index to other corporate governance measures. The DeFond index captures the strength of each sample firm's governance environment with a single comprehensive score. As mentioned in the study of DeFond *et al*. (2005), we believe that this summary measure will better accommodate the strength of a firm's overall governance environment than would individual measures, as it reflects multiple dimensions of a firm's corporate governance environment.

2.3. Regression Model

Our principal hypothesis is that firms with better corporate governance can access equity financing more readily, and therefore use it more frequently and in a large amount. To test this hypothesis, we would run a regression of equity issues on corporate governance and a set of control variables identified by prior studies, as in equation (1) and (2).

$$ISSUE = \beta_0 + \beta_1 GOV + \beta_2 GROWTH + \beta_3 MB + \beta_4 AGE + \beta_5 ROA + \beta_6 RETURN + \beta_7 Big4 + \beta_8 LNMKT + year\ dummies + \varepsilon \quad (1)$$

$$MAG\_ISSUE = \beta_0 + \beta_1 GOV + \beta_2 GROWTH + \beta_3 MB + \beta_4 AGE + \beta_5 ROA + \beta_6 RETURN + \beta_7 Big4 + \beta_8 LNMKT + \beta_9 IMR + year\ dummies + \varepsilon \quad (2)$$

Variable	Expected Sign	Definition
Dependent variable		

ISSUE		1 if a firm issues equity (#108) greater than 5 percent of beginning total assets, 0 otherwise;
MAG_ISSUE		Amount of equity divided by beginning total assets;
Test variable		
GOV	+	Corporate governance index suggested by DeFond et al. (2005);
Development stage		
GROWTH	+	Changes in sales (#12), deflated by sales at the beginning of the fiscal year;
MB	+	Market value of equity deflated by book value of equity;
AGE	-	Number of years the firm has financial data on COMPUSTAT;
Profitability		
ROA	+/-	Net income before extraordinary items (#18), deflated by total assets at the beginning of the fiscal year.
RETURN	+	Annual return;
Assurance Level		
Big 4	+	1 if the firm was audited by a Big 4 auditor, 0 otherwise.
Size		
LNMKT	+	Natural logarithm of market values.

In the above equation, the dependent variable, *ISSUE*, is a binomial variable which takes 1 if a firm issues equity greater than five percent of the beginning total assets of the firm and takes 0 otherwise, following Hoitash *et al*. (2008). As a sensitive test, we measure equity issue as the sale of common and preferred stock (#108) minus the purchase of common and preferred stock (#115), following Chang et al. (2006). Our inferences remain the same, although the number of firms issuing stocks based on the new definition decreases from 719 to 505. We also ran an OLS regression with another dependent variable, *MAG_ISSUE*, which is the dollar amount of equity issued deflated by the beginning total assets of the firm. *MAG_ISSUE* will be utilized to test the second hypothesis that a firm with good corporate governance can not only access equity financing more readily, but also raise greater amounts at issuance. For the OLS regression (2), we add the inverse Mills ratio (*IMR*) to control for a self-selection bias as

all firms in the model do not issue equity. Following Heckman (1979) two-stage procedure, we obtain *IMR* from the logistic model (1).

The principal test variable in the above equation is the Governance Scores (*GOV*), which is a summation of six firm-level governance characteristics, as discussed in the previous section. In order to assess the relationship between the dependent variable and the test variable in a clear fashion, we should include control variables that may have sizeable impacts on the dependent variable. First, we utilize three proxies to control for a firm's development stage. A firm's state of development may affect equity financing because a firm has different financing needs at different developmental stages. For example, a business requires more external financing at its growth stage than at its mature stage (Wu *et al*. 2007). The change in sales is then utilized to represent a firm's state of growth (*GROWTH).* We also include a firm's age (*AGE*) to control for a firm's development stage, as young firms tend to raise more capital than do mature or older firms. The market value of a firm deflated by the book value (*MB*) is included as well, as many have argued that firms with higher market-to-book ratios also have higher growth opportunities (e.g., Hovakimian *et al*. 2001). We expect *GROWTH* and *MB* to have positive coefficients, whereas *AGE* has a negative coefficient in the regression.

Next, we include variables to control for a firm's profitability, as this affects the additional financing needs of a firm significantly. We utilize *ROA* to measure firms' profitability and financial condition. However, considering the conflicting predictions associated with financial need and actual financing ability,[8] we used no directional

[8] Unprofitable firms, ones with lower *ROA*, may need new financing while these firms are likely unqualified for new financing. Similarly, a firm's profitability implies the availability of internal fund,

predictions for this variable. We also included a firm's stock performance (*RETURN*) as a control variable. Baker and Wurgler (2002) have suggested that firms are likely to exercise market timing by issuing stocks when stocks are performing well in the market. Chang *et al*. (2006) determined that stock price run-ups are associated positively with the size of equity issuance. Thus, we include market returns (*RETURN)* lagged by one period relative to the dependent variable.

In addition, we also include two variables associated with information transparency other than corporate governance. Many investors are concerned with the quality and objectivity of the auditor in ensuring the transparency of a firm's financial information; Gillan (2006) has argued that independent auditors form a type of external corporate governance structure,[9] helping to monitor corporate financial reporting and internal control processes. Therefore, we employed the *Big4* as our proxy for the auditor quality, which takes 1 if the firm is audited by one of the Big 4 auditing firms, and 0 otherwise. We expect a positive regression coefficient for it, because the high level of assurance helps firms to raise equity financing.

Finally, we control for firm size. Firm size has been utilized as a proxy for a variety of constructs in accounting and finance research. Chang *et al*. (2006) asserted that large firms are supposedly subject to relatively smaller information asymmetry than are small firms, and thus have more ready access to equity finance. They interpret this to suggest that this is either because more analysts follow larger firms and this reduces

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which suggests less demand of external financing under the pecking order theory. However, such profitable firms often find it easy to raise equity capital because of their high rate of credit.

[9] Other external corporate governances include law/regulation, capital markets, and other external oversight such as the media (Gillan 2006).

information asymmetry, or because analysts are attracted to better-known firms for which analysts incur lower costs to gather information. Natural logarithm of market values (*LNMKT)* is used for a proxy of firm size, and we expect this to have a positive sign.

III. TEST RESULTS

3.1. Univariate Result

Table 2 shows the comparison of test and control variables between firms that issued stocks (719 firm years)[10] and those that did not issue stocks (8,224 firm years)[11] during the study period. We provide means, medians, and standard deviations of each variable, winsorizing at levels of both 1% and 99% in order to reduce the effects of extreme values. The test variable, *GOV*, is significantly higher for equity-issuing firms than non-equity-issuing firms, and this difference is statistically significant at the 1% level. This provides preliminary support for our hypothesis that firms that issue equity have better corporate governance. Comparisons of control variables show that companies that issue stocks tend to have higher growth, be younger, have lower accounting profitability but higher stock performance in prior years, and hire a Big 4 auditor. However, there is no difference in firm size between the two groups. These results are

[10] This group consists of two sub-groups: firms with equity finance only (475) and firms with both equity and debt finance (244). See Panel C of Table 1.

[11] This group contains two sub-groups: firms without any finance (5,315) and firms with debt finance only (2,909). See Panel C of Table 1. We perform additional analyses after control groups are modified in the later section. .

largely in line with our expectations. We interpret the insignificant difference in firm size as being due to the fact that larger firms have better transparency, but smaller firms have more financing needs and one effect does not overrule the other.

(Insert TABLE 2 Here)

3.2. Regression Results

Table 3 presents the regression test results for our main hypothesis that a firm with good corporate governance is more likely to issue stocks.[12] We utilized both a continuous variable (*GOV*) and a dummy variable (*GGOV*) to represent the corporate governance quality. When we coded *GGOV*, the median value of the governance score was used to divide the sample firms into good governance or bad governance groups. Three logistic regressions were run with the control variables, and the overall models were found to be statistically significant (Wald Chi-square=587.36, 583.23, and 530.22).

The first column of the table demonstrates that the governance score (*GOV*) is related positively to the dependent variable (*ISSUE*) at a significance level of 1%. The second column of the table demonstrates that the governance dummy (*GGOV*) representing better-governed firms is also positively related to the dependent variable (*ISSUE*) at a significance level of 5%. Therefore, our hypothesis that firms with better corporate governance are more likely to issue equity is well supported. With regard to economic significance, the coefficient of the good governance dummy (*GGOV)*, 0.2213, indicates that the probability of using equity financing for a firm with good corporate

[12] When examining correlations between the control variables, we find that the highest correlation is 0.33, suggesting that multicollinearity is unlikely to be a problem (results not tabulated). This is also confirmed by analyses of variance inflation factors (*VIF*) which indicated that the highest variance inflation factor was only 1.71, which is well below 10.00, the level of concern (Belsley et al. 1980).

governance is approximately 25% more than a firm with weak governance (exp(0.2213)=0.25).

In the third column, we allow *GOV* to vary depending on the need for external finance, measured by growth opportunity. *HIGROW*(*LOGROW*) is coded 1 if a firm has higher (lower) growth than the median value of *GROWTH*. *DHIGROW* (*DLOGROW*) is an interaction term between *HIGROW* (*LOGROW*) and *GOV*. We find that *DHIGROW* has a positive and statistically significant coefficient, whereas *DLOGROW* has a positive but insignificant coefficient. This suggests that our findings of a positive association between good corporate governance and equity finance are more pronounced in subsample of high growth firms. In other words, firms that experience high growth and need external finance are more likely to increase corporate governance to look more attractive to outside investors.[13]

With regard to the control variables, logistic regression results show that the probability of issuing stocks is high when a firm is growing, young, has smaller accounting returns, and has high return momentum, and hires a Big 4 auditor. These results confirm the univariate results documented in the previous section, and are also generally consistent with the results of previous studies. It is worth noting that the positive coefficient of *RETURN* is supportive of equity market timing (i.e., Baker and Wurgler 2002) that firms are more likely to issue equity when their market values are high.

(Insert TABLE 3 Here)

[13] As a robustness check, we run the regressions while letting standard variances clustered by the firm level. Our inferences remain unchanged.

Table 4 shows the OLS regression results to test our second hypothesis that firms with good corporate governance raise larger amounts of capital through equity finance, as compared to their counterparts with weak corporate governance. Again, we used both a continuous variable (*GOV*) and a dummy variable (*GGOV*) as the test variables. Our results show that both *GOV* and *GGOV* are statistically significant in explaining the variance of the dependent variable, the dollar amount of issuance (*MAG_ISSUE*) at less than a 1% significance level.[14] Thus, we would argue that our second hypothesis—namely, that firms with good corporate governance raise more equity capital than their poor corporate governance counterparts, is well supported by empirical analysis. The coefficients for control variables from the OLS regressions are similar to those of the logit regressions documented in Table 3.

(Insert TABLE 4 Here)

3.3. Test Using Individual Corporate Governance Measure

Thus far, we have used the composite governance score as our test variable to find the positive relationship between good corporate governance and the usage of equity financing and the amount of equity issuance. In this section, we disaggregate the composite index, the Governance Score, into six individual components, and assess their relationships with the dependent variable. This analysis allows us to determine which individual corporate governance measure contributes significantly for firms to raise equity capital. Table 5 reports both a logit regression with *ISSUE* as a dependent variable and an OLS regression with *MAG_ISSUE* as a dependent variable. The left side of the

[14] Also, we let standard variances clustered by the firm level for the regression analyses, but our results are qualitatively same.

table, the logistic model with *ISSUE* as a dependent variable, shows that firms with smaller numbers of board members (*NUM_BD*) and larger percentages of institutional investors' ownership (*%INSOWN)* are more likely to issue stocks. However, the other components of the Governance Score--the ratio of independent directors on the board (*R_INDBD*), the ratio of audit committee members over board members (*R_ACBD*), the ratio of independent audit committee members (*R_INDAC*), and the G index (*GINDEX*) are not statistically significant as determinants of equity issuance.

On the other hand, on the right side of the table, the OLS model with *MAG_ISSUE* as a dependent variable shows that the magnitude of equity issue is greater for firms with smaller boards (*NUM_BD*), larger percentages of institutional investors (*%INSOWN*), large percentage of independent audit committee members (*R_INDAC*), larger ratio of audit committee members to board members (*R_ACBD*), and stronger shareholder protection (*GINDEX*). Therefore, the OLS regression results for individual components demonstrate that all components of the composite governance index are associated with the magnitude of issuance, except for the ratio of independent board members (*R_INDBD*). The difference in results between the logit regression and OLS regression is attributable to the difference in two dependent variables, *ISSUE* (indicator variable) and the *MAG_ISSUE* (continuous variable).

Overall, the individual component test demonstrates that among individual components, the number of board members and institutional ownership are the most important determinants for successful equity financing. This is consistent with prior studies. have already reported their importance. For example, Bushman *et al*. (2004) have argued that smaller boards have advantages for firms and shareholders due to lower

coordination costs and less free-riding among board members. Also, a large percentage of institutional investors implies better monitoring, and thus reduces equity capital costs (Core *et al*. 1999; Ashbaugh *et al*. 2004). The only surprise from the individual component analysis is the negative coefficients, though insignificant, of the ratio of independent board members (*R_INDBD),* which were opposite to our expectations. One possible explanation is that insiders are better informed regarding firm operations and more efficient in financial activities, and their dominance on the board helps firms to make successful issuance decisions (Bushman *et al*. 2004).

(Insert TABLE 5 Here)

3.4. Robustness Check

We conduct additional tests to get further insights. First, the Compustat item #108, our measure of equity issue, includes the exercise of stock options. As a result, our findings of a positive association between equity finance and governance may be due to large exercise of options rather than new issuance from outside investors. We do not believe that this is the case in our study because CEOs' stock options are more likely used for firms with weak governance rather than well-governed firms (Betchuk et al. 2002). However, we conduct an additional test to examine whether our results are robust to the consideration of options exercised. We obtain values realized on option exercise from Execucomp during the year, and subtract this amount from #108 in defining equity finance. We find that the number of firms issuing equity by the new definition decreases to 590, yet our results remain unchanged although the significance of the test variable is reduced.

Next, we estimate the equation (1) by using different control groups. In our primary hypothesis test, we compared firms with equity financing against firms with no equity financing in an effort to assess the influence of our test variable. However, this control group of no equity financing firms (8,224 firm years) consists of two sub-groups: firms with debt financing (2,909) and firms with no financing (5,315). In this section, we first ran a logistic regression of equity financing (719) versus non-external financing (5,315), and then another logistic regression of equity financing only (475) versus debt financing only (2,909) after excluding firms using both equity and debt finance (244).[15]

Table 6 shows the results from these two logistic models. We found similar results in the first logistic model when our sample consisted of equity finance and no financing. The results from the second logistic model, a comparison between equity finance versus debt finance, is interesting in that firms tend to select equity finance rather than debt finance as corporate governance increases. This suggests that the quality of corporate governance is more important to equity holders than to debt holders. This is probably because debt holders have alternative mechanisms (e.g., debt covenants) to protect themselves, and thus they demand comparatively less governance quality. Also, debt is considered less informationally sensitive than equity in which information risk reduced from good governance is greater (Klein *et al*. 2002). In summary, we determined that the Governance Score (*GOV*), a proxy for corporate governance, is a significant determinant of equity financing, even after the control groups have been modified. Therefore, our robustness check analysis would also conclude that good corporate governance will help firms to raise equity capital.

[15] See Panel C of Table 1 for the number of firms across different types of finance.

(Insert TABLE 6 Here)

IV. CONCLUSION

We explore whether corporate governance plays a role in firms' equity financing decisions. We hypothesize that firms are likely to increase the quality of corporate governance when they wish to attract more investors at lower cost, because this reduces information asymmetry between managers (fund users) and investors (fund providers), and therefore reduces equity capital costs. Our analyses using a comprehensive measure of corporate governance, via both univariate and multivariate tests, are consistent with our predictions. Specifically, we determined that our proxy of corporate governance is associated positively with the probability of issuing stocks. This result pertains not only in comparisons between firms with equity finance and firms without equity finance, but also in comparisons between firms with equity finance and firms with debt finance. Further, we documented a positive association between the quality of corporate governance and the amount of equity finance. These results are consistent with the notion that high governance standards are crucial for the raising of equity capital in terms not only of the frequency of issues but also the amount of issues.

Our results have a practical implication in that firms having a plan of equity financing should take into consideration the notion that corporate governance does matter. Along with Gompers *et al*. (2003), who reported a positive association between quality corporate governance and higher firm value (thus lower cost of finance), the results provided in this paper indicate that firms can attract their investors by improving corporate governance. This study adds to the relevant literature by providing direct

evidence that corporate governance *actually* contributes to firms' equity finance activities, unlike other studies (i.e., Ashbaugh *et al*. 2004), which have provided indirect evidence, such as the role of corporate governance in reducing information asymmetry. In addition, our results are consistent with regulators' stance that corporate governance is an essential element of an efficient capital market.

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TABLE 1
Sample Selection Procedure

Panel A: Sample selection procedure

Year	# Active firms on Compustat	# Firms with governance data on IRRC Database	# Firms with financial and return data on Compustat and CRSP
2000	9,530	1,248	1,233
2001	9,518	1,224	1,217
2002	9,513	1,287	1,275
2003	9,504	1,256	1,252
2004	9,503	1,388	1,382
2005	9,500	1,308	1,305
2006	9,479	1,286	1,279
Total	66,547	8,997	8,943

Panel B: Sample distribution across governance index

Governance Score	# Total Firms (1)	# Firms Issuing Stocks (2)	Percentage (2) / (1)
0	387	24	0.062
1	1,479	105	0.071
2	2,460	160	0.065
3	2,456	180	0.073
4	1,608	171	0.106
5	553	79	0.143
Total	8,943	719	0.080

Panel C: Sample distribution across type of finance

Finance Activity	# Firms	Percentage of Total Firms	Mean Governance Score
Equity Finance Only	475	0.053	2.960
Debt Finance Only	2,909	0.325	2.474***
Both Equity and Debt Finance	244	0.027	2.615***
Either Equity or Debt Finance	3,628	0.406	2.582***
Neither Equity nor Debt Finance	5,315	0.594	2.547***

Governance Score is a summation of six firm-level governance characteristics, following DeFond et al. (2005). Six governance components include board size, board independence, audit committee size, audit committee independence, institutional ownership, and shareholder protection (G index).

We define equity issues when a firm sells equity (Compustat #108) greater than 5 percent of beginning total assets, and debt issues when a firm issues long-term debt (#111) greater than 5 percent of beginning total assets.

***, **, and * notify that mean governance score of each group is significantly different from that of firms with equity finance only at 1%, 5%, and 10% significance level respectively.

TABLE 2
Comparisons of Variables Used for Regressions between Firms with and without Issuing Stocks

	Companies Issuing Stocks (719 firm years)			Companies not Issuing Stocks (8,224 firm years)			Comparisons of Two Groups	
Variables	Mean	Median	Std	Mean	Median	Std	t-statistic	Wilcoxon z-statistic
GOV	2.8428	3.0000	1.3275	2.5438	3.0000	1.2419	6.16***	5.95***
GROWTH	0.2550	0.1956	0.3125	0.0951	0.0769	0.2045	19.12***	16.60***
MB	4.6561	3.2993	4.3156	2.8395	2.1446	2.6459	16.58***	13.93***
AGE	19.1989	14.0000	13.6236	27.3031	23.0000	16.2030	-13.38***	-13.25***
ROA	0.0427	0.0497	0.1184	0.0437	0.0422	0.0722	-0.34	3.30***
RETURN	0.0200	0.0172	0.0407	0.0046	0.0069	0.0339	11.50***	10.18***
BIG4	0.9750	1.0000	0.1563	0.9309	1.0000	0.2536	4.58***	4.57***
LNMKT	7.7477	7.5686	1.3763	7.7022	7.5649	1.5465	0.76	1.17

- t- and Z-values are based on two-tailed tests.
- ***, **, and * denotes 1%, 5%, and 10% significances respectively.

Variable Definitions:

GOV	Corporate governance score suggested by DeFond et al. (2005);
GROWTH	Changes in sales (#12), deflated by sales at the beginning of the fiscal year;
MB	Market value of equity deflated by book value of equity;
AGE	Number of years the firm has financial data on COMPUSTAT;
ROA	Net income before extraordinary items (#18), deflated by total assets at the beginning of the fiscal year.
RETURN	Annual return;
Big 4	1 if the firm was audited by a Big 4 auditor, 0 otherwise.
LNMKT	Natural logarithm of market values.

TABLE 3
Results of Logistic Regression Models of Equity Financing versus no Equity Financing

$$ISSUE = \beta_0 + \beta_1 GOV(or\ GGOV) + \beta_2 GROWTH + \beta_3 MB + \beta_4 AGE + \beta_5 ROA + \beta_6 RETURN + \beta_7 Big4 + \beta_8 LNMKT + year\ dummies + \varepsilon$$

$$ISSUE = \beta_0 + \beta_1 GOV + \beta_2 HIGROW + \beta_3 DHIGROW + \beta_4 DLOGROW + \beta_5 MB + \beta_6 AGE + \beta_7 ROA + \beta_8 RETURN + \beta_9 Big4 + \beta_{10} LNMKT + year\ dummies + \varepsilon$$

Variable	Expected Sign	Logistic Model Using Continuous Variable *GOV* (Equity financing vs. no Equity financing)		Logistic Model Using Dummy Variable *GGOV* (Equity financing vs. no Equity financing)		Logistic Model Adding Interaction with Growth Opportunity (Equity financing vs. no Equity financing)	
		Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
Intercept	+/-	-3.5121	<.0001	-3.2472	<.0001	-3.6133	<.0001
GOV	**+**	**0.1149**	**0.0008**				
GGOV	**+**			**0.2213**	**0.0107**		
DHIGROW	**+**					**0.1306**	**0.0009**
DLOGROW	**+**					**0.0870**	**0.1576**
HIGROW	+					0.6965	0.0015
GROWTH	+	2.0354	<.0001	2.0403	<.0001		
MB	+	0.1414	<.0001	0.1418	<.0001	0.1412	<.0001
AGE	-	-0.0288	<.0001	-0.0294	<.0001	-0.0290	<.0001
ROA	+/-	-1.4404	0.0031	-1.4887	0.0023	-2.3236	<.0001
RETURN	+	6.7521	<.0001	6.8106	<.0001	8.6326	<.0001
BIG4	+	0.9737	<.0001	0.9822	<.0001	0.9927	<.0001
LNMKT	+	-0.0482	0.1390	-0.0557	0.0859	-0.0336	0.2959
Wald Chi-Square		587.36***		583.23***		530.22***	
Pseudo-R2		0.0715		0.0710		0.0647	
N		8,943		8,943		8,943	

- ***, **, and * denote significance at 1, 5 and 10 %, respectively.
- *GGOV* is a dummy variable which is 1 if *GOV* has a value above the median, 0 otherwise. *HIGROW* (*LOGROW*) is coded 1 if *GROWTH* is greater (smaller) than the median, and 0 otherwise. *DHIGROW* (*DLOGROW*) is an interaction term between *GOV* and *HIGROW* (*LOGROW*). See Table 2 for definitions of other variables.

TABLE 4
Results of OLS Regression Models of Magnitude of Issue on Governance Measure

$$MAG\_ISSUE = \beta_0 + \beta_1 GOV \text{ (or } GGOV) + \beta_2 GROWTH + \beta_3 MB + \beta_4 AGE + \beta_5 ROA + \beta_6 RETURN + \beta_7 Big4 + \beta_8 LNMKT + \beta_9 IMR + year\ dummies + \varepsilon$$

Variable	Expected Sign	OLS Model Using Continuous Variable *GOV*		OLS Model Using Dummy Variable *GGOV*	
		Coefficient	p-value	Coefficient	p-value
INTERCEPT	+/-	-0.0246	0.0222	0.0016	0.8563
GOV	**+**	**0.0025**	**<.0001**		
GGOV	**+**			**0.0038**	**<.0001**
GROWTH	+	0.0533	<.0001	0.0421	<.0001
MB	+	0.0041	<.0001	0.0034	<.0001
AGE	-	-0.0133	<.0001	-0.0102	<.0001
ROA	+/-	-0.0582	<.0001	-0.0515	<.0001
RETURN	+	0.1841	<.0001	0.1475	<.0001
BIG4	+	0.0217	<.0001	0.0171	<.0001
LNMKT	+	-0.0017	<.0001	-0.0014	<.0001
IMR	+/-	0.0260	<.0001	0.0134	0.0113
F-Value		97.80***		96.22***	
Adj-R2		0.1397		0.1377	
N		8,943		8,943	

- ***, **, and * denote significance at 1, 5 and 10 %, respectively.
- *MAG_ISSUE* is the magnitude of issue amount deflated by beginning assets. *IMR* is the inverse Mills ratio from the probit regression of issuing equity. See Table 2 for definitions of other variables.

TABLE 5
Results of Logistic and OLS Regression Models Using Individual Components of Governance Measure

$$ISSUE = \beta_0 + \beta_1 Individual\ Governance\ Measure + \beta_2 GROWTH + \beta_3 MB + \beta_4 AGE + \beta_5 ROA + \beta_6 RETURN + \beta_7 Big4 + \beta_8 LNMKT + year\ dummies + \varepsilon$$

$$MAG\_ISSUE = \beta_0 + \beta_1 Individual\ Governance\ Measure + \beta_2 GROWTH + \beta_3 MB + \beta_4 AGE + \beta_5 ROA + \beta_6 RETURN + \beta_7 Big4 + \beta_8 LNMKT + \beta_9 IMR + year\ dummies + \varepsilon$$

Variable	Expected Sign	Logistic Model with *ISSUE* as a dependent variable		OLS Model with *MAG_ISSUE* as a dependent variable	
		Coefficient	p-value	Coefficient	p-value
INTERCEPT	+/-	-2.6482	<.0001	-0.0255	0.0069
NUM_BD	**-**	**-0.1522**	**<.0001**	**-0.0018**	**<.0001**
R_INDBD	**+**	**-0.4167**	**0.1313**	**-0.0025**	**0.2926**
R_ACBD	**+**	**0.1593**	**0.6152**	**0.0078**	**0.0054**
R_INDAC	**+**	**0.0135**	**0.9641**	**0.0056**	**0.0356**
GINDEX	**-**	**-0.0075**	**0.6758**	**-0.0006**	**<.0001**
%INSOWN	**+**	**0.3111**	**0.0136**	**0.0020**	**0.0547**
GROWTH	+	1.9471	<.0001	0.0567	<.0001
MB	+	0.1334	<.0001	0.0043	<.0001
AGE	-	-0.0225	<.0001	-0.0128	<.0001
ROA	+/-	-1.6034	0.0010	-0.0645	<.0001
RETURN	+	6.5278	<.0001	0.2008	<.0001
BIG4	+	0.8477	0.0007	0.0207	<.0001
LNMKT	+	0.0400	0.2606	-0.0007	0.0360
IMR	+/-			0.0311	<.0001
Wald Chi-Square or F-value		621.19^{***}		81.34^{***}	
Pseudo-R2 or Adj- R2		0.0775		0.1523	
N		8,943		8,943	

- ***, **, and * denote significance at 1, 5 and 10 %, respectively.
- *NUM_BD* is the number of board members. *R_INDBD* is the ratio of independent director on boards. *R_ACBD* is the ratio of audit committee members over board members. *R_INDAC* is the ratio of independent audit committee members. *GINDEX* is an index constructed by Gompers et al. (2003). *%INSOWN* is the percentage of institutional investors. *MAG_ISSUE* is the magnitude of issue amount deflated by beginning assets. See Table 2 for definitions of other variables.

TABLE 6
Results of Logistic Regression Models of Equity Financing versus no Financing and Equity Financing versus Debt Financing

$$ISSUE\ (or\ EQUITY) = \beta_0 + \beta_1\ GOV + \beta_2\ GROWTH + \beta_3\ MB + \beta_4\ AGE + \beta_5\ ROA + \beta_6\ RETURN + \beta_7\ Big4 + \beta_8\ LNMKT + year\ dummies + \varepsilon$$

Variable	Expected Sign	Logistic Model Using Continuous Variable *GOV* (Equity financing vs. no Financing)		Logistic Model Using Continuous Variable *GOV* (Equity financing vs. Debt financing)	
		Coefficient	p-value	Coefficient	p-value
INTERCEPT	+/-	-3.2774	<.0001	-1.4970	0.0022
GOV	**+**	**0.0713**	**0.0445**	**0.2403**	**<.0001**
GROWTH	+	2.3330	<.0001	1.1361	<.0001
MB	+	0.1422	<.0001	0.1704	<.0001
AGE	-	-0.0263	<.0001	-0.0386	<.0001
ROA	+/-	-1.4413	0.0041	-1.7030	0.0068
RETURN	+	6.3062	<.0001	6.9318	<.0001
BIG4	+	1.3288	<.0001	-0.4404	0.1749
LNMKT	+	-0.0515	0.1339	-0.0782	0.0736
Wald Chi-Square		536.42***		348.80***	
Pseudo-R2		0.1035		0.1238	
N		6,034		3,384	

- ***, **, and * denote significance at 1, 5 and 10 %, respectively.
- *EQUITY* is a dummy variable, 1 for a firm with equity financing, and 0 for a firm with debt financing. See Table 2 for definitions of other variables.