

# An Empirical Study of the Sustainable Growth of Listed Companies in Textile and Garment Industry in the Post-crisis Era

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**Abstract**—Financial crisis is profoundly impacting the development of China's textile and garment industry. This article analyzes the growth characteristics of China's listed companies in textile and garment industry in 2008-2011 using Wilcoxon signed-rank test. The results show that in the post-crisis era, the huge monetary input, high debt ratio and the dominance of low value added textiles in income structures are the main reasons for listed companies' failures in achieving sustainable growth of sales revenue.

**Keywords**—post-crisis era; textile and garment industry; listed company; growth characteristics

## I. INTRODUCTION

Currently, China has already become the world's largest producer and exporter of textiles. The degree of dependence on foreign trade of China's textile and garment industry is as high as 50%. The industry is highly affected by domestic and foreign markets. The sub-prime crisis broke out in the US in 2007. The deepening uncertainty in several aspects of the world's economy results in the great fluctuation of the development of China's textile and garment industry. Based on the analysis of the changing macro-economic and social factors in the post-crisis era, we use the sustainable growth model to reveal the growth characteristics of China's listed companies in the textile and garment industry. The purpose is to provide a reference for the effective management of enterprises, to prevent extreme fluctuations, and to assist enterprises in developing into a sustainable road, with a balance between sales increase and financial resources.

## II. LITERATURE REVIEW

### A. Foreign Literature

The understanding and determination of the sustainable growth rate (SGR) in foreign literatures are classified into two categories:

First, the sustainable growth of enterprises is discussed from the angle of accounting caliber. Robert C. Higgins (1977), the senior financial expert, proposed the concept of sustainable growth of enterprises from the perspective of enterprise financial management for the first time. The SGR was defined as the maximum rate of sales growth of an enterprise under the conditions of not issuing new shares and maintaining the current operating strategy (represented as asset turnover ratio and net profit margin on sales) and financial policy (represented as asset-liability ratio and retaining rate of

income). On the prerequisite of not issuing the equity capital, the financial resources available for sales only come from the increment of the retained income and external financing resulted from the existing capital structure. Therefore, SGR is the growth rate of equity capital, which is expressed as

Sustainable Growth Rate (SGR)=Growth Rate of Equity Capital (Formula 1)

=net profit margin on sales  $\times$  total asset turnover  $\times$  multiplier of equity at the beginning of a period and total asset at the period's end  $\times$  retaining rate of the income

In the book *Fundamentals of Financial Management* co-authored by James VanHerne and John Wachowics, Higgins's concept of sustainable growth of the enterprises was inherited. In this book, the SGR is defined as "the maximum annual growth rate that an enterprise can achieve on the basis of the pre-determined operation plan, target rates of debts and share issuance. By removing the assumptions of issuing no new shares and adopting fixed dividend payout ratio in Higgins's model, they put forward the steady-state model and variable-hypothesis model for SGR. Higgins's model is consistent with Vanherne's model with respect to the theoretical essence. Both start from accounting equations, and hold that the growth of shareholders' equity restricts the growth of the enterprise. The four key factors influencing the SGR are net profit margin on sales, total asset turnover, retaining rate of income and equity multiplier.

Second, the sustainable growth of enterprises is discussed from the perspective of cash flow. Alfred Rappaport, the father of shareholder value in the US, established the sustainable growth model from the perspective of enterprise value and cash flow balance in his book *Creating Shareholder value*. Rappaport believed that the sustainable growth of enterprises should be consistent with that of the shareholder value. In practice, however, the enterprises experiencing the rapid growth will instead depreciate the shareholder value. According to his opinion, "SGR refers to the investment increase for every 1 dollar of sales growth under the condition of not issuing new shares and with fixed gross profit rate, and the annual maximum business growth at the target asset-liability ratio and target dividend payout ratio." which can be used to measure the feasibility of a financial plan. John L. Colley also discussed the relationship between cash flow and growth rate in his book *Corporate Strategy*. In this book, the cash flow and the growth rate are estimated by assuming fixed

asset-liability ratio and dividend payout ratio and that the current assets, current liability and fixed assets grow with the sales volume at the same proportion. The growth rate of sales when the cash flow is zero is defined as case-based growth rate. It is also pointed out that the cash flow and the growth rate are in linear negative relationship. That is, when the actual growth is larger than this growth rate, the cash flow of the enterprise is negative; otherwise, the cash flow is positive.

### B. Domestic Literature

Domestic studies on sustainable growth mainly focus on the comparison of sustainable growth models, improvement and application of the models and the analysis of influence factors. The representative literatures are summarized as follows:

a. Introduction and comparative study of sustainable growth models Tang and You (2005) made a comparative analysis on the strengths and weakness of four typical sustainable growth models in logics and applications. Different models were verified by data of Wanke from 1998 to 2004. The following conclusion is drawn. The SGR calculated by the sustainable growth model using cash flow caliber tends to fluctuate more violently. It is more likely to reflect the changes of the cash flow of the enterprises. Yan (2007) reviewed the definitions and calculation models of three SGRs proposed by Higgins, James VanHerne & John Wachowics, and James VanHerne. The differences of these models in terms of usage were analyzed. Moreover, by combining with practical work, how to select and apply the model was also expounded.

b. Study on the improvement of sustainable growth models Ao and Qiang (2004) corrected the existing models by introducing the concepts of sensitive assets, non-sensitive assets, sensitive liability and non-sensitive liability. These assumptions more conform to the actual conditions of the enterprise. The SGR and its significance estimated by this model were also analyzed. Fan et al (2007) carried out a retrospective analysis of the sustainable growth model based on the accounting caliber. The advantages and disadvantages of the two sustainable growth models were further identified. By considering the dynamic characteristics of the enterprise growth, three situations were separately analyzed: balance growth, changing capital structure, issuance of new shares. Revoking some of the hypotheses in Higgins's growth model, the sustainable growth model of the enterprises was reconstructed.

c. Study on the application of sustainable growth model Guo and Guo (2002) started from the financial goals of the enterprise. Using the capital equation, they screened the key factors restricting the enterprise growth, and demonstrated the relationship between stock issuance, enterprise liability and enterprise growth. The basic financial strategy for achieving the enterprise growth was finally proposed. Wang and Hua (2007) took Higgins's sustainable growth model as the theoretical basis to carry out an empirical study on the sustainable growth of China's listed companies in information and technology. Studies show that the actual growth rate of China's listed company in information and technology exceeds the SGR. However, the sustainable growth rate declines year

by year, and there is the problem of excessive financial growth.

In conclusion, after Higgins proposed the sustainable growth model, a large number of studies have been carried out by scholars in China and foreign countries as an attempt to improve the model in some way. Because of the solid theoretical foundation and convenience of calculation, Higgins's model is still widely applied in a variety of empirical studies currently. This article also adopts Higgins's model and analyzes the changes of macro-economic environment in post-crisis era as well as their influence on the sustainable growth of listed companies in textile and garment industry.

## III. STUDY DESIGN

### A. Hypothesis

In the post-crisis era, the major economies proactively launch the fiscal policy and loose currency policy to revitalize the economy. In September 2008, China also initiated the major adjustment of the macroeconomic policy. The previous "prudent fiscal policy and tight monetary policy" was shifted to "proactive fiscal policy and moderately relaxed monetary policy. China's central bank lowered the benchmark deposit and lending rate of the financial institutions for five times consecutively within a hundred days. The new rates after adjustment were 2.50% and 5.56%, respectively, which were lower than the historical lowest point in 2002. After lowering the deposit reserve rate for four times, the Chinese government also implemented the one-package economy stimulus measures: the 4 thousand billion investment program released in November 2008; raising the export rebate rate for three consecutive times; lowering the stamp duty on securities transactions, reducing the tax on housing transactions; implementing structural tax reduction and promoting the tax reform. As a response to the new fiscal policy, the commercial banks in 2009 gave excess credit. The total annual incremental credit in 2009 was about 9.6 thousand billion RMB. There was an increase by about 98.72% compared with the total credit of 4.83 thousand billion in 2008. The increase amplitude hit the record high in recent years.

The abrupt adjustment of macroeconomic policy coupled with the huge increase of money supply will inevitably have a significant impact on the development of China's textile and garment industry. First of all, the current economic environment can lead to inflation and relieve the debt burden of the enterprises. This encourages the enterprises to increase the debt leverage in financing. As a result, the asset-liability ratio deteriorates, and the financial risks are intensified. Secondly, the inflation of asset price will occur. The lower financing cost will induce the speculative behavior of the investors, which intangibly boosts the speculative demand for bulk commodities, real estates and artworks. Such speculative demand does not aim at actual production. The concentration of capitals in the non-production sector will lead to the prosperity of virtual economy and stifle the real economy. Textile and garment industry belongs to traditional labor-intensive industry, with a low profit rate. Under the current economic environment, the industry may be affected by many aspects. Thus, the following hypotheses are put forward in this study:

Hypothesis 1: The adjustment of monetary policy will significantly influence the sustainable growth of the enterprise.

Hypothesis 2: High asset-liability ratio significantly influences the sustainable growth of the enterprise.

Hypothesis 3: The change of income structure significantly influences the sustainable growth of the enterprise.

### B. Sample and Data Selection

Forty-six listed companies in textile and garment industry on Shanghai and Shenzhen Stock Market from 2008 to 2011 were included as the research objects (excluding the companies that had transferred to non-textile and garment industry and those with extremely abnormal data). The relevant data of these listed companies came from wind database. The SGRs and sales growth rates of the companies from 2008 to 2011 are shown in Table 1.

TABLE I. GROWTH OF THE LISTED COMPANIES IN TEXTILE AND GARMENT INDUSTRY FROM 2008 TO 2011

| Company              | 2008  |        | 2009   |        | 2010  |        | 2011   |        |
|----------------------|-------|--------|--------|--------|-------|--------|--------|--------|
|                      | SGR   | G      | SGR    | G      | SGR   | G      | SGR    | G      |
| Changshan textile    | 7.20  | 2.51   | 3.34   | 3.05   | 2.36  | 19.54  | 2.41   | 27.13  |
| Lutai A              | 20.55 | 2.92   | 15.97  | 2.92   | 7.52  | 24.51  | 18.81  | 20.95  |
| Sanmao Paishen       | 10.88 | -13.06 | 1.76   | -15.37 | 2.02  | -4.96  | 2.39   | 19.13  |
| Huarun Jinhua        | 5.76  | -5.32  | 7.27   | 10.50  | 18.69 | 21.41  | 12.55  | 11.86  |
| Tianshan Textile     | 0.43  | 12.76  | -10.57 | -34.71 | 1.30  | 19.19  | 0.92   | 1.39   |
| Huamao Textile       | 7.69  | 2.44   | 4.46   | 6.90   | 22.43 | 23.73  | 7.48   | 24.43  |
| China Garments       | -9.63 | -8.74  | -10.01 | -19.77 | 5.86  | 25.75  | 0.97   | -12.95 |
| Zhongyin Cashmere    | 10.88 | 91.64  | 11.92  | 2.61   | 20.87 | 53.84  | 39.12  | 53.74  |
| Weixing Holding      | 28.23 | 24.62  | 17.42  | -5.53  | 26.83 | 31.12  | 16.72  | 5.71   |
| Xiake Color Spinning | 4.36  | 45.48  | 5.21   | 10.63  | 5.10  | 26.67  | 5.55   | 19.93  |
| Sepwolves            | 15.32 | 38.56  | 17.45  | 20.24  | 20.19 | 10.59  | 24.91  | 32.89  |
| Meixinda             | -9.40 | 18.01  | 8.60   | -23.31 | 3.19  | 28.33  | 25.88  | 7.74   |
| Yak Technology       | 5.25  | -3.08  | 0.26   | -7.62  | 3.16  | 26.50  | 5.39   | 25.57  |
| Huafu Corporation    | 0.53  | -46.32 | 77.61  | -3.48  | 28.54 | 45.40  | 15.01  | 6.78   |
| Jiangsu Sanyou       | 4.36  | -27.07 | 5.27   | 23.45  | 7.20  | 8.72   | 16.78  | 40.06  |
| Zhonghe Holding      | 7.17  | 42.52  | 12.77  | 38.71  | 14.57 | 15.52  | 6.41   | 16.73  |
| Furi Holding         | 4.97  | 12.32  | 4.20   | 1.12   | 7.36  | 31.64  | 5.09   | 8.51   |
| Xinye Textile        | 3.78  | 11.91  | 2.90   | 9.35   | 8.27  | 33.48  | 6.18   | 23.40  |
| Xunxing Holding      | 3.75  | 0.09   | 5.89   | -11.74 | 9.60  | 33.12  | 10.49  | 2.58   |
| Hongda High-Tech     | 0.41  | -14.03 | 3.88   | -1.38  | 13.72 | 37.23  | 6.21   | 43.55  |
| Baoxiniao            | 22.91 | 100.22 | 27.90  | 16.41  | 15.20 | 15.19  | 19.28  | 61.23  |
| Shandong Ruyi        | 8.38  | -0.99  | 8.33   | 0.93   | 7.09  | 3.35   | 1.68   | 25.49  |
| Jinfeida             | 28.27 | 16.89  | 5.99   | -51.31 | 1.84  | 3.53   | 1.99   | -0.46  |
| Meibang Garment      | 88.00 | 41.73  | 23.35  | 16.63  | 25.34 | 43.76  | 36.21  | 32.59  |
| Sinotex Investment   | 0.59  | -2.22  | 0.87   | 0.04   | 3.88  | 48.98  | 2.95   | 63.32  |
| Zhejiang Furun       | 0.28  | 26.07  | 9.97   | 24.07  | 13.55 | 29.67  | 10.64  | 3.44   |
| Mei Er Ya            | 3.27  | 28.09  | 4.54   | 18.21  | 5.26  | 6.95   | 7.57   | 36.92  |
| Langsha Holding      | 30.89 | 29.38  | 27.20  | 26.07  | 11.95 | 57.09  | 8.55   | 20.25  |
| Weike Distillate     | -0.34 | -2.58  | 1.21   | -10.62 | 8.28  | 51.63  | 20.50  | 20.96  |
| Huasheng Holding     | 1.43  | 7.85   | 0.59   | -12.06 | 0.48  | 2.82   | 0.72   | 18.66  |
| Yager                | 10.81 | 53.26  | 35.27  | 13.90  | 18.84 | 18.20  | 13.54  | -20.49 |
| Jiangsu Sunshine     | 6.13  | 6.13   | 4.25   | -21.83 | 1.83  | 19.98  | 0.32   | 24.68  |
| Jinying Holding      | -3.72 | -27.14 | 0.16   | -30.25 | 0.61  | 26.67  | 2.22   | 23.91  |
| Dayang Chuangshi     | 10.72 | 9.36   | 18.08  | -2.66  | 20.00 | 24.54  | 14.14  | -11.25 |
| Huafang Textile      | 0.25  | -2.49  | -4.96  | -16.62 | 15.95 | 39.80  | -31.83 | -13.42 |
| Sanfangxiang         | 0.43  | -27.07 | 3.28   | 12.12  | 5.26  | 19.48  | 2.83   | 17.23  |
| Quinones Technology  | 5.14  | -22.35 | 4.01   | -0.67  | 4.40  | 12.78  | 5.36   | 21.68  |
| Hongdong Holding     | 3.38  | -2.92  | 2.16   | -5.79  | 5.61  | 102.10 | 2.54   | -17.49 |
| Huafang Group        | 0.43  | -2.18  | -23.77 | -22.63 | 5.04  | 43.77  | 3.69   | 5.16   |
| Fujian Nanfang       | 1.10  | -2.16  | 2.85   | -4.99  | 3.68  | 18.24  | 7.45   | 34.57  |
| Fengzhu Textile      | 0.88  | 6.46   | 3.42   | -3.96  | 16.84 | 34.38  | -2.65  | 1.82   |
| Longtou Group        | 1.49  | -3.12  | 3.12   | -19.17 | 4.20  | 18.81  | 3.24   | 28.21  |
| Shanghai Sanmao      | 7.80  | -8.97  | 3.72   | -8.68  | 3.93  | 24.56  | 3.48   | 49.12  |
| Haixin Group         | -7.22 | -7.90  | 0.04   | -17.03 | 0.33  | 4.06   | 1.35   | 2.48   |
| FIR Stock            | 7.46  | 14.07  | 5.12   | -14.43 | 3.16  | 33.24  | 4.04   | 5.69   |
| Hangmin Group        | 11.80 | 7.87   | 13.82  | -2.64  | 18.71 | 13.96  | 18.45  | 8.29   |

\*SGR represents the sustainable growth rate (%); G represents the growth rate of actual sales income (%).

### C. Modeling

Wilcoxon signed-rank test can test whether the two related samples come from the totality with the same mean, or whether the two related samples have the same distribution. SGR and G of the company can be considered as two related samples. In this article, Wilcoxon signed-rank test was applied to check for the possibility of realizing sustainable growth of the listed companies in textile and garment industry in the post-crisis era. The excessive growth or slow growth of the sales of the enterprise was also tested.

The specific steps are as follows:

(1) Null hypothesis and alternative hypothesis are established.  $H_0$ : SGR does not differ significantly from G for the listed company in the textile and garment industry;  $H_1$ : SGR differs significantly from G for the listed company in the textile and garment industry.

(2) The difference between SGR and G is calculated using the related samples. The observation value of zero is eliminated. Thus, the valid samples are acquired, and the sample size is  $n$ .

(3) The  $n$  valid sample units are arranged in terms of absolute values. The serial numbers are assigned to the samples arranged. For the situation where two or more absolute values are equal, the mean of order is used as the serial number.

(4) The sums of the serial numbers of all sample units with positive difference and negative difference are calculated and denoted by  $T_+$  and  $T_-$ , respectively. The smaller between the two is taken as the value of statistics  $T$ .

(5) When the sample size is  $n \geq 25$ ,  $T$  approximately conforms to normal distribution. Thus,  $T$  value is normalized and converted to  $Z$  variable. Under the given significance level

$\alpha = 0.05$ , the critical value  $Z_{\alpha} = 1.96$  is obtained by looking up the standard normal distribution probability table.

When  $|Z| > 1.96$ , the null hypothesis is rejected, that is, there is significant difference between the SGR and G for this listed company. Otherwise, there is no sufficient reason to reject the null hypothesis, that is, the two have no significant difference.

### IV. EMPIRICAL TEST

(1) Analysis of the impact of the adjustment of monetary policy on the sustainable growth of the listed company in textile and garment industry

The period from 2008 to 2011 witnessed the violent adjustment of monetary policy. Due to the impact of inflation in 2007, the monetary policy was tightened in 2007. In the first 3 quarters of 2008, the tight monetary policy was implemented. After the outbreak of financial crisis, the extremely loose monetary policy was implemented from the end of 2008. Table 1 shows the growth of the listed companies in the textile and garment industry from 2008 to 2011. Using these data, the growth status of these listed companies was subjected to descriptive statistical analysis. The means and standard deviations of SGR and G over the four years from 2008 to 2011 are shown in Table 2.

TABLE II. MEANS AND STANDARD DEVIATIONS OF SGR AND G FOR THE LISTED COMPANIES FROM 2008 TO 2011

| Year     | 2008   | 2009  | 2010  | 2011  | Mixed means over the four years | Mixed standard deviations over the four years |
|----------|--------|-------|-------|-------|---------------------------------|-----------------------------------------------|
| Mean SGR | 7.8925 | 7.96  | 9.78  | 8.42  | 8.51                            | 0.88                                          |
| Mean G   | 9.205  | -2.40 | 26.71 | 17.86 | 12.85                           | 12.43                                         |

It can be seen from Table 2 that the mean G (12.43) was higher than the mean SGR (8.51%) for the 46 listed companies in textile and garment industry from 2008 to 2011. The specific situation varied from year to year. The SGR of 2008 was slightly lower than G. For 2009, the SGR was obviously higher than G. G increased dramatically from 2010 to 2011 and far exceeded SGR. From 2008 to 2011, the standard deviation (12.43) of SGR of the sample companies far exceeded that of G (0.88). The G fluctuated violently, with the change amplitude far larger than that of SGR. Therefore, it is preliminarily estimated that SGR and G were significantly different.

Wilcoxon signed-rank test was performed for the growth situation of the sample companies from 2008 to 2011 using SPSS 13.0 statistical software. The calculation results included rank order table and statistical table. The tables were combined and sorted, as shown in Table 3.

Table 3 shows the results of significance test. It can be seen that the absolute value of  $Z$  was smaller than 1.96 only in 2008. The significance level exceeded 0.05 in this year. For other years, the absolute values of  $Z$  were larger than 1.96, and the significance level was lower than 0.05. It is seen, the difference between SGR and G was not significant for the listed companies in the textile and garment industry only in 2008, and the sustainable growth of the sales volume was achieved. For other years, SGR and G were significantly different, and the sustainable growth was not achieved. As shown by the calculation of ranks in Table 3, the negative ranks of the difference between SGR and G (the number of samples with SGR larger than G) were 29, accounting for 63% of the total; the positive ranks (the number of samples with SGR smaller than G) were 16, accounting for 35% of the total. Ties (the number of samples with SGR equal to G) was 1. Thus, the SGR matched with G for the sample companies in 2008; the companies invested moderately and the sustainable growth was achieved. In 2009, the number of samples with SGR larger than G was 35, accounting for 76% of the total; the number of samples with SGR smaller than G was 11, accounting for 24% of the total; the number of samples with SGR equal to G was zero. G was much lower than SGR for the sample companies in 2009. There was a severe lack of investment, and the growth of the enterprise was slowed down. For the year 2010 and 2011, the calculation result of ranks showed a surprising reversal. The numbers of samples with SGR larger than G were 6 and 13 in these two years, accounting for 13% and 28% of the total, respectively. The numbers of samples with SGR smaller than G were 40 and 33, accounting for 87% and 72% of the total, respectively. The investment surged and there was an excessive growth. In 2011, the number of companies with rapid growth showed a declining trend. This indicated that the excessive



growth featured by the mismatch between the actual growth and the growth of exogenous equity capital was mitigated.

TABLE III. WILCOXON SIGNED-RANK TEST TABLE FOR THE GROWTH OF SAMPLE COMPANIES EACH YEAR

| Year | Z value             | Value of test of significance<br>Asymp.Sig.(2-tailed) | N<br>Number | a<br>Number | b<br>Number | c<br>Number | Growth characteristics    |
|------|---------------------|-------------------------------------------------------|-------------|-------------|-------------|-------------|---------------------------|
| 2008 | -0.615 <sup>b</sup> | 0.538                                                 | 46          | 29          | 16          | 1           | Moderate growth of sales  |
| 2009 | -3.753 <sup>b</sup> | 0.000                                                 | 46          | 35          | 11          | 0           | Slow growth of sales      |
| 2010 | -5.25 <sup>a</sup>  | 0.000                                                 | 46          | 6           | 40          | 0           | Excessive growth of sales |
| 2011 | -3.108 <sup>a</sup> | 0.002                                                 | 46          | 13          | 33          | 0           | Excessive growth of sales |

a. SGR>g; b. SGR<g; c. SGR=g

The results of statistical analysis in Table 2 and Table 3 confirm hypothesis 1 proposed in this article. It is indicated that the excessive growth of sales in the listed companies in textile and garment industry is deeply influenced by the loose monetary policy. According to the calculation results, the effect of the adjustment of monetary policy on the operation of textile and garment enterprises usually lagged behind for 1 year. In the first 10 months of 2008 before the complete outbreak of the financial crisis, China implemented the tightest monetary policy in recent years. The sales of textile and garment industry declined sharply in 2009, and the growth was low. In 2009, the national total incremental credit soared to 9.60 thousand billion. The loose monetary policy directly led to the rapid growth of the sales of textile and garment industry in 2010. The loose monetary policy was maintained in 2010, and the national total incremental credit reached 7.92 thousand billion, with a reduction by 17.43% compared with 2009. The sales of textile and garment industry kept the trend of rapid growth in 2011, but the increase amplitude was weakened somewhat. It is easy to see that China's listed companies in textile and garment field are susceptible to the dual effects of international financial crisis and domestic loose monetary policy. In the post-crisis era, the actual growth of the sales fluctuated violently in a

V-shaped pattern. However, SGR did not increase simultaneously with the increase of sales, causing great impact to the existing resources allocation pattern and the financial structure of the enterprise. This severely influenced the pre-determined strategic plan of the enterprise, and the uncertainty of operation was aggravated. The value of the enterprise did not grow simultaneously with the rapid growth of sales and the huge money supply. Stockholders' wealth was eroded.

(2) Analysis of the effect of liability on the sustainable growth of listed companies in textile and garment industry

Asset-liability ratio is the percentage that the total liability of the enterprise at the period's is divided by total asset. It is a comprehensive indicator of the liability level of the enterprise. Based on the asset-liability ratio, 184 observation values of 46 sample companies from 2008 to 2011 were divided into 3 categories. There were 41 observation values with the asset-liability ratio of below 30%. There were 96 observation values with the asset-liability ratio in the range of 30% - 60%. There were 47 observation values with the asset-liability ratio above 60%. Wilcoxon signed-rank test was performed using SPSS software. The results are shown in Table 4.

TABLE IV. WILCOXON SIGNED-RANK TEST TABLE FOR THE GROWTH CHARACTERISTICS OF SAMPLE COMPANIES WITH DIFFERENT LIABILITY LEVELS

| Asset-liability ratio | Z value             | Value of test of significance<br>Asymp.Sig.(2-tailed) | N<br>Number | a<br>Number | b<br>Number | c<br>Number | Growth characteristics    |
|-----------------------|---------------------|-------------------------------------------------------|-------------|-------------|-------------|-------------|---------------------------|
| Below 30%             | -0.59 <sup>b</sup>  | 0.555                                                 | 41          | 24          | 17          | 0           | Moderate growth of sales  |
| 30%-60%               | -1.217 <sup>a</sup> | 0.223                                                 | 96          | 44          | 51          | 1           | Moderate growth of sales  |
| Above 60%             | -3.048 <sup>a</sup> | 0.002                                                 | 47          | 15          | 32          | 0           | Excessive growth of sales |

a. SGR>g; b. SGR<g; c. SGR=g

As shown by Table 4, SGR and G were not significantly different for the enterprises with low and moderate liability level (below 60%). The sustainable growth was achieved for these enterprises. For those with liability level above 60%, there was a significant difference between SGR and G. There was a high-speed growth of G, and the sustainable growth was not achieved. This result confirmed hypothesis 2 in this article. Thus, the high asset-liability ratio was associated with the rapid growth of sales for the listed companies in the textile and garment industry, but the simultaneous growth of the retained income in equity capital was not induced. The financial risk caused by high liability soared enormously.

(3) Analysis of the effect of income structure on the sustainable growth of the listed companies in textile and garment industry

Based on the structure of revenue income, 184 observation values of 46 sample companies collected from 2008 to 2011 were divided into 3 categories. The first category included 84 observation values for the enterprises in cotton spinning, fiber spinning, manufacturing of fiber products, dying and printing; the second category included 44 observation values for the enterprises in garment manufacturing and trading; the third category included 56 observation values for the enterprises with diversified businesses (textile and garment industry and other irrelevant industries).

TABLE V. WILCOXON SIGNED-RANK TEST TABLE FOR THE GROWTH CHARACTERISTICS OF SAMPLE COMPANIES WITH DIFFERENT INCOME STRUCTURES

| Income structure | Z value             | Value of test of significance<br>Asymp.Sig.(2-tailed) | N<br>Number | a<br>Number | b<br>Number | c<br>Number | Growth characteristics    |
|------------------|---------------------|-------------------------------------------------------|-------------|-------------|-------------|-------------|---------------------------|
| Textile          | -2.096 <sup>a</sup> | 0.036                                                 | 84          | 35          | 49          | 0           | Excessive growth of sales |
| Garment          | -0.992 <sup>a</sup> | 0.321                                                 | 44          | 21          | 23          | 0           | Moderate growth of sales  |
| Mixed businesses | -0.804 <sup>a</sup> | 0.421                                                 | 56          | 27          | 28          | 1           | Moderate growth of sales  |

a. SGR>g; b. SGR<g; c. SGR=g

As shown by Table 5, the excessive growth of sales in the textile companies contributed the major part of the income. The sustainable growth was not achieved. There was no significant difference between SGR and G for the garment enterprises and those with diversified businesses. For these companies, the sustainable growth was achieved. Comparatively, the enterprises with diversified businesses outperformed. This result confirms hypothesis 3 proposed in this article. Under the context of rapid virtualization of the economy, the traditional entity industries that rely on the low-cost advantage in simple processing and manufacturing reap profit through the large sales volume. While the income increases, the cost increases dramatically. The retained income in the equity capital does not grow simultaneously, and there is an excessive growth.

#### V. CONCLUSION AND SUGGESTIONS

The results of this study show that in the post-crisis era, huge money supply, high asset-liability ratio and the dominance of low-value-added textile in the income structure are the reason for the growth of sales that far exceeded the growth of retained income for the listed companies in textile and garment industry. There is an excessive growth of sales.

To reverse the excessive growth of sales for the listed companies in the textile and garment industry, the sustainable growth pathway that enables the matching between the sales income and financial resources should be achieved. The following suggestions are made: first, the government should stabilize the money supply, and create a healthy financial environment for the enterprises. Thus, the textile and garment enterprises are given sufficient time to achieve industrial upgrading and higher profit level. Secondly, the enterprises should moderately control debt. Financial leverage is a double-edged sword, the overuse of which will lead to uncontrollable costs for the enterprises when the profit-making ability has not been raised. As a result, the cash flow deteriorates, the financial risks increase and the shareholders' wealth is eroded. Finally, the enterprises should change this mode of growth income. After 30 years of rapid development of China's textile and garment industry since the reform and opening-up, the industry has already achieved a large scale. The mode of growth driven by capital and labor force should be changed. More improvements should be made in terms of technological and management innovation. For the textile enterprises situated at the low end of the industrial change and with a low profit rate, the product structure and raw material structure should be adjusted. In addition to cost control, the price should be properly raised to transmit the cost pressure to the downstream and to raise the profit margin of the enterprise.

Only in this way can the enterprises achieved sustainable growth of the sales.

#### ACKNOWLEDGMENT

Fund Project: Science and technology project of Beijing Municipal Education Commission (AJ2017-12); A special fund support project for the construction of high-level teachers of Beijing Institute of Fashion Technology(BIFTBJ201808).

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