University of New Orleans
ScholarWorks@UNO

Department of Economics and Finance Working Papers, 1991-2006

Department of Economics and Finance

1-1-2005

Determinants of Convertible Bond Structure;

Sudha Krishnaswami
University of New Orleans

Devrim Yaman
Western Michigan University

Follow this and additional works at: http://scholarworks.uno.edu/econ_wp

Recommended Citation
Krishnaswami, Sudha and Yaman, Devrim, "Determinants of Convertible Bond Structure;" (2005). *Department of Economics and Finance Working Papers, 1991-2006.* Paper 37.
http://scholarworks.uno.edu/econ_wp/37

This Working Paper is brought to you for free and open access by the Department of Economics and Finance at ScholarWorks@UNO. It has been accepted for inclusion in Department of Economics and Finance Working Papers, 1991-2006 by an authorized administrator of ScholarWorks@UNO. For more information, please contact scholarworks@uno.edu.

Determinants of Convertible Bond Structure

Sudha Krishnaswami[*]
Department of Economics & Finance
College of Business Administration
University of New Orleans
New Orleans, LA 70148
(504) 280-6488
skrishn1@uno.edu

Devrim Yaman
Department of Finance & Commercial Law
Haworth College of Business
Western Michigan University
Kalamazoo, MI 49008
(269) 387-5749
devrim.yaman@wmich.edu

[*] *Corresponding author.*

We thank Ranjan D'Mello, Tarun Mukherjee, Oranee Tawatnuntachai, Oscar Varela, Gerald Whitney, and seminar participants at the University of New Orleans, the 2002 Financial Management Association Meetings, and the 2004 European Financial Management Association Meetings for their comments and suggestions. Devrim Yaman acknowledges funding support from the Faculty Research and Creative Activities Support Fund at Western Michigan University. All errors remain our responsibility.

Determinants of Convertible Bond Structure

Abstract

Theoretical research argues that convertible bonds mitigate the contracting costs of moral hazard, adverse selection, and financial distress. Using firm-specific and macroeconomic factors of the contracting costs, we examine the extent to which they impact the likelihood of issuance and the structure of convertible bonds. Our evidence indicates that moral hazard, adverse selection, and expected financial distress costs are all important determinants of the likelihood of issuing convertible bonds over straight bonds. We also analyze the structure of convertible bonds issued by studying whether these bonds are more debt-like or equity-like. The evidence indicates that moral hazard costs do not influence bond structure, while adverse selection costs are somewhat important in determining the structure. Expected financial distress costs have the strongest statistical and economic impact on convertible bond structure.

JEL classification: G32; G30

Key words: Convertible bonds; Moral hazard; Adverse selection; Financial Distress

1. Introduction

Convertible bonds are debt securities that offer the holder the option to convert the bonds into equity of the issuing firm. The conversion feature offers the issuer a dimension of flexibility over straight debt, which prior theory research argues may be structured to mitigate contracting costs of moral hazard (Mikkelson, 1980; Green, 1984), adverse selection (Brennan and Kraus, 1987; Brennan and Schwartz, 1988; Stein, 1992), and financial distress (Stein, 1992). Empirically, these theories imply a systematic variation in the use and design of convertible bonds with measures of these contracting costs.

In this paper, we examine the extent to which contracting costs arising from moral hazard, adverse selection, and financial distress affect the likelihood and structure of convertible bonds. Using firm-specific factors that capture these costs, and macroeconomic factors that capture the time-series variation in the costs, we first determine the likelihood of convertible issuance over straight bonds. We then analyze the impact of these contracting costs on the structure of convertible bonds. Convertible bonds offer flexibility of design along two main dimensions – the level of post-conversion equity attached to each bond, and the time to maturity of the bonds. The *probability* of the conversion option being in the money is a function of these features, and is our measure of the structure of the convertible bond. We use the Black-Scholes option pricing model to estimate this probability of conversion. This probability of conversion indicates the debt-like or equity-like nature of the convertible and represents the effective flexibility afforded by the bond.

The incremental contributions of our research are two-fold.[1] First, we separate out the

[1] Prior research on convertibles has mainly analyzed (i) the announcement reaction and the factors affecting the reaction (e.g. Dann and Mikkelson, 1984; Mikkelson and Partch, 1986; Eckbo, 1986; Lewis, Rogalski, and Seward, 1999), and (ii) the optimal call policy and the differences between underwritten and non-underwritten calls of convertibles (e.g. Dunn and Eades, 1989; Asquith and Mullins, 1991; Singh, Cowan, and Nayar, 1991).

different theories of convertible bond issuance by categorizing them in terms of contracting costs of moral hazard, adverse selection, and financial distress. This allows us to study the relative empirical impact of each cost. Second, our analysis controls for time-series variation in measures of these costs by using macroeconomic factors. There have been a number of studies that highlight the importance of controlling for time-series heterogeneity in the contracting costs when studying security issuance decisions (Shleifer and Vishny, 1992; Choe, Masulis, Nanda, 1993; Gertler and Hubbard, 1993; Bayless and Chaplinsky, 1996; Pulvino, 1998; Levy, 2001; Korajczyk and Levy, 2002). Because macroeconomic factors such as interest rates, industry performance, economic growth, and the level of information asymmetry in the market affect cash flows, the type and quality of the investment opportunity set, risk perceptions, and the probability of default, they capture the time-series variation in the costs that arise due to moral hazard, adverse selection, and financial distress.

Our results indicate that the likelihood of issuing convertible bonds compared to straight bonds is higher for high growth firms, smaller firms, firms with high levels of information asymmetry, and firms with high asset specificity. These results suggest that firms use the flexibility provided by convertible bonds to mitigate contracting costs of moral hazard, adverse selection, and financial distress. We also find that firms are more likely to issue convertibles over straight bonds during periods of high interest rates, and during industry and economic downturns. This highlights the importance of financial distress costs in the issue decision since in these periods the probability of default is higher (Shleifer and Vishny, 1992; Pulvino, 1998) and investment opportunities deteriorate (Choe, Masulis, and Nanda, 1993).

When we focus only on convertible bonds and examine the variation in the probability of conversion, our results indicate that this probability is higher (convertible bonds are more equity-

like) for smaller firms, during periods of high interest rates, and during economic downturns. Issuing equity-like convertibles in these cases allows firms to reduce the fixed claim component of convertibles, thereby reducing the probability of default. We also find that the probability of conversion is lower (convertible bonds are more debt-like) for firms with high firm-specific information asymmetry. However, this result is not robust to macroeconomic measures of adverse selection costs suggesting that there is only weak evidence of adverse selection costs influencing convertible bond structure. Moral hazard costs are not significant in determining convertible bond structure.

The economic impact of the variables also reiterates the importance of all three contracting costs in determining whether or not firms issue convertibles. But, once firms decide to issue convertibles, the structure of the convertibles is influenced largely by financial distress considerations. In fact, consistent with Stein (1992), our evidence shows that financial distress costs are so important for some firms that they structure convertibles to mitigate these costs even at the expense of incurring some adverse selection costs.

2. Structure of Convertible Debt

A convertible bond may be viewed as a combination of two securities -- a straight bond and a warrant. In designing convertibles, several features in the security differentiate these bonds from straight debt and equity, and provide flexibility to the issuers. For instance, the conversion ratio, the number of shares offered upon conversion, implicitly determines the conversion price and the level of post-conversion equity available to the bondholders upon conversion. The conversion price in conjunction with time to maturity and other firm-specific factors, determines the probability of the conversion option being in the money, which in turn is a minimum condition for the bond to be converted into equity. A high (low) probability of

conversion indicates a convertible that is more "equity-like" ("debt-like"). We use the probability of conversion as our metric of the *structure* of convertibles.

Following Lewis, Rogalski and Seward (1999), we measure the probability of conversion of a convertible bond by the risk-neutralized probability that the bond will be converted into equity. We estimate this probability under the assumptions of the Black-Scholes option pricing model and by utilizing the pricing equation in Merton (1973) for the call option of a firm that provides a continuous dividend yield. Hull (1999) shows that $N(d_2)$ in the option pricing equation represents the *ex-ante* probability that the option will be exercised in a risk-neutral world, where $N(\bullet)$ is the cumulative probability under the standard normal distribution and

$$d_2 = \frac{\ln(S/X) + (r - div - \sigma^2/2)T}{\sigma\sqrt{T}}.$$

In the above equation, *S* is the price of the firm's stock on the convertible bond filing date, *X* is the conversion price, *r* is the risk-free rate calculated as the continuously compounded annual yield on 10-year T-bonds in the filing month, *div* is the continuously compounded dividend yield during the fiscal year preceding the filing date, σ is the standard deviation of the continuously compounded equity return estimated over the period 240 to 40 trading days prior to the filing day, and *T* is the number of years until maturity. The probability of conversion estimated this way may be interpreted as the anticipated equity-like or debt-like nature of the convertible bond *at the time of issue*.

3. Factors Affecting the Likelihood and Structure of Convertible Debt

There are several theoretical explanations for the use of convertible bonds by firms. These theories typically analyze the incremental benefits of convertible over non-convertible debt, and identify factors that affect the likelihood of convertible debt issuance over straight debt.

In addition, the theories exploit the design flexibility afforded by convertible bonds and so, offer empirical implications for the structure of the convertible bond issued.

We consider only the choice between straight debt and convertible debt, and do not include other financing choices such as equity in our likelihood analysis for several reasons. Schneider and McCarthy (1999) point out that, at issuance, all of the proceeds of convertible debt are classified as "entirely debt." In terms of market value of debt, King (1984) estimates that about 82% of the market value of a convertible comes from its straight debt component, and only about 18% comes from the equity component. Moreover, convertible debt remains classified as debt until conversion into common stock or maturity. Finally, even theories of convertibles that consider straight debt, convertible debt, and equity in their choice (Brennan and Kraus, 1987; Brennan and Schwartz, 1988; Stein, 1992) typically derive the optimality of convertibles by first excluding equity in favor of straight debt, and then deriving convertibles as an alternative to straight debt under conditions that make straight debt unfavorable. Thus, these theories implicitly derive choice between straight debt and convertibles only.

3.1. Contracting Costs of Moral Hazard

Jensen and Meckling (1976) argue that shareholders of a levered firm have an incentive to undertake riskier projects, because they have unbounded upside potential for future cash flows but face only bounded downside potential due to limited liability. This is the risk-shifting problem.[2] However, bondholders anticipate this misincentive and demand a higher yield as compensation for this risk, thereby imposing the cost of risk-shifting on the shareholders.

Green (1984) demonstrates that convertible bonds mitigate the risk-shifting problem. By attaching a conversion option to the bonds, firms issuing convertibles allow the bondholders to

[2] This problem is also illustrated in Galai and Masulis (1976) who view a levered firm's equity as a call option on the firm's underlying assets. By substituting riskier assets for assets of lower risk, shareholders can increase the volatility of the firm's assets, thereby increasing the value of their shares.

participate in the upside potential. Thus, convertible bonds reduce the value of limited liability, thereby mitigating the risk-shifting problem. A similar argument is also presented in Mikkelson (1980,1981). He argues that when convertible bonds are called back, shareholder incentives are altered to favor risk-shifting. For firms issuing debt, Mikkelson's argument and Green's model imply that firms with greater propensity to shift risk onto bondholders would have a higher likelihood of issuing convertible debt over straight debt, and would offer more potential equity participation via the conversion option as a commitment to abstaining from risk-shifting.

Convertible bonds may also mitigate the underinvestment problem outlined in Myers (1977). In firms with relatively large fixed liabilities, since shareholders receive only cash flows that remain after paying off the liabilities, they will accept only projects whose NPV exceed the liabilities. As a result, managers will forego some positive NPV projects. Because this incentive is rationally anticipated by the bondholders at the time of the issue, the costs of underinvestment are imposed on the shareholders. Adapting the arguments developed by Mayers and Smith (1987), for a given value of debt, the fixed component of the debt is smaller in convertibles than in straight bonds, due to the warrants attached to the convertibles. The higher is the value provided by the conversion option, the lower will be the fixed income component (the coupon) of the convertibles, thereby mitigating the underinvestment problem. Thus, firms with greater potential underinvestment problems would issue convertible bonds with higher probability of conversion. Overall, the implications of these studies is that firms which have higher moral hazard problems will have a higher likelihood of issuing convertible debt over straight debt, and the convertibles they issue will be structured to offer a higher probability of conversion.

3.2. Contracting Costs of Adverse Selection

Myers and Majluf (1984) argue that under information asymmetry firms would first rely

on debt, then equity when they raise external capital because debt securities are less information sensitive than equity and so are associated with lower adverse selection costs. Extending this argument to include convertible debt would suggest that convertibles, being more equity-like than straight debt, would have higher adverse selection costs. In a related vein, under information asymmetry, Kim (1990) shows that a higher conversion ratio in convertibles (i.e., more equity-like convertibles) convey expectations of poor future earnings. This would imply that firms with higher levels of information asymmetry would prefer to issue straight debt over convertible debt. Also, when firms issue convertibles, the convertibles will be more debt-like as information asymmetry increases.

In a Myers-Majluf type framework, Stein (1992) develops a model that trades off the adverse selection cost of equity against the financial distress cost of debt to obtain conditions under which convertible debt is an optimal financing choice. He argues that under information asymmetry, firms would prefer to issue debt over equity. But for firms with high expected financial distress costs, debt would be sub-optimal since it exacerbates these costs. These firms would therefore prefer convertible debt since the option component of convertibles lowers the fixed component for these firms. In contrast to the implication of Myers and Majluf, Stein's model implies that for firms with high financial distress costs, the likelihood of convertible bond issuance is increasing in information asymmetry. Also, controlling for financial distress costs, the convertibles are likely to be more debt-like as information asymmetry increases in order to mitigate adverse selection costs.

Brennan and Kraus (1987) and Brennan and Schwartz (1988) argue that convertible bonds constitute an ideal financing vehicle for firms subject to high information asymmetry especially about the riskiness of their assets. They show that unlike straight debt or equity,

which are both undervalued under information asymmetry, optimally structured convertible bonds are less likely to be undervalued. They demonstrate that convertible bond values are relatively invariant to risk perceptions because the mispricing in the debt component is offset by the mispricing in the option component. If the market incorrectly perceives a firm's risk to be higher (lower) than what it truly is, the debt component of the convertibles would be undervalued (overvalued), while the option component will be overvalued (undervalued) since option values are positively related to risk. Because the adverse selection problem in straight debt or equity is higher under higher levels of information asymmetry, their argument implies a higher likelihood of convertible bond issuance under higher information asymmetry.

3.3. Financial Distress Costs

The results of a recent survey of corporate executives by Graham and Harvey (2001) indicate that executives view expected financial distress costs and credit rating as important in the debt issue decision. Castanias (1983) finds evidence that ex-ante default costs force firms to hold less debt in their capital structure. Titman (1984) also argues that firms with higher expected financial distress costs would have less debt in their capital structure. Therefore, Stein (1992) argues that firms with high financial distress costs would prefer equity over debt to mitigate financial distress costs. However, if these firms also face high adverse selection costs due to information asymmetry, then equity is not a viable option. Stein's model implies that under high adverse selection costs, firms with high expected financial distress costs would have a higher likelihood of issuing convertibles over straight debt. Also, when they issue convertibles, the bonds will be structured to mitigate the high financial distress costs faced by the firms, and so will be more equity-like. Thus, Stein's model derives a balance between financial distress costs and adverse selection costs in determining convertible structure.

4. Variable Definitions

In our analysis, we include firm-specific variables measuring moral hazard, adverse selection, and financial distress costs. However, Choe, Masulis, and Nanda (1993), Gertler and Hubbard (1993), Bayless and Chaplinsky (1996), and Korajczyk and Levy (2002) argue that macroeconomic factors cause time-series variation in the contracting costs because they affect cash flows, the type and quality of the investment opportunity set, risk perceptions about firms, and the likelihood of financial distress. Therefore, in addition to firm-specific factors, we include macroeconomic factors to control for time-series heterogeneity in the costs.

4.1. Moral Hazard

Smith and Watts (1992), Froot, Scharfstein, and Stein (1993), and Barclay and Smith (1995) argue that the contracting costs of underinvestment and risk-shifting are higher for firms with more growth options because the conflict between shareholders and bondholders over the exercise of the options is greater for these firms. Shareholders of high growth firms can more easily substitute riskier projects for less risky ones and are also more susceptible to foregoing positive NPV projects if the gains accrue predominantly to the bondholders. So, growth opportunities represent a measure of moral hazard problems. We measure growth opportunities using the *market to book ratio* of assets for each firm, measured at the end of the fiscal year prior to the convertible debt announcement year. The market value of the firm is defined as the book value of total assets minus the book value of equity plus the market value of equity.

4.2. Adverse Selection

Following Dierkens (1991) and Krishnaswami and Subramaniam (1999), we use the *dispersion in the market-adjusted daily stock returns* in the year preceding the issue announcement as a measure of firm-specific information asymmetry. This proxy relies on the

assumption that stock price movements not explained by market movements are due to firm-specific information, and that at least some of this information is known to the managers but not to the outside investors.[3] Thus, higher is the dispersion in stock returns, higher is the level of information asymmetry about the assets of the firm in the market.

Choe, Masulis, and Nanda (1993) and Eisfeldt (2004) argue that adverse selection costs are counter-cyclical and hence lower during market upturns. We proxy market upturns using industry performance and economic growth. We measure *economic growth* using annual GNP growth rates, where the GNP figures are obtained from the Federal Reserve Bulletin. Because our regressions use both GNP growth rates and interest rates (as a measure of expected financial distress costs), two potentially correlated variables, we orthogonalize GNP growth and interest rates and use the residuals from this regression.[4] This enables us to capture the impact of economic performance on the debt issue decision that is incremental to the impact of interest rates.[5] Real GNP is measured in 1996 dollars, and real interest rate is defined as the nominal monthly 10-year T-bond yield deflated by the change in the monthly Consumer Price Index. To measure industry upturns and downturns, we define *industry performance* as the median annual stock return in the issuing firm's industry in the year prior to the filing of the debt issue. For each debt-issuing firm, industry is defined as all firms with the same 3-digit SIC code.

Bayless and Chaplinsky (1996) argue that the level of information asymmetry in the market varies through time, and periods of low information asymmetry occur when "events

[3] To the extent that some of the stock price movements are due to industry-wide (and not market-wide) information that is a surprise to both the managers and the outside investors of the firm, this variable would overstate the level of information asymmetry about a firm. There is, however, no bias in the overstatement across the firms.

[4] We orthogonalize GNP growth and interest rates by regressing real GNP growth rates on contemporaneous real interest rates (i.e., using GNP growth rate as the dependent variable), and using the residuals from this regression. We choose to regress GNP growth rates on interest rates in the orthogonalization because Estrella and Hardouvelis (1991) argue that real interest rates drive GNP growth. Because high real interest rates affect investment levels, this would decrease real output, which in turn reduces GNP growth rates.

[5] We also performed all our analysis using real GNP growth rates as the measure of economic growth. Our results are qualitatively similar to the results using the GNP residuals.

known by both managers and investors dominate firm value." They argue that since equity issues convey unfavorable information to the market, firms will choose to issue equity during periods of low information asymmetry when the adverse selection costs are lower. Hence, as documented in Choe, Masulis, and Nanda (1993) and Bayless and Chaplinsky (1996), aggregate volume of equity issues is an indicator of the level of information asymmetry in the market.[6] We use aggregate *equity volume* in the economy to capture time-series heterogeneity in adverse selection costs. The Federal Reserve Bulletin provides monthly reports of the aggregate dollar volume of equity issued by all firms in the economy in nominal dollar terms. We use this estimate deflated by the change in the monthly Consumer Price Index in our analysis.[7]

4.3. Financial Distress

Titman (1984) and Titman and Wessels (1988) argue that expected bankruptcy costs are higher for firms with unique products since their liquidation costs are likely to be high. Following Titman and Wessels (1988) and Fisher, Heinkel, and Zechner (1989), we represent expected bankruptcy costs with an indicator variable *asset specificity* that is one for firms in the machinery and equipment industry (SIC code between 3400 and 3999) and zero otherwise. This variable captures the costs incurred during distress but does not measure the probability of being in distress. In tables not reported here, we use the interest coverage ratio as an alternate variable, to analyze the impact of the probability of distress on the likelihood of issuance and structure of

[6] It could be argued that high equity volume might simply reflect "hot" markets for equity when other macroeconomic conditions are favorable for equity issue so that equity prices are high during these periods. However, Bayless and Chaplinsky (1996) show that periods classified as hot versus cold using equity prices and general macroeconomic conditions in the market, do not coincide with the periods of high equity volume. They conclude that aggregate equity volume contains information regarding time-varying adverse selection costs, and is not just a manifestation of hot equity markets (see pages 265 and 266).

[7] We also orthogonalized equity volume against GNP growth and interest rates by regressing real equity volume on GNP growth rates and real interest rates, and using the residuals from this regression to measure market information asymmetry. All our results are virtually identical to the results using real equity volume. These results are available from the authors upon request.

convertible bonds.[8] In addition to these two variables, we also use macroeconomic variables described below that capture the time-series variation in both the probability of default and the costs of being in default.

The survey evidence in Graham and Harvey (2001) indicates that corporate executives view interest rate timing as the most important determinant of the debt issue decision. When firms issue debt at higher levels of *interest rates*, and the firms' cash flows do not increase proportionally, a higher fraction of the firms' cash flows go towards servicing the debt. This increases the likelihood of financial distress and hence the expected distress-related contracting costs of debt. We therefore use the level of interest rate to capture the time-series variation in the probability of distress. We proxy real interest rates using the yield on 10-year Treasury bonds as of the filing month of the straight and convertible bond issues, deflated by the change in the Consumer Price Index. The T-bond yields are obtained from the Federal Reserve Bulletin.

In addition to capturing variation in adverse selection costs, *economic growth* and *industry performance* (defined in the previous section) could also reflect expected financial distress costs. Choe, Masulis, and Nanda (1993) argue that there are fewer and poorer quality investment opportunities during *economic* downturns compared to upturns, and hence higher probability of distress associated with debt issued in downturns. Shleifer and Vishny (1992) argue that expected distress costs are higher for firms during *industry* downturns due to increased

[8] The interest-coverage ratio measures a different aspect of expected financial distress costs, the probability of financial distress. Our inferences are not altered when we use this measure of expected financial distress costs in the place of asset specificity. Altman's Z score is an alternative and commonly used measure of the short-term probability of distress. It is calibrated so that higher scores represent lower probability of distress. While this also seems to be a good measure to capture the probability of distress, there are two reasons why we prefer to use interest coverage ratio over the Z-score. First, the Z-score is computed as a function of various firm-specific variables that capture financial distress probability. We use some of these variables (e.g., financial slack, market-to-book ratio) separately in our analysis because they are motivated by some theories of convertibles, and using the Z-score in addition to these variables will lead to multi-collinearity in our regressions. Second, Altman's Z score is not available for many of our observations, and using it results in significant data loss. We therefore prefer to use interest coverage ratio to capture the probability of distress while controlling separately for other variables (that are used in the computation of Z-score).

asset illiquidity during these periods. Their argument stems from the fact that it is usually companies in the same industry that bid the highest price for assets during liquidations, and the costs of being in distress will be higher when the bidding firms themselves are not performing well. Thus economic growth and industry performance also proxy for expected financial distress costs with the costs being higher in downturns.[9]

4.4. Control Variables

We include two firm-specific control variables in our regressions, *firm size* and *financial slack*. Firm size is measured as total assets obtained from Compustat. Brennan and Schwartz (1988) argue that adverse selection costs are higher for smaller firms. This is in part driven by the fact that smaller firms are typically younger, have smaller analyst followings, and are also less likely to be held by large mutual funds because they are often not part of any well-known stock indices. Brennan and Schwartz (1988) also argue that expected financial distress costs are higher for smaller firms. Larger firms are typically better diversified and have a lower probability of being in distress (Rajan and Zingales, 1995). The theories relating financial distress and adverse selection costs to convertible bonds both imply a negative relation between firm size and the likelihood of convertible bond issuance. The impact of firm size on the probability of conversion however, is mixed. To the extent that firm size captures distress risk, we would expect smaller firms (firms with higher distress risk) to issue more equity-like convertibles in order to limit the fixed liability, and hence the expected distress costs. To the extent that firm size captures adverse selection costs, we would expect convertible bonds of smaller firms to be more debt-like in order to reduce the adverse selection costs associated with the equity component.

[9] Pulvino (1998) shows that bankruptcy costs increase during downturns for firms in the airline industry.

Financial slack is measured as (Operating income before depreciation-Capital expenditures-Change in net working capital-Net taxes-Change in deferred taxes)/Total assets in the fiscal year prior to the announcement year. Jensen's (1986) free cash flow theory provides a rationale to control for financial slack. Because of the potential for default, straight debt forces managers of firms with high financial slack (free cash flow) to focus on debt management rather than (mis)use the cash for alternate private purposes, thus bonding the incentives of managers with the incentives of shareholders. We would therefore expect firms with high financial slack to rely more on straight debt rather than on convertible debt.

5. Data and Empirical Results

5.1. Sample Characteristics

The data consists of convertible and straight debt issues completed during the period 1983 to 2002 by companies trading on the NYSE, AMEX, and Nasdaq. We require that all issues have filing dates recorded in the *Securities Data Corporation* (SDC) database and data be available for the issuing firms on the Center for Research in Security Prices (CRSP) database. We eliminate debt issues by utilities and financial companies since the motivations for issues by these companies may be regulation related (i.e., to show evidence of cost of capital), and since there may be implicit government subsidization of the distress costs for these firms. The sample consists of 704 convertible debt issues and 2544 straight debt issues by industrial firms. Table 1 shows the annual distribution of the issues. The minimum number of debt filings in the sample in any given year is 10 (in 1999 and 2000) for convertibles, and 33 (in 1983) for straight debt issues. The maximum number of filings is 113 (in 1986) for convertibles and 222 (in 1992) for straight debt issues.

Table 2 presents the descriptive statistics for the data. Issuers of convertible and straight

debt differ on several characteristics. The average straight debt issuer in our sample is over six times larger than the average convertible debt issuer in terms of total assets. This difference is even larger in the medians. Thus, convertible debt is typically issued by firms that are much smaller than their counterparts that issue straight debt. The average straight debt issuer has about 33% debt in their capital structure, while the average convertible issuer has only about 27% debt. Thus, counter to the common misconception that convertibles are issued by highly levered companies, we find that these firms actually have lower debt ratios than straight debt issuers. Of course, this finding has to be tempered by the ability of the issuers to support straight or convertible debt. And, we find that convertible issuers have negative financial slack while straight debt issuers have positive financial slack in the median. Thus, the comparisons indicate so far that convertible issuers have a poorer ability to support debt in their capital structure than straight debt issuers, and this may account for the lower debt ratio of convertible issuers.

The market to book ratio of the issuers indicates the growth opportunities of the convertible issuers to be somewhat higher than that of the straight debt issuers. In addition, the fraction of plant, property, and equipment relative to total assets is much higher for straight debt issuers than for convertible issuers. These two results suggest perhaps that convertible issuers have more of their value determined by growth opportunities than straight debt issuers. Finally, convertible issuers have more information asymmetry on average than straight debt issuers, as measured by the dispersion in the market-adjusted daily stock returns.

The straight and convertible debt issues also differ along several features. While the mean and median size of the debt issue is much smaller (about 147 million and 60 million respectively) for convertible bonds compared to straight bonds (about 599 million and 250 million respectively), the size of the offering relative to firm size is much larger for convertibles

(about 43% and 30% respectively) than for straight debt (about 14% and 10% respectively). Coupled with the fact that convertible issuers have negative slack, the large issue size relative to firm size of the convertible issues indicates that these issues may have very high default risk. Also, over 85% of convertible issues are rated as speculative grade or are unrated compared to only about 40% of straight debt, again suggesting that convertible issues are riskier than straight debt. The median maturity of convertible bonds is about 20 years while it is only 10 years for straight bonds. Also, because of the additional value provided to the investors through the conversion option attached to the convertibles, the average coupon rate on convertibles is lower than that on straight bonds.

A predominant fraction of convertible debt (93%) is subordinated debt, while this fraction is substantially lower for straight debt (15%). Finally, while the majority of straight debt issues in our sample are through shelf registered offerings, the majority of convertible issues (93%) are placed traditionally. Rule 415 that regulates shelf registration of securities imposes eligibility criteria for firms desiring to shelf register securities. Only firms satisfying a size requirement, whose debt has investment grade rating, and who have not defaulted on any claims during the preceding three years are eligible to shelf register their securities (Shyam-Sunder, 1991). Since convertible bond issuers are small firms, with high levels of information asymmetry, and debt that is rated speculative grade, they may not be able to shelf register the convertible debt. Table 2 shows that the ex-ante probability of conversion over the life of the bond is about 29%.

Consistent with earlier studies on security issues, we estimate significant cumulative abnormal returns of –1.585% for convertibles and –0.326% for straight debt in the 3-day interval (-1,+1) around the announcement. Thus, convertible bond announcements are on average

associated with a significantly more negative abnormal returns than straight debt announcements.

5.2. Likelihood of Convertible Bond Issuance

In Table 3, we present the results of logistic regressions of the likelihood of convertible bond issuance over straight bonds. The dependent variable in these regressions is an indicator variable that takes the value of 1 for convertible issues and 0 for straight debt issues.[10] Panel A presents the impact of only the macroeconomic variables, while panel B presents the impact of the macroeconomic and firm-specific variables on the likelihood of issuing convertibles. The results in panel A indicate that the coefficient of interest rates is positive and significant, and the coefficient of industry performance is negative and significant in all the regressions. Also, the coefficients of economic growth and equity volume are negative and significant. Collectively, these results suggest that convertibles are more likely to be issued in periods of the macroeconomy when expected financial distress costs (Shleifer and Vishny, 1992; Andrade and Kaplan, 1998; Choe, Masulis, and Nanda, 1993; Pulvino, 1998), and adverse selection costs are high (Brennan and Schwartz , 1988; Stein, 1992).

The economic impact of each variable provides some measure of the relative magnitude of each effect. Consistent with the survey evidence in Graham and Harvey (2001), Panel A of Table 3 indicates that high interest rates have by far the most impact on the likelihood of convertible issuance, followed by economic downturns. In regression 1, for a one quartile increase in interest rates from the median, the probability of issuing convertible over straight debt increases to about 61% from a median probability of 17.6% (an increase of 43.5 percentage points). In regression 2, an equivalent decrease in economic growth increases the probability of issuing convertible over straight debt to about 46% from a median probability of 20% (an

[10] We applied a 2% winsorization to each tail for all our independent variables so as to minimize the impact of potential outliers.

increase of 26 percentage points). The other two variables, equity volume and industry performance, are associated with about a 3.6 percentage point change on average in the probability of issuing convertibles over straight debt.

These results are reinforced in the regressions in panel B of Table 3 when we include firm-specific measures of the contracting costs. All of the firm-specific factors are significant in the logistic regressions. The coefficient of market-to-book ratio, the proxy for growth opportunities, is positive and significant in all the regressions. This is consistent with the argument in Mikkelson (1980) and Green (1984) that firms that have a higher propensity for risk-shifting and underinvestment use convertibles to mitigate the contracting costs of moral hazard. Also, firms with higher asset specificity have a higher likelihood of issuing convertibles over straight bonds, to mitigate the higher expected financial distress costs. Firms with higher firm-specific information asymmetry have a higher likelihood of issuing convertibles, as indicated by the positive coefficient of dispersion in stock returns. Finally, firm size is negative and significant, indicating that smaller firms have a higher likelihood of issuing convertibles.

When we examine the economic impact of the firm-specific variables, firm size has the highest impact, followed by market-to-book ratio and dispersion in stock returns. For example, in regression 7, a change in each variable from its median by one quartile in the direction of increasing probability, increases the probability of issuing convertibles *by* 26.5, 21, and 21 percentage points respectively, from a median probability of issue of 14.5%. The macroeconomic variables retain their statistical and economic significance in the regressions. Overall, these results are consistent with all three contracting costs (moral hazard, adverse selection, and financial distress) driving the choice of security. However, the economic impacts indicate that financial distress costs are the most important.

5.3. Switch Hitters versus Non-switch Hitters

In panel A of table 4, we examine a subsample of firms that have at different times issued convertible and straight debt. Because of their demonstrated ability to issue both types of debt, we refer to these firms as switch hitters. There are 173 switch hitters in our sample that issue a total of 638 straight and convertible debt over the sample period. In panel A of the table, we analyze the determinants of the likelihood of convertible bond issuance over straight debt for these firms. Our results indicate that none of the firm-specific variables except firm size are important determinants of the likelihood of issuing convertibles. The macroeconomic variables interest rate and economic growth are significant in all the regressions, and equity volume is significant in some of the regressions. The results suggest that firms issue convertibles when they are smaller, and during periods of high interest rates, poor economic growth, and high information asymmetry. The results are consistent with these firms switching from straight debt to convertible during periods when the contracting costs of financial distress and adverse selection are high and vice versa. The fact that in the above regressions, mainly macroeconomic variables (except for firm size) are significant highlights the importance of macroeconomic variables in capturing time-series variation in the contracting costs and hence, the switch decision.

We also analyze the likelihood of convertible bond issuance for non-switch hitters in panel B of the table. In regressions 1, 2, and 3 in panel B, we include an indicator variable that is 1 for firms that have issued only straight debt prior to the current issue, and 0 otherwise. In regressions 4, 5, and 6, we include an indicator variable that is 1 for firms that have issued only convertible debt prior to the current issue, and 0 otherwise. The indicator variable for only prior straight debt issuers is negative and significant in regressions 1, 2, and 3, and the indicator

variable for only prior convertible debt issuers is positive and significant in regressions 4, 5, and 6. This suggests that firms are more likely to issue the same type of security that they have issued in the past. In all of these regressions, all the firm-specific and macroeconomic variables are significant. The significance of the firm-specific factors here and their non-significance in the switch hitter subsample suggests that firm-specific variables are sticky and characterize firm-type across time, but because they do not change much over time, they are unable to explain the switch decision.

5.4. Determinants of the Probability of Conversion

The theories of convertible bonds also have implications for the probability of conversion of the bonds. The probability of conversion represents the equity-like or debt-like nature of a convertible bond. In Table 5, we present univariate comparisons of the proportion of equity-like convertibles across different periods of the macroeconomy. In the univariate comparisons, we first classify periods into high and low periods of each macroeconomic variable, and compare the proportions of equity-like convertibles across these extreme periods. For interest rate, economic growth, and equity volume, we first obtain 3-month moving averages of each variable and then classify these moving averages into quartiles. Then, in each month and for each variable, we assign the variable to one of the four quartiles depending on the magnitude of the variable that month. If three consecutive months of a variable are classified in the highest (lowest) quartile, we define those periods as high (low) periods of the macroeconomy for that variable. For industry performance, a high (low) period is when the median annual stock returns of the firm's industry is above (below) the sample median.

The results indicate that the proportions of equity-like convertibles relative to all equity-like convertibles, and relative to all convertibles in our sample are higher during periods of high

interest rates. These results suggest that firms use more equity-like convertibles during periods when the likelihood of distress and hence, the expected distress costs are higher. We also find the proportion of equity-like convertibles to be lower (i.e., more convertibles are debt-like) during periods of higher economic growth. This is consistent with the implications of Choe, Masulis, and Nanda (1993) that in periods when expected financial distress costs are lower, firms do not feel a strong need to limit fixed claims by trading off with equity participation. Finally, counter to the implications of adverse selection arguments, we find that firms issue more equity-like convertibles during periods of high information asymmetry. We analyze this last result in greater detail later in the section.

We also perform a regression analysis of the determinants of the probability of conversion. The regression results are presented in Table 6. Again, panel A presents the impact of only the macroeconomic factors, while panel B presents the impact of the macroeconomic and firm-specific factors. The dependent variable in these regressions is the probability of conversion of the convertible bonds. Our evidence in panels A and B strongly support the argument that convertibles are structured to mitigate financial distress costs. We find only weak evidence that convertible bond structure is affected by adverse selection costs, and find no evidence of bond structure being affected by moral hazard costs. In fact, consistent with Stein (1992), our evidence shows that financial distress costs are so important for some firms that they structure convertibles to mitigate these costs even at the expense of incurring some adverse selection costs.

The results in panels A and B indicate that convertible bonds are more equity-like during periods of high interest rates and during economic downturns. The coefficient of interest rate is positive and significant, and the coefficient of economic growth is negative and significant in the

regressions. These results are consistent with expected financial distress costs determining the structure of the convertibles. Firms exhibit a greater propensity to limit their fixed claims by including more equity in their convertibles during periods when financial distress costs are high. The coefficient of firm size is negative and significant, indicating that smaller firms, i.e., firms more susceptible to distress risk, structure their convertible to be less debt-like. In panel B of table 6, the coefficient of market-to-book ratio is not statistically significant. Thus, moral hazard problems do not affect the structure of convertibles even though concerns of moral hazard drive the security choice decision.

The coefficient of dispersion in stock returns, our measure of firm-specific information asymmetry, is negative and significant in the regressions. This is consistent with the argument that firms with higher information asymmetry structure their convertibles to be more debt-like in order to mitigate the adverse selection costs of equity-like instruments. However, the coefficient of equity volume, the other adverse selection cost related variable, does not support the view that adverse selection costs affect bond structure. The coefficient of equity volume is negative and significant, which suggests that convertibles are more equity-like during periods of low equity volume – that is, during periods of high information asymmetry. This indicates that firms are willing to issue equity-like convertibles, and incur the increased adverse selection costs during periods of high information asymmetry. In fact, this result also reiterates our finding in the univariate test in table 5.

Our finding about the relation between convertible bond structure and equity volume, may also be viewed as firms avoiding debt-like convertibles during high information asymmetry periods. Although from an adverse selection cost point of view this result is counter-intuitive, it may be that these equity-like convertibles issued during high information asymmetry periods are

predominantly intended to mitigate financial distress costs (as in Stein, 1992) rather then adverse selection costs. In other words, periods of high information asymmetry may coincide with periods of higher financial distress costs, and firms do not want to issue debt-like convertibles due to these latter costs, even if it means that they incur some adverse selection costs. Also, if this conjecture were true we would expect the negative relation between equity volume and probability of conversion to be even more negative for financially distressed firms.

To examine whether the above result is driven by a concern of financial distress costs, we first compute the correlation between equity volume and interest rates. Consistent with the conjecture above we find the correlation to be a statistically significant – 0.5687. Thus, periods of low equity volume (i.e., high information asymmetry) do indeed coincide with periods of high interest rates (periods of higher expected financial distress costs). We also pursue this line of inquiry by including an interaction term, *asset specificity * equity volume,* in our regressions. Given the negative correlation between equity volume and interest rates, if our results are driven by firms issuing convertibles to mitigate financial distress costs rather than adverse selection costs, we would expect to see more equity-like convertibles during periods of high information asymmetry especially for the high distress firms. That is, we would expect the coefficient of the interaction term to be negative. In regression results not reported in the tables, the interaction term is indeed negative and significant in the various specifications of the regressions.[11]

We also examine the economic impact of the variables in our regressions. We find that although the magnitude of impact of each variable differs, financial distress costs have a significant economic impact on convertible bond structure. When interest rates increase by one quartile from the median and economic growth decreases equivalently, the probability of conversion increases by 14.52 percentage points (panel B, regression 2) and 6.03 percentage

[11] These regressions are available from the authors upon request.

points (panel B, regression 3) respectively from their median probability of conversion of about 30%. A one quartile decrease in firm size has an even bigger economic impact, an increase in the probability of conversion by 48 percentage points, again illustrating the importance of financial distress costs.[12]

6. Conclusion

Theoretical studies argue that convertible bonds can be structured to mitigate contracting costs of moral hazard (Mikkelson, 1980; Green, 1984), adverse selection (Brennan and Kraus, 1987; Brennan and Schwartz, 1988; and Stein, 1992), and expected financial distress (Stein, 1992). In this paper, we examine the extent to which the theories of moral hazard, adverse selection, and financial distress affect the likelihood of issue and structure of convertible bonds. Using firm-specific factors that capture these contracting costs, and macroeconomic factors that capture the time-series variation in the contracting costs, we first determine the likelihood of convertible issuance over straight bonds. We then analyze the impact of these contracting costs on the structure of convertible bonds. We represent the structure of convertibles using the *ex-ante* probability of the conversion option being in the money. This probability of conversion incorporates the key design elements of the bond, indicates the debt-like or equity-like nature of the convertible, and represents the effective flexibility afforded by the bond.

[12] About 95% of all convertibles issued in our sample period are also callable. The call feature on convertibles is typically included to facilitate forcing conversion of these bonds into equity. In the context of our empirical analysis, the call feature of convertibles has two implications. First, the call feature may force the bonds to be converted into equity much earlier than voluntary conversion suggests, thereby making the convertible "more equity-like" than is captured in the probability of conversion. Second, callable convertibles often include call protection periods, which may extend the "debt-like" nature of the convertibles even if the threat to call becomes credible. To control for the potential impact of callability and the call protection period, we repeat our analysis of the probability of conversion while controlling for the call protection period of the bonds. For non-callable bonds, this variable is set equal to the maturity of the bonds. The call protection period variable is negative and significant in the regressions suggesting that the protection period makes the convertibles more debt-like in structure. All our other results for the structure of the convertible are qualitatively similar to the results in table 6 of the paper. Thus, our evidence suggests that the call feature does not alter any of our other results.

Using the convertible and straight bond issues completed by industrial firms during the 1983 – 2002 period, we find that moral hazard, adverse selection, and expected financial distress costs all influence the likelihood of firms issuing convertibles over straight bonds. The likelihood of issuing convertibles is greater for firms with higher moral hazard, adverse selection, and expected financial distress costs, such as high growth firms, smaller firms, firms with high levels of information asymmetry, and firms with high asset specificity. We also find that firms are more likely to issue convertibles during periods of high interest rates, and during industry and economic downturns, periods when expected financial distress costs are higher. The economic impact of the variables in the likelihood regressions indicate that moral hazard, adverse selection, and expected distress costs are all economically significant with distress costs having the highest impact.

When we examine the structure of the convertibles issued, our evidence strongly supports the argument that convertibles are designed to mitigate financial distress costs. Convertibles are more equity-like during periods of high interest rates and during economic downturns. Also, smaller firms issue more equity-like convertibles suggesting that mitigation of distress risk is a concern for these firms. We find only weak evidence that convertible bond structure is affected by adverse selection costs. Firms with higher levels of firm-specific information asymmetry issue more debt-like convertibles in order to mitigate the adverse selection costs of equity-like securities. However, this result does not hold up when we use macroeconomic measures of adverse selection costs. We actually find, counter to the implication of adverse selection cost arguments, that convertibles issued during periods of high information asymmetry are more equity-like.

On further analysis, we find that this result is driven by firms for whom expected

financial distress cost is a large concern. Thus, consistent with Stein (1992), our evidence shows that financial distress costs are so important for these firms that they structure convertibles to mitigate these costs even at the expense of incurring some adverse selection costs. Finally, moral hazard costs do not affect the structure of convertibles even though concerns of moral hazard drive the security choice decision.

Overall, our results indicate that all three contracting costs are important in determining whether or not firms issue convertibles. Once firms decide to issue convertibles, the structure of the convertibles is influenced largely by financial distress considerations.

References

Andrade G. and S. N. Kaplan, 1998, How costly is financial (not economic) distress? Evidence from highly leveraged transactions that became distressed, *Journal of Finance* 53, 1443– 493.

Asquith, P. and D. W. Mullins, 1991, Convertible debt: Corporate call policy and voluntary conversion, *Journal of Finance* 46, 1273-1289.

Barclay, M. and C. Smith, 1995, The maturity structure of corporate debt, *Journal of Finance* 50, 609–631.

Bayless, M. and S. Chaplinsky, 1996, Is there a window of opportunity for seasoned equity issuance? *Journal of Finance* 51, 253–278.

Brennan, M. and A. Kraus, 1987, Efficient financing under asymmetric information, *Journal of Finance* 42, 1225–1243.

Brennan, M. and E. Schwartz, 1988, The case for convertibles, *Journal of Applied Corporate Finance*, 55–64.

Castanias, R., 1983, Bankruptcy risk and optimal capital structure, *Journal of Finance* 38, 1617–1635.

Choe, H., R. W. Masulis and V. Nanda, 1993, Common stock offerings across the business cycle, *Journal of Empirical Finance* 1, 3–31.

Dann, L. and W. Mikkelson, 1984, Convertible debt issuance, capital structure change and financing-related information, *Journal of Financial Economics* 13, 157-186.

Dierkens, N., 1991, Information asymmetry and equity issues, *Journal of Financial and Quantitative Analysis* 26, 181–199.

Dunn, K. B. and K. M. Eades, 1989, Voluntary conversion of convertible securities and the optimal call strategy, *Journal of Financial Economics* 23, 273-301.

Eckbo, E., 1986, Valuation effects of corporate debt offerings, *Journal of Financial Economics* 15, 119-151.

Eisfeldt, A., 2004, Endogenous liquidity in asset markets, *Journal of Finance* 59, 1–29.

Estrella, A., and G.A. Hardouvelis, 1991, The term structure as a predictor of real economic activity, *Journal of Finance* 46, 555–576.

Fischer, E.O., R. Heinkel, and J. Zechner, 1989, Dynamic capital structure choice: Theory and tests, *Journal of Finance* 44, 19–40.

Froot, K., D. Scharfstein, and J. Stein, 1993, Risk management: Coordinating corporate investment and financing policies, *Journal of Finance* 48, 1629–1658.

Galai, D. and R. Masulis, 1976, The option pricing model and the risk factor of stock, *Journal of Financial Economics* 3, 53–81.

Gertler, M., and R. G. Hubbard, 1993, Corporate financial policy, taxation, and macroeconomic risk, *RAND Journal of Economics* 24, 286–303.

Graham, J., and C. Harvey, 2001, The theory and practice of corporate finance: Evidence from the field, *Journal of Financial Economics* 60, 187–244.

Green, R., 1984, Investment incentives, debt, and warrants, *Journal of Financial Economics* 13, 115–136.

Hull, J., 1999, *Options, futures, and other derivatives*, 4th Edition, Prentice Hall, New Jersey.

Jensen M., 1986, Agency costs of free cash flow, corporate finance, and takeovers, *American Economic Review* 76, 323–329.

Jensen, M. and W. Meckling, 1976, Theory of the firm: Managerial behavior, agency costs, and ownership structure, *Journal of Financial Economics* 3, 305–360.

Kim, Y., 1990, Informative conversion ratios: A signaling approach, *Journal of Financial and Quantitative Analysis* 25, 229-243.

Korajczyk, R. and A. Levy, 2002, Capital structure choice: Macroeconomic conditions and financial constraints, working paper, Northwestern University, Evanston, IL.

Krishnaswami, S. and V. Subramaniam, 1999, Information asymmetry, valuation, and the corporate spin-off decision, *Journal of Financial Economics* 53, 73–112.

Levy, A., 2001, Why does capital structure choice vary with macroeconomic conditions? working paper, University of California at Berkeley, CA.

Lewis, C., R. Rogalski, and J. Seward, 1999, Is convertible debt a substitute for straight debt or for common equity? *Financial Management* 28, 5–27.

Mayers, D. and C. Smith, 1987, Corporate insurance and the underinvestment problem, *Journal of Risk and Insurance* 54, 45–54.

Merton, R., 1973, Theory of rational option pricing, *Bell Journal of Economics and Management Science* 4, 141–183.

Mikkelson, W., 1980, Convertible debt and warrant financing: A study of the agency cost motivation and the wealth effects of calls of convertible securities, Unpublished dissertation and

MERC monograph & theses series MT-80-03 (University of Rochester, Rochester, NY).

Mikkelson, W., 1981, Convertible calls and security returns, *Journal of Financial Economics* 9, 237-264.

Mikkelson, W., and M. Partch, 1986, Valuation effects of security offerings and the issuance process, *Journal of Financial Economics* 15, 31-60.

Myers, S., 1977, Determinants of corporate borrowing, *Journal of Financial Economics* 5, 147–175.

Myers, S. and N.S. Majluf, 1984, Corporate financing and investment decisions when firms have information that investors do not have, *Journal of Financial Economics* 13, 187–221.

Pulvino, T., 1998, Do asset fire sales exist? An empirical investigation of commercial aircraft transactions, *Journal of Finance* 53, 939–978.

Rajan, R., and L. Zingales, 1995, What do we know about capital structure? Some evidence from international data, *Journal of Finance* 50, 1421–1460.

Schneider, D., and M. McCarthy, 1999, The market perception of convertible debt versus straight debt: Some empirical evidence from U.S. firms and non-U.S. firms listed in the U.S., *Journal of International Financial Management and Accounting* 10, 24–41.

Shleifer, A. and R. W. Vishny, 1992, Liquidation values and debt capacity: a market equilibrium approach, *Journal of Finance* 47, 1343–1366.

Shyam-Sunder, L., 1991, The stock price effect of risky versus safe debt, *Journal of Financial and Quantitative Analysis* 26, 549–558.

Singh, A. K., A. R. Cowan and N. Nayar, 1991, Underwritten calls of convertibles bonds, *Journal of Financial Economics* 29, 173-196.

Smith, C., and R.L. Watts, 1992, The investment opportunity set and corporate financing, dividend, and compensation policies, *Journal of Financial Economics* 32, 263–292.

Stein, J., 1992, Convertible bonds as backdoor equity financing, *Journal of Financial Economics* 32, 3–21.

Titman, S., 1984, The effect of capital structure on a firm's liquidation decision, *Journal of Financial Economics* 13, 137–151.

Titman, S. and R. Wessels, 1988, The determinants of capital structure choice, *Journal of Finance* 43, 1–19.

Table 1
Annual Distribution of the Straight and Convertible Debt Offerings

The sample consists of straight and convertible debt offerings completed during the period 1983-2002 by industrial companies trading on the NYSE, AMEX, and Nasdaq. We require that all issues have filing dates recorded in the Securities Data Corporation database.

	Straight Debt Issues		Convertible Debt Issues	
Year of Filing	Frequency	Number of Firms	Frequency	Number of Firms
1983	33	32	36	36
1984	56	51	39	39
1985	99	90	78	77
1986	93	90	113	113
1987	53	53	69	69
1988	68	64	14	14
1989	83	69	40	40
1990	85	77	27	27
1991	126	110	25	25
1992	222	196	55	55
1993	207	192	53	53
1994	141	130	16	16
1995	163	154	22	22
1996	163	151	28	27
1997	170	155	30	30
1998	100	97	14	14
1999	182	169	10	10
2000	138	132	10	10
2001	206	190	11	10
2002	156	147	14	14
Total	2544	2349	704	701
	Total number of unique firms	1262		603

Table 2
Summary Statistics of Firm and Issue Characteristics

The sample consists of straight and convertible debt offerings filed by industrial companies between 1983-2002. Panel A presents the mean and median values of the continuous descriptive measures. Total assets are obtained from Compustat as of the fiscal year end preceding the filing date. Total debt is the sum of long-term debt and debt in current liabilities as of the fiscal year end preceding the filing date. Market to book ratio is the ratio of (book value of assets minus book value of equity plus market value of equity) to book value of assets. Plant, property and equipment is obtained from Compustat in the fiscal year end prior to the filing date, and is measured millions of dollars. Dispersion in stock returns is computed as the standard deviation of the stock returns of the issuing firm in days –240 to –40 relative to the filing date of each debt issue. Financial slack is measured as the ratio of (operating income before depreciation minus capital expenditures minus change in net working capital minus net taxes minus change in deferred taxes) to total assets and is measured in the fiscal year end prior to filing year. Size of the debt issue is the principal amount of the debt issued, and is obtained from SDC. Maturity of debt issue is the number of years from offer date to final maturity. Coupon rate is as specified in SDC. Conversion premium is computed as percentage by which the conversion price exceeds the market price of the stock, measured relative to the market price of the stock as of close of the day prior to the filing date. Call protection period is the number of years when the bond cannot be called back, and is obtained from SDC. Probability of conversion is the risk-neutralized probability that the bond will be converted into equity at maturity. Panel B presents the number and percentage of observations included in each issue characteristic classification for the debt issues. Non-subordinated debt is debt that ranks above existing debt of the company in terms of security or collateral, and is obtained from the SDC database. Moody's rating of the issues and the type of registration are all obtained from the SDC filing statements. Panel C presents the mean (median) cumulative abnormal returns around the filing date of the debt issues. Abnormal returns are calculated using the market model parameters estimated over a 255 days ending 46 days before the filing of the debt issue and cumulated over the days in each event window. The CRSP value-weighted index is used in the market model to compute betas.

PANEL A: Firm and Issue Characteristics - Continuous Variables

	Straight Debt		Convertible Debt	
Descriptive Measure	Mean	Median	Mean	Median
Total Assets ($ million)	8657.06	2842.00	1309.43	210.05
Total Debt/Total Assets (%)	33.22	30.28	27.81	25.36
Market to Book Ratio	1.93	1.45	2.14	1.56
Plant, Prop. & Equip./Total Assets (%)	41.98	38.23	34.34	28.67
Dispersion in Stock Returns (%)	2.45	2.11	2.90	2.64
Financial Slack (%)	- 0.60	2.92	- 8.04	- 3.18
Size of Debt Issue ($ million)	599.10	250.00	146.72	60.00
Size of Debt Issue/Total Assets (%)	33.93	12.77	42.77	29.46
Maturity of Debt Issue (years)	13.52	10.00	16.86	19.95
Coupon Rate (%)	8.88	8.45	7.43	7.25
Conversion Premium (%)	-	-	21.84	21.89
Call Protection Period (years)	0.00	0.00	3.05	3.00
Probability of Conversion (%)	0.00	0.00	28.68	28.68

Table 2 (continued)

PANEL B: Issue Characteristics - Indicator Variables

Descriptive Measure	Classification	Number (%) of Observations	
		Straight Bonds	Convertible Bonds
Seniority of the Issue	Non-subordinated	2156 (84.70)	52 (7.39)
	Subordinated	387 (15.22)	652 (92.61)
Moody's Rating	Baa and above	1535 (60.36)	105 (14.91)
	Ba and below	781 (30.71)	416 (59.09)
	Not Rated	227 (8.93)	183 (25.99)
Registration Type	Shelf	1212 (63.36)	50 (7.31)
	Traditional	701 (36.64)	634 (92.69)

PANEL C: Cumulative Abnormal Returns

Event Window	Straight Debt (%)	Convertible Debt (%)	Difference (%)
(-3, +3)	- 0.447[a] (- 0.350)[a]	- 2.080[a] (- 1.795)[a]	1.633[a] (1.445)[a]
(-1, 0)	- 0.147[b] (- 0.254)[a]	- 0.951[a] (- 0.889)[a]	0.804[a] (0.635)[a]
(0)	- 0.133[b] (- 0.161)[a]	- 0.729[a] (- 0.513)[a]	0.596[a] (0.352)[a]
(0,+1)	- 0.311[a] (- 0.258)[a]	- 1.363[a] (- 1.268)[a]	1.052[a] (1.010)[a]
(-1, +1)	- 0.326[a] (- 0.334)[a]	- 1.585[a] (- 1.714)[a]	1.259[a] (1.380)[a]

a, b, c represent significance at the 1%, 5%, and 10% levels respectively.

Table 3
Analysis of the Choice between Straight and Convertible Debt

The sample consists of straight and convertible debt offerings completed during the period 1983-2002 by industrial companies trading on the NYSE, AMEX, and Nasdaq. We require that all issues have filing dates recorded in the Securities Data Corporation (SDC) database. The table presents the logistic regression analysis of the impact of economy-wide and firm-specific variables on the choice of debt type. The dependent variable is an indicator variable that takes the value of 1 for convertible debt and zero for straight debt. Panel A presents the analysis using only the economy-wide variables as independent variables, while panel B presents the analysis using both economy-wide and firm-specific factors. The interest rates variable is the 10-year T-bond rate prevailing in the filing month deflated by the monthly Consumer Price Index. Economic growth is measured as the residuals from the regression of real GNP growth rates on real interest rates, where real GNP is measured in 1996 prices, and real interest rate is the nominal 10-year T-bond yield deflated by the Consumer Price Index. Equity volume is measured as the aggregate dollar volume of equity (in millions) issued in the filing month deflated by the Consumer Price Index. Industry performance is the median returns of the firm's industry in the filing year. Firm size is the total assets of the firm as of the fiscal year end prior to filing date. Dispersion in stock returns is the standard deviation of the issuing firm's stock returns in days –240 to –40 relative to the filing date of the issue. Asset specificity is an indicator variable that takes the value of 1 for firms in the machinery and equipment industry (SIC code between 3400 and 3999) and zero otherwise. Market-to-book ratio is measured as the ratio of (book value of assets – book value of equity + market value of equity) to the book value of assets as of the fiscal year end prior to filing date. Financial slack is the ratio of (operating income before depreciation - net taxes - change in deferred taxes) to total assets as of the end of the fiscal year end prior to filing. Chi-squared statistics are presented in parentheses. a, b, c represent significance at the 1%, 5%, and 10% levels respectively. The economic impact of each variable is presented as a percentage in *italics*. The economic impact of each variable is computed as the increase in the probability of issuing convertible bonds for a change in the independent variable from its median to either the 25^{th} or 75^{th} percentile (whichever leads to an increase in the probability), holding all other variables at their median. The overall probability of issuing convertible bonds based on each regression model is also presented below each regression, and is computed at the median for all the variables.

Table 3 (continued)

PANEL A: Impact of Economy-wide Factors on the Likelihood of Issuing Convertible Bonds

	Regressions					
	1	2	3	4	5	6
Intercept	- 3.6965 (447.583)	- 0.9787 (338.777)	- 0.7335 (60.182)	- 1.2233 (791.093)	- 3.6493 (72.740)	- 0.8138 (70.2563)
Interest Rates	0.3279[a] (216.750) *43.5361*				0.3239[a] (44.008) *34.4976*	
Economic Growth		- 5.2321[a] (69.572) *26.1981*			- 0.4341 (0.107) *1.0016*	- 5.3837[a] (47.0684) *26.8612*
Equity Volume			- 0.0114[a] (38.946) *11.7014*			- 0.0025 (1.2931) *2.9476*
Industry Performance				- 0.3422[b] (7.994) *3.8003*	- 0.3033[b] (4.746) *3.4206*	- 0.3318[b] (5.8558) *3.7029*
Prob. of Issuing Convertible (%)	*17.6277*	*19.7991*	*22.1550*	*22.6237*	*19.7685*	*20.6681*
Likelihood Ratio	224.7784[a]	90.0311[a]	42.4236[a]	16.3956[a]	195.4790[a]	111.0542[a]
Concordant Responses	68.90%	66.80%	56.60%	51.60%	68.10%	66.40%
N	3249	3090	3249	3084	2970	2970

Table 3 (continued)

PANEL B: Impact of Economy-wide and Firm-specific Factors on the Likelihood of Issuing Convertible Bonds

	Regressions						
	1	2	3	4	5	6	7
Intercept	- 1.9637 (53.237)	- 5.4332 (143.044)	- 1.9680 (50.762)	- 1.4572 (26.413)	- 1.8981 (45.771)	- 1.6104 (30.666)	- 5.0700 (59.134)
Firm Size	- 0.2200[a] (63.365) *32.0302*	- 0.1600[a] (43.045) *24.1902*	- 0.2100[a] (55.004) *30.7486*	- 0.2100[a] (60.986) *30.3521*	- 0.2500[a] (62.132) *35.4626*	- 0.2000[a] (55.006) *28.7161*	- 0.1900[a] (44.402) *26.4468*
Dispersion in Stock Returns	20.2110[a] (7.112) *12.7533*	35.7995[a] (19.533) *25.0287*	25.0983[a] (10.075) *16.2682*	26.7715[a] (11.886) *17.1104*	21.0227[a] (7.300) *13.3823*	28.8127[a] (12.941) *18.5930*	31.9852[a] (14.591) *21.2995*
Asset Specificity	0.6353[a] (19.649) *0.0000*	0.6273[a] (17.240) *0.0000*	0.6353[a] (18.295) *0.0000*	0.6106[a] (17.514) *0.0000*	0.5730[a] (15.387) *0.0000*	0.6278[a] (17.545) *0.0000*	0.5853[a] (14.401) *0.0000*
Market-to-Book Ratio	0.3243[a] (13.415) *13.5002*	0.4929[a] (27.837) *22.4741*	0.3920[a] (18.0344) *16.7982*	0.3827[a] (17.898) *16.0364*	0.3452[b] (13.900) *13.9497*	0.4261[a] (20.802) *18.1155*	0.4831[a] (24.264) *20.9837*
Financial Slack	- 1.5034[a] (12.365) *8.2007*	- 1.2566[a] (8.028) *7.2252*	- 1.6053[a] (12.593) *8.7894*	- 1.5300[a] (12.332) *8.3328*	- 1.7103[a] (14.175) *8.8412*	- 1.6640[a] (13.230) *9.0106*	- 1.3682[a] (8.401) *7.3775*
Interest Rates		0.3702[a] (101.602) *48.9462*					0.3496[a] (29.766) *43.6316*
Economic Growth			- 4.1470[a] (26.443) *20.6843*			- 2.7515[a] (12.858) *13.2083*	0.3192 (0.0392) *0.6073*
Equity Volume				- 0.0159[a] (32.534) *16.8005*		- 0.0120[a] (15.767) *13.0880*	
Industry Performance					- 0.3260[c] (3.097) *3.9148*		- 0.3418[c] (2.579) *4.2394*
Prob. of Issuing Convertible (%)	*17.2804*	*12.6937*	*15.4826*	*17.4411*	*17.9051*	*16.4307*	*14.4505*
Likelihood Ratio	284.4722[a]	395.1019[a]	307.6377[a]	320.4180[a]	300.6469[a]	324.2760[a]	371.2664[a]
Concordant Responses	79.70%	82.80%	81.70%	80.50%	80.50%	81.30%	82.90%
N	1835	1835	1724	1835	1737	1724	1660

Table 4
Choice between Straight and Convertible Debt for Switch and Non-Switch Hitters

The sample consists of straight and convertible debt offerings completed during the period 1983-2002 by industrial companies trading on the NYSE, AMEX, and Nasdaq. We require that all issues have filing dates recorded in the Securities Data Corporation (SDC) database. The table presents the logistic regression analysis of the impact of economy-wide and firm-specific variables on the choice of debt type. The dependent variable is an indicator variable that takes the value of 1 for convertible debt and zero for straight debt. Panel A presents the analysis for issues made by a subsample of switch hitters, while panel B presents the analysis for the whole sample but controlling for non-switch hitters. Switch hitters are defined as firms that have issued both straight and convertible debt prior to the current issue, while non-switch hitters are firms that have issued only straight debt or convertible debt prior to the current issue. The interest rates variable is the 10-year T-bond rate prevailing in the filing month deflated by the monthly Consumer Price Index. Economic growth is measured as the residuals from the regression of real GNP growth rates on real interest rates, where real GNP is measured in 1996 prices, and real interest rate is the nominal 10-year T-bond yield deflated by the Consumer Price Index. Equity volume is measured as the aggregate dollar volume of equity (in millions) issued in the filing month deflated by the Consumer Price Index. Industry performance is the median returns of the firm's industry in the filing year. Firm size is the total assets of the firm as of the fiscal year end prior to filing date. Dispersion in stock returns is the standard deviation of the issuing firm's stock returns in days –240 to –40 relative to the filing date of the issue. Asset specificity is an indicator variable that takes the value of 1 for firms in the machinery and equipment industry (SIC code between 3400 and 3999) and zero otherwise. Market-to-book ratio is measured as the ratio of (book value of assets – book value of equity + market value of equity) to the book value of assets as of the fiscal year end prior to filing date. Financial slack is the ratio of (operating income before depreciation - net taxes - change in deferred taxes) to total assets as of the end of the fiscal year end prior to filing. Prior Straight Debt is an indicator variable that is 1 if the firm has issued only straight debt prior to the current issue, and is 0 otherwise. Prior Convertible Debt is an indicator variable that is 1 if the firm has issued only convertible debt prior to the current issue, and is 0 otherwise. Chi-squared statistics are presented in parentheses. a, b, c represent significance at the 1%, 5%, and 10% levels respectively.

Table 4 (continued)

PANEL A: The Likelihood of Issuing Convertible Bonds for the Subsample of Switch Hitters

	Regressions					
	1	2	3	4	5	6
Intercept	- 0.5973 (1.766)	- 3.1251 (16.149)	- 0.5805 (1.545)	- 0.1560 (0.104)	- 0.4913 (1.096)	- 0.5218 (1.086)
Firm Size	- 0.0700[a] (13.673)	- 0.0500[a] (8.576)	- 0.0600[a] (9.129)	- 0.0700[a] (12.517)	- 0.0800[a] (11.883)	- 0.0600[a] (9.138)
Dispersion in Stock Returns	11.8240 (0.591)	17.0216 (1.151)	16.0051 (0.992)	15.8402 (1.031)	10.1936 (0.419)	16.3851 (1.035)
Asset Specificity	0.2523 (0.885)	0.1715 (0.382)	0.1771 (0.400)	0.1985 (0.535)	0.1655 (0.364)	0.1739 (0.386)
Market-to-Book Ratio	- 0.0876 (0.214)	0.1175 (0.346)	0.1053 (0.252)	- 0.0105 (0.003)	- 0.0638 (0.108)	0.1074 (0.262)
Financial Slack	- 1.0288 (1.172)	- 0.6158 (0.396)	- 0.4575 (0.181)	- 0.9042 (0.878)	- 1.1762 (1.324)	- 0.4589 (0.182)
Interest Rates		0.2770[a] (16.556)				
Economic Growth			- 8.3352[a] (17.674)			- 7.9439[a] (11.889)
Equity Volume				- 0.0139[a] (7.272)		- 0.0019 (0.109)
Industry Performance					- 0.0092 (0.004)	
Likelihood Ratio	26.8200[a]	44.5692[a]	45.1935[a]	34.6983[a]	24.9901[a]	45.3030[a]
Concordant Responses	69.50%	72.80%	72.80%	70.30%	69.80%	72.60%
N	378	378	366	378	353	366

Table 4 (continued)

PANEL B: The Likelihood of Issuing Convertible Bonds Controlling for Non-Switch Hitters

	Regressions					
	1	2	3	4	5	6
Intercept	- 4.2854 (39.436)	- 1.2914 (19.394)	- 1.4948 (26.960)	- 5.2462 (61.977)	- 1.6860 (33.109)	- 1.8865 (43.113)
Prior Straight Debt	- 1.0008[a] (29.2381)	- 1.2432[a] (47.158)	- 1.2189[a] (44.111)			
Prior Convertible Debt				0.7136[a] (14.211)	0.6163[a] (11.154)	0.6356[a] (11.769)
Firm Size	- 0.1400[a] (24.508)	- 0.1300[a] (27.017)	- 0.1600[a] (28.127)	- 0.2000[a] (45.781)	- 0.2100[a] (56.616)	- 0.2400[a] (58.312)
Dispersion in Stock Returns	26.2385[a] (9.676)	22.3493[a] (7.586)	18.4387[b] (5.108)	33.0613[a] (15.400)	29.6363[a] (13.546)	24.6457[a] (9.222)
Asset Specificity	0.5597[a] (12.805)	0.5995[a] (15.327)	0.5351[a] (12.174)	0.5788[a] (13.902)	0.6182[a] (16.844)	0.5532[a] (13.408)
Market-to-Book Ratio	0.4525[a] (20.860)	0.4026[a] (18.007)	0.3698[a] (14.753)	0.4792[a] (23.575)	0.4220[a] (20.179)	0.3847[a] (16.186)
Financial Slack	- 1.2794[a] (7.243)	- 1.5184[a] (10.775)	- 1.3965[a] (8.915)	- 1.3179[a] (7.722)	- 1.6292[a] (12.612)	- 1.4735[a] (10.105)
Interest Rates	0.2949[a] (19.697)			0.3593[a] (30.796)		
Economic Growth	0.0675 (0.002)	- 2.5742[a] (12.596)	- 3.6223[a] (23.030)	0.1845 (0.013)	- 2.9409[a] (14.298)	- 4.5687[a] (27.203)
Equity Volume		- 0.0104[a] (11.919)			- 0.0120[a] (15.681)	
Industry Performance	- 0.3472[c] (2.702)		- 0.3613[c] (3.184)	- 0.3341 (2.453)		- 0.3508[c] (2.941)
Likelihood Ratio	402.899[a]	377.387[a]	366.948[a]	384.920[a]	335.001[a]	329.077[a]
Concordant Responses	83.10%	81.80%	82.40%	83.30%	81.70%	82.80%
N	1660	1724	1660	1660	1724	1660

Table 5
Frequency Distribution of Equity-like Convertible Bonds

The sample consists of convertible debt offerings completed during the period 1983-2002 by industrial companies trading on the NYSE, AMEX, and Nasdaq. We require that all issues have filing dates recorded in the Securities Data Corporation (SDC) database. The table presents the distribution of equity-like convertible bonds across different periods of the economy-wide variables. Convertible bonds are classified as equity-like if their probability of conversion is above the median probability of conversion. The table presents the proportion of all equity-like convertibles in each classification of the economy-wide variables, as well as the proportion of all convertibles that are equity-like. We define high (low) interest rate periods as those 3-month periods where each of the three 10-year T-bond yields fall in the highest (lowest) quartile of the moving average of 10 year T-bond yields. We use the real T-bond yield defined as the nominal rate deflated by the monthly Consumer Price Index. We use the monthly residuals from the regression of real GNP growth rates on real interest rates to measure economic growth. Real GNP is measured in 1996 dollars. We define periods of high (low) economic growth as those 3-month periods where each of the three GNP residuals fall in the highest (lowest) quartile of the moving average of residuals. We define industry performance as high (low) if the median annual returns of the firm's industry is above the median of the sample. We define a firm's industry as all firms with the same 3-digit SIC codes as the issuing firm. We define high (low) information asymmetry periods as at least three contiguous months where the aggregate real volume of equity issued falls in the upper (lower) quartile of the three-month moving averages of the aggregate equity volume. Real equity volume is defined as monthly dollar equity volume deflated by the monthly Consumer Price Index.

Variable		Number of equity-like convertibles	Number of equity-like convertibles in each group ÷ All equity-like convertibles in sample	Number of equity-like convertibles in each group ÷ All convertibles in each group
Interest Rates	High	78	36.62%	62.40%
	Low	8	3.76%	21.62%
Economic Growth	High	17	7.98%	31.48%
	Low	67	31.46%	68.37%
Industry Performance	High	116	54.46%	54.72%
	Low	97	45.54%	45.54%
Information Asymmetry	High	52	24.41%	71.23%
	Low	20	9.39%	41.67%

Table 6
Regression Analysis of the Probability of Conversion

The sample consists of convertible debt offerings completed during the period 1983-2002 by industrial companies trading on the NYSE, AMEX, and Nasdaq. We require that all issues have filing dates recorded in the Securities Data Corporation (SDC) database. The table presents the regression analysis of the impact of economy-wide and firm-specific variables on the probability of conversion. The dependent variable is the risk-neutralized probability of conversion for convertible bonds. Panel A presents the analysis using only the economy-wide variables as independent variables, while panel B presents the analysis using both economy-wide and firm-specific factors. The interest rates variable is the 10-year T-bond rate prevailing in the filing month deflated by the monthly Consumer Price Index. Economic growth is measured as the residuals from the regression of real GNP growth rates on real interest rates, where real GNP is measured in 1996 prices, and real interest rate is the nominal 10-year T-bond yield deflated by the Consumer Price Index. Equity volume is measured as the aggregate dollar volume of equity (in millions) issued in the filing month deflated by the Consumer Price Index. Industry performance is the median returns of the firm's industry in the filing year. Firm size is the total assets of the firm as of the fiscal year end prior to filing date. Dispersion in stock returns is the standard deviation of the issuing firm's stock returns in days –240 to –40 relative to the filing date of the issue. Asset specificity is an indicator variable that takes the value of 1 for firms in the machinery and equipment industry (SIC code between 3400 and 3999) and zero otherwise. Market-to-book ratio is measured as the ratio of (book value of assets – book value of equity + market value of equity) to the book value of assets as of the fiscal year end prior to filing date. T-statistics are presented in parentheses. a, b, c represent significance at the 1%, 5%, and 10% levels respectively. The economic impact of each variable is presented as a percentage in *italics*. For each variable, this is computed as the increase in the probability of conversion for a change in the variable from its median to either the 25th or 75th percentile (whichever leads to an increase in the probability), holding all other variables at their median. The overall probability of conversion based on each regression model is also presented below each regression, and is computed at the median for all the variables.

PANEL A: Impact of Economy-wide Factors on the Probability of Conversion

	Regressions					
	1	2	3	4	5	6
Intercept	- 0.0445 (- 1.160)	0.2992 (30.230)	0.3754 (17.500)	0.2867 (29.530)	- 0.0438 (- 1.140)	0.3609 (16.550)
Interest Rates	0.0412[a] (8.910) *18.9888*				0.0412[a] (8.880) *19.6438*	
Economic Growth		- 0.4698[a] (- 4.480) *9.1504*				- 0.3407[a] (- 3.050) *6.4674*
Equity Volume			- 0.0020[a] (- 4.610) *9.0430*			- 0.0015[a] (- 3.160) *6.1034*
Industry Performance				0.0240 (0.730) *1.3068*	0.0126 (0.420) *0.7194*	0.0157 (0.490) *0.8561*
Probability of Conversion (%)	*27.1136*	*27.8865*	*29.1412*	*28.6599*	*27.2647*	*28.6172*
R^2	0.1581	0.0453	0.0479	0.0013	0.1585	0.0688
N	424	424	424	424	424	424

Table 6 (continued)

PANEL B: Impact of Economy-wide and Firm-specific Factors on the Probability of Conversion

	Regressions						
	1	2	3	4	5	6	7
Intercept	0.6327 (28.360)	0.3533 (9.000)	0.6345 (29.070)	0.6645 (26.560)	0.3344 (7.010)	0.6668 (26.510)	0.6526 (26.000)
Firm Size	- 0.0116[a] (- 4.850) *0.4757*	- 0.0089[a] (- 3.970) *0.3920*	- 0.0112[a] (- 4.790) *0.4696*	- 0.0113[a] (- 4.770) *0.4642*	- 0.0087[a] (- 3.890) *1.5708*	- 0.0113[a] (- 4.760) *0.4618*	- 0.0111[a] (- 4.740) *0.4627*
Dispersion in Stock Returns	- 11.7603[a] (- 15.930) *23.5996*	- 10.9539[a] (- 15.860) *23.6463*	- 11.5792[a] (- 16.000) *23.7187*	- 11.4866[a] (- 15.540) *23.0281*	- 10.9647[a] (- 15.840) *26.4829*	- 11.5149[a] (- 15.560) *23.0299*	- 11.4828[a] (- 15.740) *23.4045*
Asset Specificity	- 0.0148 (- 0.890) *0.0000*	- 0.0184 (- 1.190) *0.0000*	- 0.0182 (- 1.110) *0.0000*	- 0.0153 (- 0.920) *0.0000*	- 0.0185 (- 1.200) *0.0000*	- 0.0158 (- 0.950) *0.0000*	- 0.0184 (- 1.130) *0.0000*
Market-to-Book Ratio	0.0017 (0.450) *0.3992*	0.0038 (1.070) *0.9575*	0.0031 (0.840) *0.7479*	0.0037 (0.960) *0.8681*	0.0031 (0.880) *3.2335*	0.0032 (0.840) *0.7583*	0.0036 (0.940) *0.8611*
Interest Rates		0.0311[a] (8.370) *14.5179*			0.0334[a] (7.020) *6.3552*		
Economic Growth			- 0.3629[a] (- 4.400) *6.0327*		0.0759 (0.760) 4.7016		- 0.3186[a] (- 3.620) *5.2701*
Equity Volume				- 0.0010[a] (- 2.750) *4.2470*		- 0.0010[a] (- 2.770) *4.2723*	- 0.0005 (- 1.370) *2.2561*
Industry Performance					- 0.0249 (- 1.020) *4.8584*	- 0.0236 (- 0.900) *1.0453*	- 0.0189 (- 0.730) *0.8549*
Probability of Conversion (%)	*31.7807*	*29.5429*	*31.1342*	*31.8116*	*7.2476*	*31.8874*	*31.2896*
R^2	0.3997	0.4860	0.4264	0.4104	0.4879	0.4116	0.4296
N	422	422	422	422	422	422	422