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RESEARCH ON THE CURRENT SITUATION, MOTIVATION, AND ECONOMIC CONSEQUENCES OF EQUITY PLEDGE IN LUXSHARE PRECISION INDUSTRY CO., LTD

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ABSTRACT
This article takes Luxshare Precision Industry Co., LTD（referred to as Luxshare Precision）as an example to analyze the current situation, motives, and economic consequences of its equity pledge. The study found that Luxshare Precision has mainly undergone six equity pledges after its listing. The main reasons for Luxshare Precision's equity pledge include rapid expansion of the company, high financing efficiency of equity pledge, and maintenance of controlling shareholder control. Although equity pledge meets the company's financing needs, But it can also trigger financial risks for the company and have a negative impact on the stock price.

Keywords: *Equity pledge; controlling shareholder; risk prevention*

1.0 INTRODUCTION

1.1. Research Background

For listed companies, there are many financing methods to choose from, among which equity pledge financing has many outstanding advantages, such as strong liquidity, large amount of integrated funds, relatively convenient handling, and shareholders still have the right to vote on company affairs after equity pledge. Therefore, it is used by many controlling shareholders and holds an important position. However, there are certain risks associated with equity pledge. When the stock price drops, pledged stocks may be auctioned off or liquidated, thereby reducing the controlling shareholder's shareholding ratio and leading to the risk of change of control.

The occurrence of such phenomena will release information to the outside world about the difficulties in enterprise operation, further depressing stock prices and increasing the relevant risks borne by controlling shareholders. If the proportion of equity pledge is too high, the cash flow flowing to controlling shareholders will decrease, which will weaken their motivation to increase the company's value and may further result in the company being hollowed out and the rights and interests of small and medium-sized shareholders being damaged. For investors, the rise and fall of stock prices are of great concern. Equity pledge has multiple impacts on stock prices, such as transmitting negative information about the company, affecting investor sentiment, leading to market panic and stock selling. It can also lead to tunneling behavior by major shareholders, causing fluctuations in the company's fundamentals and affecting stock prices. Therefore, in order to prevent various risks associated with the pledge of controlling shareholders' equity, it is necessary to conduct in-depth research on their motivations and impacts.

Luxshare Precision was established on May 24, 2004 and successfully listed on the Shenzhen Stock Exchange on September 15, 2010 (stock code: 002475). As of September 30, 2023, the total assets of Luxshare Precision were 172.3 billion yuan, with a revenue of 155.9 billion yuan and nearly 240000 employees. The headquarters of Luxshare Precision is located in Dongguan, Guangdong Province, China. Its manufacturing bases are mainly distributed in Guangdong, Jiangxi, Jiangsu, Anhui, Zhejiang, Shanxi, Hebei, Sichuan, Taiwan, and other places in China. Its overseas locations are mainly in Germany and Vietnam, and it has research and development centers in Dongguan, Jiangsu Kunshan, Taiwan, and the United States. The connectors, connecting wires, motors, wireless charging, FPC, antennas, acoustics, and electronic modules developed and produced by the company are widely used in multiple important global fields such as consumer electronics, communication, enterprise level, automotive, and medical.

After the listing of Luxshare Precision, the controlling shareholder Lixun Co., Ltd.(referred to as L Company) made multiple equity pledges, resulting in significant risks for the company. The stock price fell and the company's value decreased. Therefore, this company was chosen as a typical case to analyze the reasons for the equity pledge of its controlling shareholder L Company, as well as the economic consequences of the equity pledge on the company's finance, stock price, value, and control rights, Provide reference for the risk response strategies of controlling shareholders' equity pledge in listed companies, and inspire regulatory authorities to improve supervision.

1.2. Research Method

This article takes Luxshare Precision as an example to analyze the current situation, motives, and economic consequences of its equity pledge. First, this article defines the concept of equity pledge and introduce the current situation of Luxshare Precision, including shareholding structure and equity pledge process. Second, this article analyzes the motives of its equity pledge. As for economic consequences of its equity pledge, this article analyzes the impact on the company's financial position and share price. When studying the impact on stock price, this article determines the occurrence node of an event related to a certain equity pledge, and selects a period before and after the event occurrence date as the window period to study the impact of the event. Select the date of each announcement of equity pledge by Luxshare Precision as the date of the event, and select ten days before and after the announcement date as the event window period. Calculate the abnormal return (AR) and cumulative abnormal return (CAR) during the window period, and analyze the short-term impact of equity pledge on the company's stock price.

2.0 LITERATURE REVIEW

2.1. Concept of Equity Pledge

Equity pledge refers to the pledge of the company's equity held by the pledgor to financial institutions to obtain funds in order to meet the needs of funds. At the time of pledge, the financial institution will set a warning line according to the stock price to safeguard its own interests. If the stock price falls below the warning line, the pledgor shall make up the position, increase the margin or repay in advance, otherwise there is a risk of closing the position. Equity pledge has become an important financing method because of its low cost, strong liquidity, easy handling, and no impact on the right of control.

2.2. Motivation of Equity Pledge

The controlling shareholders' equity pledge can meet their capital needs. Equity is a kind of "static" capital, which can be changed from "static" to "dynamic" by equity pledge, so as to effectively play the financial leverage effect(Ren, 2014). Many affiliated enterprises in China have formed a complex guarantee network due to financing needs, and there is a certain risk of financial distress transmission, so enterprises choose to obtain funds through equity pledge to alleviate this problem(Liu, 2016). In the case of lack of funds, shareholders would choose equity pledge if it is difficult to obtain funds through other financing methods. Objectively speaking, the handling conditions of credit and other financing methods are harsh and the procedures are complex, which are not friendly to the majority of private small and medium-sized enterprises, while equity pledge is more convenient, so the shareholders of private enterprises prefer this method(Jin et al., 2019).

In general, equity pledge will not affect the control of the company while obtaining funds. In order to maintain control, when faced with malicious acquisition in the secondary market, major shareholders will timely obtain funds through equity pledge to protect the market and redeem the equity when the situation is stable, so that they can maintain control without affecting their normal production and operation(Gong, 2015). Major shareholders can seize interests through control rights, so they pay more attention to control rights and will not easily transfer them out, and the implementation of equity pledge can make up for the capital gap of controlling shareholders and retain their control over the company, which is a very ideal financing method(Jin et al., 2019). Through the empirical analysis of private companies listed on A-share market from 2013 to 2018 that major shareholders tend to pledge their shares in the face of financing constraints, and when shareholders' shareholding ratio is low, they will obtain funds through equity pledge to increase their shareholding ratio and improve their control over the company(Du et al., 2019).

Some scholars also pointed out that the controlling shareholders' equity pledge may have the motivation to empty the company. The pledge of controlling shareholders' equity will increase the degree of separation of the two rights, so it may have the motivation to empty the company(La Portal, 2000). The probability of large shareholders' occupying funds increases during equity pledge, which shows a strong tendency of tunneling companies(Zhen et al., 2014). When the separation of ownership and control rights of major shareholders is serious, their equity pledge has tunneling motivation(Du et al., 2019).

2.3. Economic Consequences of Equity Pledge

Although equity pledge can alleviate the capital demand of controlling shareholders and maintain the control of major shareholders, it has many adverse effects, the first of which is the impact on the value of the company. Through research that since the control right of the company does not change due to the implementation of equity pledge, the controlling shareholders have lost part or even all of their cash flow rights, weakening the incentives for shareholders, and the willingness of major shareholders to improve the value of the company has correspondingly weakened. At the same time, the improvement of the separation of the company's control rights and cash flow will significantly stimulate the willingness of major shareholders to damage the rights and interests of minority shareholders, which is mainly reflected in private enterprises. Therefore, through these two paths, the company value will suffer(Hao & Liang, 2009). Since equity pledge financing may have tunneling behavior which will affect the repayment of bank loans, it is more difficult for companies with large shareholders' equity pledge to obtain bank credit, and this phenomenon is more prominent in private enterprises(Gao, 2018). Through the research on the A-share market from 2014 to 2019 that shareholders may use equity pledge to infringe the interests of other investors and damage the value of the company(Xiao & Wang, 2021). For loss making companies, the controlling shareholder's equity pledge has a greater chance of turning profit, but this may only be achieved by manipulating the financial statements(Du et al., 2018).

The pledge of the controlling shareholder's equity brings significant downside risk to the stock price(Shen & Chen, 2019). After the pledge of equity, in order to prevent the risk caused by the sharp fluctuation of share price, the controlling shareholders would actively take various measures to prevent the price from plummeting, but once the pledge was lifted, there would be no motivation to maintain the share price, and the risk of share price crash would increase. At the same time, equity pledge may send a signal of negative information to the market, thus affecting the stock price(Xie et al, 2016). The equity pledge relatively reduced the stock supply, so the equity pledge itself would not lead to a crash. As the financing cost of major shareholders increases at high interest rates, they are more inclined to actively implement the pledge and increase the proportion of equity pledge. However, when investors see the frequent equity pledge of major shareholders, they will suspect that there are problems in the company's operation, so they will sell a large number of shares of the company, and the capital supply in the securities market will decline with the high interest rates, which will further lead to the stock price falling to the warning line. If the shareholders are unable to provide additional guarantee, The pledgee will choose to realize the stock, and the risk of stock price crash will rise(Jing et al., 2019). The shareholding level of the largest shareholder of China's listed companies is high, which is more conducive to colluding with the management to empty the company. Also, due to the low transparency of the company's information, the motivation of equity pledge is more likely to be misunderstood by investors, and the shares are sold off. Therefore, under the same other conditions, there is a significant positive relationship between the share price crash and the share pledge ratio(Xia & Jia, 2019). Although the existence of this relationship, they believed that the increase of equity concentration would alleviate this risk(Bu et al., 2020). At the same time, there are other views. For example, because the company would strengthen earnings management after equity pledge, the degree of overvaluation of the stock price increased(Chen et al., 2021).

In addition, the pledge of controlling shareholders' equity also has certain impact in other aspects. Controlling shareholders would prevent the disclosure of voluntary information in order to avoid the disclosure of their tunneling behavior, thus hiding information about the company's characteristics, thereby strengthening the linkage of fluctuations between individual stocks and the market. The pledge of controlling shareholders' equity also has a negative impact on enterprise innovation(Feng et al., 2011). The increase in the pledge ratio of controlling shareholders' equity will significantly reduce the investment efficiency of the company, and it is more prominent in private enterprises(Jiang & Zhang, 2021). The controlling shareholder and pledgee will strive to promote the innovation of enterprises in order to avoid the loss caused by the failure of innovation and the decline of share price. At the same time, the controlling shareholder will also have the power to improve the innovation efficiency in order to improve the value of the company, thus improving the output quantity and quality of the company(Jiang, 2019). However, the pledge of controlling shareholders' equity would reduce the R&D investment of enterprises(Zhang et al., 2017). There are risks in the innovation activities of enterprises. Once the innovation is frustrated, the position of the controlling shareholder will be shaken. Therefore, the equity pledge of the controlling shareholder will have a certain restrictive effect on the R&D and innovation of the company(Pang & Wang, 2020).

3.0 ANALYSIS ON THE CURRENT SITUATION OF EQUITY PLEDGE OF LUXSHARE PRECISION

3.1. Company Profile

Founded in May, 2004, with the help of industry advantages and the support and key development of national policies, the company was listed on the Shenzhen Stock Exchange in September, 2010. The company belongs to the high-tech industry, and its main business is connector development, manufacturing and marketing services. The products are widely used, mainly used in key application fields such as 3C market and automotive industry. Since its listing, the company has been adhering to the technology led development, paying equal attention to production and manufacturing and service operation, and striving to transform it into intelligent manufacturing. The enterprise has also been focusing on the development of the industry, deeply cultivating and developing, and constantly expanding the market scale through the development strategy of the integrated company, occupying the market opportunity, and continuously seeking the perfection of intelligent development and design, digital operation and management, refined cost management and intelligent product production. In recent years, the basic research capability and technological innovation investment force of Luxshare Precision have been gradually enhanced, and the industrial structure has changed accordingly. It has cut into the field of connectors for high-end consumer electronic products, and opened up emerging markets for related industries, as shown in Figure 1. It is trying to expand the size of the company by means of market expansion, so as to become the industry leader of the "made in China 2025" industrial power strategy, Vigorously carry out R&D activities and become an important pioneer in the same industry in the world.

The company was listed in 2010, with an operating income of 1.011 billion yuan in the year of listing, and then continued to expand to 214.028 billion yuan in 2022. The attributable net profit continued to increase from 116million yuan in 2010 to 9.163 billion yuan in 2022. Within 12 years, the scale of operating revenue has expanded by more than 200 times, the scale of profit has increased by 78 times, and the 12-year compound growth rate of operating revenue is 56.25%. The high-speed growth of the company's performance also reflects the company's good operating conditions.

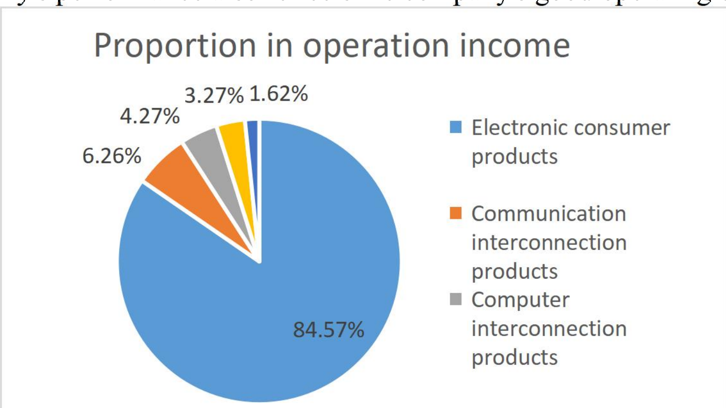

Figure 1: Product Structure of Luxshare Precision

3.2. Shareholding Structure

According to the report of the first quarter of 2023 of the company, the largest shareholder of the company is L Company, with a shareholding ratio of 38.37%. The second largest shareholder is Hong Kong Central Clearing Co., Ltd., with a shareholding ratio of 8.2% after the increase. The shareholding ratio of the remaining shareholders is less than 5%, and the total shareholding ratio of the top ten shareholders is 51.88%. Table 1 shows the top ten shareholders of the company in 2023. The controlling shareholder of the company is L Company, and the actual controller is Ms. Wang Laichun, who also serves as the chairman and general manager of Luxshare Precision.

Table 1: The Top Ten Shareholders of Luxshare Precision In 2023

	Name of shareholder	Number of shares held	Proportion in total share capital
1	L Company	2,731,537,636	38.30%
2	Hong Kong Central Clearing Co., Ltd	563,125,667	7.90%
3	China Securities Finance Corporation	84,428,888	1.18%
4	Central Huijin Asset Management Co., Ltd	58,041,012	0.81%
5	China Merchants Bank Co., Ltd. - Ruiyuan growth value hybrid securities investment fund	41,490,656	0.58%
6	Changshuo Technology (Shanghai) Co., Ltd	39,845,105	0.56%
7	E fund - Agricultural Bank of China - e fund China securities financial asset management plan	38,656,343	0.54%
8	Huaxia Fund - Agricultural Bank of China - Huaxia China securities financial asset management plan	38,576,831	0.54%
9	China Europe Fund - Agricultural Bank of China - China Europe China securities financial asset management plan	38,557,184	0.54%
10	Yinhua Fund - Agricultural Bank of China - Yinhua China securities financial asset management plan	38,508,814	0.54%
	Total	3,672,768,136	51.49%

Source: Choice Database

3.3. Equity Pledge Process

Since 2014, the controlling shareholder of Luxshare Precision, L Company, has pledged its shares for many times, and the proportion of Pledged Shares in each phase to the total share capital is higher than 5%, as shown in Table 2.

Table 2: Equity Pledge Process of Luxshare Precision

Date	Pledgor	Number of Pledged Shares (million)	Proportion of shares held by shareholders	Proportion in total share capital	Pledgee
2014.2.14	L Company	130.20	18.07%	10.43%	China Merchants Bank Co., Ltd. Shenzhen Xin'an sub branch
2016.10.18	L Company	147.50 /105.00	11.02% /6.87%	5.92% /3.31%	Guangdong Yuecai Trust Co., Ltd./Huaxin International Trust Co., Ltd
2017.8.23	L Company	441.705	17.7%	7.65%	Guangdong Yuecai Trust Co., Ltd.
2018.3.27	L Company	600.568	21.36%	8.93%	Shanghai Pudong Development Bank Co., Ltd. Shenzhen Branch
2018.8.30	L Company	149.86 /269.5526	6.63% /10.76%	2.86% /4.55%	Ping An Bank Co., Ltd. Shenzhen Branch/China Merchants Bank Co., Ltd. Shenzhen Branch

2022.4.26	L Company	100.00 /402.00	3.66% /14.72%	1.41% /5.67%	Ping An Bank Co., Ltd. Shenzhen Branch/Shanghai Pudong Development Bank Co., Ltd. Shenzhen Branch

Source: Choice Database

It can be seen that after the listing of Luxshare Precision in 2010, its controlling shareholder, L Company, did not carry out the first pledge financing for daily operation until 2014, but the pledge proportion was small at this time, accounting for only 18.07% of its shares and 10.43% of the total share capital. After that, it also carried out several small-scale equity pledges, and did not carry out a large proportion of equity pledge until 2016, Guangdong Yuecai Trust Co., Ltd. and Huaxin International Trust Co., Ltd. were respectively pledged with their shares accounting for 11.02% and 6.87%, and 5.92% and 3.31% of the total share capital. Since then, affected by the shortage of A-share capital in 2017 and 2018, equity pledge has been carried out more frequently. From 2019 to 2021, several small-scale equity pledges were made. Until April 2022, equity pledges accounting for 3.66% of the shares held by Ping An Bank Co., Ltd. and 14.72% of the shares held by Shanghai Pudong Development Bank Co., Ltd. and 5.67% of the total share capital were made to Shenzhen Branch of Shanghai Pudong Development Bank Co., Ltd. Since then, no large proportion of equity pledge has been made.

From the perspective of the pledge of L Company, the major shareholder of Luxshare Precision, its main Pledgors are Shenzhen Xin'an sub branch of China Merchants Bank Co., Ltd., Guangdong Yuecai Trust Co., Ltd., Shenzhen Branch of Shanghai Pudong Development Bank Co., Ltd. and Shenzhen Branch of Ping An Bank Co., Ltd., especially these three banking institutions, which have frequently conducted equity pledge transactions.

At the same time of equity pledge, the pledge period of the major shareholders of Luxshare Precision in the early stage was short, basically within two years, and the pledge was released in time. For example, the deadline for the pledge of equity on February 14th, 2014 was June 29th, 2015, and the pledge was successfully released on June 29th, 2015. On October 18th, 2016, the deadline for pledge of pledged equity was August 31st, 2017 and October 17th, 2018, and the pledged equity expired on August 31st, 2017 was successfully released on August 31st, 2017, and the pledged equity expired on October 17th, 2018 was successfully released on October 23rd, 2017 and October 17th, 2018. However, in recent years, the period of equity pledge by the major shareholders of Luxshare Precision has gradually become longer. Most of the pledge periods are more than 3 years, and even the period of equity pledge on September 28, 2021 has reached 6 years. For example, the deadline for the equity pledge with Shenzhen Branch of Shanghai Pudong Development Bank Co., Ltd. on April 26, 2022 is May 6, 2017.

Equity pledge is an important means of financing for the company. However, if the proportion of controlling shareholders' equity pledge is too high, it may bring huge risks. When the stock price remains stable or rises, the risk will not be exposed. However, once the stock price enters a downward trend and is below the warning line, the controlling shareholder must repay in advance because there is no additional pledge of shares in his hands. If it’s own capital shortage causes a breach of contract, the financial lender will apply for the freezing of equity or even auction, which will send a signal to the market that the company is not operating well and cause panic among investors, keep the share price down. This paper will deeply analyze the motivation of the major shareholder of the company, L Company, to choose the equity pledge and the economic consequences for the company.

4.0 ANALYSIS ON THE MOTIVATION OF EQUITY PLEDGE OF LUXSHARE PRECISION

4.1. Rapid Expansion of The Company

As the leading enterprise in China's consumer electronics industry, Luxshare Precision is the target of national policy support and key development. In recent years, Luxshare Precision has gradually strengthened its basic research and technological innovation capabilities, increased its investment in high-end consumer electronics products, cut into the connector field of high-end consumer electronics products, opened up emerging markets for related industries, and tried to expand the size of the company by means of market expansion, so as to become the industry leader of the "made in China 2025" industrial power strategy.

Since the company was listed in 2010, its operating revenue has increased from 1.011 billion yuan in 2010 to 214.028 billion yuan in 2022. The attributable net profit continued to increase from 116million yuan in 2010 to 9.163 billion yuan in 2022. Within 12 years, the scale of operating revenue has expanded by more than 200 times, the scale of profit has increased by 78 times, and the 12-year compound growth rate of operating revenue is 56.25%. It can be seen from figure 4.1 that the total asset scale of Luxshare Precision increased from 2.046 billion in 2010 to 148.4 billion in 2022, with a total asset increase of more than 72 times. It can be seen that the expansion speed of the company is fast.

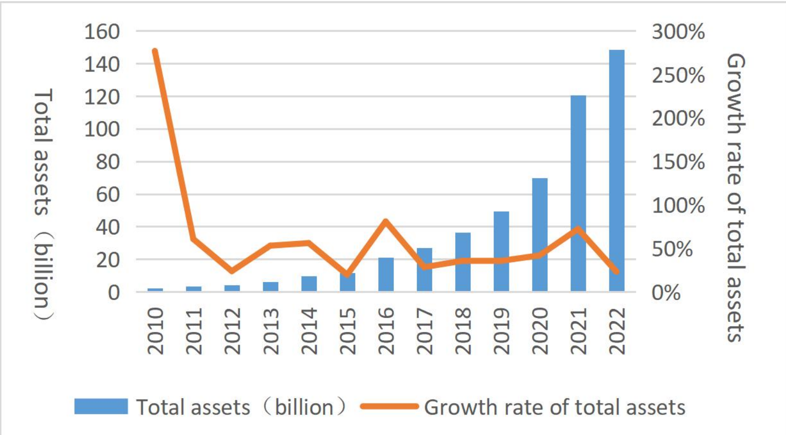

Figure 2: Total Assets And Growth Rate Of Luxshare Precision From 2010 To 2022

4.2. High Financing Efficiency

Financing methods mainly include allotment of shares or issuance of new shares, debt financing, bank lending and equity pledge. Among them, there are many restrictions and complicated procedures in the way of issuing new shares or allotment of shares, which will directly lead to the dispersion of equity and is not conducive to the management of the company; The debt financing method needs to pay a lot of interest fees, the cost of bond issuance is high, and the financing risk is large; The way of bank lending has high requirements on the credit of enterprises, complex procedures and high costs. Moreover, compared with state-owned enterprises, the risk of Luxshare Precision as a private enterprise is higher, and the willingness of banks and other financial institutions to lend to private enterprises is lower. Therefore, the above three financing methods can not meet the convenient and low-cost financing needs of the company. At this time, equity pledge is a more suitable financing method for the company. The financing threshold of equity pledge is relatively low. The controlling shareholder only needs to sign a written contract with the pledgee, and there is no need to evaluate the value of the company's assets. Even without the review and notarization of the CSRC, the financing can be completed as long as the Pledged Shares are registered. Therefore, the controlling shareholder of Luxshare Precision chose this method for financing.

4.3. Maintaining The Control Rights of Controlling Shareholders

Because they can gain benefits by virtue of control, the controlling shareholders will generally strive to maintain their control over the company and are unwilling to give up their control over the company easily. If the financing is through the issuance or reduction of shares, the controlling shareholder's equity will be diluted. However, after the equity pledge financing, the proportion of the controlling shareholder's equity in the total share capital of the company will not change, and the control right will remain unchanged without a sharp decline in the company's share price and default, which can stabilize the controlling shareholder's position in the company to a certain extent. Through equity pledge, the shares owned by the controlling shareholder are only temporarily transferred to financial institutions, and the ownership still belongs to the controlling shareholder. Only when the pledgor breaches the contract and has not performed the relevant obligations, the controlling shareholder may lose the control right. After the equity pledge of the controlling shareholder of Luxshare Precision, L Company, its control over the company will not be affected, and its controlling position in the company has not changed. From the course of equity pledge of Luxshare Precision, we can find that the controlling shareholders have frequent acts of equity pledge, de pledge re pledge, extension and supplementary pledge. Under normal circumstances, compared with reducing or issuing additional shares, equity pledge cannot shake the position of controlling shareholders, so it is a more favorable financing method.

5.0 ANALYSIS ON THE ECONOMIC CONSEQUENCES OF EQUITY PLEDGE OF LUXSHARE PRECISION

5.1. Impact on The Company's Financial Position

5.1.1. Profitability Analysis

Table 3: Changes In Profitability Indicators of Luxshare Precision

Time	Return on equity	Return on Total Assets	Net profit margin
2014	20.30%	9.29%	10.12%
2015	21.02%	10.64%	11.16%
2016	16.09%	7.26%	8.59%
2017	14.09%	7.31%	7.66%
2018	17.95%	8.89%	7.85%
2019	26.55%	11.48%	7.88%
2020	30.29%	12.55%	8.10%
2021	22.35%	8.21%	5.08%
2022	23%	7.80%	4.90%

Source: Choice Database

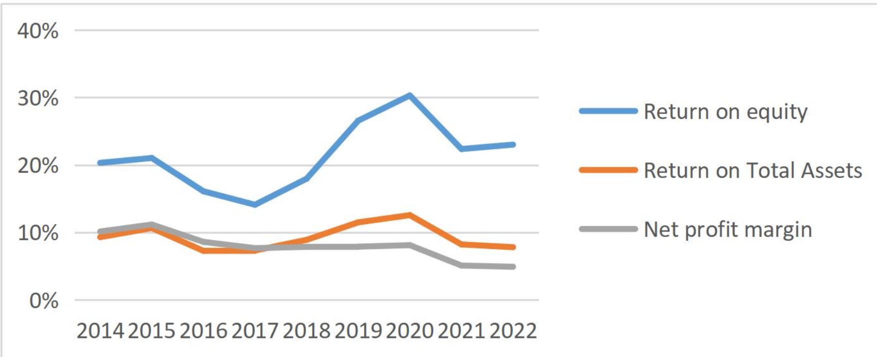

Figure 3: Changes of Profitability Indicators of Luxshare Precision

As shown in Table 3 and Figure 3, the net interest rate of the company rose slightly from 2014 to 2015, and continued to decline from 11.16% in 2015 to 8.59% in 2017, then remained stable, and continued to decline after 2020, from 8.10% in 2020 to 5.08% in 2021. The rise and fall trend of return on net assets and return on total assets remained basically the same. After a slight increase from 2014 to 2015, the return on equity experienced a decline from 2015 to 2017, reaching the minimum value of 14.09% in nearly eight years in 2017. Subsequently, the return on equity began to grow, reaching the maximum value in nearly eight years in 2020, which was 30.29%. After a decline in 2021, it rose slightly in 2020. The trend of return on total assets is similar to that of return on net assets, reaching the minimum of 7.26% in 2016 and the maximum of 12.55% in 2020. According to the company's announcement, the equity pledge first occurred in 2014, followed by frequent equity pledge financing from 2016 to 2018, mainly for the establishment of branches in Kunshan, Dongguan, Suzhou and other places. Although the amount of foreign investment has increased year by year, benefiting from the development of the industry, the company's operating income and profits have increased faster. In this case, the equity pledge has little impact on the profitability of the company.

5.1.2. Solvency Analysis

Table 4: Changes of Solvency Indicators of Luxshare Precision

Time	Current ratio	Quick ratio	Asset liability ratio
2014	1.355	1.092	0.4878
2015	1.275	1.002	0.4926
2016	1.69	1.443	0.4211
2017	1.483	1.187	0.4821
2018	1.343	1.068	0.5424
2019	1.237	0.927	0.5595
2020	1.292	0.899	0.5586
2021	1.115	0.793	0.6203
2022	1.183	0.682	0.6038

Source: Choice Database

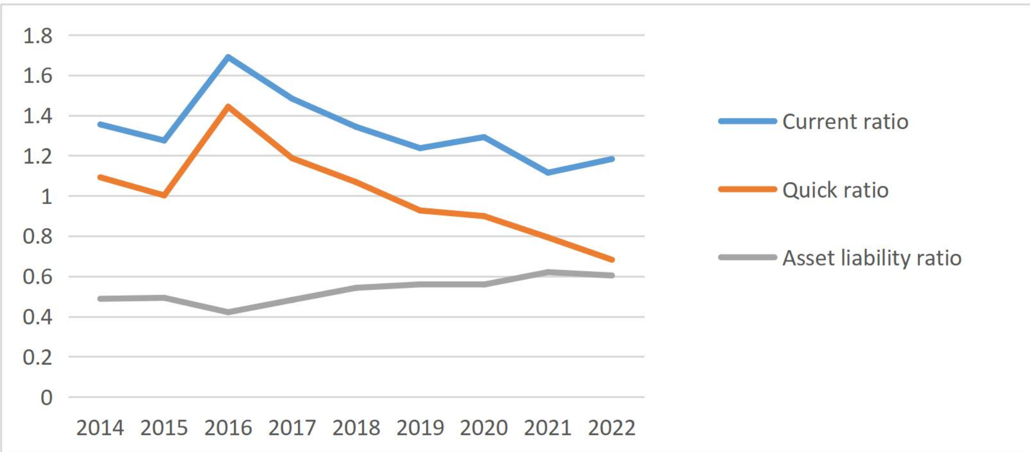

Figure 4: Changes of Solvency Indicators of Luxshare Precision

It can be seen from Table 4 and Figure 4 that the solvency of the company from 2014 to 2022 generally showed a downward trend. First of all, the asset liability ratio of the company has increased on the whole, from 48.78% in 2014 to 60.38% at the end of 2022. The company's debt burden has increased. Among them, the asset liability ratio has decreased in 2016 because the company repaid part of its long-term debt in 2016. Secondly, the current interest rate and quick ratio generally showed a downward trend, but increased significantly from 2015 to 2016, reaching the highest in 2016. After 2016, the quick ratio has been declining, from 1.443 in 2016 to 0.682 in 2022. The current ratio decreased from 1.69 in 2016 to 1.183 in 2022. The substantial increase in current ratio and quick ratio in 2016 was due to the substantial increase in operating income of the company in 2016, leaving a large amount of monetary capital at the end of 2016. After 2016, the company has pledged its equity for many times, which reflects that the sharp rise in the proportion of equity pledge of controlling shareholders has affected the company's short-term solvency to a certain extent.

5.1.3. Growth Capacity Analysis

Table 5: Changes In The Growth Capacity Indicators of Luxshare Precision

Time	Total assets growth rate	Growth rate of operating revenue	Net profit growth rate
2014	55.94%	58.90%	85.43%
2015	19.56%	38.97%	71.18%
2016	80.85%	35.73%	7.23%
2017	28.30%	65.86%	46.18%
2018	35.54%	57.06%	61.05%
2019	35.50%	74.38%	73.13%
2020	41.79%	47.96%	53.28%
2021	72.21%	66.43%	-2.14%
2022	23.07%	39.03%	29.60%

Source: Choice Database

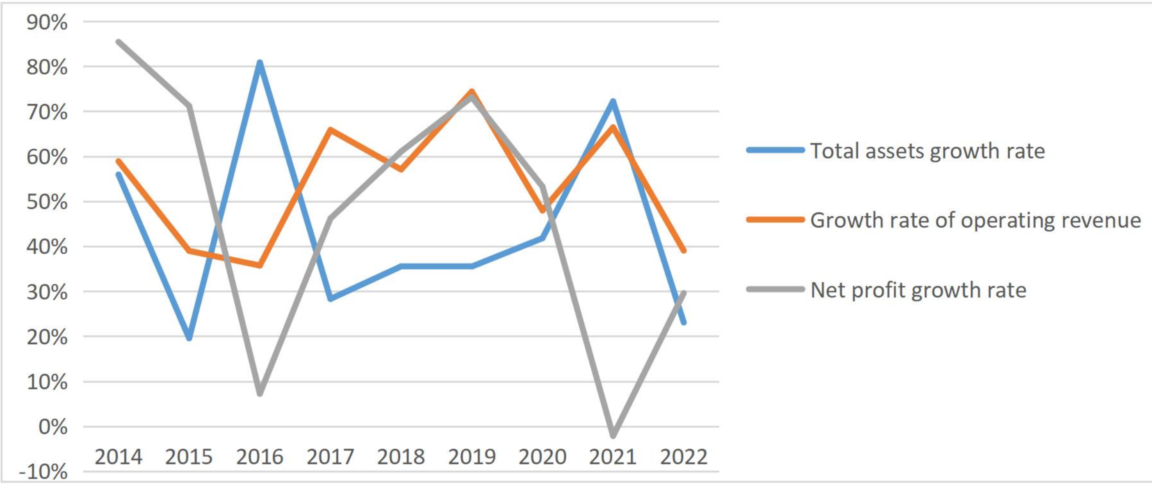

Figure 5: Changes In The Growth Capacity Indicators of Luxshare Precision

It can be seen from Table 5 and Figure 5 that the growth rate of total assets of the company has been positive, and the growth rate of total assets in 2014, 2016 and 2021 was more than 50%. The growth rate of total assets in 2016 was as high as 80.85%, and the growth rate of total assets in 2018, 2019 and 2020 also remained more than 30%, which is in line with the expansion of the company's large-scale equity pledge in recent years. Secondly, the growth rate of operating revenue of the company has remained above 35%, reaching 74.38% in 2019, which also shows the rapid expansion of the company. Finally, the growth rate of net profit of Luxshare Precision was significantly lower in 2016 and 2021, especially in 2021, when the company's operating revenue increased significantly, the growth rate of net profit was negative, which was -2.14%, while 2016 and 2021 were the two years with the highest growth rate of the company's total assets. This is because the company's operating costs increased rapidly in 2016 and 2021, indicating that the company's large-scale expansion may have dragged down the performance of net profit.

5.2. Impact on The Company's Share Price

The pledge of the controlling shareholder's equity will cause the fluctuation of the stock price, which is investigated through the event study method below. Select the announcement date as the event date, and select the ten trading days before and after the date of occurrence as the event window period to analyze the short-term impact of equity pledge on stock prices, which is reflected in the changes of abnormal return(AR) and cumulative abnormal return(CAR) during the statistical window period. Take the pledge announced on March 27th, 2018 as an example, set the window period as the first ten trading days (-10, 10), and analyze its impact on the stock price. The proportion of equity pledge is 8.93%, and the pledgor is Shenzhen Branch of Shanghai Pudong Development Bank Co., Ltd. Then take the first 50 trading days (-60, -10) of the event window period as the estimated interval of the normal rate of return, and calculate the normal rate of return of the shares of Luxshare Precision. Normal rate of return refers to the rate of return excluding the impact of equity pledge announcement. Set the normal rate of return as

$$ER_t = \alpha + \beta R_{mt} \quad \text{(Formula 1)}$$

Where ER_t is the normal rate of return of Luxshare Precision and R_{mt} is the market rate of return. Since Luxshare Precision is listed on the Shenzhen Stock Exchange, it is represented by the rate of return of the Shenzhen Composite Index. By regression analysis of the data of the closing price of the Luxshare Precision and the Shenzhen Composite Index within the normal yield estimation range (-60, -10), it is found that

$$ER_t = 0.0007 + 0.8676R_{mt} \quad \text{(Formula 2)}$$

Then calculate the abnormal return rate (AR_t) and cumulative abnormal return rate (CAR_t) in the window period respectively.
The abnormal return rat is

$$AR_t = R_t - ER_t \quad \text{(Formula 3)}$$

Where R_t is the daily actual rate of return of Luxshare Precision in the window period.
The cumulative abnormal return rate is

$$CAR_t = \Sigma AR_t \quad \text{(Formula 4)}$$

The results are as follows:

Table 6: AR and CAR During The Window Period Of Luxshare Precision Equity Pledge

Trading Day	Normal return	Abnormal return	Cumulative abnormal return
-10	-0.005800334	-0.014644111	-0.014644111
-9	-0.007155272	0.007155272	-0.007488839
-8	0.002570776	0.010133398	0.002644559
-7	-0.00804544	0.00804544	0.010689999
-6	0.002063682	-0.002959739	0.00773026
-5	0.001429761	-0.005017205	0.002713054
-4	-0.006916503	0.002416053	0.005129108
-3	-0.007461985	-0.022375267	-0.017246159
-2	-0.034177085	-0.000305673	-0.017551832
-1	0.011037248	-0.011037248	-0.02858908
0	0.018055482	0.023450309	-0.005138771
1	-0.010976201	0.012829769	0.007690998
2	0.010920367	-0.032196962	-0.024505964
3	0.00979309	-0.016409347	-0.040915311
4	-0.000553267	-0.028942451	-0.069857763
5	-0.007187018	0.022873293	-0.04698447
6	-0.004925453	0.008786456	-0.038198014
7	-0.001831856	-0.023168144	-0.061366157
8	0.009840707	0.011855546	-0.049510612
9	0.004145217	-0.002214715	-0.051725327
10	-0.005835675	0.006799066	-0.044926261

The data of abnormal return rate AR and cumulative abnormal return rate CAR in the window period are made as Figure 6.

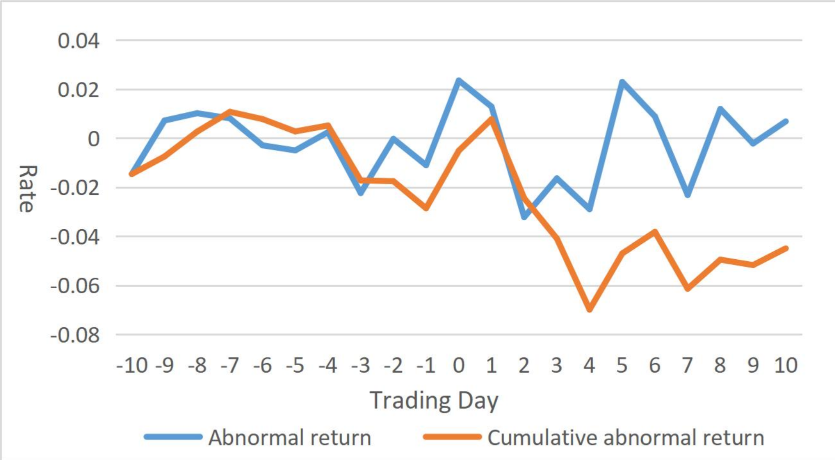

Figure 6: AR and CAR During The Window Period Of Luxshare Precision Equity Pledge

It can be found that in the ten trading days before the precise announcement of Luxshare Precision, the trend of the abnormal return rate was relatively stable, while it experienced a significant increase on the day after the pledge announcement, and then fell sharply in the next two trading days, and then the abnormal return rate showed a significant fluctuation trend. During the ten to seven trading days before the announcement, the cumulative abnormal return rate gradually increased, and then showed a slight downward trend in the next six trading days. However, after the announcement date of the equity pledge, the cumulative abnormal return rate was -0.0449, indicating that the equity pledge had a significant adverse impact on the stock price in the window period.

By analyzing other equity pledge announcement events of the controlling shareholders of Luxshare Precision in turn, the results are as follows:

Table 7: Cumulative Abnormal Return Rate of All Previous Equity Pledges of Luxshare Precision

Date	Cumulative abnormal return
2014.2.14	-0.126295838
2016.10.18	0.044707542
2017.8.23	-0.034178707
2018.8.30	-0.081088252
2022.4.26	0.183332509

It can be found from Table 6 and Table 7 that among the six equity pledges, the cumulative abnormal return after two equity pledges is positive, which is 0.04471 and 0.18333 respectively, and the remaining four are negative, indicating that in most cases, the controlling shareholder's equity pledge will have a negative impact on the stock price.

Due to the existence of asymmetric information, investors are unable to understand the specific flow of funds into the equity pledge. The market may think that the company has financial difficulties, or worry about the tunneling motivation of the controlling shareholders, so the share price is down. When the stock price falls to the warning line, the controlling shareholders will continue to increase the pledge to avoid the stock being liquidated, shaking the market confidence, so as to further lower the stock price and form a negative cycle of the stock price.

From the perspective of long-term market performance, due to the rapid development and rapid growth of operating income of the company, the share price of the company is mainly affected by market conditions and corporate benefits in the long run, and the impact of equity pledge is small.

6.0 CONCLUSIONS

6.1. The Controlling Shareholder's Equity Pledge Can Meet The Capital Needs

Financing difficulty has been a major obstacle to the development of private listed companies, while the threshold of equity pledge is low, which can well meet the capital demand. At the same time, the controlling shareholders need to rely on the control right to obtain benefits, so they are generally unwilling to give up the control right. Through equity pledge, the controlling shareholders can get funds without reducing their shares, which is more favorable. For companies just listed, the shares held by controlling shareholders are generally limited sales conditions. Through equity pledge, such static assets can be converted into cash flow, which has significantly improved the asset utilization efficiency of enterprises, and can promote the production and operation of enterprises, so as to achieve the purpose of rapid growth.

6.2. Financial Risks of The Company Caused by The Pledge Of Controlling Shareholders' Equity

This paper analyzes the financial indicators of Luxshare Precision, and finds that the performance of Luxshare Precision has deteriorated to a certain extent in terms of profitability, debt service and growth ability. The more obvious is that its profitability, debt service ability and growth ability have declined significantly in varying degrees during the period of large-scale pledge.

6.3. Negative Market Reaction Caused by Equity Pledge of Controlling Shareholders

Through the event analysis method to study the market reaction before and after the announcement of the equity pledge of the controlling shareholders of Luxshare Precision, it can be found that most of the equity pledge announcements will produce negative market reaction, which is specifically reflected in the fact that during the trading period (-10, 10) before and after the announcement of the equity pledge, the cumulative abnormal return is mostly negative, which indicates that the market generally regards the equity pledge as bad information. As the equity pledge often indicates that the company is under financial pressure, the equity pledge is regarded by the outside world as a kind of adverse news, causing market panic, and investors will choose to sell shares in the short term to protect their own interests. In the long run, the stock price of Luxshare Precision is less affected by the equity pledge.

AUTHOR CONTRIBUTIONS

Nanxi, L., Xinyu, B., Juanhong, X., & Mali, W. contributed to the design and implementation of the research, to the analysis of the results and to the writing of the manuscript.

CONFLICT OF INTEREST

The manuscript has not been published elsewhere and is not under consideration by other journals. All authors have approved the review, agree with its submission and declare no conflict of interest on the manuscript.

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