Convertible Debt Use and Corporate Governance

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Convertible debt is a well-recognized mechanism for reducing the agency costs of debt. This study examines whether firms that attempt to control agency costs of equity through strong governance structures, including chief executive officer compensation alignment and board independence, are more likely to use an agency cost-reducing debt structure such as convertible debt. We find modest evidence of a complementary relationship between strong governance structures and use of convertible debt among a sample of relatively larger firms.

Introduction

The goal of all firms is to maximize shareholder wealth. Agency relationships exist when one or more individuals (principals) hire one or more other individuals (agents) to perform some service on their behalf and delegate some decision-making authority to the agent. Agency relationships exist between shareholders and managers as well as between shareholders and bondholders. Moral hazard problems arise when agents take unobservable actions in their own self-interest. The agency relationship between shareholders and managers results in a moral hazard problem because managers want to maximize their own utility instead of firm value. The agency relationship between shareholders and bondholders results in a moral hazard

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problem because of differences in their payoff structures that give shareholders incentives to expropriate bondholder wealth.

John and John (1993) note that the optimal management compensation system in an all equity firm and the optimal management compensation in a levered firm will differ. Their model indicates that, in addition to controlling manager-shareholder conflicts, in a levered firm the optimal management compensation system must serve as a pre-commitment device to minimize agency costs of debt. This suggests that exploration of the relation between mechanisms addressing the agency costs of debt and executive compensation (or, more generally, mechanisms that strengthen corporate governance and reduce the manager-shareholder conflict) is a worthwhile undertaking.

Traditional theory suggests that in an environment with complete contracting and no information asymmetries agency costs of debt would be borne by shareholders. That is, attempts to expropriate bondholder wealth ultimately return to the shareholders in the form of higher interest costs on debt or restrictions on shareholder/managerial discretion in the form of bond covenants. In this type of environment, controlling the manager-shareholder conflict should help to control the agency cost of debt. Managers acting in shareholders interests would seek to minimize agency costs of debt through appropriate bond covenants and other mechanisms in order to enhance shareholder value. That is, agency costs of debt and equity are reduced *ex ante* through the alignment of manager-shareholder-debtholder interests. Further, if an effective reputation mechanism is in place, managers acting in shareholders' interest would not attempt to engage in *ex post* wealth appropriation because this would result in higher future borrowing costs.

In this environment, with relatively complete contracting, low information asymmetry, and strong reputation mechanisms, strong corporate governance measures such as compensation alignment, managerial ownership, and effective board structure might appear to be substitutes with agency cost reducing debt structures. In this environment, a firm need not modify its debt structure to reduce agency costs further because debtholders already feel relatively well protected from agency costs through *ex ante* contracting and managerial recognition that *ex post* attempts to shift wealth would gain shareholders no advantage in the long run.

The level of market efficiency required for such an environment, however, is high. Bondholders effectively must be endowed with perfect foresight regarding the possible actions that management may take to shift wealth from the bondholders to stockholders. Further, as expropriation can occur *ex post* through asset substitution and underinvestment, the reputation mechanism for punishing such actions must be strong. With incomplete contracting and imperfect information, solving the manager-shareholder conflict need not lead to a minimization of the agency costs of debt. Debtholders still will estimate the expected level of agency costs and reduce their willingness to pay for the debt accordingly, but there will be uncertainty about the

actual ability and willingness of shareholders-managers to shift costs *ex post.* Debtholders will demand an additional premium for this uncertainty. In this environment, with incomplete contracting, greater information asymmetry, and a less effective reputation mechanism, however, debtholders may be unable to fully (sic) protect themselves against potential *ex post* imposition of agency costs on their positions. In this case, firms who wish to reduce the agency costs of debt may be forced to adopt agency cost-reducing debt structures as well as strong corporate governance structures, making these appear to be complements.

The work of John and John (1993) essentially adopts this second point of view, which implies that greater shareholder-manager alignment increases expected agency costs of debt. They argue that firms with higher leverage should have a lower level of pay-performance sensitivity. Pay-performance sensitivity is a way of aligning manager-stockholder interests. Thus, the results of John and John are consistent with the idea that reducing the agency costs of equity through compensation alignment increases the agency costs of debt, *ceteris paribus*. Levered firms must balance the agency costs of debt and equity, leading to lower compensation alignment.

The key point is that other things do not have to remain the same. Firms can control the agency costs of debt directly through a number of mechanisms including shorter maturities, debt with higher monitoring levels (e.g., bank debt), leasing, and use of convertible debt. The ability of convertible debt to reduce the agency costs of debt is well recognized. Incentives of management to shift wealth from bondholders to stockholders through forgoing positive net present value projects (underinvestment) or substituting riskier projects (asset substitution) are attenuated by the use of convertible bonds because bondholders can thwart such attempts by becoming equityholders if and when it is profitable to do so (Green, 1984; Jen, Choi, and Lee, 1997). Convertibles also help to solve an agency cost problem similar to asset substitution. If management cannot convincingly convey the true risk of the firm to investors, the firm's bonds will be discounted to reflect this uncertainty. Convertible bonds solve this problem because although greater risk decreases the bond aspect of the investment, it increases the value of the equity call option which leads convertible investors to be insensitive to the level of firm risk (Brennan and Kraus, 1987; Brennan and Schwartz 1988).[1] Thus, in the environment where bondholders cannot protect themselves fully, we might expect to see levered firms that attempt to control agency costs of equity through manager-shareholder alignment also use more agency cost-reducing debt structures, including more convertible debt. That is, the agency cost control mechanisms would appear to be complements.

[1] Other explanations of convertible use exist including the signaling hypothesis of Kim (1990), the back-door equity model of Stein (1992), and the sequential financing model of Mayers (1998). Our model will control for factors relevant to these alternative explanations.

This study examines the relation between the use of convertible debt and incentive-based compensation (e.g., executive stock options, equity ownership) and monitoring mechanisms (e.g., regulatory authorities, boards of directors). We find evidence of a complementary relationship between strong corporate governance mechanisms (compensation alignment and board structure) and convertible debt use, at least among larger firms. This is consistent with the limited evidence already in the literature. Ryan and Wiggins (2001) study the influence of firm and manager specific characteristics on the structure of executive compensation. Treating convertible debt as exogenous, they find convertible debt to be positively significant in Tobit regressions predicting option compensation. Ortiz-Molina (2006) finds that firms with more leverage have lower pay-performance sensitivities, but that this relationship is muted when convertible debt is used. This analysis extends the current literature by considering the interrelationship of a full spectrum of compensation alignment and monitoring mechanisms with a firm's use of convertible debt through analysis of correlations, an ordinary least squares regression framework, and a simultaneous equations regression format. We also test the robustness of our results by examining the correlations between compensation and convertible debt using a larger panel data set.

The Empirical Approach

It is increasingly recognized that executive compensation and ownership and a firm's financial policies and performance are determined simultaneously by factors within the firm's contracting environment (Jensen, Solberg, and Zorn, 1992; Agrawal and Knoeber, 1996; Chung and Pruitt, 1996; Himmelberg, Hubbard, and Palia, 1999; Palia, 2001; Bhagat and Jefferies, 2002; Johnson, 2003; Barclay, Marx, and Smith, 2003; Weber and Dudney, 2003; Brick, Palia, and Wang, 2005). As Bhagat and Jefferies (page ix of their preface) note "from an econometric viewpoint the proper way to study the relationship between any two of (the relevant) variables would be to set up a system of simultaneous equations that specifies the relationships between (the relevant) variables." They also note, however, that "specification and estimation of such a system of simultaneous equations are nontrivial." Identification of the simultaneous equations system requires some combination of exclusion restrictions, assumptions about the joint distribution of the error terms, and restrictions on the functional form of the structural equations.

We perform an analysis of the correlations between variables associated with compensation alignment, board independence, and debt structure. We then estimate a single stage OLS model. Because our variables are not zero-one classifications but are distributed continuously on the interval from zero to one, we use the log-odds transformation. Finally, we also estimate a simultaneous equations model using two-stage least squares.

Because of the data requirements to estimate the simultaneous equations model, our sample size is limited. In order to test the robustness of our results, we also perform a correlation analysis on a larger size-matched panel data set. We find that the correlations within the panel data are generally similar to the OLS and simultaneous equations results for our smaller data set on which the full model is based and conclude our smaller sample is reasonably representative of large firm behavior. This allows us to place greater confidence in the results of the simultaneous equations estimation.

Measuring the Strength of Governance Structure

We measure the strength of corporate governance through a series of variables related to the compensation alignment of chief executive officers (CEOs) and monitoring of the firm by its board of directors (board independence) and regulatory authorities. We focus on CEO compensation because the CEO's pay package is often representative of the amount of compensation alignment within the firm and because this allows us to use personal characteristics of the CEO as instruments in our simultaneous equations framework. See Palia (2001), for example.

There are several general characteristics common to firms with strong governance structures, including stock options issued to the CEO (Haugen and Senbet, 1981), CEO equity ownership (Jensen and Meckling, 1976), a small board of directors and the presence of outside directors on the board (Cotter, Shivdasani, and Zenner, 1997; Weisbach, 1988; Yermack, 1996), and whether or not a firm is regulated (Smith and Watts, 1992). Basically, a firm that uses mechanisms to reduce the agency cost of equity is thought to have a strong governance structure.

Jensen and Meckling (1976) suggest that direct equity investment reduces agency costs of equity because managers bear a portion of such costs. As a manager has more and more of his or her wealth invested in the firm, however, his or her personal portfolio is not well diversified, which affects risk-taking incentives. Also, a larger percentage stake in the firm gives the manager greater control, but also imposes an increasing percentage of agency costs on the manger. To control for these factors, we include the percentage of stock owned by the CEO and the dollar value of equity owned. If the wealth stakes are large but the percentage ownership is low, there is a different incentive structure than if the percentage ownership is high but the wealth exposure is relatively low.

We also include the level of the CEO's cash compensation. The higher the level of cash compensation, the more the CEO is insured against the effects of a given level of stock ownership. We regard corporate governance as stronger the higher the percentage holdings and dollar value of stock holdings of the CEO and the lower the cash portion of compensation.

Haugen and Senbet (1981) suggest the use of stock options as part of managerial compensation in order to align shareholder and manager interests. We include the percentage of the CEO's total compensation received in the form of executive stock

option grants. Many studies measure stock option grants on the basis of company cost or at their full Black-Scholes value. As Hall and Murphy (2002) note, however, studies concerned with incentive effects should focus on the value of the options to the executive. We use a value-based measure that adjusts for the lack of liquidity present in executive stock options. We adopt the model of Jennergren and Naslund (1993), with parameter values based on the work of Carpenter (1998). The calculation of the option compensation measure is discussed in Appendix A. Stronger corporate governance is associated with greater option use.

Monitoring by regulators and the board of directors can affect governance structure. Board independence, as measured by the size of the board of directors and the percentage of outsiders on the board of directors, is thought to affect managerial behavior. Outside board members are thought to be better monitors than inside board members whose human capital is tied to the firm (Rosenstein and Wyatt, 1990). For example, Weisbach (1988) finds that there is a stronger relation between poor previous performance and CEO turnover when the board is outsider-dominated. Yermack (1996) and Core, Holthausen, and Larcker (1999) find that firm performance is a decreasing function of the size of the board of directors, which suggests that as the number of board members increases, the efficiency of the board decreases. We include the size of the board and the percentage of outside directors as measures of the strength of corporate governance. Strength of corporate governance is decreasing in board size and increasing in the percentage of outside directors.

Smith and Watts (1992) predict that because regulatory authorities automatically monitor regulated firms, these firms are less likely to engage in asset substitution and underinvestment. Booth, Cornett, and Tehranian (2002) study the relationship between the board of directors, ownership, and regulators. They find monitoring by regulators provides an alternative to internal monitoring mechanisms such as percentage of outside directors, manager stock ownership, and CEO/chair duality in reducing a firm's agency costs. The only heavily regulated industry remaining in our sample is the utility industry. We include industry dummies in our analysis as a control, but, in the interest of space, do not generally report the coefficients or significance of these dummies. We do report the utility dummy as representative of the effects of a regulated industry.

Hypothesis

Use of convertible debt to control the agency costs of debt could be viewed as a complement to a strong governance structure (compensation alignment and board independence) designed to control the agency costs of equity, or a strong governance structure could be viewed as a substitute for separate measures to control agency costs of debt. The absence of systematic relation is also possible. This leads to our hypothesis.

H_0: The strength of the governance structures and extent to which firms use convertible debt are unrelated.

H_{a1}: Firms who have a strong governance structure will use more convertible debt.

H_{a2}: Firms who have a strong governance structure will use less convertible debt.

Alternative hypothesis one suggests a strong governance structure and convertible debt use are complements. Alternative hypothesis two suggests a strong governance structure and convertible debt use are substitutes.

Correlation Analysis

We first examine the Pearson correlation coefficients between our six corporate governance measures, CEO cash compensation, the log of the value of CEO stock ownership, the percentage of CEO stock ownership, the percentage of option compensation, the number of directors, and the percentage of outside directors and our two measures of convertible debt use (percentage of convertible debt and a dummy equaling 1 if convertible debt is used). Positive (negative) correlations between both measures of stock ownership, option compensation, and the number of outside directors and convertible debt use would imply a complementary (a substitute) relationship between strong corporate governance and agency cost-reducing debt structures. Positive (negative) correlations between cash compensation and number of directors would imply a substitute (a complementary) relationship between strong corporate governance and agency cost-reducing debt structures.

Regression Models

It increasingly is recognized that executive compensation and ownership and a firm's financial policies and performance are determined simultaneously by factors within the firm's contracting environment. (Jensen, Solberg, and Zorn, 1992; Agrawal and Knoeber, 1996; Chung and Pruitt, 1996; Himmelberg, Hubbard, and Palia, 1999; Palia, 2001; Johnson, 2003; Barclay, Marx, and Smith, 2003; Weber and Dudney, 2003; Brick, Palia, and Wang, 2005). The implication of this literature is that executive compensation and ownership and financial policies of the firm and elements of financial policy (such as leverage and debt structure) are determined simultaneously in response to the firm's contracting environment. Accordingly, we adopt the simultaneous equations approach to examine the relation between executive compensation, board independence, and debt structure.

Our overall model is the simultaneous equations of the following form:

$$C_i = \alpha_0 + \alpha_1 L + \boldsymbol{\alpha_2 S} + \boldsymbol{\alpha_3 XC} + \boldsymbol{\alpha_4 XU_1} + \varepsilon_1$$

$$L = \beta_0 + \boldsymbol{\beta_1 S} + \boldsymbol{\beta_2 C} + \boldsymbol{\beta_3 XC} + \boldsymbol{\beta_4 XU_2} + \varepsilon_2$$

$$S_j = \gamma_0 + \gamma_1 L + \boldsymbol{\gamma_2 C} + \boldsymbol{\gamma_3 XC} + \boldsymbol{\gamma_4 XU_3} + \varepsilon_3$$

where bold indicates a vector of variables or coefficients, and

C_i = The i^{th} component of compensation structure {i = salary and bonus, ln(value of stock

owned), % stock ownership, % option compensation.}

L = Leverage

S_j = Convertible debt {j = percentage convertible debt, dummy variable for convertible debt(Probit)}

XC = Common exogenous variables = {market to book ratio, volatility of earnings growth, fixed asset ratio, effective tax rate, size, firm age, EBIT/sales, industry dummies, number of directors, percentage of outside directors}

XU = Exogenous variables unique to a given set of regressions, with at least one unique exogenous variable (shown in italics below) in each set of regressions to insure identification of the system.

XU_1(CEO salary and bonus) = {*Cash flow*, CEO age, CEO experience, CEO graduate degree dummy, CEO undergraduate degree dummy}

XU_1(ln(value CEO stock ownership)) = {*Outside CEO*, CEO age, CEO experience, CEO graduate degree dummy, CEO undergraduate degree dummy}

XU_1(% CEO stock ownership) = {*Founder*, CEO age, CEO experience, CEO graduate degree dummy, CEO undergraduate degree dummy }

XU_1(% CEO option compensation) = {*Five year standard deviation of equity returns*, CEO age, CEO experience, CEO graduate degree dummy, CEO undergraduate degree dummy}

XU_2(L) = {*Depreciation status of property, plant, and equipment*}

XU_3(convertible debt) = {*Future abnormal return*}

We thus have a six equation system with four compensation equations, one leverage equation, and one debt structure equation regarding the use of convertible debt. We estimate this system separately for the percentage of convertible debt in the capital structure and using a dummy variable to indicate the presence of any convertible debt in the capital structure.

The structure of the exclusion restrictions insures that the system is identified. We estimate this system using two-stage least squares (2SLS). First stage results, which represent the reduced form estimation of the leverage and four compensation equations, appear in Appendix B. These results are not our focus, and we do not dis-

cuss them further. Attempts to estimate the system by maximum likelihood methods fail to converge in a reasonable manner. In the second stage regressions for convertible debt the dependent variable is the proportion of total debt that is convertible. Because of the truncation of the dependent variable at zero and one hundred percent, we use the log-odds transformation to estimate the second stage of these regressions. That is, the dependent variable in the percentage of convertible debt regressions is ln(y/(1-y)).

Direct use of non-linear estimation methods such as probit or logit estimation in the second stage regressions introduces the forbidden regression problem (Wooldridge, 2002, p. 236). The log-odds approach, while not without limitations, avoids this problem. One limitation of the log-odds approach is that zero and one observations must be adjusted for the dependent variable to be defined. We have added 0.0001 to zero observations and subtracted the same quantity from observations equaling one. Himmelberg, Hubbard, and Palia (1999) use the log-odds transformation for management ownership fractions, and Palia (2001) uses it for the pay–performance sensitivity of executive compensation. The ordinary least squares (OLS) estimation is the S_j equation re-estimated treating leverage and the executive compensation variables as exogenous.

Because factors affecting the use versus non-use of convertible debt may differ from factors affecting variation in quantity of debt used, we also have included a probit regression on a dummy variable for convertible debt use by the firm. This is done primarily as a robustness test to insure that a few heavy users of convertible debt are not driving our primary results. The coefficients in this analysis must be interpreted with caution because using a probit regression in the second stage of a two-stage regression reintroduces the forbidden regression problem. As before, we also present a non-simultaneous probit estimation for comparative purposes. The similarity in results between these two models and our primary percentage of convertible debt analysis suggests the results there are not driven by a few large observations.

Control Variables

In order to test for the relationship between the strength of corporate governance (compensation alignment and board independence) and use of convertible debt to control agency costs in our regression analyses, it is necessary to control for other factors that are known to affect convertible debt use, compensation structure, board structure, and leverage. We first discuss alternative theories of convertible use and then discuss our control variables.

1. Additional Explanations of Convertible Debt Use. The ability of convertible debt to mitigate underinvestment and asset substitution (and the related risk uncertainty) problems is well recognized. Other explanations for convertible usage also appear in the literature. Kim (1990) suggests that convertible debt use signals lower expected future earnings as firms with the best earnings prospects would prefer to

issue straight debt. Stein (1992) suggests that companies with high expected costs of financial distress but abundant growth opportunities face significant costs of issuing straight debt. If the market fails to recognize the growth opportunities, managers will regard equity as undervalued and unattractive as a financing source for the growth opportunities. Issuing convertibles with a call feature (to force conversion) effectively allows management a back-door way to issue equity. Mayers (1998) argues that firms needing to finance a long-term investment strategy may find convertible debt an attractive alternative because it matches cash inflows with expected investment outlays. Convertibles economize on issue costs because conversion leaves funds inside the firm and reduces leverage when a future investment option is valuable, yet they mitigate Jensen's (1986) overinvestment problem by returning the funds to bondholders through redemption if the future investment option is not valuable.

Munro (1996) finds support for the underinvestment hypothesis and limited support for the asset substitution hypothesis. Jen, Choi, and Lee (1997) present evidence consistent with Stein's back-door equity hypothesis. Mayers (1998) presents evidence consistent with his sequential financing hypothesis, as do Chang, Chen, and Liu (2004). Lewis, Rogalski, and Seward (2003) classify convertible issuers as debt-like, hedge-like, or equity-like on the basis of the probability of conversion at the time of debt issuance. They find debt-like issuers face high debt-related costs of external finance consistent with the underinvestment and asset substitution hypotheses. They find that equity-like issuers exhibit characteristics consistent with the back-door equity hypothesis. They expect hedge-like issuers to exhibit characteristics consistent with the uncertainty of risk hypothesis, but the evidence of this is weaker.

2. Common Exogenous Variables. We include the following variables as exogenous and common to each of the equations in our system: market to book, volatility of earnings growth, fixed asset ratio, effective tax rate, EBIT/sales, total assets, firm age, and a set of industry dummies. Market to book is frequently considered a measure of the growth opportunities a firm possesses, with a higher market to book implying more growth opportunities. A relatively greater proportion of a firm's value in growth opportunities could affect the structure of executive compensation (more equity oriented compensation) and leverage levels and debt structure (because of higher agency costs of debt for growth firms). If the market recognizes a firm's growth opportunities, then market to book could be correlated positively with convertible debt use under Mayers' sequential financing hypothesis. If the market does not recognize the firm's growth opportunities, then market to book could be correlated negatively with convertible debt use under Stein's back-door equity hypothesis. Volatility of earnings growth is a proxy for cash flow volatility. Higher volatility could lead to more equity-based compensation, lower leverage, and a preference for agency cost reducing debt structures. Higher earnings volatility would suggest

greater convertible use under the back-door equity hypothesis or the sequential financing hypothesis. Fixed asset ratios are relevant to leverage and debt structure because of the collateral value they imply. They are also relevant as a measure of growth opportunities, as a higher fixed asset ratio suggests more assets in place relative to growth opportunities. It may be relevant for compensation as well. Effective tax rate and EBIT/sales are profitability measures. Profitability may affect compensation structure, leverage, and debt structure. Lack of current profitability may be correlated positively with convertible use under the back-door equity hypothesis. Larger firms can pay executives more and borrow in larger amounts and can bear the flotation costs of public convertible debt issues more easily. Thus, firm size measured by total assets may be relevant to compensation structure, leverage, and debt structure. Firm age also may be relevant to all of these factors. Where a firm is in the corporate life cycle could be expected to influence its compensation structure, its leverage, and its debt structure. Industry of the firm also may be relevant to these factors in ways that are not fully captured by our other controls. Maksimovic (1988) suggests that industry characteristics are likely to be an important determinant of convertible debt use. Thus, we include a set of industry dummies based on the Forbes 800 industry classification.

We have included board size and the percentage of outsiders on the board as exogenous variables in each of the equations in the system we refer to these as board independence variables. We define outsiders as board members who are not full-time employees of the company. We recognize the possibility that these variables also are determined endogenously by other factors common to the system. Treating them as such introduces the econometric problem of finding variables that are relevant to board structure but irrelevant for compensation structure, leverage, and debt structure in order to insure identification of the system. Himmelberg, Hubbard, and Palia (1999) and Barclay, Marx, and Smith (2003) note the problem of finding good instruments in other contexts. We have elected to treat these variables as exogenous and use care in interpreting their coefficients.

3. First Stage Compensation Regressions. Palia (2001) found executive characteristics to be good instruments for estimating executive compensation. We adopt this approach as well. We include CEO age, CEO experience, a dummy variable for whether the CEO has a graduate degree, and a dummy variable for whether the CEO has an "Ivy League" undergraduate degree in each of the first stage compensation regressions. *Ivy League* is defined to include the actual Ivy League schools (Harvard, Dartmouth, Brown, Yale, Columbia, Cornell, Princeton, and Pennsylvania) plus MIT, Rochester, Chicago, and Stanford. We include cash flow as a unique control variable in the salary and bonus regression because cash flow is required to make these payments. Cash flow is calculated as pretax income minus taxes paid plus depreciation. We include a dummy variable for whether the CEO was hired from the outside as a unique control variable in the value of stock ownership

regression because outside CEOs will have had less time to accumulate valuable stock holdings. We include a dummy variable for whether the CEO is the founder of the firm as a unique control variable in the percentage stock ownership regression because it is well-documented that founders have larger percentage stakes on average than non-founding CEOs. We include the five-year standard deviation of equity returns as a unique control variable in the percentage option compensation regression because the volatility of stock prices is related to the attractiveness of option compensation.

4. First Stage Leverage Regression. We have chosen accumulated depreciation divided by property, plant, and equipment as our unique instrument for the leverage equation. If the firm's property, plant, and equipment are almost fully depreciated, this may constrain its ability to borrow relative to the book values of debt and equity, thus affecting the leverage ratio. Older plant and equipment, however, need not constrain borrowing source, use of leasing, or use of convertible debt.

5. Second Stage Regressions: Convertible Debt. The hypotheses used to explain the use of convertible debt can be categorized into the underinvestment, asset substitution, uncertainty of risk, signaling, back-door equity, and sequential financing hypotheses. Firms with a larger proportion of fixed assets may have relatively fewer growth opportunities, which are expected to be related to convertible debt financing under the all hypotheses but the signaling hypothesis. The fixed asset ratio is one of our common control variables. Firms that have severe problems with asymmetric information (high growth, high volatility of earnings growth, and non-regulated) will use more convertible debt, because it will help alleviate asset substitution and uncertainty of risk problems. Market-to-book and volatility of earnings are common control variables relevant to this issue. Firms that are smaller, have higher earnings growth volatility, higher growth, and smaller earnings before interest and taxes (EBIT)/sales have a greater chance of becoming insolvent. These firms are more likely to issue convertible debt as back-door equity. In addition to market-to-book and volatility of earnings, EBIT/sales, effective tax rate, and total assets are common control variables relevant to this hypothesis. The signaling hypothesis claims that firms that expect large future earnings prefer to use straight debt rather than convertible debt. Thus, future abnormal earnings should be negatively correlated with convertible debt use. We include future abnormal earnings as a control variable unique to the second stage convertible debt regressions. Convertible debt is usually public debt, which involves flotation costs; thus, firm size is relevant to this issue as well. Formal definitions of all variables used in the analysis appear in Table 1.

Table 1—Variable Explanation

Variable	Definition
Future Abnormal Return =	The change in earnings per share between this year and next year divided by share price this year
Market-to-Book =	Book value of assets minus the book value of equity plus market value of equity divided by book value of assets.
Volatility of Earnings Growth =	Standard deviation of first differences in earnings before interest, taxes, and depreciation for the five years preceding the sample year, scaled by average assets for that period.
Fixed Asset Ratio =	Net property, plant, and equipment divided by total assets.
Effective Tax Rate =	Taxes paid over pretax income.
EBIT/sales =	Earnings before interest, taxes, and depreciation divided by sales.
Firm Size =	The log of total assets
Firm Age =	The number of years the firm has been incorporated
Effective Tax Rate =	Incomes taxes divided by pre-tax income
Industry Dummies =	A dummy variable equaling one if the firm is in a particular industry. Only the utility dummy is reported in the tables.
5 year Standard Deviation of Equity =	The standard deviation of monthly equity returns over prior 5 years
Cash Flow =	Pre-tax income minus taxes paid plus depreciation
Age of PPE =	Accumulated depreciation divided by property, plant, and equipment
Outside CEO =	A dummy variable equaling one if the CEO was hired from outside the firm
Founder =	A dummy variable equaling one if the CEO is the founder of the firm
CEO Age =	The age of the CEO at birthday for the calendar year
CEO Experience =	The number of years the CEO has worked for the firm
Graduate Degree Dummy =	A dummy variable equaling one if the CEO has a graduate degree
Ivy Undergraduate Degree =	A dummy variable equaling one if the CEO has an undergraduate degree from Harvard, Dartmouth, Brown, Yale, Columbia, Cornell, Princeton, Pennsylvania, MIT, Rochester, Chicago, or Stanford.
Leverage Ratio =	Book value of long-term debt divided by book value of total assets.
Cash Compensation =	CEO's salary plus bonus.
Market Value of CEOs Equity Ownership =	Number of shares the CEO owned multiplied by the price per share.
Percentage of Equity Owned by CEO =	Percentage of stock held by the CEO.

Table 1 (continued)—Variable Explanation

Variable	Definition
Percentage of CEO Compensation Derived from Options =	Value of stock options granted divided by total compensation.
Number of Directors =	The total number of members on the Board of Directors
Percentage of Outside Directors =	The proportion of board members who have never been employed by the firm nor were they relatives of a current or past employee
Convertible Debt Ratio =	Convertible debt divided by total assets
Convertible Debt Use Dummy =	Dummy variable takes on unity if company has convertible debt in that particular year, zero otherwise.

Data

We start with the 800 firms from *Forbes* magazine's 1993 survey of executive compensation. This data set contains information about the chief executive officer (CEO) personal characteristics and compensation for companies from various industries. The detail on personal characteristics is critical for identifying our simultaneous equations system. In addition, executive stock option data and board of director information were gathered from the companies' 1992 proxy statements. Information on the stock prices and returns for the 800 companies was retrieved from the Center for Research in Security Prices (CRSP) data tapes. The financial statement information was collected from the Compustat data tapes. Finally, corporate debt information was collected from *Moody's Industrial and Public Utility Manuals.* Once we remove all financial firms, firms with negative book value of equity, and firms with no long-term debt, 348 firms remain with complete data. All of the primary data analysis (i.e., sample statistics, regressions, and correlation tables) are calculated based on these 348 firms.

The hand collection of data from proxy statements, the *Forbes* survey, and the *Moody's Manuals* allows a richer data set than would be possible solely from electronic sources. From proxy statements we read each director's description and classify him/her as an inside or outside director. The use of the *Forbes* survey allows much greater detail regarding the CEO's personal characteristics than is found in most studies of corporate governance. The choice of year 1992 also has certain advantages. It is the last year before a change in the tax code regarding deductibility of non-incentive compensation (Perry and Zenner, 2001). This tax code change may have altered subsequent compensation mixes from their unconstrained optimums. It is also the first year for which complete data regarding executive option grants generally are available in proxy statements. Public disclosure of other firms' practices may have led firms to alter their compensation packages. Thus, in many respects 1992 is a unique year for studying the role of executive compensation.

Table 2—Summary Statistics Information

This table displays the summary statistics for the sample of 348 firms used in the primary analysis. All data are end of year 1992

1992	Mean	Median	Std Dev	Minimum	Maximum
Control Variable					
Future Abnormal Earnings	0.0154	0.0037	0.2025	-2.2800	1.4706
Market to Book	1.7373	1.3675	0.9749	0.5998	7.9575
Volatility of Earnings	0.0568	0.0408	0.0518	0.0035	0.3606
Fixed Asset Ratio	0.4547	0.4108	0.2263	0.0181	0.9210
Total Assets	7996.94	3165.25	19395.97	383.52	192876.00
EBIT/sales	0.1195	0.1035	0.0836	0.0000	0.4579
Leverage Ratio	0.2214	0.2210	0.1265	0.0004	0.6772
Firm Age	63.2155	67.0000	36.9019	3.0000	156.0000
Effective Tax Rate	0.3414	0.3530	0.2051	0.0000	1.7950
Incentive Compensation					
Cash Compensation ($T)	1065.6400	889.0000	791.8168	50.0000	7459.0000
$ Stock Ownership ($M)	48.6309	4.1000	182.2505	0.0200	1929.8000
% Stock Ownership	1.7427	0.1250	5.5477	0.0050	48.3700
% Option Compensation	11.3472	6.9998	13.4192	0.0000	88.8974
Monitoring Variables					
Number of Directors	11.8707	12.0000	2.7030	5.0000	20.0000
% Outside Directors	73.5874	75.7353	12.7539	0.0000	93.7500
Dependent Variables					
% Convertible Debt	1.3482	0.0010	3.8479	0.0010	32.7858
Conv. Debt Use Dummy	0.2069	0.0000	0.4051	0.0000	1.0000
Sample Size	348				

Future abnormal return is the change in earnings per share next year divided by share price. Market-to-book is book value of assets minus the book value of equity plus market value of equity divided by book value of assets. Volatility of earnings growth is the standard deviation of first differences in earnings before interest, taxes, and depreciation for the five years preceding the sample year, scaled by average assets for that period. Fixed asset ratio is net property, plant, and equipment divided by total assets. Total assets is the total assets in millions of dollars. EBIT/sales is the firm's earnings before interest, taxes, and depreciation divided by sales. Leverage ratio is book value of long-term debt divided by book value of total assets. Firm age is the number of years from the firm's founding date. Effective tax rate is the income taxes paid divided by the pre-tax income. The compensation variables are: cash compensation equals the CEO's salary plus bonus in thousands of dollars. $ stock ownership is the number of shares the CEO owned multiplied by the price per share in millions of dollars. % stock ownership is the percentage of stock held by the CEO. % option compensation is the value of stock options granted, which is derived as described in Appendix A, divided by total compensation expressed in percentage terms. Number of directors is the total size of the board of directors. % outside directors is the percentage of directors who are not employees of the firm. The dependent variables are: % convertible debt, which is calculated as convertible debt divided by total assets expressed in percentage terms. Convertible debt use dummy is a dummy variable that takes on one if company has convertible debt in that particular year, zero otherwise

Table 2 presents the summary statistics for our primary data used in the simultaneous equations estimation. Because we start with the *Forbes* 800 list, our firm size is slightly larger than other studies. We do have, however, a wide range of firms in terms of size. The mean firm in our sample has total assets of $7,997 million

while the median for total assets is $3,165. The average market to book value of assets for our sample is 1.74. Future abnormal earnings average 1.54 percent, the fixed asset ratio averages 45.47 percent, and EBIT/sales is 11.95 percent. In addition, the firms in our sample have an average effective tax rate of 34 percent, a volatility of earnings growth of about 5.68 percent, have been in existence for a little over 63 years, and have a leverage ratio of about 22 percent. The average CEO in our sample has cash compensation of $1,065,640 and owns $48,630,900 (1.74 percent) of his or her firm's stock. Also, on average, 11.35 percent of the CEO's total compensation is given in the form of stock options. The average number of directors is 12, with about 74 percent of those being outsiders. Finally, the average firm in our sample has convertible debt equal to 1.35 percent of total assets, and a little over 20 percent of firms use convertible debt.

Empirical Results

Pearson Correlation Tables

Table 3 presents the Pearson correlation coefficients for convertible debt usage and compensation alignment and board independence variables. The correlations are calculated for the following variables: CEO's percentage option compensation, CEO's percentage stock ownership, CEO's dollar value of stock ownership, the number of directors, percentage of outside directors, percentage of convertible debt

Table 3—Pearson's Correlation Table for Convertible Debt and Corporate Governance Variable-Primary Data

Cash compensation equals the CEO's salary plus bonus. log($ stock ownership) is the natural logarithm of the number of shares the CEO owned multiplied by the price per share. % stock ownership is the percentage of stock held by the CEO. % option compensation is the value of stock options granted divided by total compensation. % convertible debt is calculated as the convertible debt divided by total assets. Convertible debt use dummy takes on one if company has convertible debt in that particular year, zero otherwise. P-values are shown in the parentheses. N = 348

	Cash Comp.	log($ Stock Ownership)	% Stock Ownership	% Option Comp.	Number of Directors	% Outside Directors	% Convertible Debt
log($ Stock	0.0467						
Ownership)	(0.3738)						
% Stock	-0.0498	0.7415					
Ownership	(0.3431)	(<.0001)					
% Option	0.0777	0.0180	-0.0225				
Compensation	(0.1384)	(0.7318)	(0.6681)				
Number of	0.0825	-0.0449	-0.1417	-0.0850			
Directors	(0.1155)	(0.3927)	(0.0067)	(0.1049)			
% Outside	0.0112	-0.1875	-0.2464	-0.0273	0.0177		
Directors	(0.8319)	(0.0003)	(<.0001)	(0.6032)	(0.7359)		
% Convertible	-0.0354	0.1533	0.1326	0.1322	-0.0499	-0.1080	
Debt	(0.5003)	(0.0033)	(0.0112)	(0.0115)	(0.3420)	(0.0392)	
Convertible Debt	-0.0158	0.0333	0.0150	0.1568	-0.0320	0.0087	0.6579
Use Dummy	(0.7634)	(0.5254)	(0.7752)	(0.0027)	(0.5428)	(0.8683)	(<.0001)

used, and a dummy variable indicating that the firm uses convertible debt. The p-values are reported in parentheses below each correlation.

Several of the correlations between our governance variables and convertible debt are significant. In regard to the level of convertible debt usage, three compensation measures (CEO's dollar value of stock ownership, percentage stock ownership, and option compensation) are all significantly positively correlated with the firm's percentage of convertible debt. In the correlations regarding the convertible debt decision dummy, the percentage option compensation is significant and positive. All of these results indicate that firms who have strong incentive-based compensation tend to use more lease financing. This pattern is consistent with a complementary relationship between strong corporate governance structures and agency cost reducing debt structures.

The correlation table reveals a general lack of relation between the executive compensation and board independence variables. The percentage of outside directors is related negatively to percentage convertible debt. This negative correlation indicates that firms with a higher percentage of outside directors will have a lower percentage of convertible debt. The literature relating to outside directors serving as better monitors for a firm is inconclusive (Hermalin and Weisbach, 1991; Bhagat and Black, 2002). Therefore, it could be that having more outside directors is not an indication of the firm being better monitored. Taken as a whole, the weight of the evidence supports a complementary relationship between strong corporate governance and convertible debt usage. Because a number of firm characteristics would be expected to influence both convertible debt use and compensation structure, we now review the results of our regression analyses to determine the robustness of the simple correlations.

Primary Regression Results

The results of the percentage convertible debt regression are reported in Table 4. In the ordinary least squares results none of the compensation or board structure variables are significant. Among the control variables the fixed asset ratio is negative and significant at the 10 percent level. This is consistent with higher growth firms using more convertible debt. Market to book, however, is not significant. Together, these results are consistent with the proposition that firms with growth opportunities not recognized by the market use more convertible debt, which is consistent with the back-door equity hypothesis. Because we start with the *Forbes* 800, which are larger firms less likely to be in financial distress, these results are also consistent with Lewis, Rogalski, and Seward (2003). The other two significant variables are EBIT/sales and leverage. We find that EBIT/sales is related negatively to convertible debt usage. Thus, more profitable firms are less likely to use convertible debt. Leverage also is related positively to convertible debt use. These results are consistent with the back-door equity hypothesis. In the two-stage least squares

regression, the only significant control variable is EBIT/sales, which is consistent with expectations as described above.

Among the compensation alignment and board independence variables in the two stage least squares analysis, the percentage of option compensation is related positively and significantly to convertible debt use at the 10 percent level. One other compensation variable has a relatively low p-value although it is not significant at conventional levels. Percentage of CEO compensation in salary and bonus is negative with a p-value of 0.1192. The evidence suggests a weak positive relation between compensation alignment and agency cost-reducing debt structures and provides some evidence of complementarities between executive compensation alignment and debt structure.

Table 4—Percentage Convertible Debt Regression-Primary Data

This table presents the log-odds regression results for the percentage of convertible debt to total assets. The t-statistics are in parentheses. The level of significance is indicated by 10 percent (*), 5 percent (**), and 1 percent (***). Non-utility industry dummies are not reported. OLS estimates are based on actual compensation and leverage values; 2SLS estimates are based on predicted values. Variable definitions appear in Table 1

	% Convertible Debt - OLS		% Convertible Debt - 2SLS	
Variable	Coefficient	T-Stat	Coefficient	T-Stat
Intercept	-10.1303	(-4.21)***	-15.4202	(-2.36)**
Future Abnormal Earnings	0.0517	(0.06)	-0.8078	(-0.53)
Market to Book	0.3947	(1.38)	-0.4044	(-0.50)
Volatility of Earnings Growth	-2.5981	(-0.65)	-7.0325	(-1.38)
Fixed Asset Ratio	-2.7270	(-2.32)**	-0.7786	(-0.43)
Number of Directors	-0.0394	(-0.51)	0.0004	(0.00)
% Outside Directors	0.9070	(0.62)	2.9982	(1.21)
Utility Regulated Dummy	-0.9698	(-0.97)	0.3884	(0.23)
Effective Tax Rate	-0.6410	(-0.68)	-1.9811	(-1.32)
ln(Total Assets)	-0.1355	(-0.63)	0.0584	(0.17)
Firm Age	-0.0054	(-0.98)	-0.0016	(-0.23)
EBIT/sales	-8.5124	(-2.63)***	-8.3621	(-2.43)**
(Predicted) Cash Compensation	-0.0002	(-0.67)	-0.0021	(-1.42)
(Pred.) ln($ Stock Own.)	0.2187	(1.55)	0.767	(0.89)
(Pred.) % Stock Own.	-0.0571	(-1.26)	-3.0884	(-0.16)
(Pred.) % Option Comp.	1.1889	(0.8)	16.8695	(2.07)**
(Pred.) Leverage	10.1879	(5.72)***	2.2117	(0.30)
F-value		2.32		1.40
Adjusted R-square		.1907		.1249
N		348		348

The results of probit regressions on the dummy variable for convertible debt use are reported in Table 5. Among the control variables, both the probit and two stage least squares results are identical to the results found above in Table 4. In the two-stage least squares results, we find that the control variable EBIT/sales is related negatively to convertible debt. In the single stage results the fixed asset ratio and

EBIT/sales are negatively significantly related. The leverage ratio is positively significant to the convertible debt dummy.

In the two-stage least squares results, the percentage of option compensation is positively significantly related to the probability of convertible debt use at the 10 percent level. Thus, the only significant difference between the percentage convertible debt regressions and the dummy convertible debt regressions is in the single stage results, the value of CEO stock ownership is related positively to the convertible debt dummy variables at the 10 percent level. These results are also broadly consistent with a positive relation between compensation alignment and agency cost-reducing debt structures and provide some evidence of complementarities between strong corporate governance structures and convertible debt use.

Table 5—Convertible Debt Dummy Variable Probit Regression-Primary Data

This table presents the probit regression results for convertible debt users versus non-users. The Chi-Square statistics are in parentheses. The level of significance is indicated by 10%(*), 5%(**), and 1%(***). Non-utility industry dummies are not reported. Single stage probit estimates are based on actual compensation and leverage values; 2SLS estimates are based on predicted values. Variable definitions appear in Table 1

	% Convertible Debt Use Dummy – OLS		% Convertible Debt Use Dummy - 2SLS	
Variable	Coefficient	Chi-Square	Coefficient	Chi-Square
Intercept	-2.6651	(4.44)**	-3.3111	(1.33)
Future Abnormal Earnings	0.0561	(0.02)	-0.0821	(0.90)
Market to Book	0.1909	(1.7)	-0.226	(0.37)
Volatility of Earnings Growth	-2.0111	(0.82)	-3.1188	(1.67)
Fixed Asset Ratio	-1.3361	(5.22)**	-0.2634	(0.11)
Number of Directors	-0.0326	(0.79)	-0.003	(0.01)
% Outside Directors	0.8630	(1.28)	1.4309	(1.66)
Utility Regulated Dummy	-0.8205	(1.79)	-0.281	(0.12)
Effective Tax Rate	-0.0218	(0.00)	-0.5042	(0.65)
ln (Total Assets)	0.0820	(0.59)	0.0656	(0.17)
Firm Age	-0.0011	(0.17)	-0.0006	(0.03)
EBIT/sales	-4.7170	(7.78)***	-3.7551	(5.34)**
(Predicted) Salary & Bonus	-0.0002	(0.89)	-0.006	(0.92)
(Pred.) ln($ Stock Own.)	0.1352	(3.48)*	0.2637	(0.46)
(Pred.) % Stock Own.	-0.0379	(2.54)	-0.4191	(0.00)
(Pred.) % Option Comp.	0.5642	(0.59)	7.2987	(4.02)**
(Pred.) Leverage	4.5419	(23.48)***	0.0155	(0.00)
Number of Observations	348		348	
Convertible Debt>0	72		72	
Convertible Debt=0	276		276	
Log Likelihood	-142.23		-153.49	

xxx The reduced form regression results are presented in Table 6. As consistent with earlier results, EBIT/sales is related negatively to convertible debt level of use and usage. Firm size is related positively to convertible debt use. The two unique variables that are significant are the cash flow (negatively) and CEO founder dummy variable (positively). These indicate that firms with a higher cash value will use less

convertible debt and firms whose CEO founded the company will use more convertible debt.

Table 6—Convertible Debt Reduced Form Regression-Primary Data

This table presents reduced form regression results. The level of significance is indicated by 10%(*), 5%(**), and 1%(***). The analysis includes industry dummies , but only the utility dummy is reported. Variable definitions appear in Table 1

	% Convertible Debt		Convertible Debt Dummy	
Variable	Coefficient	T-Stat	Coefficient	Chi-Square
Intercept	-9.2797	(-2.45)**	-1.7599	(1.03)
Future Abnormal Earnings	-0.0802	(-0.08)	0.0653	(0.02)
Market to Book	0.1507	(0.53)	0.0384	(0.08)
Volatility of Earnings Growth	-3.1146	(-0.71)	-1.7697	(0.73)
Fixed Asset Ratio	-1.4520	(-1.15)	-0.6272	(1.24)
Number of Directors	-0.0486	(-0.60)	-0.0276	(0.59)
% Outside Directors	0.8409	(0.55)	0.5863	(0.67)
Utility Regulated Dummy	-0.6408	(-0.59)	-0.9525	(2.58)
Effective Tax Rate	-0.2961	(-0.30)	0.1069	(0.07)
ln (Total Assets)	0.3290	(1.12)	0.2222	(2.72)*
Firm Age	-0.0055	(-0.94)	-0.0022	(0.63)
EBIT/sales	-8.3250	(-2.43)**	-3.6294	(5.09)**
CEO Age	-0.0214	(-0.59)	-0.0038	(0.05)
CEO Experience	-0.0072	(-0.21)	-0.0022	(0.02)
Graduate Degree	-0.3357	(-0.82)	-0.2399	(1.61)
Undergraduate Degree-Ivy	-0.6931	(-0.9)	-0.2851	(0.64)
Standard Deviation 5 year	70.9111	(1.42)	31.0018	(1.93)
Cash Flow	-0.0005	(-1.71)*	-0.0002	(1.89)
Outside CEO	0.3585	(0.55)	0.3646	(1.61)
CEO Founder	1.8096	(1.75)*	0.6967	(2.17)
Age of PPE	-1.5756	(-0.7)	-0.5138	(0.26)
F-value	1.30			
R-Square	.1306			
Log-likelihood			-151.75825	
Convertible Debt > 0			72	
Convertible Debt = 0			276	
N	348		348	

Robustness Test

Because of the data requirements to estimate the simultaneous equations model, our sample size is limited. In particular, the personal executive characteristics, which serve as our instrumental variables in the first stage of the two-stage least squares estimation, are hand collected, as are the board structure variables. Because of possible concerns about the representativeness of the sample both cross-sectionally and across time, we collect a larger data set spanning 1992-2004 that relies solely on machine readable data. We begin with all firms listed on the Compustat annual industrial files for the period 1992-2004. We then merge data from Compustat's Execucomp database with the information from the industrial files. Because the primary purpose of this analysis is to test the relative representativeness of our results against a larger relatively contemporaneous cross-section and to test the robustness

of our results over time, we break this time series into two smaller time blocks. The first covers the period 1992-1998 and provides a roughly contemporaneous comparison with our primary data on a larger cross-section. The second covers the period 1999-2004 and allows us to assess changes in relationships over time. From the Compustat/Execucomp universe for these periods we select sub-samples that are size matched using median levels of adjusted total assets to our primary 1992 data set. This involves taking the upper 50 percent by asset size of the full Compustat/Execucomp sample.[2]

Table 7 presents the summary statistics for these samples. Panel A presents the summary statistics for the 1992-1998 data and Panel B for the 1999-2004 data. We find that the market-to-book ratios, volatility of earnings, fixed asset ratios, EBIT/sales, leverage ratios, and effective tax rates are roughly comparable between our original sample and both the 1992-1998 and 1999-2004 sub-samples. Future abnormal earnings are higher for the two sub-samples than for our primary data (Table 2). Although the cash compensation and value of stock ownership figures are not adjusted for inflation, one can use the total assets figures, which are given in both actual and inflation-adjusted values, to find that cash compensation and the value of stock owned is increasing over time as are the percentage of stock ownership and the percentage of option compensation. Thus, CEO pay is increasing over time, and the incentive component of CEO pay is increasing. Convertible debt use is roughly comparable to our original sample for the 1992-1998 period, but is higher in the later 1999-2004 period.

We next consider a simple correlation analysis similar to Table 3. These results appear in Table 8. For the 1992-1998 period, we find that cash compensation and the percent of stock ownership are correlated negatively with the percentage of convertible debt used. The percentage of stock ownership is significant. The value of stock ownership and the percentage of option compensation are correlated significantly and positively with convertible debt use. The relationships of cash compensation, the

[2] In unreported results we find that for the complete cross-section of firms for both the 1992-1998 and 1999-2004 periods that there are no consistent significant correlations between executive compensation structure and convertible debt use that are stable over time. This suggests that for smaller firms the choice of financing source is driven by exigencies other than agency costs. Larger firms may have more discretion over financing source, and agency costs may be a more significant consideration for them. Transactions costs also may limit convertible debt use to larger firms. Thus, variation in compensation structure across firms too small to use convertible debt creates noise that can mask any significant relationship among firms large enough to finance a public bond issue. Also, because our original sample was of larger firms, size-matching the panel data allows for more direct comparability between our primary data and that used in the robustness check. Because we find no confirmation in the larger sample for the entire universe of firms, we restrict any conclusions about our results to larger firms. These results are available upon request from the authors.

Table 7—Summary Statistics for Robustness Check Data

Future abnormal return is the change in earnings per share next year divided by share price. Market-to-book is book value of assets minus the book value of equity plus market value of equity divided by book value of assets. Volatility of earnings growth is the standard deviation of first differences in earnings before interest, taxes, and depreciation for the five years preceding the sample year, scaled by average assets for that period. Fixed asset ratio is net property, plant, and equipment divided by total assets. Effective tax rate is the income taxes paid divided by the pre-tax income. Total assets in $1992 is the inflation-adjusted total assets. EBIT/sales is the firm's earnings before interest, taxes, and depreciation divided by sales. The compensation variables are: cash compensation equals the CEO's salary plus bonus. $ stock ownership is the number of shares the CEO owned multiplied by the price per share in $ millions. % stock ownership is the percentage of stock held by the CEO. % option compensation is the value of stock options granted divided by total compensation. % convertible debt is calculated as convertible debt divided by total assets expressed in percentage terms. Convertible debt use dummy is a dummy variable that equals one if company has convertible debt in that particular year and zero otherwise

	Mean	Median	Std.	Minimum	Maximum
Panel A: 1992 – 1998					
Control Variable					
Future Abnormal Return	0.036	0.003	2.244	-6.444	135.320
Market to Book	1.427	1.110	1.110	0.163	30.947
Volatility of Earnings	0.054	0.038	0.054	0.000	0.534
Fixed Asset Ratio	0.439	0.406	0.229	0.011	0.936
Total Assets ($M)	8313.580	3505.300	19653.520	1072.020	355935.000
Total assets in 92 dollar ($M)	7603.170	3198.500	17914.220	1040.080	306365.120
EBIT/sales	0.126	0.111	0.080	0.000	0.585
Leverage Ratio	0.242	0.238	0.140	0.000	1.324
Effective Tax Rate	0.395	0.365	1.248	0.000	63.000
Incentive Compensation					
Cash Compensation ($T)	1391.180	1125.000	1101.650	0.000	17966.250
$ Stock Ownership ($M)	74.057	5.505	426.533	0.000	12915.63
% Stock Ownership (%)	5.579	1.764	8.774	0.004	49.500
% Option Compensation (%)	26.772	23.096	24.735	0.000	100.000
Dependent Variables					
% Convertible Debt (%)	1.230	0.001	4.054	0.000	65.922
Conv. Debt Use Dummy	0.171	0.000	0.377	0.000	1.000
Sample Size	3800				
Panel B: 1999 – 2004					
Control Variable					
Future Abnormal Return	0.425	0.004	14.013	-128.492	681.429
Market to Book	1.546	1.114	1.509	0.016	31.303
Volatility of Earnings	0.075	0.049	0.085	0.000	0.918
Fixed Asset Ratio	0.357	0.309	0.229	0.002	0.965
Total Assets ($M)	12543.210	4515.000	33676.960	1396.050	750507.000
Total assets in 92 dollar ($M)	9861.980	3565.360	26258.270	1174.510	557417.560
EBIT/sales	0.121	0.105	0.090	0.000	0.575
Leverage Ratio	0.257	0.251	0.150	0.000	1.317
Effective Tax Rate	0.386	0.350	1.061	0.000	43.000
Incentive Compensation					
Cash Compensation ($T)	2011.440	1570.100	1992.940	0.000	43511.540
$ Stock Ownership ($M)	158.481	7.965	1228.311	0.000	38327.518
% Stock Ownership (%)	4.882	1.120	8.846	0.003	100.000
% Option Compensation (%)	38.872	39.687	28.310	0.000	100.000
Dependent Variables					
% Convertible Debt (%)	2.323	0.001	6.934	0.001	113.499
Conv. Debt Use Dummy	0.223	0.000	0.416	0.000	1.000
Sample Size	3743				

Table 8—Pearson's Correlation Table for Convertible Debt and Incentive Compensation Variable, Robustness Check Data

Cash compensation equals the CEO's salary plus bonus. Log ($ Stock Ownership) is the natural log of the number of shares the CEO owned multiplied by the price per share. % Stock Ownership is the percentage of stock held by the CEO. % Option Compensation is the value of stock options granted divided by total compensation. % Convertible Debt is calculated as the convertible debt divided by total assets. Convertible Debt Use Dummy takes on one if company has convertible debt in that particular year, zero otherwise. P-values are shown in the parentheses. N represents the number of firm-year observations

	Cash Compensation	log($ Stock Ownership)	% Stock Ownership	% Option Compensation	% Convertible Debt
Panel A: 1992 – 1998 N = 3800					
log($ Stock Ownership)	0.21845				
	(0.000)				
% Stock Ownership	-0.0701	0.6022			
	(0.030)	(0.000)			
% Option Compensation	0.10489	0.07562	-0.09802		
	(0.000)	(0.000)	(0.003)		
% Convertible Debt	-0.02395	0.03349	-0.08614	0.10926	
	(0.145)	(0.041)	(0.008)	(0.000)	
Convertible Debt Use Dummy	0.00512	0.04443	-0.06602	0.08406	0.66748
	(0.755)	(0.007)	(0.043)	(0.000)	(0.000)
Panel B: 1999 – 2004 N = 3743					
log($ Stock Ownership)	0.10197				
	(0.000)				
% Stock Ownership	-0.01171	0.47082			
	(0.686)	(0.000)			
% Option Compensation	-0.05692	0.02436	-0.16898		
	(0.001)	(0.138)	(0.000)		
% Convertible Debt	-0.07842	0.06336	0.04582	0.10764	
	(0.000)	(0.000)	(0.115)	(0.000)	
Convertible Debt Use Dummy	-0.03199	0.05536	-0.05453	0.11308	0.62537
	(0.052)	(0.001)	(0.061)	(0.000)	(0.000)

value of stock ownership, and the percentage of option compensation with convertible debt use are consistent with a complementary relationship between convertible debt use and agency cost-reducing compensation structures. The relationship between the percentage of stock ownership and convertible debt use is consistent with a substitute relationship between convertible debt use and agency cost-reducing compensation structures. The relationships for the convertible debt use dummy are similar, with the exception that cash compensation has a positive but insignificant correlation with the convertible debt use dummy.

For the 1999-2004 period, we find that cash compensation is related significantly and negatively, and the value of stock owned, the percentage of stock owned, and the percentage of option compensation are related positively to convertible debt use. The value of stock owned and the percentage of option compensation are statistically significant, while the value of stock owned is not. All of these correlations are consistent with a complementary relationship between agency cost-reducing compensation structures and the percentage of convertible debt used. The correlations

with the convertible debt dummy are similar, with the exception of the percentage of stock owned, which is negative and significant. Thus, the percentage of stock owned displays a substitute relationship with convertible debt use in both periods and a substitute relationship with the percentage of convertible debt in the 1992-1998 subperiod. All other significant correlations are consistent with a complementary relationship between agency cost-reducing compensation structures and agency cost-reducing debt structures, specifically the use of convertible debt.

We are unable to replicate our simultaneous equations estimation on this data panel because we lack the instruments necessary for its identification. We considered estimating a fixed effects regression analysis on the two panels. One of the benefits of fixed effects regressions is that unchanging unobservable firm heterogeneity is absorbed into a firm-specific intercept. Thus, if board structure is relatively constant across our data sub-periods, our results would be unaffected by our inability to observe these variables in the panel data. One of the disadvantages of fixed effects regression analysis, at least from our perspective, however, is that the predictor variables must be assumed to be strictly exogenous. Because our maintained assumption is that executive compensation, leverage, and debt structure are determined simultaneously, this poses problems for using contemporaneous executive compensation variables to predict convertible debt usage. In unreported results, we use the prior year values of executive compensation variables as predictor variables in a fixed effects regression. We have no clear theoretical prediction regarding the lagged effects of compensation on debt structure, and, in fact, we find no consistent relationships between prior compensation structure and convertible debt use that are consistent across time. The results of these regressions are available on request from the authors.

In summary, we find a complementary relationship between the value of CEO stock ownership and the percentage of CEO compensation in stock options and the choice to use convertible debt and the percentage of convertible debt used. These findings are consistent with the correlations in our primary data. We find a significantly negative correlation between cash compensation and convertible debt use and the percentage of convertible debt used in the 1999-2004 period. Our original sample has a negative correlation but is insignificant. The only inconsistency with our original sample is that the percentage of stock owned is correlated significantly and negatively with the use of convertible debt in both periods and the percentage of convertible debt used in the 1992-1998 period. Taken as a whole we think the evidence suggests that our original sample is typical of a sample of larger firms and that many of the characteristics of that sample are persistent over time. The weight of the evidence from both the primary sample and the panel data support a complementary relationship between agency cost-reducing debt structures and agency cost-reducing compensation structures.

Conclusions

We examine the relationship between the use of convertible debt and strong corporate governance structure, including compensation alignment and board independence. We conduct a correlation analysis of convertible debt usage versus the percentage of CEO stock ownership, the value of CEO stock ownership, the percentage of CEO compensation in options, the percentage of CEO compensation in cash, the number of directors, and the proportion of outside directors. We also examine the relationship between convertible debt, leverage, and these governance measures using both a single stage and a simultaneous equations approach. We test the robustness of our simultaneous equations results using a larger panel data set. We thus extend the literature on the relationship between executive compensation and capital structure. In particular, we are interested in determining whether strong corporate governance structures, defined as strong executive compensation alignment of shareholder and manager interests and board independence monitoring structures, bear a complementary relationship or a substitute relationship to agency cost-reducing debt structures (such as convertible debt use) or whether they are unrelated.

We find some evidence of a complementary relationship between compensation alignment and agency cost-reducing debt structures in larger firms. The correlation analysis indicates that convertible debt use is generally higher in firms with more compensation alignment. In the convertible debt regressions we find the percentage of option compensation to be related positively to convertible debt use, suggesting a complementary relationship. The robustness tests, in general, indicate that our data are not atypical for larger firms. These results are consistent with findings by Ryan and Wiggins of a positive relationship between options and convertible debt (2001). The pattern of significance in our control variables also is broadly consistent with Stein's (1992) back-door equity hypothesis. The complementary relationship found is consistent with the proposition that firms that control agency costs of equity through strong governance structure also are more likely to reduce agency costs of debt through the use of convertible debt.

References

1. Agrawal, A., and C.R. Knoeber, "Firm Performance and Mechanisms to Control Agency Problems between Managers and Shareholders," *Journal of Financial and Quantitative Analysis,* 31 (1996), pp. 377-397.

2. Barclay, M.J., L.M. Marx, and C.W. Smith, Jr., "The Joint Determination of Leverage and Maturity," *Journal of Corporate Finance* 9 (2003), pp. 149-167.

3. Bhagat, S., and B. Black, "Board Independence and Long-term Firm Performance," *Journal of Corporate Law,* 27 (2002), pp. 231-273.

4. Bhagat, S., and R.H. Jefferies, Jr., *The Econometrics of Corporate Governance Studies* (Cambridge, MA: The MIT Press, 2002).

5. Booth, J.R., M.M. Cornett, and H. Tehranian, "Boards of Directors, Ownership, and Regulations," *Journal of Banking and Finance,* 26 (2002), pp. 1973-1996.

6. Brennan, M., and A. Kraus, "Efficient Financing under Asymmetric Information," *Journal of Finance,* 42 (1987), pp. 1225-1243.

7. Brennan, M., and E. Schwartz, "The Case for Convertible Bonds," *Journal of Applied Corporate Finance,* 1 (1988), pp. 55-64.

8. Brick, I.E., D. Palia, and C.J. Wang, "Simultaneous Estimation of CEO Compensation, Leverage and Board Characteristics on Firm Value," working paper, Rutgers University (2005).

9. Carpenter, J.N., "The Exercise and Valuation of Executive Stock Options," *Journal of Financial Economics,* 48 (1998), pp. 127-158.

10. Chang, S.C., S.S. Chen, and Y. Liu, "Why Firms Use Convertibles: A Further Test of the Sequential-financing Hypothesis," *Journal of Banking of Finance,* 28 (2004), pp. 1163-1183.

11. Chung, K.H., and S.W. Pruitt, "Executive Ownership, Corporate Value, and Executive Compensation: A Unifying Framework," *Journal of Banking and Finance* 20 (1996), pp. 1135-1159.

12. Core, J.E., R.W. Holthausen, and D.F. Larcker, "Corporate Governance, Chief Executive Officer Compensation, and Firm Performance," *Journal of Financial Economics,* 51 (1999), pp. 371-406.

13. Cotter, J., A. Shivdasani, and M. Zenner, "Do Independent Directors Enhance Target Shareholder Wealth during Tender Offers?" *Journal of Financial Economics,* 43 (1997), pp. 195-218.

14. Green, R.C., "Investment Incentives, Debt, and Warrants," *Journal of Financial Economics,* 13 (1984), pp. 115-136.

15. Hall, B., and K. Murphy, "Stock Options for Undiversified Executives," *Journal of Accounting and Economics,* 33 (2002), pp. 3-42.

16. Haugen, R., and L. Senbet, "Resolving the Agency Problems of External Capital through Stock Options," *Journal of Finance,* 36 (1981), pp. 629-647.

17. Hermalin, B., and M. Weisbach, "The Effects of Board Compensation and Direct Incentives on Firm Performance," *Financial Management,* 20 (1991), pp. 101-12.

18. Himmelberg, C.P., R.G. Hubbard, and D. Palia, "Understanding the Determinants of Managerial Ownership and the Link between Ownership and Performance," *Journal of Financial Economics,* 53 (1999), pp. 353-384.

19. Huddart, S., "Employee Stock Options," *Journal of Accounting and Economics,* 18 (1994), pp. 207-231.

20. Jen, F.C., D. Choi, and S.H. Lee, "Some New Evidence on Why Companies Use Convertible Bonds," *Journal of Applied Corporate Finance,* 10 (1997), pp. 44-53.

21. Jennergren, L.P., and B. Naslund, "A Comment on 'Valuation of Executive Stock Options and the FASB Proposal', *The Accounting Review,* 68 (1993), pp. 179-183.

22. Jensen, G.R., D.P. Solberg, and T.S. Zorn, "Simultaneous Determination of Insider Ownership, Debt, and Dividend Policies," *Journal of Financial and Quantitative Analysis,* 27 (1992), pp. 247-263.

23. Jensen, M.C., "The Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers," *American Economic Review* 76 (1986), pp. 323-329.

24. Jensen, M.C., and W.H. Meckling, "The Theory of the Firm: Managerial Behavior, Agency Costs, and Ownership Structure," *Journal of Financial Economics,* 3 (1976), pp. 305-360.

25. John, T.A., and K. John, "Top-Management Compensation and Capital Structure," *Journal of Finance,* 48 (1993), pp. 949-974.

26. Johnson, S.A., "Debt Maturity and the Effects of Growth Opportunities and Liquidity Risk on Leverage," *Review of Financial Studies,* 16 (2003), pp. 209-236.

27. Kim, Y.O., "Informative Conversion Ratio: A Signaling Approach," *Journal of Financial and Quantitative Analysis,* 25 (1990), pp. 229-244.

28. Kulatilaka, N., and A.J. Marcus, "Valuing Employee Stock Options," *Financial Analysts Journal,* 50 (1994), pp. 46-56.

29. Lewis, C.M., R.J. Rogalski, and J.K. Seward, "Industry Conditions, Growth Opportunities and Market Reactions to Convertible Debt Financing Decisions," *Journal of Banking and Finance,* 27 (2003), pp. 153-181.

30. Maksimovic, V., "Capital Structure in Repeated Oligopolies," *Rand Journal of Economics,* 19 (1988), pp. 389-407.

31. Mayers, D., "Why Firms Issue Convertible Bonds: The Matching of Financial and Real Investment Options," *Journal of Financial Economics,* 47 (1998), pp. 83-102.

32. Munro, J.W., "Convertible Debt Financing: An Empirical Analysis," *Journal of Business Finance and Accounting,* 23 (1996), pp. 319-334.

33. Myers, S.C., "Determinants of Corporate Borrowing," *Journal of Financial Economics,* 5 (1977), pp. 147-175.

34. Ortiz-Molina, Hernan, "Does Capital Structure Matter in Setting CEO Pay?" working paper (2006), The University of British Columbia.

35. Palia, D., "The Endogeneity of Managerial Compensation in Firm Valuation: A Solution," *Review of Financial Studies,* 14 (2001), pp. 735-764.

36. Perry, T., and M. Zenner, "Pay for Performance? Government Regulation and the Structure of Compensation Contracts," *Journal of Financial Economics,* 62 (2001), pp. 453-488.

37. Rosenstein, S., and J. Wyatt, "Outside Directors, Board Independence and Shareholder Wealth," *Journal of Financial Economics,* 26 (1990), pp. 175-191.

38. Ryan, H., and R. Wiggins, "The Influence of Firm- and Manager-Specific Characteristics on the Structure of Executive Compensation," *Journal of Corporate Finance,* 7 (2001), pp. 101-123.

39. Smith, C.W. Jr., and J. Watts, "The Investment Opportunity Set and Corporate Financing, Dividend, and Compensation Policies," *Journal of Financial Economics,* 32 (1992), pp. 263-292.

40. Stein, J., "Convertible Bonds as Backdoor Equity Financing," *Journal of Financial Economics,* 32 (1992), pp. 3-121.

41. Weber, M., and D. Dudney, "A Reduced Form Coefficients Analysis of Executive Ownership, Corporate Value, and Executive Compensation," *Financial Review,* 38 (2003), pp. 399-413.

42. Weisbach, M., "Outside Directors and CEO Turnover," *Journal of Financial Economics,* 20 (1988), pp. 431-460.

43. "What 800 Companies Paid their Bosses," *Forbes* (May 24, 1993), pp. 124-161.

44. Wooldridge, J.W., *Econometric Analysis of Cross-Section and Panel Data* (Cambridge, MA: The MIT Press, 2002).

45. Yermack, D., "Higher Market Valuations for Firms with a Small Board of Directors," *Journal of Financial Economics,* 40 (1996), pp. 185-211.

Appendix A: Calculation of Option Compensation

The valuation of executive stock options (ESOs) involves numerous difficulties. ESOs cannot be valued using traditional methodologies for valuation of traded stock options (TSOs) because of a number of factors. Most of the problems relate to the restrictions on the marketability of the options. Executives never have the opportunity simply to sell their option rights in the open market. This affects value in two different ways. First, the executive stock option may be extinguished prior to vesting through the termination, voluntary or involuntary, of the executive. Thus, there is some positive probability the executive will never have the opportunity to extract value from the option. Second, even once the option is vested and exercisable, the executive may not sell the option. This implies that only the intrinsic value of the option may be captured, through exercise, at any point in time. The consequence is that if the executive is risk averse, there will exist circumstances where early exercise will be preferred when it would not be with respect to a TSO.

Carpenter (1998) compares the performance of two models for the pricing of executive stock options, one of which is a simple extension of the ordinary American option pricing model with an exogenously specified stopping rate. This model is a discrete binomial version of the continuous time model of Jennergren and Naslund (1993). The model of Jennergren and Naslund (1993) reduces the Black-Scholes option value by the factor $e^{-\lambda\tau}$, where λ is the rate of attrition per period and τ is the number of periods. The performance of this model is compared to that of a preference-based model, as in Kulatilaka and Marcus (1994) and Huddart (1994), which assumes that the executive exercises the option according to a policy that maximizes expected utility.[3] In the utility-based models the probability of early termination is dependent on a number of generally unobservable variables such as the executive's risk aversion, outside wealth, and potential gain from voluntary separation. Carpenter (1998), working with actual exercise data, shows that the extended American model produces option values that are not inferior to the values produced by the more involved risk aversion-based models.

We adopt the model of Jennergren and Naslund (1993) with the parameter values for λ and τ being the sample means from the Carpenter (1998) study, which were $\lambda = 0.07$ and $\tau = 5.83$. We assume that grants were made at the average of the 1991 and 1992 year end stock prices, adjusted for stock splits during 1992. We calculate

[3] Kulatilaka and Marcus (1994) simply show that if the option is non-marketable, at any node of a binomial tree the value realizable is the intrinsic value of the option and that a risk averse individual can prefer that value to a lottery over the values obtainable at the next period's nodes. Huddart (1994) extends this by showing the extent of reduction in value of the option for various levels of risk aversion. Relatively high levels of risk aversion are required before the value reductions become significant. For example for a square root utility function, value reductions were modest (less than 3 percent).

the Black-Scholes option value of average grants (described below) based on this price, using the average three month Treasury bill yield for 1992 as the risk-free rate and the annualized standard deviation and variance of 1992 returns for each sample firm. This value is then reduced by the factor $e^{-\lambda\tau}$ with $\lambda = 0.07$ and $\tau = 5.83$. This adjusts the Black-Scholes value for the probability of actual exercise. The adjusted Black-Scholes value was then multiplied by the average options grants (as described below). Our goal is less so to develop a precise measurement of the ESO values than to develop an approach that provides a reasonable proxy for cross-sectional variation in the value of option usage to executives across firms. These values of stock option compensation were added to the value of salary and bonus and other compensation to form total compensation. The percentage of stock option compensation was adjusted stock option compensation divided by total compensation.

We note significant intertemporal variation in option grants among our sample firms. Yermack (1997) suggests that use of options granted in a single year as a measure of compensation may be subject to bias because the timing of option grants is correlated with stock performance. In an attempt to reduce potential bias, we calculated our measure of option compensation based upon the average grants to the executive in years prior to and including 1992. Most ESOs have a maximum life of ten years. We divided the total options held by the CEO at fiscal year end, whether currently exercisable or not, by the lesser of ten or the number of years of experience that the CEO had with the firm, whether as CEO or otherwise. This gives the average option grants per year. This average grant measure was then multiplied by the adjusted Black-Scholes value calculated as described above.

Appendix B: First Stage Regression Results

The dependent variables are: *Cash Compensation* equals the CEO's salary plus bonus. *% Option Compensation* is the value of stock options granted divided by total compensation. *$ Stock Ownership* is the number of shares the CEO owned multiplied by the price per share. *% Stock Ownership* is the percentage of stock held by the CEO. *Leverage Ratio* is book value of long-term debt divided by book value of total assets. The independent variables are: *5-year Standard Deviation* is the standard deviation of equity returns from 1987-1992. *Cash Flow* is pretax income minus taxes paid plus depreciation. *Outside CEO* is a dummy variable for whether the CEO was hired from the outside. *Founder is CEO* is a dummy variable for whether the CEO is the founder of the firm. *Age of PPE* is accumulated depreciation divided by property, plant and equipment. *CEO's experience* is the number of years he/she has worked for the company. No *Graduate Degree* is a dummy variable for whether the CEO has a graduate degree. *Undergraduate Degree Ivy* is a dummy variable for whether the CEO has an "Ivy League" undergraduate degree. *Future Abnormal Earnings* is the change in earnings per share between this year and next divided by this year end stock price. *Market to Book* is book value of assets minus the book value of equity plus market value of equity divided by book value of assets. *Volatility of Earnings Growth* is the standard deviation of first differences in earnings before interest, taxes, and depreciation for the five years preceding the sample year, scaled by average assets for that period. *Fixed Asset Ratio* is net property, plant, and equipment divided by total assets. *Effective Tax Rate* is the income taxes paid divided by the pre-tax income. *EBIT/sales* is the firm's earnings before interest, taxes, and depreciation divided by sales. *Firm Size* is measured by total assets. *Firm Age* is the number of years the firm has been incorporated. *Number of Directors* is the total number of directors for the firm. *% Outsider Directors* is the number of board members who have never been employed by the firm nor were they relatives of a current or past employee divided by the number of total directors. Sample size for all regressions is 348. *-, **-, *** indicate that the coefficient is statistically significant at the 10 percent, 5 percent, or 1 percent level, respectively

	Cost Compensation		% Option Compensation		$ Stock Ownership		% Stock Ownership		Leverage Ratio	
	Estimate	T-Stat	Estimate	T-Stat	Estimate	T-Stat	Estimate	T-Stat	Estimate	T-Stat
Intercept	-1206.1132	(-1.83)*	5.8228	(5.11)***	0.0706	(1.96)*	-0.0008	(-0.01)	0.3644	(4.02)***
Cash Flow	0.0617	(1.16)								
5-year Standard Deviation			-0.1781	(-0.69)						
Outside CEO					0.0658	(5.11)***				
Founder is CEO							5.0934	(2.97)***		
Age PPE									-0.3094	(-4.64)***
CEO's Age	-4.1017	(-0.56)	-0.0108	(-0.75)	-0.0006	(-1.42)	-0.0026	(-2.06)**	-0.0020	(-1.85)*
CEO's Experience	23.8328	(3.86)***	0.1136	(9.33)***	0.0020	(4.63)***	-0.0006	(-0.53)	0.0014	(1.54)
No Graduate Degree	5.1019	(0.06)	0.3408	(2.08)**	0.0070	(1.34)	-0.0100	(-0.69)	-0.0001	(-0.01)
Undergraduate Degree Ivy	107.2451	(0.69)	0.5306	(1.74)*	0.0368	(3.79)***	-0.0328	(-1.22)	0.0440	(1.94)*
Future Abnormal Earnings	-317.6141	(-1.62)	-0.0110	(-0.03)	-0.0491	(-4.06)***	0.0124	(0.37)	-0.0132	(-0.46)
Market to Book	99.4382	(1.75)	0.6198	(5.65)***	-0.0037	(-1.05)	0.0266	(2.75)***	-0.0439	(-5.35)***
Volatility of Earnings Growth	-771.7108	(-0.92)	-1.0568	(-0.64)	0.0810	(1.55)	0.2104	(1.36)	0.2724	(2.21)**
Fixed Asset Ratio	-150.1668	(-0.61)	-0.7755	(-1.6)	-0.0212	(-1.38)	-0.0329	(-0.77)	0.0637	(1.7)*
Effective Tax Rate	-38.6470	(-0.19)	1.2214	(3.12)***	0.0051	(0.41)	0.0492	(1.42)	0.0220	(0.76)
EBIT/sales	-208.7851	(-0.3)	-0.0766	(-0.06)	0.0462	(1.07)	-0.0237	(-0.2)	-0.0081	(-0.08)
Firm Size	258.1735	(4.4)***	0.3122	(3.71)***	0.0001	(0.04)	0.0216	(2.91)***	0.0060	(0.94)
Firm Age	-0.1990	(-0.17)	-0.0049	(-2.11)**	0.0000	(0.12)	-0.0001	(-0.7)	0.0000	(-0.08)
Number of Directors	-15.4384	(-0.94)	-0.0092	(-0.29)	-0.0012	(-1.21)	-0.0038	(-1.33)	-0.0004	(-0.16)
% Outside Directors	598.3039	(1.91)**	-1.3829	(-2.25)**	-0.0321	(-1.65)*	0.0043	(0.08)	0.0779	(1.71)*