The Coinsurance Effect and Changes in Excess Value Around Diversification

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ABSTRACT

This study identifies single segment firms that choose to acquire additional business segments and divides the sample of firms based on whether their risk increases or decreases after diversification. This allows empirical tests of the coinsurance effect by studying the relation of the change in excess value with changes in various control variables, leverage, and firm risk. The findings show that changes in total assets and Tobin's Q have a positive and significant relationship with the change in excess value for single segment firms that choose to diversify. The reported results do not support the coinsurance effect.

Keywords: Diversification discount, coinsurance effect, excess value, business segments, wealth transfer.

INTRODUCTION

The extant literature suggests that there is a diversification discount. For example, Lang and Stulz (1994) show that multi-segment firms have lower Tobin's q than single-segment firms, while Berger and Ofek (1995), Servaes (1996), and Matsusaka and Wang (2015) report negative excess value for diversified firms. There are several potential explanations for the diversification discount. Some studies attribute the diversification discount to inefficient internal capital markets in diversified firms. For example, Berger and Ofek (1995) document evidence that multi-segment firms' cross-subsidization of segments with poor growth opportunities can partially explain the lower excess value of diversified firms. Papers such as Rajan, Servaes, and Zingales (2000), Scharfstein and Stein (2000), and Ozbas and Scharfstein (2010) argue that internal power struggles and rent seeking within a diversified firm can lead to investment distortions between divisions which negatively impact firm value. Graham, Lemmon, and Wolf (2002) show that diversifying firms often acquire low-valued assets when buying firms in another industry which reduces the firm's excess value. Hoechle, Schmid, Walter, and Yermack (2012) indicate that a portion of the diversification discount can be explained by poor corporate governance.

An alternative explanation for the diversification discount depends upon firm risk. Imperfect correlation between the cash flows of different segments could lead to lower firm risk for diversified firms than for focused firms. Since the equity position may be viewed as a call option in leverage firms, option pricing models such as Black and Scholes (1973) suggest that the adoption of projects which reduce the variance of the firm's income distribution (such as diversification) may induce a wealth transfer from shareholders to bondholders. This wealth transfer from shareholders to bondholders is known as the coinsurance effect. Since most studies calculate excess value by adding the book value of debt and the market value of equity, the excess value would be downward biased for diversified firms.

Mansi and Reeb (2002) use the market value of both debt and equity to compute excess value. They find that diversification is insignificantly related to excess value, and that the diversification discount is insignificantly different from zero. However, they focus on the relationship between leverage and excess value without controlling for firm risk. They do not examine how diversification affects firm risk or how firm risk affects excess value. Since it is the change in risk that precipitates the wealth transfer, controlling for risk could have important implications for results. Unlike Mansi and Reeb (2002), Glaser and Mueller (2010) and Ammann, Hoechle and Schmid (2012) find the diversification discount is still significant after considering the market value of debt of diversified firms.

This paper extends research in this area by adopting a different approach. Instead of comparing the excess value of all multi-segment firms with that of single segment firms, a sample of single segment firms is examined at the time that they add new segments and become multi-segment. These firms are analyzed to determine how firm risk and leverage change when the firms diversify, and how these changes impact excess value. Most previous studies implicitly assume that diversification decreases firm risk. It is likely that some firms may experience a decrease in firm risk after they diversify, however, if the new business segment is riskier than the existing one, firm risk may increase after diversification. In this case, there should be a wealth transfer from bondholders to shareholders. Thus, firms that diversify from single segment to multiple segment firms are divided into two sub-samples based on whether firm risk increases or decreases around the diversification event. The relationship between the change in excess value and the changes in leverage, firm risk, and their interactive term are then examined. According to

the coinsurance effect, if firm risk decreases after diversification, there should be a wealth transfer from shareholders to bondholders. If firm risk increases after diversification, there should be a wealth transfer from bondholders to shareholders. The results show that mean excess value is positive before diversification and negative after diversification for both the increased risk and decreased risk samples. Further, regressions show there is a significant relationship between the change in excess value and several control variables included in the study. However, the proxy for the coinsurance effect has no significant relationship to the change in excess value for the sub-sample of diversifying firms that experience an increase in risk nor the sub-sample of firms that have lower risk after diversification. Overall, the results from these tests provide little support for the coinsurance effect.

DATA AND METHODOLOGY

As in Berger and Ofek (1995), this study calculates excess value as the logarithm of the ratio of the firm's actual value to its imputed value. The actual value is the market value of equity plus the book value of debt. The imputed value is the sum of the imputed stand-alone values for each business segment. To calculate the imputed value of each business segment, the segment's sales are multiplied by the median market-to-sales ratio of the single-segment firms that are in the same industry as that business segment. By construction, the median excess value of single segment firms should be zero since the actual value is the same as the imputed value. Most previous studies report negative mean and median excess values for multi-segment firms which implies that the total value of the segments of diversified firms operated as stand-alone firms would be expected to be higher than the actual value of the diversified firm.

Data is gathered from the Compustat Industry Segment database for the years 1984 to 2019. Following Berger and Ofek (1995), firm-year observations are excluded when firm sales are less than $20 million, firms do not report the value for total capital or four-digit SICs for all their segments, and firms have segments in the financial services industry (SIC 6000-6999). In addition, firm-year observations are excluded when the sum of segment sales is not within ninety-nine percent of the reported sales of the firm, the sum of segment assets is not within seventy-five percent of the reported assets of the firm, and firms do not have all the data available to compute the market-to-book ratio. The final sample consists of a total of 67,649 firm-year observations. 3,969 of these observations represent single segment firms that choose to diversify. The remaining 63,680 observations are firms that choose to remain as focused firms.

The coinsurance effect indicates leverage should have different effects on shareholder value based on whether firm risk increases or decreases. When firm risk decreases, excess value should decrease due to a wealth transfer from shareholders to bondholders. However, when firm risk increases, excess value should increase due to a wealth transfer from bondholders to shareholders. To test the coinsurance effect, the sample is divided based on whether firm risk increases or decreases around diversification. Excess value is calculated for the samples and regression analysis is used to assess the explanatory power of the coinsurance effect. Several versions of the following full regression are estimated for these two sub-groups.

$$\begin{aligned} \Delta EXVAL = {} & \beta_0 + \beta_1(\Delta LSIZE) + \beta_2(\Delta EBIT/SALES) + \beta_3(\Delta CAPX/SALES) \\ & + \beta_4(\Delta RND/SALES) + \beta_5(\Delta TOBINQ) + \beta_6(\Delta LEVER) + \beta_7(\Delta RISK) \\ & + \beta_8(\Delta LEVER * \Delta RISK) + \varepsilon \end{aligned}$$

The change in excess value around diversification serves as the dependent variable in regressions to ascertain its relationship to the various independent variables. Following previous studies, the change in the number of business segments is included in the regression. Earlier studies show that an increase in the number of business segments (NSEG) results in lower excess value, while a decrease in the number of business segments increases excess value (e.g., Berger and Ofek (1995), Lang and Stulz (1994), Comment and Jarrell (1995), John and Ofek (1995), Berger and Ofek (1999), and Matsusaka and Wang (2015)).

The regressions also include several control variables for firm characteristics such as size, earnings, capital expenditures, research and development expenditures, and growth opportunities. Several of these variables have been shown to be significantly related to excess value, but the diversification discount remains significant after their inclusion. Control variables used in this study include: LSIZE (the natural logarithm of total assets); EBIT/SALES (earnings before interest and taxes to sales); and CAPX/SALES (capital expenditures to sales). RND/SALES (research and development expenditures to sales) and TOBINQ (Tobin's q) are included as proxies for growth opportunities of firms. LEVERAGE (total of short-term and long-term interest-bearing debt to total assets) is included since Mansi and Reeb (2002) show that leverage plays an important role in explaining excess value and diversification discount.

Mansi and Reeb (2002) use leverage to proxy for the coinsurance effect, but this approach has issues. First, leverage can impact firm value in both positive and negative manners. For example, higher leverage can benefit a firm by increasing interest tax shields or lowering agency costs. Leverage can also have a detrimental impact on firm value through higher expected bankruptcy costs or higher expected investor returns. Second, the change in firm risk is an important consideration for the coinsurance effect. As a result, two proxies for firm risk (RISK) are considered in this paper. Based on earlier studies, the first measure of risk is the standard deviation of monthly returns (STD_RET). Similar to Kini, Kracaw, and Mian (2004), the second risk measure is the standard deviation of the return on assets (STD_ROA) which is calculated as operating income before depreciation divided by total assets. The interactive term for LEVERAGE and RISK becomes the proxy for the coinsurance effect since it captures both the leverage and risk levels for each firm.

DESCRIPTIVE STATISTICS

Table 1 shows descriptive statistics for excess value, total assets, income to sales, capital expenditures to sales, R&D expenditures to sales, Tobin's Q, and leverage for single segment firms that choose to diversify and single segment firms that choose to remain focused. The sample consists of 67,649 firm-year observations. 3,969 are firms that diversify, and 63,680 observations are firms that remain focused.

The results show that the mean excess value for diversifying firms is significantly higher than that of firms that stay focused. As expected, the median excess value for both diversifying firms and firms that remain focused is zero. The results indicate that larger firms with higher profitability are more likely to add business segments. Diversifying firms are significantly larger with their median assets being more than 50% larger than the median assets for firms that remain focused. The mean profitability ratio for diversifying firms is about double that for firms that remain focused. Previous studies such as Berger and Ofek (1995) and Guo and Best (2022) find that multi-segment firms have lower excess value and higher leverage ratios than single segment firms. The results in Table 1 show that single segment firms that choose to diversify have

different characteristics than those that are already diversified. Studies that use multi-segment firms to proxy for diversifying firms may have some issues.

Table 2 shows the impact of diversification for formerly single-segment firms. The results show that after diversifying, the firms have significantly lower excess value and reduced profitability ratios. The mean excess value for the firms is positive beforehand, but it becomes negative after diversification with the mean (median) excess value of 2.5% (0%) dropping to -11.6% (-12.6%). Before diversification, the firms all have one segment. After diversification, the median number of segments is two with the mean number of segments rising to 2.646 which indicates that some diversifying firms add more than one segment. Both the mean and median assets increase by more than 30% for diversifying firms. However, the firms' mean (median) profitability ratios decrease from 6.7% (7.8%) beforehand to 4.6% (6.4%) afterward, and the firms' capital expenditures also fall by a significant amount. The firms' mean and median Tobin's Q decreases significantly, while their leverage ratio is higher after diversification with a mean (median) ratio of 26.9% (24.7%) versus 22.9% (19.2%) beforehand.

Table 3 divides the single segment firms that choose to diversify into two sub-groups based on whether the risk level increases or decreases after diversification. The reported results are based on using the standard deviation of monthly returns (STD_RET) as the risk measure. There are a total of 3,246 firm-year observations of diversifying firms with this risk measure available. 1,441 observations belong to the subsample that have lower risk after diversification, while the remaining 1,805 observations belong to the subsample of firms that have higher risk after diversification. While multi-segment firms on average have lower risk than single segment firms, based on the market-based risk measure (STD_RET) there are more firms whose risk actually increased after diversifying from single segment firms to multi-segment firms than those who experienced a decrease in firm risk. The results show that prior to diversification, there are no significant differences between the sub-samples of firms with increased risk and the sub-sample of firms with decreased risk in terms of excess value, total assets, profitability and investment opportunities as proxied by Tobin's Q. The findings do show that diversifying firms that experience a risk decrease tend to carry less interest-bearing debt before diversification than those firms that experience a risk increase.

Table 4 displays descriptive statistics for post diversification values for the risk change based subsamples. After diversification there is no significant difference between the increased risk and decreased risk firms in regard to excess value, total assets, capital expenditures, and R&D expenditures. Firms with decreased risk after diversification have significantly more profit than firms with increased risk, with mean (median) EBIT/SALES of 6.1% (7.2%) for risk decrease firms and 4.2% (5.9%) for risk increase firms. The mean Tobin's Q for the risk decrease sample of firms is lower than for the risk increase sample, but the median Tobin's Q is higher for the decreased risk firms. As was true before diversification, the sample of firms whose risk decreases after diversification continue to have less leverage than increased risk sample.

The standard deviation of the return on assets (STD_ROA) for the firms is also used to separate the sample into firms whose risk increases or decreases after diversification. Data requirements associated with using STD_ROA limits the size of the sample to 1134 observations with roughly equal numbers of firms having risk increase versus decrease after diversifying. The results are not shown in tabular form since they are substantially equivalent to the ones reported using STD_RET as the risk measure. In the following section of the paper, regression analysis is shown using both risk measures.

MAIN RESULTS

The main purpose of this study is to test whether the coinsurance effect can explain the diversification discount. The primary tests are based on the previously presented regression model with excess value as the dependent variable. The leverage and risk interactive term in the mode serves as the coinsurance effect proxy. The model is estimated using data from firms that diversify from single segment to multiple segment firms during the period 1984-2019. The sample is divided into two subsamples based on whether firm risk increases or decreases after diversification since the coinsurance effect implies different impacts on excess value for the two sets of firms. The coinsurance effect implies that the subsample of firms that experience decreased firm risk following diversification should experience a wealth transfer from shareholders to bondholders. If the effect exists, the leverage and risk interactive term should be negative indicating lower excess value. For the sub-sample of firms whose risk increases, the coinsurance effect suggests there should be a wealth transfer from bondholders to shareholders, so the leverage and risk interactive term should be positive indicating higher excess value.

Results based on using STD_RET as the risk measure are presented in Table 5. Columns 1, 2, and 3 show results for the subsample of firms that experience an increase in risk after diversification, while columns 4, 5, and 6 display results for the subsample of firms that experience a decrease in risk after diversifying. It is notable that the changes in both firm size and Tobin's Q are highly significant and positively related to the change in excess value around diversification for both subsamples of firms. While firms on average tend to be bigger after diversification, those firms that have larger increases in assets have a positive impact on their excess value following diversifying events. Firms are likely to have fewer investment opportunities after diversification, but firms that experience a big improvement in growth opportunities also have a positive change in excess value.

Capital expenditures have a significant positive impact on the changes in excess value for the sub-sample of firms whose risk increases, but the relationship is not statistically significant for the sub-sample of firms whose risk decreases. Many studies show that the number of segments has a negative and significant relationship with the excess value of multi-segment firms. However, for this sample of single segment firms that choose to diversify, the coefficient for the change in the number of segments is negative, but it is not statistically significant. This suggests that there is no significant difference in the change in excess value for diversifying firms that add multiple segments versus firms that add only one segment. The change in leverage is only significant for the subsample of firms whose risk decreases, but it becomes insignificant after the interactive term of leverage and risk is included.

The coefficient for the interactive term of leverage and risk is positive for the sub-sample of diversifying firms that have higher risk after diversification, but the coefficient is negative for the sub-sample firms that have lower risk after diversification. The signs of the coefficients are consistent with the coinsurance effect hypothesis that an increase in firm risk causes a wealth transfer from bondholders to shareholders while a decrease in firm risk causes a wealth transfer from shareholders to bondholders. However, neither of the coefficients are statistically significant even though the study uses a relatively large sample of over 3,000 diversifying firms. The overall results do not support a significant coinsurance effect for firms with higher or lower risk after diversification.

To test the robustness of the regression results, an additional risk measure is used to repeat all the tests. The second risk measure is the standard deviation of return on assets which is

calculated using two years of quarterly data. The data requirements to calculate STD_ROA reduce the sample to just over 1,100 observations. The results shown in Table 6 are comparable to the results in Table 5. The changes in both the logarithm of total assets and Tobin's Q are positively and significantly related to the change in excess value around diversification. The coefficient for the change in the number of segments is negative, but the coefficients are not statistically significant. For the subsample of diversifying firms that have lower risk after diversification, profitability and R&D to sales are significantly positively related to excess value. The coefficients for the change in leverage are positive, but they are not significant in any of the regressions. As in the previous table, the coefficient for the leverage and risk interactive term is positive for firms that experience a risk increase and negative for firms that experience a risk decrease. However, the coefficients are not statistically significant for either subsample. Again, the results do not support a significant role for the coinsurance effect in explaining the change in excess value for diversifying firms.

CONCLUSION

Prior studies suggest that the coinsurance effect partially explains the diversification discount, but most of the studies at least implicitly assume that firm risk decreases after diversification. According to the coinsurance effect, a wealth transfer from shareholders to bondholders will negatively impact excess value for firms whose risk decreases following diversification. On the other hand, the coinsurance effect indicates a wealth transfer from bondholders to stockholders will positively impact excess value when firm risk increases following diversification. In this study, the coinsurance effect is examined using a sample of firms that diversify from single segment firms to multiple segment firms. Firms are divided into subsamples based on whether firm risk increases or decreases after diversification. Both market-based and accounting-based measures of risk are used to divide the sample. The interactive term between leverage and risk serves as the proxy for the coinsurance effect in regressions with the change in excess value as the dependent variable. Results show that the coefficient for the interactive term is negative when risk decreases after diversification, and positive when risk increases after diversification which is consistent with the coinsurance effect. However, the coefficients are not statistically significant which suggests that the coinsurance effect is not very powerful in explaining the cross-sectional variations of the changes in excess value in diversifying firms around diversification.

REFERENCES

Ammann, Manuel, Daniel Hoechle, and Markus Schmid, 2012, Is there really no conglomerate discount? Journal of Business Finance and Accounting 39(1-2), 264-288.

Berger, Philip and Eli Ofek, 1995, Diversification's effect on firm value. Journal of Financial Economics 37, 39-65.

Berger, Philip and Eli Ofek, 1999, Causes and effects of corporate refocusing programs, Review of Financial Studies 12, 311-345.

Black, Fisher, and Myron Scholes, 1973, The pricing of options and corporate liabilities, Journal of Political Economy 81, 637-654.

Comment, Robert, and Gregg Jarrell, 1995, Corporate focus and stock returns, Journal of Financial Economics 37, 67-87.

Daley, Lane, Vikas Mehrotra, and Ranjini Sivakumar, 1997, Corporate focus and value creation: Evidence from spinoffs, Journal of Financial Economics 45, (2), 257-281.

Glaser, Markus, and Sebastian Mueller, 2010, Is the diversification discount caused by the book value bias of debt? Journal of Banking and Finance 34, 2307-2317.

Graham, John R., Michael L. Lemmon, and Jack G. Wolf, 2002, Does corporate diversification destroy value, Journal of Finance 57, (2), 695-720.

Guo, Rong, and Ronald Best, 2022, A simultaneous examination of two competing explanations for the corporate diversification discount, Global Journal of Accounting and Finance 6, (2), 1-13.

Hoechle, Daniel, Markus Schmid, Ingo Walter, and David Yermack, 2012, How much of the diversification discount can be explained by poor corporate governance?, Journal of Financial Economics 103, (1), 41-60.

John, Kose and Eli Ofek, 1995, Asset sales and increase in focus, Journal of financial Economics 37, 105-126.

Kini, Omesh, William Kracaw, and Shehzad Mian, 2004, The nature of discipline by corporate takeovers, Journal of Finance 59, 1511-1552.

Lang, Larry, and Rene. Stulz, 1994, Tobin's q, corporate diversification, and firm performance, Journal of Political Economy 102, 1248-1280.

Mansi, Sattar A., and David M. Reeb, 2002, Corporate diversification: What gets discounted? Journal of Finance 57, 2167–2183.

Matsusaka, John G., and Yongxiang Wang, 2015, The effect of forced refocusing on the value of diversified business groups, University of Southern California, Working Paper.

Ozbas, Oguzhan, and David S. Scharfstein, 2010, Evidence on the dark side of internal capital markets, The Review of Financial Studies 23, (2), 581-599.

Rajan, Raghuram, Henri Servaes, and Luigi Zingales, 2000, The cost of diversity: The diversification discount and inefficient investment, Journal of Finance 60, 35-80.

Scharfstein, David S., and Jeremy C. Stein, 2000, The dark side of internal capital markets: Divisional rent-seeking and inefficient investment, Journal of Finance 55, 2537–2564.

Servaes, Henri, 1996, The value of diversification during the conglomerate merger wave, Journal of Finance 51, 1201-1225.

APPENDIX

Table 1: Summary Statistics for Diversifying and Focused Firms

Variable	**Firms that Diversify** (3,969 observations)		**Focused Firms** (63,680 observations)		**Difference** (Diversify-Focused)	
	Mean (Median)	**Std. Dev.**	**Mean (Median)**	**Std. Dev.**	**T-Stat**	**Z-Stat**
EXVAL	0.025 (0.000)	0.577	-0.007 (0.000)	0.596	3.39	3.17
ASSETS ($ Mil)	1,891.140 (266.150)	7,001.300	1,464.480 (174.190)	6,716.370	3.73	10.98
EBIT/SALES	0.067 (0.078)	0.194	0.029 (0.067)	0.335	11.27	7.48
CAPX/SALES	0.102 (0.043)	0.311	0.113 (0.041)	0.299	-2.11	2.93
R&D/SALES	0.044 (0.000)	0.105	0.066 (0.000)	0.224	-11.78	3.68
TOBINQ	1.663 (1.245)	1.331	1.635 (1.188)	1.458	1.28	3.85
LEVER	0.229 (0.192)	0.218	0.255 (0.208)	0.279	-6.94	-2.53

Table 2: Summary Statistics for Firms Before and After Diversification

Variable	**After Diversification** (3,969 observations)		**Before Diversification** (3,969 observations)		**Difference** (After-Before)	
	Mean (Median)	**Std. Dev.**	**Mean (Median)**	**Std. Dev.**	**T-Stat**	**Z-Stat**
EXVAL	-0.116 (-0.126)	0.613	0.025 (0.000)	0.577	-10.51	-11.34
NSEG	2.646 (2.000)	0.983	1.000 (1.000)	0.000	105.51	89.09
ASSETS ($ Mil)	2,577.100 (347.486)	10,144.170	1891.140 (266.150)	7001.300	3.51	5.50
EBIT/SALES	0.046 (0.064)	0.208	0.067 (0.078)	0.194	-4.78	-6.31
CAPX/SALES	0.087 (0.038)	0.189	0.102 (0.043)	0.311	-2.64	-4.39
R&D/SALES	0.043 (0.000)	0.117	0.044 (0.000)	0.105	-0.15	0.81
TOBINQ	1.445 (1.076)	1.258	1.663 (1.245)	1.331	-7.51	-9.09
LEVER	0.269 (0.247)	0.231	0.229 (0.192)	0.218	7.95	7.83

Table 3: Descriptive Statistics for Diversifying Firms Before Diversification Using the Standard Deviation of Returns (STD_RET) as the Risk Measure

Variable	**Risk Decrease** (1,441 observations)		**Risk Increase** (1,805 observations)		**Difference** (Decrease-Increase)	
	Mean (Median)	**Std. Dev.**	**Mean (Median)**	**Std. Dev.**	**T-Stat**	**Z-Stat**
EXVAL (Before)	0.033 (0.000)	0.579	0.024 (0.000)	0.565	0.47	0.34
ASSETS ($ Mil)	2,002.420 (265.545)	6,730.490	1,862.140 (284.324)	7,531.29	0.56	-0.88
EBIT/SALES	0.069 (0.078)	0.194	0.072 (0.080)	0.180	-0.49	-0.32
CAPX/SALES	0.082 (0.041)	0.173	0.102 (0.044)	0.367	-2.05	-1.55
R&D/SALES	0.051 (0.001)	0.113	0.044 (0.000)	0.097	1.88	1.25
TOBINQ	1.635 (1.227)	1.366	1.675 (1.266)	1.296	-0.85	-1.02
LEVER	0.207 (0.167)	0.208	0.223 (0.190)	0.209	-2.18	-2.37

Table 4: Descriptive Statistics for Diversifying Firms After Diversification Using the Standard Deviation of Returns (STD_RET) as the Risk Measure

Variable	**Risk Decrease** (1,441 observations)		**Risk Increase** (1,805 observations)		**Difference** (Decrease-Increase)	
	Mean (Median)	**Std. Dev.**	**Mean (Median)**	**Std. Dev.**	**T-Stat**	**Z-Stat**
EXVAL	-0.104 (-0.124)	0.616	-0.119 (-0.125)	0.605	0.70	-0.04
NSEG	2.600 (2.000)	0.962	2.653 (2.000)	0.961	-1.57	2.48
ASSETS ($ Mil)	2,567.760 (339.880)	8,567.030	2,562.310 (369.355)	11,587.420	0.02	1.166
EBIT/SALES	0.061 (0.072)	0.173	0.042 (0.059)	0.210	2.85	3.57
CAPX/SALES	0.077 (0.037)	0.154	0.079 (0.038)	0.160	-0.36	1.01
R&D/SALES	0.052 (0.003)	0.145	0.044 (0.000)	0.106	1.54	-1.66
TOBINQ	1.400 (1.130)	0.975	1.501 (1.059)	1.457	-2.42	2.93
LEVER	0.231 (0.213)	0.207	0.271 (0.249)	0.220	-5.37	-3.78

Table 5: Regression Results for Change in Excess Value around Diversification

	Risk Increases			Risk Decreases		
Variable	**1**	**2**	**3**	**4**	**5**	**6**
INTERCEPT	-0.141 (-5.73)	-0.124 (-4.58)	-0.123 (-4.52)	-0.144 (-5.56)	-0.142 (-4.86)	-0.142 (-4.87)
NSEG	-0.018 (-1.44)	-0.018 (-1.47)	-0.018 (-1.48)	-0.004 (-0.30)	-0.004 (-0.31)	-0.004 (-0.30)
LSIZE	0.221 (8.56)	0.218 (8.42)	0.218 (8.42)	0.232 (8.15)	0.232 (8.13)	0.234 (8.17)
EBIT/SALES	-0.023 (-0.38)	-0.028 (-0.47)	-0.028 (-0.47)	0.089 (1.25)	0.089 (1.25)	0.093 (1.31)
CAPX/SALES	0.095 (2.77)	0.093 (2.71)	0.093 (2.72)	0.128 (1.24)	0.130 (1.26)	0.139 (1.34)
R&D/SALES	0.748 (4.04)	0.742 (4.00)	0.743 (4.01)	0.180 (1.33)	0.179 (1.33)	0.181 (1.34)
TOBINQ	0.203 (24.22)	0.205 (24.18)	0.205 (24.05)	0.233 (20.05)	0.233 (20.03)	0.233 (20.04)
LEVER	0.082 (0.96)	0.090 (1.04)	0.065 (0.56)	0.258 (2.61)	0.258 (2.60)	0.171 (1.23)
STD_RET		-0.238 (-1.62)	-0.250 (-1.65)		0.042 (0.21)	0.034 (0.16)
STD_RET *LEVER			0.344 (0.32)			-1.228 (-0.89)
N	1,781	1,781	1,781	1,417	1,417	1,417
R^2	0.269	0.270	0.270	0.249	0.249	0.249

Table 6: Regression Results for Change in Excess Value around Diversification

	Risk Increases			**Risk Decreases**		
Variable	**1**	**2**	**3**	**4**	**5**	**6**
INTERCEPT	-0.159 (-3.93)	-0.153 (-3.60)	-0.143 (-3.33)	-0.091 (-2.26)	-0.106 (-2.50)	-0.105 (-2.48)
NSEG	-0.014 (-0.71)	-0.015 (-0.73)	-0.015 (-0.73)	-0.015 (-0.76)	-0.013 (-0.68)	-0.013 (-0.65)
LSIZE	0.301 (6.12)	0.298 (6.03)	0.296 (6.00)	0.171 (3.65)	0.161 (3.39)	0.158 (3.32)
EBIT/SALES	-0.096 (-0.87)	-0.120 (-1.00)	-0.063 (-0.49)	0.225 (2.09)	0.202 (1.84)	0.204 (1.86)
CAPX/SALES	0.090 (0.62)	0.069 (0.46)	0.124 (0.80)	0.051 (0.44)	0.055 (0.47)	0.052 (0.44)
R&D/SALES	0.527 (1.03)	0.513 (1.01)	0.610 (1.19)	1.516 (4.54)	1.470 (4.37)	1.469 (4.36)
TOBINQ	0.242 (14.56)	0.243 (14.53)	0.241 (14.36)	0.198 (12.98)	0.198 (13.03)	0.200 (12.98)
LEVER	0.120 (0.95)	0.125 (0.99)	0.053 (0.39)	0.157 (1.01)	0.163 (1.04)	0.088 (0.45)
STD_ROA		-0.629 (-0.51)	-1.411 (-1.04)		-1.522 (-1.13)	-1.529 (-1.13)
STD_ROA *LEVER			4.974 (1.37)			-5.963 (-0.65)
N	558	558	558	576	576	576
R^2	0.313	0.313	0.315	0.263	0.265	0.266