Foreign Institutional Ownership and Risk Taking

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Abstract

In this paper, we examine the relationship between foreign institutional ownership and risk taking, and between risk taking and firm performance. Foreign ownership is positively related to risk taking, which, in turn, has statistically and economically significant effects on corporate sales growth and firm performance. During the credit crisis, risk taking was also positively related to corporate earnings, and thus higher risk-taking firms had smaller cash flow shortfalls. However, foreign ownership does not have direct effects on corporate sales growth or firm performance. Moreover, strong risk avoidance cannot be explained by a bank-centered governance system after a series of banking deregulation steps and decreased bank ownership. Our results suggest that the increased presence of foreign investors in Japan improves corporate value via encouraging value-enhancing risk taking. To intensify the roles of foreign investors, policymakers must improve government regulations to enhance the import of good corporate governance led by foreign investors.

Keywords: Risk taking, Ownership structure, Leverage, Corporate growth, Corporate earnings, Credit crisis

JEL classification: G30, G32, G34

1. Introduction

International institutional investors export U.S. style corporate governance practices around the world (Aggarwal, Erel, Ferreira and Matos, 2011). The presence of foreign investors in Japan has been substantially increasing since the 1990s. The foreign ownership rose from about 6 percent of market capitalization in 1991 to almost 31 percent in 2013. More importantly, all of these shares are held by foreign institutional investors, including U.S. institutions known for promoting governance improvements outside of the U.S. (Milhaupt, 2005). Recently, Franks, Mayer and Miyajima (2015) provide detail for the evolution of ownership structure in in the 20th Century Japan.

Japan's corporate governance reforms since the late 1990s are also strongly influenced by the U.S. practices. For instance, managerial incentives have been altered to provide business managers incentives for risk-taking in response to Japan's post-high-growth downturn economy. Japanese firms became able to grant stock options as compensation to top management and employees after an amendment of the Japanese Commercial Code in May 1997 and subsequently regulatory constraints on stock option were removed. Kato et al. (2005) show that firms exhibit abnormal stock returns of about 2% around the announcements of plan adoptions. Also, improvements in operating performance are observed but volatility remains unchanged post-adoption.

Outside the U.S., foreign institutional investment not only pursues good corporate governance practices, but also has real effects on firm value and board decisions (Ferreira and Matos, 2008; Ferreira, Massa, and Matos, 2010). Especially, Aggarwal, Erel, Ferreira and Matos (2011) find that international institutional investment from countries with strong shareholder protection is more effective in improving governance for firms located in civil-law countries. Thus, foreign institutional investment can be viewed as a proxy for shareholder protection outside of the U.S.

It is argued that managers are more likely to avoid some value-enhancing risky projects to preserve private benefits and that better investor protection mitigates agency problem due to the taking of private benefits as addressed in the seminal work of John et al. (2008). Also, powerful banks may influence investment policy because they prefer conservative corporate investment for their own benefit. Consistent with a bank-centered governance system, Weinstein and Yafeh (1998) find that banks discourage their clients from investing in risky, profitable projects and close bank-firm ties lead to slow growth rate. Also, Morck and Nakamura (1999) show evidence that that powerful banks in Japan discipline firms to advance creditors' interests even at the expense of firm value. On the other hand, to avoid the realization of losses on their own balance sheets, troubled Japanese banks continued to provide additional credits to severely impaired borrowing

firms in the late 1990s, as reported in Peek and Rosengren (2005).

The main purpose of this paper is to examine the relation between foreign ownership and risk-taking. We also control for leverage, granting stock option and initial earnings. First, creditors are less effective in encouraging corporate risk avoiding for their self-interest after a series of banking deregulation to strengthen investor protection. Also, newly adopted performance-based compensation schemes can work as a mechanism to motivate managers to incentives for risk-taking.

Our results show that foreign investment promotes risk taking, and risk-taking, in turn, is positively associated with firm sales growth and firm performance. Additionally, higher risk-taking firms had smaller sales and cash flow shortfalls during the credit crisis. However, we do not find direct effects of foreign institutional ownership on sales growth or performance. This suggests that foreign ownership improve corporate value only via encouraging value-enhancing risk-taking. Extant evidence on influences of foreign institutional investors might reflect different aspects of risk-taking in Japanese firms.

Granting stock option has no effect on risk-taking but it has a direct effect only on asset growth. Leverage is positively related to risk-taking but its direct effect on sales growth is negative. Corporate liquidity is negatively related to sales growth, performance. Neither grating stock option nor initial earning affects sales growth

significantly. Initially profitable firms have higher subsequent asset growth and corporate earnings

Previous studies focus on the governance role played by foreign institutional investors outside of the U.S.. This study sheds new light on the roles of foreign institutional investment on risk-taking. John et al. (2008) is an exceptional to employ the relationship between risk-taking and firm growth as well as the relation between investor protection and risk-taking. We add to this line of work by demonstrating important evidence of relation between the instrumented risk-taking and sales growth as well as the relation between foreign ownership and risk-taking.

The organization of this paper is as follows. In section 2, we describe the data and methodology. The determinants of risk-taking and the relationship between risk-taking and firm growth and firm performance are examined in Section 3. Section 4 concludes.

2. Data and Methodology

We use the micro database of Kigyou Katsudou Kihon Chousa Houkokusho (the Basic Survey of Japanese Business Structure and Activities) conducted by the Ministry of Economy, Trade and Industry (METI). This survey was first conducted in the 1991 F/Y, then in the 1994 F/Y and annually afterwards. The main purpose of the survey is to acquire

collective and quantitative information on diversification, globalization, internationalization and soft economy of Japanese enterprises. The survey is comprised of all firms with more than 50 employees and with capital of more than 30 million yen, covering both manufacturing and non-manufacturing industries.

Using a large panel data of manufacturing companies included in the database from 2002 to 2012, we examine the determinants of risk-taking of listed firms and the relationship between risk-taking and firm growth. First, we adjust EBITDA/Assets by two-digit SIC industry code. Then, we require consecutive 11 years of data on EBITDA/Assets and compute the deviation of adjusted EBITDA/Assets over 2003-2012 at firm level as follows.

$$\text{RISK=}\sqrt[2]{\frac{1}{T-1}\sum_{t=1}^{T}(E_{i,I,t} - \frac{1}{T}\sum_{t=1}^{T}E_{i,I,t})^2}$$

where

$$E_{i,I,t} = \frac{EBITDA_{i,I,t}}{Assets_{i,I,t}} - \frac{1}{N_{I,t}}\sum_{k=1}^{N_{I,t}}\frac{EBITDA_{k,I,t}}{Assets_{k,I,t}}$$

$N_{I,t}$ indexes the firms within industry I and year t. $EBITDA_{i,I,t}$ is defined as depreciation plus operating income after depreciation. $Assets_{i,I,t}$ is total assets. T: is the period 2003 to 2012. This proxy based on the volatility of corporate earnings has

been used for the degree of risk-taking in operations since riskier corporate operations have more volatile returns to assets[2]. Also, Adams, Almeida and Ferreira (2010) find that variability in corporate performance increases with the degree of CEO power in decision making. Their evidence is consistent with Sah and Stiglitz (1986, 1991) and a large management and organizational literature. In contrast, seeking consensus in decision making suggests reluctant and slow changes in response to changing management environments and thus a lower degree of risk taking. More importantly, a firm is less likely to exit from declining businesses quickly if it takes time to reach consensus. For example, Nakano and Nguyen (2012) find that performance variability falls significantly when Japanese firms with few investment opportunities operate with larger boards. In addition, firm-specific human capital and long-term employment in Japan implies that both managers and employees prefer conservative decisions.

Asset (sales) growth is asset (sales) growth over the sample period 2003 to 2012. Performance is the sum of the ratio of EBITDA to total assets from 2003 to 2012. Initial variables are defined as in 2002. Initial leverage is defined as the ratio of the book debt to total assets. Also, we use initial short-term leverage defined as the ratio of the short-

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[2] Quite a number of studies also relate the absolute deviation from the firm's expected performance as an alternative risk measure to firm characteristics. This procedure is known as Glejser heteroskedasticity test.

term debt to total assets and long-term leverage defined as the ratio of the long-term debt

to total assets to proxy bank dependence. We define firm size as the natural logarithm of

total assets in 2002 (log (initial assets)). Firm age (log (initial firm age) is the logarithm

of age in 2002. Foreign ownership is the ownership level of foreign investors or foreign

institutions and parent ownership is the ownership level of the parent company in 2002.

Initial corporate liquidity is the ratio of the liquid assets to total assets. The deviation of

adjusted EBITDA, sales growth, asset growth, and performance is respectively

winsorized at the 0.5% level on both sides of the distribution.

Based on the seminal work of John et al. (2008), we regress risk-taking on variables

that capture ownership influence, bank influence, controlling for other factors X_i using

following specification. If ownership structure influences corporate risk-taking, we

would expect coefficients significantly different from zero in (1).

$$RISK_i = \alpha_1 + \alpha_2 Ownership\ Influence + \alpha_3 Bank\ Influence$$

$$+\alpha_5 X_i + v_i \qquad (1)$$

Quite a number of studies have been attempted to explore the determinants of corporate

risk-taking. Only John, et al. (2008) provide important evidence of relation between the

instrumented risk-taking and both company asset and sales growth as well as the relation between ownership and risk-taking. To examine whether risk-taking is positively associated with growth and performance, based on John, et al. (2008) we relate firm-growth and performance to risk-taking, controlling for corporate liquidity and other factors. To address the endogeneity problem, we instrument risk-taking with variables which are significantly related to risk-taking. In John et al. (2008), firm size and the investor protection variables are used as instrumental variables. Growth is asset (sales) growth and performance is EBITDA/Assets over 2003-2012. Y_i, Z_i are control variables. Our empirical hypothesis is that regressions of (2) and (3) generate a positive coefficient of risk-taking.

$$Gorwth_i = \beta_1 \ + \ \beta_2 RISK_i + \beta_3 Y_i + \omega_i \quad (2)$$

$$Performance_i = \gamma_1 \ + \gamma_2 RISK_i + \gamma_3 Z_i + \xi_i \quad (3)$$

3. Empirical results

Descriptive Statistics

   Table 1 reports descriptive statistics for our sample. Reflecting the protracted slump in

the Japanese economy, the mean sales growth rate is 18% and the median sales growth

rate is 17% over the sample period 2003-2012. Asset growth rates are also very lower.

The mean foreign ownership is 4.5% and the median is only 0.3%. In contrast, the foreign

ownership among the top 10% of firms is more than 15.5%. The data indicates a large

variation of foreign ownership among firms. Ferreira and Matos (2008) document that

the mean foreign institutional ownership of Japanese sample firms is 8.2% in 2003 and

that Japan is one of the countries with the holdings of foreign institutions exceeding those

of domestic institutions. This large variation of foreign ownership implies that a small

number of firms have better investor protection pursued by foreign investors; where as a

majority of firms still have traditional corporate governance structure. This provides an

ideal dataset to analyze the effect of foreign investment on risk-taking. A small fraction

of firms are listed subsidiaries and the mean parent ownership is 5.9% but the fraction of

list subsidiaries is smaller than 10%. If the parent company monitors its subsidiaries, it is

less likely for manager of subsidiaries to preserve private benefits leading excess

avoidance. Thus we control for parent ownership in regressions. Table 1 also shows that

16.2% of firms adopted stock options to reward executives. In Kato et al. (2008), 344

firms adopted at least one stock option plan till 2001.

Risk-taking

First, we run regressions of risk-taking on ownership structure and bank dependence, controlling for firm size, firm age and initial corporate earnings. The results also indicate that the impact of foreign ownership is economical significant. Extant studies examine that foreign owned firms outperform domestically owned firms in terms of profitability and productivity. Nguyen (2012) finds that foreign ownership has strong impact on the volatility of stock returns, market-to-book value, and profitability of Japanese listed firms. Our results suggest that foreign ownership function as a monitoring mechanism in encouraging value-enhancing risk taking in Japan.

Likewise, the results in Table 2 indicate that risk-taking of listed subsidiaries higher. The results indicate that affiliated firms are more risk-taking because it is less likely for manager of subsidiaries to preserve private benefits leading excess avoidance. It is also consistent with the findings of Ito, Kikutani and Hayashida (2008) which suggest that subsidiaries have discretion in implementing corporate investment policy.

Short-term leverage is positively associated with risk-taking. In Nguyen (2012), leverage has a strong positive effect on the volatility of ROA and stock return. In contrast, Adams et al. (2005) show a strong positive effect of leverage on the volatility of stock returns, a strong negative effect on the volatility of market-to-book but insignificant effect on the return volatility of ROA. In contrast, Cheng (2008) finds that the leverage has no

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effect on the return volatility of US firms. Leverage has a negative sign but it is only marginally significant in John, et al. (2008).

In the cross-country analysis of John et al. (2008), Japanese firms exhibit the lowest cash flow volatility. This strong risk avoidance, however, cannot be explained by a bank-centered governance system3. Rather, high leveraged firms are more risk-taking. This suggests that banks are less powerful after a series of deregulations of banking market. Thus, strong risk avoidance, however, cannot be explained by a bank-centered governance system. Rather, high leveraged firms are more risk-taking.

Concerning the other covariates, initial corporate earnings have a positive sign but the effect is not significant, as shown in (1) and (2) of Table 2. John et al. (2008) find that profitable firms are more risk avoidant. Nguyen (2012) finds that ROA only reduces volatility of stock returns. Consistent with John et al. (2008) and Nguyen (2012), the effect of firm size on risk-taking is statistically significant and consistently negative. Adams et al. (2005) find that the volatility of ROA is not significantly related to firm size. Consistent with Nguyen (2012), firm age reduces risk-taking. But granting stock options has no effect on risk-taking.

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3 From a cultural viewpoint, Hofstede describes corporate Japan (http://geert-hofstede.com/japan.html), "a lot of 2 From a cultural viewpoint, Hofstede describes corporate Japan (http://geert-hofstede.com/japan.html), "a lot of time and effort is put into feasibility studies and all the risk factors must be worked out before any project can start.

Risk-taking and sales growth

To address the endogeneity of risk choices, we run instrumental variable regressions of sales growth on instrumented risk-taking, reported in Table 3. We instrument *RISK* with firm size (*log(initial assets)*), *Parent ownership*, *Foreign ownership* and *Initial corporate earnings* in (2), (3). (4) and (5). We recognize that this variable may directly influence growth, the degree of which we can judge by overidentification tests. Our sets of instruments appear valid as indicated by the overidentification tests. The above regressions in Table 3 provide evidence of a statistically and economically significant and positive relation between the instrumented RISK and sales growth. A one standard deviation rise in risk-taking increases sales growth by about 30%. In other words, this is very large in comparison with the mean sales growth rate. In particular, the effect is significant at the 1% level. These results are consistent with John et al. (2008) that sales growth of US listed manufacturing firms is positively related to risk-taking.

Initial short-term leverage has a large significant negative effect on sales growth. In table 3, an increase of one standard deviation in short term leverage is associated with a 7.95% decrease of sales growth. Take the positive effect of short leverage on risk taking into account, totally short term leverage is negatively associated with sales growth. An

increase of one standard deviation in short term leverage totally is associated with a 4.85%

decrease of sales growth, ceteris paribus. *Initial corporate liquidity* is also negatively

associated with sales growth significantly at the 1% level.

To rule out whether ownership structures affect sales growth via other channels, we

include *Parent ownership* and *Foreign ownership* as independent variables and

instrument risk-taking with firm size, firm age and initial corporate earnings in

Regression (6) of Table 3. Neither *Parent ownership* nor *Foreign ownership* has a

significant direct effect on sales growth. This result rules out possibilities of other

channels of foreign ownership's effects on sales growth.

Also, *Initial corporate earnings* variable does not significantly influence subsequent

sales growth in Regression (1) of Table 3. In this regression, *RISK* is instrumented with

firm size, parent ownership, foreign ownership and initial corporate earnings. Either firm

size or firm age is not significantly related to sales growth when it is included as a

regressor and *RISK* is instrumented with initial corporate earnings, foreign ownership and

parent ownership. The result is omitted here. Granting stock option has no effect on

subsequent sales growth.

Risk-taking and asset growth

We also run instrumental variable regressions of sales growth on instrumented risk-taking. The results are reported in Table 4. Compared with its effect on sales growth, the effect of risk-taking on asset growth is not statistically significant. Yong firms have higher asset growth rates and firms with initial corporate earnings grow more in subsequent years. Granting stock options enhance asset growth. Firm size and bank dependence have no significant effects on asset growth. In John et al. (2008), however, bank power is not significantly related to corporate growth. Instrument variables for risk-taking are firm size, leverage, foreign ownership and parent ownership in Regression (1); firm size, foreign ownership and parent ownership in Regressions (2) and (3); leverage, foreign ownership and parent ownership in Regression (4). Our sets of instruments appear valid as indicated by the overidentification tests. Likewise, we rule out direct effects of foreign ownership and parent ownership on asset growth and the results are abbreviated.

Risk-taking and corporate earnings

So far, there is no analysis of the linkage between risk-taking and corporate earnings. An important empirical question is whether risk-taking is positively related to profitability. We examine the effect of risk-taking on corporate earnings, while controlling for initial corporate earnings. Table 5 shows that a one standard deviation

increase in risk-taking raises annual EBITDA/Assets by 2.0%. It is notable that the average annual EBITDA/Assets over the sample period 2003-2012 is 6.8%. The relation between risk-taking and corporate earnings is substantial. Our sets of instruments appear valid as indicated by the overidentification tests.

These results imply that foreign investors bring changes into the Japanese firms and take prompt actions against poor performance. And the prompt actions result in higher risk-taking and better performance of foreign owned firms. Our results are consistent with previous studies that focus on different features of foreign owned firms. Kimura and Kiyota (2004) find that foreign investors appear to invest in firms that may not be immediately profitable but achieve performance improvement and faster growth. Fukao, Ito, Kwon and Takizawa (2006) show that foreign acquisitions improved target firms' productivity and profitability significantly more and quicker than acquisitions by domestic firms. In contrast, there is no positive impact on target firms' profitability in the case of domestic acquisitions. Also, Kang and Shivdasani (1997) pointed out that compared to US firms with a similar decline in performance, Japanese firms were less likely to downsize, and layoffs affected a smaller fraction of their workforce in the late 1980s. However, such reluctant downsizing in response to poor performance seems to change when foreign investors pursue changes.

Different from previous studies, foreign ownership have no direct effects on subsequent corporate earnings when it is included in independent variables as showed in regression (7) where firm size, firm age and leverage serve as instrument variables for risk-taking. This result suggests that foreign investment improves firm performance via encouraging value-enhancing risk-taking. Consequentially, firms with high foreign ownership undertake risky but value-enhancing corporate strategies and have higher sales growth rates and corporate earnings. Extant evidence on influences on foreign ownership might reflect different aspects regarding risk-taking.

Also, we find that profitability persists in the subsequent decade. A 1% increase in initial corporate earnings in 2002 increases average EBITDA/Assets over 2003-2012 by 0.4%. An increase in corporate liquidity reduces average EBITDA/Assets in the subsequent decade. Subsidiaries have higher subsequent EBITDA/Assets. Firm size, and firm age are not relevant in Regression (6) with leverage and foreign ownership as instrument variables for risk-taking. Leverage is not relevant in Regressions ((2),(3) and (4) with firm size and foreign ownership as instrument variables for risk-taking. Granting stock option has no significant effect on performance as showed in Regression (7).

Risk-taking and performance during the credit crisis

We have examined positive relationship between risk-taking and firm growth over the period 2003 to 2012. Higher cash flow volatility implies that a firm is more likely to have periods of cash flow shortfalls or to have a large shortfall during a downturn of economy. As shown in Figure 1, there is a sharp decline in corporate earnings in fiscal year 2008 (2009) and fiscal year 2009 (2010) when the credit crisis hit the world economies. Now, we examine whether risk-taking contributes to poor corporate earnings during the credit crisis. Though risk-taking is positively related both to sales growth and corporate earnings over the period 2003 to 2012, one may argue that risk-taking during both normal and crisis years is associated with the poor firm performance during the credit crisis. Indeed, Beltrattia and Stulz (2013) find that banks with significantly worse performance during the crisis than other banks were not less risky before the crisis. If poor performance during the crisis is relevant to our proxy for risk-taking, there should be an inverse relationship between risk-taking and poor performance during the crisis. In other words, the worse-performing firms during the crisis had lower firm growth and corporate earnings during non-crisis periods.

Are firms that invest more conservatively prone to perform worse during crises? We estimate cross-sectional regressions of sales growth, asset growth and EBITDA/ASSETS on risk-taking only for the crisis years, 2008 and 2009. The results

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in Table 6 suggest a positive relationship between risk-taking and sales growth, operating performance during the crisis. We find that firms with more risk-taking during both normal and crisis years have better operating performance during the crisis years, 2008 and 2009. Similarly, the effects are both statistically and economically important. We instrument risk-taking with firm age, initial corporate earnings, foreign ownership and parent ownership in sales growth regression, with firm size, foreign ownership and parent ownership in asset growth regression, with firm size, firm age, leverage, foreign ownership and parent ownership in regression for earnings. As indicated by the overidentification tests, our sets of instruments appear valid. Likewise, we rule out possibilities of direct influences of foreign ownership and the results are abbreviated.

4. Conclusion

In this paper I explore the relationship between foreign ownership and corporate risk-taking, and between risk-taking and firm growth of Japanese firms. Foreign ownership is positively related to risk-taking. Risk-taking has statistically and economically significant effects on corporate sales growth and corporate earnings. And during the credit crisis risk-taking is also positively related to corporate earnings and thus higher risk-taking firms had smaller cash flow shortfalls.

Our results suggest that foreign investors encourage risk-taking in Japan and this in turn positively affects future growth and earnings. Different from previous studies, foreign ownership does not directly affect corporate sales growth and corporate earnings. We rule out possibilities of influences on firm performance of foreign ownership via other channels. In other words, extant evidence on influences of foreign ownership might reflect different aspects regarding risk-taking of Japanese firms.

Strong risk avoidance, however, cannot be explained by a bank-centered governance system. Rather, high leveraged firms are more risk-taking. This suggests that banks are less powerful after a series of banking deregulation and decreased presence of bank ownership. Nonetheless, short-term debt directly has an adverse effect on sales growth. Granting stock option is not relevant for risk-taking, sales growth, or firm performance.

Japan is known as its high need for uncertainty avoidance and this is one of the reasons why changes are so difficult to realize in Japan. Our results suggest that foreign institutions take an important role in encouraging value-enhancing risk-taking in Japan. We conclude that monitoring by foreign institutions have been changing corporation Japan by pursuing value-enhancing risk-taking.

In 2013, a US activist investment fund ThirdPoint led by Daniel Loeb, pushed SONY for a partial spinoff of its entertainment units and improvement in its profitability. That

led to sale of its PC units. SONY's stock had continued to underperform but its board dominated by outside directors was dysfunctional. This suggests that it might be more effective to push low productive Japanese firms to change pressured by foreign shareholder activism. Further analyses on roles of cooperation among mutual funds, pension funds and activist investment funds remain a topic for future research.

In early 2014, Japan launched its stewardship code to promote sustainable growth of companies through investment and dialogue. And Japan's Corporate Governance Code entered into force in June 2015 to seek sustainable corporate growth and increase of corporate value over the mid-to long-term. Our results suggest it is effective to push Japanese firms to take more value-enhancing risk to seek high sales growth. And foreign investors are able to promote good corporate governance regarding value-enhancing risk taking. To intensify roles of foreign investors, policymakers must improve government regulations to enhance import of good corporate governance led by foreign investors. In particular, it is in need to advance collaborations among domestic institutional investors and foreign investors.

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Appendix Variable list

Dependent Variable

- RISK: the standard deviation of $EDITDA_t/Assets_t$ over 2003-2012
- Assets growth 2003-2012: $Assets_{2012}/Assets_{2002}-1$
- Sales growth 2003-2012 :$Sales_{2012}/Sales_{2002}-1$
- Performance: sum of $EDITDA_t/Assets_t$ over 2003-2012
- Performance during the Crisis: sum of $EDITDA_t/Assets_t$ over 2009-2010

Independent variable

- Initial leverage: total debt/total assets in 2002
- Log (initial assets): the natural logarithm of total assets in 2002
- Log (initial firm age): the natural logarithm of firm age in 2002
- Initial short term leverage: short term debt/total assets in 2002
- Initial long term leverage: long term debt/assets in 2002
- Foreign: ownership: the ownership level of foreign investors in 2002
- Parent: ownership: the ownership level of parent company in 2002
- Initial corporate liquidity: liquid assets/total assets in 2002
- Initial stock option: 1 if stock option outstanding assets in 2002; 0 otherwise

Instrumented variable

- RISK: the standard deviation of $EDITDA_t/Assets_t$ over 2003-2012

Table 1 Descriptive statistics

Listed companies (N=917 firm observations)

variables	Mean	Std dev	Pctile 10	Pctile 25	Median	Pctile 75	Pctile 90
RISK	0.0299196	0.0200481	0.0172888	0.0120439	0.0246236	0.0359425	0.0522924
Sales growth	0.1792753	0.5432864	-0.1363809	-0.3349557	0.0906102	0.3702601	0.7423043
Asset growth	0.1658246	0.5317835	-0.1435175	-0.3382118	0.0810609	0.350822	0.6864657
Performance	0.6849076	0.4054346	0.4146729	0.2529697	0.6144196	0.9041055	1.189531
Initial assets	160929.7	501584.8	13388	7439	31612	89000	315365
log (initial assets)	10.57826	1.485252	9.502114	8.914492	10.36129	11.39639	12.66149
Initial firm age	55.33261	16.69726	46	33	54	65	81
log (initial firm age)	3.954142	0.3857988	3.828641	3.496508	3.988984	4.174387	4.394449
Foreign ownership	0.0448724	0.090007	0	0	0.003	0.041	0.155
Parent ownership	0.0587874	0.1864604	0	0	0	0	0
Initial corporate earnings	0.0572564	0.0514544	0.028869	0.0008695	0.0538858	0.0828744	0.1186908
Initial leverage	0.5053017	0.2106262	0.3416724	0.2098963	0.5094256	0.6720234	0.7851107
Initial short-term leverage	0.336071	0.1593906	0.2152572	0.1360576	0.3260538	0.4411642	0.5481895
Initial long-term leverage	0.1692307	0.1105613	0.0812154	0.0414257	0.1550291	0.2370753	0.3135571
Initial corporate liquidity	0.433929	0.1295438	0.3448163	0.2661186	0.4262338	0.5202686	0.6020851
Initial stock option	0.1624864	0.3690977	0	0	0	0	1

Table 2 Risk-taking Regressions

	(1)	(2)	(3)	(4)	(5)
log (initial assets)	-0.003	-0.003	-0.003	-0.003	-0.003
	(5.40)***	(5.99)***	(5.93)***	(5.37)***	(5.64)***
log (initial firm age)	-0.004	-0.004	-0.004	-0.004	-0.004
	(2.12)**	(1.99)**	(2.27)**	(2.38)**	(2.41)**
Initial corporate earnings	0.027	0.026			
	(1.38)	(1.36)			
Initial short-term leverage	0.013			0.011	0.011
	(2.62)***			(2.41)**	(2.42)**
Initial long-term leverage	0.001			0	
	(0.11)			(0.07)	
Initial leverage		0.009	0.007		
		(2.22)**	(1.98)**		
Parent ownership	0.006	0.007	0.007	0.006	0.006
	(2.06)**	(2.28)**	(2.35)**	(2.13)**	(2.15)**
Foreign ownership	0.034	0.035	0.034	0.033	0.034
	(4.15)***	(4.27)***	(4.19)***	(4.09)***	(4.06)***
Initial stock option	0.001	0.001	0.001	0.001	0.001
	(0.67)	(0.66)	(0.75)	(0.77)	(0.77)
Number of Observations	917	917	917	917	917
R^2	0.18	0.18	0.17	0.18	0.18

In this table we present OLS regressions of RISK on bank dependence and ownership structure, controlling for other factors such as firm size and firm age. RISK is computed as the deviation of EBITDA/Assets adjusted with two-digit industrial mean from 2003 to 2012. EBITDA is depreciation plus operation income after depreciation. Initial variables are defined as those variables in 2002. Initial leverage is defined as the ratio of the book debt to total assets. Alternatively, we use initial short-term leverage defined as the ratio of the short-term debt to total assets and long-term leverage defined as the ratio of the long-term debt to total assets to proxy bank dependence. Foreign ownership is the ownership level of foreign investors or foreign companies in 2002. Parent ownership is the ownership level of the parent company in 2002. Initial corporate liquidity is the ratio of the liquid assets to total assets. The deviation of adjusted EBITDA/Assets is winsorized at the 0.5% level on both sides of the distribution. Z statisticaks (in parentheses below the coefficients) are based on robust standard errors. ***, **, * indicate significance at 1%, 5% and 10%.

Table 3 Firm Sales Growth Instrumental Variable Regressions

	(1)	(2)	(3)	(4)	(5)	(6)
RISK	15.24	17.068	16.755	14.371	17.75	17.46
	(2.87)***	(3.34)***	(3.39)***	(3.10)***	(3.34)***	(3.29)***
Initial corporate liquidity	-0.293	-0.306	-0.339	-0.421	-0.342	-0.341
	(1.73)*	(1.75)*	(2.09)**	(2.70)***	(2.05)**	(2.05)**
Initial corporate earnings	0.469					
	(0.87)					
Initial short-term leverage	-0.482	-0.531	-0.513		-0.517	-0.5
	(3.03)***	(3.37)***	(3.54)***		(3.44)***	(3.33)***
Initial long-term leverage	0.132	0.118				
	(0.53)	(0.47)				
Initial leverage				-0.299		
				(3.00)***		
Parent ownership					-0.07	-0.061
					(0.56)	(0.49)
Foreign ownership					-0.041	-0.063
					(0.16)	(0.24)
Initial stock option						0.049
						(0.83)
Number of Observations	917	917	917	917	917	917
Chi2	172.96	161.85	163.84	168.91	159.09	162.17
Hansen J-test	1.65	2.08	2.09	4.24	1.85	1.69
Hansen J-test p value	0.648	0.722	0.837	0.516	0.604	0.64

This table reports instrumental variable regressions of sales growth on instrumented RISK and control variables. Sales growth is sales growth over the sample period, 2003-2012. RISK is computed as the deviation of EBITDA/Assets adjusted with two-digit industrial mean from 2003 to 2012. EBITDA is depreciation plus operation income after depreciation. Initial variables are defined as those variables in 2002. Initial leverage is defined as the ratio of the book debt to total assets. Alternatively, we use initial short-term leverage defined as the ratio of the short-term debt to total assets and long-term leverage defined as the ratio of the long-term debt to total assets to proxy bank dependence. Foreign ownership is the ownership level of foreign investors or foreign companies in 2002. Parent ownership is the ownership level of the parent company in 2002. Initial corporate liquidity is the ratio of the liquid assets to total assets. RISK, sales growth is respectively winsorized at the 0.5% level on both sides of the distribution.Z statisticaks (in parentheses below the coefficients) are based on robust standard errors. ***, **, * indicate significance at 1%, 5% and 10%.

Table 4 Firm Asset Growth Instrumental Variable Regressions

	(1)	(2)	(3)	(4)
RISK	2.972	5.103	4.262	2.308
	(0.78)	(1.34)	(1.03)	(0.48)
log (initial assets)				-0.004
				-0.26
log (initial firm age)	-0.16	-0.143	-0.15	-0.152
	(2.24)**	(1.93)*	(2.03)**	(2.20)**
Initial corporate earnings	3.714	3.536	3.562	3.664
	(9.06)***	(7.95)***	(7.85)***	(8.84)***
Initial leverage		-0.135		
		(1.56)		
Initial short-term leverage			-0.096	
			(0.67)	
Initial long-term leverage			-0.187	
			(1.01)	
Initial stock option				0.11
				(2.02)**
Number of Observations	917	917	917	917
Chi2	184.59	189.39	192.36	196.55
Hansen J-test	1.26	0.33	0.27	1.45
Hansen J-test p value	0.738	0.954	0.875	0.484

This table reports instrumental variable regressions of asset growth on instrumented RISK and control variables. Asset growth is asset growth over the sample period, 2003-2012. RISK is computed as the deviation of EBITDA/Assets adjusted with two-digit industrial mean from 2003 to 2012. EBITDA is depreciation plus operation income after depreciation. Initial variables are defined as those variables in 2002. Initial leverage is defined as the ratio of the book debt to total assets. Alternatively, we use initial short-term leverage defined as the ratio of the short-term debt to total assets and long-term leverage defined as the ratio of the long-term debt to total assets to proxy bank dependence. Foreign ownership is the ownership level of foreign investors or foreign companies in 2002. Parent ownership is the ownership level of the parent company in 2002. Initial corporate liquidity is the ratio of the liquid assets to total assets. RISK, asset growth is respectively winsorized at the 0.5% level on both sides of the distribution.Z statisticaks (in parentheses below the coefficients) are based on robust standard errors. ***, **, * indicate significance at 1%, 5% and 10%.

Table 5 Firm Performance Instrumental Variable Regressions

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
RISK	12.426	13.381	12.64	13.303	11.927	12.355	9.914
	(4.31)***	(5.12)***	(5.26)***	(5.14)***	(5.39)***	(3.67)***	(4.15)***
log (initial assets)	0.003					0.003	
	(0.29)					(0.28)	
log (initial firm age)						-0.002	
						(0.04)	
Initial corporate liquidity	-0.261	-0.256	-0.282	-0.267	-0.264	-0.261	-0.257
	(2.26)**	(2.07)**	(2.41)**	(2.29)**	(2.35)**	(2.21)**	(2.44)**
Initial corporate earnings	4.671	4.571	4.603	4.565	4.681	4.671	4.748
	(14.67)***	(13.64)***	(14.04)***	(13.70)***	(15.06)***	(14.73)***	(16.13)***
Initial leverage			-0.056				
			(0.90)				
Initial short-term leverage		-0.113		-0.107			
		(1.23)		(1.21)			
Initial long-term leverage		0.038					
		(0.32)					
Parent ownership							0.131
							(2.13)**
Foreign ownership							0.087
							(0.71)
Initial stock option							-0.027
							(0.83)
Number of Observations	917	917	917	917	917	917	917
Chi2	560.08	521.89	545.09	523.64	571.6	571.95	663.86
Hansen J-test	5.93	4.15	5.37	4.31	6.18	5.9	1.68
Hansen J-test p value	0.115	0.245	0.252	0.365	0.186	0.052	0.432

 This table reports instrumental variable regressions of performance on instrumented RISK and control variables. Performance is defined as the sum of EBITDA/Assets over the sample period, 2003-2012. RISK is computed as the deviation of EBITDA/Assets adjusted with two-digit industrial mean from 2003 to 2012. EBITDA is depreciation plus operation income after depreciation. Initial variables are defined as those variables in 2002. Initial leverage is defined as the ratio of the book debt to total assets. Alternatively, we use initial short-term leverage defined as the ratio of the short-term debt to total assets and long-term leverage defined as the ratio of the long-term debt to total assets to proxy bank dependence. Foreign ownership is the ownership level of foreign investors or foreign companies in 2002. Parent ownership is the ownership level of the parent company in 2002. Initial corporate liquidity is the ratio of the liquid assets to total assets. RISK, performance is respectively winsorized at the 0.5% level on both sides of the distribution.Z statisticaks (in parentheses below the coefficients) are based on robust standard errors. ***, **, * indicate significance at 1%, 5% and 10%.

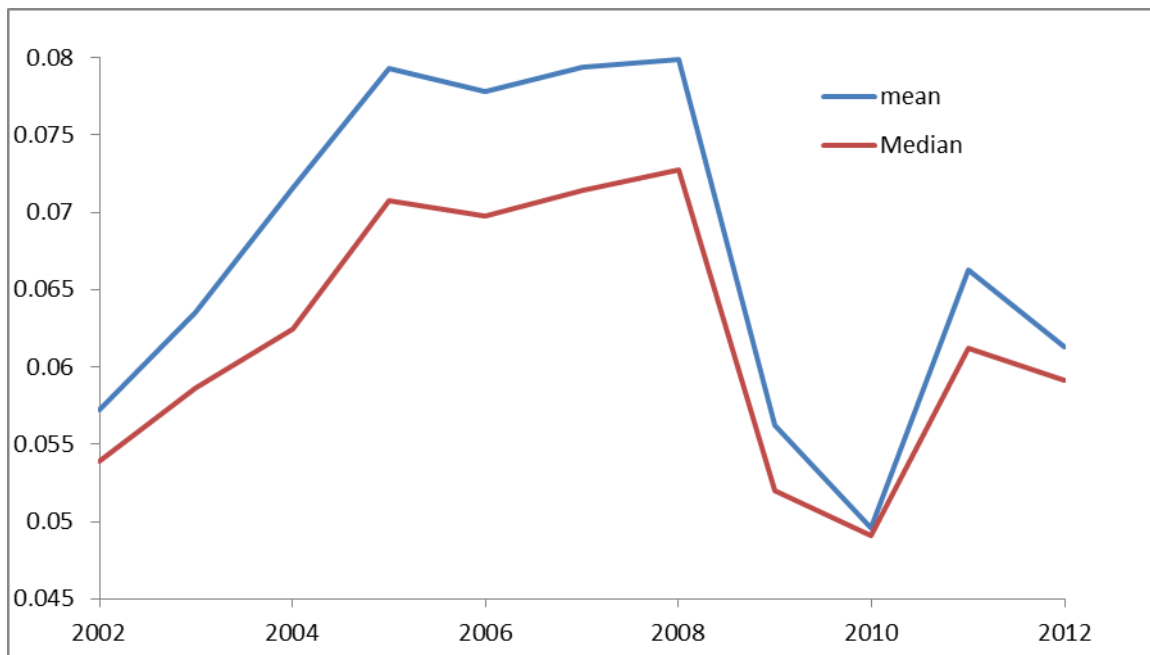Figure 1 Firm Performance (EBITDA/Assets) around the Financial Crisis

Table 6 Risk-taking, slaes growth, asset growth and corporate eranings during the Crisis

	Sales growth	Asset growth	Earnings
RISK	15.687	-0.676	1.624
	(2.98)***	(0.19)	(2.32)**
log (initial assets)	0.027		
	(1.90)*		
log (initial firm age)		-0.129	
		(2.46)**	
Initial corporate earnings		3.053	0.878
		(9.65)***	(10.78)***
Initial short-term leverage	-0.436		
	(3.63)***		
Initial long-term leverage		-0.253	
		(2.12)**	
Number of Observations	917	917	917
Chi2	132.21	215.22	380.92
Hansen J-test	1.3	2.63	2.62
Hansen J-test p value	0.728	0.453	0.623

This table reports instrumental variable regressions of performance on instrumented RISK and control variables. Performance is defined as the sum of EBITDA/Assets over the crisis years, 2009-2010. RISK is computed as the deviation of EBITDA/Assets adjusted with two-digit industrial mean from 2003 to 2012. EBITDA is depreciation plus operation income after depreciation. Initial variables are defined as those variables in 2002. Initial leverage is defined as the ratio of the book debt to total assets. Alternatively, we use initial short-term leverage defined as the ratio of the short-term debt to total assets and long-term leverage defined as the ratio of the long-term debt to total assets to proxy bank dependence. Foreign ownership is the ownership level of foreign investors or foreign companies in 2002. Parent ownership is the ownership level of the parent company in 2002. Initial corporate liquidity is the ratio of the liquid assets to total assets. RISK, performance is respectively winsorized at the 0.5% level on both sides of the distribution.Z statisticaks (in parentheses below the coefficients) are based on robust standard errors. ***, **, * indicate significance at 1%, 5% and 10%.