An Empirical Study on the Impact of Corporate Governance Level on Investor Confidence Under the Supply Chain Finance

Yuqin Jin

School of Finance, Tianjin University of Finance and Economics, Tianjin, 300222, China

jinyuqin@stu.tjufe.edu.cn

Abstract. With the rapid development of cloud computing and financial technology, supply chain finance gradually takes a significant role at the financial market. More investors consider that as the future trend of enterprising growth. There is no denying that boosting investor confidence is the foundation for a capital market to achieve sustainable development. Does the quality of corporate governance affect investor confidence? Based on theoretical and empirical analysis, investor confidence is affected by managerial compensation, managerial shareholding ratio, independent director ratio and board size. Moreover, in the sample of A-share listed companies in China stock market in 2017-2021, corporate governance level is constructed as a synthetical indicator by using PCA to investigate its impact on investor confidence under the supply chain finance model. The results show that the higher the corporate governance level, the stronger the investor confidence. Based on the above findings, a series of recommendations are put forward aimed at improving the government's regulatory capacity as well as corporate governance level.

Keywords: Corporate governance; Investor confidence; PCA; Supply chain finance.

1. Introduction

Widespread attention from academia and regulatory authorities is hooked on supply chain finance. In the traditional financing model, a bank loan approval process is taking far too long to complete and even faces the possibility of being rejected because of fund shortage, dissatisfied financial situation, imperfect enterprise system, information asymmetry and so on. Therfore, the lending banks tend to rate these companies with more discretion. And investors become anxious about the future potential of SMEs and hesitate to invest that apprently influence their own development. Furthermore, the low credit rating of SMEs not only raises the financing barriers but also makes companies themselves lie in the dilemma between huge demand of investment and weak trust for a long time. It is generally believed that the low credit quality leads to the frequent refusal of SMEs loan from the perspective of financial institutions (Zhu et al., 2019) [1]. Thereafter, with the further exploration of blockchain, artificial intelligence, cloud computing and big data, it is practical and significant that the highly integration of supply chain finance and financial technology promotes to the accelerating development of SMEs and also attracts more investors' attention.

China’s real economy has suffered a big blow since the outbreak of COVID-19. National institutions have issued political documents in order to stabilize the economical development and promote rapid growth of small and medium-sized enterprises. On March 5, 2021, it is initiated that the model of innovative supply chain financial service takes a further step to resolve the handicap of SMEs loan at the fourth session of the 13th National People's Congress. On November 17 of the same year, China Banking and Insurance Regulatory Commission made a layout of monitoring the risk of the entire industry chain and credit management to deepen the reform of supply chain finance and support the infrastructure construction. On March 5, 2022, the acceleration of development of supply chain finance is proposed again to stimulate the growth of SMEs at the fifth session of the 13th National People's Congress. There is no denying that it is promising that SMEs will rapidly develop that is worthy of investing for investors.

With the improvement of the market environment and the reinforcement of investors, external investors have gradually been much more rational and willing to make strategies based on the companies’ financial and managerial performance. It is worth mentioning that the status of corporate governance as an important component significantly impacts expectations and decision-making. In

2008, the subprime mortgage crisis led to an irrational and volatile financial market and then many non-performing companies appeared. To illustrate, the MSCI index which is dominated by developed stock markets, fell by 50%. Investors' confidence changed remarkably, and investors sold stocks they held.

Corporate governance theory suggests that good corporate governance is committed to standardizing management, enhancing corporate value and reducing management and default risks to improve financing capability and gain external investors' trust. Furthermore, most investors are more willing to pay a higher premium for a company with good governance. Therefore, it is momentous to polish the governance level of enterprises and study how the level of governance affects investor confidence.

Based on that, this paper conducts an empirical study on the impact of governance level on investors' confidence by combining the data of A-shares in 2017-2021. Unlike previous studies, this paper selects multiple indicators to measure corporate governance level comprehensively under the supply chain finance model. From investors' perspective, boosting investor confidence takes the important and practical role of aiming at corporate governance evaluation, which will enrich applied research of corporate governance and further explore relative factors of investors' confidence.

To further research its hidden story, the rest of the paper is organized as follows. Firstly, literature review on supply chain finance, investors' confidence and governance level will be shown, and then a research hypothesis will be proposed. Then, associated with variable descriptions, this part will develop a relevant model. After that, concerning the empirical results, the impact of corporate governance level on investor confidence will be analyzed specifically combining with supply chain finance. Finally, several pieces of political recommendations are shown to boost investors' confidence and stabilize the economy.

2. Literature review

2.1 Previous work

The theoretical basis of supply chain integration can be traced back to the value chain model (Porter, 1980). Poter (1985) proposed to precisely identify and strategically manage the enterprise value chain (also called horizontal linkages) and the close linkages between the enterprise value chain and its upstream suppliers' and downstream distributors' value chains (also called vertical linkages) [2]. It is considered that the core purpose of supply chain integration is targeted at the optimization of linkages between value chain, especially the vertical linkages, is the core purpose of supply chain integration. At the end of the 20th century, in practical business management, a few companies tried to rate the supply chain as a whole system rather than only focusing on one component of it. At the same time, commercial banks concentrated on granting credit to the whole supply chain instead of to one single company. Since then supply chain finance (SCF) has been put into practice.

In terms of theoretical research, much attention from academia is made on supply chain finance and some researchers prefer to explore supply chain finance from a financial perspective. Stemmler (2002) assumes that supply chain finance refers to that the integration of capital flow and the supply chain to optimize the operation of enterprises and improve the efficiency of capital turnover so that to align capital flows with information flows in the supply chain and optimal cash flow management (Wuttke et al., 2013) [3-4]. Some other scholars pointed the definition of supply chain finance from the perspective of member relationship management in the supply chain. Hofmann (2005) assumes that it could be defined as the cooperation between enterprises and financial institutions to jointly plan the flow of financial resources[5]. Moreover, the major participants include demand-side and supply-side of funds, regulators (Hu, Yuefei and Huang, Shaoqing, 2009) and related institution supporting financial services (including logistics companies, insurance companies, etc.) [6].

In brief, there are complex financial relationships among all parties involved in the supply chain. A network system based on supply chain finance can connect all parties closely to polish the

integration of information flow, capital flow and logistics (Liebl et al., 2016; Pan et al., 2020), capital utilization and value creation for stakeholders[7-8].

The traditional financial theory views investors as homo economicus and investment behavior should follow the principle of expected utility maximization. However, investors perform irrationalism in their actual investment activities which have become the starting point for behavioral finance research. The psychological factors of investments have been intensively explored by academics (Delong et al., 1990; Dorn et al., 2009) [9-10]. Furthermore, the research on investor psychology has mainly focused on how to measure investor sentiment, and pay more attention to the relationship between investor sentiment, asset returns and market prices. At the same time, there is little literature on the study of the factors influencing investor confidence, its measurement, and its relationship with financial capital markets.

When it comes to investor confidence, a commonly accepted view is that it can be viewed as an investment attitude of investors toward future investments. In contrast, investor sentiment is described as a systematic bias in investors' expectations about the future (Wang Wei, 2014) [11]. It is worth mentioning that investor confidence and investor sentiment are both related and distinct. The similarity is that both are used to measure investors' psychological changes and expectations. Conversely, the difference lies in the fact that investor confidence stems from investors' optimistic emotional states and investor sentiment mainly includes optimistic and pessimistic states. In other words, investor confidence originates from investors' judgment of the future. Investors are optimistic about the investment prospect and do not have to worry about unexpected losses containing rational and irrational factors (Lei Guangyong et al., 2012) [12].

Investor confidence depends primarily on strong corporate governance mechanisms instead of confidence in the firm's managers and controlling shareholders. Berle & Means (1932) stated that outside investors are at a disadvantage, especially when they do not have the expertise or resources to supervise the internal behavior or have no ability to obtain clear information about prospects [13]. At the same time, the sentiment effect varies aimed at different firms and depends on the operational and financial conditions as well as on noise-trader risk. Baker & Wurgler (2006) argued that some firms have difficulty in valuation upon fundamental factors, and therefore investors are more sensitive to sentiment effects [14].

According to the existing literature of empirical studies, scholars generally choose indicators reflecting the condition of the stock market including volume, turnover rate, number of IPOs and so on, aimed to measure investor confidence. For one thing, a proxy variable is used as a replacement for investor confidence. Beaver (1999) used the indicator of annual stock turnover rate to measure investor sentiment [15]. After that, Baker & Stein (2004) proposed the liquidity indicator to measure the level of investor sentiment and argued that the turnover rate can represent market liquidity and be a good indicator of investor confidence [16]. A higher turnover rate shows active market trading with more participants with stronger investor confidence. For another, some other scholars use a synthetical indicator constructed by multiple variables. Baker & Wurgle (2006) selected six indicators of the turnover rate of NASDAQ stock market, dividend bonus, the discount rate of closed-end fund, first-day earnings of IPO and issuance of common stock via principal component analysis to construct a comprehensive index of investor sentiment [14]. Kim & Purnanandar (2010) concluded that investor confidence is affected by market efficiency, trading volume, price volatility, etc., while Lei Guangyong et al. (2011) found that investor confidence is affected by the corporate size, cash flow and quality of accounting information [17-18]. Du Yong et al. (2014) used investor confidence as an intermediary variable to explore the relationship between the ratio of independent directors, investor confidence and the value of agricultural listed companies [19]. It was found that the proportion of independent directors partly drives the value of agricultural listed companies positively by acting on investor confidence and then on the value of agricultural listed companies. Besides, Shiller et al. (1999) have been publishing investor confidence index regularly since 1989 via questionnaires which have been generally valued and applied by institutional and individual investors [20].

2.2 Proposed hypothesis

In terms of research on the relationship between investor confidence and the level of corporate governance, building an effective corporate governance structure that provides checks and balances of power among shareholders, directors, and management can better protect investors' interests (Simon et al., 2001; Harford et al., 2018) [21-22].

In the modern enterprise system, board governance is the core of corporate governance. Effective board governance is beneficial to effectively make decisions, monitor managerial practices, polish corporate value and effectively protect capital equity. It is crucial to establish a well-functioning and independent board, increase the disclosure of basic information about corporate governance and improve the independence and accountability of the board in order to strengthen corporate governance, thereby increasing investor confidence (Leora F. Klapper et al., 2004) [23]. Thereafter, Kim and Purnanandar (2010) found that corporate governance quality affects investor confidence in the rate of return when equity financing is sought [17].

Currently, little literature is available in China directly related to corporate governance level and investor confidence. Wu Zhanchi et al. (2011) pointed out that listed companies in China are generally involved in securities investment but there is excessive securities investment because of the fierce sentiment [24]. Li Weian et al. (2012) argued that a high level of corporate governance contributes to reducing the degree of asymmetric information [25]. Effective information disclosure enables investors to reduce investment risk. The investors form a psychological expectation about the operating condition based on the company's financial quality.

Based on the previous work, it can be found that an effective corporate system and reasonable arrangements for corporate governance structure can strengthen the reliability of corporate governance information and improve the efficiency of the capital market, thus polishing investor confidence. In short, the hypothesis is proposed.

H: Other things being equal, the higher the corporate governance level, the stronger the investor confidence.

3. Methodology

3.1 Sample and Data Sources

The A-share listed companies under the supply chain finance in 2017-2021 were selected. The samples were screened according to the following criteria: (1) exclude all financial and insurance companies which have different accounting standards and systems compared to other industries; (2) exclude data prior to listing, delisted companies, ST companies and PT companies; (3) exclude samples with PBR less than 0, missing values and outliers; (4) the relevant variables were subjected to tailoring at the upper and lower 1% levels to reduce the influence of extreme values. The data sources are from CSMAR, Choice Database and Wind Financial Database. Finally, 52442 samples are obtained as the empirical experiment.

3.2 Variable definition

3.2.1 The Measurement of Investor Confidence.

In this paper, the indicator of investor confidence could be rated via a single alternative variable. Exiting the possibility of dealer manipulation, a high turnover rate is not correlated with great investor confidence. Furthermore, the proportion of shares held by institutional investors only reflects a small portion of investor confidence and cannot be representative. In fact, investor confidence is predominated by the expectation of operation ability. The higher the investor confidence index is, the more investors are willing to invest funds.

Therefore, the price-to-book ratio (PBR) is selected as a proxy variable for investor confidence by reflecting the recognition of the stock. In their study, Kothari and Shanken (1997) used PBR as an indicator of investor sentiment [26]. A stock with a low PBR implies that its systematic risk is low

and its profitability ability is strong in the long term. The stock is intrinsically undervalued, and its price is expected to rise.

3.2.2 Construction of Corporate Governance Level Index.

Based on the previous work of corporate governance (Bai Chongen et al., 2005; Zhang Xueyong et al., 2010; Goodell et al., 2020), seven indicators are selected to represent the power of corporate governance from the perspectives of supervision, incentive and decision-making [27-29]. Specifically, the managerial compensation (mana_pay) and the proportion of managerial shareholding (mana_share) reflect the incentives in corporate governance. The supervisory of the management board is described by the ratio of independent directors (outratio) and the board size (board). The degree of shareholding balance (share_balance) and the proportion of institutional shareholding (lnst_share) indicates the supervisory of shareholding structure. Also, a dummy variable (dual) which describes whether the chairman and general manager have two positions is used for the rate of decision-making power of the general manager. A synthetical index is built to present the level of corporate governance by Principal Component Analysis (PCA). The higher the index, the better the corporate governance level.

The KMO and Bartlett's test shows that the KMO statistic is 0.610, which is greater than the minimum standard of 0.5. That indicates that the panel data is suitable for PCA. The four components with a cumulative contribution of 80% are selected as the key factors and the component score coefficient matrix is obtained via orthonormalization. To simplify the corporate governance index, the above four key factors are weighted with the variance contributions as weights respectively to calculate the total score. The synthetical index of corporate governance is as follows:

$$gov = 0.2987 \times \text{comp1} + 0.2018 \times \text{comp2} + 0.1497 \times \text{comp3} + 0.1166 \times \text{comp4} \quad (1)$$

According to the model analysis, the principal component coefficients are all positive which is consistent with expectations.

3.3 Regression Model

Based on the previous research hypothesis, the following model is constructed to test the impact of corporate governance level on investor confidence as follows:

$$ic = \beta_0 + \beta_1 gov + \beta_2 lnsize + \beta_3 lev + \beta_4 roa + \varepsilon \quad (2)$$

The variable in model (2) represents a series of variables reflecting the quality of corporate governance. If corporate governance has a significant impact on investor confidence, then β_1 is significant and hypothesis H holds.

Besides the level of corporate governance affecting investor confidence, other factors will also have an impact. The control variables are set, including company size, asset-liability ratio, and return on equity, which are shown in 错误!未找到引用源。.

Table 1. Variables Description (Self-drawing)

Types	Names	Symbols	Definition
Dependent Variable	Investor Confidence Index	ic	Price-to-Book Ratio as a proxy variable
Independent Variable	Managerial Compensation	mana_pay	Total annual salary of supervisors
	Shareholding Ratio of Executives	mana_share	Number of regulatory holdings / Paid-in Capital or Capital Stock
	Ratio of Independent Directors	outratio	Number of independent directors/Number of directors
	Board Size	board	Number of directors
	Institutional shareholding ratio	lnst_share	Total institutional shareholding ratio/100

Control Variable	Degree of shareholding balance	share_balance	(The sum of the shareholding ratio of the top 5 major shareholders of the company / The sum of the shareholding ratio of the top 3 major shareholders of the company)-1
	Two positions in one	dual	Chairman who is also the general manager takes the value of 1, otherwise it is 0
	Company Size	lnsize	Natural logarithm of total year-end assets
	Asset-liability Ratio	lev	Total liabilities/Total assets
	Return on Assets	roa	Current operating income/Year-end assets

4. Results and discussions

4.1 Descriptive statistics

Table 2. Descriptive Statistics (Self-drawing)

	N	Mean	Median	Std. Dev.	min	max
ic	52442	3.16	2.35	2.92	0.27	21.74
mana_pay	52442	10869457.00	6966550.00	12980579.00	1115.50	90169200.00
mana_share	52442	0.12	0.00	0.18	0.00	0.70
outratio	52442	0.38	0.36	0.06	0.33	0.67
board	52442	8.58	9.00	1.75	5.00	15.00
lnst_share	52442	0.41	0.42	0.25	0.00	0.93
share_balance	52442	0.81	0.67	0.62	0.04	2.98
dual	52442	0.30	0.00	0.46	0.00	1.00
gov	52442	0.00	-0.09	1.00	-2.86	3.29
roa	52442	23.11	22.74	1.87	19.91	28.50
lnsize	52442	0.05	0.05	0.06	-0.42	0.25

错误!未找到引用源。 shows the descriptive statistics of variables except for the two-positions-in-one dummy variable. The mean (median) of ic is 3.16 (2.35) which indicates that investor confidence is positive to the domestic economy, while its standard deviation is 2.92 indicating that there is a large difference in the level of investor confidence in the different industries. The mean (median) of mana_pay is about 10869457.00 (6966550.00) while the mean (median) value of mana_share is about 0.12 (0.00). That indicates that the managerial stake is generally small and the managerial incentive and restrictions are expected to be polished. The mean(median) of board is about 8.58 (9.00) and the outratio is about 0.38 (0.36) reflecting that the ratio of independent directors in most companies meets regulatory requirements. The mean (median) of lnst_share which is about 0.41 (0.42) and the share_balance is about 0.81 (0.67) indicates that the shareholding ratio keeps a balance between individual investors and institutional investors who are optimistic about the future.

4.2 Correlation analysis

From the correlation analysis results in 错误!未找到引用源。, it can be seen that: corporate governance level and company size are positively correlated with investor confidence while return on assets and asset-liability ratio is negatively correlated with investor confidence. In particular, the correlation coefficient between corporate governance level and investor confidence is 0.241 That shows a significant positive correlation which is consistent with hypothesis H. That indicates that without considering the influence of other factors, improving corporate governance level helps boost investor confidence.

Table 3. Correlation Analysis (Self-drawing)

	ic	gov	lnsize	lev	roa
ic	1				
gov	0.241	1			
lnsize	0.218	0.026	1		
lev	-0.209	-0.365	-0.325	1	
roa	-0.375	-0.613	-0.031	0.583	1

However, the correlation analysis only reflects a correlation and cannot be used to test a causal effect. Therefore, the certain relationship is determined via a regression model.

4.3 Results

错误!未找到引用源。 describes the causal effect of corporate governance on investor confidence. The sample passes the F-test indicating that the whole equation passes the significance test which has good explanatory power. At the same time, the control variables pass the significance test reflecting well-controlling power. Moreover, the VIF value is less than 5 indicating that there is no multicollinearity among the variables. In summary, the established model is valid to test the hypothesis H.

Table 4. Regression Results (Self-drawing)

	(1) ic	(2) ic	(3) ic	(4) ic
gov	0.762***	0.751***	0.725***	0.049***
	-0.016	-0.017	-0.024	-0.014
lnsize		6.823***	6.463***	11.27***
		-0.874	-0.812	-0.290
lev			-.363**	1.887***
			-0.157	-0.087
roa				-0.676***
				-0.010
_cons	3.279***	2.951***	3.13***	17.413***
	-0.020	-0.055	-0.063	-0.207
Adj-R^2	0.027	0.036	0.036	0.192
F	0.000	0.000	0.000	0.000
N	52442	52442	52442	52442

Notice: *** p<0.01, ** p<0.05, * p<0.1

From the regression results of model (2), other things being equal, the coefficients of investor confidence and corporate governance are positively correlated at the 5% level. It indicates that the more efficient corporate governance is, the stronger investor confidence is, and vice versa. With the increase of control variables, it can be found that the coefficient of the effect of corporate governance level on investor confidence is 0.751, which shows a significant positive correlation at 5% confidence level. This concludes that the level of corporate governance is taken as the primary decision factor affecting investor confidence level. The synthetical score of corporate governance can reach a high level with the interaction of corporate governance, shareholding structure and board governance.

The complete internal construction of shareholding and governance can form an effective system of checks and balances while medium and small shareholders are protected better by virtue of the relatively independent management. Therefore, investor confidence is enhanced as improved corporate governance can satisfy the expectation of external investors' interests. The hypothesis H of this paper is valid.

5. Conclusions

In short, the results show that under the supply chain finance model higher corporate governance efficiency is significantly conducive to enhancing investor confidence. A company with good performance is able to deliver corporate information to investors including the basic information, financial information, etc. so that investors have a good prospect for their investment interests. Recently, the financial market and the supervisory department in China have kept focusing on enhancing the current corporate governance situation of companies. It is recognized that the following issues should be paid more attention of the corporate governance structure. Firstly, it is essential to enhance the balance of the shareholding structure. Secondly, it is worthy of increasing the ratio of independent directors and taking notice to prevent them from being isolated in corporate governance to make full use of the supervisory power of the supervisory board. Thirdly, it is significant to deliver

open and transparent corporate governance-related information in a time to protect the interests of all stakeholders. That will strongly help small and medium-sized enterprises to loan from financial institutions. However, there are still many shortcomings in the paper. For one thing, the inconsistent weighted variable on investor confidence in different industries is not taken into account. For another thing, the effect of lagging is ignored in the impact of corporate governance level on investor confidence.

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