Proceedings of Business and Economic Studies, 2021, Volume 4, Issue 5
http://ojs.bbwpublisher.com/index.php/PBES
ISSN Online: 2209-265X
ISSN Print: 2209-2641

Research on the Debt Default Risk of Guangyi Technology

Chengzhe Niu, Juan Zhao*

School of Finance, Lanzhou University of Technology, Lanzhou 730000, Gansu Province, China

***Corresponding author:** Juan Zhao 18742502632@139.com

Abstract: In the process of production and operation, the funds held by enterprises often do not meet the needs of the expanding production scale, so enterprises usually obtain the required funds by borrowing. However, the financing mode of enterprises is not only limited to borrowing from banks or other financial institutions. With the rapid economic development and the continuous activity of the capital market, the bond market has gradually become an important channel for enterprise financing [1]. In order to improve the layout of the industrial chain, Guangyi Technology has carried out continuous mergers and acquisitions (M&A) since 2013. Due to its limited funds, Guangyi Technology acquired a large amount of funds required for M&A by means of equity pledge. However, the copyright cloud project invested in M&A in the early stage did not achieve the expected results, leading to a frequent breach of equity pledge, which evolved into debt defaults. Therefore, this article takes Guangyi Technology as the research subject and puts forward relevant avoidance suggestions through the evaluation of its debt default risk.

Keywords: Debt default; Default risk; Risk management

Publication date: October 2021; ***Online publication:*** October 29, 2021

1. Introduction

After the introduction of the National Debt Default Policy in 2015, it was found that the amount of debt defaults in China has gradually increased. As a result, the debt defaults of many enterprises which incurred huge debts due to the expansion of scale began to erupt intensively [2]. Due to the impact of the effective implementation of the National Deleveraging Policy in 2017, the amount and scale of debt defaults in 2017 decreased significantly compared to the previous two years [3]. However, the good times did not last long. In 2018, the trend of debt defaults in China rose, and the amount and scale of debt defaults increased significantly compared to those in 2017. The number of new defaults was as high as 91, far exceeding the sum of the previous four years. The defaulting industries and bond types were also gradually diversified. Similarly, the amount and scale of debt defaults in 2019 also increased significantly. Although the number of new debt defaults in 2020 showed a downward trend, the amount of debt defaults still increased significantly. In recent years, due to the frequent occurrence of debt default events, debt default risk has attracted more attention from all walks of life. Therefore, preventing and resolving the debt defaults of Chinese enterprises have become important issues that need to be solved [4].

2. Case analysis of Guangyi Technology

2.1. Overview

2.1.1. Business structure of Guangyi Technology

Guangyi Technology (stock code 300356) was listed on the gem on October 9, 2012. The company mainly

engages in software and hardware research and development (R&D), production, as well as sales and services of intelligent power consumption information acquisition system. It is one of the earliest professional manufacturers engaged in the power consumption information acquisition system business in China. At the initial stage of listing, it was mainly committed to power consumption information acquisition, analysis and processing, as well as providing comprehensive solutions for intelligent power consumption information acquisition in the power industry. Its business feature was in the combination of software and hardware. In 2014, Guangyi Technology implemented the "1 + 3 development strategy" where it actively developed in the three fields of copyright cloud, health management, and food traceability based on the smart grid; it began to actively expand to the copyright cloud business in the form of continuous mergers and acquisitions. At present, the company's business mainly includes power business and copyright cloud business.

2.1.2. Equity structure of Guangyi Technology

According to Guangyi Technology's 2020 annual report, as of September 30, 2020, the top ten shareholders of Guangyi Technology are Jiangsu Guangyi Investment Management Co., Ltd., Hubei Qianhan Investment Co., Ltd., Long Changming, Ren Changzhao, Zhang Hongliang, Xie Jianming, Tang Jingmei, Shanghai Mingyu Investment Management Co., Ltd., Shan Yu, and Ren Jingjing. As the controlling shareholder of Guangyi Technology is Jiangsu Guangyi Investment Management Co., Ltd., Long Changming who holds 61.50% of the shares of Jiangsu Guangyi Investment Management Co., Ltd. is the controlling shareholder of Jiangsu Guangyi Investment Management Co., Ltd. due to the scattered shareholding of other shareholders; thus, Long Changming has actual control over Guangyi Technology.

2.2. Debt default events of Guangyi Technology

According to the company's announcement from 2012 to 2020, Guangyi Technology had four cases of passive impairment of the shares of controlling shareholders and actual controllers in 2018 and 2019. The reason for that is because in order to improve the layout of the industrial chain during the early stage of continuous M&A, Guangyi Technology chose to obtain large amounts of funds by means of equity pledge. However, the copyright cloud project invested in M&A in the early stage did not achieve the expected effect, resulting in difficulties in capital flow and the breach of equity pledge. Although there were several events of pledge release in the later stage, most of them were robbing Peter to pay Paul; that is, the funds received from the new pledged equity were used to make up for the expired ones. However, this measure did not substantially solve the issue, which eventually led to a large-scale debt default of the company from 2019. The equity pledge and debt defaults of Guangyi Technology are summarized:

(1) Guangyi Investment pledged 73.25 million shares to Ping An Securities, of which 3.86 million shares were disposed by Ping An Securities through competitive trading due to a pledge breach on December 29, 2018 and on December 27, 2018, Ping An Securities disposed 2.3359 million shares through competitive trading and block trading, which accounted for 0.57% of the total share capital. This equity reduction was a passive reduction.

(2) Long Changming and the persons acting in concert had previously pledged 14,163,900 shares to Huatai Securities Co., Ltd. and Huatai Securities (Shanghai) Asset Management Co., Ltd. due to the breach of pledge on March 27, 2019. Long Changming and the persons acting in concert reduced the company's shares through centralized bidding transaction. The reduction of shares was verified as passive.

(3) On June 28, 2019, due to the breach of equity pledge, the controlling shareholder, Guangyi Investment, and the actual controller, Long Changming passively reduced their equity, with a total reduction of 5,455,400 shares.

(4) On October 15, 2019, due to a debt default, Guangyi Investment and Long Changming held a total of 10,904,331 shares of the company, which were auctioned by the People's Court of Luqiao District, Taizhou City.

(5) On June 18, 2020, the shares pledged by Guangyi Investment to Guokai Securities on October 30, 2017, were auctioned by the People's Court of Jiangning Economic and Technological Development Zone on Taobao's judicial auction platform due to a debt default, with an auction share of 9,929,160 shares.

(6) On September 14, 2020, Long Changming and Xiong Ke, who acted in concert, pledged their shares to the Suzhou Branch of China Citic Bank on August 31, 2018. Due to the overdue repayment of the loan, the Gusu District People's Court of Suzhou auctioned them publicly on Taobao's judicial auction platform.

(7) On December 21, 2020, due to another debt default, part of the 5.72 million shares held by its actual controller, Long Changming, were auctioned by the People's Court of Ningling County on Taobao's judicial auction platform.

3. Cause analysis of the default risk of Guangyi Technology's debt

3.1. Over-investment

According to the annual report and announcement by Guangyi Technology from 2012 to 2020, Guangyi Technology completed eight M&A transactions from 2014 to 2018. This is because Guangyi Technology attempted to expand to copyright cloud and improve the industrial chain layout by means of continuous M&A; however, it backfired. Since 2017, the copyright cloud projects invested and acquired by Guangyi Technology have not achieved the expected results. However, Guangyi Technology continued its aggressive investment strategy in 2018 where it successively invested and acquired two enterprises with copyright cloud projects in 2018. From the quarterly report of the third quarter of 2020, it can be seen that the copyright cloud projects invested and acquired by Guangyi Technology did not achieve the expected profit effect. The radical expansion strategy of Guangyi Technology has not only caused the current situation of over investment, but also triggered the risk of debt default due to its heavy debt.

3.2. Poor risk prevention and control

The reason why Guangyi Technology progressed from equity pledge default to debt default is that the early warning mechanism of the early-stage financial risk is flawed, and its later financial risk control is not in place. The reasons for the failure of its investment projects in 2017 to meet the expected risks are as follows: (1) in the early stage of M&A, it failed to make detailed adjustments to the invested M&A enterprises, resulting in incorrect valuation and formed the risk where the M&A projects did not meet the expected risks; (2) the risk of the investment project failing to meet the expected results has been identified since 2017 but only limited risk aversion measures have been implemented from 2018 to 2020, resulting in the risk of M&A projects failing to meet the expected results. Therefore, the poor prevention and control of Guangyi Technology's financial risk is one of the important reasons for its debt defaults.

4. Guangyi Technology's default risk assessment

As there are many financial indicators related to corporate default risk, as well as complex and close links between many indicators [5], this article first uses factor analysis to reduce its dimension and judges the default risk of Guangyi Technology by extracting the comprehensive factor and calculating the comprehensive score.

4.1. Selection of default risk assessment indicators

In consideration of the actual situation of Guangyi Technology, this study has selected seven indicators: cash ratio, current ratio, reciprocal of asset liability ratio (total assets / total liabilities), inventory turnover, accounts receivable turnover, total asset turnover and return on net assets from the perspective of solvency, as well as operating capacity and profitability. The reason why the reciprocal of asset liability ratio has been selected is that among these indicators, only asset liability ratio is positively correlated with the default risk; that is, the greater the asset liability ratio, the higher the default risk of the enterprise, whereas the other six indicators are negatively correlated with the default risk. Therefore, this study deals with the reciprocal of asset liability ratio, paving the way for the subsequent calculation of comprehensive score. The reason why this study did not select the growth ability index is because continuous M&A affect enterprises by various factors, such as goodwill impairment; in addition, the growth ability index fluctuates violently, which reduces the correlation between the enterprise growth ability index and its default risk.

4.2. Guangyi Technology's default risk evaluation

4.2.1. Testing whether the factor analysis method is suitable for evaluating Guangyi Technology's default risk

In factor analysis, the basis for judging whether it conforms to the risk assessment of the target company is the size of the KMO (Kaiser-Meyer-Olkin) value. The range of KMO is between 0 to 1. The closer the KMO value is to 1, the stronger the correlation between variables and the more suitable the original variables are for factor analysis; the closer the KMO value is to 0, the weaker the correlation between the variables, and the less suitable the original variables are for factor analysis. The specific criteria are as follows as shown in **Table 1**:

Table 1. Range of KMO suitable for factor analysis

KMO value	Whether KMO value is suitable for factor analysis
0.0-0.5	Not applicable
0.5-0.7	Not suitable
0.7-0.8	Suitable
0.8-0.9	Very suitable
0.9-1.0	Perfect

Bartlett's test is based on the correlation coefficient matrix. It assumes that the correlation coefficient matrix is an identity matrix, where all the diagonal elements of the correlation coefficient matrix are 1 and all the non-diagonal elements are zero. However, when the correlation coefficient matrix is not the identity matrix, it is suitable for factor analysis; that is, at the significance level of P value 0.05, if p value is less than 0.05, the original hypothesis is rejected, and the original data is suitable for factor analysis. However, if p value is more than 0.05, the original data is not suitable for factor analysis.

In this study, the default risk index of Guangyi Technology is tested by KMO and Bartlett's test using

IBM SPSS Statistics 20. The results are as follows:

Table 2. KMO and Barlett's test results of Guangyi Technology

KMO measure of sampling adequacy		.769
Bartlett's test	Approximate chi square	88.689
	df	21
	Sig.	.000

Data source: SPSS software processing

From **Table 2**, it can be seen that the KMO value is 0.769, far greater than 0.7. Combined with the Bartlett's test, at the significance level of P value of 0.05, the p value is 0.000, far less than 0.05, rejecting the original hypothesis. Therefore, the results from the KMO value and Bartlett's test show that the factor analysis method is suitable for the evaluation of Guangyi Technology's default risk.

4.2.2. Determining factor variables

The factor analysis in SPSS software was used to reduce the dimension of the selected indicators and extract as many comprehensive factors representing the original indicators. The operation results are shown in **Table 3**.

Table 3. Extraction of comprehensive factors

Indicators	Initial Eigenvalue			Extract sum of squares load		
	Total	Variance %	Cumulative %	Total	Variance %	Cumulative %
1	5.559	79.414	79.414	5.559	79.414	79.414
2	.821	11.728	91.142			
3	.568	8.115	99.257			
4	.033	.478	99.735			
5	.009	.131	99.866			
6	.008	.108	99.975			
7	.002	.025	100.000			

When extracting factors, the factor with feature root greater than 1 is usually selected because when the feature root is greater than 1, all variables can be better explained. Therefore, according to the analysis results, a common factor has been extracted in this study.

4.2.3. Calculating factor comprehensive score

According to the factor score after rotation and the total explanatory variance table, the score coefficient of the factor extracted by Guangyi Technology is calculated as follows:

$$F = 0.177*f_1 + 0.140*f_2 + 0.172*f_3 + 0.094*f_4 + 0.171*f_5 + 0.178*f_6$$

As a total of one factor is extracted this time, the factor score calculated above is the final factor score. According to the calculation formula of the above comprehensive score combined with the tables, the factor scores of Guangyi Technology from 2012 to 2020 are 3.8768, 2.21818, 1.53342, 1.6967, 1.78157, 1.30535, 1.14591, 1.28428, and 1.05956.

4.2.4. Result analysis

As the indicators selected in this study are reverse indicators; that is, the higher the number of indicators, the lower the default risk of the enterprise; the lower the number of indicators, the higher the default risk of the enterprise. Therefore, the calculated comprehensive factor score is the same, where the higher the comprehensive factor score, the lower the default risk of Guangyi Technology; the lower the comprehensive factor score, the higher the default risk of the enterprise. It can be seen from the calculation results that the comprehensive score shows a decreasing trend from 2012 to 2020; thereby, the default risk of Guangyi Technology shows an upward trend from 2012 to 2020.

5. Conclusion and suggestions

5.1. Conclusion

On the whole, the default risk of Guangyi Technology showed an upward trend year by year from 2012 to 2020. Although it decreased in 2016 and 2019, the decline was not very large, and they can even be ignored. From the 2016 annual report, the default risk decreased in 2016 because Hubei Sorui Electric was acquired in 2014, and its performance reached the effect of its performance commitment. However, in February 2021, Guangyi Technology received a warning letter that was issued by Jiangsu Securities Regulatory Bureau. Jiangsu Securities Regulatory Bureau stated that after the on-site inspection of Guangyi Technology, it was found that its subsidiary, Sorui Electric, displayed a false increase or cross period recognition of revenue. Therefore, the reduction of the company's default risk in 2016 is debatable. The reason why the default risk decreased in 2019 is that Guangyi Technology had a large number of pledge defaults before 2019. In order to prevent debt defaults, Guangyi Technology took the measure of making up for the expired equity pledge with new equity pledges. Therefore, Guangyi Technology did not resolve its debt defaults from the root, but on the contrary, buried a curse for the later debt defaults.

5.2. Suggestions

From the above analysis, the top priority of Guangyi Technology is to solve the issue of equity pledge. The four debt default events from 2019 to 2020 were caused by the default of equity pledge, so it is urgent for the company to solve the issue of equity pledge. Guangyi Technology should take into consideration of the following three things:

5.2.1. Increase disposable cash flow

First of all, Guangyi Technology should improve the cash flow of its financing activities according to a series of convenient financing policies issued by the state. Secondly, the company should establish a sound fund management mechanism to monitor the capital flow of enterprises in real time and prevent the situation of difficult capital flow.

5.2.2. Moderately expand the scale

The blind expansion of its scale in the early stage had led to heavy debts, frequent violations of equity pledge, and eventually the evolvement into debt defaults. In addition, the equities of the controlling shareholder and the actual controller were forcibly auctioned by the court. It is important to expand the industrial chain and the market share, but the premise is to "act according to one's ability." Therefore, when expanding its scale, Guangyi Technology should make a full adjustment in advance, reasonably value the targeted enterprises, make decisions in line with its own funds, and reduce the default risk of the enterprise as much as possible.

5.2.3. Establish a sound early risk warning system

An important reason why the default risk of Guangyi Technology is increasing year by year is that there is no sound early warning mechanism. This in turn leads to the ignorance of how to deal with them when risks occur. Therefore, Guangyi Technology should establish a sound early risk warning mechanism based on its actual situation in order to reduce its default risk as much as possible.

Disclosure statement

The authors declare that there is no conflict of interest.

References

[1] Pan Z, 2018, Logistic Regression Early Warning Model of Corporate Debt Default Risk. Shanghai Economic Research, (08): 73-83.

[2] Li S, 2019, Debt Default Risk and Stock Price Collapse Risk of Listed Companies. Jiangxi Social Sciences, 39(07): 42-53.

[3] Zhang J, Nie Y, 2020, Risk Assessment of Local Government Debt Default in China – Based on Debt Sustainability Analysis Framework. Southern Economy, (11): 13-27.

[4] Guo S, Liu D, 2010, Impact and Enlightenment of Dubai Debt Default Crisis. Investment Research, (01): 3-7.

[5] Wang X, Huang R, 2015, Analysis of Default Risk of Local Government Debt Based on KMV Model – Taking the Yangtze River Delta as an Example. Shanghai Economic Research, (04): 62-69.