

# Firm Power in Industrial Chain and Debt Financing

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## Abstract

This article explores the impact of corporate value chain power on its external financing liabilities, public debt financing, and corporate performance. This study has collected cross-sectional data of 13,653 firms from the Corporate Bond Market from 2006 to 2016. The results show that the companies with greater power in the value chain have a lower proportion of financing liabilities. This finding indicates that companies with higher value chain power use less financing liabilities and tend to use non-cost commercial credit for financing. The empirical results show that although there is no significant relationship between the power of the corporate value chain and the convenience of public bond financing in all samples, for small-scale and high-growth enterprises, the greater the value chain power, the greater the scale of bond financing, the greater the cost, the lower the bond issue cost. Finally, this article reveals that small-scale, high-growth companies with higher value chain power have better financial performance.



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## 1. Introduction

The status of an enterprise in the upstream and downstream industry chain has an important impact on its business decisions. However, few studies have explored the impact of upstream and downstream industry chain relationships on corporate financial behavior. The purpose of this article is to build a value chain power index that reflects the status of the company's upstream and downstream industry chains through its capital exchange relationship with upstream and downstream enterprises, and to explore its impact on corporate financing behavior, capital structure decisions, and company performance. Classical theory often explains its relationship with upstream and downstream enterprises from the perspective of enterprise working capital management. However, a large number of recent studies show that the structure of enterprise working capital is largely determined by the company's position in the upstream and downstream industry chain. For this reason, this paper defines the value chain power as the ratio of accounts payable minus accounts receivable to sales revenue. Intuitively, the larger this indicator is, the higher the ability of an enterprise to occupy funds of upstream and downstream enterprises, reflecting the relatively strong competitiveness of the enterprise. Using this indicator, this article explores the impact of corporate value chain power on its external financing liabilities, public debt financing, and corporate performance in three separate themes.

Panel 1 examined the impact of value chain power on corporate external financing liabilities. According to the definition, a company with a higher power chain power index can obtain more business credit. In this way, the company's current assets and even some long-term assets can be met through interest-free business credit. High enterprises, low demand for external financing debt. Session 2 Data on corporate bond issuance in the open market explores the impact of corporate value chain power on bond financing scale, issue cost, and bond financing maturity structure. The empirical results show that although there is no significant relationship between the power of the corporate value chain and the convenience of public bond financing in all samples, for small-scale and high-growth enterprises, the greater the value chain power, the greater the scale of bond financing. The greater the cost, the lower the bond issue cost. This result shows that value chain power helps small and high-growth companies to obtain lower cost and larger debt financing in the open bond market. Interestingly, the greater the value chain power of small-scale, high-growth companies, the higher the proportion of short-term debt in debt financing. Finally, this article further reveals the economic consequences of the impact of value chain power through the differences in corporate financial performance. Small-scale, high-growth companies with higher value chain power have better financial performance.

## 2. Literature Review

We refer to customer power as the ability of a customer to reduce price below a supplier's normal selling price or, more generally, the ability to obtain terms of supply more favorable than a supplier's normal terms (Galbraith 1952; Chen 2008). For instance, Porter (1974, 423) points out that, where retailer power is high, a manufacturer's rate of return will be bargained down. Also, Snyder (1996, 1998) argues that customer power can intensify competition among suppliers and lead to lower prices, which reduces suppliers' profits. Besides lower selling prices, common examples of customers exercising their power include direct influence over transaction volume, more favorable trade credit terms, better product quality, and logistics (Landeros and Monczka 1989; Scherer and Ross 1990; Balakrishnan et al. 1996; Yoshino and Rangan 1995; Borghesani et al. 1997). There are many dimensions to

the concept of “power”, some of which are not readily observable (Yixin and Pornsi, 2010). Finkelstein (1992) distinguishes four sources of power: structural power, ownership power, expert power, and prestige power. Structural power is the most frequently cited in the literature and is founded on distinct organizational structure and hierarchical authority (Brass, 1984; Hambrick, 1981; Perrow, 1970; Tushman and Romanelli, 1985). Using an exploratory case methodology, Cagri Talaya and al., 2018 studied the application of power by retail buyers and how fashion suppliers deal with the application of power within sustainable supply chains by focusing on the experience of six small fashion suppliers. The empirical findings demonstrate that power is applied by enforcing collaborations and extension of responsibilities of fashion suppliers. Small fashion suppliers deal with the application of power by providing process efficiency that supports the performance of economic, environmental and social sustainable goals of retail buyers within sustainable supply chains. Their research contributes by linking the concept of power and sustainability within fashion supply chains.

Bond markets are important to economic growth for the following apparent reasons. From a macroeconomic perspective, the cash flow provided by bond securities correlate well with obligations of many institutional investors (banks, pension funds, and insurance companies, etc) and helps such investors better match the maturity of their assets and liabilities and manage risks. Bond market is particularly important to the transition of the Chinese banking sector, which has been ailed by the problem of nonperforming loans. A more developed bond market is useful in helping the banking sector to diversify the risk of its holdings and provide much-needed capital to the state-owned enterprises, which used to heavily rely on bank loans (Haizhou Huang and Ning Zhu, 2009). Brian Chabowski and al., 2019, studied the impact of a firm’s polluting activities (measured as environmental inefficiency) on the firm’s bond credit rating. The authors documented that firms with excessive polluting activities receive low bond ratings because prior research links pollution reduction to better firm performance and outcomes. They used a 29-year panel sample with 4969 firm-year observations from 1987 to 2015, the authors found a significant negative relation between environmental inefficiency and bond ratings. Their findings still hold after a battery of robustness checks. Furthermore, they found that their findings are largely driven by firms that are not near a broad bond rating change. Using a quantile regression framework for quarterly panel data from 28 countries over 1999–2015, Sabri Boubaker and al., 2019, worked on the effect of financial development on government bond returns in developed and emerging markets under different market conditions. Their results showed that the effect of financial development on government bond returns (changes in bond prices) differs according to conditions in the market and between developed and emerging markets.

Trade credit is an important source of funds for both small and large firms around the world (Petersen and Rajan, 1997; Demirguc-Kunt and Maksimovic, 2002). Many firms use trade credit both to finance their input purchases (accounts payable) and offer financing to their customers (accounts receivable). The traditional explanation for the existence of trade credit is that trade credit plays a non-financial role. That is, trade credit reduces transaction costs (Ferris, 1981), allows price discrimination between customers with different credit-worthiness (Brennan, Maksimovic, and Zechner, 1988), fosters long-term relations with customers (Summers and Wilson, 2002), and even provides a warranty for quality when customers cannot observe product characteristics (Long, Malitz and Ravid, 1993). More recently, financial theories argue that suppliers have a lending advantage over financial

institutions, due to better information (Biais and Gollier, 1997), lower borrower's opportunism (Burkart and Ellingsen, 2004), or a liquidation advantage (Fabbri and Menichini, 2010). Jiri Chod and al., 2019 examined how competition among suppliers affects their willingness to provide trade credit financing. are more concentrated. Still in accordance with Jiri Chod and al., 2019, the free rider problem is especially detrimental to a trade creditor when the free-riding suppliers are its product market competitors, leading to a negative relation between product substitutability among suppliers to a given retailer and trade credit that the former provide to the latter. The authors tested the model using both simulated and real data. The estimated relations are consistent with the model's predictions and are statistically and economically significant.

Corporate Performance is an intricate phenomenon and managers often encounter trade-off decisions with respect to different performance metrics and timeframes (e.g., Ambler and Roberts 2006; Morgan, Slotegraaf, and Vorhies 2009). Hailin Zhao and al., 2018 investigated whether corporate culture promotion impact firm performance in China in terms of firm market value, firm financial performance and innovation output. The authors found strong support that corporate culture promotion is negatively correlated to firm market value, positively correlated to innovation output and not significantly correlated to firm financial performance. Furthermore, the negative impact of corporate culture promotion on firm market value is operated by small firms and firms located in less developed provinces. Moreover, the authors found also that some precise corporate culture promotions, such as innovation culture promotion and integrity culture promotion, are not linked to firm value or financial profitability. Hongwei Cheng and al., 2018 inquired production behavior which is the expansion of environment-friendly production and accounting behavior which is the pursuit of environmental costs to study the link between environmental incentives and behaviors as well as to clarify the impacts on environmental management systems and financial performance. Using survey data from 253 Chinese manufacturing firms, the results showed that sustainable environmental incentives generated more environmental behaviors, although business-oriented environmental incentives hampered such behaviors, and sustainable firms were more related to production, while business-oriented firms were more concentrated on the accounting process. Moreover, environmental incentives and behaviors can impact firms' environmental management systems and by this way yield high advance financial performance.

Capital structure decision is the choice of a firm's mixture of sources of financing, made up of debt and equity financing (Albert Addae and al., 2013). Ross, Westerfield, & Jordan (2001, pp. 367) defined a firm's capital structure decision as 'the choice of how much debt a firm should have relative to equity'. They argued that capital structure is a reflection of a firm's borrowing policy (Albert Addae and al., 2013). It refers to the mix of long-term debt and equity financing (Brealey, Myers, & Marcus, 2009). Abor (2005, pp. 438) defined capital structure as a 'mix of different securities. The above definitions have one thing in common, that is: the firm's capital structure decision is its choice of debt-equity ratio (Albert Addae and al., 2013). Using a neutral estimator of heterogeneous speed of adjustment, Wei He, and He, NyoNyo A. Kyaw, 2018 found substantiation to sustain the tradeoff theory in that Chinese listed firms do tighten towards a mark debt ratio. The authors documented that companies with top corporate governance procedure as denoted by decrease non-tradable state ownership, taunt independent board director rate, and lack of CEO chair duality tighten quicker towards the optimal leverage. Using unbalanced panel data from non-financial listed firms, Thi Phuong Vy

Le and Thi Bich Nguyet Phan, 2017 investigated the impact of capital structure on firm performance in Vietnam during the period 2007–2012. The findings showed that all debt ratios have meaningfully negative relation to firm performance while most studies handled in developed countries document a positive link between capital structure and firm performance.

### 3. Research Gap

Our approach is motivated by the fact that no study has yet been conducted on the subject. Our study is therefore a novelty in that it brings a special touch in the field of corporate finance. The research in this paper has the following practical implications: First, although companies with higher value chain powers do not have high external debt financing needs, their status in the upstream and downstream industry chains facilitates their financing in the open bond market. The effect is particularly significant for smaller companies with better future growth. The innovation of this article is reflected in the following aspects: First, most of the previous literature discusses the structure of corporate working capital from the perspective of corporate working capital management strategies and the use of commercial credit, while this article creatively builds a reflecting enterprise based on the working capital structure. The value chain index of the relative position in the upstream and downstream industrial chains, and in-depth discussion of the impact on corporate financing behavior, further enriched the research on the impact of upstream and downstream industrial chain relationships on the true operation of enterprises. Second, the research in this article provides direct evidence that value chain power can affect corporate debt financing facilities. Value chain power can significantly reduce the issue cost of corporate bond financing and increase the scale of bond financing. Third, the research in this article points out that the impact of value chain power on different types of debt financing is heterogeneous: in public bond financing, small-scale, high-growth companies benefit more from value chain power.

### 4. Hypotheses Development

#### 4.1 Firm Power and Debt Structure

H1. firms with higher power in industrial chain have lower financial debt ratio (financial liability/ total liability) because of their better access to trade credit (e.g. account payable), that is to say financial leverage ratio is negatively correlated with firm power.

#### 4.2. Firm Power and Bond Financing

H2. Firms with higher power in industrial chain have many opportunities in the bond market.

##### 4.2.1 Firm Power and Coupon Rate

H2a. Firms with higher power in industrial chain give off bond with reduced coupon rate, i.e coupon rate is negatively correlated with firm power.

##### 4.2.2 Firm Power and Bond Amount

H2b. Firms with higher power in industrial chain throw up bond with high amount, i.e bond amount is positively correlated with firm power.

##### 4.2.3 Firm Power and Bond Maturity

H2c. Firms with higher power in industrial chain emit long term bond, that is to say bond maturity is positively correlated with firm power.

In another dynamic, we can raised a competing hypothesis to show that firm with higher power should not care much about the maturity of the bond. Indeed, firms with higher power even if they fail to emit bonds with long maturity should not have any repayment problems to date. By focusing on the measure of the proposed power, we notice that it gives an idea of the

financial situation of the companies (power: account payable - account receivables). That being, firms with higher power do show a good financial position that allows them to repay the principal and interest of the bond at any time. Based on these assumptions, we can raise the following competing hypothesis:

H2d. Firms with higher power in industrial chain should not care about the maturity of the bond because of their better ability to make money they can pay back the bond anytime.

#### 4.3 Firm Power and Corporate Performance

H3. Firms with higher power in industrial chain exhibiting good financial behaviors show good performance, that is to say corporate performance is positively correlated with firm power.

### 5. Research Method

The data for this study has been taken from a single trustworthy data source which is the "China Stock Market and Accounting Research" (CSMAR) database. To test empirically the proposed hypotheses, this study has collected unbalanced cross-sectional data of 13,653 from the Corporate Bond Market from 2006 to 2016. Thus, making a total 224,163 firms' year observations.

#### 5.1 Econometric models

The study has winsorized all the continuous variables at 1st and 99th percentiles in order to control the influence of outliers. To test the developed hypotheses, the following regressions equations have been established.

##### 5.1.1 Firm Power and Debt Structure

$$\text{Financial\_Leverage\_Ratio}_{it} = \beta_0 + \beta_1(\text{Power\_Sales})_{it} + \beta_2(\text{Rating})_{it} + \beta_3(\text{Size})_{it} + \beta_4(\text{leverage})_{it} + \beta_5(\text{Market\_Book})_{it} + \beta_6(\text{Sales\_Growth})_{it} + \beta_7(\text{Tangibility})_{it} + \beta_8(\text{Profitability})_{it} + \varepsilon_{it} \quad (5.1)$$

##### 5.1.2 Firm Power and Bond Financing

$$\text{Bond\_Financing}_{it} = \beta_0 + \beta_1(\text{Firm\_Power})_{it} + \text{CONTROLS}_{it} + \varepsilon_{it} \quad (5.2)$$

##### 5.1.2.1 Firm Power and Coupon Rate

$$\text{Coupon\_Rate}_{it} = \beta_0 + \beta_1(\text{Power\_Sales})_{it} + \beta_2(\text{Rating})_{it} + \beta_3(\text{Size})_{it} + \beta_4(\text{leverage})_{it} + \beta_5(\text{Market\_Book})_{it} + \beta_6(\text{Sales\_Growth})_{it} + \beta_7(\text{Tangibility})_{it} + \beta_8(\text{Profitability})_{it} + \varepsilon_{it} \quad (5.2.1)$$

##### 5.1.2.2 Firm Power and Bond Amount

$$\text{Bond\_Amount}_{it} = \beta_0 + \beta_1(\text{Power\_Total\_Assets})_{it} + \beta_2(\text{Rating})_{it} + \beta_3(\text{Size})_{it} + \beta_4(\text{leverage})_{it} + \beta_5(\text{Market\_Book})_{it} + \beta_6(\text{Sales\_Growth})_{it} + \beta_7(\text{Tangibility})_{it} + \beta_8(\text{Profitability})_{it} + \varepsilon_{it} \quad (5.2.2)$$

##### 5.1.2.3 Firm Power and Bond Maturity

$$\text{Bond\_Maturity}_{it} = \beta_0 + \beta_1(\text{Power\_Sales})_{it} + \beta_2(\text{Rating})_{it} + \beta_3(\text{Size})_{it} + \beta_4(\text{leverage})_{it} + \beta_5(\text{Market\_Book})_{it} + \beta_6(\text{Sales\_Growth})_{it} + \beta_7(\text{Tangibility})_{it} + \beta_8(\text{Profitability})_{it} + \varepsilon_{it} \quad (5.2.3)$$

##### 5.1.3 Firm Power and Corporate Performance

$$\text{PERF}_{it} = \beta_0 + \beta_1(\text{Power\_Sales})_{it} + \beta_2(\text{Coupon\_Rate})_{it} + \beta_3(\text{Bond\_Amount})_{it} + \beta_4(\text{Bond\_Maturity})_{it} + \beta_5(\text{Rating})_{it} + \beta_6(\text{Size})_{it} + \beta_7(\text{Leverage})_{it} + \beta_8(\text{Market\_Book})_{it} + \beta_9(\text{Sales\_Growth})_{it} + \beta_{10}(\text{Tangibility})_{it} + \beta_{11}(\text{Profitability})_{it} + \varepsilon_{it} \quad (5.3)$$

## 5.2 Variables specification

### 5.2.1 Independents variables

Table 1: Summary of independents variables

Independent variable	Measurement	Reference
Power	Accounts payables - accounts receivables	Firm power in industrial chain and debt financing
Power_Sales	Power / sales	Firm power in industrial chain and debt financing
Power_Total_Assets	Power / total asset	Firm power in industrial chain and debt financing

### 5.2.2 Dependents variables

Table 2 : Summary of dependents variables

Dependent variable	Measurement	Reference
Financial_Debt_Ratio	Financial leverage/total debt	Murillo and Janet, 2017
Coupon_Rate	The rate of the interest which bond issuer expects to pay investors to the denomination of bond in one year	CSMAR
Bond_Amount	The actual capital raised from bond issuance (issue price*number of shares)	CSMAR
Bond_Maturity	The date for paying off the principal	CSMAR
Return on Asset (ROA)	Net profit before tax/total asset	Mappanyuki & Sari, 2017 Patatoukas, P.N. , 2012
Return on Equity (ROE)	Net profit before tax/shareholder equity	Mappanyuki & Sari, 2017 Patatoukas, P.N. , 2012

### 5.2.3 Control variables

Table 3: Summary of control variables

Control variable	Measurement	Reference
Size	Log of total assets ( AT)	Murillo and Janet, 2017
Leverage	(Long-term debt (DLTT) + current debt (DLC))/total assets - book equity (CEQ)/total assets	Murillo and Janet, 2017
Market_Book (M/B)	(Stock price (PRCC)*shares outstanding (CSHO)+total assets - book equity (CEQ))/total assets	Murillo and Janet, 2017
Sales_Growth (S/G)	Change of sales/sales in $t_1$	Hansen and Mowen, 2012
Tangibility	Property, plant, and equipment (PPENT)/total assets	Murillo and Janet, 2017
Profitability	Operating income (OIBDP)/total assets	Murillo and Janet, 2017
Rating	A dummy variable that equals one if the firm has a bond rating, zero otherwise	Murillo and Janet, 2017

## 6. Results and discussion

### 6.1 Overall descriptive statistics

Table 4: Summary statistics of variables

Variable	Obs	Mean	Std. Dev.	Min	Max
Financial Leverage_Ratio	17,113	1998.526	1260.297	34.59359	5751.861
Bond_Amount	3,882	1.89e-07	4.02e-07	6.25e-10	2.89e-06
Coupon_Rate	6,608	5.939694	1.512186	.8	8.9
Bond_Maturity	17,147	5.206719	1.996247	.04	50
Power_Robustness	16,584	13.84962	76.86558	0	672.2685
ROA	17,114	.0329644	.0961141	-.017142	.7323664

ROE	17,114	.0808197	.2442481	-.0423453	1.880705
Power_ Total_Assets	16,756	-.0126574	.0643318	-.2649279	.1279595
Power_Sales	16,233	2.989897	39.50715	-126.1774	320.4464
Rating	4,683	2.126415	.8753058	1	4
Size	17,126	24.16348	1.196402	22.16879	28.61633
Leverage	11,125	.3240086	.1283233	.0730019	.6572215
Market_Book (M/B)	17,123	2.260252	3.053529	1.002583	20.44382
Sales_Growth (S/G)	16,512	6.560107	28.5748	0	239.0501
Tangibility	17,115	.1213339	.1669256	.0000261	.696457
Profitability	11,908	.4722429	1.92825	.0000134	16.08216

**Table 5: Correlation matrix of variables**

	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13	X14	X15	X16
X1	1.00															
	-	1.00														
	0.20	00														
X3	-	-	1.00													
	0.04	0.18	00													
X4	0.00	0.12	0.12	1.00												
	72	22*	32*	00												
X5	-	-	0.04	0.02	1.00											
	0.01	0.04	13*	64*	00											
X6	-	0.06	-	0.03	-	1.00										
	0.03	99	0.06	71*	0.03	00										
	0.02	0.04	-	0.02	-	0.95	1.00									
	33*	89*	0.05	79*	0.03	61*	00									
X8	0.12	-	-	0.02	0.14	-	0.00	1.00								
	32*	0.10	0.01	31*	10*	0.02	06	00								
X9	-	-	0.04	0.02	0.69	-	-	0.28	1.00							
	0.01	0.05	21*	44*	68*	0.03	0.02	91*	00							
X10	0.02	-	0.54	0.06	0.04	0.00	0.00	0.00	0.05	1.00						
	62	0.12	34*	92*	83*	14	97	70	45*	00						

	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10	X11	X12	X13	X14	X15	X16
X11	0.29 37*	- 0.32	0.08 07*	0.03 27*	0.27 45*	- 0.15	- 0.11	0.35 93*	0.30 11*	0.00 81	1.00 00					
X12	0.85 84*	- 0.22	- 0.00	- 0.00	- 0.01	- 0.01	0.04 45*	0.08 29*	- 0.02	0.00 52	0.22 76*	1.00 00				
X13	- 0.07	0.19 85*	0.11 16*	- 0.04	- 0.04	0.01 47	0.00 99	- 0.05	- 0.03	- 0.02	- 0.21	- 0.05	1.00 00			
X14	- 0.00	0.01 72	0.01 10	0.00 29	- 0.02	- 0.00	- 0.00	- 0.00	- 0.00	0.01 31	- 0.00	0.00 18	- 0.01	1.00 00		
X15	0.27 94*	- 0.10	- 0.12	0.00 44	0.17 64*	- 0.02	- 0.01	0.30 57*	0.22 73*	- 0.00	0.40 86*	0.24 99*	- 0.46	- 0.01	1.00 00	
X16	0.00 86	0.03 50	- 0.08	0.03 51*	- 0.02	0.78 69*	0.77 11*	- 0.02	- 0.02	0.01 81	- 0.07	0.03 37*	- 0.01	- 0.00	- 0.00	1.00 00

With X1= Financial\_Leverage\_Ratio; X2= Bond\_Amount; X3= Coupon\_Rate; X4= Bond\_Maturity; X5= Power\_Robustness; X6= ROA; X7= ROE; X8= Power\_Total\_Assets; X9= Power\_Sales; X10= Rating; X11= Size; X12= Leverage; X13= Market\_Book (M/B); X14= Sales\_Growth (S/G); X15= Tangibility; X16= Profitability.

## 6.2 Regression results and discussion

### 6.2.1 Firm Power and Debt Structure

Table 6: Regression results for the effect of Firm Power on Financial Leverage Ratio for all firms studied

	(1)	(2)	(3)	(4)	(5)
VARIABLES	Financial Leverage Ratio				
Power_Sales	-0.501***	-0.744	-0.844**	-0.847**	-0.983**
	(0.182)	(0.462)	(0.361)	(0.369)	(0.483)
Rating		5.544	9.323	9.282	2.843
		(14.13)	(10.16)	(10.03)	(11.18)
Size			-289.0***	-324.2***	-259.2***
			(61.47)	(60.01)	(57.32)
Leverage			7,385***	7,350***	7,271***

			(283.2)	(267.3)	(307.4)
Market_Book (M/B)				-35.42*	-29.14
				(20.12)	(19.02)
Sales_Growth (S/G)				-0.182	-0.419
				(0.276)	(0.307)
Tangibility					917.0*
					(533.8)
Profitability					26.13**
					(12.92)
Constant	2,017***	2,243***	6,751***	7,751***	6,062***
	(0.544)	(29.94)	(1,526)	(1,491)	(1,463)
Observations	16,216	4,509	2,648	2,619	1,836
R-squared	0.001	0.001	0.627	0.635	0.629
Number of id	3,266	614	582	576	525

Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 7: Regression results for the effect of Firm Power on Financial Leverage Ratio for small size and high growth firms

	(1)	(2)	(3)	(4)	(5)
VARIABLES	Financial Leverage Ratio				
Power_Sales	0.372	1.767	0.454	-0.132	-251.0***
	(0.511)	(1.547)	(0.390)	(0.367)	(21.30)
Rating		52.45	89.71	22.16	-18.69
		(98.83)	(63.48)	(59.58)	(76.86)

Size			194.9	173.8	3,446**
			(158.4)	(182.1)	(1,436)
Leverage			5,364***	6,692***	1,435
			(786.5)	(927.7)	(1,100)
Market_Book (M/B)				175.0**	707.9***
				(82.25)	(152.4)
Sales_Growth (S/G)				-0.542	4.222***
				(1.654)	(0.968)
Tangibility					-2,926
					(2,216)
Profitability					198.1***
					(17.19)
Constant	1,963***	2,068***	-4,610	-5,081	-84,224**
	(1.007)	(212.6)	(3,911)	(4,548)	(35,219)
Observations	1,711	349	212	183	125
R-squared	0.000	0.008	0.538	0.647	0.982
Number of id	1,326	249	175	157	116

Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 8: Regression results for the effect of Firm Power on Financial Leverage Ratio for big size and low growth firms

	(1)	(2)	(3)	(4)	(5)
VARIABLES	Financial Leverage Ratio				
Power_Sales	-0.478*	-0.702	-0.302	-0.308	0.0409
	(0.262)	(0.622)	(0.466)	(0.469)	(0.270)

Rating		-8.233	6.648	6.517	9.732
		(19.46)	(11.20)	(11.22)	(12.72)
Size			-303.7***	-301.5***	-357.8***
			(61.85)	(67.33)	(61.91)
Leverage			8,130***	8,134***	7,869***
			(263.3)	(270.1)	(324.9)
Market_Book (M/B)				7.793	-50.51
				(57.28)	(58.55)
Sales_Growth (S/G)				-1.733	-9.975
				(6.757)	(7.478)
Tangibility					967.0**
					(414.4)
Profitability					-10.81
					(14.50)
Constant	2,478***	2,585***	7,221***	7,152***	8,637***
	(2.644)	(41.58)	(1,597)	(1,791)	(1,664)
Observations	5,943	2,109	1,301	1,301	941
R-squared	0.001	0.002	0.686	0.686	0.680
Number of id	1,601	394	343	343	299

Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 8 shows the regression results for the effect of firm power on financial leverage ratio while controlling for the previously mentioned control variables. As we can notice in the three tables presented here, the effect of firm power on debt structure is pronounced among all the firms studied. The coefficient of interaction between firm power and the financial leverage ratio is negative and significant (-0.983\*\*) as predicted in the hypothesis development. Clearly, firms with higher power, i.e. having a good financial situation, will see their financial leverage ratio (financial liability/total liability) reduced because of their better access to trade credit (e.g. account payable). In fact, firms resort on external financing like bond and loan only when they have no choice because of the high cost of debt. This being the case, the companies showing a good financial situation that is to say having power of

influence can negotiate directly with their suppliers trade credit which will allow them to have quite reasonable payment periods.

### 5.3.2 Firm Power and Bond Financing

#### 5.3.2.1 Firm Power and Coupon Rate

Table 9: Regression results for the effect of Firm Power on Coupon Rate for all firms

	(1)	(2)	(3)	(4)	(5)
VARIABLES	Coupon Rate	Coupon Rate	Coupon Rate	Coupon Rate	Coupon Rate
Power_Sales	0.000597 (0.000466)	-4.67E-05 (0.000511)	-0.000532 (0.000575)	-0.000541 (0.000594)	-0.000345 (0.000470)
Rating		0.649*** (0.0221)	0.656*** (0.0309)	0.652*** (0.0311)	0.672*** (0.0400)
Size			0.0187 (0.0671)	0.0363 (0.0716)	0.0168 (0.0896)
Leverage			0.0863 (0.300)	0.168 (0.298)	-0.136 (0.420)
Market_Book (M/B)				0.0361 (0.0259)	0.0196 (0.0314)
Sales_Growth				-8.56E-05 (0.000607)	0.000252 (0.000880)
Tangibility					0.161 (0.450)
Profitability					0.0137 (0.0344)
Constant	5.937*** (0.00156)	4.665*** (0.0470)	4.183** (1.645)	3.603** (1.790)	4.176* (2.254)

Observations	6,310	4,487	2,632	2,603	1,826
R-squared	0.000	0.293	0.304	0.305	0.324
Number of id	822	614	581	575	525

Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 10: Regression results for the effect of Firm Power on Coupon Rate for small size and high growth firm

	(1)	(2)	(3)	(4)	(5)
VARIABLES	Coupon Rate	Coupon Rate	Coupon Rate	Coupon Rate	Coupon Rate
Power_Sales	-0.00294*** (0.000995)	-0.00181 (0.00185)	-0.00206 (0.00294)	-0.00121 (0.000855)	-0.154** (0.0727)
Rating		0.661*** (0.114)	0.920*** (0.183)	1.074*** (0.207)	0.809*** (0.262)
Size			0.158 (0.170)	0.333* (0.190)	13.21*** (4.899)
Leverage			-2.600* (1.563)	-1.167 (1.843)	12.65*** (3.753)
Market_Book (M/B)				0.0601 (0.176)	1.619*** (0.520)
Sales_Growth (S/G)				-0.00151 (0.00213)	0.00298 (0.00330)
Tangibility					-28.26*** (7.561)
Profitability					-0.0594 (0.0586)
Constant	6.050***	4.779***	1.298	-3.961	-326.8***

	(0.00105)	(0.246)	(4.341)	(5.352)	(120.2)
Observations	506	345	211	182	125
R-squared	0.005	0.343	0.496	0.643	0.962
Number of id	357	245	174	156	116

Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 11: Regression results for the effect of Firm Power on Coupon Rate for big size and low growth firms

	(1)	(2)	(3)	(4)	(5)
VARIABLES	Coupon Rate				
Power_Sales	0.000991*	0.000919*	0.000190	0.000156	-0.000209
	(0.000507)	(0.000520)	(0.000831)	(0.000852)	(0.000893)
Rating		0.654***	0.672***	0.671***	0.722***
		(0.0319)	(0.0453)	(0.0455)	(0.0602)
Size			-0.111	-0.0602	0.0252
			(0.138)	(0.150)	(0.138)
Leverage			-0.192	-0.117	-0.415
			(0.471)	(0.475)	(0.673)
Market_Book (M/B)				0.155	0.191
				(0.112)	(0.126)
Sales_Growth (S/G)				-0.0127	-0.0411*
				(0.0179)	(0.0244)
Tangibility					-0.0352
					(0.717)
Profitability					0.0649

					(0.0557)
Constant	5.851***	4.580***	7.435**	5.846	3.598
	(0.00399)	(0.0687)	(3.487)	(3.891)	(3.637)
Observations	2,958	2,096	1,292	1,292	933
R-squared	0.001	0.294	0.314	0.316	0.349
Number of id	542	394	343	343	299

Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 10 presents the results for the effect of firm power on coupon rate while controlling for the previously mentioned control variables. As we can see, among the three tables presented above, the effect of firm power on coupon rate is more pronounced among firms that are constrained by information asymmetry (e.g. small firms, high growth firms). The coefficient of interaction between firm power and coupon rate is negative and significant (-0.154\*\*) as predicted in the hypothesis development. In a simple logic, firms showing higher power see their cost of debt reduced because of their better ability to pay back debt easily. The major effect that leads to this conclusion is that, thanks to their power, firms have shown a good financial position. The latter attracted the confidence of investors who decided to buy bonds by not imposing much guaranties on the issuing firms.

### 5.3.2.2 Firm Power and Bond Amount

Table 12: Regression results for the effect of Firm Power on Bond Amount for all firms studied

	(1)	(2)	(3)	(4)	(5)
VARIABLES	Bond Amount				
Power_Total_Assets	0.867	1.899	1.488	1.762	1.314
	(3.397)	(3.351)	(3.058)	(3.054)	(4.835)
Rating		-0.846***	-0.857***	-0.867***	-0.926***
		(0.120)	(0.117)	(0.118)	(0.148)
Size			-1.553***	-1.671***	-1.500***
			(0.262)	(0.300)	(0.440)
Leverage			-5.693***	-6.213***	-5.332***
			(1.118)	(1.177)	(1.635)
Market_Book (M/B)				-0.144	-0.148

				(0.123)	(0.135)
Sales_Growth (S/G)				-0.00265	0.000512
				(0.00191)	(0.00121)
Tangibility					1.492
					(0.956)
Profitability					-0.00233
					(0.0590)
Constant	1.896***	3.419***	43.38***	46.99***	42.54***
	(0.0109)	(0.255)	(6.635)	(7.838)	(11.23)
Observations	3,879	2,704	2,704	2,631	1,846
R-squared	0.000	0.058	0.115	0.123	0.121
Number of id	800	596	596	579	528

Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 13: Regression results for the effect of Firm Power on Bond Amount for small size and high growth firms

	(1)	(2)	(3)	(4)	(5)
VARIABLES	Bond Amount				
Power_Total_Assets	1.048	27.45	30.11**	29.67*	204.7***
	(15.30)	(17.73)	(15.15)	(17.30)	(16.25)
Rating		-0.567**	-0.478**	-1.067***	7.977***
		(0.275)	(0.206)	(0.361)	(0.371)
Size			-2.873***	-2.211***	-183.7***
			(0.386)	(0.758)	(9.305)
Leverage			-7.784**	-14.63***	43.80***
			(3.686)	(4.892)	(5.380)

Market_Book (M/B)				0.0948	-21.80***
				(0.398)	(1.205)
Sales_Growth (S/G)				-0.0164**	-0.101***
				(0.00754)	(0.00159)
Tangibility					194.5***
					(2.813)
Profitability					-1.796***
					(0.0883)
Constant	2.076***	2.922***	75.26***	63.22***	4,535***
	(0.0234)	(0.621)	(9.821)	(20.85)	(230.7)
Observations	401	255	255	182	124
R-squared	0.000	0.042	0.137	0.582	0.993
Number of id	280	189	189	157	115

Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 14: Regression results for the effect of Firm Power on Bond Amount for big size and low growth firms

	(1)	(2)	(3)	(4)	(5)
VARIABLES	Bond Amount				
Power_Total_Asset	-2.799	-0.428	0.0871	0.142	0.344
	(2.104)	(1.173)	(1.135)	(1.112)	(1.778)
Rating		-0.306***	-0.310***	-0.313***	-0.363***
		(0.0737)	(0.0729)	(0.0722)	(0.0987)
Size			-0.363***	-0.193**	-0.204**
			(0.0732)	(0.0757)	(0.0913)
Leverage			-2.215***	-2.007***	-2.637***

			(0.553)	(0.493)	(0.912)
Market_Book (M/B)				0.451**	0.456*
				(0.198)	(0.249)
Sales_Growth (S/G)				0.0400	0.0135
				(0.0316)	(0.0299)
Tangibility					-0.0880
					(0.498)
Profitability					0.0196
					(0.0593)
Constant	0.735***	1.210***	11.20***	5.913***	6.538***
	(0.0205)	(0.155)	(1.924)	(2.076)	(2.470)
Observations	1,846	1,310	1,310	1,310	947
R-squared	0.002	0.059	0.085	0.100	0.106
Number of id	489	346	346	346	302

Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 14 highlights the results for the effect of firm power on bond amount while controlling for the previously mentioned control variables. As for the effect of firm power on coupon rate, the effect of firm power on bond amount is more pronounced among firms that are constrained by information asymmetry (e.g. small firms, high growth firms). The coefficient of interaction between firm power and bond amount is positive and significant (204.7\*\*\*) as predicted in the hypothesis development. The results show clearly that firms with higher power in industrial chain because of their good financial position can emit a large number of shares. Indeed, in deciding to buy shares investors do not doubt on the ability of the company to repay the debt to date.

### 5.3.2.3 Firm Power and Bond Maturity

Table 15: Regression results for the effect of Firm Power on Bond Maturity for all firms studied

	(1)	(2)	(3)	(4)	(5)
VARIABLES	Bond Maturity				
Power_Sales	0.00124***	0.00256***	0.00241*	0.00256*	0.00111

	(0.000288)	(0.000867)	(0.00145)	(0.00149)	(0.00187)
Rating		0.263***	0.218***	0.227***	0.112
		(0.0633)	(0.0809)	(0.0820)	(0.0971)
Size			0.189***	0.194***	0.0797
			(0.0504)	(0.0543)	(0.0674)
Leverage			-0.288	-0.246	-1.242**
			(0.486)	(0.498)	(0.601)
Market_Book (M/B)				0.00568	-0.0212
				(0.0154)	(0.0181)
Sales_Growth (S/G)				-0.000801	-0.00402
				(0.00207)	(0.00264)
Tangibility					1.567***
					(0.447)
Profitability					0.0871**
					(0.0388)
Constant	5.214***	5.426***	0.975	0.788	4.157**
	(0.0158)	(0.166)	(1.237)	(1.379)	(1.728)
Observations	16,233	4,512	2,648	2,619	1,836
R-squared	0.001	0.007	0.012	0.013	0.021

Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 16: Regression results for the effect of Firm Power on Bond Maturity for small size and high growth firms

	(1)	(2)	(3)	(4)	(5)
VARIABLES	Bond Maturity				
Power_Sales	-0.000178	-1.04E-05	-0.00317	-0.0103***	-0.466***
	(0.00179)	(0.00680)	(0.00856)	(0.00222)	(0.0382)
Rating		-0.712**	-0.331	-0.433	-1.974***

		(0.311)	(0.370)	(0.488)	(0.138)
Size			0.404	-0.193	-10.25***
			(0.366)	(0.372)	(2.573)
Leverage			0.895	-3.248	37.94***
			(3.692)	(4.869)	(1.971)
Market_Book (M/B)				-0.461	-1.059***
				(0.589)	(0.273)
Sales_Growth (S/G)				0.000808	0.0208***
				(0.00534)	(0.00173)
Tangibility					-136.5***
					(3.970)
Profitability					-0.474***
					(0.0308)
Constant	5.191***	7.545***	-3.492	14.37	272.8***
	(0.00353)	(0.668)	(9.301)	(10.85)	(63.10)
Observations	1,711	349	212	183	125
R-squared	0.000	0.075	0.026	0.099	0.997
Number of id	1,326	249	175	157	116

Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 17: Regression results for the effect of Firm Power on Bond Maturity for big size and low growth firms

	(1)	(2)	(3)	(4)	(5)
VARIABLES	Bond Maturity				
Power_Sales	0.00149***	0.00301***	0.00196	0.00196	0.00171
	(0.000352)	(0.000945)	(0.00171)	(0.00173)	(0.00224)
Rating		0.0757	0.102	0.0995	0.000282

		(0.0943)	(0.114)	(0.115)	(0.129)
Size			0.318***	0.311***	0.0359
			(0.0718)	(0.0753)	(0.0955)
Leverage			-0.979	-1.020	-2.233***
			(0.641)	(0.652)	(0.769)
Market_Book (M/B)				-0.00950	-0.00591
				(0.0517)	(0.0588)
Sales_Growth (S/G)				-0.0940	-0.0867
				(0.0660)	(0.0747)
Tangibility					2.587***
					(0.581)
Profitability					0.138***
					(0.0324)
Constant	5.250***	5.953***	-1.829	-1.510	5.691**
	(0.0310)	(0.246)	(1.885)	(2.039)	(2.560)
Observations	5,953	2,111	1,301	1,301	941
R-squared	0.001	0.003	0.022	0.023	0.052

Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 17 supplies the results for the effect of firm power on bond maturity while controlling for the previously mentioned control variables. As for the coupon rate and bond amount analyzed above, the effect of firm power on bond maturity is more pronounced among small size firms with high growth. The results show a negative and significant correlation between Firm Power and Bond Maturity in the presence of the control variables (-0.466\*\*\*). In reference to our hypothesis which predicted a positive correlation to show that firms with higher power because of their ability to negotiate can emit bond with long maturity so that they will not have the pressure of repayment in a short time, we see that the hypothesis is not supported. This situation i.e. the negation of the coefficient interaction would be worrisome if we were in the presence of firms with less power. Firms showing less power would not be able to gain the confidence of investors in order to issue bonds with long maturity. However, firms with higher power are not affected by this phenomenon. It is at this level that the competing hypothesis raised above makes sense. Indeed, the competing hypothesis comes up

to predict that firms with higher power should not care about the maturity of the bond. With their higher power i.e. their good financial situation, the firms will be able to pay back the principal and the interest of the bond at anytime without major difficulties.

### 5.3.4 Firm Power and Corporate Performance

Table 18: Regression results for the effect of Firm Power on Corporate Performance for all firms studied

	(1)	(2)
VARIABLES	ROA	ROE
Power_Sales	0.000240**	0.000511
	(0.000102)	(0.000411)
Coupon_Rate	-0.000288	-0.000202
	(0.00935)	(0.00271)
Bond_Amount	0.003	0.002
	(0.771)	(0.895)
Bond_Maturity	0.108**	-0.030*
	(0.041)	(0.0971)
Rating	-0.000772	0.00103
	(0.00144)	(0.00522)
Size	-0.0173**	-0.0670***
	(0.00684)	(0.0221)
Leverage	-0.0284	0.0572
	(0.0363)	(0.142)
Market_Book (M/B)	-0.000815	-0.00439*
	(0.000940)	(0.00254)
Sales_Growth (S/G)	6.15E-05**	8.71E-05
	(2.84E05)	(6.65E05)
Tangibility	0.0969***	0.330***
	(0.0348)	(0.102)

Profitability	0.0379***	0.0822***
	(0.00776)	(0.0178)
Constant	0.438**	1.627***
	(0.176)	(0.536)
Observations	1,837	1,836
R-squared	0.337	0.242
Number of id	525	525

Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 19: Regression results for the effect of Firm Power on Corporate Performance for small size and high growth firms

	(1)	(2)
VARIABLES	ROA	ROE
Power_Sales	0.00305***	0.00579***
	(0.000288)	(0.000610)
Coupon_Rate	-0.206**	-0.214**
	(0.156)	(0.156)
Bond_Amount	0.645**	0.391**
	(0.476)	(0.472)
Bond_Maturity	0.418**	0.003
	(0.034)	(0.771)
Rating	-0.00246**	-0.00934***
	(0.00104)	(0.00220)
Size	-0.0106	0.0384
	(0.0194)	(0.0411)
Leverage	0.288***	0.694***

	(0.0149)	(0.0315)
Market_Book (M/B)	0.00195	0.0141***
	(0.00206)	(0.00437)
Sales_Growth (S/G)	-1.81E-05	-2.03E-05
	(1.31E05)	(2.77E05)
Tangibility	-0.0910***	-0.248***
	(0.0299)	(0.0635)
Profitability	0.00186***	0.00726***
	(0.000232)	(0.000492)
Constant	0.182	-1.148
	(0.476)	(1.009)
Observations	125	124
R-squared	0.995	0.997
Number of id	116	115

Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 20: Regression results for the effect of Firm Power on Corporate Performance for big size and low growth firms

	(1)	(2)
VARIABLES	ROA	ROE
Power_Sales	-3.82E-06	-5.50E-05
	(7.68E06)	(6.68E05)
Coupon_Rate	-8.43E-06	-3.79E-05
	(3.19E+05)	(7.04E+05)
Bond_Maturity	0.002	-0.108**
	(0.895)	(0.041)
Bond_Amount	-0.0345	0.0155

	(0.0499)	(0.0480)
Rating	-0.000957	-0.00441
	(0.00134)	(0.00417)
Size	-0.00776*	-0.0303***
	(0.00410)	(0.0112)
Leverage	0.0482*	0.202**
	(0.0270)	(0.0922)
Market_Book (M/B)	0.00462**	0.00373
	(0.00225)	(0.00744)
Sales_Growth (S/G)	-0.000706	0.000954
	(0.000531)	(0.00241)
Tangibility	0.0931**	0.232**
	(0.0362)	(0.0952)
Profitability	0.0491***	0.0900***
	(0.00294)	(0.0126)
Constant	0.158	0.765***
	(0.102)	(0.286)
Observations	941	1,298
R-squared	0.642	0.016
Number of id	299	342

Robust standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

Table 19 shows the results for the effect of Firm Power on Corporate Performance while controlling for the previously mentioned control variables. Here, the effect of firm power on corporate performance is more pronounced among that are constrained by information asymmetric. This is here the case for small size and high growth firms. The coefficient of interaction between firm power and RAO and ROE respectively 0.00305\*\*\* and 0.00579\*\*\* are found both to be positive and significant. These results support us in our desire to show that firms with higher in industrial chain exhibiting good financial behaviors show good performance. As explained above, these results are the consequence of firms with good financial behaviors that have successfully raised funds in the bond market and secured loans from banks. This shows that firm power and its interactions with financing behaviors naturally influence corporate performance.

## 7. Conclusion

This study analyzed the effect of Firm Power on Debt Structure, Bond Financing, and investigates how debt financing (bond) moderates the relation between firm power and corporate performance. Using data taken from the “China Stock Market and Accounting Research” (CSMAR) database, this study has collected unbalanced cross-sectional of 13,653 from the Bond Market from 2006 to 2016. Employing fixed effects regression, the results show that firms with higher power, i.e having a good financial position, will see their financial leverage ratio (financial liability / total liability) reduced because of their better access to trade credit (e.g. account payable), firms with higher power in industrial chain have many opportunities in the bond market. Clearly, firms with higher power in industrial chain emit bonds with reduced coupon rate, with high amount and throw up long term bond. Last but not least, the results show that firms with higher power in industrial chain exhibiting good financial behaviors show good performance.

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