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The Impact of Financial Risk on Business Risk

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ABSTRACT

This paper documents a piece of empirical evidence about the impact of financial risk on future business risk. We show that firms with high capital structure tend to have a larger volatility for future earnings or cash flows. We also show that this positive correlation between capital structure and the volatility for future earnings or cash flows cannot be explained away by other firm characteristic variables such as firm size, firm age, or credit rating for bonds. Our finding presents an interesting future research opportunity to further investigate what is the economic reason behind our empirical finding.

JEL Classifications: G11 G12 G14

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I. INTRODUCTION

Capital structure refers to the mix of debt and equity that are issued by firms to raise funds for taking projects, and is often measured by the ratio of debt to firm value or the ratio of debt to asset. Thus, the higher the capital structure of a firm, the more debt the firm tends to have. On the other hand, when a firm issues debt to raise funds for taking projects, financial risk such as bankruptcy is introduced. Therefore, the higher the capital structure, the more financial risk the firm tends to bear. While there is a lot of studies about capital structure and its impact on asset prices, it is unclear whether or not capital structure and its associated financial risk can affect business risk or the risk of the projects taken by a firm.

In this paper, we directly study the impact of capital structure on the volatility for future earnings or cash flows. Since the volatility for future earnings or cash flows is directly related to business risk or the risk of the projects taken by a firm, this study will help shed light on the impact of financial risk on business risk. We use two ways to represent capital structure. The first way is to use the ratio of a firm's debt to asset, and the second the ratio of debt to firm value, where firm value is equal debt plus the book value of equity. The use of these two different measurements of capital structure aims to provide a clear picture on the impact of capital structure on the risk of projects taken by a firm.

The motivation of our study for the impact of capital structure on project risk stems from the following three reasons. First, capital structure and the related question of what is the optimal amount of debt a firm should have are extensively studied in corporate finance. On the other hand, capital investment is also an important research topic in corporate finance. Therefore, the examination of the impact of capital structure on future capital investment links the studies in these two areas. Second, while previous research extensively examines capital structure and its impact on asset prices, it don't address the impact of capital structure on future capital investment, i.e., the impact of capital structure on the volatility for future earnings or cash flows. Third, there are no any empirical studies that focus on the impact of capital structure on capital investment or the impact of financial risk on business risk. Thus our study is the first attempt in this direction.

We regress the volatility for future earnings or cash flows on capital structure and other firm characteristic variables such as firm size, firm age and bond credit rating. Regardless of how capital structure is represented, we all find out that capital structure has a significant impact on the volatility for future earnings or cash flows. Specifically, the volatility for future earnings or cash flows increases with capital structure, or future business risk increases with financial risk. This empirical result implies that firms with high capital structure are more likely to take very risky projects so that future earnings or cash flows become more volatile. This empirical result is also interesting since it provides a brand new perspective on the relationship between financial risk and business risk. It is a well-known fact that business risk affects financial risk. More specifically, other things being the same, the firms with a larger business risk such as more volatile future earnings or cash flows tend to have a larger financial risk than the firms with a lower business risk. But on the other hand, in the finance literature related to capital structure, little is known about whether or not financial risk can affect

business risk. Therefore, it is in this perspective that our empirical result is very interesting, since it shows that financial risk can also affect business risk.

We also find out that the relationship between capital structure and the volatility for future earnings or cash flows cannot be explained away by other firm characteristic variables such as firm size, firm age, and the S&P credit rating for long-term corporate bonds.

While it is interesting to know that financial risk can affect future business risk, it is more interesting to find out what is the economic reason behind our empirical finding. In this paper, we present one possible explanation for our empirical finding. It is just a possible explanation since further empirical investigation is required to confirm whether or not it is the true economic reason behind our empirical finding obtained in this paper. Our empirical finding is possibly related to agency theory, which argues that after a lot of debt is issued, firms have incentive to take more risky projects to increase the volatility in firm value such that equity value is increased but debt value decreased. Thus wealth is transferred from debtholders to shareholders. More specifically, as in Merton (1973), shareholders are the owners of a firm and thus hold a call option on firm value, which is also asset value when corporate tax is not considered; on the other hand, when debtholders lend their money to a firm, they seem to sell shareholders a put option on firm value, and the value of the risky debt is the value of risk-free debt minus the value of this put option. Smith and Warner (1979), Jensen and Meckling (1976) and Galai and Masulis (1976) also point out that once debt is in place, financial managers representing shareholders have an incentive to take more risky projects such that the volatility for future earnings or cash flows will increase and firm value will become more volatile. The increased volatility in firm value raises the value for both the call and put options, a result that shareholders' value is increased but debtholders' value decreased. Therefore, firms with high capital structure are more likely to take very risky projects to transfer wealth from debtholders to shareholders.

While our empirical finding is possibly related to agency theory, the finding in this study cannot be regarded as a piece of empirical evidence that directly or indirectly supports agency theory. It should be emphasized that if rational bond investors know in advance that their money lent to a firm will be "stolen" in part by financial managers, they will certainly put some conditions, terms or constraints in the bond covenant or in the contract for financial managers to prevent this wealth-transfer from happening. Therefore, to pin down whether or not wealth-transfer is the reason for financial managers to take more risky projects when firms have a lot of debt in place, we need to control for the variables or factors that are related to bond covenants and contracts for financial managers. Unfortunately, since we don't have access to these data, we didn't control for these variables in our analysis. Thus, this possible explanation does not provide a definite answer to the economic intuition behind our empirical finding, but presents a valuable empirical research opportunity to further investigate whether or not financial managers are still likely to take more risky projects once all related variables or factors are controlled for.

Since capital structure is an important research topic in corporate finance, it has been extensively studied in the literature. A very partial list of these studies includes Adami et al. (2015), Ahmeti and Prenaj (2015), Lazzati and Menichini (2015), Graham and Leary (2011), Bessembinder et al. (2009), Billett et al. (2005), Rajan and Zingales (1995), Titman and Wessels (1988), Jensen (1986), Smith and Warner (1979), Myers

(1977), Ross (1977), Galai and Masulis (1976), Jensen and Meckling (1976), Merton (1974) and Modigliani and Miller (1958). While these studies examine the determinants of the optimal capital structure, the theoretical impact of capital structure on wealth transfer from debtholders to stockholders, the impact of capital structure on stock prices, and the agency costs related to capital structure, they don't address the research question in this paper. On the other hand, there is also a very large body of literature for capital investment. Here is a very short list of studies in this field: Li et al. (2012), Titman, Wei and Xie (2004), Hirshleifer et al. (2004), and Sloan (1996). Similarly, these studies don't address the impact of capital structure on capital investment.

The organization of the rest of the paper is as follows. In the next section, we discuss our data and the basic statistics for all the variables used in this study. In Section III, we present our empirical results about the impact of capital structure on the volatility for future earnings or cash flows. The possible economic intuition for our empirical results is discussed in Section IV, and in Section V we make conclusions.

II. DATA AND BASIC RESULTS

Our sample includes all firms listed on the NYSE, AMEX, and NASDAQ from January 1965 to December 2009 with at least one year of data for the stock price. Our sample excludes the firm that is a prime, a closed-end fund, a real estate debt ratio trust (REIT), an American Depository Receipt (ADR), or a foreign stock. In addition, our sample excludes stocks whose price was less than five dollars.

We use two different ways to represent capital structure. The first way is to use the ratio of debt to asset, and the second the ratio of debt to firm value, where firm value is equal to debt plus the book value of equity. The volatility for future earnings or cash flows is calculated as the volatility of the earnings per share or cash flows per share in the next five years, and then is scaled by the one-year-ago stock price per share, where the one-year-ago stock price per share is the calendar yearend stock price one year ago, earnings are the annual earnings, and cash flows are the annual operating cash flows, which are income before extraordinary items minus accruals. Therefore, at the beginning of each year, we calculate the ratio of debt to asset, the ratio of debt to firm value, and the volatility for future earnings or cash flows.

When capital structure is represented by the ratio of debt to firm value, we use book value of equity rather than the stock price or market value of equity. However, when we calculate the volatility for future earnings or cash flows, we use the one-year-ago stock price. There are two reasons for using this way to separate the book value of equity from the market value of equity. First, if we use the same book value or market value of equity in the measurements of both capital structure and the volatility for future earnings or cash flows, we will automatically find out positive correlations between capital structure and volatility, even if capital structure has no impact on the volatility for future earnings or cash flows. Therefore, it is important to separate the book value of equity from the market value of equity. Otherwise we may be led to wrong conclusions.

Second, the studies by Muradoglu and Baturevich (2010), Yang et al. (2010), Welch (2004), Baker and Wurgler (2002), Hovakimian et al. (2001) and Bhandari (1988) have shown that capital structure can significantly affect not only future stock prices but also contemporaneous stock prices. Thus, if we use contemporaneous stock

prices in the measurement of the volatility for future earnings or cash flows, we may also find significant correlations between capital structure and volatility, although they may not actually have. This will tend to contaminate our investigation of the impact of capital structure on the volatility for future earnings or cash flows. As a result, we use the contemporaneous book value of equity in the representation of capital structure but the one-year-ago stock price in the calculation of the volatility for future earnings or cash flows.

The basic statistics for all the variables are presented in Table 1. As shown there, earnings volatility is smaller than cash flows volatility, since cash flows are operating cash flows, which are larger than earnings. In addition, the number of observations for earnings volatility is larger than the number of the observations for cash flows volatility, since fewer firms report cash flows than earnings. In Table 1, each stock or firm has one observation in one year. The capital structure, denoted by the ratio of debt to asset, shows the median ratio of 0.572, indicating more than half of the asset is debt. The log firm size variable is the natural logarithm of a firm's market value of equity. As shown there, the median firm size is about $59.4 million. Firm age is the number of months after the IPO. The median age is about 12 months for the stocks in our sample. Finally, the S&P credit rating for long-term corporate bonds ranges from 2 to 27, with the triple A rating having the value (code) of 2, the triple C rating the value of 20, and the D rating of 27. The median rating for corporate bonds is about 12, which corresponds to the BBB- rating, but compared to other variables, the number of the observations is the smallest, 28596. This small number of observations for S&P credit rating indicates that many firms don't have S&P bond rating data.

This table presents simple statistics for the variables used in our study: cash flow volatility, earnings volatility, capital structure, log firm size, firm age, and S&P credit rating for bonds. The volatility for future earnings and cash flows is measured over five years (year 1 to 5) at the beginning of each year. "Earnings" are annual earnings per share over future five years scaled by the one-year-ago stock price. "Cash flows" are operating cash flows (income before extraordinary items minus accruals) per share over future five years scaled by one-year-ago stock price. Capital structure is measured by the ratio of debt to asset. Log firm size is the natural logarithm of the firm's capitalization or market value of equity in million US dollars. Firm age is the number of months after its IPO. The S&P credit rating is the code number of rating assigned by S&P for the firm's long term bond, with 2 the code number for the triple A rating, 20 the code number for the triple C rating, and 27 the code number for the single D rating.

Table 1
Simple statistics for variables

Variables	Q1	Median	Q3	StDev	No. of Obs
Earnings volatility	0.026	0.056	0.125	0.176	114,089
Cash flow volatility	0.050	0.101	0.212	0.283	93,552
Debt / assets	0.342	0.572	0.695	0.551	203,670
Log firm size	2.769	4.085	5.497	1.979	184,446
Firm age	5.833	11.750	22.750	15.134	102,049
S&P credit rating	9	12	15	3.578	28,596

Table 2
Correlation for variables

	Earnings Volatility	Cash Flow Volatility	Debt/ Assets	Log Firm Size	Firm Age	S&P Credit Rating
Earnings volatility		0.733	0.125	-0.393	-0.132	0.312
Cash flow volatility	0.722		0.258	-0.393	-0.042	0.285
Debt/assets	0.118	0.202		-0.003	0.165	0.031
Log firm size	-0.281	-0.302	0.083		0.295	-0.319
Firm age	-0.092	-0.056	0.101	0.393		-0.340
S&P credit rating	0.233	0.200	0.045	-0.345	-0.322	

Table 2 shows the correlation among all the variables. There, the correlations above the diagonal are the Spearman correlations, but the ones below the diagonal are the Pearson ones. Except for the Spearman correlation between capital structure and log firm size, which is -0.003, all other correlations are significant at the 0.00001 level. In addition, the Spearman correlation values are similar to the Pearson ones, but the absolute values of the Spearman correlations are slightly larger than the Pearson ones. Except for the correlation between earnings volatility and cash-flows volatility, the absolute value of the correlation among explanatory variables is less than 0.4. This result indicates that explanatory variables are not highly correlated. Thus we don't need to deal with the multi-collinearity problem in regression. The correlation between earnings volatility and cash-flows volatility is about 0.73 for both Spearman and Pearson correlations. This high correlation makes sense since earnings are highly related to operating cash flows. The correlation between capital structure and log firm size or firm age is all positive. This finding shows that young firms or firms with less capitalization value tend to have less debt. The correlation between log firm size and the volatility for earnings or cash flows is negative. This correlation indicates that firms with a large market capitalization value tend to have a small volatility for earnings or cash flows, a result consistent with our intuition. Similarly, the correlation between firm age and the volatility for earnings or cash flows is also negative, indicating that mature firms tend to have a smaller volatility for earnings or cash flows. On the other hand, there is a positive correlation between S&P credit rating and the volatility for earnings or cash flows. This positive correlation means that firms with a larger volatility in earnings or cash flows tend to have riskier bonds, since a higher value (code) of credit rating means a larger risk in bonds. This result is also consistent with our understanding that high risk in business will tend to make more volatile the bonds issued by the firm. Finally, the correlation between capital structure and log firm size or firm age is positive. While the Spearman correlation between capital structure and log firm size is negative, it is the only non-significant correlation.

This table presents the Pearson correlation (below the diagonal) and Spearman correlation (above the diagonal) for the variables used in our study: cash flow volatility, earnings volatility, capital structure, log firm size, firm age, and S&P credit rating for bonds. The number in italics is not significant at the 0.00001 level. The

volatility for future earnings and cash flows is measured over five years (year 1 to 5) at the beginning of each year. "Earnings" are annual earnings per share over future five years scaled by the one-year-ago stock price. "Cash flows" are operating cash flows (income before extraordinary items minus accruals) per share over future five years scaled by one-year-ago stock price. Capital structure is measured by the ratio of debt to asset. Log firm size is the natural logarithm of the firm's capitalization or market value of equity in million US dollars. Firm age is the number of months after its IPO. The S&P credit rating is the code number of rating assigned by S&P for the firm's long term bond, with 2 the code number for the triple A rating, 20 the code number for the triple C rating, and 27 the code number for the single D rating.

III. EMPIRICAL RESULTS

Based on the panel data, we run the following regression model to examine the impact of capital structure and other firm characteristic variables on the volatility for future earnings or cash flows.

$$Vol_{it} = b_0 + b_1 CST_{it} + b_2 LGM_{it} + b_3 AGE_{it} + b_4 CRR_{it} + \varepsilon_{it} \quad (1)$$

where b_0 is the intercept, b_1, b_2, b_3, and b_4 are the coefficients for capital structure, log firm size, firm age and S&P credit rating, respectively, VOL_{it} is the volatility for earnings or cash flows for stock i at the beginning of year t, CST_{it} is the capital structure for stock i at the beginning of year t, LGM_{it} is the log market capitalization for stock i at the beginning of year t, AGE_{it} is the firm age for stock i at the beginning of year t, CRR_{it} is the S&P credit rating for the firm's long-term debt for stock i at the beginning of year t.

Table 3 represents the empirical results for regressing the volatility for earnings or cash flows on capital structure and other explanatory variables. Panel A shows the result for earnings volatility, but Panel B for cash-flows volatility. In Panel A, we first run univariate regression on capital structure, log firm size, firm age, and S&P credit rating, respectively. The table reports the estimates of the intercept and the coefficient, and the associated t-values, which are put in the beneath parenthesis. When the only explanatory variable is capital structure, which is represented by the ratio of debt to asset, the estimate of the coefficient is 0.068, with a t-value of 13.57, which is significant at the 0.0001 level. This result indicates that capital structure has a significant impact on the volatility for future earnings. More specifically, when a firm has more debt in place, the firm is likely to take more risky projects and future earnings thus become more volatile. In other words, when a firm increases its financial risk by issuing more debt, its future business risk will likely rise. This result is interesting since it is at odds with the traditional wisdom that business risk may have nothing to do with financial risk. In fact, we understand that for the same capital structure, the more risky the firm's business is, the larger the probability for the firm to default on its obligation for interest and principal payments, and the higher the firm's financial risk. However, this new finding shows that as business risk can affect financial risk, financial risk can also affect business risk.

Panel A also reports the impact of other three explanatory variables on the volatility for future earnings. Clearly, log firm size has the most significant impact on earnings volatility. The estimate of the coefficient is -0.016, with the largest t-value

of -33.91, significant at the 0.00001 level. This negative coefficient shows that large firms tend to have a smaller volatility for earnings. This finding is also consistent with the empirical finding in other studies (Adami et al. 2015). Like log firm size, firm age also has a similar impact on earnings volatility. That is, mature firms tend to have a smaller earnings volatility than young firms. Finally, the estimate of the coefficient for S&P credit rating is 0.008, with a t-value of 30.58, significant at the 0.00001 level. In the S&P credit rating for long corporate bonds, the bonds with the highest rating of triple A have a numerical value (code) of 2, a low rating of triple C a value of 20, and the lowest rating of D a value of 27. Based on this S&P bond rating, we understand that the lower the bond rating is, the larger the assigned numerical value, and the higher the financial risk for this bond. So the positive estimate of the coefficient for S&P credit rating indicates that bonds with a lower credit rating tend to have a larger volatility for future earnings. This finding is consistent with our understanding about the relationship between bond rating and earnings. In general, if the firm's bond has a low rating, one of the possible factors is the high risk of the business for this firm. A high-risk business is certainly associated with a large volatility for earnings.

The univariate regression results discussed above show that capital structure, firm size, firm age or S&P credit rating can each significantly affect the volatility for future earnings. Next, we run the multiple regression specified in question (1) to understand whether or not the impact of capital structure on earnings volatility can be explained away by other three explanatory variables. The regression results are presented in the bottom two line of Panel A. As shown there, the estimates of coefficients for capital structure, log firm size, firm age and S&P credit rating are 0.005, -0.012, 0.000 and 0.004, respectively, with the corresponding t-values of 11.38, -21.71, -1.36, and 16.75. Except for firm age, the estimates of the coefficients for other three explanatory variables are significant at the 0.00001 level. Clearly, when we consider other explanatory variables in regression, capital structure still significantly affects the volatility for future earnings. Therefore, the financial risk that is associated with capital structure affects the business risk that is related to the volatility for future earnings. This result presents a strong empirical evidence that financial risk can affect future business risk, since the firms with a high capital structure tend to take more risky projects, which will cause the future earnings to become more volatile.

Panel B of Table 3 reports the empirical results for the impact of capital structure on the volatility for future cash flows. As shown there, we have very similar results in both the univariate and multivariate regression: capital structure can significantly affect the volatility for future cash flows.

In Panels A and B of Table 3, capital structure is represented by the ratio of debt to asset, and we find out that capital structure has a significant impact on future earnings or cash flows volatility. However, when we use the ratio of debt to firm value to represent capital structure, we still obtain very similar results in both the univariate and multivariate regression exercises. For simplicity of exposition, we don't report the results, but interested readers are welcome to ask for the detailed empirical results. Therefore, it doesn't matter how capital structure is represented, our empirical finding shows that capital structure can significantly affect the volatility for future earnings or cash flows.

Table 3
Regression results

Panel A: Earnings volatility

Intercept	Debt/asset	Log firm size	Firm age	Credit rating	Adj.R^2
0.030	0.07				1.2%
(10.37)	(13.57)				
0.174		-0.02			7.2%
(53.18)		(-33.91)			
0.087			-0.00		2.1%
(60.59)			(-17.74)		
-0.016				0.01	6.0%
(-5.71)				(30.58)	
0.015					5.9%
(7.65)					
0.069	0.06	-0.01	0.00	0.00	10.2%
(11.93)	(11.38)	(-21.71)	(-1.36)	(16.75)	

Panel B: Cash flow volatility

Intercept	Debt/asset	Log firm size	Firm age	Credit rating	Adj.R^2
0.035	0.12				2.1%
(6.99)	(17.98)				
0.363		-0.04			12.3%
(65.64)		(-45.51)			
0.153			-0.00		1.9%
(61.17)			(-16.75)		
0010				0.01	3.5%
(1.91)				(23.04)	
0.036					4.9%
(10.89)					
0.254	0.14	-0.04	0.00	0.00	14.4%
(25.87)	(17.32)	(-38.08)	(2.78)	(4.20)	

This table presents the univariate and multivariate regression results for regressing the volatility for future earnings or future cash flow on capital structure, log firm size, firm age, and S&P credit rating for bonds. Panel A is for earnings volatility, and Panel B for cash flows volatility. The volatility for future earnings and cash flows is measured over five years (year 1 to 5) at the beginning of each year. "Earnings" are annual earnings per share over future five years scaled by the one-year-ago stock price. "Cash flows" are operating cash flows (income before extraordinary items minus accruals) per share over future five years scaled by one-year-ago stock price. Capital structure is measured by the ratio of debt to asset. Log firm size is the natural logarithm of the firm's capitalization or market value of equity in million US dollars. Firm age is the number of months after its IPO. The S&P credit rating is the code number of rating assigned by S&P for the firm's long term bond, with 2 the code number for the triple A rating, 20 the code number for the triple C rating, and 27 the code number for the single D rating.

IV. THE POSSIBLE ECONOMIC INTUITION

In the previous section, we have discussed the empirical evidence that capital structure can significantly affect the volatility for future earnings or cash flows. In other words, firms with a higher capital structure are likely to take more risky projects or financial risk can affect future business risk. In this section, we explore the possible economic intuition behind this empirical finding.

Smith and Warner (1979), Jensen and Meckling (1976), and Galai and Masulis (1976) all argue that a higher capital structure will likely result in a wealth transfer from debtholders to stockholders and thus debt value will be reduced. As shown in detail in Merton (1973), equity can be regarded as a call option written on firm value, which is also asset value, since there is no corporate tax considered there. On the other hand, when debtholders lend their money to a firm, they seem to sell shareholders a put option written on firm value, and the value of the risky debt is the value of risk-free debt minus the value of this put option. Thus, after debt is issued, shareholders have an incentive to take more risky projects to increase the volatility of future earnings or cash flows. This increased volatility will tend to increase the volatility for firm value and thus increase the value of both call and put options, a result that equity value will be increased but debt value decreased. This effect will thus transfer wealth from bondholders to shareholders.

On the surface, our empirical finding is closely related to the agency theory discussed above, since our empirical result clearly shows that once firms have a lot of debt in place, the financial managers working in the firms are likely to take more risky projects such that equity value is increased but debt value decreased. However, we cannot make such a conclusion that our empirical finding directly or indirectly supports agency theory or agency theory provides the economic intuition[2] for our empirical findings for the following reason. In the financial market, bond investors are rational. If they know in advance that once firms get funds from them, firms will take more risky projects to reduce their wealth, they will certainly place some terms or constraints in the bond covenant or in the contract for financial managers to prevent this wealth transfer from happening. As a result, to pin down whether or not high capital structure will give financial managers an incentive to take more risky projects to increase firm value volatility and thus transfer wealth, we have to consider the bond covenant and the contract for financial managers. After these two factors are controlled for in regression, if we can still obtain similar empirical finding, we can be confident to argue that the wealth-transfer effect is the economic reason behind this empirical finding.

Since we don't have access to the data for bond covenants and contracts for financial managers, we cannot make a final conclusion on the true economic intuition behind our empirical results in this paper. Nevertheless, this empirical finding presents a wonderful opportunity for researchers to further investigate what is the economic intuition behind this empirical result.

V. CONCLUSIONS

In corporate finance, capital structure is one important research topic, which has been extensively studied in the literature. While previous research has addressed research

questions such as the optimal capital structure, the determinants of the optimal capital structure, the impact of capital structure on both contemporaneous and future stock returns, the associated agency costs, etc., this paper addresses a totally different research question: how does capital structure affect the risk of the future projects taken by a firm or can financial risk affect future business risk?

In this paper, we use panel data analysis to investigate the impact of capital structure on the volatility for future earnings or cash flows. We find out that firms with high capital structure are likely to take more risky projects. Thus a higher capital structure tends to lead to a larger volatility for future earnings or cash flows. This finding is interesting in that as business risk can affect financial risk, financial risk can also affect business risk, a result that has not been examined in the previous research.

We argue that the agency theory about wealth-transfer from debtholders to stockholders could be a possible economic intuition behind our empirical finding. We have emphasized that this is just a possible economic intuition, unless we obtain similar results in our analysis after controlling for the two closely related variables, which are the bond covenant and the contract for financial managers. Since we don't have access to these data, we cannot complete our analysis to pin down the exact economic reason for the empirical result obtained in this paper. However, this in conclusion provides future researchers with an opportunity to further investigate the economic reason for the impact of financial risk on business risk.

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