РАЗДЕЛ 2
КОРПОРАТИВНОЕ УПРАВЛЕНИЕ И СОВЕТ ДИРЕКТОРОВ

SECTION 2
CORPORATE GOVERNANCE AND BOARD ISSUES

RELATIONSHIP BETWEEN BOARD INDEPENDENCE AND FIRM PERFORMANCE POST-SARBANES OXLEY

Kiridaran Kanagaretnam*, Gerald J. Lobo**, Dennis J. Whalen***

Abstract

We examine the relationship between board independence and firm performance over multiple years, post-Sarbanes Oxley. The enactment of the Sarbanes-Oxley Act (SOX) in July, 2002 coincided with the NYSE/NASDAQ proposals to alter their standards for listed companies. These changes included a requirement that boards be comprised of a majority of independent directors and tightened the criteria for a director to be considered "independent". We hypothesize and find that the passage of SOX, together with the new NYSE/NASDAQ regulations, result in independent directors who are more effective monitors of management, leading to stronger firm performance. Our results should bolster investor confidence in the financial markets at a time when the NYSE/NASDAQ has strengthened the corporate governance standards for listed companies.

Keywords: Board Independence, Firm Performance, Sarbanes-Oxley Act

** McMaster University*
*** Corresponding author, Bauer College of Business, University of Houston, Houston, TX 77204*
Tel: (713) 743-4838
E-mail: gjlobo@uh.edu
**** Otterbein University*

1. Introduction

The recent corporate scandals at Enron, Tyco, and WorldCom demonstrate that management will sometimes engage in unethical conduct for personal gain, to the detriment of their stockholders. This has led to a renewed focus on the importance of corporate governance in today's society. Corporate governance encompasses the controls and procedures that exist to ensure that management acts in the interests of shareholders, and thereby maximizes the value of the firm. Legislators, in an attempt to prevent future scandals, passed the Sarbanes-Oxley Act (SOX) in July, 2002, which mandates, among other things, that executives attest to the accuracy of corporate financial statements and that corporations disclose whether or not they have a code of ethics for senior financial management. In addition, at this time, both the NYSE (Rule 303A) and NASDAQ (Amendment to Rules 4200 and 4350) proposed, and later adopted, stricter guidelines for a director to be considered "independent."

We examine the relationship between board independence and various measures of corporate performance during the post-SOX period. Our study, like that of Larcker et al. (2007), utilizes an exploratory approach given that no theory exists to rigorously define the relationship between board

independence and firm performance. While several recent studies also investigate how different aspects of corporate governance relate to firm performance, the results of that research are mixed. We argue that the link between board independence and firm performance has strengthened since the passage of SOX and the adoption of the NYSE/NASDAQ proposals for several reasons.

First, the post-SOX environment is a particularly good one for studying the relationship between board independence and firm performance because the revised NYSE/NASDAQ listing requirements tightened the criteria for a director to be considered "independent". The typical board of directors is comprised of both insiders (i.e., company employees) and outsiders (i.e., directors who are unrelated to the company other than being board members). The loyalty an inside director has toward management may compel her/him to overlook fraudulent activity, in an extreme case, or merely to support an ineffective management team. Morck (2004, pg. 3) states that (referring to the Milgram (1974) experiments) "a human subject suppresses internal ethical standards surprisingly readily when they conflict with loyalty to an authority figure. This accords well with officers and directors' stalwart loyalty to misguided CEOs, even under clear signs of impending financial doom." Previous studies conducted in the pre-SOX period (e.g., Molz, 1988, Bhaghat and Black, 2002) have been unable to find any link between board independence and firm performance, possibly due to the "pseudo" independence of these directors. An independent director in the post-SOX period should have no loyalty to management and should, therefore, fulfill her/his fiduciary duty to shareholders by monitoring management to ensure that shareholder wealth is maximized.

Second, corporate executives as well as directors are now being held more accountable for their actions. Indeed, outside directors at both Enron and WorldCom were found to be liable in multi-million dollar class action lawsuits. Klausner et al. (2005) suggest that "the WorldCom and Enron settlements will increase liability fears among outside directors." This should compel those directors to scrutinize management actions more closely.

Third, the typical board member now holds fewer directorships and the percentage of directors who are retired has increased (Chhaochharia and Grinstein, 2007). This should provide directors with additional time to perform their duties and enable them to monitor management more effectively (Fich and Shivdasani, 2006).

Our study employs three corporate performance measures – buy-and-hold equity returns, return on assets, and Tobin's Q. We utilize five variables to capture various dimensions of board independence, including board leadership, and three additional corporate governance variables as control variables. The board independence variables include the percentage of independent directors on the board (*PCTONBD*), and the percentage stock holdings of officers and directors (*DOHOLDINGS*). In addition, we use indicator variables to denote the existence of a separate chair for the board of directors (*SEPCHR*), whether there is a lead director (*LEADDIR*), and whether the CEO has any relatives on the board (*REL*). Our governance control variables include indicator variables to denote whether a firm has an optimal board size of four to seven members (*BDSIZE*) and an optimal board meeting frequency of four to twelve per fiscal year (*NUMMTGS*). As an additional governance control variable, we use the fraction of CEO compensation that is comprised of stock options and restricted stock (*COMPMIX*).

We use principal components analysis to group the eight board variables into four composite factors – board independence (*FBI*), board leadership (*FBL*), board size (*FBS*), and other (*FOTH*) - based on the characteristics of the individual corporate governance variables that are related to each factor. We then utilize ordinary least squares regression to relate both the board independence factors and the individual board variables to each of our performance measures for the post-SOX period (i.e., 2002-2005) while controlling for a firm's capital structure and other variables associated with firm performance.

Our results indicate that the board independence factor (*FBI*) is significantly positively related to future equity returns. The board leadership factor (*FBL*), the board size factor (*FBS*), and the "other" board factor (*FOTH*) each have a significant positive relationship with future ROA and Tobin's Q. In addition, the individual governance variables generally exhibit the predicted relationships with future firm performance, demonstrating that more independent boards are more effective monitors of management.

Our results demonstrate that independent directors are fulfilling their fiduciary duty to shareholders by effectively monitoring management in the post-SOX period. This finding also has important implications for investors and regulators. Both groups should welcome these results, particularly since the percentage of independent directors on the typical board has increased. Investors can take comfort in knowing that independent directors are now truly "independent". In addition, our findings reinforce the recently adopted NYSE/NASDAQ corporate governance rules, requiring that each listed company has a majority of independent directors.

The remaining sections of the paper are organized as follows. First, the research background on board independence and firm performance is presented. Next, we describe the data and sample selection, followed by the empirical analysis. The final section provides the conclusion.

2. Research Background on Board Independence and Firm Performance

Studies which examine the relationship between board independence and corporate performance generally yield inconsistent results. One line of reasoning suggests that the presence of independent directors on the board should enhance corporate performance. Since they have no links to current management, independent directors should not be biased toward management in their decision-making, suggesting that they are better able to monitor management and ensure that management acts in the interest of shareholders by maximizing firm value.

Baysinger and Butler (1985) find a positive relationship between the percentage of independent directors on the board and subsequent (i.e., ten years later) return on equity. Larcker et al. (2007) demonstrate, using only one year of data (i.e., June, 2002 through May, 2003), that there is a negative relationship between future stock returns and their "Insider Power" factor. One component of this factor is a variable that represents the percentage of inside directors on the board. Lefort and Urzua (2008) find a positive relationship between the percentage of independent directors on the board and Tobin's Q for a sample of Chilean firms.

Other factors also suggest that the presence of independent outside directors on the board should strengthen company results. For example, Weisbach (1988) reports that companies with a higher percentage of outside directors are more likely to replace a chief executive officer if the firm performs poorly. Rosenstein and Wyatt (1990) demonstrate that the appointment of an outside director to the board is accompanied by a positive stock price reaction. Klein (2002) finds that firms with a greater percentage of outside directors on the board are less likely to manage earnings (as measured by abnormal accruals). Bhagat and Black (2002) report that less profitable firms strive to make their boards of directors more independent. Walters et al. (2007) find that shareholder returns around acquisition announcements are positively related to the percentage of independent outside directors on the board when CEO tenure lengthens. Le et al. (2006) demonstrate that the strength of the relationship between research and development spending and firm performance is influenced by independent outside board members.

However, it is also possible that the presence of independent outside directors on the board could adversely affect firm performance. Independent directors may not have detailed knowledge and sufficient expertise about company operations to be effective monitors of management. Fama and Jensen (1983) recognize that outside directors enhance the monitoring ability of corporate boards but also emphasize that insiders are a valuable source of information. Indeed, Byrd and Hickman (1992) demonstrate that the presence of independent directors on the board can reduce shareholder wealth. They find a nonlinear relation between the percentage of independent directors on the board and abnormal equity returns when firms make tender offer bids. Firms with boards comprised of 40-60 percent of outside directors have higher returns while firms with boards comprised of more than 60 percent of outside directors have lower returns. Agrawal and Knoeber (1996) observe a significant negative relationship between the percentage of outside directors on the board and firm performance (as measured by Tobin's Q). Vance (1978) demonstrates that firms whose boards are controlled by management perform better than those whose boards are controlled by outsiders. However, Bhagat and Black (2002) do not find (using several metrics of performance) that firms with more independent boards perform better than those with less independent boards. Molz (1988) also does not find that outside directors enhance financial performance.

The results of these studies indicate that it is not clear whether independent directors contribute to or undermine firm performance. This suggests that an investigation of the relationships between key variables that proxy for board independence and firm performance over multiple years, post-SOX, is an important addition to the current literature on corporate governance. In particular, if SOX and the recently adopted NYSE/NASDAQ corporate governance rules have actually bolstered the quality and responsibility of independent directors, then we would see a positive relation between proxies for board independence and firm performance in the post-SOX period.

3. Methodology, Sample Selection, Data and Variable Definitions

The data on board quality are obtained from the Investor Responsibility Research Center (IRRC) database for board practices for the years 2002-2005. The IRRC database covers firms that have their annual general meeting during the first seven months of the year. The data are based on the firms' proxy statements filed with the SEC. Merging the IRRC database with COMPUSTAT and CRSP gives us samples of 3,008 and 2,854 firm-year observations with all required variables for tests of firm performance based on ROA and stock returns, respectively.

We estimate the following simple regressions of firm performance and board independence using ordinary least squares (hereafter, OLS). The first regression (equation 1) employs the individual governance variables as regressors, while the second regression (equation 2) utilizes the governance factors as regressors. We estimate these regression equations using 2002-2005 data from the post-SOX period.

$$Firm\ performance = a + \Sigma\, b*Individual\ Governance\ Variables + c*Capital\ Structure + \Sigma\, d*Control\ Variables + e \quad (1)$$

$$Firm\ performance = a + \Sigma\, b*Governance\ Factors + c*Capital\ Structure + \Sigma\, d*Control\ Variables + e \quad (2)$$

The above model specifications are similar to models used in prior research (for example, Brown and Caylor, 2006, and Larcker, Richardson, and Tuna, 2007) examining various aspects of corporate governance and firm performance. We examine the relationship between board independence and firm performance after controlling for capital structure and various control variables specific to each firm performance measure.

It is well known that capital structure determination is an important corporate finance decision for a firm. Prior research indicates that aligning the manager's interests too closely with stockholders' interests will result in sub-optimal investment policies and increase the agency cost of debt (John and John, 1993). Thus controlling for capital structure becomes necessary in any examination of firm performance.

We discuss the choice of control variables specific to each firm performance measure in the results section. We also include industry and year indicator variables to control for industry and year fixed effects. For industry controls, we employ the commonly used Fama and French (1997) 48 industry categories.

Empirical Measures of Corporate Performance

Our study utilizes several metrics of corporate performance. We use Return on

Assets (*ROA*), defined as earnings before extraordinary items (COMPUSTAT item 18) deflated by beginning total assets, as our measure of operating performance. We also use annual buy-and-hold equity return (*RETURN*), calculated from *CRSP* for a given year, as the measure of stock performance. Finally, we utilize Tobin's Q, a variable that is often employed to evaluate the impact of governance quality on overall firm value. Prior research has examined the association between Tobin's Q and governance variables such as board size (Yermack, 1996), dual CEO-chair (Yermack, 1996), and board structure (Bhagat and Black, 2002). Consistent with the prior literature, we measure Tobin's Q as total assets plus market value of equity minus book value of equity minus deferred tax, all divided by total assets.

Empirical Measures of Board Independence/Control Variables

The typical board of directors consists of both inside and outside directors. Inside directors are employees of the firm while independent outside directors have no business or other relationship with the firm that could bias their decision-making. The variable *PCTONBD* represents the percentage of independent directors on the board. Klein (2002) finds a negative relation between board committee independence and abnormal accruals. This suggests that boards structured to be more independent of the CEO are more effective monitors of the financial accounting process. Hermalin and Weisbach (2003) find that boards with a greater percentage of outside directors are more likely to dismiss an ineffective manager. Also, Xie et al. (2003) indicate that companies with greater outside representation on the board exhibit a lower level of earnings management. The results of these studies are consistent with the view that independent directors are more effective monitors because they have no ties to management and are, therefore, not biased. However, Bhagat and Black (2002) find no evidence that board independence enhances firm performance. This finding is consistent with the view that independent directors may lack the expertise of company insiders to be effective monitors of management. However, we expect a positive relation between *PCTONBD* and our firm performance measures in the post-SOX period. This should result from the tightening of the criteria for a director to be considered "independent."

The director and officer ownership variable (*DOHOLDINGS*) represents the percentage stockholdings of officers and directors. Officers and directors who own a greater percentage of company stock are more likely to act in the interests of shareholders (McConnell and Servaes, 1990). Klein (2002) finds that the level of earnings management is inversely related to the stockholdings of the CEO. Warfield et al. (1995) hypothesize that the level of managerial ownership affects both the informativeness of earnings and the magnitude of discretionary accounting accrual adjustments. Their results show that managerial ownership is positively associated with earnings' explanatory power for returns and inversely related to the magnitude of accounting accrual adjustments. Therefore, we expect a positive association between *DOHOLDINGS* and firm performance. However, we also note that higher *DOHOLDINGS* could reduce the overall board independence.

The variable *REL* is an indicator variable which equals "1" if the CEO has a relative on the board of directors and "0" otherwise. Board members who are related to the CEO are more likely to be biased and, therefore, not as effective at monitoring management. The variable *SEPCHR* is an indicator variable which equals "1" if the CEO is not the chairman of the board

and "0" if the CEO is the chairman of the board. A CEO who is also chairman of the board of directors could undermine the independence of the board by dissuading directors from expressing alternative viewpoints. Companies whose CEO is not also the chairman of the board should have stronger performance.

The variable *LEADDIR* is an indicator variable which takes the value of "1" if the company has a lead director and "0" if not. A lead director is an outside director who is responsible for chairing executive sessions of the board (i.e., meetings of the board with no senior management present). Ideally, these sessions should promote a freer exchange of ideas between directors and thereby enhance corporate performance. However, according to IRRC, "most companies appoint a lead director when the company's chair also serves as CEO, as a way to satisfy shareholders that an independent serves as a conduit of communication to the board." This suggests that boards with a lead director will be less effective monitors of management and, therefore, may have weaker performance.

The number of directors on the board is captured by the indicator variable *BDSIZE*; this variable equals "1" for boards which are comprised of an optimal board size of four to seven directors, and equals "0" otherwise. Dey (2005) defines optimal board size as four to eight members. Yermack (1996) finds that board size and firm performance, as reflected in Tobin's Q, are negatively related. Lipton and Lorsch (1992) suggest that boards with more than seven or eight members are less effective. Therefore, we expect companies with an optimal board size to have stronger performance.

The variable *NUMMTGS* is an indicator variable which equals "1" if a company has between 4 and 12 board meetings per year, and equals "0" otherwise. Too many board meetings can be symptomatic of problems at a company. On the other hand, boards that meet infrequently may not be able to monitor the management effectively. Jensen (1993, pg. 866) states that "…in well-functioning organizations the board will be relatively inactive and will exhibit little conflict. It becomes important primarily when the rest of the internal control system is failing, and this should be a relatively rare event." Indeed, Vafeas (1999) finds that the number of board meetings per year is negatively associated with firm value. Therefore, we expect a positive relation between *NUMMTGS* and firm performance.

The variable *COMPMIX* is the percentage of total CEO compensation in a given year which is comprised of stock options and restricted stock. This is similar to the variable employed by Larcker et al. (2007); however, we do not include stock compensation in the variable *DOHOLDINGS*. The link between equity-based compensation and firm performance is not clear. This form of remuneration may induce executives to focus too much on the short-term performance of their stock (Roell, 2008) or even to manipulate information (Goldman and Slezak, 2006). However, Hanlon et al. (2003) find a positive relation between executive compensation which consists of stock options and future earnings. Therefore, we make no directional prediction on the relation between *COMPMIX* and firm performance.

We use principal components analysis to group the individual board independence variables into composite factors that capture different dimensions of board independence. This results in the identification of four composite factors that retain 63 percent of the variance in the individual corporate governance variables. We use varimax oblique rotation to minimize the number of variables that have high loadings on each factor so that we can more easily interpret the factors.

The individual board independence variables associated with factor one (*FBI*) are *PCTONBD*, *DOHOLDINGS* and *REL*. We label this factor the board independence factor. Factor two (*FBL*), labeled the board leadership factor, is highly associated with *SEPCHR* and *LEADDIR*. The variable *BDSIZE* is the only factor with a high loading on factor three (*FBS*), the board size factor. The variables *NUMMTGS* and *COMPMIX* are highly associated with factor four (*FOTH*), the "other" board factor. The board size factor (*FBS*) and the "other" board factor (*FOTH*) are essentially control variables in our analysis.

4. Empirical Analysis

4.1 Descriptive Statistics

Table 1 reports descriptive statistics for the corporate performance measures, the board independence variables, and the control variables. The mean (median) return on assets and buy-and-hold stock return for our sample firms are 4.0 percent (3.9 percent) and 15.5 percent (12.5 percent), respectively. Independent directors comprise approximately 71 percent of the board for our sample firms; this is consistent with Gordon (2006). On average, 21.4 percent of our sample firms have the optimal board size of four to seven members; and 92.9 percent of our sample firms have the optimal number of board meetings of four to twelve per fiscal year. The CEO is not the chairman of the board for 35 percent of our sample firms; this is somewhat higher than the 23 percent reported by Larcker et al. (2007) using 2002-2003 data, indicative of more recent governance improvements. Also, 41 percent of the firms have a lead director; this is significantly higher than the 8 percent reported by Larcker, Richardson, and Tuna (2007). Stock options and restricted stock comprise approximately 43 percent of the typical CEO compensation package. Directors and officers own an average of 10 percent of their company's stock.

4.2 Relation between ROA and Board Independence

Table 2 reports the OLS estimation results using *ROA* as the firm performance measure for the post-SOX period. We employ three variants of *ROA* as the dependent variable in our regressions – *ROA* for the current year, *ROA* for the next year and the *ROA* average for the next two years. The control variables for the *ROA* regressions include total firm assets (*LnASSET*), the past/current year return on assets (*LROA/ROA*), and leverage (*LEV*). Firm operating performance should tend to persist over time; the coefficient on *ROA* should therefore be positive. Highly levered firms should exhibit strong (weak) operating performance during good (poor) economic times; therefore, *LEV* (i.e., the firm debt ratio) could be positively or negatively associated with future *ROA*.

Panel A of Table 2 presents results using the individual governance variables as regressors. The variables *PCTONBD*, *SEPCHR* and *DOHOLDINGS* each exhibit a statistically significant positive relation, as predicted, with both next year's ROA and the average ROA for the next two years. Boards with a greater percentage of independent directors and a chair who is not also the CEO should not be biased toward management; therefore, they are more effective monitors of management. Boards whose members own a greater percentage of company stock are more likely to look out for the interests of shareholders (McConnell and Servaes, 1990) and thereby enhance firm performance. Also, *REL* has a significant negative relationship with next year's ROA.

The additional variables, *BDSIZE* and *NUMMTGS*, also are significantly positively related to both next year's ROA and the average ROA for the next two years. Firms with an optimal board size have better operating performance; this is consistent with Yermack (1996). Companies whose boards have an optimal number of meetings each fiscal year also have stronger operating performance; this is consistent with Vafeas (1999). Interestingly, *COMPMIX* has a statistically significant positive relationship with the average ROA for the next two years. Greater stock-based compensation for the CEO enhances firm performance; this is consistent with the Hanlon, Rajgopal, and Shevlin (2003) finding.

Panel B of Table 2 provides results when using the four governance factors as regressors. As expected, the board leadership factor (*FBL*) has a significant positive relationship with the next two year's average *ROA*. Firms with stronger board leadership (i.e., those with a CEO who is not chairman of the board and that have no lead director) also have stronger operating performance. There is a significant positive relationship between the board size factor (*FBS*) and both next year's ROA and the average ROA for the next two years; firms which have an optimal board size are more effective monitors of management and thereby have stronger operating performance. The "other" board factor (*FOTH*) also exhibits a significant, positive relation with both future ROA metrics. Firms with an optimal board meeting frequency and stock-based CEO compensation have stronger operating performance. The control variable *ROA* is significantly positively related to future *ROA* while *LEV* is negatively related to future *ROA*. As a robustness check, we also correct for firm level clustering of standard errors. Untabulated results indicate that the significance levels are similar to the results reported for the ROA regressions with controls for fixed industry and years effects.

4.3 Relation between Equity Returns and Board Independence

Firm equity returns are the dependent variables for the OLS estimation results for the post-SOX period presented in Table 3. We again employ three variants of the dependent variable – current year equity returns, next year equity returns, and the equity return average for the next two years. The control variables for the equity return regressions include *LEV*, the ratio of market value of equity to book value of equity (*MB*), firm size (*LnMVE*), and stock return volatility over the year (*VOLAT*). Firm leverage could be positively or negatively related to equity returns depending on the state of the economy. Firms with a lower market-to-book ratio of equity (i.e., value stocks) and smaller companies may have higher future equity returns (Fama and French, 1992). Firms with higher stock return volatility over the previous year may have higher equity returns given their higher risk level. However, we do not develop predictions for the control variables.

Panel A of Table 3 presents results using the individual governance variables as regressors. As expected, *PCTONBD* has a significant, positive relation with both next year's equity return and the average of the next two years' equity returns; this is consistent with Larcker, Richardson, and Tuna. (2007). Boards with a greater percentage of independent directors are more effective monitors of management and thereby contribute to higher equity returns. *NUMMTGS* and *SEPCHR* each exhibit, as predicted, significant positive relationships with both current equity returns and the average of the next two year's equity returns. Boards which have an optimal number of meetings and whose CEO is not the chair enhance equity returns.

Panel B of Table 3 presents the results for regressions employing the four governance factors as regressors. The results indicate that, as predicted, the board independence factor (*FBI*) is significantly positively related to next year's equity returns and the average of the next two years' equity returns. Also, the board leadership factor (*FBL*) has a significant

positive relationship with the equity return average for the next two years, and the "other" board factor (*FOTH*) is significantly positively related to current year equity returns. Firms with more independent boards, stronger board leadership, and stock-based compensation for the CEO have higher equity returns. The market-to-book and size control variables have significant negative relationships with future equity returns while the volatility control variable has a significant positive relationship with future equity returns.

4.4 Relation between Tobin's Q and Board Independence

Our third firm performance measure, Tobin's Q, is the dependent variable for the OLS estimation results presented in Table 4. We employ three variants of the dependent variable – the current year's Tobin's Q, next year's Tobin's Q, and two years' ahead Tobin's Q. The control variables for these regressions include firm total assets (*LnASSET*) and *LEV*. Since Tobin's Q has total assets as the denominator, we include *LnASSET* as a control variable. Firm leverage could be positively or negatively related to Tobin's Q depending on the state of the economy.

Panel A presents regression results employing the individual governance variables as regressors. The variables *SEPCHR*, *DOHOLDINGS*, *BDSIZE* and *COMPMIX* are each significantly positively related to the three Tobin's Q variants. Firms which have an optimal board size, a CEO who is not the chairman of the board, equity-based compensation, and a high level of board stock ownership exhibit stronger performance. In addition, *REL* has, as predicted, a significant negative relationship with each Tobin's Q measure.

Regression results using the four governance factors as regressors are provided in Panel B of Table 4. The board leadership factor (*FBL*), the board size factor (*FBS*), and the "other" board factor (*FOTH*) each exhibit, as hypothesized, statistically significant positive relationships with the three Tobin's Q measures. Boards that have no lead director, a chairman who is not the CEO, an optimal board size, an optimal number of meetings, and equity-based compensation for the CEO exhibit higher Tobin's Q. Both of the control variables, *LEV* and *SIZE*, are significantly negatively related to Tobin's Q.

4.5 Additional Analysis

We summarize the results of several additional tests in this section. First, we employ a pooled regression approach to relate our individual governance variables to the performance measures in both the pre-SOX period (i.e., 1998-2001) and the post-SOX period. This enables us to examine whether SOX has strengthened the link between board independence and firm performance. Our pooled regression results demonstrate not only that the relationship between the percentage of independent directors on the board and firm performance (i.e., Tobin's Q) is significantly negative in the pre-SOX period, but also that this relationship is significantly more positive (using all three firm performance metrics) in the post-SOX period. This is compelling evidence that SOX has strengthened the positive link between board independence and firm performance.

Second, we test whether there might be an endogenous relationship between the board structure and firm performance. We use the approach followed by Larcker et al. (2007) as a way to provide some insight into the impact of endogeneity on our main results. Similar to Larcker et al. (2007), we assume that two of the primary variables that determine governance structure are firm size (measured as the natural logarithm of the market value of equity) and industrial classification (measured by Fama and French (1997) industry factors). Each governance variable is regressed on firm size and industry and the OLS residuals for each of the eight governance constructs are retained. Then, we repeat our tests of future firm performance reported in Panel A of Tables 2-4 using residuals for each of the eight governance constructs as explanatory variables. The untabulated results are qualitatively similar to those reported in Tables 2-4, thus alleviating the concern that the results in Tables 2-4 are driven by endogeneity.

Third, we examine whether our results are driven by family (owner-manager) firms. We do so by re-estimating the models after deleting observations with *DOHOLDINGS* greater than 50% (i.e., owner-manager firms) and *DOHOLDINGS* greater than 25% (high managerial ownership firms). Our inferences are not altered, indicating that our findings are unlikely to be driven by owner-manager firms or high managerial ownership firms.

Finally, we examine whether our results hold after controlling for capital expenditures, an alternate proxy for future growth. We re-estimate the models in Panel B of Tables 2-4 after including net capital expenditures (capital expenditures less depreciation) as an additional regressor. The untabulated results are consistent with the results in Panel B of Tables 2-4, indicating that those results are robust to controlling for future growth prospects.

5. Conclusions

We examine the relationship between firm performance and board independence in the post-SOX period of 2002-2005. Our study has several advantages over previous research in this area. First, we consider several firm performance metrics – return on assets, buy-and-hold equity returns, and Tobin's Q. Second, we utilize principal components analysis to group our board independence variables into two factors. By doing so, we are able to capture the extent

to which boards are truly independent and reflect strong leadership.

We argue that the adoption of SOX has resulted in independent outside directors being more effective monitors of management for several reasons. Independent outside directors are now being held more accountable. For example, such directors at both Enron and WorldCom were found liable for their actions in multi-million dollar lawsuits. This increased liability should compel such directors to perform their duties more effectively. In addition, outside directors must now meet the more stringent requirements of both the NYSE and NASDAQ to be considered "independent". Such directors will not be independent in name only. Also, directors now hold fewer directorships and the fraction of directors who are retired has increased (Chhaochharia and Grinstein, 2007); this implies that directors now have more time to perform their duties and should, therefore, be more effective monitors of management (Fich and Shivdasani, 2006).

While previous research yields inconclusive results, our study clearly demonstrates that firms with more independent boards have stronger performance in the post-SOX period. Boards which have more independent directors have fewer potential conflicts of interest with management; such boards, therefore, are more effective monitors of management leading to stronger company financial performance.

References

1. Agrawal, A. and Knoeber, C. (1996), "Firm performance and mechanisms to control agency problems between managers and shareholders," *Journal of Financial and Quantitative Analysis*, Vol. 31 No. 3, pp. 377-397.
2. Baysinger B. and Butler H. (1985), "Corporate governance and the board of directors: performance effects of changes in board composition," *Journal of Law, Economics, and Organization*, Vol. 1, pp. 101-124.
3. Bhagat, S. and Black, B. (2002), "The non-correlation between board independence and long-term firm performance," *Journal of Corporation Law*, Vol. 27 No. 2, pp. 231-273.
4. Brown, L. and Caylor, M. (2006), "Corporate governance and firm valuation," *Journal of Accounting and Public Policy*, Vol. 25, pp. 409-434.
5. Byrd, J. and Hickman, K. (1992), "Do outside directors monitor managers?" *Journal of Financial Economics*, Vol. 32, pp.195-221.
6. Chhaochharia, V. and Grinstein, Y. (2007), "Corporate governance and firm value: the impact of the 2002 governance rules," *Journal of Finance*, Vol. 62, pp. 1789-1825.
7. Dey, A. (2005), "Corporate governance and financial reporting credibility," Working paper, University of Chicago.
8. Fama, E. and Jensen, M. (1983), "Separation of ownership and control," *Journal of Law and Economics*, Vol. 26, pp. 301-326.
9. Fama, E. and French, K. (1992), "The cross-section of expected stock returns," *Journal of Finance*, Vol. 47, No. 2, pp. 427-465.
10. Fama, E. and French, K. (1997), "Industry costs of equity," *Journal of Financial Economics*, Vol. 43, pp. 153-194.
11. Fich, E. and Shivdasani, A. (2006), "Are busy boards effective monitors?" *Journal of Finance*, Vol. 61, No. 2, pp. 689-724.
12. Goldman, E. and Slezak, S. (2006), "An equilibrium model of incentive contracts in the presence of information manipulation," *Journal of Financial Economics*, Vol. 80, No. 3, pp. 603-626.
13. Gordon, J. (2007), "The rise of independent directors in the United States, 1950-2005: Of shareholder value and stock market prices," Columbia Law and Economics Working Paper No. 323.
14. Hanlon, M., Rajgopal, S. and Shevlin, T. (2003), "Are executive stock options associated with future earnings?", *Journal of Accounting and Economics*, Vol. 36 No. 1-3, pp.3-44.
15. Hermalin, B. and Weisbach, M. (2003), "Boards of directors as an endogenously determined institution: A survey of the economic literature," *FRBNY Economic Policy Review*, Vol. 9 No.1, pp. 7-26.
16. Jensen, M., (1993), "The modern industrial revolution, exit, and the failure of internal control systems," *The Journal of Finance*, Vol. 48, pp. 831-880.
17. John, T. and John, K. (1993), "Top management compensation and capital structure," *The Journal of Finance*, Vol. 48 No. 3, pp. 949-974.
18. Klausner, M., Black, B. and Cheffins, B. (2005), "Outside directors' liability: Have WorldCom and Enron changed the rules?" *Stanford Lawyer*, pp. 36-39.
19. Klein, A. (2002), "Audit committee, board of director characteristics, and earnings management," *Journal of Accounting and Economics*, Vol. 33 No. 3, pp. 375-400.
20. Larcker, D., Richardson, S., and Tuna, I. (2007), "Corporate governance, accounting outcomes, and organizational performance," *The Accounting Review*, Vol. 82 No. 4, pp. 963-1008.
21. Le S., Walters B., Kroll M. (2006), "The moderating effects of external monitors on the relationship between R&D spending and firm performance," *Journal of Business Research*, Vol. 59, pp. 278-287.
22. Lefort, F., Urzua, F. (2008), "Board independence, firm performance and ownership concentration: evidence from Chile," *Journal of Business Research*, Vol. 61, pp. 615-622.
23. Lipton, M. and Lorsch, J. (1992), "A modest proposal for improved corporate governance," *Business Lawyer*, Vol. 48 No. 1, pp. 59-77.

24. McConnell, J. and Servaes, H. (1990), "Additional evidence on equity ownership and corporate value," *Journal of Financial Economics*, Vol. 27, pp. 595-612.
25. Milgram S. (1974), *Obedience to Authority*, Harper and Row, New York, N.Y.
26. Molz R. (1988), "Managerial domination of boards of directors and financial performance," *Journal of Business Research*, Vol. 16, pp.235-249.
27. Morck R. (2004), "Behavioral finance in corporate governance – independent directors and non-executive chairs," Harvard Institute of Economic Research Discussion Paper Number 2037.
28. Roell, A. (2008), "Executive pay and shareholder litigation," *Review of Finance*, Vol. 12, No. 1, pp. 141-184.
29. Rosenstein, S. and Wyatt, J. (1990), "Outside directors, board independence, and shareholder wealth," *Journal of Financial Economics*, Vol. 26, pp. 175-192.
30. Vafeas, N. (1999), "Board meeting frequency and firm performance," *Journal of Financial Economics*, Vol. 53, pp. 113-142.
31. Vance S. (1978), "Corporate governance: assessing corporate performance by boardroom attributes," *Journal of Business Research*, Vol. 6, pp.203-220.
32. Walters, B., Kroll M., Wright, P. (2007), "CEO tenure, boards of directors, and acquisition performance," *Journal of Business Research*, Vol. 60, pp. 331-338.
33. Warfield, T., Wild J., and Wild K. (1995), "Managerial ownership, accounting choices, and informativeness of earnings," *Journal of Accounting and Economics*, Vol. 20 No.1, pp. 61-91
34. Weisbach, M. (1988), "Outside directors and CEO turnover," *Journal of Financial Economics*, Vol. 20, pp. 431-460.
35. Xie, B., Davidson, W., DaDalt, P. (2003), "Earnings management and corporate governance: The role of the board and the audit committee," *Journal of Corporate Finance*, Vol. 9, No. 3, pp. 295-316.
36. Yermack, D. (1996), "Higher market valuation of companies with a small board of directors," *Journal of Financial Economics*, Vol. 40, pp. 185-211.

Table 1. Descriptive Statistics

Variable	N	Mean	Std Dev	25%	Median	75%
ROA	3008	0.0397	0.0820	0.0137	0.0385	0.0738
RETURN	2854	0.1550	0.4075	-0.0656	0.1246	0.3269
TOBIN'S Q	3008	1.8209	1.0809	1.1563	1.4762	2.0412
BDSIZE	3008	0.2144	0.4105	0.0000	0.0000	0.0000
NUMMTGS	3008	0.9292	0.2566	1.0000	1.0000	1.0000
PCTONBD	3008	71.0167	14.0920	61.5000	72.7135	81.8180
REL	3008	0.1393	0.3463	0.0000	0.0000	0.0000
SEPCHR	3008	0.3531	0.4780	0.0000	1.0000	1.0000
LEADDIR	3008	0.4146	0.4927	0.0000	0.0000	1.0000
COMPMIX	3008	0.4272	0.2795	0.2005	0.4580	0.6460
DOHOLDINGS	3008	10.0803	13.6687	2.6000	5.2800	11.2000
FBI	3008	41.0673	16.5780	33.0246	44.9050	53.1364
FBL	3008	-0.0066	0.5467	-0.6820	0.0000	0.4410
FBS	3008	0.2144	0.4105	0.0000	0.0000	0.0000
FOTH	3008	1.0167	0.2598	0.9336	1.0802	1.1688
LEV	3008	0.1873	0.1567	0.0430	0.1677	0.2933
LnASSET	3008	7.6964	1.3941	6.0727	6.7167	7.5746
LnMVE	2854	7.8976	1.6837	6.6328	7.7578	8.9959
VOLAT	2854	0.0925	0.0534	0.0570	0.0790	0.1120

1. Variable Definitions:

ROA= return on assets;
RETURN= annual buy-and-hold equity return;
TOBIN'S Q = Tobin's Q computed as (total assets + market value of equity- book value of equity - deferred tax) all divided by total assets ;
BDSIZE= indicator variable which equals '1' for boards which are comprised of an optimal board size of four to seven members and '0' otherwise ;
NUMMTGS= indicator variable which equals '1' if a company has between four and twelve board meetings per year and '0' otherwise ;
PCTONBD= percentage of independent directors on the board;
REL= indicator variable for relatives on board ; equals "1" if the CEO has a relative on the board of directors and "0" otherwise;
SEPCHR= indicator variable which equals "1" if the CEO is not the chairman of the board and "0" otherwise;
LEADDIR= indicator variable which equals "1" if the company has a lead director and "0" otherwise;
COMPMIX= Compensation mix;
DOHOLDINGS= percentage stock holdings of directors and officers;
FBI = board independence factor (0.686**PCTONBD* – 0.749**DOHOLDINGS* – 0.718**REL)*;
FBL = board leadership factor (0.782**SEPCHR* - 0.682**LEADDIR)*;
FBS = board size factor (0.901**BDSIZE)*;
FOTH = other board factor (0.896**NUMMTGS* + 0.431**COMPMIX*);
LEV= firm debt ratio (i.e., total debt/total assets);
LnASSET= natural log of firm's total assets;
LnMVE= natural log of firm's market value of equity; and
VOLAT= stock return volatility based on standard deviation of 12 months stock returns for the current year.

Table 2. Relationship between Future Operating Performance and Governance Variables and Governance Factors

Panel A: Individual Governance Variables

Variable	Predicted Sign	*Current ROA*		*Next year ROA*		*Next two years ROA*	
		Coeff.	*t-stats*	*Coeff.*	*t-stats*	*Coeff.*	*t-stats*
Intercept	?	0.0453	3.83***	-0.0058	-0.53	-0.0125	-1.07
PCTONBD	+	0.0001	0.87	0.0001	1.43*	0.0001	1.30*
REL	-	-0.0022	-0.57	-0.0061	-1.76**	-0.0036	-0.97
DOHOLDINGS	+	0.0001	0.64	0.0002	2.02**	0.0002	2.33***
SEPCHR	+	-0.0012	-0.45	0.0031	1.30*	0.0064	2.47***
LEADDIR	-	-0.0009	-0.36	0.0004	0.19	-0.0019	-0.74
BDSIZE	+	-0.0031	-0.98	0.0056	1.92**	0.0074	2.37***
NUMMTGS	+	-0.0021	-0.45	0.0127	3.03***	0.013	3.02***
COMPMIX	?	0.0007	0.15	0.0042	1.04	0.0105	2.45**
LnASSET	-	-0.0014	-1.56*	0.0000	0.00	0.0007	0.86
LEV	?	-0.0511	-6.11***	-0.0196	-2.54**	-0.0197	-2.35**
LROA	+	0.5046	40.17***				
ROA	+			0.6125	45.20***	0.5179	36.42***
Year controls		Yes		Yes		Yes	
Industry controls		Yes		Yes		Yes	
Observations		3008		3008		2182	
F-Value		44.61		53.17		35.73	
Adjusted R^2		41.04%		45.44		43.32%	

1. Variable Definitions:

LnASSET= natural log of firm's total assets;
LROA= return on assets for the past year;
ROA= return on assets;
LEV= firm debt ratio (i.e., total debt/total assets); and
.All other variables are defined in Table 1.

2. *** significant at 0.01 level, ** significant at 0.05 level, * significant at 0.10 level. Significance levels are based on one-tailed tests when the coefficient sign is predicted and on two-tailed tests otherwise.

Panel B: Governance Factors

Variable	Predicted Sign	*Current ROA*		*Next year ROA*		*Next two years ROA*	
		Coeff.	*t-stats*	*Coeff.*	*t-stats*	*Coeff.*	*t-stats*
Intercept	?	0.0490	5.38***	0.0076	0.91	0.0012	0.14
FBI	+	0.00004	0.45	0.00001	0.11	-0.00003	-0.46
FBL	+	-0.0004	-0.19	0.0015	0.73	0.0055	2.46***
FBS	+	-0.0028	-0.87	0.0059	2.03**	0.0077	2.48***
FOTH	+	-0.0014	-0.32	0.0133	3.20***	0.0172	3.84***
LnASSET	-	-0.0014	-1.63*	-0.02	-2.61***	0.0006	0.76
LEV	?	-0.0518	-6.24***	-0.0003	-0.36	-0.0203	-2.44**
LROA	+	0.5051	40.29***				
ROA	+			0.6129 ***	45.25	0.5174 ***	36.43
Year controls		Yes		Yes		Yes	
Industry controls		Yes		Yes		Yes	
Observations		3008		3008		2182	
F-Value		48.67		57.72		38.76	
Adjusted R^2		41.09%		45.36		43.24%	

1. Variable Definitions:

FBI = board independence factor (0.686**PCTONBD* – 0.749**DOHOLDINGS* – 0.718**REL)*;
FBL = board leadership factor (0.782**SEPCHR* - 0.682**LEADDIR)*;
FBS = board size factor (0.901**BDSIZE)*;
FOTH = other board factor (0.896**NUMMTGS* + 0.431**COMPMIX)*;
LnASSET= natural log of firm's total assets;
LROA= return on assets for the past year;
ROA= return on assets; and
LEV= firm debt ratio (i.e., total debt/total assets); and

All other variables are defined in Table 1.

2. *** significant at 0.01 level, ** significant at 0.05 level, * significant at 0.10 level. Significance levels are based on one-tailed tests when the coefficient sign is predicted and on two-tailed tests otherwise.

Table 3. Relationship between Future Equity Returns and Governance Variables and Governance Factors

Panel A: Individual Governance Variables

Variable	Predicted Sign	*Current Return*		*Next year Return*		*Next two years Return*	
		Coeff.	*t-stats*	*Coeff.*	*t-stats*	*Coeff.*	*t-stats*
Intercept	?	0.3239	5.39***	0.0966	1.62	0.1420	1.19
PCTONBD	+	-0.0003	-0.73	0.0009	2.12**	0.0019	2.20**
REL	-	-0.0208	-1.17	0.0105	0.60	0.0190	0.55
DOHOLDINGS	+	-0.0003	-0.53	-0.0004	-0.7	-0.0010	-1.03
SEPCHR	+	0.0161	1.31*	0.0140	1.17	0.0435	1.81**
LEADDIR	-	0.0041	0.34	0.0018	0.15	-0.0042	-0.17
BDSIZE	+	-0.0135	-0.89	0.0086	0.58	0.0369	1.30*
NUMMTGS	+	0.0573	2.64***	0.0179	0.85	0.0756	1.76**
COMPMIX	?	-0.0366	-1.70*	-0.0123	-0.59	-0.0375	-0.91
LEV	?	-0.0486	-1.24	0.0650	1.71*	0.1868	2.43**
LMB	?	0.0004	0.22				
MB	?			-0.0089	-3.31***	-0.0137	-2.54**
LLnMVE	?	-0.024	-4.91***				
LnMVE	?			-0.0084	-1.73*	-0.0206	-2.12**
LVOLAT	?	-0.0567	-0.48				
VOLAT	?			0.7230	5.29***	0.9427	3.67***
Industry controls		Yes		Yes		Yes	
Observations		2854		2854		2096	
F-Value		23.53		12.18		12.60	
Adjusted R^2		28.30%		16.43%		21.34%	

1. Variable Definitions:

LEV= firm debt ratio (i.e., total debt/total assets);
LMB= market value of equity to book value of equity at the beginning of the year;
LLnMVE= natural log of firm's market value of equity at the beginning of the year;
LVOLAT= stock return volatility based on standard deviation of past 12 months stock returns;
MB= market value of equity to book value of equity;
LnMVE= natural log of firm's market value of equity; and
VOLAT= stock return volatility based on standard deviation of current 12 months stock returns); and all other variables are defined in Table 1.

2. *** significant at 0.01 level, ** significant at 0.05 level, * significant at 0.10 level. Significance levels are based on one-tailed tests when the coefficient sign is predicted and on two-tailed tests otherwise.

Panel B: Governance Factors

Variable	Predicted Sign	*Current Return*		*Next year Return*		*Next two years Return*	
		Coeff.	*t-stats*	*Coeff.*	*t-stats*	*Coeff.*	*t-stats*
Intercept	?	0.3330	7.06***	0.149	3.163***	0.2631	2.81***
FBI	+	-0.00003	-0.09	0.0008	2.12**	0.0018	2.43***
FBL	+	0.0084	0.79	0.0088	0.86	0.0336	1.63*
FBS	+	-0.0151	-1.01	0.0064	0.44	0.0307	1.06
FOTH	+	0.0347	1.60*	0.0104	0.50	0.0481	1.14
LEV	?	-0.0482	-1.24	0.0615	1.63	0.1789	2.35**
LMB	?	0.0004	0.27				
MB	?			-0.0088	-3.30***	-0.0136	-2.53**
LLnMVE	?	-0.0268	-5.67***				
LnMVE	?			-0.0097	-2.07**	-0.0251	-2.68 ***
LVOLAT	?	-0.0718	-0.61				
VOLAT	?			0.7062	5.20***	0.8886	3.49***
Industry controls		Yes		Yes		Yes	
Observations		2854		2854		2096	
F-Value		25.32		13.19		13.62	
Adjusted R^2		28.17%		16.47%		21.32%	

1. Variable Definitions:

FBI = board independence factor (0.686**PCTONBD* – 0.749**DOHOLDINGS* – 0.718**REL)*;
FBL = board leadership factor (0.782**SEPCHR* - 0.682**LEADDIR)*;
FBS = board size factor (0.901**BDSIZE)*;
FOTH = other board factor (0.896**NUMMTGS* + 0.431**COMPMIX)*;
LEV= firm debt ratio (i.e., total debt/total assets);
LMB= market value of equity to book value of equity at the beginning of the year;
LLnMVE= natural log of firm's market value of equity at the beginning of the year;
LVOLAT= stock return volatility based on standard deviation of past 12 months stock returns;
MB= market value of equity to book value of equity;
LnMVE= natural log of firm's market value of equity; and
VOLAT= stock return volatility based on standard deviation of current 12 months stock returns
and all other variables are defined in Table 1.

2. *** significant at 0.01 level, ** significant at 0.05 level, * significant at 0.10 level. Significance levels are based on one-tailed tests when the coefficient sign is predicted and on two-tailed tests otherwise.

Table 4. Relationship between Future Tobin's Q and Governance Variables and Governance Factors

Panel A: Individual Governance Variables

Variable	Predicted Sign	*Current Tobin's Q*		*Next year Tobin's Q*		*Two years ahead Tobin's Q*	
		Coeff.	*t-stats*	*Coeff.*	*t-stats*	*Coeff.*	*t-stats*
Intercept	?	2.5887	13.96***	2.3936	14.86***	2.3550	12.10***
PCTONBD	+	-0.0002	-0.16	0.0004	0.33	0.0011	0.71
REL	-	-0.2501	-4.11***	-0.2028	-3.94***	-0.1566	-2.44***
DOHOLDINGS	+	0.0050	3.21***	0.0048	3.52***	0.0027	1.69**
SEPCHR	+	0.0517	1.28*	0.0818	2.32**	0.0623	1.44*
LEADDIR	-	-0.0630	-1.53*	-0.0404	-1.14	-0.0404	-0.92
BDSIZE	+	0.0753	1.54*	0.1124	2.59***	0.1147	2.21**
NUMMTGS	+	0.0641	0.87	0.0793	1.27	0.0244	0.31
COMPMIX	?	0.2839	4.13***	0.2847	4.74***	0.2264	3.15***
LEV	?	-1.4278	-11.04***	-1.0536	-9.26***	-1.0464	-7.61
LnASSET	?	-0.0799	-5.55***	-0.1032	-8.58***	-0.0791	-5.28***
Year controls		Yes		Yes		Yes	
Industry controls		Yes		Yes		Yes	
Observations		3008		3008		1992	
F-Value		18.45		21.51		11.06	
Adjusted R^2		23.08%		24.28%		19.18%	

1. Variable Definitions:

LnASSET= firm total assets; and
LEV= firm debt ratio (i.e., total debt/total assets); and
All other variables are defined in Table 1.

2. *** significant at 0.01 level, ** significant at 0.05 level, * significant at 0.10 level. Significance levels are based on one-tailed tests when the coefficient sign is predicted and on two-tailed tests otherwise.

Panel B: Governance Factors

Variable	Predicted Sign	*Current Tobin's Q*		*Next year Tobin's Q*		*Two years ahead Tobin's Q*	
		Coeff.	*t-stats*	*Coeff.*	*t-stats*	*Coeff.*	*t-stats*
Intercept	?	2.562	17.77***	2.448	19.66***	2.357	15.54***
FBI	+	-0.001	-0.90	-0.001	-0.80	0.001	0.43
FBL	+	0.06	1.93**	0.075	2.46***	0.065	1.75**
FBS	+	0.105	2.15**	0.133	3.06***	0.137	2.66***
FOTH	+	0.196	2.70***	0.205	3.30***	0.136	1.79**
LEV	?	-1.424	-11.02***	-1.042	-9.17***	-1.044	-7.62***
LnASSET	?	-0.077	-5.38***	-0.101	-8.52***	-0.075	-5.08***
Year controls		Yes		Yes		Yes	
Industry controls		Yes		Yes		Yes	
Observations		3008		3008		1992	
F-Value		19.21		22.44		11.67	
Adjusted R^2		22.27%		23.47%		18.73%	

1. Variable Definitions:

FBI = board independence factor (0.686**PCTONBD* – 0.749**DOHOLDINGS* – 0.718**REL)*;
FBL = board leadership factor (0.782**SEPCHR* - 0.682**LEADDIR)*;
FBS = board size factor (0.901**BDSIZE)*;
FOTH = other board factor (0.896**NUMMTGS* + 0.431**COMPMIX)*;
LnASSET= firm total assets; and
LEV= firm debt ratio (i.e., total debt/total assets); and
All other variables are defined in Table 1.

2. *** significant at 0.01 level, ** significant at 0.05 level, * significant at 0.10 level. Significance levels are based on one-tailed tests when the coefficient sign is predicted and on two-tailed tests otherwise.