Internet Appendix to "Executive Compensation and the Maturity Structure of Corporate Debt"*

The first part of this Internet Appendix contains additional descriptions of and motivations for our explanatory variables. The second part provides the results of additional analyses that are referenced in the published manuscript.

A. Variable Motivation

A.1. Variable Motivation: Maturity Regressions Reported in Tables II, IV, V, VI, and VIII

Diamond (1991) predicts a nonlinear relation between debt maturity and credit quality. More specifically, he argues that both high and low credit quality firms prefer to borrow short-term debt, whereas medium credit quality firms borrow long-term debt.[1] Following previous studies (Barclay et al. (2003), Johnson (2003), Datta et al. (2005), and Billett et al. (2007)), we proxy for credit quality with firm value (*SIZE*). Regarding credit quality, we also control for the existence of debt ratings (*RATE_DUM*) and Altman's (1977) Z-Score (*ZSCORE_DUM*). Firms with long-term debt ratings and higher Z-Scores are likely to have higher credit quality and can afford to borrow long-term debt.

Diamond (1991) also posits that firms with high leverage might prefer long-term debt to avoid suboptimal liquidation, thus predicting a positive relation between leverage (*LEVERAGE*) and debt maturity. Myers (1977) argues that agency costs between shareholders and bondholders can be reduced by matching the maturity of assets (*ASSET_MAT*) to the maturity of liabilities. All else equal, firms with high asset maturities are expected to have larger proportions of long-term debt in their capital structure. Datta et al. (2005) document a negative relation between managerial stock ownership (*OWN*) and debt maturity. This finding is consistent with the view that managers whose incentives are not aligned with those of shareholders (i.e., low managerial ownership) will not commit to the frequent monitoring imposed by short-term debt.

Myers (1977) argues that under certain conditions the benefit of a positive NPV project accrues only to bondholders, thus eliminating the incentives of shareholders to accept such projects (underinvestment problem). Myers suggests that one way to solve this problem is to reduce debt maturity. If debt matures before growth options expire, the underinvestment problem will be eliminated. Therefore, all else equal, firms with many growth opportunities prefer short-term debt. We proxy for growth opportunities using the market-to-book ratio (*M/B*). In addition, regulated firms (*REG_DUM*) might have less incentive to use short-term debt to eliminate the underinvestment problem since managers of regulated firms have less discretion over investment

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* Citation format: Brockman, Paul, Xiumin Martin, and Emre Unlu, 2010, Internet Appendix to "Executive Compensation and the Maturity Structure of Corporate Debt," *Journal of Finance* 65, 1123-1161, http://www.afajof.org/supplements.asp. Please note: Wiley-Blackwell is not responsible for the content or functionality of any supporting information supplied by the authors. Any queries (other than missing material) should be directed to the authors of the article.

[1] In Diamond's (1991) model, borrowers with positive private information prefer to issue short-term debt. However, short-term debt increases the risk of excessive liquidations and this liquidation risk is negligible for high credit quality firms, but significant for medium credit quality firms. Therefore, short-term debt can be a signaling device to separate high credit quality firms from medium credit quality firms. Firms with very low credit quality are forced to issue short-term debt due to large asymmetric information costs. In summary, Diamond's model predicts that when the credit quality is low, medium, and high, debt maturity will be short, long, and short, respectively.

policy (Barclay and Smith (1995)). Therefore, regulated firms might have longer debt maturity than unregulated firms.

Taxes might also impact the maturity structure of debt. Brick and Ravid (1985) show that firm value increases with the term structure (*TERM*) through the use of long-term debt due to the acceleration of the tax shield. Their analysis predicts a positive relation between term structure and debt maturity.

Signaling can also influence debt maturity. Flannery (1986) argues that insiders of high quality firms can signal their private information by issuing short-term debt given that the cost of rolling over the short-term debt is costly and cannot be afforded by the low quality firms. We proxy for firm quality using the firm's abnormal earnings (*ABNEARN*). Following Johnson (2003), we also control for asset return volatility since it might be an alternative measure for credit risk. Johnson (2003) argues that as cash flows become more volatile, the probability of repaying debt decreases. Therefore, firms with highly volatile cash flows might prefer long-term debt to short-term debt. Our asset volatility measure (*STD_RET*) is based on Datta et al. (2005).

Lastly, we control for the firm's fixed asset ratio (*FIX_ASSET*) and profitability (*ROA*), and we include a net operating loss dummy variable (*NOL_DUM*) and an investment tax credit dummy variable (*ITC_DUM*).[2] These variables are used in the leverage equation of the 2SLS regressions. Previous research suggests that fixed assets reduce asset substitution problems and thus raises the firm's optimal capital structure (Williamson (1988)). Fixed assets also increase debt capacity by increasing asset liquidation values (Harris and Raviv (1990)). Myers (1984) argues that more profitable firms use less leverage, consistent with pecking order theory. It is also possible that firms choose higher leverage to pay out higher levels of free cash flows (Jensen (1986)). The existence of alternative tax shields reduces the value of leverage, all else equal (DeAngelo and Masulis (1980)). We therefore include two dummy variables to capture tax shield effects, namely *NOL_DUM* and *ITC_DUM*.[3]

A.2. Variable Motivation: Cost of Debt Regressions Reported in Tables III and IX

Campbell and Taksler (2003) document a positive relation between volatility (*STD_RET*) and yield spreads, consistent with the prediction of contingent claim debt valuation models. Kwan (1996) shows that stock and bond prices tend to move in the same direction. Moreover, he finds that stock prices lead bond prices, suggesting a negative relation between previous stock returns and current bond yields.[4] We use average stock returns (*AVG_RET*) as a control to capture this effect. We also control for the bond's credit rating (*RATING*) as of the previous day's close. We use the average of Standard and Poor's and Moody's ratings. If only one agency has an outstanding rating for a particular bond we use that agency's rating.

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[2] We check the sensitivity of our empirical results to the simultaneous use of *FIX_ASSET* and *ASSET_MAT* as instrumental variables. To the extent that these variables carry the same information content, the instrumental effect will be zero. We find that our results are robust to this issue. Similarly, we check the sensitivity of our empirical results to the simultaneous use of *ROA* and *ABN_EARN* and find that our results remain robust.

[3] See Barclay and Smith (1995) and Johnson (2003) for additional explanations of these independent variables.

[4] Kwan's (1996) findings imply that the firm-specific information that drives stock and bond prices is predominantly related to the mean – and not the volatility – of the underlying assets. This inference is based on the two opposing predictions of the contingent-claim bond valuation framework. If most of the firm-specific information is related to the mean of the underlying assets, then stock and bond prices should move in the same direction since increases (decreases) in mean asset values imply higher (lower) stock and bond prices. However, if most of the firm-specific information is related to the volatility of the underlying assets, then stock and bond prices should move in opposite directions since increases (decreases) in the volatility of asset values imply higher (lower) stock prices and lower (higher) bond prices.

Campbell and Taksler (2003) recommend controlling for accounting data above and beyond the use of bond ratings.[5] We therefore include operating margin (*ROS*), leverage (*LEVERAGE*), and interest coverage (*INTCOVERAGE*) in our bond spread regressions. For the interest coverage, we follow prior literature: if the numerator (Item #178 + Item #15) is negative we set the interest coverage to zero. A logarithmic transformation is used to treat the skewed distribution.

Elton et al. (2004) argue that low coupon bonds might be more valuable to investors relative to high coupon bonds since capital gains taxes on the low coupon bonds are deferred until the time of sale. To capture the impact of taxes on corporate bond yields, we control for the bond's coupon rate (*COUPON*). Following Chen et al. (2007), we use the proportion of days with zero bond returns over the preceding 180 days (*ILLIQUIDITY*) as a proxy for illiquidity. We use the size of the bond (*ISSUE_SIZE*) as an alternative proxy for liquidity, as in Chen et al. (2007) and Campbell and Taksler (2003). We also include the benchmark Treasury rate (*BENCHMARK_TREAS*) as motivated by Longstaff and Schwartz (1995). Longstaff and Schwartz (1995) show that the drift in a firm's value under a risk-neutral process is determined by the risk-free rate and is independent of the actual drift of the value process. As the risk-free rate increases, the risk-neutral probability of the firm's value crossing the default-triggering level decreases, thereby reducing the probability of default. As a result, the credit spread decreases. Consistent with their theoretical prediction, Longstaff and Schwartz (1995) document a negative relation between yield spreads and interest rates.

Finally, we include two economy-wide control variables. First, we use the slope of the yield curve (*YLDCRV_SLOPE*) to proxy for expected economic conditions and short-term rates. A steep yield curve might indicate a strengthening economy, during which time yield spreads tend to narrow (Fama and French (1989)). A steep yield curve might also imply higher future interest rates, which can lower spreads due to lower risk-neutral probabilities of default (Collin-Dufresne et al. (2001)). Longstaff (2004) shows that the demand for highly liquid securities can significantly influence bond prices. Similar to Chen et al. (2007) and Campbell and Taksler (2003), we employ issuer fixed effects to control for issuer-specific influence on yield spreads. Also noted in Chen et al. (2007), a few firms have disproportionate representation in the bond markets. For example, Wal-Mart (9.3%) and Kraft Foods (5.7%) represent 15% of all the issues in our sample in terms of face value.

A.3. *Instruments and Simultaneous Model Specifications: Six-equation System Reported in Table VII*

We estimate six simultaneous equations in Table VII. We describe our maturity and leverage equations in Section III.B. In this section of the Internet Appendix, we describe the remaining four equations (i.e., two compensation equations (*LPRCSEN*, *LVOLSEN*) and two investment policy equations (RD, CAPEX)). To conserve space, we present our instrumental variables, predicted signs, supporting citations, and motivations in tabular form.

Summary of instrumental variables used in delta (*LPRCSEN*) equation

Variable	Predicted sign	Citations	Motivation
LSIZE	+	Coles et al. (2006) Core and Guay (1999)	Larger firm size implies a higher probability of having a formal incentive compensation plan and

[5] Following Campbell and Taksler (2003), we replicate our tests by excluding bond ratings from the specifications. Our findings are unchanged.

		Gaver and Gaver (1993) Smith and Watts (1992)	higher compensation.
M/B	+	Coles et al. (2006) Core and Guay (1999) Gaver and Gaver (1993) Palia (2001) Smith and Watts (1992)	Presence of growth opportunities makes monitoring harder for boards and shareholders, therefore necessitating a strong performance-compensation link.
LTENURE	+	Coles et al. (2006) Core and Guay (1999) Gibbons and Murphy (1992) Milbourn (1998)	As tenure increases, (1) uncertainty about the CEO's ability is resolved, which allows for the imposition of more incentive risk on the CEO; (2) equity incentives can be used to counter potential horizon problems.
SURCASH	-	Coles et al. (2006) Core and Guay (1999) Dechow et al. (1996) Yermack (1995)	Equity-based compensation does not require cash payment and is more attractive to firms that are cash constrained.
EQUITY_RISK	+	Coles et al. (2006) Core and Guay (1999) Demsetz and Lehn (1985)	Noise in operating environments increases the need for stronger performance-compensation link.

Summary of instrumental variables used in vega (*LVOLSEN*) equation

Variable	Predicted sign	Citations	Motivation
LSIZE	+	Coles et al. (2006) Core and Guay (1999) Gaver and Gaver (1993) Smith and Watts (1992)	Larger firm size implies a higher probability of having a formal incentive compensation plan and higher compensation.
M/B	+	Coles et al. (2006) Guay (1999)	Passing up valuable investment opportunities has more pronounced adverse effects when investment opportunities are higher. High market-to-book firms therefore incentivize CEOs with high vega contracts.
EQUITY_RISK	+	Coles et al. (2006) Rogers (2002)	High risk firms incentivize CEOs with high vega contracts.
CASH_COMP	+	Coles et al. (2006) Guay (1999) Bhagat and Welch (1995) Bizjak et al. (1993)	Holding equity-based compensation constant, higher cash compensation (salary and bonus) encourages implementation of risk-decreasing policies. In an effort to align the interests of shareholders with those of the CEO, boards choose to provide high vega contracts for high cash-compensated CEOs to encourage risk taking.

Summary of instrumental variables used in high risk investment (*RD*) equation

Variable	Predicted sign	Citations	Motivation
LSIZE	-	Coles et al. (2006)	Larger firms with more established businesses have less investment in research and development.
M/B	+	Coles et al. (2006) Johnson (2003)	Market-to-book proxies for the firm's investment opportunities.
LTENURE	+	Coles et al. (2006)	Managerial entrenchment results in overinvestment for empire building purposes.
SURCASH	+	Coles et al. (2006)	Firms with less capital constraints can finance more investment opportunities.
CASHCOMP	-	Coles et al. (2006) Guay (1999) Bhagat and Welch (1995) Bizjak et al. (1993)	Holding equity-based compensation constant, higher cash compensation (salary and bonus) encourages implementation of risk-decreasing policies (lower investment in research and development).

ROA	+	Bhagat and Welch (1995)	Profitable firms have more investment in research and development.
SGR	+	Coles et al. (2006) Johnson (2003)	Growth in sales proxies for the firm's investment opportunities.
STOCKRET	-	Coles et al. (2006) Morck et al. (1990) Shleifer and Vishny (1989) Warner et al. (1988) Weisbach (1995, 1988)	Poor performance threatens the CEO's job security and encourages managers to entrench themselves by overinvesting. Entrenchment increases the cost of removing the CEO.

Summary of instrumental variables used in low risk investment (*CAPEX*) equation

Variable	Predicted sign	Citations	Motivation
LSIZE	+	Coles et al. (2006)	Larger firms with more established businesses have more investment in capital expenditures.
M/B	+	Coles et al. (2006) Johnson (2003)	Market-to-book proxies for the firm's investment opportunities.
LTENURE	+	Coles et al. (2006)	Managerial entrenchment results in overinvestment for empire building purposes.
SURCASH	+	Coles et al. (2006) Opler et al. (1999)	Firms with less capital constraints can finance more investment opportunities. In addition, firms with more free cash flow tend to increase investment.
CASHCOMP	+	Coles et al. (2006) Guay (1999) Bhagat and Welch (1995) Bizjak et al. (1993)	Holding equity-based compensation constant, higher cash compensation (salary and bonus) encourages implementation of risk-decreasing policies (higher investment through capital expenditures).
ROA	+	Aggarwal and Samwick (2006) Opler et al. (1999) Fazzari et al. (1988)	In the cross-section, profitable firms with mature cash flow streams have more investment in capital expenditures. In addition, internally generated operating cash flow is positively related to capital expenditures to the extent that firms face financing constraints.
SGR	+	Coles et al. (2006) Johnson (2003)	Growth in sales proxies for the firm's investment opportunities.
STOCKRET	-	Coles et al. (2006) Morck et al. (1990) Shleifer and Vishny (1989) Warner et al. (1988) Weisbach (1995, 1988)	Poor performance threatens the CEO's job security and encourages managers to entrench themselves by overinvesting. Entrenchment increases the cost of removing the CEO.

B. Additional Empirical Results

This section of the Internet Appendix provides the results of additional analyses that are referenced in the manuscript. Tables IA. I to IA.XII report robustness test results for the debt maturity regressions. Tables IA.XIII to IA.XVI report sensitivity tests for the cost of debt regressions. Table IA.XVI reports the results of ordered probit credit rating models.

Table IA.I
Relation between Debt Maturity and CEO Portfolio Price/Volatility Sensitivities, Firm Fixed-effects regression

This table shows the pooled firm fixed-effects regression results for two specifications. In the first (second) specification, the dependent variable is *ST3* (*ST5*). The sample contains 6,620 observations and covers the 1992 to 2005 period. *ST3* (*ST5*) is the proportion of total debt maturing in three (five) years or less. *LPRCSEN* and *LVOLSEN* are the logarithmic transformation of *PRCSEN and VOLSEN, respectively*. *PRCSEN* is the change in value of the CEO's stock option and common stock portfolio due to a 1% change in the price of the firm's common stock (in 100 thousands). *VOLSEN* is the change in value of CEO's stock option portfolio due to a 1% change in the annualized standard deviation of the firm's stock returns (in 100 thousands). *SIZE* is the market value of total assets, estimated as (share price (Item #199) x outstanding shares (Item#54) + book value of total assets (Item#6) – book value of equity (Item#60)). *LSIZE* is the natural logarithm of *SIZE*. *LSIZE2* is the square of *LSIZE*. *LEVERAGE* is long-term debt (Item #9) divided by *SIZE*. *ASSET_MAT* is asset maturity and computed as (gross property, plant, and equipment (Item#7)/total assets (Item#6)) x (gross property, plant, and equipment (Item#7)/depreciation expense (Item#14)) + (current assets (Item#4)/total assets (Item#6)) x (current assets (Item#4)/cost of goods sold (Item#41)). *OWN* is the CEO's stock ownership excluding options (SHROWN in ExecuComp) scaled by the number of shares outstanding (SHRSOUT in ExecuComp). *M/B* is the market-to-book ratio, computed as *SIZE* divided by book value of total assets (Item#6). *TERM* is the fiscal year month-end yield on 10-year government bonds – fiscal year month-end yield on 6-month government bonds. *ABNEARN* is abnormal earnings, computed as (earnings in year *t*+1 (Item#20) – earnings in year *t*)/(share price (Item#199) x outstanding shares (Item#54) in year *t*). *STD_RET* is the asset return standard deviation, computed as the monthly stock return standard deviation during the fiscal year x (market value of equity/market value of assets). *RATE_DUM* is equal to one if a firm has an S&P rating on its long-term debt (Item#280). *ZSCORE_DUM* is equal to one if Altman's Z-score is greater than 1.81, and zero otherwise. Altman's Z-score is computed as 3.3*Item#178/Item#6 + 1.2*(Item#4-Item#5)/Item#6 + Item#12/Item#6 + 0.6*Item#199*Item#25 / (Item#9 +Item#34) + 1.4*Item#36/Item#6. Statistical significance is based on Rogers (1993) industry-year clustered standard errors. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Independent variables	Predicted signs	Dependent variables			
		ST3		*ST5*	
		Coefficient estimate	*p*-value	Coefficient estimate	*p*-value
Intercept		0.499***	0.000	0.7311***	0.000
LPRCSEN	-	-0.0524***	0.000	-0.0204*	0.087
LVOLSEN	+	0.0627***	0.000	0.0384***	0.008
LSIZE	-	0.0018***	0.000	0.0026***	0.000
LSIZE2	+	0.0016***	0.000	0.0026***	0.000
LEVERAGE	-	-1.0876***	0.000	-0.6321***	0.000
ASSET_MAT	-	-0.0019	0.172	-0.0024	0.163
OWN	+	0.6192***	0.004	0.2871	0.19
M/B	+	-0.0133	0.137	-0.0274***	0.002
TERM	-	-0.0026	0.662	-0.0082	0.247
ABNEARN	+	-0.001	0.982	0.0393	0.382
STD_RET	+	-0.0062	0.981	0.2336	0.305
RATE_DUM	-	-0.0798***	0.000	-0.1354***	0.000
ZSCORE_DUM	-	-0.1312***	0.000	-0.0699***	0.001
R^2_{adj}		0.251		0.226	
N		6,620		6,620	

Table IA.II
Relation between Debt Maturity and CEO Portfolio Price/Volatility Sensitivities - Robustness Test Based on Footnote #10

This table re-estimates the pooled regression results on an alternative sample where *ST3* or *ST5* is winsorized to one when the original COMPUSTAT record exceeds one (instead of being deleted). The sample contains 7,074 observations and covers the 1992 to 2005 period. *ST3* (*ST5*) is the proportion of total debt maturing in three (five) years or less. *LPRCSEN* and *LVOLSEN* are the logarithmic transformation of *PRCSEN and VOLSEN, respectively*. *PRCSEN* is the change in value of the CEO's stock option and common stock portfolio due to a 1% change in the price of the firm's common stock (in 100 thousands). *VOLSEN* is the change in value of the CEO's stock option portfolio due to a 1% change in the annualized standard deviation of the firm's stock returns (in 100 thousands). *SIZE* is the market value of total assets, estimated as (share price (Item #199) x outstanding shares (Item#54) + book value of total assets (Item#6) – book value of equity (Item#60)). *LSIZE* is the natural logarithm of *SIZE*. *LSIZE2* is the square of *LSIZE*. *LEVERAGE* is long-term debt (Item #9) divided by *SIZE*. *ASSET_MAT* is asset maturity and computed as (gross property, plant, and equipment (Item#7)/total assets (Item#6)) x (gross property, plant, and equipment (Item#7)/depreciation expense (Item#14)) + (current assets (Item#4)/total assets (Item#6)) x (current assets (Item#4)/cost of goods sold (Item#41)). *OWN* is the CEO's stock ownership excluding options (SHROWN in ExecuComp) scaled by the number of shares outstanding (SHRSOUT in ExecuComp). *M/B* is the market-to-book ratio, computed as *SIZE* divided by book value of total assets (Item#6). *TERM* is the fiscal year month-end yield on 10-year government bonds – fiscal year month-end yield on 6-month government bonds. *REG_DUM* equals to 1 if a firm is in the regulated industry (SIC code are within 4900-4939) as defined in Barclay and Smith (1995), 0 otherwise. *ABNEARN* is abnormal earnings, computed as (earnings in year *t*+1 (Item#20) – earnings in year *t*)/(share price (Item#199) x outstanding shares (Item#54) in year *t*). *STD_RET* is the asset return standard deviation, computed as the monthly stock return standard deviation during the fiscal year x (market value of equity/market value of assets). *RATE_DUM* is equal to one if a firm has an S&P rating on its long-term debt (Item#280). *ZSCORE_DUM* is equal to one if Altman's Z-score is greater than 1.81, and zero otherwise. Altman's Z-score is computed as 3.3*Item#178/Item#6 + 1.2*(Item#4-Item#5)/Item#6 + Item#12/Item#6 + 0.6*Item#199*Item#25 / (Item#9 +Item#34) + 1.4*Item#36/Item#6. Statistical significance is based on Rogers (1993) industry-year clustered standard errors. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Independent variables	Predicted signs	Dependent variables			
		ST3		*ST5*	
		Coefficient estimate	*p*-value	Coefficient estimate	*p*-value
Intercept		1.4876***	0.000	1.2572***	0.000
LPRCSEN	-	-0.0381***	0.000	-0.018**	0.012
LVOLSEN	+	0.0309***	0.001	0.0286***	0.002
LSIZE	-	-0.167***	0.000	-0.0873***	0.000
LSIZE2	+	0.0095***	0.000	0.0045***	0.000
LEVERAGE	-	-1.1247***	0.000	-0.628***	0.000
ASSET_MAT	-	-0.0025***	0.000	-0.0035***	0.000
OWN	+	0.452***	0.000	0.1857**	0.044
M/B	+	-0.0008	0.886	-0.0022	0.638
TERM	-	0.0021	0.562	-0.004	0.29
REG_DUM	-	0.0099	0.467	-0.0539***	0.000
ABNEARN	+	-0.0078	0.822	0.0329	0.354
STD_RET	+	0.1112	0.31	0.3285***	0.001
RATE_DUM	-	-0.0979***	0.000	-0.1383***	0.000
ZSCORE_DUM	-	-0.1242***	0.000	-0.0523***	0.000
R^2_{adj}		0.268		0.243	
N		7,074		7,074	

Table IA.III
Relation between Debt Maturity and CEO Portfolio Price/Volatility Sensitivities, Joint Determination of Maturity and Leverage - Robustness Test Based on Footnote #10

This table re-estimates the two-equation system results on an alternative sample where *ST3* or *ST5* is winsorized to one when the original COMPUSTAT record exceeds one (instead of being deleted). The two-equation system jointly estimates maturity and leverage based on GMM. The sample contains 7,074 observations and covers the 1992 to 2005 period. For brevity, only the debt maturity equation estimations are reported. Debt maturity is measured as *ST3* and *ST5*. *ST3* (*ST5*) is the proportion of total debt maturing in three (five) years or less. *LPRCSEN* and *LVOLSEN* are the logarithmic transformation of *PRCSEN and VOLSEN, respectively*. *PRCSEN* is the change in value of the CEO's stock option and common stock portfolio due to a 1% change in the price of the firm's common stock (in 100 thousands). *VOLSEN* is the change in value of the CEO's stock option portfolio due to a 1% change in the annualized standard deviation of the firm's stock returns (in 100 thousands). *SIZE* is the market value of total assets, estimated as (share price (Item #199) x outstanding shares (Item#54) + book value of total assets (Item#6) – book value of equity (Item#60)). *LSIZE* is the natural logarithm of *SIZE*. *LSIZE2* is the square of *LSIZE*. *LEVERAGE* is long-term debt (Item #9) divided by *SIZE*. *ASSET_MAT* is asset maturity and computed as (gross property, plant, and equipment (Item#7)/total assets (Item#6)) x (gross property, plant, and equipment (Item#7)/depreciation expense (Item#14)) + (current assets (Item#4)/total assets (Item#6)) x (current assets (Item#4)/cost of goods sold (Item#41)). *OWN* is the CEO's stock ownership excluding options (SHROWN in ExecuComp) scaled by the number of shares outstanding (SHRSOUT in ExecuComp). *M/B* is the market-to-book ratio, computed as *SIZE* divided by book value of total assets (Item#6). *TERM* is the fiscal year month-end yield on 10-year government bonds – fiscal year month-end yield on 6-month government bonds. *REG_DUM* is equal to one if a firm is in a regulated industry (SIC code within 4900-4939) as defined in Barclay and Smith (1995), and zero otherwise. *ABNEARN* is abnormal earnings, computed as (earnings in year *t*+1 (Item#20) – earnings in year *t*)/(share price (Item#199) x outstanding shares (Item#54) in year *t*). *STD_RET* is the asset return standard deviation, computed as the monthly stock return standard deviation during the fiscal year x (market value of equity/market value of assets). *RATE_DUM* is equal to one if a firm has an S&P rating on its long-term debt (Item#280). *ZSCORE_DUM* is equal to one if Altman's Z-score is greater than 1.81, and zero otherwise. Altman's Z-score is computed as 3.3*Item#178/Item#6 + 1.2*(Item#4-Item#5)/Item#6 + Item#12/Item#6 + 0.6*Item#199*Item#25 / (Item#9 +Item#34) + 1.4*Item#36/Item#6. In the leverage equation (not reported), right-hand-side variables are debt maturity (*ST3* and *ST5*), price and volatility sensitivities (*LPRCSEN* and *LVOLSEN*), size (*LSIZE)*, ownership (*OWN*), market-to-book ratio (*M/B*), regulated industry dummy (*REG_DUM*), abnormal earnings (*ABNEARN*), asset return standard deviation (*STD_RET*), fixed asset ratio (*FIX_ASSET*), profitability (*ROA*), net operating loss dummy (*NOL_DUM*), and investment tax credit dummy (*ITC_DUM*). *FIX_ASSET* is the ratio of net property, plant, and equipment (Item #8) to total assets (Item #6). *ROA* is the ratio of operating income before depreciation (Item #13) to total assets (Item #6). *NOL_DUM* is equal to one if the firm has operating loss carryforwards (Item #52), and zero otherwise. *ITC_DUM* is equal to one if the firm has an investment tax credit (Item #51), and zero otherwise. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Independent variables	Predicted signs	Dependent variables			
		ST3		*ST5*	
		Coefficient estimate	*p*-value	Coefficient estimate	*p*-value
Intercept		-0.5655	0.688	-1.9741	0.219
LPRCSEN	-	-0.0788***	0.000	-0.0624***	0.005
LVOLSEN	+	0.0944**	0.013	0.1161***	0.009
LSIZE	-	0.34	0.304	0.6907*	0.068
LSIZE2	+	-0.021	0.289	-0.0423*	0.063
LEVERAGE	-	-1.2025***	0.000	-0.3247	0.41
ASSET_MAT	-	-0.0016***	0.001	-0.0027***	0.000
OWN	+	0.963***	0.000	0.722***	0.005
M/B	+	-0.0009	0.946	0.0098	0.488
TERM	-	0.0009	0.687	-0.0042	0.184
REG_DUM	-	-0.0019	0.916	-0.0936***	0.000
ABNEARN	+	0.0014	0.967	0.0276	0.444
STD_RET	+	0.2077	0.456	0.6442**	0.038
RATE_DUM	-	-0.1205***	0.004	-0.2086***	0.000
ZSCORE_DUM	-	-0.0769*	0.099	0.016	0.768
N		7,074		7,074	

Table IA.IV
Relation between Debt Maturity and CEO Portfolio Price/Volatility Sensitivities, Change Regressions -
Robustness Test Based on Footnote #10

This table re-estimates the change regression results on an alternative sample where *ST3* or *ST5* is winsorized to one when the original COMPUSTAT record exceeds one (instead of being deleted). The sample contains 5,738 observations and covers the 1993-2005 period. *Δ* is used as a prefix to denote the change. In the first (second) specification, the dependent variable is change in *ST3* (*ST5*). *ST3* (*ST5*) is the proportion of total debt maturing in three (five) years or less. *LPRCSEN* and *LVOLSEN* are the logarithmic transformation of *PRCSEN and VOLSEN, respectively*. *PRCSEN* is the change in value of the CEO's stock option and common stock portfolio due to a 1% change in the price of the firm's common stock (in 100 thousands). *VOLSEN* is the change in value of the CEO's stock option portfolio due to a 1% change in the annualized standard deviation of the firm's stock returns (in 100 thousands). *SIZE* is the market value of total assets, estimated as (share price (Item #199) x outstanding shares (Item#54) + book value of total assets (Item#6) – book value of equity (Item#60)). *LSIZE* is the natural logarithm of *SIZE*. *LSIZE2* is the square of *LSIZE*. *LEVERAGE* is long-term debt (Item #9) divided by *SIZE*. *ASSET_MAT* is asset maturity and computed as (gross property, plant, and equipment (Item#7)/total assets (Item#6)) x (gross property, plant, and equipment (Item#7)/depreciation expense (Item#14)) + (current assets (Item#4)/total assets (Item#6)) x (current assets (Item#4)/cost of goods sold (Item#41)). *OWN* is the CEO's stock ownership excluding options (SHROWN in ExecuComp) scaled by the number of shares outstanding (SHRSOUT in ExecuComp). *M/B* is the market-to-book ratio, computed as *SIZE* divided by book value of total assets (Item#6). *TERM* is the fiscal year month-end yield on 10-year government bonds – fiscal year month-end yield on 6-month government bonds. *ABNEARN* is abnormal earnings, computed as (earnings in year *t*+1 (Item#20) – earnings in year *t*)/(share price (Item#199) x outstanding shares (Item#54) in year *t*). *STD_RET* is the asset return standard deviation, computed as the monthly stock return standard deviation during the fiscal year x (market value of equity/market value of assets). *RATE_DUM* is equal to one if a firm has an S&P rating on its long-term debt (Item#280). *ZSCORE_DUM* is equal to one if Altman's Z-score is greater than 1.81, and zero otherwise. Altman's Z-score is computed as 3.3*Item#178/Item#6 + 1.2*(Item#4-Item#5)/Item#6 + Item#12/Item#6 + 0.6*Item#199*Item#25 / (Item#9 +Item#34) + 1.4*Item#36/Item#6. Statistical significance is based on Rogers (1993) industry-year clustered standard errors. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Independent variables	Predicted signs	Dependent variables			
		ΔST3		*ΔST5*	
		Coefficient estimate	*p*-value	Coefficient estimate	*p*-value
Intercept		0.0067	0.109	0.0032	0.404
ΔLPRCSEN	-	-0.0459***	0.003	-0.0267**	0.019
ΔLVOLSEN	+	0.0505***	0.003	0.0256*	0.055
ΔLSIZE	-	-0.0924	0.164	0.0235	0.709
ΔLSIZE2	+	0.0017	0.685	-0.0015	0.728
ΔLEVERAGE	-	-1.1376***	0.000	-0.6558***	0.000
ΔASSET_MAT	-	-0.0004	0.707	-0.0003	0.805
ΔOWN	+	0.797***	0.000	0.5632***	0.002
ΔM/B	+	0.0027	0.747	-0.0191**	0.019
ΔTERM	-	-0.004	0.193	-0.0064***	0.009
ΔABNEARN	+	-0.0136	0.583	0.05*	0.057
ΔSTD_RET	+	-0.0205	0.882	0.1137	0.367
ΔRATE_DUM	-	-0.1185***	0.000	-0.1827***	0.000
ΔZSCORE_DUM	-	-0.1139***	0.000	-0.0625***	0.000
R^2_{adj}		0.095		0.061	
N		5,738		5,738	

Table IA.V
Relation between Debt Maturity and CEO Portfolio Price/Volatility Sensitivities, Joint Determination of Maturity, Leverage, Compensation, and Investment - Robustness Test Based on Footnote #10

This table re-estimates the six-equation system results on an alternative sample where *ST3* or *ST5* is winsorized to one when the original COMPUSTAT record exceeds one (instead of being deleted). The six-equation system jointly estimates maturity, compensation, capital structure, and investment policies based on GMM. The sample contains 6,394 firm-year observations. *ST3(ST5)* is the proportion of total debt maturing in three (five) years or less. *LPRCSEN* and *LVOLSEN* are the logarithmic transformation of *PRCSEN and VOLSEN, respectively*. *PRCSEN* is the change in value of the CEO's stock option and common stock portfolio due to a 1% change in the price of the firm's common stock (in 100 thousands). *VOLSEN* is the change in value of the CEO's stock option portfolio due to a 1% change in the annualized standard deviation of the firm's stock returns (in 100 thousands). *LEVERAGE* is long-term debt (Item #9) divided by *SIZE*. *CAPEX* is net capital expenditures (Item#128 – Item#107) scaled by assets (Item#6). *SIZE* is the market value of total assets, estimated as (share price (Item #199) x outstanding shares (Item#54) + book value of total assets (Item#6) – book value of equity (Item#60)). *LSIZE* is the natural logarithm of *SIZE*. *LSIZE2* is the square of *LSIZE*. *ASSET_MAT* is asset maturity and computed as (gross property, plant, and equipment (Item#7)/total assets (Item#6)) x (gross property, plant, and equipment (Item#7)/depreciation expense (Item#14)) + (current assets (Item#4)/total assets (Item#6)) x (current assets (Item#4)/cost of goods sold (Item#41)). *OWN* is the CEO's stock ownership excluding options (SHROWN in ExecuComp) scaled by the number of shares outstanding (SHRSOUT in ExecuComp). *M/B* is the market-to-book ratio, computed as *SIZE* divided by book value of total assets (Item#6). *TERM* is the fiscal year month-end yield on 10-year government bonds – fiscal year month-end yield on 6-month government bonds. *REG_DUM* is equal to one if a firm is in a regulated industry (SIC code within 4900-4939) as defined in Barclay and Smith (1995), and zero otherwise. *ABNEARN* is abnormal earnings, computed as (earnings in year *t*+1 (Item#20) – earnings in year *t*)/(share price (Item#199) x outstanding shares (Item#54) in year *t*). *STD_RET* is the asset return standard deviation, computed as the monthly stock return standard deviation during the fiscal year x (market value of equity/market value of assets). *RATE_DUM* is equal to one if a firm has an S&P rating on its long-term debt (Item#280). *ZSCORE_DUM* is equal to one if Altman's Z-score is greater than 1.81, and zero otherwise. Altman's Z-score is computed as 3.3*Item#178/Item#6 + 1.2*(Item#4-Item#5)/Item#6 + Item#12/Item#6 + 0.6*Item#199*Item#25 / (Item#9 +Item#34) + 1.4*Item#36/Item#6. *LTENURE* is the logarithmic transformation of the CEO's tenure measured in years. *SURCASH* is the cash from assets-in-place (Item#308-Item#125+Item#46) scaled by assets (Item#6). *RD* is research and development expenditures (Item#46) scaled by assets (Item#6). *EQUITY_RISK* is the logarithmic transformation of monthly stock return variance during the fiscal year. *CASHCOMP* is the sum of CEO's salary and bonus (in 100 thousands). *FIX_ASSET* is the ratio of net property, plant, and equipment (Item #8) to total assets (Item #6). *ROA* is the ratio of operating income before depreciation (Item #13) to total assets (Item #6). *NOL_DUM* is equal to one if the firm has operating loss carryforwards (Item #52), and zero otherwise. *ITC_DUM* is equal to one if the firm has an investment tax credit (Item #51), and zero otherwise. *SGR* is the sales growth rate computed as $ln(\text{Item12}_t/\text{Item \#12}_{t-1})$ *STOCKRET* is the buy-and-hold return during the fiscal year. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table IA.V (Continued)

Panel A: Maturity measured as *ST3*												
	Dependent variables											
	(1)		(2)		(3)		(4)		(5)		(6)	
	ST3		*LPRCSEN*		*LVOLSEN*		*LEVERAGE*		*RD*		*CAPEX*	
	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value
Intercept	1.0791***	0.000	0.5767***	0.003	-0.6089***	0.000	0.3355***	0.000	0.0772***	0.000	0.0165	0.133
ST3			-0.7961***	0.000	0.0966	0.278	-0.3357***	0.000	0.0075	0.317	-0.0419***	0.000
LPRCSEN	-0.1503***	0.000			0.0381***	0.004	-0.0893***	0.000	-0.0067***	0.000	-0.0023	0.231
LVOLSEN	0.183***	0.000	0.7034***	0.000			0.0654***	0.000	0.0375***	0.000	-0.0486***	0.000
LEVERAGE	-0.8149***	0.000	-2.963***	0.000	-0.5908***	0.000			-0.079***	0.000	-0.0521***	0.000
RD	-0.2024	0.293	-5.2136***	0.000	1.7199***	0.000	-0.4781***	0.000				
CAPEX	-0.527***	0.004	-2.7243***	0.000	-1.4472***	0.000	0.6159***	0.001				
LSIZE	-0.1047***	0.000	0.1236***	0.000	0.1638***	0.000	0.0071*	0.073	-0.0053***	0.000	0.0073***	0.000
LSIZE2	0.0062***	0.000										
ASSET_MAT	-0.0019***	0.000										
OWN	1.733***	0.000					1.0646***	0.000				
M/B	0.0382***	0.000	0.2407***	0.000	-0.0573***	0.000	0.008**	0.02	0.0122***	0.000	0.0043***	0.001
TERM	0.0003	0.877										
REG_DUM	0.0046	0.766					0.0542***	0.000				
ABNEARN	-0.04	0.132					0.0047	0.759				
STD_RET	0.3649**	0.015					-0.2342***	0.000				
RATE_DUM	-0.1112***	0.000										
ZSCORE_DUM	-0.0442***	0.002										
LTENURE			0.2977***	0.000					0.0016***	0.006	0.0035***	0.000
SURCASH			0.0256	0.893					0.3165***	0.000	0.0096	0.489
EQUITY_RISK			0.1218***	0.000	0.0523***	0.000						
CASHCOMP					0.019***	0.000			-0.0009***	0.000	0.0005***	0.005
FIX_ASSET							-0.0854***	0.004				
ROA							-0.361***	0.000	-0.3514***	0.000	0.1075***	0.000
NOL_DUM							0.01***	0.001				
ITC_DUM							-0.0059*	0.056				
SGR									0.015***	0.000	0.0039	0.182
STOCKRET									-0.0064***	0.000	-0.0114***	0.000

Table IA.V (Continued)

Panel B: Maturity measured as *ST5*												
	Dependent variables											
	(1)		(2)		(3)		(4)		(5)		(6)	
	ST5		*LPRCSEN*		*LVOLSEN*		*LEVERAGE*		*RD*		*CAPEX*	
	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value
Intercept	0.947***	0.000	-0.0225	0.929	-0.7727***	0.000	0.3662***	0.000	0.0675***	0.000	0.0491***	0.000
ST5			-0.1439	0.399	0.1831**	0.034	-0.2788***	0.000	0.0134*	0.065	-0.0536***	0.000
LPRCSEN	-0.127***	0.000			0.0365***	0.006	-0.0679***	0.000	-0.0076***	0.000	0	1
LVOLSEN	0.1438***	0.000	0.7***	0.000			0.0171	0.212	0.0357***	0.000	-0.0411***	0.000
LEVERAGE	-0.4295***	0.000	-2.3946***	0.000	-0.5161***	0.000			-0.0777***	0.000	-0.0532***	0.000
RD	-0.369*	0.057	-5.2231***	0.000	1.8343***	0.000	-0.6424***	0.000				
CAPEX	-0.7039***	0.000	-1.9856***	0.000	-1.1481***	0.000	0.8202***	0.000				
LSIZE	-0.0404*	0.093	0.1465***	0.000	0.1694***	0.000	0.0117***	0.004	-0.0045***	0.000	0.0046***	0.001
LSIZE2	0.0025*	0.063										
ASSET_MAT	-0.0032***	0.000										
OWN	1.5008***	0.000					0.8005***	0.000				
M/B	0.0411***	0.000	0.234***	0.000	-0.0642***	0.000	0.0031	0.336	0.0124***	0.000	0.0039***	0.002
TERM	-0.0039*	0.095										
REG_DUM	-0.0683***	0.000					0.0334***	0.000				
ABNEARN	-0.0071	0.791					0.0098	0.572				
STD_RET	0.5489***	0.000					-0.2941***	0.000				
RATE_DUM	-0.1439***	0.000										
ZSCORE_DUM	0.0052	0.74										
LTENURE			0.3033***	0.000					0.0017***	0.003	0.0028***	0.002
SURCASH			-0.1209	0.539					0.3118***	0.000	0.0023	0.866
EQUITY_RISK			0.1079***	0.000	0.0454***	0.000						
CASHCOMP					0.019***	0.000			-0.0008***	0.000	0.0003*	0.096
FIX_ASSET							-0.1197***	0.000				
ROA							-0.4591***	0.000	-0.3547***	0.000	0.1192***	0.000
NOL_DUM							0.0134***	0.000				
ITC_DUM							-0.0077**	0.036				
SGR									0.0158***	0.000	0.0045	0.136
STOCKRET									-0.0067***	0.000	-0.0107***	0.000

Table IA. VI
Relation between Debt Maturity and CEO Portfolio Price/Volatility Sensitivities, Joint Determination of Maturity and Leverage - Robustness Test Based on Footnote #19

This table reports robustness test results for the two-equation system allowing joint determination of maturity and leverage based on GMM when debt rating is included as an additional explanatory variable in the leverage equation. The sample contains 6,825 observations and covers the 1992 to 2005 period. For brevity, only the debt maturity equation estimations are reported. Debt maturity is measured as *ST3* and *ST5*. *ST3* (*ST5*) is the proportion of total debt maturing in three (five) years or less. If *ST3* or *ST5* (based on original COMPUSTAT record) exceeds 1 then they are set to 1 instead of being deleted. *LPRCSEN* and *LVOLSEN* are the logarithmic transformation of *PRCSEN and VOLSEN, respectively*. *PRCSEN* is the change in value of the CEO's stock option and common stock portfolio due to a 1% change in the price of the firm's common stock (in 100 thousands). *VOLSEN* is the change in value of the CEO's stock option portfolio due to a 1% change in the annualized standard deviation of the firm's stock returns (in 100 thousands). *SIZE* is the market value of total assets, estimated as (share price (Item #199) x outstanding shares (Item#54) + book value of total assets (Item#6) – book value of equity (Item#60)). *LSIZE* is the natural logarithm of *SIZE*. *LSIZE2* is the square of *LSIZE*. *LEVERAGE* is long-term debt (Item #9) divided by *SIZE*. *ASSET_MAT* is asset maturity and computed as (gross property, plant, and equipment (Item#7)/total assets (Item#6)) x (gross property, plant, and equipment (Item#7)/depreciation expense (Item#14)) + (current assets (Item#4)/total assets (Item#6)) x (current assets (Item#4)/cost of goods sold (Item#41)). *OWN* is the CEO's stock ownership excluding options (SHROWN in ExecuComp) scaled by the number of shares outstanding (SHRSOUT in ExecuComp). *M/B* is the market-to-book ratio, computed as *SIZE* divided by book value of total assets (Item#6). *TERM* is the fiscal year month-end yield on 10-year government bonds – fiscal year month-end yield on 6-month government bonds. *REG_DUM* is equal to one if a firm is in a regulated industry (SIC code within 4900-4939) as defined in Barclay and Smith (1995), and zero otherwise. *ABNEARN* is abnormal earnings, computed as (earnings in year *t*+1 (Item#20) – earnings in year *t*)/(share price (Item#199) x outstanding shares (Item#54) in year *t*). *STD_RET* is the asset return standard deviation, computed as the monthly stock return standard deviation during the fiscal year x (market value of equity/market value of assets). *RATE_DUM* is equal to one if a firm has an S&P rating on its long-term debt (Item#280). *ZSCORE_DUM* is equal to one if Altman's Z-score is greater than 1.81, and zero otherwise. Altman's Z-score is computed as 3.3*Item#178/Item#6 + 1.2*(Item#4-Item#5)/Item#6 + Item#12/Item#6 + 0.6*Item#199*Item#25 / (Item#9 +Item#34) + 1.4*Item#36/Item#6. In the leverage equation (not reported), right-hand-side variables are debt maturity (*ST3* and *ST5*), price and volatility sensitivities (*LPRCSEN* and *LVOLSEN*), size (*LSIZE)*, ownership (*OWN*), market-to-book ratio (*M/B*), regulated industry dummy (*REG_DUM*), abnormal earnings (*ABNEARN*), asset return standard deviation (*STD_RET*), fixed asset ratio (*FIX_ASSET*), profitability (*ROA*), net operating loss dummy (*NOL_DUM*), investment tax credit dummy (*ITC_DUM*) , and rating dummy (*RATE_DUM)*. *FIX_ASSET* is the ratio of net property, plant, and equipment (Item #8) to total assets (Item #6). *ROA* is the ratio of operating income before depreciation (Item #13) to total assets (Item #6). *NOL_DUM* is equal to one if the firm has operating loss carryforwards (Item #52), and zero otherwise. *ITC_DUM* is equal to one if the firm has an investment tax credit (Item #51), and zero otherwise. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Independent variables	Predicted signs	Dependent variables			
		ST3		*ST5*	
		Coefficient estimate	*p*-value	Coefficient estimate	*p*-value
Intercept		1.1381***	0.000	1.0455***	0.000
LPRCSEN	-	-0.0549***	0.000	-0.0289***	0.004
LVOLSEN	+	0.0457***	0.000	0.0334***	0.009
LSIZE	-	-0.0611**	0.034	-0.0008	0.978
LSIZE2	+	0.0033**	0.045	-0.0007	0.671
LEVERAGE	-	-1.6301***	0.000	-1.324***	0.000
ASSET_MAT	-	-0.0014***	0.000	-0.0012***	0.002
OWN	+	0.7489***	0.000	0.3869***	0.007
M/B	+	-0.0199**	0.013	-0.026***	0.001
TERM	-	0.0018*	0.08	-0.0008	0.387
REG_DUM	-	0.0301**	0.022	-0.0552***	0.001
ABNEARN	+	-0.0014	0.972	0.0412	0.277
STD_RET	+	-0.1695	0.295	-0.0567	0.711
RATE_DUM	-	-0.0795***	0.000	-0.1153***	0.000
ZSCORE_DUM	-	-0.1037***	0.000	-0.0604**	0.026
N		6,825		6,825	

Table IA. VII
Relation between Debt Maturity and CEO Portfolio Price/Volatility Sensitivities, Joint Determination of Maturity and Leverage - Robustness Test Based on Footnote #20

This table reports robustness test results for the two-equation system allowing joint determination of maturity and leverage based on 2SLS (Panel A) and 3SLS (panel B). The sample contains 6,825 observations and covers the 1992 to 2005 period. For brevity, only the debt maturity equation estimations are reported. Debt maturity is measured as *ST3* and *ST5*. The dependent variable, *ST3* (*ST5*), is the proportion of total debt maturing in three (five) years or less. *LPRCSEN* and *LVOLSEN* are the logarithmic transformation of *PRCSEN and VOLSEN, respectively*. *PRCSEN* is the change in value of the CEO's stock option and common stock portfolio due to a 1% change in the price of the firm's common stock (in 100 thousands). *VOLSEN* is the change in value of the CEO's stock option portfolio due to a 1% change in the annualized standard deviation of the firm's stock returns (in 100 thousands). *SIZE* is the market value of total assets, *LSIZE* is the natural logarithm of *SIZE*, and *LSIZE2* is the square of *LSIZE*. *LEVERAGE* is long-term debt divided by *SIZE*. *ASSET_MAT* is asset maturity. *OWN* is the CEO's stock ownership excluding options scaled by the number of shares outstanding. *M/B* is the market-to-book ratio. *TERM* is the fiscal year month-end yield on 10-year government bonds – fiscal year month-end yield on 6-month government bonds. *REG_DUM* equals 1 if a firm is in the regulated industry, 0 otherwise. *ABNEARN* is abnormal earnings. *STD_RET* is the asset return standard deviation. *RATE_DUM* equals 1 if a firm has an S&P rating on the long term debt, 0 otherwise. *ZSCORE_DUM* equals 1 if Altman's Z-score is greater than 1.81, 0 otherwise. In the leverage equation (not reported), right-hand-side variables are debt maturity (*ST3* and *ST5*), price and volatility sensitivities (*LPRCSEN* and *LVOLSEN*), size (*LSIZE)*, ownership (*OWN*), market-to-book ratio (*M/B*), regulated industry dummy (*REG_DUM*), abnormal earnings (*ABNEARN*), asset return standard deviation (*STD_RET*), fixed asset ratio (*FIX_ASSET*), profitability (*ROA*), net operating loss dummy (*NOL_DUM*), and investment tax credit dummy (*ITC_DUM*). *FIX_ASSET* is the ratio of net property, plant, and equipment to total assets. *ROA* is the return on assets. *NOL_DUM* equals 1 if the firm has operating loss carryforwards, 0 otherwise. *ITC_DUM* equals 1 if the firm has investment tax credit, 0 otherwise. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Panel A: 2SLS estimations

Independent variables	Predicted signs	Dependent variables			
		ST3		*ST5*	
		Coefficient estimate	*p*-value	Coefficient estimate	*p*-value
Intercept		1.5525***	0.000	1.2777***	0.000
LPRCSEN	-	-0.0423***	0.000	-0.02***	0.003
LVOLSEN	+	0.0311***	0.001	0.0279***	0.002
LSIZE	-	-0.1465***	0.000	-0.0723***	0.001
LSIZE2	+	0.0082***	0.000	0.0037***	0.004
LEVERAGE	-	-1.5295***	0.000	-0.8693***	0.000
ASSET_MAT	-	-0.0025***	0.000	-0.0035***	0.000
OWN	+	0.5014***	0.000	0.1828**	0.045
M/B	+	-0.0139**	0.016	-0.0112*	0.053
TERM	-	0.0007	0.801	-0.0053*	0.075
REG_DUM	-	0.0049	0.739	-0.0535***	0.000
ABNEARN	+	-0.0091	0.784	0.0298	0.367
STD_RET	+	-0.1845	0.117	0.1072	0.363
RATE_DUM	-	-0.0723***	0.000	-0.1285***	0.000
ZSCORE_DUM	-	-0.184***	0.000	-0.0843***	0.002
R^2_{adj}		0.181		0.204	
N		6,825		6,825	

Table IA.VII (Continued)

Panel B: 3SLS estimations					
Independent variables	Predicted signs	Dependent variables			
		ST3		*ST5*	
		Coefficient estimate	*p*-value	Coefficient estimate	*p*-value
Intercept		0.9564***	0.000	1.1058***	0.000
LPRCSEN	-	-0.0552***	0.000	-0.0287***	0.000
LVOLSEN	+	0.0398***	0.000	0.0276***	0.002
LSIZE	-	-0.0816***	0.000	-0.0823***	0.000
LSIZE2	+	0.0046***	0.000	0.0042***	0.000
LEVERAGE	-	-1.4051***	0.000	-1.0093***	0.000
ASSET_MAT	-	0.0008***	0.008	-0.0001	0.924
OWN	+	0.681***	0.000	0.3173***	0.000
M/B	+	-0.0133**	0.012	-0.0172***	0.001
TERM	-	0.0029**	0.035	0.0013	0.423
REG_DUM	-	0.0811***	0.000	0.0018	0.89
ABNEARN	+	0.0589*	0.073	0.0855***	0.01
STD_RET	+	-0.0552	0.626	0.1131	0.32
RATE_DUM	-	-0.0664***	0.000	-0.0989***	0.000
ZSCORE_DUM	-	0.1003***	0.000	0.1242***	0.000
R^2_{adj}		0.180		0.164	
N		6,825		6,825	

Table IA.VIII
Relation between Debt Maturity and CEO Portfolio Price/Volatility Sensitivities, Joint Determination of Maturity and Leverage - Robustness Test Based on Footnote #21

This table reports robustness test results for the two-equation system allowing joint determination of maturity and leverage based on GMM when the marginal tax rate is included as an additional explanatory variable in the leverage equation. The sample contains 6,825 observations and covers the 1992 to 2005 period. For brevity, only the debt maturity equation estimations are reported. Debt maturity is measured as *ST3* and *ST5*. *ST3* (*ST5*) is the proportion of total debt maturing in three (five) years or less. If *ST3* or *ST5* (based on original COMPUSTAT record) exceeds 1 then they are set to 1 instead of being deleted. *LPRCSEN* and *LVOLSEN* are the logarithmic transformation of *PRCSEN and VOLSEN, respectively*. *PRCSEN* is the change in value of the CEO's stock option and common stock portfolio due to a 1% change in the price of the firm's common stock (in 100 thousands). *VOLSEN* is the change in value of the CEO's stock option portfolio due to a 1% change in the annualized standard deviation of the firm's stock returns (in 100 thousands). *SIZE* is the market value of total assets, estimated as (share price (Item #199) x outstanding shares (Item#54) + book value of total assets (Item#6) – book value of equity (Item#60)). *LSIZE* is the natural logarithm of *SIZE*. *LSIZE2* is the square of *LSIZE*. *LEVERAGE* is long-term debt (Item #9) divided by *SIZE*. *ASSET_MAT* is asset maturity and computed as (gross property, plant, and equipment (Item#7)/total assets (Item#6)) x (gross property, plant, and equipment (Item#7)/depreciation expense (Item#14)) + (current assets (Item#4)/total assets (Item#6)) x (current assets (Item#4)/cost of goods sold (Item#41)). *OWN* is the CEO's stock ownership excluding options (SHROWN in ExecuComp) scaled by the number of shares outstanding (SHRSOUT in ExecuComp). *M/B* is the market-to-book ratio, computed as *SIZE* divided by book value of total assets (Item#6). *TERM* is the fiscal year month-end yield on 10-year government bonds – fiscal year month-end yield on 6-month government bonds. *REG_DUM* is equal to one if a firm is in a regulated industry (SIC code within 4900-4939) as defined in Barclay and Smith (1995), and zero otherwise. *ABNEARN* is abnormal earnings, computed as (earnings in year *t*+1 (Item#20) – earnings in year *t*)/(share price (Item#199) x outstanding shares (Item#54) in year *t*). *STD_RET* is the asset return standard deviation, computed as the monthly stock return standard deviation during the fiscal year x (market value of equity/market value of assets). *RATE_DUM* is equal to one if a firm has an S&P rating on its long-term debt (Item#280). *ZSCORE_DUM* is equal to one if Altman's Z-score is greater than 1.81, and zero otherwise. Altman's Z-score is computed as 3.3*Item#178/Item#6 + 1.2*(Item#4-Item#5)/Item#6 + Item#12/Item#6 + 0.6*Item#199*Item#25 / (Item#9 +Item#34) + 1.4*Item#36/Item#6. In the leverage equation (not reported), right-hand-side variables are debt maturity (*ST3* and *ST5*), price and volatility sensitivities (*LPRCSEN* and *LVOLSEN*), size (*LSIZE)*, ownership (*OWN*), market-to-book ratio (*M/B*), regulated industry dummy (*REG_DUM*), abnormal earnings (*ABNEARN*), asset return standard deviation (*STD_RET*), fixed asset ratio (*FIX_ASSET*), profitability (*ROA*), net operating loss dummy (*NOL_DUM*), investment tax credit dummy (*ITC_DUM*), and simulated marginal tax-rate (*MTR*) as in Graham and Mills (2008). *FIX_ASSET* is the ratio of net property, plant, and equipment (Item #8) to total assets (Item #6). *ROA* is the ratio of operating income before depreciation (Item #13) to total assets (Item #6). *NOL_DUM* is equal to one if the firm has operating loss carryforwards (Item #52), and zero otherwise. *ITC_DUM* is equal to one if the firm has an investment tax credit (Item #51), and zero otherwise. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Independent variables	Predicted signs	Dependent variables			
		ST3		*ST5*	
		Coefficient estimate	*p*-value	Coefficient estimate	*p*-value
Intercept		-2.3253	0.132	-2.894*	0.083
LPRCSEN	-	-0.1002***	0.000	-0.075***	0.002
LVOLSEN	+	0.1399***	0.001	0.1366***	0.003
LSIZE	-	0.7465**	0.041	0.9097**	0.022
LSIZE2	+	-0.0447**	0.04	-0.0548**	0.021
LEVERAGE	-	-0.9232***	0.006	-0.3212	0.357
ASSET_MAT	-	-0.0011*	0.07	-0.0023***	0.001
OWN	+	1.2783***	0.000	0.8951***	0.003
M/B	+	0.0128	0.435	0.0179	0.291
TERM	-	-0.0014	0.647	-0.0069*	0.052
REG_DUM	-	-0.0153	0.494	-0.0913***	0.001
ABNEARN	+	-0.0023	0.957	0.0327	0.447
STD_RET	+	0.2874	0.309	0.5501*	0.059
RATE_DUM	-	-0.1676***	0.000	-0.2347***	0.000
ZSCORE_DUM	-	-0.0489	0.306	0.011	0.827
N		6,825		6,825	

Table IA.IX
Relation between Debt Maturity and CEO Portfolio Price/Volatility Sensitivities, Joint Determination of Maturity, Leverage, Compensation, and Investment - Robustness Test Based on Footnote #21

This table examines the robustness of the six-equation system by including the marginal tax rate in the leverage equation. The six-equation system jointly estimates maturity, compensation, capital structure, and investment policies based on GMM. The sample contains 6,180 firm-year observations. *ST3(ST5)* is the proportion of total debt maturing in three (five) years or less. *LPRCSEN* and *LVOLSEN* are the logarithmic transformation of *PRCSEN and VOLSEN, respectively*. *PRCSEN* is the change in value of the CEO's stock option and common stock portfolio due to a 1% change in the price of the firm's common stock (in 100 thousands). *VOLSEN* is the change in value of the CEO's stock option portfolio due to a 1% change in the annualized standard deviation of the firm's stock returns (in 100 thousands). *LEVERAGE* is long-term debt (Item #9) divided by *SIZE*. *CAPEX* is net capital expenditures (Item#128 – Item#107) scaled by assets (Item#6). *SIZE* is the market value of total assets, estimated as (share price (Item #199) x outstanding shares (Item#54) + book value of total assets (Item#6) – book value of equity (Item#60)). *LSIZE* is the natural logarithm of *SIZE*. *LSIZE2* is the square of *LSIZE*. *ASSET_MAT* is asset maturity and computed as (gross property, plant, and equipment (Item#7)/total assets (Item#6)) x (gross property, plant, and equipment (Item#7)/depreciation expense (Item#14)) + (current assets (Item#4)/total assets (Item#6)) x (current assets (Item#4)/cost of goods sold (Item#41)). *OWN* is the CEO's stock ownership excluding options (SHROWN in ExecuComp) scaled by the number of shares outstanding (SHRSOUT in ExecuComp). *M/B* is the market-to-book ratio, computed as *SIZE* divided by book value of total assets (Item#6). *TERM* is the fiscal year month-end yield on 10-year government bonds – fiscal year month-end yield on 6-month government bonds. *REG_DUM* is equal to one if a firm is in a regulated industry (SIC code within 4900-4939) as defined in Barclay and Smith (1995), and zero otherwise. *ABNEARN* is abnormal earnings, computed as (earnings in year *t*+1 (Item#20) – earnings in year *t*)/(share price (Item#199) x outstanding shares (Item#54) in year *t*). *STD_RET* is the asset return standard deviation, computed as the monthly stock return standard deviation during the fiscal year x (market value of equity/market value of assets). *RATE_DUM* is equal to one if a firm has an S&P rating on its long-term debt (Item#280). *ZSCORE_DUM* is equal to one if Altman's Z-score is greater than 1.81, and zero otherwise. Altman's Z-score is computed as 3.3*Item#178/Item#6 + 1.2*(Item#4-Item#5)/Item#6 + Item#12/Item#6 + 0.6*Item#199*Item#25 / (Item#9 +Item#34) + 1.4*Item#36/Item#6. *LTENURE* is the logarithmic transformation of the CEO's tenure measured in years. *SURCASH* is the cash from assets-in-place (Item#308-Item#125+Item#46) scaled by assets (Item#6). *RD* is research and development expenditures (Item#46) scaled by assets (Item#6). *EQUITY_RISK* is the logarithmic transformation of monthly stock return variance during the fiscal year. *CASHCOMP* is the sum of CEO's salary and bonus (in 100 thousands). *FIX_ASSET* is the ratio of net property, plant, and equipment (Item #8) to total assets (Item #6). *ROA* is the ratio of operating income before depreciation (Item #13) to total assets (Item #6). *NOL_DUM* is equal to one if the firm has operating loss carryforwards (Item #52), and zero otherwise. *ITC_DUM* is equal to one if the firm has an investment tax credit (Item #51), and zero otherwise. *MTR* is the simulated marginal tax rate as in Graham and Mills (2008). *SGR* is the sales growth rate computed as $ln(\text{Item12}_t/\text{Item \#12}_{t-1})$ *STOCKRET* is the buy-and-hold return during the fiscal year. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table IA.IX (Continued)

Panel A: Maturity measured as *ST3*												
	Dependent variables											
	(1)		(2)		(3)		(4)		(5)		(6)	
	ST3		*LPRCSEN*		*LVOLSEN*		*LEVERAGE*		*RD*		*CAPEX*	
	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value
Intercept	0.908***	0.000	0.2197	0.289	-0.699***	0.000	0.3122***	0.000	0.0694***	0.000	0.0087	0.452
ST3			-0.7555***	0.000	0.1604*	0.084	-0.3176***	0.000	0.0063	0.408	-0.054***	0.000
LPRCSEN	-0.1552***	0.000			0.0148	0.211	-0.0906***	0.000	-0.0054***	0.000	-0.0052**	0.014
LVOLSEN	0.1876***	0.000	0.4708***	0.000			0.0623***	0.000	0.0366***	0.000	-0.0516***	0.000
LEVERAGE	-0.7453***	0.000	-2.8005***	0.000	-0.4903***	0.000			-0.072***	0.000	-0.0514***	0.001
RD	-0.5007**	0.031	-6.1803***	0.000	2.2387***	0.000	-0.6635***	0.000				
CAPEX	-0.6022***	0.002	-3.7257***	0.000	-1.3302***	0.000	0.5801***	0.003				
LSIZE	-0.0756***	0.002	0.1852***	0.000	0.1738***	0.000	0.011***	0.006	-0.0051***	0.000	0.0091***	0.000
LSIZE2	0.0049***	0.000										
ASSET_MAT	-0.0019***	0.000										
OWN	1.8977***	0.000					1.1318***	0.000				
M/B	0.0448***	0.000	0.2551***	0.000	-0.0643***	0.000	0.0083**	0.029	0.0115***	0.000	0.0038***	0.009
TERM	-0.0001	0.97										
REG_DUM	0.0118	0.442					0.0544***	0.000				
ABNEARN	-0.0695**	0.018					0.0081	0.658				
STD_RET	0.3793**	0.024					-0.2419***	0.001				
RATE_DUM	-0.1083***	0.000										
ZSCORE_DUM	-0.034**	0.016										
LTENURE			0.3133***	0.000					0.0014**	0.013	0.0045***	0.000
SURCASH			0.2222	0.311					0.2846***	0.000	-0.0002	0.991
EQUITY_RISK			0.1292***	0.000	0.0495***	0.000						
CASHCOMP					0.0181***	0.000			-0.0008***	0.000	0.0005**	0.012
FIX_ASSET							-0.0813***	0.008				
ROA							-0.3993***	0.000	-0.3032***	0.000	0.1339***	0.000
NOL_DUM							0.0137***	0.000				
ITC_DUM							-0.0045	0.197				
MTR							-0.0157	0.391				
SGR									0.0153***	0.000	0.002	0.54
STOCKRET									-0.0063***	0.000	-0.0122***	0.000

Table IA.IX (Continued)

Panel B: Maturity measured as *ST5*												
	Dependent variables											
	(1)		(2)		(3)		(4)		(5)		(6)	
	ST5		*LPRCSEN*		*LVOLSEN*		*LEVERAGE*		*RD*		*CAPEX*	
	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value
Intercept	0.892***	0.000	-0.0164	0.949	-0.8259***	0.000	0.3394***	0.000	0.0627***	0.000	0.0467***	0.001
ST5			-0.3756**	0.031	0.1996**	0.026	-0.2405***	0.000	0.0108	0.131	-0.0666***	0.000
LPRCSEN	-0.1227***	0.000			0.0109	0.351	-0.0704***	0.000	-0.0057***	0.000	-0.0035	0.116
LVOLSEN	0.1352***	0.000	0.4559***	0.000			0.0203	0.115	0.0354***	0.000	-0.0424***	0.000
LEVERAGE	-0.389***	0.000	-2.6341***	0.000	-0.4577***	0.000			-0.0709***	0.000	-0.0571***	0.000
RD	-0.6921***	0.004	-5.9379***	0.000	2.3626***	0.000	-0.8236***	0.000				
CAPEX	-0.8761***	0.000	-3.267***	0.000	-1.0104***	0.000	0.7347***	0.000				
LSIZE	-0.0352	0.187	0.1974***	0.000	0.1775***	0.000	0.0139***	0.000	-0.0046***	0.000	0.0062***	0.000
LSIZE2	0.0024*	0.1										
ASSET_MAT	-0.0031***	0.000										
OWN	1.4416***	0.000					0.8433***	0.000				
M/B	0.0456***	0.000	0.2449***	0.000	-0.0706***	0.000	0.0034	0.322	0.0118***	0.000	0.0034**	0.017
TERM	-0.0042	0.105										
REG_DUM	-0.0558***	0.002					0.0373***	0.000				
ABNEARN	-0.0323	0.27					0.0221	0.241				
STD_RET	0.5852***	0.000					-0.3002***	0.000				
RATE_DUM	-0.1469***	0.000										
ZSCORE_DUM	0.0143	0.373										
LTENURE			0.3163***	0.000					0.0014**	0.017	0.004***	0.000
SURCASH			0.0111	0.96					0.2828***	0.000	-0.0145	0.323
EQUITY_RISK			0.1211***	0.000	0.0432***	0.000						
CASHCOMP					0.0183***	0.000			-0.0008***	0.000	0.0002	0.175
FIX_ASSET							-0.1033***	0.002				
ROA							-0.4955***	0.000	-0.309***	0.000	0.1466***	0.000
NOL_DUM							0.0174***	0.000				
ITC_DUM							-0.0065	0.111				
MTR							-0.0237	0.262				
SGR									0.0163***	0.000	0.0034	0.283
STOCKRET									-0.0065***	0.000	-0.0113***	0.000

Table IA.X
Relation between Debt Maturity and CEO Portfolio Price/Volatility Sensitivities, Joint Determination of Maturity, Leverage, Compensation, and Investment - Robustness Test Based on Footnote #24

This table examines the robustness of the relation between debt maturity and managerial incentives by allowing for the joint determination of maturity, compensation, capital structure, and investment policies based on 2SLS and 3SLS. The sample contains 6,180 firm-year observations. *ST3(ST5)* is the proportion of total debt maturing in three (five) years or less. *LPRCSEN* and *LVOLSEN* are the logarithmic transformation of *PRCSEN and VOLSEN*, *respectively*. *PRCSEN* is the change in value of the CEO's stock option and common stock portfolio due to a 1% change in the price of the firm's common stock (in 100 thousands). *VOLSEN* is the change in value of the CEO's stock option portfolio due to a 1% change in the annualized standard deviation of the firm's stock returns (in 100 thousands). *LEVERAGE* is long-term debt (Item #9) divided by *SIZE*. *CAPEX* is net capital expenditures (Item#128 – Item#107) scaled by assets (Item#6). *SIZE* is the market value of total assets, estimated as (share price (Item #199) x outstanding shares (Item#54) + book value of total assets (Item#6) – book value of equity (Item#60)). *LSIZE* is the natural logarithm of *SIZE*. *LSIZE2* is the square of *LSIZE*. *ASSET_MAT* is asset maturity and computed as (gross property, plant, and equipment (Item#7)/total assets (Item#6)) x (gross property, plant, and equipment (Item#7)/depreciation expense (Item#14)) + (current assets (Item#4)/total assets (Item#6)) x (current assets (Item#4)/cost of goods sold (Item#41)). *OWN* is the CEO's stock ownership excluding options (SHROWN in ExecuComp) scaled by the number of shares outstanding (SHRSOUT in ExecuComp). *M/B* is the market-to-book ratio, computed as *SIZE* divided by book value of total assets (Item#6). *TERM* is the fiscal year month-end yield on 10-year government bonds – fiscal year month-end yield on 6-month government bonds. *REG_DUM* is equal to one if a firm is in a regulated industry (SIC code within 4900-4939) as defined in Barclay and Smith (1995), and zero otherwise. *ABNEARN* is abnormal earnings, computed as (earnings in year *t*+1 (Item#20) – earnings in year *t*)/(share price (Item#199) x outstanding shares (Item#54) in year *t*). *STD_RET* is the asset return standard deviation, computed as the monthly stock return standard deviation during the fiscal year x (market value of equity/market value of assets). *RATE_DUM* is equal to one if a firm has an S&P rating on its long-term debt (Item#280). *ZSCORE_DUM* is equal to one if Altman's Z-score is greater than 1.81, and zero otherwise. Altman's Z-score is computed as 3.3*Item#178/Item#6 + 1.2*(Item#4-Item#5)/Item#6 + Item#12/Item#6 + 0.6*Item#199*Item#25 / (Item#9 +Item#34) + 1.4*Item#36/Item#6. *LTENURE* is the logarithmic transformation of the CEO's tenure measured in years. *SURCASH* is the cash from assets-in-place (Item#308-Item#125+Item#46) scaled by assets (Item#6). *RD* is research and development expenditures (Item#46) scaled by assets (Item#6). *EQUITY_RISK* is the logarithmic transformation of monthly stock return variance during the fiscal year. *CASHCOMP* is the sum of CEO's salary and bonus (in 100 thousands). *FIX_ASSET* is the ratio of net property, plant, and equipment (Item #8) to total assets (Item #6). *ROA* is the ratio of operating income before depreciation (Item #13) to total assets (Item #6). *NOL_DUM* is equal to one if the firm has operating loss carryforwards (Item #52), and zero otherwise. *ITC_DUM* is equal to one if the firm has an investment tax credit (Item #51), and zero otherwise. *SGR* is the sales growth rate computed as $ln(\text{Item12}_t/\text{Item \#12}_{t-1})$ *STOCKRET* is the buy-and-hold return during the fiscal year. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table IA.X (Continued)

Panel A: Maturity measured as *ST3* [2SLS Coefficients / 3SLS Coefficients]						
	Dependent variables					
	(1)	(2)	(3)	(4)	(5)	(6)
	ST3	*LPRCSEN*	*LVOLSEN*	*LEVERAGE*	*RD*	*CAPEX*
	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate
Intercept	[0.9523***/1.1549***]	[0.5227***/1.3707***]	[-0.6814***/-0.5289***]	[0.2801***/0.3973***]	[0.0586***/0.0799***]	[0.0464***/0.0325***]
ST3		[-0.803***/-1.6294***]	[0.0845/0.0101]	[-0.3414***/-0.3466***]	[0.0296***/0.0097*]	[-0.0685***/-0.0718***]
LPRCSEN	[-0.1225***/-0.1336***]		[0.0201**/0.0176**]	[-0.1001***/-0.064***]	[-0.0042***/-0.0144***]	[0.0006/-0.0105***]
LVOLSEN	[0.1412***/0.0694**]	[0.3883***/0.3001***]		[0.0415***/0.017]	[0.0352***/0.0701***]	[-0.0416***/-0.0575***]
LEVERAGE	[-0.5562***/-1.8291***]	[-3.1593***/-5.1698***]	[-0.6358***/-0.7664***]		[-0.0384***/-0.0501***]	[-0.0584***/-0.1156***]
RD	[-0.4873***/-1.4937***]	[-7.7682***/-8.6535***]	[1.8989***/1.7423***]	[-0.7288***/-0.9346***]		
CAPEX	[-0.1905/-1.9029***]	[-2.4162***/-5.8325***]	[-0.792***/-2.5494***]	[0.7451***/-0.2369]		
LSIZE	[-0.0937***/-0.0406**]	[0.2194***/0.1921***]	[0.168***/0.1702***]	[0.0197***/0.0039]	[-0.005***/-0.0082***]	[0.0037***/0.0087***]
LSIZE2	[0.006***/0.0022**]					
ASSET_MAT	[-0.0026***/-0.0015***]					
OWN	[1.3664***/0.3865*]			[1.0875***/0.0135]		
M/B	[0.0399***/0.0261***]	[0.2235***/0.2218***]	[-0.0535***/-0.0438***]	[0.008***/0.0081***]	[0.0112***/0.014***]	[0.0057***/0.0052***]
TERM	[-0.0002/-0.0029]					
REG_DUM	[0.0039/0.0446***]			[0.0292***/0.0347***]		
ABNEARN	[-0.0376/0.0176]			[0.0212/0.0201]		
STD_RET	[0.4701***/0.1138]			[-0.1925***/-0.0215]		
RATE_DUM	[-0.1336***/-0.0307***]					
ZSCORE_DUM	[-0.0366*/-0.042***]					
LTENURE		[0.3386***/0.2892***]			[0.0009/0.0048***]	[0.0041***/0.0052***]
SURCASH		[0.3948**/0.1041]			[0.3035***/0.2497***]	[-0.0265**/-0.0182*]
EQUITY_RISK		[0.2145***/0.1342***]	[0.0492***/0.0513***]			
CASHCOMP			[0.0208***/0.0194***]		[-0.0009***/-0.0015***]	[0.0004***/0.001***]
FIX_ASSET				[-0.1105***/-0.0189]		
ROA				[-0.4109***/-0.2404***]	[-0.3343***/-0.2691***]	[0.1607***/0.1406***]
NOL_DUM				[0.0184***/-0.0007]		
ITC_DUM				[-0.0059/-0.005*]		
SGR					[0.0141***/0.0113***]	[0.0041/0.0053*]
STOCKRET					[-0.0025**/-0.0056***]	[-0.0166***/-0.0067***]

Table IA.X (Continued)

Panel B: Maturity measured as *ST5* [2SLS Coefficients / 3SLS Coefficients]						
	Dependent variables					
	(1)	(2)	(3)	(4)	(5)	(6)
	ST3	*LPRCSEN*	*LVOLSEN*	*LEVERAGE*	*RD*	*CAPEX*
	Estimate	Estimate	Estimate	Estimate	Estimate	Estimate
Intercept	[0.7855***/1.1962***]	[0.1238/0.7451***]	[-0.895***/-0.6758***]	[0.3352***/0.41***]	[0.0444***/0.0655***]	[0.0632***/0.0355***]
ST3		[-0.258**/-0.7123***]	[0.2307***/0.1121]	[-0.2991***/-0.2771***]	[0.0317***/0.0161***]	[-0.06***/-0.0487***]
LPRCSEN	[-0.1045***/-0.1158***]		[0.0192**/0.0168*]	[-0.0805***/-0.0545***]	[-0.0048***/-0.0162***]	[0.0017/-0.0062***]
LVOLSEN	[0.1162***/0.0512*]	[0.3883***/0.326***]		[0.0019/-0.0074]	[0.0317***/0.0662***]	[-0.0358***/-0.0519***]
LEVERAGE	[-0.1958**/-1.4405***]	[-2.7696***/-4.2324***]	[-0.4875***/-0.7181***]		[-0.0376***/-0.0527***]	[-0.0515***/-0.0778***]
RD	[-0.4724***/-1.2984***]	[-7.5625***/-8.2937***]	[1.9937***/1.8225***]	[-0.8463***/-0.9829***]		
CAPEX	[-0.2675*/-1.9407***]	[-2.191***/-4.7208***]	[-0.6817***/-2.2154***]	[0.9362***/0.0786]		
LSIZE	[-0.022/-0.0225]	[0.235***/0.2156***]	[0.1737***/0.1757***]	[0.0219***/0.0089***]	[-0.0039***/-0.0067***]	[0.0024**/0.007***]
LSIZE2	[0.0018/0.0013]					
ASSET_MAT	[-0.0036***/-0.0027***]					
OWN	[1.1145***/0.6933***]			[0.8352***/0.0553]		
M/B	[0.0354***/0.0188***]	[0.2113***/0.205***]	[-0.0544***/-0.0493***]	[0.0021/0.0012]	[0.0114***/0.0143***]	[0.0049***/0.0042***]
TERM	[-0.0046/-0.0043**]					
REG_DUM	[-0.0616***/-0.0244]			[0.0087/0.019**]		
ABNEARN	[0.0026/0.0373]			[0.0316**/0.0313**]		
STD_RET	[0.665***/0.3064**]			[-0.2333***/-0.0796]		
RATE_DUM	[-0.1724***/-0.0664***]					
ZSCORE_DUM	[0.0206/-0.0147]					
LTENURE		[0.3406***/0.3161***]			[0.001*/0.0054***]	[0.0038***/0.0048***]
SURCASH		[0.2702/-0.0662]			[0.3079***/0.2482***]	[-0.0346***/-0.0162]
EQUITY_RISK		[0.203***/0.1399***]	[0.0414***/0.0457***]			
CASHCOMP			[0.0209***/0.0192***]		[-0.0008***/-0.0014***]	[0.0003*/0.0008***]
FIX_ASSET				[-0.1425***/-0.0519**]		
ROA				[-0.5076***/-0.3563***]	[-0.336***/-0.2737***]	[0.1621***/0.1446***]
NOL_DUM				[0.0248***/0.0015]		
ITC_DUM				[-0.0094*/-0.0048]		
SGR					[0.0142***/0.0111***]	[0.0044/0.0066**]
STOCKRET					[-0.003**/-0.0055***]	[-0.015***/-0.0069***]

Table IA.XI
Relation between Debt Maturity and CEO Portfolio Price/Volatility Sensitivities, Joint Determination of Maturity, Leverage, Compensation, and Investment - Robustness Test Based on Footnote #25

This table examines the robustness of the relation between debt maturity and managerial incentives by allowing for the joint determination of maturity, compensation, capital structure, and investment policies based on alternative GMM specifications. Panel A (B) is based on a five-equation system that individually endogenizes *LPRCSEN* (*LVOLSEN*). Panel C (D) is based on a three-equation system (maturity, leverage, and compensation) that individually endogenizes *LPRCSEN* (*LVOLSEN*). The sample contains 6,180 firm-year observations. *ST3(ST5)* is the proportion of total debt maturing in three (five) years or less. *LPRCSEN* and *LVOLSEN* are the logarithmic transformation of *PRCSEN and VOLSEN, respectively*. *PRCSEN* is the change in value of the CEO's stock option and common stock portfolio due to a 1% change in the price of the firm's common stock (in 100 thousands). *VOLSEN* is the change in value of the CEO's stock option portfolio due to a 1% change in the annualized standard deviation of the firm's stock returns (in 100 thousands). *LEVERAGE* is long-term debt (Item #9) divided by *SIZE*. *CAPEX* is net capital expenditures (Item#128 – Item#107) scaled by assets (Item#6). *SIZE* is the market value of total assets, estimated as (share price (Item #199) x outstanding shares (Item#54) + book value of total assets (Item#6) – book value of equity (Item#60)). *LSIZE* is the natural logarithm of *SIZE*. *LSIZE2* is the square of *LSIZE*. *ASSET_MAT* is asset maturity and computed as (gross property, plant, and equipment (Item#7)/total assets (Item#6)) x (gross property, plant, and equipment (Item#7)/depreciation expense (Item#14)) + (current assets (Item#4)/total assets (Item#6)) x (current assets (Item#4)/cost of goods sold (Item#41)). *OWN* is the CEO's stock ownership excluding options (SHROWN in ExecuComp) scaled by the number of shares outstanding (SHRSOUT in ExecuComp). *M/B* is the market-to-book ratio, computed as *SIZE* divided by book value of total assets (Item#6). *TERM* is the fiscal year month-end yield on 10-year government bonds – fiscal year month-end yield on 6-month government bonds. *REG_DUM* is equal to one if a firm is in a regulated industry (SIC code within 4900-4939) as defined in Barclay and Smith (1995), and zero otherwise. *ABNEARN* is abnormal earnings, computed as (earnings in year *t*+1 (Item#20) – earnings in year *t*)/(share price (Item#199) x outstanding shares (Item#54) in year *t*). *STD_RET* is the asset return standard deviation, computed as the monthly stock return standard deviation during the fiscal year x (market value of equity/market value of assets). *RATE_DUM* is equal to one if a firm has an S&P rating on its long-term debt (Item#280). *ZSCORE_DUM* is equal to one if Altman's Z-score is greater than 1.81, and zero otherwise. Altman's Z-score is computed as 3.3*Item#178/Item#6 + 1.2*(Item#4-Item#5)/Item#6 + Item#12/Item#6 + 0.6*Item#199*Item#25 / (Item#9 +Item#34) + 1.4*Item#36/Item#6. *LTENURE* is the logarithmic transformation of the CEO's tenure measured in years. *SURCASH* is the cash from assets-in-place (Item#308-Item#125+Item#46) scaled by assets (Item#6). *RD* is research and development expenditures (Item#46) scaled by assets (Item#6). *EQUITY_RISK* is the logarithmic transformation of monthly stock return variance during the fiscal year. *CASHCOMP* is the sum of CEO's salary and bonus (in 100 thousands). *FIX_ASSET* is the ratio of net property, plant, and equipment (Item #8) to total assets (Item #6). *ROA* is the ratio of operating income before depreciation (Item #13) to total assets (Item #6). *NOL_DUM* is equal to one if the firm has operating loss carryforwards (Item #52), and zero otherwise. *ITC_DUM* is equal to one if the firm has an investment tax credit (Item #51), and zero otherwise. *SGR* is the sales growth rate computed as $ln(\text{Item12}_t/\text{Item \#12}_{t-1})$ *STOCKRET* is the buy-and-hold return during the fiscal year. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table IA.XI (Continued)

Panel A: 5-equation system where *ST3*, *LPRCSEN*, *LEVERAGE*, *RD*, and *CAPEX* are endogenized										
	Dependent variables									
	(1)		(2)		(3)		(4)		(5)	
	ST3		*LPRCSEN*		*LEVERAGE*		*RD*		*CAPEX*	
	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value
Intercept	0.9805***	0.000	0.7083***	0.000	0.3391***	0.000	0.0375***	0.000	0.0571***	0.000
ST3			-0.9036***	0.000	-0.3638***	0.000	0.0272***	0.000	-0.0658***	0.000
LPRCSEN	-0.136***	0.000			-0.095***	0.000	-0.0055***	0.000	-0.0047**	0.019
LVOLSEN	0.1004***	0.000	0.629***	0.000	0.0701***	0.000	0.0045***	0.002	-0.0025	0.272
LEVERAGE	-0.7484***	0.000	-3.2103***	0.000			-0.0944***	0.000	-0.0259**	0.047
RD	-0.4082*	0.064	-6.1235***	0.000	-0.5717***	0.000				
CAPEX	-0.8521***	0.000	-3.5699***	0.000	0.6474***	0.000				
LSIZE	-0.0909***	0.000	0.138***	0.000	0.0085**	0.011	0.0001	0.825	0.0002	0.789
LSIZE2	0.0064***	0.000								
ASSET_MAT	-0.0023***	0.000								
OWN	1.5507***	0.000			1.1682***	0.000				
M/B	0.0336***	0.000	0.2323***	0.000	0.0075**	0.034	0.0112***	0.000	0.0049***	0.000
TERM	-0.0002	0.896								
REG_DUM	-0.0082	0.561			0.0567***	0.000				
ABNEARN	-0.0727***	0.008			-0.007	0.669				
STD_RET	0.5404***	0.000			-0.1737**	0.016				
RATE_DUM	-0.0952***	0.000								
ZSCORE_DUM	-0.0281**	0.027								
LTENURE			0.2949***	0.000			0.0017***	0.005	0.0034***	0.000
SURCASH			0.1374	0.509			0.3078***	0.000	-0.0252*	0.074
EQUITY_RISK			0.134***	0.000						
CASHCOMP							-0.0002**	0.047	-0.0004***	0.000
FIX_ASSET					-0.0906***	0.003				
ROA					-0.3771***	0.000	-0.3498***	0.000	0.1783***	0.000
NOL_DUM					0.0085***	0.004				
ITC_DUM					-0.0068**	0.037				
SGR							0.0155***	0.000	0.002	0.499
STOCKRET							-0.0087***	0.000	-0.0081***	0.000

Table IA.XI (Continued)

Panel B: 5-equation system where *ST3*, *LVOLSEN*, *LEVERAGE*, *RD*, and *CAPEX* are endogenized										
	Dependent variables									
	(1)		(2)		(3)		(4)		(5)	
	ST3		*LVOLSEN*		*LEVERAGE*		*RD*		*CAPEX*	
	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value
Intercept	1.1423***	0.000	-0.5261***	0.000	0.3895***	0.000	0.053***	0.000	0.0549***	0.000
ST3			0.1036	0.245	-0.296***	0.000	0.0191***	0.007	-0.067***	0.000
LPRCSEN	-0.0776***	0.000	0.1557***	0.000	-0.037***	0.000	-0.0084***	0.000	0.0023	0.19
LVOLSEN	0.1395***	0.000			0.0323**	0.013	0.0229***	0.000	-0.0233***	0.000
LEVERAGE	-0.7216***	0.000	-0.4819***	0.000			-0.0901***	0.000	-0.0367***	0.007
RD	-0.344	0.122	2.4771***	0.000	-0.4746***	0.000				
CAPEX	-0.6196***	0.000	-1.0348***	0.000	0.5785***	0.001				
LSIZE	-0.1144***	0.000	0.139***	0.000	-0.0032	0.246	-0.0019***	0.002	0.0015	0.144
LSIZE2	0.0059***	0.000								
ASSET_MAT	-0.0019***	0.000								
OWN	0.9546***	0.000			0.4802***	0.000				
M/B	0.0328***	0.000	-0.1118***	0.000	-0.0025	0.397	0.0106***	0.000	0.0033***	0.009
TERM	-0.0023	0.288								
REG_DUM	0.0206	0.125			0.0682***	0.000				
ABNEARN	-0.0486*	0.098			0.0089	0.633				
STD_RET	0.207	0.148			-0.3894***	0.000				
RATE_DUM	-0.1068***	0.000								
ZSCORE_DUM	-0.0487***	0.000								
LTENURE							0.0018***	0.001	0.0025***	0.001
SURCASH							0.3012***	0.000	-0.0112	0.436
EQUITY_RISK			0.0436***	0.000						
CASHCOMP			0.016***	0.000			-0.0005***	0.000	-0.0001	0.679
FIX_ASSET					-0.0595**	0.042				
ROA					-0.3984***	0.000	-0.3282***	0.000	0.156***	0.000
NOL_DUM					0.0103***	0.001				
ITC_DUM					-0.0065**	0.046				
SGR							0.0178***	0.000	0.0042	0.215
STOCKRET							-0.0067***	0.000	-0.0108***	0.000

Table IA.XI (Continued)

Panel C: 3-equation system where *ST3*, *LPRCSEN*, and *LEVERAGE* are endogenized						
	Dependent variables					
	(1)		(2)		(3)	
	ST3		*LPRCSEN*		*LEVERAGE*	
	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value
Intercept	0.9954***	0.000	0.0511	0.769	0.3391***	0.000
ST3			-0.6102***	0.000	-0.376***	0.000
LPRCSEN	-0.1265***	0.000			-0.0756***	0.000
LVOLSEN	0.1047***	0.000	0.6232***	0.000	0.0584***	0.000
LEVERAGE	-1.0034***	0.000	-2.8179***	0.000		
RD			-2.0626***	0.000		
CAPEX			0.2502	0.454		
LSIZE	-0.0841***	0.000	0.1648***	0.000	0.0043	0.183
LSIZE2	0.0058***	0.000				
ASSET_MAT	-0.0022***	0.000				
OWN	1.7193***	0.000			1.0792***	0.000
M/B	0.0116	0.132	0.1649***	0.000	-0.0047	0.157
TERM	0.0038**	0.037				
REG_DUM	0.0137	0.353			0.0517***	0.000
ABNEARN	-0.0548*	0.093			-0.0087	0.62
STD_RET	0.295**	0.033			-0.1152*	0.064
RATE_DUM	-0.0955***	0.000				
ZSCORE_DUM	-0.0554***	0.000				
LTENURE			0.2919***	0.000		
SURCASH			-0.4592**	0.012		
EQUITY_RISK			0.1124***	0.000		
FIX_ASSET					0.0109	0.303
ROA					-0.1907***	0.000
NOL_DUM					0.001	0.715
ITC_DUM					-0.0063**	0.030

Table IA.XI (Continued)

Panel D: 3-equation system where *ST3*, *LVOLSEN*, and *LEVERAGE* are endogenized						
	Dependent variables					
	(1)		(2)		(3)	
	ST3		*LVOLSEN*		*LEVERAGE*	
	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value
Intercept	1.2247***	0.000	-0.045	0.656	0.3768***	0.000
ST3			-0.2976***	0.002	-0.3272***	0.000
LPRCSEN	-0.0535***	0.000	0.1399***	0.000	-0.0305***	0.000
LVOLSEN	0.0622*	0.092			0.0243*	0.088
LEVERAGE	-0.9345***	0.000	-0.9799***	0.000		
RD			1.4714***	0.000		
CAPEX			-1.0655***	0.000		
LSIZE	-0.1324***	0.000	0.111***	0.000	-0.0043	0.136
LSIZE2	0.0076***	0.000				
ASSET_MAT	-0.0021***	0.000				
OWN	0.8347***	0.000			0.5273***	0.000
M/B	0.0085	0.256	-0.0941***	0.000	-0.0086***	0.002
TERM	0.0049**	0.026				
REG_DUM	0.0314**	0.024			0.0633***	0.000
ABNEARN	-0.0623*	0.06			0.0023	0.906
STD_RET	0.1621	0.231			-0.2817***	0.000
RATE_DUM	-0.1035***	0.000				
ZSCORE_DUM	-0.0685***	0.000				
EQUITY_RISK			0.0181***	0.000		
CASHCOMP			0.0505***	0.000		
FIX_ASSET					0.0214**	0.043
ROA					-0.2217***	0.000
NOL_DUM					0.0067**	0.03
ITC_DUM					-0.0108***	0.000

Table IA.XII
Relation between Debt Maturity and CEO Portfolio Price/Volatility Sensitivities, Joint Determination of Maturity, Leverage, Compensation, and Investment - Robustness Test Based on Footnote #26

Panel A examines the robustness of the relation between debt maturity and managerial incentives by allowing for the joint determination of maturity, compensation, capital structure, and investment policies based on LIML. Panel B examines the robustness of results based on a just-identified specification. The sample contains 6,180 firm-year observations. *ST3(ST5)* is the proportion of total debt maturing in three (five) years or less. *LPRCSEN* and *LVOLSEN* are the logarithmic transformation of *PRCSEN and VOLSEN, respectively*. *PRCSEN* is the change in value of the CEO's stock option and common stock portfolio due to a 1% change in the price of the firm's common stock (in 100 thousands). *VOLSEN* is the change in value of the CEO's stock option portfolio due to a 1% change in the annualized standard deviation of the firm's stock returns (in 100 thousands). *LEVERAGE* is long-term debt (Item #9) divided by *SIZE*. *CAPEX* is net capital expenditures (Item#128 – Item#107) scaled by assets (Item#6). *SIZE* is the market value of total assets, estimated as (share price (Item #199) x outstanding shares (Item#54) + book value of total assets (Item#6) – book value of equity (Item#60)). *LSIZE* is the natural logarithm of *SIZE*. *LSIZE2* is the square of *LSIZE*. *ASSET_MAT* is asset maturity and computed as (gross property, plant, and equipment (Item#7)/total assets (Item#6)) x (gross property, plant, and equipment (Item#7)/depreciation expense (Item#14)) + (current assets (Item#4)/total assets (Item#6)) x (current assets (Item#4)/cost of goods sold (Item#41)). *OWN* is the CEO's stock ownership excluding options (SHROWN in ExecuComp) scaled by the number of shares outstanding (SHRSOUT in ExecuComp). *M/B* is the market-to-book ratio, computed as *SIZE* divided by book value of total assets (Item#6). *TERM* is the fiscal year month-end yield on 10-year government bonds – fiscal year month-end yield on 6-month government bonds. *REG_DUM* is equal to one if a firm is in a regulated industry (SIC code within 4900-4939) as defined in Barclay and Smith (1995), and zero otherwise. *ABNEARN* is abnormal earnings, computed as (earnings in year *t*+1 (Item#20) – earnings in year *t*)/(share price (Item#199) x outstanding shares (Item#54) in year *t*). *STD_RET* is the asset return standard deviation, computed as the monthly stock return standard deviation during the fiscal year x (market value of equity/market value of assets). *RATE_DUM* is equal to one if a firm has an S&P rating on its long-term debt (Item#280). *ZSCORE_DUM* is equal to one if Altman's Z-score is greater than 1.81, and zero otherwise. Altman's Z-score is computed as 3.3*Item#178/Item#6 + 1.2*(Item#4-Item#5)/Item#6 + Item#12/Item#6 + 0.6*Item#199*Item#25 / (Item#9 +Item#34) + 1.4*Item#36/Item#6. *LTENURE* is the logarithmic transformation of the CEO's tenure measured in years. *SURCASH* is the cash from assets-in-place (Item#308-Item#125+Item#46) scaled by assets (Item#6). *RD* is research and development expenditures (Item#46) scaled by assets (Item#6). *EQUITY_RISK* is the logarithmic transformation of monthly stock return variance during the fiscal year. *CASHCOMP* is the sum of CEO's salary and bonus (in 100 thousands). *FIX_ASSET* is the ratio of net property, plant, and equipment (Item #8) to total assets (Item #6). *ROA* is the ratio of operating income before depreciation (Item #13) to total assets (Item #6). *NOL_DUM* is equal to one if the firm has operating loss carryforwards (Item #52), and zero otherwise. *ITC_DUM* is equal to one if the firm has an investment tax credit (Item #51), and zero otherwise. *SGR* is the sales growth rate computed as $ln(\text{Item12}_t/\text{Item \#12}_{t-1})$ *STOCKRET* is the buy-and-hold return during the fiscal year. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Table IA.XII (Continued)

Panel A: Estimation results based on LIML												
	Dependent variables											
	(1)		(2)		(3)		(4)		(5)		(6)	
	ST3		*LPRCSEN*		*LVOLSEN*		*LEVERAGE*		*RD*		*CAPEX*	
	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value
Intercept	0.8799***	0.000	51.0885**	0.019	-3.4485***	0.000	0.6774***	0.000	0.0563***	0.000	3.2736*	0.09
ST3			-55.5685**	0.018	3.1978***	0.001	-1.7689***	0.000	0.0666***	0.000	-3.2175*	0.077
LPRCSEN	-0.138***	0.000			0.042*	0.099	-0.4778***	0.000	-0.0041***	0.000	0.0259	0.395
LVOLSEN	0.166***	0.000	1.1991	0.363			0.4573***	0.000	0.0739***	0.000	1.1729	0.156
LEVERAGE	-0.5199***	0.000	-42.5606**	0.013	1.9104**	0.029			0.0324**	0.038	-0.7374	0.135
RD	-0.5234***	0.004	-43.4684**	0.017	3.2145***	0.000	-0.1064	0.818				
CAPEX	-0.1826	0.262	-34.5235**	0.027	0.7373	0.277	5.2255***	0.000				
LSIZE	-0.08***	0.009	-1.7558*	0.06	0.255***	0.000	0.0299*	0.088	-0.0096***	0.000	-0.3166	0.119
LSIZE2	0.0052***	0.004										
ASSET_MAT	-0.0026***	0.000										
OWN	1.5387***	0.000					5.3916***	0.000				
M/B	0.0443***	0.000	1.5428**	0.015	-0.1297***	0.000	0.0867***	0.000	0.0098***	0.000	0.097*	0.079
TERM	-0.0008	0.812										
REG_DUM	0.0031	0.859					0.132***	0.003				
ABNEARN	-0.037	0.289					0.0455	0.512				
STD_RET	0.5079***	0.000					0.5063	0.128				
RATE_DUM	-0.1365***	0.000										
ZSCORE_DUM	-0.0307	0.116										
LTENURE			0.1995	0.37					0.0003	0.636	-0.0367	0.227
SURCASH			13.2396**	0.049					0.2954***	0.000	-0.1346	0.607
EQUITY_RISK			1.8309**	0.012	-0.0399	0.23						
CASHCOMP					0.0211***	0.000			-0.0017***	0.000	-0.025	0.155
FIX_ASSET							-0.9471***	0.000				
ROA							0.1313	0.519	-0.2963***	0.000	1.7104	0.102
NOL_DUM							0.0168	0.344				
ITC_DUM							-0.0335	0.144				
SGR									0.017***	0.000	-0.1283	0.213
STOCKRET									0.0051***	0.006	-0.0183	0.718

Table IA.XII (Continued)

Panel B: Estimation results based on a just-identified system												
	Dependent variables											
	(1)		(2)		(3)		(4)		(5)		(6)	
	ST3		*LPRCSEN*		*LVOLSEN*		*LEVERAGE*		*RD*		*CAPEX*	
	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value
Intercept	0.479***	0.000	-2.4298**	0.049	-1.9841***	0.000	0.1552*	0.052	0.2049***	0.001	0.0572***	0.009
ST3			3.1903*	0.071	0.8828***	0.000	-0.4972***	0.000	-0.3406***	0.000	-0.0159	0.447
LPRCSEN	-0.0554***	0.002			0.0794**	0.032	-0.1047***	0.000	-0.051***	0.000	0.0142***	0.000
LVOLSEN	0.1829***	0.000	-0.261	0.583			0.1644***	0.004	0.0718***	0.003	-0.0399***	0.000
LEVERAGE	0.0924	0.733	3.4276	0.271	3.3565***	0.000			-0.8336***	0.000	-0.119**	0.042
RD	1.3108*	0.051	15.1637*	0.059	9.1302***	0.000	-3.5513***	0.000			-0.0102	0.902
CAPEX	2.0836	0.103	-61.1579**	0.021	-2.4876	0.367	6.991***	0.000	3.6405***	0.000		
LSIZE	-0.0293***	0.000	0.4648***	0.004	0.1405***	0.000	-0.0179*	0.066	-0.0089*	0.059	0.0045***	0.000
M/B	0.0312***	0.000	0.3295***	0.000	0.0075	0.6	0.0034	0.71	-0.0079	0.128	-0.0017	0.156
STD_RET							0.8627***	0.002				
RATE_DUM	-0.1724***	0.000										
LTENURE			0.6109***	0.000								
SURCASH									-0.2531***	0.005		
CASHCOMP					0.0265***	0.000						
STOCKRET											-0.0144***	0.000

Table IA.XIII
Relation between Corporate Bond Yield Spreads and CEO Portfolio Price/Volatility Sensitivities - Robustness Test Based on Footnote #9

This table examines the pricing of managerial incentives into monthly (Panel A) and annual (Panel B) corporate bond spreads. *LMAT* is the natural logarithm of the remaining life of the bond. Yield spread (*SPREAD*) is the difference between yield-to-maturity and the interpolated Treasury yield with corresponding maturity (in % terms) as of the month-end day (Panel A) or year-end day (Panel B). *LPRCSEN* and *LVOLSEN* are the logarithmic transformation of *PRCSEN and VOLSEN, respectively*. *PRCSEN* is the change in value of the CEO's stock option and common stock portfolio due to a 1% change in the price of the firm's common stock (in 100 thousands). *VOLSEN* is the change in value of the CEO's stock option portfolio due to a 1% change in the annualized standard deviation of the firm's stock returns (in 100 thousands). *STD_RET* is the standard deviation of daily returns over preceding 180 days. *AVG_RET* is the average daily return over the preceding 180 days. *RATING* is the bond rating from 1 to 19 (1 for CCC- rated bonds and 19 for AAA rated bonds). *ROS* is the ratio of operating income before depreciation (Item #13) to sales (Item #12). *LEVERAGE* is long-term debt (Item #9) divided by the market value of total assets, estimated as (share price (Item #199) x outstanding shares (Item#54) + book value of total assets (Item#6) – book value of equity (Item#60)). *INTCOVERAGE* is the logarithmic transformation of the pretax interest coverage ratio (*ln*(1+[Item #178+Item #15]/Item #15)). *COUPON* is the coupon rate of the issue. *ILLIQUIDITY* is the proportion of days with zero bond returns over the preceding 180 days. *ISSUE_SIZE* is the natural logarithm of the face value of the bond (in $millions). *BENCHMARK_TREAS* is the Treasury rate corresponding to bond's maturity. *YLDCRV_SLOPE* is the difference between 10-year and 2-year Treasury rates. *EURO_TREAS_SPREAD* is the difference between 3-month Treasury bill and Eurodollar yields. *SIZE* is the market value of total assets, estimated as (share price (Item #199) x outstanding shares (Item#54) + book value of total assets (Item#6) – book value of equity (Item#60)). *LSIZE* is the natural logarithm of *SIZE*. *LSIZE2* is the square of *LSIZE*. *ASSET_MAT* is asset maturity and computed as (gross property, plant, and equipment (Item#7)/total assets (Item#6)) x (gross property, plant, and equipment (Item#7)/depreciation expense (Item#14)) + (current assets (Item#4)/total assets (Item#6)) x (current assets (Item#4)/cost of goods sold (Item#41)). *OWN* is the CEO's stock ownership excluding options (SHROWN in ExecuComp) scaled by the number of shares outstanding (SHRSOUT in ExecuComp). *M/B* is the market-to-book ratio, computed as *SIZE* divided by book value of total assets (Item#6). *ABNEARN* is abnormal earnings, computed as (earnings in year t+*1* (Item#20) – earnings in year *t*)/(share price (Item#199) x outstanding shares (Item#54) in year t). *ZSCORE_DUM* is equal to one if Altman's Z-score is greater than 1.81, and zero otherwise. Altman's Z-score is computed as 3.3*Item#178/Item#6 + 1.2*(Item#4-Item#5)/Item#6 + Item#12/Item#6 + 0.6*Item#199*Item#25 / (Item#9 +Item#34) + 1.4*Item#36/Item#6. Coefficients are based on nonlinear GMM. Issuer fixed effects are implemented. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Monthly yield spreads

Independent variables	System 1				System 2			
	Dependent variables				Dependent variables			
	SPREAD		*LMAT*		*SPREAD*		*LMAT*	
	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value
Intercept	4.1469***	0.000	9.1272***	0.000	1.0419	0.576	6.946***	0.002
LMAT	2.2133***	0.001			3.5634***	0.001		
SPREAD			0.0686***	0.004			0.0577**	0.011
LPRCSEN	-0.2066***	0.000	0.1257***	0.000	3.6567***	0.001	0.1713***	0.000
LVOLSEN	0.2694***	0.001	-0.2593***	0.000	-2.8214	0.112	-0.2449***	0.000
LPRCSEN x LMAT					-1.5162***	0.001		
LVOLSEN x LMAT					1.199*	0.093		
STD_RET	0.5529***	0.000	-0.0408*	0.06	0.5783***	0.000	-0.0369*	0.083
AVG_RET	-0.4044**	0.024			-0.5075**	0.011		
RATING	-0.2231***	0.000			-0.2598***	0.000		
ROS	-3.1695***	0.000			-3.7929***	0.001		
LEVERAGE	1.1697	0.139	-0.3622	0.111	0.728	0.441	-0.1626	0.477
INTCOVERAGE	-0.2954***	0.001			-0.3695***	0.001		
COUPON	-0.09	0.205			-0.0555	0.466		
ILLIQUIDITY	0.249**	0.013			0.0053	0.969		
ISSUE_SIZE	-0.0367	0.497			-0.0378	0.524		
BENCHMARK_TREAS	-0.7264***	0.01			-0.7164**	0.018		
YLDCRV_SLOPE	-0.3539***	0.000	0.1158***	0.000	-0.3657***	0.000	0.1179***	0.000
EURO_TREAS_SPREAD	-0.1483	0.226			-0.178	0.191		
LSIZE			-1.0159***	0.005			-0.4725	0.291
LSIZE2			0.0326*	0.061			0.0004	0.986
ASSET_MAT			-0.0159***	0.000			-0.0173***	0.000
OWN			0.3056	0.83			-2.8691	0.196
M/B			0.0891***	0.000			0.1244***	0.000
ABNEARN			-0.1186	0.175			-0.1322	0.141
ZSCORE_DUM			0.0103	0.855			0.0285	0.609

Table IA.XIII (Continued)

Panel B: Annual yield spreads								
Independent variables	System 1				System 2			
	Dependent variables				Dependent variables			
	SPREAD		*LMAT*		*SPREAD*		*LMAT*	
	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value
Intercept	3.3335**	0.019	7.8885**	0.028	-2.0676	0.56	2.9572	0.51
LMAT	1.789***	0.009			1.3422	0.157		
SPREAD			0.1523**	0.01			0.1476**	0.029
LPRCSEN	-0.2018***	0.008	0.1258**	0.02	4.6292**	0.025	0.1423**	0.03
LVOLSEN	0.3726***	0.002	-0.2093***	0.001	-3.9563	0.167	-0.1744**	0.012
LPRCSEN x LMAT					-1.8457**	0.023		
LVOLSEN x LMAT					1.6404	0.16		
STD_RET	0.4563***	0.000	-0.0715*	0.06	0.52***	0.000	-0.0712*	0.091
AVG_RET	-0.0192	0.932			-0.6736*	0.066		
RATING	-0.1044*	0.061			-0.1142	0.107		
ROS	-3.4999***	0.005			-3.3946**	0.015		
LEVERAGE	0.603	0.545	-0.2961	0.422	1.2471	0.329	-0.0924	0.799
INTCOVERAGE	-0.2578*	0.063			-0.534**	0.015		
COUPON	-0.0433	0.53			0.1766	0.139		
ILLIQUIDITY	0.4584***	0.002			0.0968	0.713		
ISSUE_SIZE	-0.0244	0.667			0.0153	0.883		
BENCHMARK_TREAS	-0.5799*	0.068			0.1219	0.732		
YLDCRV_SLOPE	-0.4839***	0.009	0.1099***	0.000	-0.122	0.575	0.1138***	0.000
EURO_TREAS_SPREAD	-1.3914**	0.04			-0.4313	0.571		
LSIZE			-0.7713	0.248			0.3018	0.736
LSIZE2			0.0196	0.534			-0.0387	0.389
ASSET_MAT			-0.0133**	0.028			-0.0103	0.25
OWN			-1.0735	0.666			-2.9141	0.447
M/B			0.0933**	0.034			0.1831**	0.016
ABNEARN			0.0284	0.845			0.003	0.984
ZSCORE_DUM			-0.0628	0.49			-0.0241	0.853

Table IA.XIV
Relation between Corporate Bond Yield Spreads and CEO Portfolio Price/Volatility Sensitivities - Robustness Test Based on Footnote #29

This table examines the pricing of managerial incentives into corporate bond spreads by jointly estimating bond yield, maturity, and leverage. *LMAT* is the natural logarithm of the remaining life of the bond. Yield spread (*SPREAD*) is the difference between yield-to-maturity and the interpolated Treasury yield with corresponding maturity (in % terms). *LPRCSEN* and *LVOLSEN* are the logarithmic transformation of *PRCSEN and VOLSEN, respectively*. *PRCSEN* is the change in value of the CEO's stock option and common stock portfolio due to a 1% change in the price of the firm's common stock (in 100 thousands). *VOLSEN* is the change in value of the CEO's stock option portfolio due to a 1% change in the annualized standard deviation of the firm's stock returns (in 100 thousands). *STD_RET* is the standard deviation of daily returns over preceding 180 days. *AVG_RET* is the average daily return over the preceding 180 days. *RATING* is the bond rating from 1 to 19 (1 for CCC- rated bonds and 19 for AAA rated bonds). *ROS* is the ratio of operating income before depreciation (Item #13) to sales (Item #12). *LEVERAGE* is long-term debt (Item #9) divided by the market value of total assets, estimated as (share price (Item #199) x outstanding shares (Item#54) + book value of total assets (Item#6) – book value of equity (Item#60)). *INTCOVERAGE* is the logarithmic transformation of the pretax interest coverage ratio (*ln*(1+[Item #178+Item #15]/Item #15)). *COUPON* is the coupon rate of the issue. *ILLIQUIDITY* is the proportion of days with zero bond returns over the preceding 180 days. *ISSUE_SIZE* is the natural logarithm of the face value of the bond (in $millions). *BENCHMARK_TREAS* is the Treasury rate corresponding to bond's maturity. *YLDCRV_SLOPE* is the difference between 10-year and 2-year Treasury rates. *EURO_TREAS_SPREAD* is the difference between 3-month Treasury bill and Eurodollar yields. *SIZE* is the market value of total assets, estimated as (share price (Item #199) x outstanding shares (Item#54) + book value of total assets (Item#6) – book value of equity (Item#60)). *LSIZE* is the natural logarithm of *SIZE*. *LSIZE2* is the square of *LSIZE*. *ASSET_MAT* is asset maturity and computed as (gross property, plant, and equipment (Item#7)/total assets (Item#6)) x (gross property, plant, and equipment (Item#7)/depreciation expense (Item#14)) + (current assets (Item#4)/total assets (Item#6)) x (current assets (Item#4)/cost of goods sold (Item#41)). *OWN* is the CEO's stock ownership excluding options (SHROWN in ExecuComp) scaled by the number of shares outstanding (SHRSOUT in ExecuComp). *M/B* is the market-to-book ratio, computed as *SIZE* divided by book value of total assets (Item#6). *ABNEARN* is abnormal earnings, computed as (earnings in year *t*+1 (Item#20) – earnings in year *t*)/(share price (Item#199) x outstanding shares (Item#54) in year *t*). *ZSCORE_DUM* is equal to one if Altman's Z-score is greater than 1.81, and zero otherwise. Altman's Z-score is computed as 3.3*Item#178/Item#6 + 1.2*(Item#4-Item#5)/Item#6 + Item#12/Item#6 + 0.6*Item#199*Item#25 / (Item#9 +Item#34) + 1.4*Item#36/Item#6. *FIX_ASSET* is the ratio of net property, plant, and equipment (Item #8) to total assets (Item #6). *NOL_DUM* is equal to one if the firm has operating loss carryforwards (Item #52), and zero otherwise. *ITC_DUM* is equal to one if the firm has an investment tax credit (Item #51), and zero otherwise. Coefficients are based on nonlinear GMM. Issuer fixed effects are implemented. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Main effects

Independent variables	Dependent variables					
	SPREAD		*LMAT*		*LEVERAGE*	
	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value
Intercept	4.0077***	0.000	11.6687***	0.000	0.955***	0.000
LMAT	1.6058***	0.000			-0.0203***	0.000
SPREAD			0.3247***	0.000	0.0419***	0.000
LEVERAGE	2.4144***	0.000	-8.9586***	0.000		
LPRCSEN	-0.0767***	0.000	-0.0282***	0.001	-0.0239***	0.000
LVOLSEN	-0.0114	0.542	-0.0662***	0.000	0.0271***	0.000
STD_RET	0.4408***	0.000	-0.1352***	0.000	-0.0167***	0.000
AVG_RET	-0.4534***	0.000				
RATING	-0.1961***	0.000				
ROS	-2.8047***	0.000			0.0293***	0.000
INTCOVERAGE	-0.268***	0.000				
COUPON	-0.0654***	0.000				
ILLIQUIDITY	0.1078***	0.000				
ISSUE_SIZE	-0.0491***	0.000				
BENCHMARK_TREAS	-0.5847***	0.000				
YLDCRV_SLOPE	-0.2401***	0.000	0.1533***	0.000		
EURO_TREAS_SPREAD	-0.1678***	0.000				
LSIZE			-0.8059***	0.000	-0.0672***	0.000
LSIZE2			0.0082***	0.006		
ASSET_MAT			-0.01***	0.000		
OWN			5.6012***	0.000	1.2048***	0.000
M/B			-0.0965***	0.000	-0.0109***	0.000
ABNEARN			0.5166***	0.000	0.0708***	0.000
ZSCORE_DUM			-0.3551***	0.000		
FIX_ASSET					-0.0365***	0.000
NOL_DUM					0.0162***	0.000
ITC_DUM					-0.0149***	0.000

Table IA.XIV (Continued)

Panel B: Interaction effects						
Independent variables	Dependent variables					
	SPREAD		*LMAT*		*LEVERAGE*	
	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value
Intercept	6.5792***	0.000	0.7038***	0.000	3.1388***	0.000
LMAT	-1.2256***	0.000			-0.2543***	0.000
SPREAD			0.0741***	0.000	0.0478***	0.000
LEVERAGE	1.1288***	0.001	-2.2258***	0.000		
LPRCSEN	2.2429***	0.000	0.0705***	0.000	-0.0019	0.379
LVOLSEN	-4.2363***	0.000	-0.1797***	0.000	0.0001	0.968
LPRCSEN x LMAT	-0.9614***	0.000				
LVOLSEN x LMAT	1.724***	0.000				
STD_RET	0.5674***	0.000	0.0009	0.745	-0.0063***	0.000
AVG_RET	-1.1***	0.000				
RATING	-0.2957***	0.000				
ROS	-2.1311***	0.000			-0.1123***	0.000
INTCOVERAGE	-0.5577***	0.000				
COUPON	0.1312***	0.000				
ILLIQUIDITY	0.1039***	0.002				
ISSUE_SIZE	-0.0269***	0.006				
BENCHMARK_TREAS	0.3197***	0.000				
YLDCRV_SLOPE	-0.0097	0.662	0.1183***	0.000		
EURO_TREAS_SPREAD	-0.4875***	0.000				
LSIZE			0.7209***	0.000	-0.2278***	0.000
LSIZE2			-0.0505***	0.000		
ASSET_MAT			-0.0015***	0.000		
OWN			0.4993***	0.003	1.3056***	0.000
M/B			0.1035***	0.000	0.0015	0.586
ABNEARN			0.0278*	0.072	0.0997***	0.000
ZSCORE_DUM			-0.1465***	0.000		
FIX_ASSET					-0.246***	0.000
NOL_DUM					-0.0201***	0.000
ITC_DUM					-0.0686***	0.000

Table IA.XV
Relation between Corporate Bond Yield Spreads and CEO Portfolio Price/Volatility Sensitivities - Robustness Test Based on Footnote #30

This table examines the pricing of managerial incentives into corporate bond spreads. *LMAT* is the natural logarithm of the remaining life of the bond using nonlinear 2SLS (Panel A) and 3SLS (Panel B). Yield spread (*SPREAD*) is the difference between yield-to-maturity and the interpolated Treasury yield with corresponding maturity (in % terms). *LPRCSEN* and *LVOLSEN* are the logarithmic transformation of *PRCSEN and VOLSEN, respectively*. *PRCSEN* is the change in value of the CEO's stock option and common stock portfolio due to a 1% change in the price of the firm's common stock (in 100 thousands). *VOLSEN* is the change in value of the CEO's stock option portfolio due to a 1% change in the annualized standard deviation of the firm's stock returns (in 100 thousands). *STD_RET* is the standard deviation of daily returns over preceding 180 days. *AVG_RET* is the average daily return over the preceding 180 days. *RATING* is the bond rating from 1 to 19 (1 for CCC- rated bonds and 19 for AAA rated bonds). *ROS* is the ratio of operating income before depreciation (Item #13) to sales (Item #12). *LEVERAGE* is long-term debt (Item #9) divided by the market value of total assets, estimated as (share price (Item #199) x outstanding shares (Item#54) + book value of total assets (Item#6) – book value of equity (Item#60)). *INTCOVERAGE* is the logarithmic transformation of the pretax interest coverage ratio (*ln*(1+[Item #178+Item #15]/Item #15)). *COUPON* is the coupon rate of the issue. *ILLIQUIDITY* is the proportion of days with zero bond returns over the preceding 180 days. *ISSUE_SIZE* is the natural logarithm of the face value of the bond (in $millions). *BENCHMARK_TREAS* is the Treasury rate corresponding to bond's maturity. *YLDCRV_SLOPE* is the difference between 10-year and 2-year Treasury rates. *EURO_TREAS_SPREAD* is the difference between 3-month Treasury bill and Eurodollar yields. *SIZE* is the market value of total assets, estimated as (share price (Item #199) x outstanding shares (Item#54) + book value of total assets (Item#6) – book value of equity (Item#60)). *LSIZE* is the natural logarithm of *SIZE*. *LSIZE2* is the square of *LSIZE*. *ASSET_MAT* is asset maturity and computed as (gross property, plant, and equipment (Item#7)/total assets (Item#6)) x (gross property, plant, and equipment (Item#7)/depreciation expense (Item#14)) + (current assets (Item#4)/total assets (Item#6)) x (current assets (Item#4)/cost of goods sold (Item#41)). *OWN* is the CEO's stock ownership excluding options (SHROWN in ExecuComp) scaled by the number of shares outstanding (SHRSOUT in ExecuComp). *M/B* is the market-to-book ratio, computed as *SIZE* divided by book value of total assets (Item#6). *ABNEARN* is abnormal earnings, computed as (earnings in year *t*+1 (Item#20) – earnings in year *t*)/(share price (Item#199) x outstanding shares (Item#54) in year *t*). *ZSCORE_DUM* is equal to one if Altman's Z-score is greater than 1.81, and zero otherwise. Altman's Z-score is computed as 3.3*Item#178/Item#6 + 1.2*(Item#4-Item#5)/Item#6 + Item#12/Item#6 + 0.6*Item#199*Item#25 / (Item#9 +Item#34) + 1.4*Item#36/Item#6. Issuer fixed effects are implemented. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Nonlinear 2SLS

Independent variables	System 1				System 2			
	Dependent variables				Dependent variables			
	SPREAD		*LMAT*		*SPREAD*		*LMAT*	
	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value
Intercept	5.431***	0.000	4.9098***	0.000	4.3976***	0.000	4.9098***	0.000
LMAT	1.4524***	0.000			1.7376***	0.000		
SPREAD			0.0811***	0.000			0.0811***	0.000
LPRCSEN	-0.1258***	0.000	0.1205***	0.000	2.6642***	0.000	0.1205***	0.000
LVOLSEN	0.1406***	0.000	-0.1771***	0.000	-3.2306***	0.000	-0.1771***	0.000
LPRCSEN x LMAT					-1.1236***	0.000		
LVOLSEN x LMAT					1.3582***	0.000		
STD_RET	0.5963***	0.000	-0.0227***	0.000	0.5914***	0.000	-0.0227***	0.000
AVG_RET	-0.6704***	0.000			-0.7238***	0.000		
RATING	-0.2705***	0.000			-0.284***	0.000		
ROS	-2.7265***	0.000			-2.3886***	0.000		
LEVERAGE	1.0725***	0.000	-0.5978***	0.000	1.2283***	0.000	-0.5978***	0.000
INTCOVERAGE	-0.4401***	0.000			-0.5047***	0.000		
COUPON	-0.0346***	0.000			-0.0277***	0.000		
ILLIQUIDITY	0.2192***	0.000			0.1181***	0.000		
ISSUE_SIZE	-0.0134**	0.013			-0.0115**	0.045		
BENCHMARK_TREAS	-0.5966***	0.000			-0.5492***	0.000		
YLDCRV_SLOPE	-0.2857***	0.000	0.0919***	0.000	-0.2932***	0.000	0.0919***	0.000
EURO_TREAS_SPREAD	-0.3697***	0.000			-0.3006***	0.000		
LSIZE			-0.0286	0.609			-0.0286	0.609
LSIZE2			-0.0212***	0.000			-0.0212***	0.000
ASSET_MAT			-0.0135***	0.000			-0.0135***	0.000
OWN			-1.8234***	0.000			-1.8234***	0.000
M/B			0.1357***	0.000			0.1357***	0.000
ABNEARN			-0.0506***	0.000			-0.0506***	0.000
ZSCORE_DUM			0.0833***	0.000			0.0833***	0.000

Table IA.XV (Continued)

Panel B: Nonlinear 3SLS								
Independent variables	System 1				System 2			
	Dependent variables				Dependent variables			
	SPREAD		*LMAT*		*SPREAD*		*LMAT*	
	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value
Intercept	3.5387***	0.000	6.0525***	0.000	1.9975***	0.000	6.2402***	0.000
LMAT	3.6162***	0.000			3.8098***	0.000		
SPREAD			0.0784***	0.000			0.0823***	0.000
LPRCSEN	-0.2243***	0.000	0.0688***	0.000	4.1146***	0.000	0.1379***	0.000
LVOLSEN	0.3499***	0.000	-0.1909***	0.000	-4.8274***	0.000	-0.2075***	0.000
LPRCSEN x LMAT					-1.7413***	0.000		
LVOLSEN x LMAT					2.0736***	0.000		
STD_RET	0.509***	0.000	-0.018***	0.000	0.5136***	0.000	-0.0231***	0.000
AVG_RET	-0.398***	0.000			-0.528***	0.000		
RATING	-0.2365***	0.000			-0.2652***	0.000		
ROS	-2.7568***	0.000			-2.3387***	0.000		
LEVERAGE	1.2518***	0.000	-0.8292***	0.000	1.4951***	0.000	-0.6027***	0.000
INTCOVERAGE	-0.3941***	0.000			-0.4788***	0.000		
COUPON	-0.1576***	0.000			-0.127***	0.000		
ILLIQUIDITY	0.2167***	0.000			0.0404***	0.000		
ISSUE_SIZE	-0.0639***	0.000			-0.0456***	0.000		
BENCHMARK_TREAS	-1.0858***	0.000			-0.939***	0.000		
YLDCRV_SLOPE	-0.5511***	0.000	0.098***	0.000	-0.525***	0.000	0.0947***	0.000
EURO_TREAS_SPREAD	-0.2291***	0.000			-0.158***	0.000		
LSIZE			-0.4238***	0.000			-0.3319***	0.000
LSIZE2			0.0071***	0.002			-0.0041*	0.098
ASSET_MAT			-0.0163***	0.000			-0.0171***	0.000
OWN			1.2259***	0.000			-3.2006***	0.000
M/B			0.0957***	0.000			0.1208***	0.000
ABNEARN			-0.2066***	0.000			-0.1868***	0.000
ZSCORE_DUM			-0.0485***	0.000			0.0111*	0.082

Table IA.XVI
Relation between Credit Ratings and CEO Portfolio Price/Volatility Sensitivities - Robustness Test Based on Footnote #32

This table shows the relation between managerial incentives and credit ratings. Panel A shows how the dependent variables *RATINGCODE1* and *RATINGCODE2* are mapped from credit ratings. Panels B and C show ordered probit regression results for main effect and interaction effect models. Probit regressions are estimated using two samples. The first sample draws rating observations from COMPUSTAT, where Item#280 is used to construct *RATINGCODE1* and *RATINGCODE2*. The second sample draws rating observations for new debt issues recorded in Fixed Income Securities Database. The sample period is from 1992 to 2005. *LPRCSEN* and *LVOLSEN* are the logarithmic transformation of *PRCSEN and VOLSEN, respectively*. *PRCSEN* is the change in value of the CEO's stock option and common stock portfolio due to a 1% change in the price of the firm's common stock (in 100 thousands). *VOLSEN* is the change in value of the CEO's stock option portfolio due to a 1% change in the annualized standard deviation of the firm's stock returns (in 100 thousands). *LEVERAGE* is total debt (Item#34 +Item#9) divided total assets (Item#6). *SUBORDINATION* is the subordinated proportion of long-term debt (Item#80 / Item#9). *ROA* is the ratio of operating income before depreciation (Item #13) to total assets (Item #6). *LSIZE* is the natural logarithm of total assets (Item#6). *AGE* is the natural logarithm of the firm's age since it was first recorded in COMPUSTAT. *STD_RET* is the standard deviation of monthly returns over preceding fiscal year. *AVG_RET* is the average monthly returns over the preceding fiscal year. Statistical significance is based on Rogers (1993) firm-level clustered standard errors. For brevity cutoff levels of the ordered probit model are not reported. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Rating classifications

Credit rating conventions		Mapped dependent variables	
S&P Convention	Moody's Convention	*RATINGCODE1*	*RATINGCODE2*
AAA	Aaa	18	7
AA+	Aa1	17	6
AA	Aa2	16	6
AA-	Aa3	15	6
A+	A1	14	5
A	A2	13	5
A-	A3	12	5
BBB+	Baa1	11	4
BBB	Baa2	10	4
BBB-	Baa3	9	4
BB+	Ba1	8	3
BB	Ba2	7	3
BB-	Ba3	6	3
B+	B1	5	2
B	B2	4	2
B-	B3	3	2
CCC+	Caa1	2	1
CCC	Caa2	1	1

Panel B: Compensation and credit ratings

Independent variables	Estimation samples							
	Existing issuer ratings (COMPUSTAT)				New issue ratings (FISD)			
	Dependent variables				Dependent variables			
	RATINGCODE1		*RATINGCODE2*		*RATINGCODE1*		*RATINGCODE2*	
	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value
LPRCSEN	-0.0033	0.927	-0.0142	0.701	0.073	0.541	0.0607	0.665
LVOLSEN	-0.1754***	0.004	-0.1896***	0.003	-0.3089*	0.067	-0.4577**	0.018
LEVERAGE	-1.8399***	0.000	-1.9959***	0.000	-3.2098***	0.001	-4.0884***	0.000
SUBORDINATION	-0.9491***	0.000	-1.0383***	0.000	-5.7588***	0.001	-7.4812***	0.000
ROA	8.9111***	0.000	9.0164***	0.000	5.4542***	0.000	7.4594***	0.000
LSIZE	0.4962***	0.000	0.5086***	0.000	0.5553***	0.000	0.6856***	0.000
AGE	0.2204***	0.000	0.2436***	0.000	0.3314**	0.020	0.6844***	0.000
STD_RET	-8.6062***	0.000	-8.9446***	0.000	-6.1833**	0.026	-6.1539*	0.067
AVG_RET	-1.1967**	0.049	-1.1158*	0.083	2.4334	0.497	1.7378	0.672
Pseudo-R^2	0.191		0.297		0.151		0.318	
Prob > χ^2	0.000		0.000		0.000		0.000	
N	4,082		4,082		373		373	

Table IA.XVI (Continued)

Panel C: Compensation-maturity interaction								
Independent variables	Estimation samples							
	Existing issuer ratings (COMPUSTAT)				New issue ratings (FISD)			
	Dependent variables				Dependent variables			
	RATINGCODE1		*RATINGCODE2*		*RATINGCODE1*		*RATINGCODE2*	
	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value	Estimate	*p*-value
LPRCSEN	0.0324	0.515	0.023	0.668	0.2364	0.246	0.2448	0.318
LVOLSEN	-0.2968***	0.001	-0.3313***	0.001	-1.1767***	0.000	-1.4582***	0.000
ST3	0.3557*	0.06	0.2919	0.15	0.1553	0.836	0.2242	0.777
ST3xLPRCSEN	-0.1301	0.131	-0.1215	0.189	-0.4776	0.24	-0.556	0.216
ST3xLVOLSEN	0.2883*	0.082	0.3388*	0.066	2.2883***	0.001	2.5021***	0.003
LEVERAGE	-1.8782***	0.000	-2.0814***	0.000	-3.867***	0.000	-5.1273***	0.000
SUBORDINATION	-0.8516***	0.000	-0.9517***	0.000	-6.6393***	0.000	-8.9933***	0.000
ROA	9.1287***	0.000	9.0117***	0.000	5.405***	0.009	7.0875***	0.002
LSIZE	0.4981***	0.000	0.5039***	0.000	0.5862***	0.000	0.7446***	0.000
AGE	0.2045***	0.000	0.2285***	0.000	0.1582	0.328	0.475***	0.006
STD_RET	-8.7441***	0.000	-9.1326***	0.000	-7.3803**	0.021	-7.0881*	0.094
AVG_RET	-1.0293	0.117	-0.9766	0.157	2.1115	0.568	0.3736	0.932
Pseudo-R^2	0.190		0.294		0.185		0.369	
Prob > χ^2	0.000		0.000		0.000		0.000	
N	3,503		3,503		317		317	

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