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## Study on the Profit Quality of the Clothing and Textile Industry: A Case Study of China Listed Companies

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**Abstract:** This study, based on the theory of profit quality, empirically studies earnings quality of textile industry in Zhejiang, China in view of the level of risk, profitability, cash capability and operational capability, which has filled the gap of past research. The main conclusion is to confirm that there is significant explanatory power of consolidated leverage, operating margin, net cash flow of operating activities per share, total asset turnover on profit quality. From the viewpoints of respectively long-term and short-term, more information of the profit quality of clothing and textile industry are obtained. Finally, considering some problems of the industry, recommendations on transparency of information, cost reduction via automatization and cash capacity reinforcement are proposed.

**Key words:** Profit quality, listed companies, clothing and textile industry

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### INTRODUCTION

The increasing number of listed companies in China has attracted investors; however, under the circumstances of information asymmetry, the issue of profit quality has been more important than ever. As a pillar industry in China, Zhejiang clothing and textile industry contributes significantly to nation's economy but meanwhile it is faced with decreasing demand, rising costs and huge inventory stock. According to regarding reports, the industry's total revenue reached 127.3 billion yuan in first three quarters in 2012 and increased by 4.36% compared with the same period of year 2011; whereas, the net profit decreased by 16.06% on quarter-on-quarter basis. This phenomenon needs to be explained and solved based on profit quality study. The study aims to discover the influences of risk level, profitability, cash capability and operational capability on listed companies' profit quality. It empirically examined the explanatory power of consolidated leverage, operating margin, net cash flow of operating activities per share on profit quality through regression analysis.

### LITERATURE REVIEW

**Concept of profit quality:** Definitions of profit quality that are based on different frameworks have been proposed by

researchers globally. The concept evolved from the fundamental analysis of stocks in US stock exchange market in 1930s and became noted in 1960s when the US financial analyst O'Glove published the influential report, Quality of earning (Penman and Zhang, 2002; Nissim and Penman, 2001). According to Statements of Financial Accounting Concepts (SFAC), the investor can forecast a company's cash capability based on its historical and present earning information. Profit quality accounts for both accrual basis and cash basis, while Dichev and Dechow (2002) defined it as the matching degree of accrual items and respective cash flow.

**Evaluation of profit quality:** The evaluation studies around profit quality can be divided into two parts: (a) Direct researches concerning the relevance between historical earning indices and future earning or cash flow, or single index; (b) Indirect studies of financial criteria to frame the evaluation system and the relevance of share prices and profit quality.

By employing time series analysis, Finger (1994) examined that the capability of historical cash flow in future cash flow forecasting exceeded that of historical earnings. Studies of relations between profit quality and share prices stemmed from 1968 when Ball and Brown (1968) discovered the significant correlation between price signals and earnings and this

indicates the orientation of accounting studies is to distinguish and explain different responses of market respect to earning information, or in other words, the Earnings Response Coefficient (ERC).

Early studies mainly remarked the degree of proportionate growth of accounts receivables and inventory stock as the response of sales increase as the benchmark of profit quality. Ou and Penman (1989) selected 16 indices from 68 financial statement parameters to form the future earnings fluctuation system and demonstrates the possibility of forecasting future earnings fluctuations through financial statement analysis. Chen (1984) selected 9 basic indices of Taiwan listed companies from 1989-1996 to examine their relation to respective stock returns; it is statically proved that inventory stock and capital outflow can explain the stock returns, while gross profits and inventory stock negatively related to stock returns. Chambers and Penman (1984) constructed a four-dimension (productiveness, timeliness, representational faithfulness neutrality) revenue quality assessment model and examined it through China listed companies.

As can be seen, the profit quality reflects the profitability of a company in risk level, earning capability, cash and operating abilities. The selection of indices is of great importance as it influences the reasonability and accuracy of profit quality.

**Relevance of profit quality:** Bhattacharya *et al.* (2012) found that majorities of inventors fail to distinguish the differences between accrual earnings and cash flow in information codification, which lead to the one-sided information acquisition. In terms of empirical studies of listed companies in China, as the companies did not announce cash flow statement until 1998, those researches are not in the majority.

When considering share price fluctuation, Feltham *et al.* (2007) used an equity valuation model with time-series imperfect accounting information data to discover that financial leverage closely relates to accounting precision. Goslin *et al.* (2012) developed logit model to predict the earnings and stock returns movements in order to prove that the explanatory power of financial statement information on abnormal returns.

#### CLOTHING AND TEXTILE INDUSTRY IN ZHEJIANG, CHINA

Based on data in 2011 provide by China's Statistics Bureau, there were more than 3 million industrial

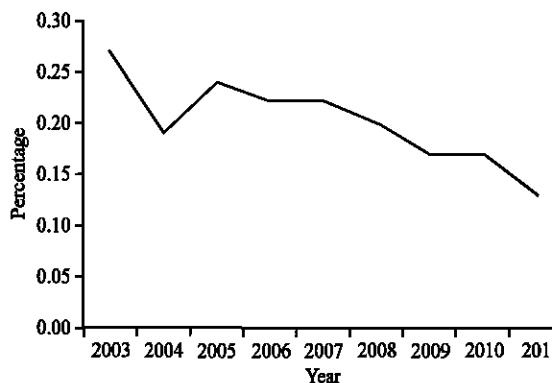


Fig. 1: Proportion of gross industrial output value regarding Zhejiang large and medium-sized textile, garment, shoes and hat enterprises in China (2003-2011)

enterprises with main business income no less than 3.10 million USD among which 3.61% (or 11750) were textile, shoe and hat manufacturing companies. As a pillar and traditional industry in China, textile and clothing industry has contributed greatly in capital accumulation, employment enlargement, export and social stability. In recent statistics of the first quarter in 2013, main business revenue 39 billion RMB with 12.8% growth, while the profit was 21.6 billion RMB with growth rate of 12.4%, which showed slow growth rate and considerations on profit quality.

With its developed light industry, Zhejiang clothing industrial performance (industrial basement, manufacturing, market share, export, brand building, innovation and international operation) excelled within the country. Industrial agglomeration in the region has become a characteristic development model in Zhejiang. There is also a trend of industrial transfer from coastal area. During the 11th five-year plan, annual fixed asset investment in central and west part increased by 27.2% from 23% of the whole industry to 48%. As can be seen in Fig. 1, from 2003 to 2011, there was a decreasing trend in Zhejiang's share of large and middle clothing enterprises annual output value. One of reasons is that during the phase of industrial upgrading and transfer, central and western China took advantage in comparatively low cost of labor, while the eastern part lacked the human capital. When considering export, in resent years, the export sales composition prone to be weakened. In other hand, employment in the industry declined in recent years (Fig. 2, 3).

#### MATERIALS AND METHODS

High profit quality can be characterized as follows:

- (1) Profits are captured by means of core competitiveness

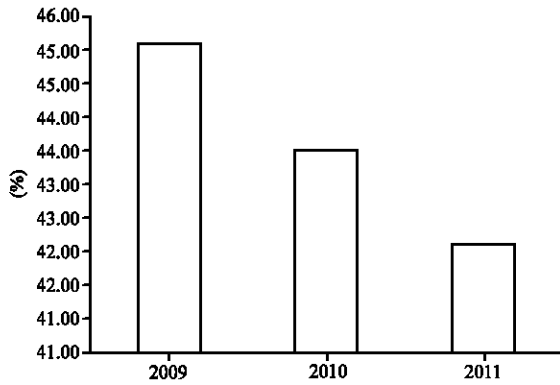


Fig. 2: Above-scale textile, garment, shoes, and hat manufacturing enterprises' export delivery value as the percentage of sales in Zhejiang (2009-2011)

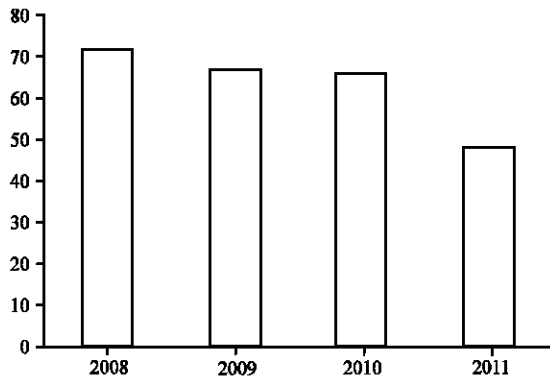


Fig. 3: Average employment of above-scale textile, garment, shoes, and hat manufacturing enterprises in Zhejiang measured in 10,000 (2008-2011)

enhancement instead of non-recurring profit and loss, (2) profits are supported by cash flows, (3) Profits that are not achieved at the cost of unsustainable development (Chen and Chen, 2008).

**Degree of total leverage as a measurement of risk level:**

Investments are usually exposed to some risks, hence investors charge for risk premium that is higher than those risk-free national bond and bank deposit rates. Companies are faced with undiversifiable risks combine by financial risk and operating risk, which can be represented by Rate of Consolidated Leverage (ROCL):

$$ROCL = \frac{\text{Profit per share}}{\text{Sales volume change}}$$

The index measures the influence of sales volume change on change in earnings per share of common stock

and the greater the coefficient is, the more undiversifiable risks the company is exposed to.

**Gross profit rate as a measurement of profitability:** Rate Of Marginal Revenue (ROMR) is a fundamental element of profitability and it is calculated as follows:

$$ROMR = \frac{\text{Main business income} - \text{Main business cost}}{\text{Main business income}}$$

**Net operating cash flow per share (NOPS) as a measurement of cash capability:** Operating activities are main business activities which are important to net profits calculations of listed companies. It reveals the ability of a company in credit payment, operating sustainment, dividends warrants and investment without external financing. It is calculated as follows:

$$NOPS = \frac{\text{Net operating cash flow}}{\text{No. of common stock}}$$

**Total assets turnover ratio (ROTA) as a measurement of operating capability:**

Total assets turnover ratio represents the turnover rate of total assets from input to output during a certain operating period, which displays assets management and utilization efficiency. Differences in assets utilization can be found to enhance market share:

$$ROTA = \frac{\text{Net income}}{\text{Average total assets}}$$

Financial data are obtained from CSMAR database and special treatment stocks have been deducted. Thirty two listed clothing companies with 10 years of listed experience in A share market over the time span from 2002-2011 have been chosen as the first sample. The second sample involves 57 listed clothing companies with 3 years of listed experience in A share market over the time span from 2009-2011.

Based on Chen's (2002) studies, two regression models are established:

$$ESP_{i,t} = \alpha_0 + \alpha_1 ROCL_{i,t} + \alpha_2 ROMR_{i,t} + \alpha_3 NOPS_{i,t} + \alpha_4 ROTA_{i,t} + \epsilon \tag{1}$$

$$ROA_{i,t} = \alpha_0 + \alpha_1 ROCL_{i,t} + \alpha_2 ROMR_{i,t} + \alpha_3 NOPS_{i,t} + \alpha_4 ROTA_{i,t} + \delta \tag{2}$$

where,  $ESP_{i,t}$ : Company i's earning per share in year t,  $ROA_{i,t}$ : Company i's returns on assets in year t,  $ROCL_{i,t}$ ,  $ROMR_{i,t}$ ,  $NOPS_{i,t}$ ,  $ROTA_{i,t}$ : Company i's profit quality indices in year t,  $\epsilon$ ,  $\delta$ : Random disturbance.

**RESULTS**

Thirty three listed clothing companies with 10 years of listed experience in A share market over the time span from 2002-2011 have been chosen to analyze DTL, gross profits, net operating cash flow per share and total assets turnover ratio. Fifty five listed clothing companies with 3 years of listed experience in ‘A’ share market over the time span from 2009-2011 are involved based on two models provided in Section 4:

$$ESP_{i,t} = \alpha_0 + \alpha_1 ROCL_{i,t} + \alpha_2 ROMR_{i,t} + \alpha_3 NOPS_{i,t} + \alpha_4 ROTA_{i,t} + \varepsilon \tag{1}$$

$$ROA_{i,t} = \alpha_0 + \alpha_1 ROCL_{i,t} + \alpha_2 ROMR_{i,t} + \alpha_3 NOPS_{i,t} + \alpha_4 ROTA_{i,t} + \delta \tag{2}$$

Table 1-2 below show the results and two models equations according to Eq. 1 and 2 are as follows:

Model:

$$ESP_{2009} = -0.094 - 0.018ROCL + 1.422ROMR + 0.124NOPS + 0.137ROTA$$

$$ESP_{2010} = -0.104 - 0.050ROCL + 1.878ROMR + 0.122NOPS + 0.287ROTA$$

$$ESP_{2011} = -0.409 - 0.021ROCL + 2.387ROMR + 0.205NOPS + 0.362ROTA$$

Model:

$$ROA_{2009} = -0.012 - 0.001ROCL + 0.201ROMR + 0.016NOPS + 0.032ROTA$$

$$ROA_{2010} = 0.017 - 0.007ROCL + 0.204ROMR + 0.010NOPS + 0.040ROTA$$

$$ROA_{2011} = -0.026 - 0.002ROCL + 0.279ROMR + 0.017NOPS + 0.046ROTA$$

Firstly, regression analysis of Model I and Model II (Table 1 and 2) revealed that rate of consolidated leverage, rate of marginal revenue, net operating cash flow per share and total assets turnover rate are related to profit quality both in earnings per share perspective and returns on asset perspective. Secondly, coefficient of

Table 1: Model I: Regression analysis of profit quality and basic financial information

t	Constant	ROCL	ROMR	NOPS	ROTA	Adjusted		F*
						R <sup>2</sup>	R <sup>2</sup>	
2009	-0.094	-0.018	1.422	0.124	0.137	0.554	0.520	16.162
2010	-0.104	-0.050	1.878	0.122	0.287	0.589	0.557	18.614
2011	-0.409	-0.021	2.387	0.205	0.362	0.594	0.562	18.987

\*p<0.05

Table 2: Model II: Regression analysis of profit quality and basic financial information

t	Constant	ROCL	ROMR	NOPS	ROTA	Adjusted		F*
						R <sup>2</sup>	R <sup>2</sup>	
2009	-0.012	-0.001	0.201	0.016	0.032	0.569	0.536	17.144
2010	0.017	-0.007	0.204	0.010	0.040	0.637	0.610	22.862
2011	-0.026	-0.002	0.279	0.017	0.046	0.577	0.545	17.744

\*p<0.05

consolidated leverage indicates a negative sign, which means that there is a negative relationship between listed companies’ profit quality and correspondent total leverage. The same logic can be made when it comes to the other four variables that all demonstrate positive effects.

**CONCLUSION**

The study discovers that 4 indices provided above (rate of consolidated leverage, rate of marginal revenue, net operating cash per share and total asset turnover rate) strongly explain the profit quality of listed clothing and textile companies, which shows four dimensions in risk level, profitability, cash ability and operating capability contained in profit quality assessment. Additionally, high risk level, low profitability, increasing operating costs and challenges in cash ability are vital problems. However, the increasing sales ability and asset utilization cannot be ignored. Apart from that, profitability and operating capability contribute greatly to profit quality.

Based on these results, it is recommended that: Firstly, profit quality disclosure should be reinforced through establishing independent investment consulting institutions; secondly, digitalization, informatization and automation are to advocated by means of Computer Aided Design system (CAD), Computer Aided Manufacturing system (CAM), computer control automatic suspension system, Flexible Manufacture System (FMS), intelligent warehouse distribution system and Radio Frequency Identification Technology (RFIT) in order to decrease the costs; thirdly, inventory sock should be decreased.

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