

Corporate Social Responsibility, Financing Ability and Innovation Input: An Empirical Analysis based on A-share Listed Companies

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Abstract— In the past few years, the Chinese economy has been in a rapid soaring. Whether enterprises could shoulder social responsibility has been a great highlight to the public. This research explores the impact of shouldering social responsibility on the innovation investment capacity of enterprises. The A-share listed companies for the period 2013-2018 in our country are used as the study sample, excluding financial industry, real estate industry and enterprises that have been st/*st during the research period. The analysis for this study was done using a STATA regression model. The result shows that shouldering social responsibility is a promoter for innovation investment, and external financing is an intermediary of the impact of corporate social responsibility on innovation investment. This means that shouldering social responsibility could enhance the external investment capacity of enterprises to push the innovation input of enterprises.

Keywords— Corporate social responsibility, Innovation input, Intermediary effect, Financing Ability.

I. INTRODUCTION

Findings are consistent with a process of “indirect value-creation” beneath which firms’ CSR/ESG arrangement appropriation at first improves their capacity to seek after development exercises and, after, that inevitably influences emphatically their esteem creation and budgetary operational execution (David C. Broadstock et al. 2019). The experimental discoveries give two extraordinarily curiously discoveries: CSI occurrences have a longer persevering impact than CSR activities and those firms doing small CSR and small CSI perform way better than firms locks in in tall levels of both (Price et al. 2017). The comes about recommend that a firm’s motivation to offer way better employee-related CSR is an imperative determinant of its advancement. The positive effect is more pronounced when employees’ input into innovation is more important, and when free-riding among employees is stronger. Additional tests indicate that more employee-related CSR spurs innovation through employee stability and innovation efficiency (Yongliang Zeng et al. 2020). The viewpoint, predominantly by Local Authority, civil society and community-oriented perspective was sceptical about effects of CSR, mining and reiterated strong concerns about negative impacts (Francis Mbilima, 2019). Cross-sectional prove shows the noticeable quality of the contracting channel through which social capital relates to development. Social capital is additionally emphatically related with trademarks and adequacy of corporate R&D uses (Iftekhar Hasan et al. 2020).

II. HYPOTHESIS DEVELOPMENT

Enterprises enhance the sustainable development ability and competitive strength by undertaking social responsibility, which is good for the growth of enterprises. Enterprises could enhance the trust from consumers and gain income by

providing social responsibility for them; and then they could increase the innovation investment ratio according to the preference of consumers. Therefore, enterprises would add innovation input for the undertaking of social responsibility. Thus, the paper suggests the following hypotheses:

H1: Undertaking corporate social responsibility is a promoter to the innovation input Through undertaking corporate social responsibility, enterprises could gain all kinds of resources from all stakeholders to achieve a good vision to gain much more external financing. Enterprises make social investment for the society, which would add reputation and gain favor from much more banks and other financing departments, so that they could gain much more external financing. It could be seen that enterprises shouldering social responsibility would increase external financing so that enterprises could gain the biggest innovation input. While the rate of banking loan is the highest among external financing since financing is the only method to extend the loan. Based on this, the paper suggests the following hypothesis:

H2: Loan amount per capita could work as an intermediary in the impact of corporate social responsibility on innovation input, which means enterprises shouldering social responsibility could increase innovation input by gaining much more loan amount per capita.

III. MATERIALS AND METHODS

Sample and Data

The A-share listed companies in China for the period 2013-2018 are used as the study sample for this paper. These exclude the financial industry, real estate industry and enterprises that have been st/*st during the research period. The final data are 17022 observations from 2837 enterprises. To eliminate the impact of extreme value, 1% quantile tailing is processed for continuous variables with outliers. Information pertaining to the corporate social responsibility

undertaken are obtained from the corporate social responsibility reports of listed companies in Hexun while others are from the database of China Stock Market & Accounting Research Database (CSMAR).

Main Variables

The paper deems the corporate innovation input as the explained variable and the R&D expenditure is deemed as a surrogate variable for corporate innovation input. To erase the difference among order of magnitude, the paper takes the logarithm of R & D expenditure. The corporate social responsibility is deemed as an explanatory variables. Based on the accuracy and availability of data, it is adopted with the

social responsibility score data of listed companies released by the corporate report of Hexun. The loan amount per capita is an intermediary variable. To remove the difference of order of magnitude, the paper takes the logarithm of the amount of bank loan obtained by the enterprise in that year. The independent director percentage (IDEP), return of assets (ROA), corporate size (SIZE), assets leverage ratios (LEV), market value/book value (MB), ownership concentration (TOP), board size (DP), property right nature (STATE), growth (GROWTH) are control variables. Table 1 presents the explanations for the indexes above.

TABLE 1. Definition of variables

Type of Variables	Name of Variables	Symbols of Variables	Description of Variables
Explained variable	Corporate innovation investment	RD	R&D expenditure
Explanatory variable	Corporate social responsibility	CSR	Total score of social responsibility report of listed companies in Hexun
Intermediary variable	Loan amount per capital	Inperdebt	Loan amount gained by enterprises from banks
Control variable	Independent director percentage	IDEP	Number/total number of independent directors
	Return of assets	ROA	Net profit / total assets
	Corporate size	SIZE	Natural logarithm of total assets
	Asset-liability ratio	LEV	Total liabilities / total assets
	Market value/book value	MB	Current price per share / book value per share
	Ownership concentration	TOP	Shareholding percentage of top ten shareholders
	Board size	DP	Number of board of directors
	Property right nature	STATE	1 for state-owned, 0 for non-state-owned
	Growth	GROWTH	Growth rate of business income

Model

The paper builds up the following models:

$$RD_{i,t} = \alpha_0 + \alpha_1 CSR_{i,t} + \alpha_2 Lev_{i,t} + \alpha_3 Size_{i,t} + \alpha_4 Growth_{i,t} + \alpha_5 Roa_{i,t} + \alpha_6 Idep_{i,t} + \alpha_7 Top_{i,t} + \Sigma Industry + \Sigma Year + \epsilon_{i,t} \quad (1)$$

$$Inperdebt_{i,t} = \beta_0 + \beta_1 CSR_{i,t} + \beta_2 Lev_{i,t} + \beta_3 Size_{i,t} + \beta_4 Growth_{i,t} + \beta_5 Roa_{i,t} + \beta_6 Idep_{i,t} + \beta_7 Top_{i,t} + \Sigma Industry + \Sigma Year + \epsilon_{i,t} \quad (2)$$

$$RD_{i,t} = \lambda_0 + \lambda_1 CSR_{i,t} + \lambda_2 Inperdebt_{i,t} + \lambda_3 Lev_{i,t} + \lambda_4 Size_{i,t} + \lambda_5 Growth_{i,t} + \lambda_6 Roa_{i,t} + \lambda_7 Idep_{i,t} + \lambda_8 Top_{i,t} + \Sigma Industry + \Sigma Year + \epsilon_{i,t} \quad (3)$$

The most common method to test the intermediary effect is the intermediary effect test procedure suggested by previous scholars (Wen Zhonglin, Ye Baojuan, et al 2014). The core is to gradually test whether the regression coefficients in the model (1) –(3) is significant without 0.

Descriptive Statistics

Before the analysis of empirical results, there should be descriptive statistics for all major variables. Seen from chart 2, the average of innovation input is 16.649 and the standard

deviation is 4.578. The minimum value is 0 and the maximum value is 21.768, which means that the innovation input level of different enterprises is quite different. The average value of corporate social responsibility is 21.129 and the standard deviation is 13.284 with the median of 20.17, which means most of enterprises positively undertake the social responsibility, and there is a huge gap in the social responsibility undertaken by different enterprises.

TABLE 2. Descriptive Statistical Analysis of Variables

Variables	Observationvalue	Average value	Standard deviation.	Minimum value	Median	Maximum value
RD	17022	16.649	4.578	0	17.690	21.768
CSR	17022	21.129	13.284	0	20.17	72.03
Inperdebt	17022	17.541	6.631	0	19.633	24.466
Lev	17022	0.424	0.2	0.061	0.411	0.945
Size	17022	22.093	1.277	19.585	21.932	26.054
Growth	17022	0.149	0.343	-0.594	0.101	1.866
Roa	17022	0.031	0.069	-0.37	0.034	0.182
Idep	17022	0.375	0.053	0.333	0.333	0.571
Top	17022	0.582	0.156	0.208	0.590	0.939

IV. RESULTS

Seen from chart 3, the regression coefficient of CSR is 0.047 and it is significant in 1%, which shows that corporate social responsibility has positive and significant in innovation investment, so enterprise carrying out social corporate responsibility could improve the innovation investment level.

TABLE 3. Regression Result of Corporate Social Responsibility and Innovation Investment

	(1) lnRD
CSR	0.047*** (16.25)
Lev	-3.54*** (-18.15)
Size	1.037*** (33.82)
Growth	0.215** (2.19)
Roa	4.53*** (7.97)
Idep	0-.306 (-0.50)
Top	1.47*** (6.83)
Year	Yes
Industry	Yes
_cons	-7.277*** (-11.03)
R-squared	0.157

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; The value in brackets is t value

It could be concluded from chart 4 that CSR has positive and significant impact on lnInperdebt. In CSR and lnRD, lnInperdebt plays partial intermedia, which means corporate social responsibility could affect the innovation investment level by affected external financing.

TABLE 4. Regression Chart of Intemediary Role of Extemal Financing

	(2) lnInperdebt	(3) lnRD
CSR	0.031*** (8.21)	0.046*** (15.62)
lnInperdebt		0.06*** (10.18)
Lev	11.077*** (43.90)	-4.207*** (-20.50)
Size	1.683*** (42.44)	0.935*** (29.10)
Growth	1.031*** (8.10)	0.153 (1.56)
Roa	1.584** (2.15)	4.434*** (7.82)
Idep	-1.449* (-1.82)	-0.219 (-0.36)
Top	-1.15*** (-4.13)	1.54*** (7.17)
Year	Yes	Yes
Industry	Yes	Yes
_cons	-23.973*** (-28.09)	-5.834*** (-8.67)
R-squared	0.327	0.162

V. DISCUSSION

Corporate social responsibility is in positive correlation for innovation input. By far, the undertaking of corporate social responsibility is still insufficient in our country, so enterprises could have innovation input by positively undertaking their social responsibility to enhance the enterprise competitiveness. External financing works as an intermedia in the impact of corporate social responsibility on innovation input. Enterprises could accumulate external investment resource through performing social responsibility to enhance the corporate innovation input capacity. The conclusion of the research means an apocalypse for executives and employees of enterprises: positively undertaking social responsibility is an input of corporate input, so enterprises and their executives shall not deem it as a burden. Enterprises could gain innovation input capital by performing social responsibility to prompt the development.

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